



**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,
WPT and NFC**

MODEL NUMBER: SM-G780G/DSM, SM-G780G/DS, SM-G780G

FCC ID: A3LSMG780G1

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TL-637

Revision History

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1. Attestation of Test Results

Applicant Name		SAMSUNG ELECTRONICS CO.,LTD.			
FCC ID		A3LSMG780G1			
Model Number		SM-G780G/DSM, SM-G780G/DS, SM-G780G			
Applicable Standards		FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures			
Exposure Category		SAR Limits (W/Kg)			
		Peak spatial-average (1g of tissue)		Product Specific 10g (10g of tissue)	
General population / Uncontrolled exposure		1.6		4.0	
RF Exposure Conditions		Equipment Class - The Highest Reported SAR (W/kg)			
		PCE	DTS	NII	DSS
Head		0.29	0.51	0.15	0.96
Body-worn		0.69	0.13	0.15	0.12
Hotspot		1.28	0.56	0.26	0.44
Product Specific 10g		2.72	N/A	1.45	N/A
Simultaneous TX	Head	1.57	1.57	1.57	1.57
	Body-worn	1.14	1.14	1.14	1.12
	Hotspot	1.45	1.45	1.45	1.40
	Product Specific 10g	3.33	N/A	3.33	N/A
Date Tested		7/30/2021 to 8/20/2021			
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: This report covers the Samsung model SM-G780G/DSM, SM-G780G/DS and SM-G780G. These models are identical in hardware. Basic model SM-G780G/DS was set for test. See the PED document for details. 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	Jeongyeon Won Senior Laboratory technician UL Korea, Ltd. Suwon Laboratory

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

Equipment Class	Band	The Highest Reported SAR (W/kg)			
		1g of tissue			10g of tissue
		Head Exposure condition	Body-worn Exposure condition	Hotspot Exposure condition	Product Specific Exposure condition
PCE	GSM 850	0.192	0.265	0.676	N/A
	GSM 1900	0.091	0.325	0.755	1.623
	WCDMA Band II	0.139	0.605	1.281	2.455
	WCDMA Band IV	0.108	0.498	0.916	2.370
	WCDMA Band V	0.229	0.343	0.723	N/A
	LTE Band 2	0.142	0.550	1.202	2.424
	LTE Band 4	N/A	N/A	N/A	N/A
	LTE Band 5	0.289	0.371	0.760	N/A
	LTE Band 12	0.122	0.189	0.238	N/A
	LTE Band 13	0.142	0.217	0.422	N/A
	LTE Band 17	N/A	N/A	N/A	N/A
	LTE Band 26	0.138	0.240	0.478	N/A
	LTE Band 41	0.067	0.400	0.275	N/A
	LTE Band 66	0.135	0.688	0.838	2.723
DTS	2.4GHz WLAN	0.509	0.131	0.560	N/A
UNII	5GHz WLAN	0.153	0.153	0.258	1.450
DSS	Bluetooth	0.957	0.115	0.439	N/A

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528-2013, ANSI C63.26-2015 the following FCC Published RF exposure [KDB](#) procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 648474 D04 Handset SAR v01r03
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet v01r02
- 971168 D01 Power Meas License Digital System v03r01

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

- [TCB workshop](#) October, 2014; RF Exposure Procedures Update (Overlapping LTE Bands)
- [TCB workshop](#) October, 2014; RF Exposure Procedures Update (Other LTE Considerations)
- [TCB workshop](#) October, 2016; RF Exposure Procedures (Bluetooth Duty Factor)
- [TCB workshop](#) October, 2016; RF Exposure Procedures (DUT Holder Perturbations)
- [TCB workshop](#) May, 2017; RF Exposure Procedures (LTE Test Conditions)
- [TCB workshop](#) April, 2018; Page 3, RF Exposure Procedures (LTE DL CA SAR Test Exclusion Update)
- [TCB workshop](#) April, 2019 Page 19, RF Exposure Procedures (Tissue Simulating Liquids (TSL))

3. Facilities and Accreditation

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

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

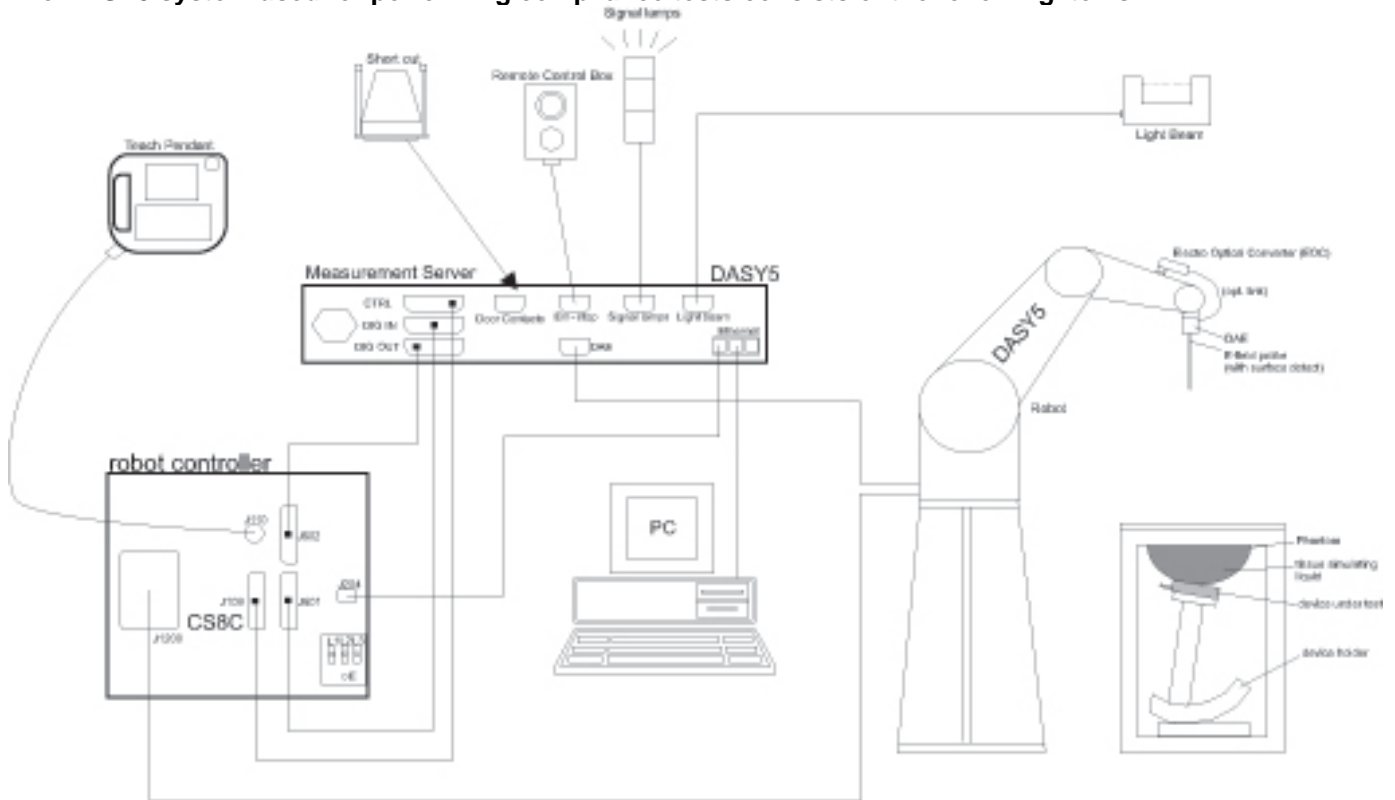
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

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



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

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

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

Step 2: Area Scan

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

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

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

Step 3: Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$			≤ 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 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: 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 <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power drift measurement

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

Step 5: Z-Scan (FCC only)

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

4.3. Test Equipment

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

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	8-4-2021
				8-6-2022
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	6-17-2021
Dielectric Assessment Kit	SPEAG	DAK-3.5	1045	4-21-2022
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3851	6-7-2022
				8-4-2022

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-4-2021
				8-4-2022
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	5-13-2022
				8-4-2022
Power Sensor	Keysight	U2000A	MY60180020	9-9-2021
				8-4-2022
Power Sensor	Agilent	U2000A	MY54260007	8-5-2021
				8-4-2022
Power Amplifier	EXODUS	1410025-AMP2027-10003	10003	8-4-2021
				8-4-2022
Power Amplifier	EXODUS	AMP2027ADB	10002	5-14-2022
				8-4-2022
Directional Coupler	Agilent	772D	MY52180193	8-4-2021
				8-3-2022
Directional Coupler	H.P	778D	16133	3-12-2022
				8-3-2022
Low Pass Filter	MICROLAB	LA-15N	3943	8-4-2021
				8-3-2022
Low Pass Filter	FILTRON	L14012FL	1410003S	8-4-2021
				8-3-2022
Attenuator	KEYSIGHT	8491B/010	MY39272011	9-9-2021
				8-4-2022
Attenuator	KEYSIGHT	8491B/020	MY39271973	9-9-2021
				8-4-2022
Attenuator	MINI-CIRCUITS	BW-N3W5+	N/A	4-21-2022
				8-4-2022
E-Field Probe (SAR1)	SPEAG	EX3DV4	7314	5-31-2022
E-Field Probe (SAR3)	SPEAG	EX3DV4	7645	4-15-2022
E-Field Probe (SAR4)	SPEAG	EX3DV4	7330	1-26-2022
E-Field Probe (SAR4)	SPEAG	EX3DV4	7545	11-23-2021
E-Field Probe (SAR5)	SPEAG	EX3DV4	7376	7-31-2021
				7-30-2022
E-Field Probe (SAR5)	SPEAG	EX3DV4	3871	8-28-2021
Data Acquisition Electronics (SAR1)	SPEAG	DAE4	1468	8-25-2021
Data Acquisition Electronics (SAR3)	SPEAG	DAE4	614	3-5-2022
Data Acquisition Electronics (SAR4)	SPEAG	DAE4	1591	8-25-2021
Data Acquisition Electronics (SAR5)	SPEAG	DAE4	1494	7-23-2021
				7-27-2022
Data Acquisition Electronics (SAR5)	SPEAG	DAE4	1343	8-25-2021
System Validation Dipole	SPEAG	D750V3	1122	2-24-2022
System Validation Dipole	SPEAG	D835V2	4d194	3-20-2022
System Validation Dipole	SPEAG	D1750V2	1125	2-21-2022
System Validation Dipole	SPEAG	D1900V2	5d199	3-19-2022
System Validation Dipole	SPEAG	D2450V2	960	3-20-2022
System Validation Dipole	SPEAG	D2600V2	1097	9-19-2021
System Validation Dipole	SPEAG	D5GHzV2	1209	2-27-2022
Thermometer (SAR1)	Lutron	MHB-382SD	AH.91463	8-11-2021
				8-4-2022

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Thermometer (SAR2)	Lutron	MHB-382SD	AH.50215	8-11-2021
				8-3-2022
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-11-2021
				8-4-2022
Thermometer (SAR4, 5)	Lutron	MHB-382SD	AH.45903	8-11-2021
				8-3-2022

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	8-4-2021
				8-3-2022
Base Station Simulator	R & S	CMW500	169803	1-28-2022
				2-2-2022
Base Station Simulator	R & S	CMW500	169800	8-3-2022
				1-29-2022
Base Station Simulator	R & S	CMW500	169797	8-3-2022
				1-29-2022
Base Station Simulator	R & S	CMW500	169798	8-3-2022
				8-3-2021
Wireless Connectivity Tester	R & S	CMW270	100982	8-6-2022

Note(s):

1. For System Validation Dipole, Calibration interval applied every 2 years according to referencing KDB 865664 guidance.
2. Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (D750V3 (SN:1122), D835V2 (SN:4d194), D1750V2 (SN:1125), D1900V2 (SN:5d199), D2450V2 (SN : 960), D2600V2 (SN : 1097), D5GHzV2 (SN:1209))

5. Measurement Uncertainty

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

5.1. DECISION RULE

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

6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Refer to Appendix A.		
Back Cover	<input checked="" type="checkbox"/> The Back Cover is not removable.		
Battery Options	<input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> Mobile Hotspot (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> 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 <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 2.4 GHz) <input checked="" type="checkbox"/> Wi-Fi Direct (Wi-Fi 5.2 GHz_UNII-1, Wi-Fi 5.8 GHz_UNII-3)		
Test Sample Information	No.	S/N	Notes
	1	R38R301JPQR	Main Conducted
	2	R38R301JNET	Main Conducted
	3	R38R301JNJM	Wi-Fi & BT Conducted
	4	R38R301JQ1T	SAR
	5	R38R301JN0J	SAR
	6	R38R301JPXP	SAR
	7	R38R301JPHT	SAR
	8	R38R301JNCK	SAR
	9	R38R301JQRJ	SAR
	10	R38R301JR7W	SAR

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: <input type="checkbox"/> Class 8 - 1 Up, 4 Down <input type="checkbox"/> Class 10 - 2 Up, 4 Down <input type="checkbox"/> Class 12 - 4 Up, 4 Down <input checked="" type="checkbox"/> 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%
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) DC-HSDPA (Category 24) HSPA+ (DL only)		100%
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 FDD Band 26 TDD Band 41 FDD Band 66	QPSK 16QAM 64QAM 256QAM Rel. 15 Carrier Aggregation (1 Uplink and 2 Downlinks)	100% (FDD) 63.3% (TDD) <small>Power Class 3</small>	
			Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 902.11ax (HE20)		SISO mode : 99.8% (802.11b) MIMO mode 98.8% (802.11b)
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80) 802.11ax (HE20) 802.11ax (HE40) 802.11ax (HE80)		SISO mode : 99.7% (802.11n(HT40)) 99.7% (802.11ac(VHT80)) MIMO mode : 99.7% (802.11n(HT40))
	Does this device support bands 5.60 ~ 5.65 GHz? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Does this device support Band gap channel(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Bluetooth	2.4 GHz	Version 5.0 LE		76.8% (DH5)
NFC	13.56 MHz	Type A/B/F		N/A ³

Notes:

1. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.8% and was considered and used for SAR Testing.
2. Duty cycle for Wi-Fi is referenced from the DTS and UNII report.
3. Measured Duty Cycle is not required due to SAR test exemption.

6.3 Nominal and Maximum Output Power

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

RF Air interface	Antenna	Mode	Time Slots	Max. RF Output Power (dBm)		Reduced. RF Output Power (Hotspot & Proximity sensor & Earjack back-off) (dBm)	
				Tune-up Limit	Frame Power	Tune-up Limit	Frame Power
GSM850	Main 1 Ant.	Voice	1	34.0	25.0		
		GPRS	1	34.0	25.0		
		GPRS	2	32.0	26.0		
		GPRS	3	30.5	26.2		
		GPRS	4	29.0	26.0		
		EGPRS	1	28.0	19.0		
		EGPRS	2	26.0	20.0		
		EGPRS	3	24.0	19.7		
GSM1900	Main 1 Ant.	Voice	1	31.0	22.0	28.0	19.0
		GPRS	1	31.0	22.0	28.0	19.0
		GPRS	2	29.0	23.0	26.0	20.0
		GPRS	3	27.5	23.2	24.5	20.2
		GPRS	4	26.0	23.0	23.0	20.0
		EGPRS	1	27.0	18.0	27.0	18.0
		EGPRS	2	25.0	19.0	25.0	19.0
		EGPRS	3	23.0	18.7	23.0	18.7
		EGPRS	4	22.0	19.0	22.0	19.0

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)	
				Hotspot back-off & Proximity sensor & Earjack back-off	
W-CDMA Band II	Main 1 Ant.	R99	24.0	21.0	
		HSDPA	23.5	20.5	
		HSUPA	23.0	20.0	
		DC-HSDPA	23.5	20.5	
W-CDMA Band IV	Main 1 Ant.	R99	24.0	21.0	
		HSDPA	23.5	20.5	
		HSUPA	23.0	20.0	
		DC-HSDPA	23.5	20.5	
W-CDMA Band V	Main 1 Ant.	R99	25.8		
		HSDPA	25.3		
		HSUPA	24.8		
		DC-HSDPA	25.3		

RF Air interface	Antenna	Mode	Max. RF Output Power (dBm)	Reduced. RF Output Power (dBm)	
				Hotspot back-off	Proximity sensor & Earjack back-off
LTE Band 2	Main 1 Ant.	QPSK	24.0	21.0	21.0
LTE Band 4	Main 1 Ant.	QPSK	24.0	19.5	21.0
LTE Band 5	Main 1 Ant.	QPSK	25.8		
LTE Band 12	Main 1 Ant.	QPSK	24.0		
LTE Band 13	Main 1 Ant.	QPSK	24.0		
LTE Band 17	Main 1 Ant.	QPSK	24.0		
LTE Band 26	Main 1 Ant.	QPSK	23.5		
LTE Band 41	Main 2 Ant.	QPSK	25.0	21.0	21.0
LTE Band 66	Main 1 Ant.	QPSK	24.0	19.5	21.0

WLAN mode

Maximum Power

Mode	Band		Max. Output Power (dBm)																	
			SISO (WiFi Ant.1)						SISO (WiFi Ant.2)						MIMO (WiFi Ant.1 + Ant.2)					
			a	b	g	n	ac	ax	a	b	g	n	ac	ax	a	b	g	n	ac	ax
2.4GHz	DTS	2450 MHz		18 Ch12:9 Ch13:3	18 Ch12:9 Ch13:3	18 Ch12:9 Ch13:3		18 Ch12:9 Ch13:3		18 Ch12:9 Ch13:3	18 Ch12:9 Ch13:3	18 Ch12:9 Ch13:3		18 Ch12:9 Ch13:3		19 Ch12:12 Ch13:6	21 Ch12:12 Ch13:6	21 Ch12:12 Ch13:6		21 Ch12:12 Ch13:6
5GHz (20MHz)	UNII-1	5200 MHz	17			17	17	16	17			17	17	16	20			20	20	19
	UNII-2A	5300 MHz	17			17	17	16	17			17	17	16	20			20	20	19
	UNII-2C	5500 MHz	17			17	17	16	17			17	17	16	20			20	20	19
	UNII-3	5800 MHz	17			17	17	16	17			17	17	16	20			20	20	19
5GHz (40MHz)	UNII-1	5200 MHz				17	15	15				17	15	15				20	18	18
	UNII-2A	5300 MHz				17	15	15				17	15	15				20	18	18
	UNII-2C	5500 MHz				17	15	15				17	15	15				20	18	18
	UNII-3	5800 MHz				17	15	15				17	15	15				20	18	18
5GHz (80MHz)	UNII-1	5200 MHz					14	14					14	14					17	17
	UNII-2A	5300 MHz					14	14					14	14					17	17
	UNII-2C	5500 MHz					14	14					14	14					17	17
	UNII-3	5800 MHz					14	14					14	14					17	17

Reduced Power – Receiver Active

Mode	Band		Reduced. Output Power (dBm)																	
			SISO (WiFi Ant.1)						SISO (WiFi Ant.2)						MIMO (WiFi Ant.1 + Ant.2)					
			a	b	g	n	ac	ax	a	b	g	n	ac	ax	a	b	g	n	ac	ax
2.4GHz	DTS	2450 MHz		13 Ch12:9 Ch13:3	13 Ch12:9 Ch13:3	13 Ch12:9 Ch13:3		13 Ch12:9 Ch13:3		13 Ch12:9 Ch13:3	13 Ch12:9 Ch13:3	13 Ch12:9 Ch13:3		13 Ch12:9 Ch13:3		16 Ch12:12 Ch13:6	16 Ch12:12 Ch13:6	16 Ch12:12 Ch13:6		16 Ch12:12 Ch13:6
5GHz (20MHz)	UNII-1	5200 MHz	11			11	11	11	11			11	11	11	14			14	14	14
	UNII-2A	5300 MHz	11			11	11	11	11			11	11	11	14			14	14	14
	UNII-2C	5500 MHz	11			11	11	11	11			11	11	11	14			14	14	14
	UNII-3	5800 MHz	11			11	11	11	11			11	11	11	14			14	14	14
5GHz (40MHz)	UNII-1	5200 MHz				11	11	11				11	11	11				14	14	14
	UNII-2A	5300 MHz				11	11	11				11	11	11				14	14	14
	UNII-2C	5500 MHz				11	11	11				11	11	11				14	14	14
	UNII-3	5800 MHz				11	11	11				11	11	11				14	14	14
5GHz (80MHz)	UNII-1	5200 MHz					11	11					11	11					14	14
	UNII-2A	5300 MHz					11	11					11	11					14	14
	UNII-2C	5500 MHz					11	11					11	11					14	14
	UNII-3	5800 MHz					11	11					11	11					14	14

Notes:

1. This device uses an independent fixed level power reduction mechanism for WLAN mode operations during RCV operated Detailed descriptions of the power reduction mechanism are included in the operational description.
2. The per stream (antenna) power is the same for SISO and MIMO, but the total MIMO power is 3 dB higher than the individual stream (antenna) power. But this should not impact the simultaneous evaluation because it is already adding the SAR values, per stream (antenna)
3. Since RSDB Power and WLAN Power are the same, RSDB operation is supported in WLAN operation.
4. WiFi Ant.1(2.4GHz & BT & BLE) is same as Sub2 Ant in Block diagram document.
5. WiFi Ant.1(5GHz) is same as Sub3 Ant in Block diagram document.
6. WiFi Ant.2(2.4GHz & BT & 5GHz) is same as Sub4 Ant in Block diagram document.

Bluetooth

Antenna	RF Air interface	Max. RF Output Power (dBm)
BT Ant.1	Bluetooth (BDR)	15.5
	Bluetooth (EDR)	14.0
	Bluetooth LE 1Mbps	7.0
	Bluetooth LE 2Mbps	7.0
BT Ant.2	Bluetooth (BDR)	18.0
	Bluetooth (EDR)	16.0
	Bluetooth LE 1Mbps	
	Bluetooth LE 2Mbps	

Notes:

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

6.4. Power Back-off Operation

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

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

Note(s):

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

Product Specific 10g Adjusted SAR Calculation

Wireless technologies	Max Tune-up Limit (dBm)	Reduced Tune-Up Limit (dBm)	Power Factor	Reported SAR Limit (W/kg)
GSM 1900	23.2	20.2	2.00	0.601
W-CDMA B2	24.0	21.0	2.00	0.601
W-CDMA B4	24.0	21.0	2.00	0.601
LTE B2	24.0	21.0	2.00	0.601
LTE B4	24.0	19.5	2.82	0.426
LTE B66	24.0	19.5	2.82	0.426
LTE B41	25.0	21.0	2.51	0.478

Note(s):

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

6.5. General LTE SAR Test and Reporting Considerations

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

General LTE SAR Test and Reporting Considerations (Continued)

Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 26	Frequency range: 814 - 849 MHz																																																																			
		Channel Bandwidth																																																																			
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																														
	Low		26765/ 821.5	26740/ 819	26715/ 816.5	26705/ 815.5	26697/ 814.7																																																														
	Mid		26865/ 831.5	26865/ 831.5	26865/ 831.5	26865/ 831.5	26865/ 831.5																																																														
	High		26965/ 841.5	26990/ 844	27015/ 846.5	27025/ 847.5	27033/ 848.3																																																														
	Band 66	Frequency range: 1710 - 1780 MHz																																																																			
		Channel Bandwidth																																																																			
		20 MHz	15 MHz	20 MHz	5 MHz	3 MHz	1.4 MHz																																																														
	Low	132072/ 1720	132047/ 1717.5	132022/ 1715	131997/ 1712.5	131987/ 1711.5	131979/ 1710.7																																																														
	Mid	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745	132322/ 1745																																																														
	High	132572/ 1770	132597/ 1772.5	132622/ 1775	132647/ 1777.5	132657/ 1778.5	132665/ 1779.3																																																														
	Band 41	Frequency range: 2496 - 2690 MHz																																																																			
		Channel Bandwidth																																																																			
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																														
Low		39750 / 2506.0																																																																			
Low-Mid		40185 / 2549.5																																																																			
Mid		40620 / 2593.0																																																																			
Mid-High		41055 / 2636.5																																																																			
High	41490 / 2680.0																																																																				
LTE transmitter and antenna implementation	Refer to Appendix A.																																																																				
Maximum power reduction (MPR)	<p>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th> <th rowspan="2">MPR (dB)</th> </tr> <tr> <th>1.4 MHz</th> <th>3.0 MHz</th> <th>5 MHz</th> <th>10 MHz</th> <th>15 MHz</th> <th>20 MHz</th> </tr> </thead> <tbody> <tr> <td>QPSK</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 1</td> </tr> <tr> <td>16 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>≤ 5</td> <td>≤ 4</td> <td>≤ 8</td> <td>≤ 12</td> <td>≤ 16</td> <td>≤ 18</td> <td>≤ 2</td> </tr> <tr> <td>64 QAM</td> <td>> 5</td> <td>> 4</td> <td>> 8</td> <td>> 12</td> <td>> 16</td> <td>> 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table> <p>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</p>							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
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																																																														
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:

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

6.6. LTE (TDD) Considerations

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

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

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

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
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 = $5120 \times [1/(15000 \times 2048)] \times 2 + 6 \text{ ms} = 63.33\%$

where

$T_s = 1/(15000 \times 2048)$ 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. Only LTE Band 41 Power Class 2 was used configuration 1 at 43.3% duty cycle for SAR testing.

6.7. LTE Carrier Aggregation

DL Inter-Band

E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)					Max Aggregated BW
		1st Carrier	2nd Carrier	3rd Carrier	4th Carrier	5th Carrier	
CA_66A-66A (0)	Band 66	5, 10, 15, 20	5, 10, 15, 20				40 MHz

DL Intra-Band (Contiguous)

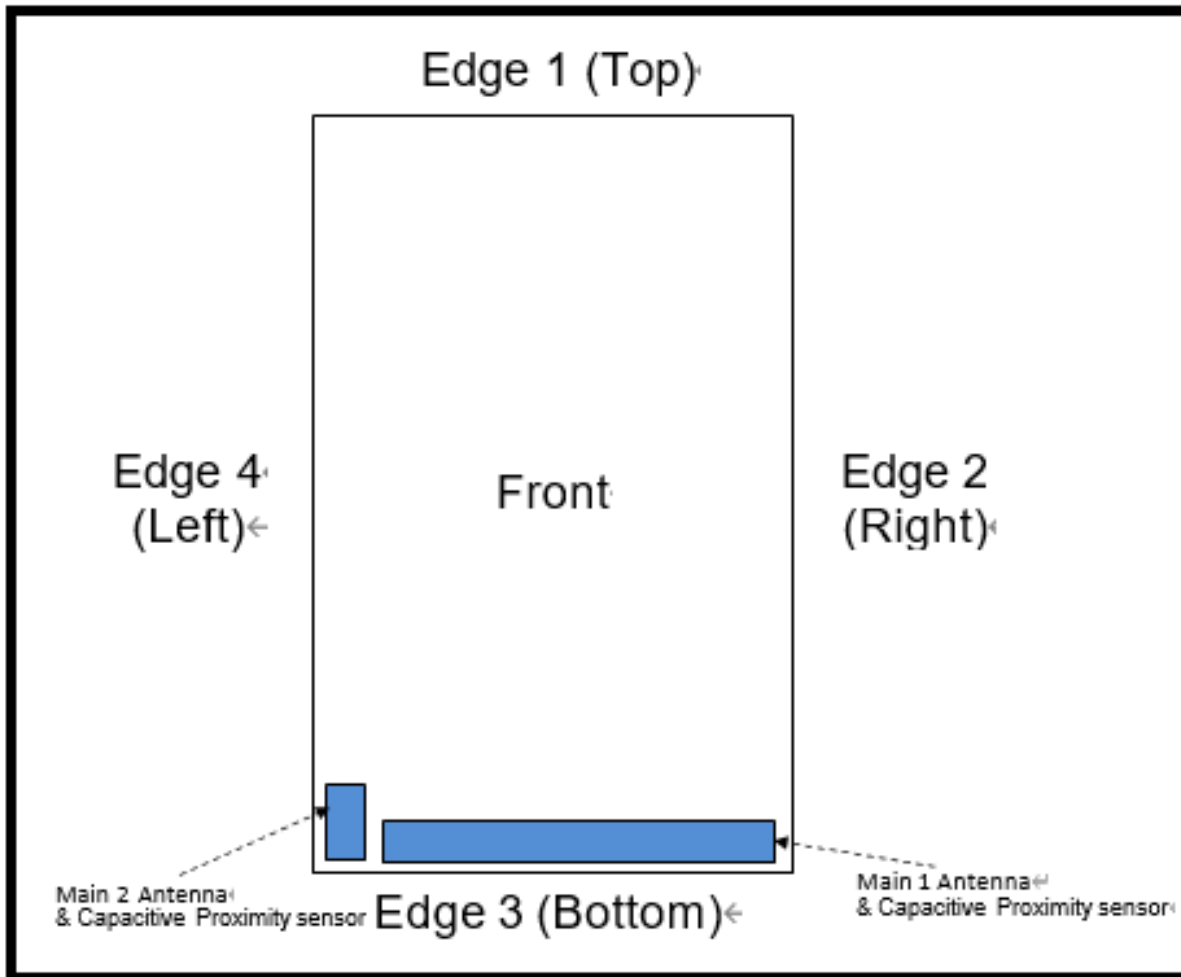
E-UTRA CA configuration (BCS)	E-UTRA Band	Allowed Channel BW Per Carrier (MHz)					Max Aggregated BW
		1st Carrier	2nd Carrier	3rd Carrier	4th Carrier	5th Carrier	
CA_66B (0)	Band 66	5	5, 10, 15				20 MHz
		10	5, 10				
		15	5				
CA_66C (0)	Band 66	5	20				40 MHz
		10	15, 20				
		15	10, 15, 20				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

Note(s):

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

6.8. Proximity Sensor feature

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

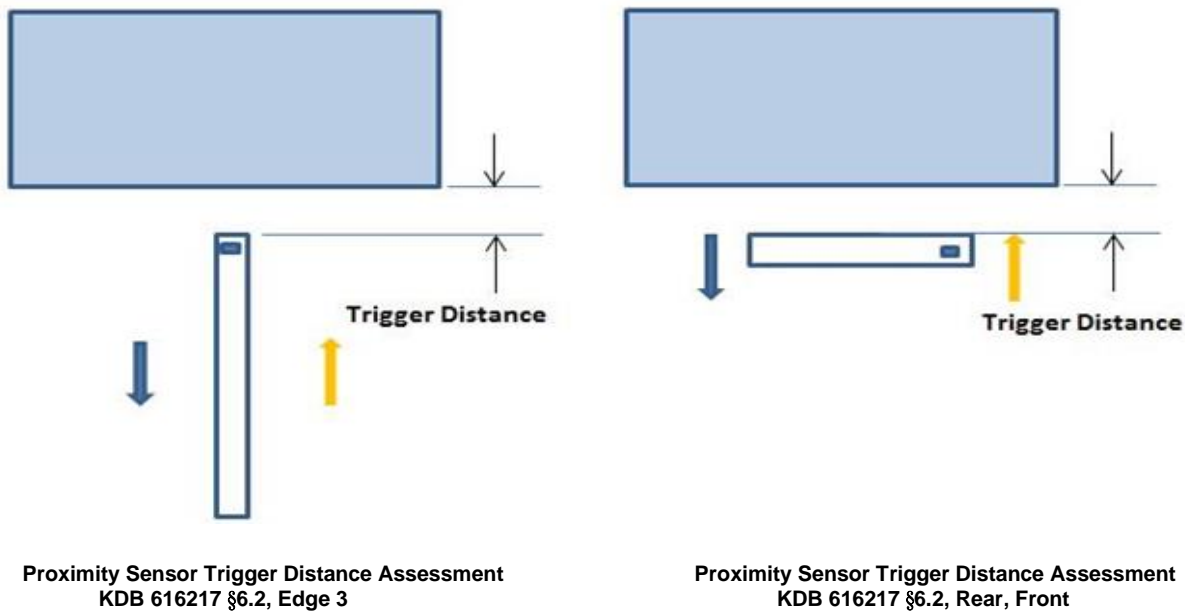


6.8.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

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

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

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



LEGEND

- Direction of DUT travel for determination of power reduction triggering point
- Direction of DUT travel for determination of full power resumption triggering point

Summary of Trigger Distances

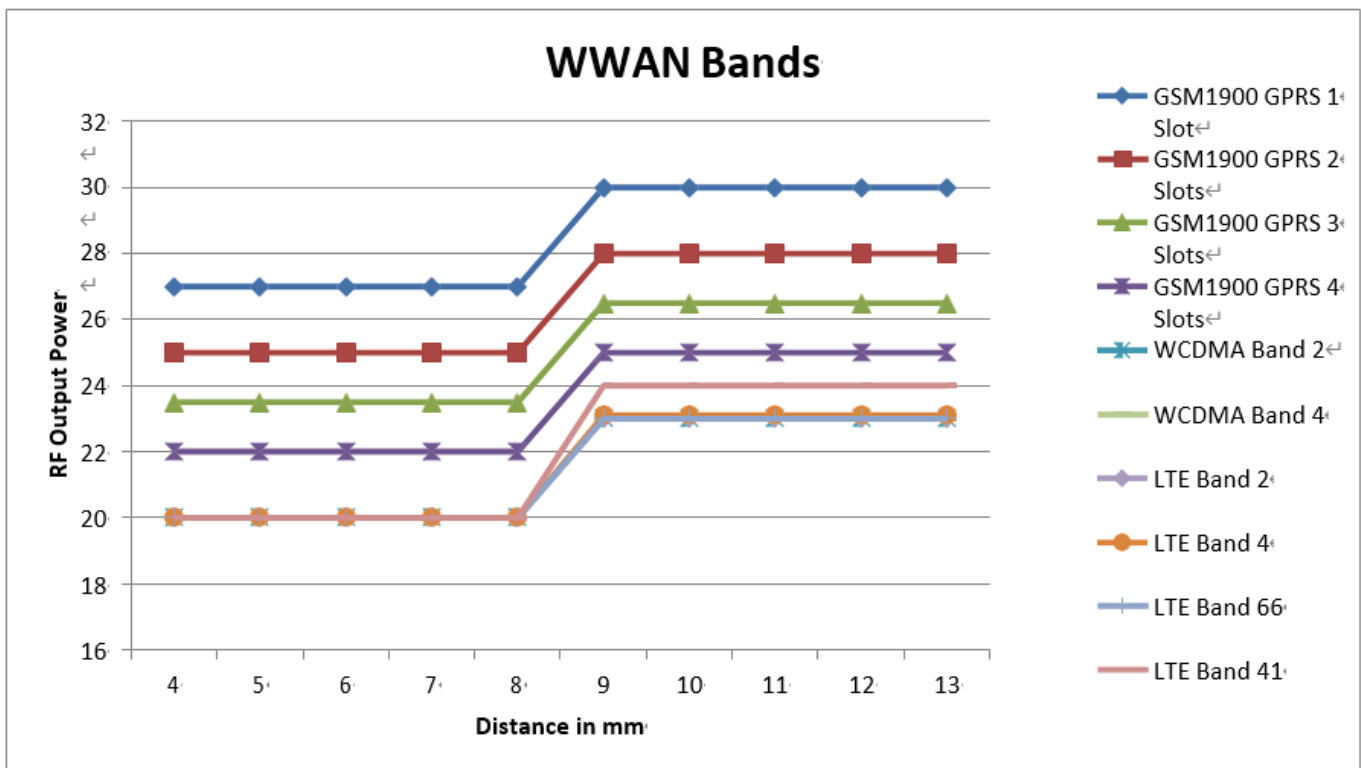
Tissue simulating liquid	Antenna	Trigger distance - Rear		Trigger distance – Front		Trigger distance – Edge 3	
		Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
1750 Head	Main 1 Ant.	8 mm	8 mm	7 mm	7 mm	13 mm	13 mm
1900 Head	Main 1 Ant.	8 mm	8 mm	7 mm	7 mm	13 mm	13mm
2600 Head	Main 2 Ant.	8 mm	8 mm	7 mm	7 mm	13 mm	13 mm

Proximity Sensor Triggering Distance Measurement Results

WWAN Bands

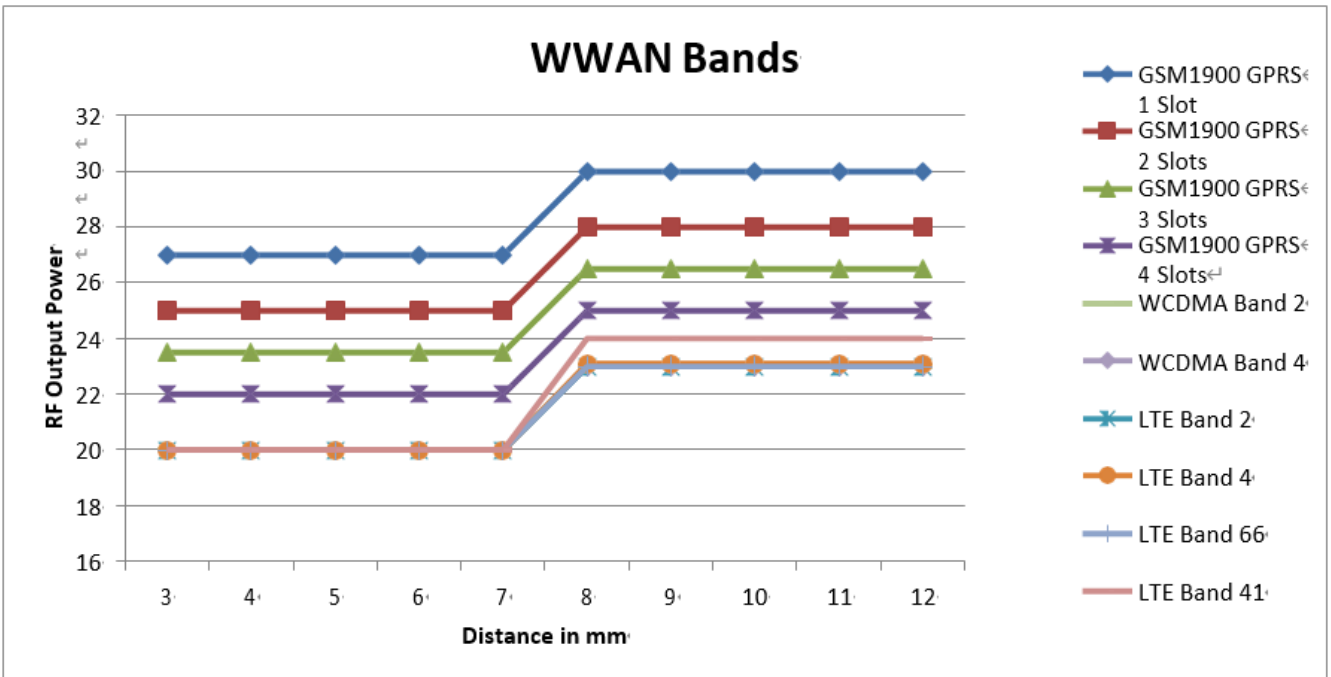
Rear, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	4	5	6	7	8	9	10	11	12	13
GSM1900 GPRS 1 Slot	27.0	27.0	27.0	27.0	27.0	30.0	30.0	30.0	30.0	30.0
GSM1900 GPRS 2 Slots	25.0	25.0	25.0	25.0	25.0	28.0	28.0	28.0	28.0	28.0
GSM1900 GPRS 3 Slots	23.5	23.5	23.5	23.5	23.5	26.5	26.5	26.5	26.5	26.5
GSM1900 GPRS 4 Slots	22.0	22.0	22.0	22.0	22.0	25.0	25.0	25.0	25.0	25.0
WCDMA Band 2	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
WCDMA Band 4	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 2	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 4	20.0	20.0	20.0	20.0	20.0	23.1	23.1	23.1	23.1	23.1
LTE Band 66	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 41	20.0	20.0	20.0	20.0	20.0	24.0	24.0	24.0	24.0	24.0



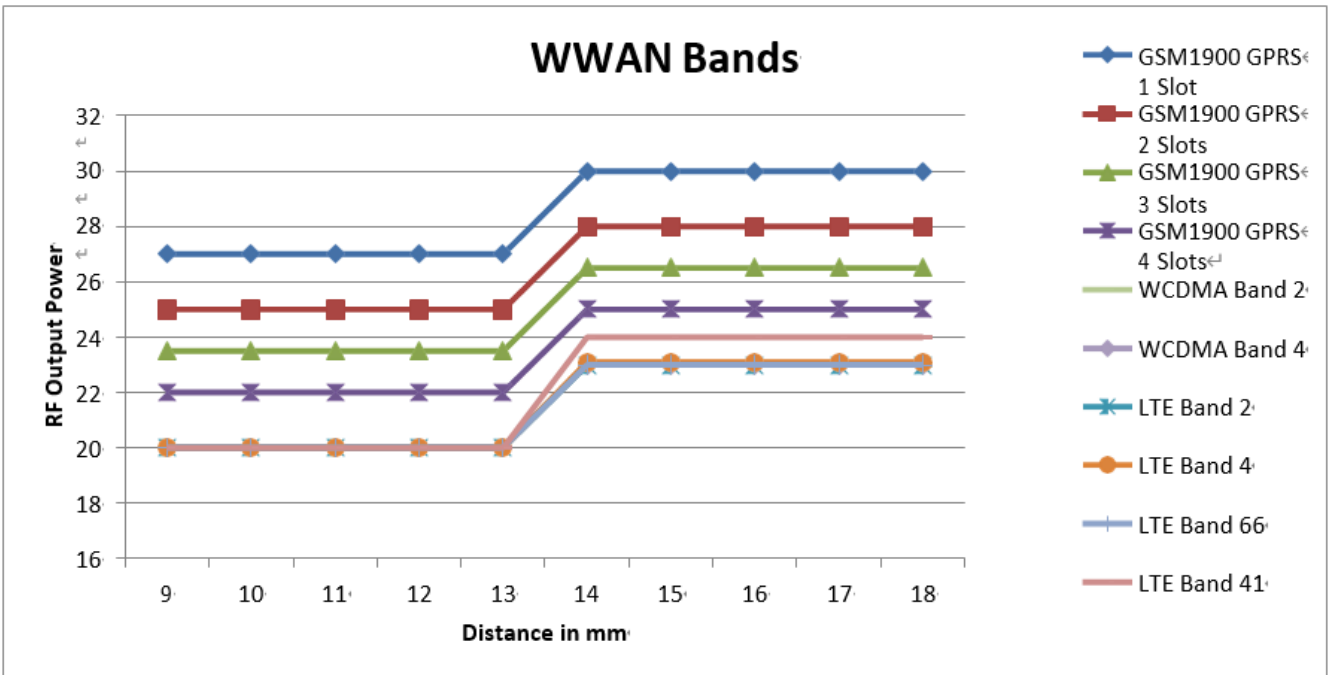
Front, DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT vs. Output Power in dBm										
Distance (mm)	3	4	5	6	7	8	9	10	11	12
GSM1900 GPRS 1 Slot	27.0	27.0	27.0	27.0	27.0	30.0	30.0	30.0	30.0	30.0
GSM1900 GPRS 2 Slots	25.0	25.0	25.0	25.0	25.0	28.0	28.0	28.0	28.0	28.0
GSM1900 GPRS 3 Slots	23.5	23.5	23.5	23.5	23.5	26.5	26.5	26.5	26.5	26.5
GSM1900 GPRS 4 Slots	22.0	22.0	22.0	22.0	22.0	25.0	25.0	25.0	25.0	25.0
WCDMA Band 2	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
WCDMA Band 4	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 2	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 4	20.0	20.0	20.0	20.0	20.0	23.1	23.1	23.1	23.1	23.1
LTE Band 66	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 41	20.0	20.0	20.0	20.0	20.0	24.0	24.0	24.0	24.0	24.0



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

Distance to DUT vs. Output Power in dBm										
Distance (mm)	9	10	11	12	13	14	15	16	17	18
GSM1900 GPRS 1 Slot	27.0	27.0	27.0	27.0	27.0	30.0	30.0	30.0	30.0	30.0
GSM1900 GPRS 2 Slots	25.0	25.0	25.0	25.0	25.0	28.0	28.0	28.0	28.0	28.0
GSM1900 GPRS 3 Slots	23.5	23.5	23.5	23.5	23.5	26.5	26.5	26.5	26.5	26.5
GSM1900 GPRS 4 Slots	22.0	22.0	22.0	22.0	22.0	25.0	25.0	25.0	25.0	25.0
WCDMA Band 2	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
WCDMA Band 4	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 2	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 4	20.0	20.0	20.0	20.0	20.0	23.1	23.1	23.1	23.1	23.1
LTE Band 66	20.0	20.0	20.0	20.0	20.0	23.0	23.0	23.0	23.0	23.0
LTE Band 41	20.0	20.0	20.0	20.0	20.0	24.0	24.0	24.0	24.0	24.0



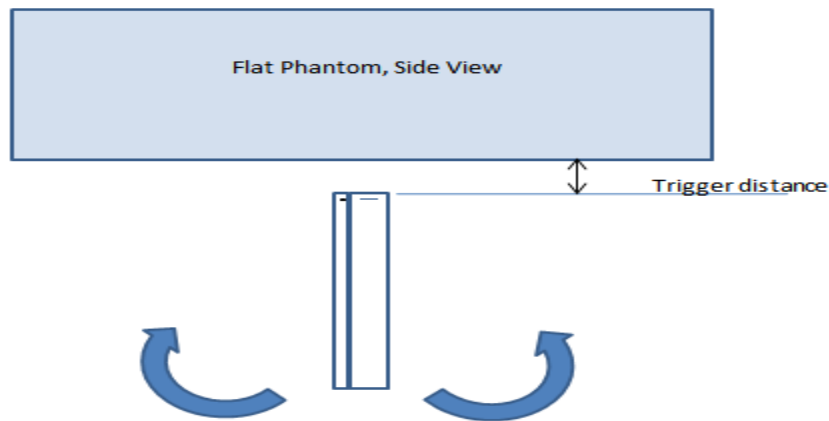
6.8.2. Proximity Sensor Coverage (KDB 616217 §6.3)

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

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

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

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



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

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

Band (MHz)	Minimum trigger distance measured according to KDB 616217 §6.2	Minimum distance at which power reduction was maintained over +/-45°	Power reduction status											
			-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°	
1750	13 mm	13 mm	On	On	On	On	On	On	On	On	On	On	On	On
1900	13 mm	13 mm	On	On	On	On	On	On	On	On	On	On	On	On
2600	13 mm	13 mm	On	On	On	On	On	On	On	On	On	On	On	On

6.8.4. Resulting test positions for SAR measurements

Wireless technologies	DUT Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for SAR
WWAN Main 1 Ant. & WWAN Main 2 Ant.	Rear	8 mm	N/A	N/A	7 mm
	Front	7 mm	N/A	N/A	6 mm
	Edge 3	13 mm	N/A	13 mm	12 mm

7. RF Exposure Conditions (Test Configurations)

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

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

Notes:

- SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
- 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.
- 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.
- 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.
- WiFi Ant.1(2.4GHz & BT & BLE) is same as Sub2 Ant in Block diagram document.
- WiFi Ant.1(5GHz) is same as Sub3 Ant in Block diagram document.
- WiFi Ant.2(2.4GHz & BT & 5GHz) is same as Sub4 Ant in Block diagram document.

8. Dielectric Property Measurements & System Check

8.1. Dielectric Property Measurements

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

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

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

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

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

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

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

**Dielectric Property Measurements Results:
SAR 1 Room**

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)		
8-5-2021	Head 5250	e'	36.0100	Relative Permittivity (ϵ_r):	36.01	35.93	0.21	5	
		e"	16.3300	Conductivity (σ):	4.77	4.70	1.38	5	
	Head 5260	e'	35.9100	Relative Permittivity (ϵ_r):	35.91	35.92	-0.03	5	
		e"	16.3100	Conductivity (σ):	4.77	4.71	1.23	5	
	Head 5600	e'	35.3000	Relative Permittivity (ϵ_r):	35.30	35.53	-0.66	5	
		e"	16.3800	Conductivity (σ):	5.10	5.06	0.79	5	
	Head 5750	e'	35.0100	Relative Permittivity (ϵ_r):	35.01	35.36	-1.00	5	
		e"	16.7400	Conductivity (σ):	5.35	5.21	2.65	5	
	Head 5825	e'	35.0900	Relative Permittivity (ϵ_r):	35.09	35.30	-0.59	5	
		e"	16.4200	Conductivity (σ):	5.32	5.27	0.92	5	
	8-9-2021	Head 5250	e'	36.1900	Relative Permittivity (ϵ_r):	36.19	35.93	0.71	5
			e"	16.3600	Conductivity (σ):	4.78	4.70	1.57	5
Head 5260		e'	36.1700	Relative Permittivity (ϵ_r):	36.17	35.92	0.69	5	
		e"	16.3600	Conductivity (σ):	4.78	4.71	1.54	5	
Head 5600		e'	35.6000	Relative Permittivity (ϵ_r):	35.60	35.53	0.19	5	
		e"	16.5300	Conductivity (σ):	5.15	5.06	1.72	5	
Head 5750		e'	35.3300	Relative Permittivity (ϵ_r):	35.33	35.36	-0.09	5	
		e"	16.6600	Conductivity (σ):	5.33	5.21	2.16	5	
Head 5825		e'	35.2200	Relative Permittivity (ϵ_r):	35.22	35.30	-0.23	5	
		e"	16.6900	Conductivity (σ):	5.41	5.27	2.57	5	
8-11-2021		Head 5250	e'	35.9500	Relative Permittivity (ϵ_r):	35.95	35.93	0.05	5
			e"	16.4100	Conductivity (σ):	4.79	4.70	1.88	5
	Head 5260	e'	35.9500	Relative Permittivity (ϵ_r):	35.95	35.92	0.08	5	
		e"	16.4300	Conductivity (σ):	4.81	4.71	1.97	5	
	Head 5600	e'	35.4300	Relative Permittivity (ϵ_r):	35.43	35.53	-0.29	5	
		e"	16.5900	Conductivity (σ):	5.17	5.06	2.08	5	
	Head 5750	e'	35.2700	Relative Permittivity (ϵ_r):	35.27	35.36	-0.26	5	
		e"	16.6500	Conductivity (σ):	5.32	5.21	2.10	5	
	Head 5825	e'	35.0900	Relative Permittivity (ϵ_r):	35.09	35.30	-0.59	5	
		e"	16.6800	Conductivity (σ):	5.40	5.27	2.51	5	
	8-17-2021	Head 5250	e'	35.4300	Relative Permittivity (ϵ_r):	35.43	35.93	-1.40	5
			e"	16.0400	Conductivity (σ):	4.68	4.70	-0.42	5
Head 5260		e'	35.4100	Relative Permittivity (ϵ_r):	35.41	35.92	-1.42	5	
		e"	16.0400	Conductivity (σ):	4.69	4.71	-0.45	5	
Head 5600		e'	34.9100	Relative Permittivity (ϵ_r):	34.91	35.53	-1.76	5	
		e"	16.1600	Conductivity (σ):	5.03	5.06	-0.56	5	
Head 5750		e'	34.6800	Relative Permittivity (ϵ_r):	34.68	35.36	-1.93	5	
		e"	16.2300	Conductivity (σ):	5.19	5.21	-0.47	5	
Head 5825		e'	34.5800	Relative Permittivity (ϵ_r):	34.58	35.30	-2.04	5	
		e"	16.2600	Conductivity (σ):	5.27	5.27	-0.07	5	

SAR 3 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
8-2-2021	Head 1750	e'	40.0100	Relative Permittivity (ϵ_r):	40.01	40.08	-0.19	5
		e"	13.7500	Conductivity (σ):	1.34	1.37	-2.27	5
	Head 1710	e'	40.1900	Relative Permittivity (ϵ_r):	40.19	40.15	0.11	5
		e"	13.8200	Conductivity (σ):	1.31	1.35	-2.41	5
	Head 1755	e'	39.9900	Relative Permittivity (ϵ_r):	39.99	40.08	-0.22	5
		e"	13.7300	Conductivity (σ):	1.34	1.37	-2.33	5
8-2-2021	Head 1900	e'	39.5100	Relative Permittivity (ϵ_r):	39.51	40.00	-1.23	5
		e"	13.5000	Conductivity (σ):	1.43	1.40	1.87	5
	Head 1850	e'	39.6600	Relative Permittivity (ϵ_r):	39.66	40.00	-0.85	5
		e"	13.5500	Conductivity (σ):	1.39	1.40	-0.44	5
	Head 1910	e'	39.4700	Relative Permittivity (ϵ_r):	39.47	40.00	-1.33	5
		e"	13.4800	Conductivity (σ):	1.43	1.40	2.26	5
8-5-2021	Head 1750	e'	39.5800	Relative Permittivity (ϵ_r):	39.58	40.08	-1.26	5
		e"	13.6400	Conductivity (σ):	1.33	1.37	-3.05	5
	Head 1710	e'	39.6900	Relative Permittivity (ϵ_r):	39.69	40.15	-1.14	5
		e"	13.7300	Conductivity (σ):	1.31	1.35	-3.04	5
	Head 1755	e'	39.5700	Relative Permittivity (ϵ_r):	39.57	40.08	-1.26	5
		e"	13.6300	Conductivity (σ):	1.33	1.37	-3.04	5
8-5-2021	Head 1900	e'	39.3500	Relative Permittivity (ϵ_r):	39.35	40.00	-1.63	5
		e"	13.3800	Conductivity (σ):	1.41	1.40	0.97	5
	Head 1850	e'	39.3600	Relative Permittivity (ϵ_r):	39.36	40.00	-1.60	5
		e"	13.4600	Conductivity (σ):	1.38	1.40	-1.10	5
	Head 1910	e'	39.3500	Relative Permittivity (ϵ_r):	39.35	40.00	-1.63	5
		e"	13.3600	Conductivity (σ):	1.42	1.40	1.35	5
8-13-2021	Head 1750	e'	39.7900	Relative Permittivity (ϵ_r):	39.79	40.08	-0.73	5
		e"	13.7400	Conductivity (σ):	1.34	1.37	-2.34	5
	Head 1710	e'	40.1400	Relative Permittivity (ϵ_r):	40.14	40.15	-0.02	5
		e"	13.9000	Conductivity (σ):	1.32	1.35	-1.84	5
	Head 1755	e'	39.7600	Relative Permittivity (ϵ_r):	39.76	40.08	-0.79	5
		e"	13.7200	Conductivity (σ):	1.34	1.37	-2.40	5
8-13-2021	Head 1900	e'	39.0600	Relative Permittivity (ϵ_r):	39.06	40.00	-2.35	5
		e"	13.1900	Conductivity (σ):	1.39	1.40	-0.47	5
	Head 1850	e'	39.3200	Relative Permittivity (ϵ_r):	39.32	40.00	-1.70	5
		e"	13.3700	Conductivity (σ):	1.38	1.40	-1.76	5
	Head 1910	e'	39.0000	Relative Permittivity (ϵ_r):	39.00	40.00	-2.50	5
		e"	13.1600	Conductivity (σ):	1.40	1.40	-0.17	5
8-17-2021	Head 835	e'	42.2400	Relative Permittivity (ϵ_r):	42.24	41.50	1.78	5
		e"	20.0000	Conductivity (σ):	0.93	0.90	3.17	5
	Head 820	e'	42.2700	Relative Permittivity (ϵ_r):	42.27	41.60	1.60	5
		e"	20.2500	Conductivity (σ):	0.92	0.90	2.76	5
	Head 850	e'	42.2000	Relative Permittivity (ϵ_r):	42.20	41.50	1.69	5
		e"	19.7500	Conductivity (σ):	0.93	0.92	2.02	5
8-17-2021	Head 1750	e'	39.7000	Relative Permittivity (ϵ_r):	39.70	40.08	-0.96	5
		e"	14.0400	Conductivity (σ):	1.37	1.37	-0.20	5
	Head 1710	e'	39.7900	Relative Permittivity (ϵ_r):	39.79	40.15	-0.89	5
		e"	14.1500	Conductivity (σ):	1.35	1.35	-0.07	5
	Head 1755	e'	39.6900	Relative Permittivity (ϵ_r):	39.69	40.08	-0.97	5
		e"	14.0200	Conductivity (σ):	1.37	1.37	-0.27	5

SAR 4 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
8-2-2021	Head 2450	e'	39.7500	Relative Permittivity (ϵ_r):	39.75	39.20	1.40	5
		e"	13.5300	Conductivity (σ):	1.84	1.80	2.40	5
	Head 2400	e'	40.0600	Relative Permittivity (ϵ_r):	40.06	39.30	1.94	5
		e"	13.5000	Conductivity (σ):	1.80	1.75	2.85	5
	Head 2480	e'	39.4800	Relative Permittivity (ϵ_r):	39.48	39.16	0.81	5
		e"	13.4900	Conductivity (σ):	1.86	1.83	1.52	5
8-2-2021	Head 2600	e'	38.3700	Relative Permittivity (ϵ_r):	38.37	39.01	-1.64	5
		e"	13.2700	Conductivity (σ):	1.92	1.96	-2.23	5
	Head 2500	e'	39.2800	Relative Permittivity (ϵ_r):	39.28	39.14	0.37	5
		e"	13.4600	Conductivity (σ):	1.87	1.85	0.92	5
	Head 2700	e'	37.6900	Relative Permittivity (ϵ_r):	37.69	38.88	-3.07	5
		e"	13.1300	Conductivity (σ):	1.97	2.07	-4.79	5
8-5-2021	Head 2450	e'	37.8600	Relative Permittivity (ϵ_r):	37.86	39.20	-3.42	5
		e"	13.5500	Conductivity (σ):	1.85	1.80	2.55	5
	Head 2400	e'	37.9600	Relative Permittivity (ϵ_r):	37.96	39.30	-3.40	5
		e"	13.5400	Conductivity (σ):	1.81	1.75	3.15	5
	Head 2480	e'	37.7900	Relative Permittivity (ϵ_r):	37.79	39.16	-3.50	5
		e"	13.5700	Conductivity (σ):	1.87	1.83	2.12	5
8-9-2021	Head 2450	e'	40.2700	Relative Permittivity (ϵ_r):	40.27	39.20	2.73	5
		e"	13.1500	Conductivity (σ):	1.79	1.80	-0.48	5
	Head 2400	e'	40.3200	Relative Permittivity (ϵ_r):	40.32	39.30	2.60	5
		e"	13.1700	Conductivity (σ):	1.76	1.75	0.33	5
	Head 2480	e'	40.2200	Relative Permittivity (ϵ_r):	40.22	39.16	2.70	5
		e"	13.1800	Conductivity (σ):	1.82	1.83	-0.82	5
8-9-2021	Head 2600	e'	40.0900	Relative Permittivity (ϵ_r):	40.09	39.01	2.77	5
		e"	13.1700	Conductivity (σ):	1.90	1.96	-2.97	5
	Head 2500	e'	40.2100	Relative Permittivity (ϵ_r):	40.21	39.14	2.74	5
		e"	13.2100	Conductivity (σ):	1.84	1.85	-0.96	5
	Head 2700	e'	39.9600	Relative Permittivity (ϵ_r):	39.96	38.88	2.77	5
		e"	13.2600	Conductivity (σ):	1.99	2.07	-3.84	5
8-17-2021	Head 2450	e'	38.6400	Relative Permittivity (ϵ_r):	38.64	39.20	-1.43	5
		e"	13.5300	Conductivity (σ):	1.84	1.80	2.40	5
	Head 2400	e'	38.7200	Relative Permittivity (ϵ_r):	38.72	39.30	-1.47	5
		e"	13.5400	Conductivity (σ):	1.81	1.75	3.15	5
	Head 2480	e'	38.5800	Relative Permittivity (ϵ_r):	38.58	39.16	-1.49	5
		e"	13.5100	Conductivity (σ):	1.86	1.83	1.67	5

SAR 5 Room

Date	Freq. (MHz)	Liquid Parameters		Measured	Target	Delta (%)	Limit ±(%)	
8-2-2021	Head 750	e'	42.1400	Relative Permittivity (ϵ_r):	42.14	41.96	0.43	5
		e"	21.5500	Conductivity (σ):	0.90	0.89	0.63	5
	Head 700	e'	42.3000	Relative Permittivity (ϵ_r):	42.30	42.22	0.19	5
		e"	22.5900	Conductivity (σ):	0.88	0.89	-1.12	5
	Head 790	e'	41.9700	Relative Permittivity (ϵ_r):	41.97	41.76	0.51	5
		e"	20.7500	Conductivity (σ):	0.91	0.90	1.71	5
8-2-2021	Head 835	e'	41.8000	Relative Permittivity (ϵ_r):	41.80	41.50	0.72	5
		e"	20.0000	Conductivity (σ):	0.93	0.90	3.17	5
	Head 820	e'	41.8400	Relative Permittivity (ϵ_r):	41.84	41.60	0.57	5
		e"	20.2400	Conductivity (σ):	0.92	0.90	2.71	5
	Head 850	e'	41.7900	Relative Permittivity (ϵ_r):	41.79	41.50	0.70	5
		e"	19.7700	Conductivity (σ):	0.93	0.92	2.12	5
8-5-2021	Head 835	e'	41.3600	Relative Permittivity (ϵ_r):	41.36	41.50	-0.34	5
		e"	19.9900	Conductivity (σ):	0.93	0.90	3.12	5
	Head 820	e'	41.4200	Relative Permittivity (ϵ_r):	41.42	41.60	-0.44	5
		e"	20.2300	Conductivity (σ):	0.92	0.90	2.66	5
	Head 850	e'	41.3200	Relative Permittivity (ϵ_r):	41.32	41.50	-0.43	5
		e"	19.7600	Conductivity (σ):	0.93	0.92	2.07	5
8-13-2021	Head 835	e'	40.7400	Relative Permittivity (ϵ_r):	40.74	41.50	-1.83	5
		e"	20.1600	Conductivity (σ):	0.94	0.90	4.00	5
	Head 820	e'	40.7600	Relative Permittivity (ϵ_r):	40.76	41.60	-2.03	5
		e"	20.4200	Conductivity (σ):	0.93	0.90	3.63	5
	Head 850	e'	40.7200	Relative Permittivity (ϵ_r):	40.72	41.50	-1.88	5
		e"	19.9000	Conductivity (σ):	0.94	0.92	2.79	5
8-20-2021	Head 835	e'	40.5900	Relative Permittivity (ϵ_r):	40.59	41.50	-2.19	5
		e"	20.0100	Conductivity (σ):	0.93	0.90	3.23	5
	Head 820	e'	40.6200	Relative Permittivity (ϵ_r):	40.62	41.60	-2.36	5
		e"	20.2700	Conductivity (σ):	0.92	0.90	2.86	5
	Head 850	e'	40.5500	Relative Permittivity (ϵ_r):	40.55	41.50	-2.29	5
		e"	19.7600	Conductivity (σ):	0.93	0.92	2.07	5

8.2. System Check

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

System Performance Check Measurement Conditions:

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

Reference Target SAR Values

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

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)	
				1g/10g	Head
D750V3	1122	2-24-2020	750	1g	8.54
				10g	5.59
D835V2	4d194	3-20-2020	835	1g	9.76
				10g	6.42
D1750V2	1125	2-21-2020	1750	1g	36.50
				10g	19.20
D1900V2	5d199	3-19-2020	1900	1g	40.50
				10g	21.00
D2450V2	960	3-20-2020	2450	1g	53.20
				10g	24.80
D2600V2	1097	9-19-2019	2600	1g	57.30
				10g	25.70
D5GHzV2	1209	2-27-2020	5250	1g	79.90
				10g	22.60
			5600	1g	83.60
				10g	23.60
			5750	1g	80.20
				10g	22.60

Note(s):

Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (D750V3 (SN:1122), D835V2 (SN:4d194), D1750V2 (SN:1125), D1900V2 (SN:5d199), D2450V2 (SN : 960), D2600V2 (SN : 1097), D5GHzV2 (SN:1209))

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 $\pm 10\%$	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
8-5-2021	D5GHzV2 (5250)	1209	Head	1g	7.60	76.0	79.90	-4.88	
				10g	2.19	21.9	22.60	-3.10	
8-5-2021	D5GHzV2 (5600)	1209	Head	1g	8.11	81.1	83.60	-2.99	
				10g	2.31	23.1	23.60	-2.12	
8-5-2021	D5GHzV2 (5750)	1209	Head	1g	7.67	76.7	80.20	-4.36	
				10g	2.19	21.9	22.60	-3.10	
8-9-2021	D5GHzV2 (5250)	1209	Head	1g	8.23	82.3	79.90	3.00	
				10g	2.36	23.6	22.60	4.42	
8-9-2021	D5GHzV2 (5600)	1209	Head	1g	8.48	84.8	83.60	1.44	
				10g	2.41	24.1	23.60	2.12	
8-11-2021	D5GHzV2 (5250)	1209	Head	1g	8.02	80.2	79.90	0.38	
				10g	2.31	23.1	22.60	2.21	
8-11-2021	D5GHzV2 (5600)	1209	Head	1g	8.81	88.1	83.60	5.38	1,2
				10g	2.50	25.0	23.60	5.93	
8-11-2021	D5GHzV2 (5750)	1209	Head	1g	7.59	75.9	80.20	-5.36	
				10g	2.18	21.8	22.60	-3.54	
8-17-2021	D5GHzV2 (5250)	1209	Head	1g	7.59	75.9	79.90	-5.01	
				10g	2.19	21.9	22.60	-3.10	
8-17-2021	D5GHzV2 (5600)	1209	Head	1g	8.01	80.1	83.60	-4.19	
				10g	2.28	22.8	23.60	-3.39	
8-17-2021	D5GHzV2 (5750)	1209	Head	1g	7.67	76.7	80.20	-4.36	
				10g	2.20	22.0	22.60	-2.65	

SAR 3 Room

Date Tested	System Dipole		T.S. Liquid	Measured Results		Target (Ref. Value)	Delta $\pm 10\%$	Plot No.	
	Type	Serial #		Zoom Scan to 100 mW	Normalize to 1 W				
8-2-2021	D1750V2	1125	Head	1g	3.67	36.7	36.50	0.55	
				10g	1.97	19.7	19.20	2.60	
8-2-2021	D1900V2	5d199	Head	1g	4.06	40.6	40.50	0.25	
				10g	2.13	21.3	21.00	1.43	
8-5-2021	D1750V2	1125	Head	1g	3.49	34.9	36.50	-4.38	
				10g	1.87	18.7	19.20	-2.60	
8-5-2021	D1900V2	5d199	Head	1g	3.98	39.8	40.50	-1.73	
				10g	2.08	20.8	21.00	-0.95	
8-13-2021	D1750V2	1125	Head	1g	3.37	33.7	36.50	-7.67	3,4
				10g	1.80	18.0	19.20	-6.25	
8-13-2021	D1900V2	5d199	Head	1g	3.87	38.7	40.50	-4.44	5,6
				10g	2.02	20.2	21.00	-3.81	
8-17-2021	D835V2	4d194	Head	1g	1.00	10.0	9.76	2.15	
				10g	0.65	6.5	6.42	1.25	
8-17-2021	D1750V2	1125	Head	1g	3.43	34.3	36.50	-6.03	
				10g	1.83	18.3	19.20	-4.69	
8-17-2021	D1900V2	5d199	Head	1g	3.98	39.8	40.50	-1.73	
				10g	2.06	20.6	21.00	-1.90	

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				
8-2-2021	D2450V2	960	Head	1g	5.54	55.4	53.20	4.14	
				10g	2.54	25.4	24.80	2.42	
8-2-2021	D2600V2	1097	Head	1g	5.59	55.9	57.30	-2.44	7,8
				10g	2.49	24.9	25.70	-3.11	
8-5-2021	D2450V2	960	Head	1g	5.61	56.1	53.20	5.45	9,10
				10g	2.58	25.8	24.80	4.03	
8-9-2021	D2450V2	960	Head	1g	5.55	55.5	53.20	4.32	
				10g	2.56	25.6	24.80	3.23	
8-9-2021	D2600V2	1097	Head	1g	5.64	56.4	57.30	-1.57	
				10g	2.52	25.2	25.70	-1.95	
8-17-2021	D2450V2	960	Head	1g	5.35	53.5	53.20	0.56	
				10g	2.46	24.6	24.80	-0.81	

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				
8-2-2021	D750V3	1122	Head	1g	0.83	8.3	8.54	-2.58	11,12
				10g	0.55	5.5	5.59	-2.15	
8-2-2021	D835V2	4d194	Head	1g	0.96	9.6	9.76	-1.54	
				10g	0.63	6.3	6.42	-2.02	
8-5-2021	D835V2	4d194	Head	1g	0.97	9.7	9.76	-0.92	
				10g	0.64	6.4	6.42	-0.93	
8-13-2021	D835V2	4d194	Head	1g	1.01	10.1	9.76	3.48	13,14
				10g	0.66	6.6	6.42	2.02	
8-17-2021	D835V2	4d194	Head	1g	1.00	10.0	9.76	2.46	
				10g	0.66	6.6	6.42	2.18	

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 Pw r	Frame Pw r	Burst Pw r	Frame Pw r
GSM (Voice)	CS1	1	128	824.2	32.5	23.4	34.0	25.0
			190	836.6	33.1	24.1		
			251	848.8	32.8	23.8		
GPRS (GMSK)	CS1	1	128	824.2	32.4	23.3	34.0	25.0
			190	836.6	33.0	23.9		
			251	848.8	32.7	23.7		
		2	128	824.2	30.6	24.5	32.0	26.0
			190	836.6	31.0	25.0		
			251	848.8	30.7	24.7		
		3	128	824.2	29.1	24.9	30.5	26.2
			190	836.6	29.5	25.3		
			251	848.8	29.3	25.0		
		4	128	824.2	27.6	24.6	29.0	26.0
			190	836.6	28.2	25.2		
			251	848.8	28.0	24.9		
EGPRS (8PSK)	MCS5	1	128	824.2	27.0	18.0	28.0	19.0
			190	836.6	27.6	18.6		
			251	848.8	27.3	18.3		
		2	128	824.2	25.0	19.0	26.0	20.0
			190	836.6	25.4	19.3		
			251	848.8	25.1	19.1		
		3	128	824.2	23.1	18.8	24.0	19.7
			190	836.6	23.4	19.2		
			251	848.8	23.1	18.9		
		4	128	824.2	22.1	19.1	23.0	20.0
			190	836.6	22.5	19.5		
			251	848.8	22.3	19.3		

Notes:

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

- GMSK (GPRS) mode with 3 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 $\leq 1/4$ dB higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is ≤ 1.2 W/kg.

GSM1900 Measured Results (Max power)

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pw r	Frame Pw r	Burst Pw r	Frame Pw r
GSM (Voice)	CS1	1	512	1850.2	29.9	20.9	31.0	22.0
			661	1880.0	30.2	21.2		
			810	1909.8	29.9	20.9		
GPRS (GMSK)	CS1	1	512	1850.2	30.0	20.9	31.0	22.0
			661	1880.0	30.2	21.2		
			810	1909.8	29.9	20.9		
		2	512	1850.2	27.7	21.7	29.0	23.0
			661	1880.0	28.1	22.1		
			810	1909.8	27.7	21.7		
		3	512	1850.2	26.1	21.8	27.5	23.2
			661	1880.0	26.5	22.3		
			810	1909.8	26.0	21.8		
		4	512	1850.2	24.8	21.8	26.0	23.0
			661	1880.0	25.3	22.3		
			810	1909.8	24.8	21.8		
EGPRS (8PSK)	MCS5	1	512	1850.2	25.6	16.5	27.0	18.0
			661	1880.0	25.8	16.8		
			810	1909.8	25.7	16.7		
		2	512	1850.2	23.9	17.9	25.0	19.0
			661	1880.0	24.2	18.2		
			810	1909.8	23.9	17.9		
		3	512	1850.2	22.0	17.7	23.0	18.7
			661	1880.0	22.3	18.0		
			810	1909.8	21.9	17.6		
		4	512	1850.2	20.9	17.9	22.0	19.0
			661	1880.0	21.3	18.3		
			810	1909.8	21.0	18.0		

GSM1900 Measured Results (Reduce power)

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Reduced Average Power (dBm)				Reduced Average Power (dBm)			
					Hotspot back-off				Proximity sensor back-off			
					Measured		Tune-up Limit		Measured		Tune-up Limit	
Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr					
GSM (Voice)	CS1	1	512	1850.2	27.0	18.0	28.0	19.0	27.0	18.0	28.0	19.0
			661	1880.0	27.3	18.2			27.3	18.2		
			810	1909.8	27.0	18.0			27.1	18.0		
GPRS (GMSK)	CS1	1	512	1850.2	27.2	18.1	28.0	19.0	27.1	18.1	28.0	19.0
			661	1880.0	27.3	18.3			27.3	18.3		
			810	1909.8	27.1	18.1			27.1	18.1		
		2	512	1850.2	25.0	19.0	26.0	20.0	25.0	18.9	26.0	20.0
			661	1880.0	25.5	19.4			25.5	19.5		
			810	1909.8	25.0	19.0			25.0	19.0		
		3	512	1850.2	23.4	19.1	24.5	20.2	23.3	19.1	24.5	20.2
			661	1880.0	23.8	19.5			23.7	19.4		
			810	1909.8	23.3	19.1			23.3	19.1		
		4	512	1850.2	21.8	18.8	23.0	20.0	21.8	18.8	23.0	20.0
			661	1880.0	22.2	19.2			22.2	19.2		
			810	1909.8	21.6	18.6			21.5	18.5		
EGPRS (8PSK)	MCS5	1	512	1850.2	25.4	16.4	27.0	18.0	25.2	16.2	27.0	18.0
			661	1880.0	26.0	16.9			25.7	16.7		
			810	1909.8	25.6	16.6			25.2	16.1		
		2	512	1850.2	23.8	17.8	25.0	19.0	23.6	17.6	25.0	19.0
			661	1880.0	24.2	18.1			23.8	17.8		
			810	1909.8	23.8	17.8			23.4	17.4		
		3	512	1850.2	21.9	17.7	23.0	18.7	21.7	17.5	23.0	18.7
			661	1880.0	22.2	17.9			21.8	17.5		
			810	1909.8	22.0	17.8			21.6	17.3		
		4	512	1850.2	20.8	17.8	22.0	19.0	20.6	17.6	22.0	19.0
			661	1880.0	21.3	18.2			20.9	17.8		
			810	1909.8	20.9	17.9			20.5	17.5		

Notes:

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

- GMSK (GPRS) mode with 3 time slots for Max power & Reduce power, based on the Tune-up Procedure. Refer to §6.3.
- SAR is not required for EGPRS (8PSK) mode because the maximum output power and tune-up limit is ≤ 1/4dB higher than GMSK GPRS or the adjusted SAR of the highest reported SAR of GMSK GPRS is ≤ 1.2W/kg.

9.2. W-CDMA

Release 99 Setup Procedures used to establish the test signals

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

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

HSDPA Setup Procedures used to establish the test signals

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

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

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

The following 5 Sub-tests were completed according to Release 6 procedures in 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
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	β_{ed}	1309/225	94/75	47/15	56/75	47/15
CM (dB)	1	3	2	3	1	
MPR (dB)	0	2	1	2	0	
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	$A_{hs} = \beta_{hs}/\beta_c$	30/15				
HSUPA Specific Settings	E-DPDCH	6	8	8	5	0
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E-TFCIs	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
Reference E-TFCI PO	27	27	27	27	27	
Maximum Channelization Codes	2xSF2				SF4	

DC-HSDPA Setup Procedures used to establish the test signals

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

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

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

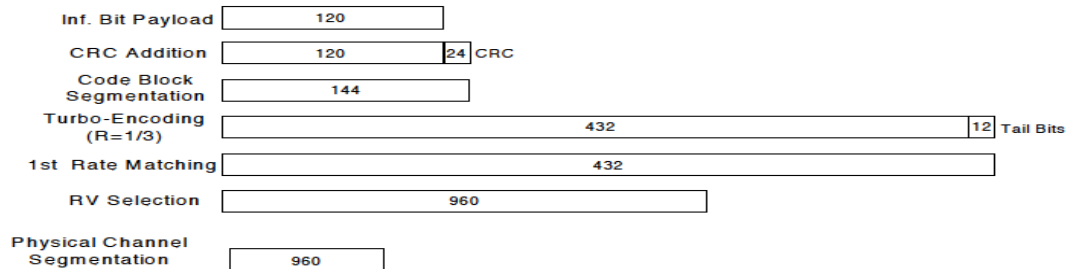


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

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

HSPA+

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

W-CDMA Band II Measured Results

Mode	UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			Reduced Average Power (dBm) Hotspot back-off			Reduced Average Power (dBm) Proximity sensor back-off			
			Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	Measured Pwr	MPR	Tune-up Limit	
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	23.1	NA	24.0	19.6	NA	21.0	19.6	NA	21.0
		9400	1880.0	23.2			20.0			20.0		
		9538	1907.6	23.0			19.8			19.7		
HSDPA	Subtest 1	9262	1852.4	22.1	0	23.5	18.6	0	20.5	18.6	0	20.5
		9400	1880.0	22.2			19.0			19.0		
		9538	1907.6	22.0			18.7			18.8		
	Subtest 2	9262	1852.4	22.1	0	23.5	18.5	0	20.5	18.6	0	20.5
		9400	1880.0	22.2			19.0			19.0		
		9538	1907.6	21.9			18.7			18.7		
	Subtest 3	9262	1852.4	21.6	0.5	23.0	18.1	0.5	20.0	18.2	0.5	20.0
		9400	1880.0	21.7			18.4			18.5		
		9538	1907.6	21.4			18.2			18.2		
	Subtest 4	9262	1852.4	21.6	0.5	23.0	18.0	0.5	20.0	18.8	0.5	20.0
		9400	1880.0	21.7			18.5			18.5		
		9538	1907.6	21.5			18.2			18.3		
HSUPA	Subtest 1	9262	1852.4	21.6	0	23.0	18.6	0	20.0	18.6	0	20.0
		9400	1880.0	22.0			19.0			19.0		
		9538	1907.6	21.8			18.7			18.7		
	Subtest 2	9262	1852.4	19.6	2	21.0	16.6	2	18.0	16.6	2	18.0
		9400	1880.0	20.1			17.0			17.0		
		9538	1907.6	19.8			16.7			16.7		
	Subtest 3	9262	1852.4	20.6	1	22.0	17.6	1	19.0	17.6	1	19.0
		9400	1880.0	21.0			17.6			17.5		
		9538	1907.6	20.8			17.7			17.7		
	Subtest 4	9262	1852.4	19.6	2	21.0	16.6	2	18.0	16.6	2	18.0
		9400	1880.0	20.0			17.0			16.9		
		9538	1907.6	19.8			16.7			16.7		
	Subtest 5	9262	1852.4	21.2	0	23.0	18.1	0	20.0	18.2	0	20.0
		9400	1880.0	21.6			18.5			18.5		
		9538	1907.6	21.4			18.3			18.3		
DC-HSDPA	Subtest 1	9262	1852.4	21.7	0	23.5	18.6	0	20.5	18.7	0	20.5
		9400	1880.0	22.1			19.1			19.1		
		9538	1907.6	21.8			18.8			18.8		
	Subtest 2	9262	1852.4	21.7	0	23.5	18.7	0	20.5	18.7	0	20.5
		9400	1880.0	22.1			19.1			19.1		
		9538	1907.6	21.8			18.8			18.8		
	Subtest 3	9262	1852.4	21.2	0.5	23.0	18.2	0.5	20.0	18.2	0.5	20.0
		9400	1880.0	21.6			18.5			18.6		
		9538	1907.6	21.3			18.3			18.3		
	Subtest 4	9262	1852.4	21.2	0.5	23.0	18.2	0.5	20.0	18.2	0.5	20.0
		9400	1880.0	21.6			18.6			18.6		
		9538	1907.6	21.3			18.3			18.3		

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	22.7	N/A	24.0	19.1	N/A	21.0	19.2	N/A	21.0
		1413	1732.6	22.7			19.1			19.1		
		1513	1752.6	22.7			19.2			19.2		
HSDPA	Subtest 1	1312	1712.4	21.8	0	23.5	18.2	0	20.5	18.2	0	20.5
		1413	1732.6	21.7			18.1			18.1		
		1513	1752.6	21.7			18.2			18.2		
	Subtest 2	1312	1712.4	21.7	0	23.5	18.2	0	20.5	19.3	0	20.5
		1413	1732.6	21.7			18.1			18.1		
		1513	1752.6	21.7			18.1			18.1		
	Subtest 3	1312	1712.4	21.2	0.5	23.0	17.6	0.5	20.0	17.7	0.5	20.0
		1413	1732.6	21.2			17.6			17.6		
		1513	1752.6	21.2			17.6			17.7		
	Subtest 4	1312	1712.4	21.2	0.5	23.0	17.6	0.5	20.0	17.6	0.5	20.0
		1413	1732.6	21.2			17.6			17.6		
		1513	1752.6	21.2			17.6			17.6		
HSUPA	Subtest 1	1312	1712.4	21.2	0	23.0	18.1	0	20.0	18.1	0	20.0
		1413	1732.6	21.1			18.1			18.1		
		1513	1752.6	21.2			18.1			18.1		
	Subtest 2	1312	1712.4	19.2	2	21.0	16.1	2	18.0	16.1	2	18.0
		1413	1732.6	19.1			16.1			16.1		
		1513	1752.6	19.1			16.1			16.1		
	Subtest 3	1312	1712.4	20.2	1	22.0	17.1	1	19.0	17.1	1	19.0
		1413	1732.6	20.1			17.1			17.1		
		1513	1752.6	20.1			17.1			17.1		
	Subtest 4	1312	1712.4	19.2	2	21.0	16.1	2	18.0	16.2	2	18.0
		1413	1732.6	19.1			16.1			16.1		
		1513	1752.6	19.2			16.1			16.2		
	Subtest 5	1312	1712.4	20.7	0	23.0	17.7	0	20.0	17.7	0	20.0
		1413	1732.6	20.7			17.6			17.7		
		1513	1752.6	20.7			17.7			17.7		
DC-HSDPA	Subtest 1	1312	1712.4	21.2	0	23.5	18.2	0	20.5	18.2	0	20.5
		1413	1732.6	21.2			18.1			18.2		
		1513	1752.6	21.2			18.1			18.2		
	Subtest 2	1312	1712.4	21.2	0	23.5	18.1	0	20.5	18.2	0	20.5
		1413	1732.6	21.1			18.1			18.1		
		1513	1752.6	21.2			18.1			18.1		
	Subtest 3	1312	1712.4	20.7	0.5	23.0	17.7	0.5	20.0	17.7	0.5	20.0
		1413	1732.6	20.6			17.6			17.6		
		1513	1752.6	20.7			17.6			17.7		
	Subtest 4	1312	1712.4	20.7	0.5	23.0	17.7	0.5	20.0	17.7	0.5	20.0
		1413	1732.6	20.6			17.6			17.6		
		1513	1752.6	20.7			17.6			17.7		

W-CDMA Band V Measured Results

Mode	UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
			Measured Pwr	MPR	Tune-up Limit	
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	24.6	N/A	25.8
		4183	836.6	24.8		
		4233	846.6	24.7		
HSDPA	Subtest 1	4132	826.4	23.6	0	25.3
		4183	836.6	23.8		
		4233	846.6	23.7		
	Subtest 2	4132	826.4	23.6	0	25.3
		4183	836.6	23.8		
		4233	846.6	23.6		
	Subtest 3	4132	826.4	23.1	0.5	24.8
		4183	836.6	23.3		
		4233	846.6	23.1		
	Subtest 4	4132	826.4	23.1	0.5	24.8
		4183	836.6	23.3		
		4233	846.6	23.1		
HSUPA	Subtest 1	4132	826.4	23.4	0	24.8
		4183	836.6	23.6		
		4233	846.6	23.4		
	Subtest 2	4132	826.4	21.4	2	22.8
		4183	836.6	21.6		
		4233	846.6	21.3		
	Subtest 3	4132	826.4	22.4	1	23.8
		4183	836.6	22.6		
		4233	846.6	22.4		
	Subtest 4	4132	826.4	21.4	2	22.8
		4183	836.6	21.5		
		4233	846.6	21.3		
	Subtest 5	4132	826.4	22.9	0	24.8
		4183	836.6	23.1		
		4233	846.6	22.9		
DC-HSDPA	Subtest 1	4132	826.4	23.4	0	25.3
		4183	836.6	23.5		
		4233	846.6	23.4		
	Subtest 2	4132	826.4	23.4	0	25.3
		4183	836.6	23.6		
		4233	846.6	23.4		
	Subtest 3	4132	826.4	22.9	0.5	24.8
		4183	836.6	23.0		
		4233	846.6	22.8		
	Subtest 4	4132	826.4	22.9	0.5	24.8
		4183	836.6	23.0		
		4233	846.6	22.8		

9.3. LTE

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

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

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

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

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

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

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

Maximum Output Power (Tune-up Limit) for LTE

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

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

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

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

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

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

1. Max power

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	22.2	22.5	22.6	0.0	24.0
		1	49	22.3	22.6	22.4	0.0	24.0
		1	99	22.4	22.6	22.3	0.0	24.0
		50	0	21.2	21.5	21.5	1.0	23.0
		50	24	21.4	21.6	21.6	1.0	23.0
		50	50	21.4	21.6	21.5	1.0	23.0
	16QAM	100	0	21.3	21.6	21.5	1.0	23.0
		1	0	21.7	22.1	22.0	1.0	23.0
		1	49	21.7	22.1	22.0	1.0	23.0
		1	99	21.8	22.1	21.8	1.0	23.0
		50	0	20.2	20.5	20.6	2.0	22.0
		50	24	20.4	20.7	20.6	2.0	22.0
	64QAM	50	50	20.4	20.6	20.5	2.0	22.0
		100	0	20.4	20.6	20.5	2.0	22.0
		1	0	20.5	20.8	21.3	2.0	22.0
		1	49	20.5	20.9	21.1	2.0	22.0
		1	99	20.7	20.9	20.9	2.0	22.0
		50	0	19.3	19.6	19.6	3.0	21.0
	256QAM	50	24	19.5	19.7	19.6	3.0	21.0
		50	50	19.5	19.7	19.6	3.0	21.0
		100	0	19.4	19.6	19.6	3.0	21.0
		1	0	17.4	17.6	17.7	5.0	19.0
		1	49	17.8	18.0	17.9	5.0	19.0
		1	99	17.7	17.8	17.6	5.0	19.0
15 MHz	QPSK	50	0	17.5	17.7	17.8	5.0	19.0
		50	24	17.7	17.8	17.8	5.0	19.0
		50	50	17.7	17.8	17.7	5.0	19.0
		100	0	17.6	17.7	17.7	5.0	19.0
		1	0	22.2	22.7	22.6	0.0	24.0
		1	37	22.3	22.7	22.6	0.0	24.0
	16QAM	1	74	22.4	22.7	22.5	0.0	24.0
		36	0	21.4	21.6	21.6	1.0	23.0
		36	20	21.5	21.7	21.7	1.0	23.0
		36	39	21.5	21.7	21.7	1.0	23.0
		75	0	21.4	21.7	21.6	1.0	23.0
		1	0	21.6	22.1	21.7	1.0	23.0
	64QAM	1	37	21.8	22.2	21.6	1.0	23.0
		1	74	21.8	22.2	21.5	1.0	23.0
		36	0	20.4	20.6	20.7	2.0	22.0
		36	20	20.6	20.7	20.7	2.0	22.0
		36	39	20.6	20.7	20.7	2.0	22.0
		75	0	20.5	20.7	20.7	2.0	22.0
	256QAM	1	0	20.3	21.0	21.1	2.0	22.0
		1	37	20.5	21.1	21.0	2.0	22.0
		1	74	20.5	21.0	20.9	2.0	22.0
		36	0	19.5	19.8	19.8	3.0	21.0
		36	20	19.6	19.9	19.8	3.0	21.0
		36	39	19.6	19.9	19.8	3.0	21.0
QPSK	75	0	19.5	19.8	19.7	3.0	21.0	
	1	0	17.1	17.6	17.6	5.0	19.0	
	1	37	17.3	18.1	18.0	5.0	19.0	
	1	74	17.3	17.9	17.8	5.0	19.0	
	36	0	17.4	17.7	17.7	5.0	19.0	
	36	20	17.5	17.8	17.8	5.0	19.0	
16QAM	36	39	17.6	17.8	17.7	5.0	19.0	
	75	0	17.5	17.8	17.7	5.0	19.0	

LTE Band 2 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	22.1	22.3	22.7	0.0	24.0
		1	25	22.5	22.7	22.6	0.0	24.0
		1	49	22.2	22.5	22.6	0.0	24.0
		25	0	21.4	21.7	21.6	1.0	23.0
		25	12	21.6	21.8	21.7	1.0	23.0
		25	25	21.5	21.6	21.5	1.0	23.0
	16QAM	50	0	21.4	21.7	21.6	1.0	23.0
		1	0	21.5	21.4	21.7	1.0	23.0
		1	25	21.8	21.8	21.6	1.0	23.0
		1	49	21.6	21.5	21.5	1.0	23.0
		25	0	20.5	20.7	20.6	2.0	22.0
		25	12	20.6	20.8	20.7	2.0	22.0
	64QAM	25	25	20.5	20.7	20.5	2.0	22.0
		50	0	20.5	20.7	20.6	2.0	22.0
		1	0	20.2	20.8	21.2	2.0	22.0
		1	25	20.6	21.2	21.0	2.0	22.0
		1	49	20.4	20.9	21.0	2.0	22.0
		25	0	19.5	19.8	19.7	3.0	21.0
	256QAM	25	12	19.6	19.9	19.8	3.0	21.0
		25	25	19.6	19.8	19.7	3.0	21.0
		50	0	19.5	19.7	19.7	3.0	21.0
1		0	17.0	17.8	17.4	5.0	19.0	
1		25	17.3	17.8	17.6	5.0	19.0	
1		49	17.1	17.7	17.3	5.0	19.0	
5 MHz	QPSK	25	0	17.5	17.8	17.8	5.0	19.0
		25	12	17.6	18.0	17.9	5.0	19.0
		25	25	17.5	17.8	17.8	5.0	19.0
		50	0	17.4	17.8	17.8	5.0	19.0
		1	0	22.4	22.8	22.5	0.0	24.0
		1	12	22.5	22.9	22.5	0.0	24.0
	16QAM	1	24	22.4	22.8	22.4	0.0	24.0
		12	0	21.5	21.8	21.6	1.0	23.0
		12	7	21.5	21.8	21.7	1.0	23.0
		12	13	21.4	21.8	21.5	1.0	23.0
		25	0	21.5	21.8	21.6	1.0	23.0
		1	0	21.6	21.9	22.2	1.0	23.0
	64QAM	1	12	21.6	22.0	22.2	1.0	23.0
		1	24	21.6	21.9	22.1	1.0	23.0
		12	0	20.5	20.9	20.8	2.0	22.0
		12	7	20.6	20.9	20.8	2.0	22.0
		12	13	20.5	20.9	20.7	2.0	22.0
		25	0	20.5	20.8	20.7	2.0	22.0
	256QAM	1	0	20.8	20.7	20.6	2.0	22.0
		1	12	20.9	20.8	20.6	2.0	22.0
		1	24	20.7	20.7	20.5	2.0	22.0
12		0	19.5	19.9	19.8	3.0	21.0	
12		7	19.5	19.9	19.8	3.0	21.0	
12		13	19.4	19.9	19.8	3.0	21.0	
QPSK	25	0	19.5	19.8	19.7	3.0	21.0	
	1	0	17.6	17.8	17.9	5.0	19.0	
	1	12	17.7	18.0	17.9	5.0	19.0	
	1	24	17.6	17.9	17.8	5.0	19.0	
	12	0	17.5	17.9	17.8	5.0	19.0	
	12	7	17.6	18.0	17.8	5.0	19.0	
16QAM	12	13	17.5	17.9	17.8	5.0	19.0	
	12	13	17.5	17.9	17.8	5.0	19.0	
	25	0	17.5	17.9	17.7	5.0	19.0	

LTE Band 2 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	22.4	22.7	22.6	0.0	24.0
		1	8	22.3	22.7	22.6	0.0	24.0
		1	14	22.3	22.7	22.5	0.0	24.0
		8	0	21.5	21.8	21.6	1.0	23.0
		8	4	21.5	21.8	21.7	1.0	23.0
		8	7	21.5	21.9	21.6	1.0	23.0
		15	0	21.5	21.8	21.6	1.0	23.0
	16QAM	1	0	21.5	21.7	22.0	1.0	23.0
		1	8	21.5	21.7	22.0	1.0	23.0
		1	14	21.4	21.7	21.9	1.0	23.0
		8	0	20.5	20.9	20.8	2.0	22.0
		8	4	20.5	20.9	20.8	2.0	22.0
		8	7	20.5	21.0	20.8	2.0	22.0
		15	0	20.4	20.8	20.7	2.0	22.0
	64QAM	1	0	20.6	21.1	21.0	2.0	22.0
		1	8	20.6	21.1	21.0	2.0	22.0
		1	14	20.5	21.1	20.9	2.0	22.0
		8	0	19.6	19.9	19.8	3.0	21.0
		8	4	19.6	19.9	19.8	3.0	21.0
		8	7	19.6	20.0	19.8	3.0	21.0
		15	0	19.6	19.8	19.7	3.0	21.0
256QAM	1	0	17.3	18.3	18.1	5.0	19.0	
	1	8	17.2	18.3	18.1	5.0	19.0	
	1	14	17.2	17.9	17.6	5.0	19.0	
	8	0	17.5	18.0	17.9	5.0	19.0	
	8	4	17.5	18.0	17.9	5.0	19.0	
	8	7	17.5	18.1	17.9	5.0	19.0	
	15	0	17.6	17.9	17.8	5.0	19.0	
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	22.4	22.6	22.4	0.0	24.0
		1	3	22.4	22.7	22.5	0.0	24.0
		1	5	22.4	22.7	22.4	0.0	24.0
		3	0	22.3	22.6	22.4	0.0	24.0
		3	1	22.4	22.7	22.5	0.0	24.0
		3	3	22.4	22.7	22.5	0.0	24.0
		6	0	21.4	21.7	21.5	1.0	23.0
	16QAM	1	0	21.5	22.1	21.6	1.0	23.0
		1	3	21.6	22.2	21.6	1.0	23.0
		1	5	21.5	22.1	21.6	1.0	23.0
		3	0	21.4	21.9	21.7	1.0	23.0
		3	1	21.5	21.9	21.7	1.0	23.0
		3	3	21.5	21.9	21.7	1.0	23.0
		6	0	20.6	20.6	20.7	2.0	22.0
	64QAM	1	0	20.8	20.9	21.0	2.0	22.0
		1	3	20.9	21.1	21.1	2.0	22.0
		1	5	20.8	21.0	21.0	2.0	22.0
		3	0	20.8	20.7	20.9	2.0	22.0
		3	1	20.8	20.8	20.9	2.0	22.0
		3	3	20.8	20.8	20.9	2.0	22.0
		6	0	19.4	19.8	19.6	3.0	21.0
	256QAM	1	0	18.2	17.9	17.8	5.0	19.0
		1	3	18.2	18.0	17.8	5.0	19.0
		1	5	17.4	17.9	17.7	5.0	19.0
		3	0	17.5	17.8	17.6	5.0	19.0
		3	1	17.5	17.9	17.6	5.0	19.0
		3	3	17.5	17.9	17.6	5.0	19.0
6		0	17.5	17.7	17.5	5.0	19.0	

LTE Band 5 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					
				Measured Pwr (dBm)			MFR	Tune-up Limit	
				20450	20525	20600			
				829 MHz	836.5 MHz	844 MHz			
10 MHz	QPSK	1	0		24.4		0.0	25.8	
		1	25		24.5		0.0	25.8	
		1	49		24.4		0.0	25.8	
		25	0		23.6		1.0	24.8	
		25	12		23.6		1.0	24.8	
		25	25		23.6		1.0	24.8	
	16QAM	50	0		23.5		1.0	24.8	
		1	0		23.6		1.0	24.8	
		1	25		23.6		1.0	24.8	
		1	49		23.5		1.0	24.8	
		25	0		22.6		2.0	23.8	
		25	12		22.6		2.0	23.8	
	64QAM	25	25		22.6		2.0	23.8	
		50	0		22.5		2.0	23.8	
		1	0		22.7		2.0	23.8	
		1	25		22.8		2.0	23.8	
		1	49		22.7		2.0	23.8	
		25	0		21.7		3.0	22.8	
	256QAM	25	12		21.7		3.0	22.8	
		25	25		21.6		3.0	22.8	
		50	0		21.6		3.0	22.8	
		1	0		19.6		5.0	20.8	
		1	25		20.1		5.0	20.8	
		1	49		19.6		5.0	20.8	
5 MHz	QPSK	25	0		19.5		5.0	20.8	
		25	25		19.5		5.0	20.8	
		50	0		19.5		5.0	20.8	
		1	0		24.8	24.8	24.8	0.0	25.8
		1	12		24.8	24.9	24.8	0.0	25.8
		1	24		24.8	24.9	24.7	0.0	25.8
	16QAM	12	0		23.9	23.9	23.8	1.0	24.8
		12	7		23.9	24.0	23.9	1.0	24.8
		12	13		23.9	23.9	23.8	1.0	24.8
		25	0		23.9	23.9	23.8	1.0	24.8
		1	0		24.3	24.0	24.0	1.0	24.8
		1	12		24.2	24.1	24.0	1.0	24.8
	64QAM	1	24		24.2	24.1	24.0	1.0	24.8
		12	0		23.0	23.0	22.9	2.0	23.8
		12	7		23.0	23.0	23.0	2.0	23.8
		12	13		23.0	23.0	22.9	2.0	23.8
		25	0		22.9	22.9	22.9	2.0	23.8
		1	0		23.1	22.8	22.8	2.0	23.8
	256QAM	1	12		23.2	22.9	22.8	2.0	23.8
		1	24		23.1	22.9	22.8	2.0	23.8
		12	0		21.9	21.9	21.9	3.0	22.8
		12	7		22.0	22.0	22.0	3.0	22.8
		12	13		21.9	22.0	21.9	3.0	22.8
		25	0		21.9	21.9	21.9	3.0	22.8
256QAM	1	0		19.9	19.9	19.9	5.0	20.8	
	1	12		19.9	20.2	20.0	5.0	20.8	
	1	24		19.9	20.0	19.9	5.0	20.8	
	12	0		19.9	20.0	19.9	5.0	20.8	
	12	7		19.9	20.0	19.9	5.0	20.8	
	12	13		19.9	20.0	19.9	5.0	20.8	
25	0		19.9	20.0	19.9	5.0	20.8		

LTE Band 5 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit
				20415	20525	20635		
				825.5 MHz	836.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	24.8	24.8	24.8	0.0	25.8
		1	8	24.7	24.8	24.8	0.0	25.8
		1	14	24.8	24.9	24.8	0.0	25.8
		8	0	23.9	23.9	23.8	1.0	24.8
		8	4	23.9	24.0	23.9	1.0	24.8
		8	7	23.9	24.0	23.9	1.0	24.8
	16QAM	15	0	23.9	23.9	23.8	1.0	24.8
		1	0	23.9	23.8	24.2	1.0	24.8
		1	8	23.8	23.8	24.2	1.0	24.8
		1	14	23.8	23.9	24.3	1.0	24.8
		8	0	22.9	23.0	22.9	2.0	23.8
		8	4	23.0	23.0	22.9	2.0	23.8
	64QAM	8	7	23.0	23.1	22.9	2.0	23.8
		15	0	22.8	23.0	22.9	2.0	23.8
		1	0	23.2	23.2	22.9	2.0	23.8
		1	8	23.1	23.2	22.9	2.0	23.8
		1	14	23.1	23.2	22.9	2.0	23.8
		8	0	21.9	22.0	21.9	3.0	22.8
	256QAM	8	4	21.9	22.0	21.9	3.0	22.8
		8	7	21.9	22.0	21.9	3.0	22.8
		15	0	22.0	22.0	21.9	3.0	22.8
1		0	19.9	20.3	19.6	5.0	20.8	
1		8	19.9	20.4	19.6	5.0	20.8	
1		14	19.9	20.4	19.6	5.0	20.8	
1.4 MHz	QPSK	8	0	20.0	20.1	19.8	5.0	20.8
		8	4	20.0	20.1	19.8	5.0	20.8
		8	7	20.1	20.1	19.8	5.0	20.8
		15	0	19.9	20.0	19.9	5.0	20.8
		1	0	24.8	24.8	24.7	0.0	25.8
		1	3	24.8	24.9	24.7	0.0	25.8
	16QAM	1	5	24.8	24.8	24.7	0.0	25.8
		3	0	24.7	24.8	24.7	0.0	25.8
		3	1	24.8	24.8	24.7	0.0	25.8
		3	3	24.8	24.9	24.7	0.0	25.8
		6	0	23.8	23.8	23.8	1.0	24.8
		1	0	24.0	24.2	23.7	1.0	24.8
	64QAM	1	3	24.1	24.3	23.8	1.0	24.8
		1	5	24.0	24.3	23.7	1.0	24.8
		3	0	23.9	24.0	24.0	1.0	24.8
		3	1	23.9	24.1	24.0	1.0	24.8
		3	3	23.9	24.1	24.0	1.0	24.8
		6	0	22.9	22.8	22.9	2.0	23.8
	256QAM	1	0	23.2	23.0	22.8	2.0	23.8
		1	3	23.3	23.1	22.9	2.0	23.8
		1	5	23.2	23.0	22.8	2.0	23.8
3		0	23.2	23.0	22.8	2.0	23.8	
3		1	23.2	23.0	22.9	2.0	23.8	
3		3	23.2	23.1	22.9	2.0	23.8	
256QAM	6	0	21.8	22.2	22.1	3.0	22.8	
	1	0	19.9	20.0	19.9	5.0	20.8	
	1	3	20.1	20.1	20.0	5.0	20.8	
	1	5	19.9	20.0	19.9	5.0	20.8	
	3	0	19.8	19.8	19.8	5.0	20.8	
	3	1	19.9	19.9	19.8	5.0	20.8	
256QAM	3	3	19.8	19.9	19.8	5.0	20.8	
	6	0	19.8	19.8	19.7	5.0	20.8	

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					
				Measured Pwr (dBm)			MPR	Tune-up Limit	
				23060	23095	23130			
				704 MHz	707.5 MHz	711 MHz			
10 MHz	QPSK	1	0		22.8		0.0	24.0	
		1	25		22.7		0.0	24.0	
		1	49		22.6		0.0	24.0	
		25	0		21.8		1.0	23.0	
		25	12		21.8		1.0	23.0	
		25	25		21.6		1.0	23.0	
	16QAM	50	0		21.7		1.0	23.0	
		1	0		21.8		1.0	23.0	
		1	25		21.7		1.0	23.0	
		1	49		21.6		1.0	23.0	
		25	0		20.7		2.0	22.0	
		25	12		20.8		2.0	22.0	
	64QAM	25	25		20.7		2.0	22.0	
		50	0		20.7		2.0	22.0	
		1	0		20.9		2.0	22.0	
		1	25		20.9		2.0	22.0	
		1	49		20.8		2.0	22.0	
		25	0		19.8		3.0	21.0	
	256QAM	25	12		19.9		3.0	21.0	
		25	25		19.8		3.0	21.0	
50		0		19.7		3.0	21.0		
1		0		17.9		5.0	19.0		
1		25		18.2		5.0	19.0		
1		49		17.9		5.0	19.0		
5 MHz	QPSK	25	0		17.7		5.0	19.0	
		25	12		17.8		5.0	19.0	
		25	25		17.7		5.0	19.0	
		50	0		17.7		5.0	19.0	
		1	0		23.1	23.0	23.0	0.0	24.0
		1	12		23.1	23.0	23.0	0.0	24.0
	16QAM	1	24		23.0	22.9	22.9	0.0	24.0
		12	0		22.2	22.1	21.9	1.0	23.0
		12	7		22.3	22.1	22.0	1.0	23.0
		12	13		22.1	22.0	22.0	1.0	23.0
		25	0		22.2	22.1	22.0	1.0	23.0
		1	0		22.8	22.2	22.2	1.0	23.0
	64QAM	1	12		22.7	22.2	22.1	1.0	23.0
		1	24		22.6	22.1	22.1	1.0	23.0
12		0		21.3	21.2	21.1	2.0	22.0	
12		7		21.3	21.2	21.1	2.0	22.0	
12		13		21.3	21.1	21.0	2.0	22.0	
25		0		21.3	21.0	21.0	2.0	22.0	
256QAM	1	0		21.6	21.3	20.9	2.0	22.0	
	1	12		21.5	21.4	20.9	2.0	22.0	
	1	24		21.4	21.2	20.8	2.0	22.0	
	12	0		20.2	20.2	20.0	3.0	21.0	
	12	7		20.2	20.1	20.0	3.0	21.0	
	12	13		20.1	20.1	20.0	3.0	21.0	
256QAM	25	0		20.2	20.1	20.0	3.0	21.0	
	1	0		18.4	18.1	17.7	5.0	19.0	
	1	12		18.4	18.2	17.7	5.0	19.0	
	1	24		18.3	17.9	17.6	5.0	19.0	
	12	0		18.3	18.1	18.0	5.0	19.0	
	12	7		18.3	18.1	18.0	5.0	19.0	
	12	13		18.2	18.1	17.9	5.0	19.0	
	25	0		18.2	18.1	18.0	5.0	19.0	

LTE Band 12 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	
				23025	23095	23165			
				700.5 MHz	707.5 MHz	714.5 MHz			
3 MHz	QPSK	1	0	23.1	23.0	22.9	0.0	24.0	
		1	8	23.0	23.0	22.9	0.0	24.0	
		1	14	23.0	22.9	22.9	0.0	24.0	
		8	0	22.2	22.1	21.9	1.0	23.0	
		8	4	22.2	22.0	22.0	1.0	23.0	
		8	7	22.2	22.1	21.9	1.0	23.0	
	16QAM	15	0	22.2	22.1	21.9	1.0	23.0	
		1	0	22.3	22.0	22.4	1.0	23.0	
		1	8	22.2	22.0	22.3	1.0	23.0	
		1	14	22.1	21.9	22.3	1.0	23.0	
		8	0	21.3	21.2	21.0	2.0	22.0	
		8	4	21.3	21.2	21.1	2.0	22.0	
	64QAM	8	7	21.2	21.2	21.1	2.0	22.0	
		15	0	21.1	21.1	21.0	2.0	22.0	
		1	0	21.3	21.3	21.2	2.0	22.0	
		1	8	21.3	21.3	21.2	2.0	22.0	
		1	14	21.3	21.2	21.2	2.0	22.0	
		8	0	20.3	20.0	20.0	3.0	21.0	
	256QAM	8	4	20.3	20.1	20.1	3.0	21.0	
		8	7	20.3	20.1	20.1	3.0	21.0	
		15	0	20.3	20.1	20.0	3.0	21.0	
		1	0	18.1	18.1	18.4	5.0	19.0	
		1	8	17.9	18.1	18.3	5.0	19.0	
		1	14	18.0	18.0	18.4	5.0	19.0	
1.4 MHz	QPSK	8	0	18.2	18.2	18.1	5.0	19.0	
		8	4	18.2	18.2	18.1	5.0	19.0	
		8	7	18.2	18.2	18.1	5.0	19.0	
		15	0	18.4	18.1	18.0	5.0	19.0	
		16QAM	1	0	23.0	22.9	22.8	0.0	24.0
			1	3	23.1	22.9	22.8	0.0	24.0
	1		5	23.0	22.8	22.8	0.0	24.0	
	3		0	23.0	22.9	22.7	0.0	24.0	
	3		1	23.1	22.9	22.8	0.0	24.0	
	3		3	23.1	22.9	22.8	0.0	24.0	
	64QAM	6	0	22.1	22.0	21.8	1.0	23.0	
		1	0	22.5	22.0	21.9	1.0	23.0	
		1	3	22.5	22.1	22.0	1.0	23.0	
		1	5	22.5	22.0	21.9	1.0	23.0	
		3	0	22.2	22.2	21.9	1.0	23.0	
		3	1	22.3	22.2	21.9	1.0	23.0	
	256QAM	3	3	22.3	22.2	21.9	1.0	23.0	
		6	0	21.0	21.1	21.0	2.0	22.0	
		1	0	21.5	21.1	20.9	2.0	22.0	
		1	3	21.6	21.2	21.1	2.0	22.0	
		1	5	21.5	21.1	20.9	2.0	22.0	
		3	0	21.5	21.1	21.0	2.0	22.0	
	256QAM	3	1	21.5	21.2	21.0	2.0	22.0	
		3	3	21.5	21.2	21.0	2.0	22.0	
6		0	20.2	20.3	20.2	3.0	21.0		
1		0	18.3	18.2	17.7	5.0	19.0		
1		3	18.4	18.2	17.7	5.0	19.0		
1		5	18.3	18.1	17.7	5.0	19.0		

LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				23230	782 MHz			
10 MHz	QPSK	1	0	22.5	0.0	24.0		
		1	25	22.6	0.0	24.0		
		1	49	22.6	0.0	24.0		
		25	0	21.6	1.0	23.0		
		25	12	21.7	1.0	23.0		
		25	25	21.7	1.0	23.0		
	16QAM	50	0	21.6	1.0	23.0		
		1	0	21.7	1.0	23.0		
		1	25	21.7	1.0	23.0		
		1	49	21.8	1.0	23.0		
		25	0	20.8	2.0	22.0		
		25	12	20.7	2.0	22.0		
	64QAM	25	25	20.9	2.0	22.0		
		50	0	20.6	2.0	22.0		
		1	0	21.0	2.0	22.0		
		1	25	21.0	2.0	22.0		
		1	49	21.1	2.0	22.0		
		25	0	19.7	3.0	21.0		
	256QAM	25	12	19.8	3.0	21.0		
		25	25	19.8	3.0	21.0		
50		0	19.6	3.0	21.0			
1		0	17.9	5.0	19.0			
1		25	18.2	5.0	19.0			
1		49	18.1	5.0	19.0			
5 MHz	QPSK	25	0	17.7	5.0	19.0		
		25	12	17.7	5.0	19.0		
		25	25	18.0	5.0	19.0		
		50	0	17.8	5.0	19.0		
		1	0	22.9	0.0	24.0		
		1	12	23.0	0.0	24.0		
	16QAM	1	24	23.0	0.0	24.0		
		12	0	21.8	1.0	23.0		
		12	7	21.9	1.0	23.0		
		12	13	22.0	1.0	23.0		
		25	0	21.9	1.0	23.0		
		1	0	22.0	1.0	23.0		
64QAM	1	12	22.1	1.0	23.0			
	1	24	22.2	1.0	23.0			
	12	0	21.0	2.0	22.0			
	12	7	21.0	2.0	22.0			
	12	13	21.0	2.0	22.0			
	25	0	20.9	2.0	22.0			
256QAM	1	0	21.1	2.0	22.0			
	1	12	21.2	2.0	22.0			
	1	24	21.3	2.0	22.0			
	12	0	19.8	3.0	21.0			
	12	7	19.9	3.0	21.0			
	12	13	19.9	3.0	21.0			
QPSK	25	0	19.9	3.0	21.0			
	1	0	17.9	5.0	19.0			
	1	12	18.1	5.0	19.0			
	1	24	18.1	5.0	19.0			
	12	0	17.8	5.0	19.0			
	12	7	18.0	5.0	19.0			
16QAM	12	13	18.0	5.0	19.0			
	25	0	17.9	5.0	19.0			
	25	0	17.9	5.0	19.0			

LTE Band 26 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				26765	26865	26965		
				821.5 MHz	831.5 MHz	841.5 MHz		
15 MHz	QPSK	1	0		23.1		0.0	23.5
		1	37		23.1		0.0	23.5
		1	74		23.1		0.0	23.5
		36	0		22.0		1.0	22.5
		36	20		22.2		1.0	22.5
		36	39		22.2		1.0	22.5
	75	0		22.1		1.0	22.5	
	16QAM	1	0		22.1		1.0	22.5
		1	37		22.2		1.0	22.5
		1	74		22.1		1.0	22.5
		36	0		21.1		2.0	21.5
		36	20		21.2		2.0	21.5
		36	39		21.2		2.0	21.5
	75	0		21.1		2.0	21.5	
	64QAM	1	0		21.3		2.0	21.5
		1	37		21.4		2.0	21.5
		1	74		21.3		2.0	21.5
		36	0		20.2		3.0	20.5
		36	20		20.3		3.0	20.5
		36	39		20.3		3.0	20.5
	75	0		20.2		3.0	20.5	
	256QAM	1	0		18.2		5.0	18.5
		1	37		18.5		5.0	18.5
		1	74		18.3		5.0	18.5
36		0		18.0		5.0	18.5	
36		20		18.1		5.0	18.5	
36		39		18.1		5.0	18.5	
75	0		18.1		5.0	18.5		
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	22.9	23.1	23.2	0.0	23.5
		1	25	22.9	23.1	23.2	0.0	23.5
		1	49	22.9	23.2	23.2	0.0	23.5
		25	0	21.9	22.1	22.1	1.0	22.5
		25	12	22.0	22.2	22.2	1.0	22.5
		25	25	21.9	22.2	22.2	1.0	22.5
	50	0	21.9	22.1	22.1	1.0	22.5	
	16QAM	1	0	22.1	22.2	22.5	1.0	22.5
		1	25	22.0	22.2	22.4	1.0	22.5
		1	49	22.1	22.2	22.5	1.0	22.5
		25	0	21.0	21.1	21.1	2.0	21.5
		25	12	21.1	21.2	21.2	2.0	21.5
		25	25	21.1	21.2	21.2	2.0	21.5
	50	0	21.0	21.0	21.1	2.0	21.5	
	64QAM	1	0	21.2	21.5	21.5	2.0	21.5
		1	25	21.1	21.5	21.5	2.0	21.5
		1	49	21.3	21.5	21.5	2.0	21.5
		25	0	20.0	20.1	20.1	3.0	20.5
		25	12	20.1	20.2	20.3	3.0	20.5
		25	25	20.1	20.3	20.3	3.0	20.5
	50	0	20.0	20.1	20.1	3.0	20.5	
	256QAM	1	0	17.6	17.8	17.9	5.0	18.5
		1	25	17.8	18.3	18.3	5.0	18.5
		1	49	17.7	18.0	18.0	5.0	18.5
25		0	18.0	18.2	18.1	5.0	18.5	
25		12	18.1	18.3	18.3	5.0	18.5	
25		25	18.0	18.3	18.3	5.0	18.5	
50	0	17.9	18.1	18.1	5.0	18.5		

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	22.9	23.1	23.2	0.0	23.5
		1	12	23.0	23.2	23.1	0.0	23.5
		1	24	23.0	23.3	23.2	0.0	23.5
		12	0	22.0	22.1	22.2	1.0	22.5
		12	7	22.0	22.2	22.2	1.0	22.5
		12	13	22.0	22.2	22.2	1.0	22.5
	16QAM	25	0	22.0	22.2	22.2	1.0	22.5
		1	0	22.1	22.3	22.5	1.0	22.5
		1	12	22.2	22.4	22.5	1.0	22.5
		1	24	22.1	22.4	22.5	1.0	22.5
		12	0	21.0	21.2	21.3	2.0	21.5
		12	7	21.1	21.3	21.4	2.0	21.5
	64QAM	12	13	21.1	21.3	21.4	2.0	21.5
		25	0	21.0	21.1	21.2	2.0	21.5
		1	0	21.3	21.1	21.2	2.0	21.5
		1	12	21.4	21.2	21.2	2.0	21.5
		1	24	21.3	21.2	21.2	2.0	21.5
		12	0	20.0	20.2	20.3	3.0	20.5
	256QAM	12	7	20.0	20.3	20.3	3.0	20.5
		12	13	20.0	20.3	20.3	3.0	20.5
		25	0	20.0	20.2	20.2	3.0	20.5
1		0	18.1	18.1	18.2	5.0	18.5	
1		12	18.2	18.3	18.3	5.0	18.5	
1		24	18.1	18.3	18.2	5.0	18.5	
3 MHz	QPSK	12	0	18.0	18.2	18.3	5.0	18.5
		12	7	18.1	18.2	18.3	5.0	18.5
		12	13	18.0	18.3	18.3	5.0	18.5
		25	0	18.0	18.2	18.3	5.0	18.5
		1	0	22.9	23.1	23.2	0.0	23.5
		1	8	22.9	23.1	23.1	0.0	23.5
	16QAM	1	14	22.9	23.2	23.2	0.0	23.5
		8	0	22.0	22.2	22.2	1.0	22.5
		8	4	22.0	22.2	22.2	1.0	22.5
		8	7	22.0	22.3	22.2	1.0	22.5
		15	0	22.0	22.2	22.2	1.0	22.5
		1	0	22.0	22.1	22.5	1.0	22.5
	64QAM	1	8	22.0	22.1	22.5	1.0	22.5
		1	14	22.1	22.2	22.5	1.0	22.5
		8	0	21.1	21.3	21.3	2.0	21.5
		8	4	21.1	21.3	21.3	2.0	21.5
		8	7	21.1	21.4	21.3	2.0	21.5
		15	0	21.0	21.2	21.3	2.0	21.5
	256QAM	1	0	21.1	21.5	21.5	2.0	21.5
		1	8	21.1	21.5	21.5	2.0	21.5
		1	14	21.1	21.5	21.4	2.0	21.5
8		0	20.1	20.3	20.3	3.0	20.5	
8		4	20.1	20.3	20.3	3.0	20.5	
8		7	20.1	20.4	20.3	3.0	20.5	
QPSK	15	0	20.1	20.2	20.2	3.0	20.5	
	1	0	17.8	18.1	18.2	5.0	18.5	
	1	8	17.7	18.2	18.2	5.0	18.5	
	1	14	17.8	18.2	18.2	5.0	18.5	
	8	0	18.0	18.3	18.4	5.0	18.5	
	8	4	18.0	18.4	18.4	5.0	18.5	
16QAM	8	7	18.0	18.4	18.4	5.0	18.5	
	15	0	18.1	18.2	18.3	5.0	18.5	
	1	0	22.9	23.1	23.2	0.0	23.5	
	1	8	22.9	23.1	23.1	0.0	23.5	
	1	14	22.9	23.2	23.2	0.0	23.5	
	8	0	22.0	22.2	22.2	1.0	22.5	
64QAM	8	4	22.0	22.2	22.2	1.0	22.5	
	8	7	22.0	22.3	22.2	1.0	22.5	
	15	0	22.0	22.2	22.2	1.0	22.5	
	1	0	22.0	22.1	22.5	1.0	22.5	
	1	8	22.0	22.1	22.5	1.0	22.5	
	1	14	22.1	22.2	22.5	1.0	22.5	
256QAM	8	0	21.1	21.3	21.3	2.0	21.5	
	8	4	21.1	21.3	21.3	2.0	21.5	
	8	7	21.1	21.4	21.3	2.0	21.5	
	15	0	21.0	21.2	21.3	2.0	21.5	
	1	0	21.1	21.5	21.5	2.0	21.5	
	1	8	21.1	21.5	21.5	2.0	21.5	
QPSK	1	14	21.1	21.5	21.4	2.0	21.5	
	8	0	20.1	20.3	20.3	3.0	20.5	
	8	4	20.1	20.3	20.3	3.0	20.5	
	8	7	20.1	20.4	20.3	3.0	20.5	
	15	0	20.1	20.2	20.2	3.0	20.5	
	1	0	17.8	18.1	18.2	5.0	18.5	
16QAM	1	8	17.7	18.2	18.2	5.0	18.5	
	1	14	17.8	18.2	18.2	5.0	18.5	
	8	0	18.0	18.3	18.4	5.0	18.5	
	8	4	18.0	18.4	18.4	5.0	18.5	
	8	7	18.0	18.4	18.4	5.0	18.5	
	15	0	18.1	18.2	18.3	5.0	18.5	

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	22.0	23.0	23.0	0.0	23.5
		1	3	23.0	23.1	23.1	0.0	23.5
		1	5	23.1	23.1	23.1	0.0	23.5
		3	0	23.0	23.0	23.0	0.0	23.5
		3	1	23.0	23.0	23.0	0.0	23.5
		3	3	23.0	23.0	23.0	0.0	23.5
		6	0	22.5	22.5	22.5	1.0	22.5
	16QAM	1	0	22.4	22.4	22.4	1.0	22.5
		1	3	22.4	22.4	22.4	1.0	22.5
		1	5	22.5	22.5	22.5	1.0	22.5
		3	0	22.2	22.2	22.2	1.0	22.5
		3	1	22.2	22.2	22.2	1.0	22.5
		3	3	22.2	22.2	22.2	1.0	22.5
		6	0	21.4	21.5	21.5	2.0	21.5
	64QAM	1	0	21.4	21.5	21.5	2.0	21.5
		1	3	21.4	21.5	21.5	2.0	21.5
		1	5	21.3	21.5	21.5	2.0	21.5
		3	0	21.3	21.5	21.5	2.0	21.5
		3	1	21.4	21.5	21.5	2.0	21.5
		3	3	21.4	21.5	21.5	2.0	21.5
		6	0	19.9	20.1	20.1	3.0	20.5
	256QAM	1	0	18.0	18.2	18.2	5.0	18.5
		1	3	18.1	18.4	18.4	5.0	18.5
		1	5	17.9	18.3	18.2	5.0	18.5
		3	0	18.0	18.1	18.1	5.0	18.5
		3	1	18.1	18.2	18.1	5.0	18.5
		3	3	18.1	18.2	18.2	5.0	18.5
		6	0	18.0	18.0	18.0	5.0	18.5

LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						
				Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	22.6	23.5	23.6	22.6	22.7	0.0	25.0
		1	49	22.6	23.5	24.1	22.8	22.6	0.0	25.0
		1	99	22.6	23.6	23.8	22.6	22.6	0.0	25.0
		50	0	21.6	22.4	22.8	21.8	21.5	1.0	24.0
		50	24	21.6	22.6	22.9	21.8	21.7	1.0	24.0
		50	50	21.6	22.5	22.9	21.6	21.6	1.0	24.0
		100	0	21.6	22.5	22.8	21.8	21.6	1.0	24.0
	16QAM	1	0	21.7	22.5	22.5	21.8	21.5	1.0	24.0
		1	49	21.6	22.5	23.0	22.0	21.6	1.0	24.0
		1	99	21.5	22.6	22.7	21.5	21.6	1.0	24.0
		50	0	20.5	21.3	21.9	20.8	20.5	2.0	23.0
		50	24	20.6	21.5	22.0	20.9	20.7	2.0	23.0
		50	50	20.7	21.4	21.9	20.7	20.6	2.0	23.0
		100	0	20.5	21.4	21.9	20.7	20.6	2.0	23.0
	64QAM	1	0	20.6	21.6	21.7	21.0	20.7	2.0	23.0
		1	49	20.7	21.6	22.1	21.2	20.7	2.0	23.0
		1	99	20.7	21.7	21.7	20.7	20.6	2.0	23.0
		50	0	19.5	20.4	20.9	19.9	19.6	3.0	22.0
		50	24	19.6	20.6	21.0	19.9	19.7	3.0	22.0
		50	50	19.6	20.5	21.0	19.7	19.6	3.0	22.0
		100	0	19.5	20.5	20.9	19.8	19.6	3.0	22.0
	256QAM	1	0	17.6	18.1	18.8	17.7	17.5	5.0	20.0
		1	49	17.6	18.6	19.2	17.9	17.7	5.0	20.0
		1	99	17.5	18.3	18.9	17.5	17.5	5.0	20.0
		50	0	17.5	18.4	18.9	17.8	17.6	5.0	20.0
		50	24	17.6	18.6	19.0	17.9	17.7	5.0	20.0
		50	50	17.5	18.5	18.9	17.7	17.6	5.0	20.0
		100	0	17.5	18.5	18.9	17.8	17.7	5.0	20.0
BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
15 MHz	QPSK	1	0	22.5	23.5	24.0	22.9	22.5	0.0	25.0
		1	37	22.5	23.7	24.3	23.0	22.6	0.0	25.0
		1	74	22.5	23.5	24.2	22.7	22.6	0.0	25.0
		36	0	21.5	22.6	23.1	22.0	21.6	1.0	24.0
		36	20	21.5	22.7	23.3	22.0	21.7	1.0	24.0
		36	39	21.6	22.7	23.3	21.9	21.7	1.0	24.0
		75	0	21.5	22.7	23.2	22.0	21.7	1.0	24.0
	16QAM	1	0	21.6	22.5	23.1	21.9	21.6	1.0	24.0
		1	37	21.6	22.8	23.4	22.0	21.7	1.0	24.0
		1	74	21.6	22.6	23.3	21.7	21.6	1.0	24.0
		36	0	20.5	21.6	22.1	21.1	20.6	2.0	23.0
		36	20	20.5	21.8	22.3	21.1	20.7	2.0	23.0
		36	39	21.6	21.7	22.3	20.9	20.7	2.0	23.0
		75	0	21.5	21.7	22.2	21.0	20.7	2.0	23.0
	64QAM	1	0	20.5	21.1	22.3	20.9	20.5	2.0	23.0
		1	37	20.5	21.4	22.6	20.9	20.5	2.0	23.0
		1	74	20.5	21.2	22.4	20.5	20.5	2.0	23.0
		36	0	19.5	20.7	21.3	20.1	19.7	3.0	22.0
		36	20	19.5	20.9	21.4	20.1	19.9	3.0	22.0
		36	39	19.5	20.8	21.4	19.9	19.8	3.0	22.0
		75	0	19.5	20.7	21.3	20.1	19.7	3.0	22.0
	256QAM	1	0	17.5	18.6	18.8	18.1	17.6	5.0	20.0
		1	37	17.5	18.8	19.1	18.1	17.7	5.0	20.0
		1	74	17.5	18.7	18.9	17.8	17.7	5.0	20.0
		36	0	17.5	18.7	19.2	18.1	17.7	5.0	20.0
		36	20	17.5	18.8	19.3	18.1	17.8	5.0	20.0
		36	39	17.5	18.8	19.3	17.9	17.7	5.0	20.0
		75	0	17.5	18.8	19.2	18.1	17.7	5.0	20.0

LTE Band 41 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
10 MHz	QPSK	1	0	22.5	23.4	24.0	22.7	22.6	0.0	25.0
		1	25	22.5	23.7	24.4	23.0	22.6	0.0	25.0
		1	49	22.5	23.5	24.1	22.7	22.5	0.0	25.0
		25	0	21.6	22.7	23.2	22.0	21.6	1.0	24.0
		25	12	21.6	22.9	23.3	22.1	21.7	1.0	24.0
		25	25	21.5	22.8	23.3	21.9	21.6	1.0	24.0
	16QAM	50	0	21.5	22.8	23.2	22.0	21.6	1.0	24.0
		1	0	21.7	22.6	23.1	21.9	21.5	1.0	24.0
		1	25	21.6	22.9	23.4	22.0	21.8	1.0	24.0
		1	49	21.6	22.7	23.1	21.8	21.5	1.0	24.0
		25	0	20.6	21.7	22.2	21.0	20.6	2.0	23.0
		25	12	20.6	21.8	22.4	21.1	20.7	2.0	23.0
	64QAM	25	25	20.6	21.8	22.3	20.9	20.6	2.0	23.0
		50	0	20.5	21.7	22.3	21.0	20.6	2.0	23.0
		1	0	20.7	21.1	22.3	21.2	20.5	2.0	23.0
		1	25	20.7	21.4	22.6	21.3	20.5	2.0	23.0
		1	49	20.7	21.2	22.3	20.9	20.6	2.0	23.0
		25	0	19.5	20.7	21.2	20.0	19.7	3.0	22.0
	256QAM	25	12	19.5	20.9	21.4	20.0	19.8	3.0	22.0
		25	25	19.5	20.8	21.3	19.9	19.6	3.0	22.0
50		0	19.5	20.8	21.2	20.0	19.7	3.0	22.0	
1		0	17.5	18.6	18.7	17.8	17.6	5.0	20.0	
1		25	17.5	19.0	19.1	18.0	17.8	5.0	20.0	
1		49	17.5	18.7	18.8	17.7	17.5	5.0	20.0	
5 MHz	QPSK	25	0	17.5	18.7	19.3	18.0	17.7	5.0	20.0
		25	12	17.6	18.8	19.4	18.1	17.7	5.0	20.0
		25	25	17.5	18.8	19.4	17.9	17.6	5.0	20.0
		50	0	17.5	18.8	19.2	18.0	17.7	5.0	20.0
		1	0	22.6	23.7	24.1	22.9	22.7	0.0	25.0
		1	12	22.5	23.7	24.1	22.8	22.7	0.0	25.0
	16QAM	1	24	22.5	23.7	24.1	22.8	22.6	0.0	25.0
		12	0	21.5	22.8	23.3	22.0	21.7	1.0	24.0
		12	7	21.5	22.8	23.4	22.0	21.8	1.0	24.0
		12	13	21.5	22.8	23.4	22.0	21.7	1.0	24.0
25		0	21.5	22.8	23.3	22.0	21.7	1.0	24.0	
1		0	21.5	22.7	23.4	22.0	21.6	1.0	24.0	
64QAM	1	12	21.5	22.7	23.4	21.9	21.7	1.0	24.0	
	1	24	21.5	22.7	23.4	21.9	21.6	1.0	24.0	
	12	0	20.5	21.8	22.4	21.1	20.7	2.0	23.0	
	12	7	20.5	21.8	22.4	21.1	20.7	2.0	23.0	
	12	13	20.5	21.8	22.4	21.0	20.7	2.0	23.0	
	25	0	20.5	21.8	22.3	21.0	20.7	2.0	23.0	
256QAM	1	0	22.5	22.1	22.6	20.8	21.1	2.0	23.0	
	1	12	22.1	22.1	22.6	20.8	21.1	2.0	23.0	
	1	24	22.0	22.2	22.6	20.7	21.0	2.0	23.0	
	12	0	21.3	20.9	21.2	20.1	19.8	3.0	22.0	
	12	7	21.3	20.9	21.3	20.1	19.9	3.0	22.0	
	12	13	21.3	20.9	21.3	20.0	19.8	3.0	22.0	
	25	0	21.4	20.8	21.3	20.2	19.7	3.0	22.0	
	1	0	19.5	18.8	19.4	18.3	17.7	5.0	20.0	
1	12	19.6	18.8	19.4	18.3	17.7	5.0	20.0		
256QAM	1	24	19.5	18.8	19.4	18.2	17.6	5.0	20.0	
	12	0	19.3	18.7	19.3	18.0	17.7	5.0	20.0	
	12	7	19.3	18.8	19.3	18.1	17.7	5.0	20.0	
	12	13	19.3	18.8	19.3	18.0	17.7	5.0	20.0	
	25	0	19.3	18.8	19.3	18.1	17.7	5.0	20.0	
	25	0	19.3	18.8	19.3	18.1	17.7	5.0	20.0	

LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	21.8	21.8	22.2	0.0	24
		1	49	22.0	22.1	22.0	0.0	24
		1	99	21.8	21.9	21.8	0.0	24
		50	0	21.1	21.2	21.1	1.0	23
		50	24	21.2	21.2	21.3	1.0	23
		50	50	21.1	21.1	20.9	1.0	23
		100	0	21.1	21.1	20.9	1.0	23
	16QAM	1	0	21.4	21.5	21.5	1.0	23
		1	49	21.6	21.9	21.4	1.0	23
		1	99	21.4	21.4	21.3	1.0	23
		50	0	20.1	20.2	20.0	2.0	22
		50	24	20.2	20.3	19.9	2.0	22
		50	50	20.1	20.2	19.9	2.0	22
		100	0	20.1	20.2	19.9	2.0	22
	64QAM	1	0	20.2	20.1	20.2	2.0	22
		1	49	20.5	20.1	20.2	2.0	22
		1	99	20.3	20.1	20.2	2.0	22
		50	0	19.2	20.1	20.2	3.0	21
		50	24	19.3	20.1	20.2	3.0	21
		50	50	19.2	20.1	20.2	3.0	21
		100	0	19.2	20.1	20.2	3.0	21
	256QAM	1	0	17.2	17.1	16.8	5.0	19
		1	49	17.4	17.3	16.9	5.0	19
		1	99	17.2	17.1	16.6	5.0	19
		50	0	17.2	17.2	17.1	5.0	19
		50	24	17.2	17.3	17.0	5.0	19
		50	50	17.1	17.2	17.0	5.0	19
		100	0	17.2	17.2	17.0	5.0	19
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	22.5
1	37	22.5	22.5			22.4	0.0	24
1	74	22.4	22.5			22.5	0.0	24
36	0	21.7	21.5			21.5	1.0	23
36	20	21.6	21.6			21.4	1.0	23
36	39	21.5	21.6			21.5	1.0	23
75	0	21.6	21.6			21.4	1.0	23
16QAM	1	0	22.0		21.5	22.0	1.0	23
	1	37	21.9		21.6	21.8	1.0	23
	1	74	22.0		21.5	21.9	1.0	23
	36	0	20.6		20.6	20.6	2.0	22
	36	20	20.6		20.7	20.5	2.0	22
	36	39	20.5		20.6	20.5	2.0	22
	75	0	20.6		20.6	20.5	2.0	22
64QAM	1	0	20.7		21.0	20.9	2.0	22
	1	37	20.7		21.2	20.8	2.0	22
	1	74	20.5		21.1	20.8	2.0	22
	36	0	19.8		19.6	19.5	3.0	21
	36	20	19.7		19.7	19.5	3.0	21
	36	39	19.7		19.6	19.6	3.0	21
	75	0	19.6		19.7	19.5	3.0	21
256QAM	1	0	17.2		17.7	17.9	5.0	19
	1	37	17.4		17.9	17.9	5.0	19
	1	74	17.2		17.8	17.9	5.0	19
	36	0	17.7		17.6	17.6	5.0	19
	36	20	17.6		17.7	17.5	5.0	19
	36	39	17.6		17.7	17.6	5.0	19
	75	0	17.5		17.7	17.5	5.0	19

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	22.2	22.2	22.2	0.0	24
		1	25	22.6	22.4	22.4	0.0	24
		1	49	22.2	22.4	22.3	0.0	24
		25	0	21.6	21.5	21.4	1.0	23
		25	12	21.6	21.7	21.4	1.0	23
		25	25	21.5	21.6	21.5	1.0	23
	50	0	21.5	21.5	21.4	1.0	23	
	16QAM	1	0	21.3	21.4	21.6	1.0	23
		1	25	21.5	21.7	21.8	1.0	23
		1	49	21.3	21.4	21.7	1.0	23
		25	0	20.7	20.5	20.4	2.0	22
		25	12	20.7	20.7	20.5	2.0	22
		25	25	20.6	20.6	20.5	2.0	22
	50	0	20.6	20.5	20.4	2.0	22	
	64QAM	1	0	20.5	20.6	20.6	2.0	22
		1	25	20.8	21.0	20.9	2.0	22
		1	49	20.5	20.6	20.7	2.0	22
		25	0	19.6	19.6	19.5	3.0	21
		25	12	19.7	19.7	19.6	3.0	21
		25	25	19.6	19.7	19.6	3.0	21
	50	0	19.6	19.5	19.4	3.0	21	
	256QAM	1	0	17.3	17.3	17.6	5.0	19
		1	25	17.5	17.7	17.9	5.0	19
		1	49	17.2	17.5	17.8	5.0	19
		25	0	17.7	17.6	17.4	5.0	19
		25	12	17.7	17.7	17.5	5.0	19
		25	25	17.6	17.7	17.6	5.0	19
	50	0	17.7	17.6	17.5	5.0	19	
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	22.6	22.5	22.5	0.0	24
		1	12	22.5	22.5	22.5	0.0	24
		1	24	22.5	22.5	22.4	0.0	24
		12	0	21.6	21.5	21.6	1.0	23
		12	7	21.7	21.6	21.6	1.0	23
		12	13	21.6	21.6	21.5	1.0	23
	25	0	21.6	21.6	21.5	1.0	23	
	16QAM	1	0	21.9	21.7	22.0	1.0	23
		1	12	21.8	21.7	22.1	1.0	23
		1	24	21.6	21.7	22.0	1.0	23
		12	0	20.7	20.6	20.7	2.0	22
		12	7	20.7	20.7	20.7	2.0	22
		12	13	20.6	20.6	20.7	2.0	22
	25	0	20.6	20.6	20.6	2.0	22	
	64QAM	1	0	21.0	20.9	20.5	2.0	22
		1	12	20.9	20.9	20.5	2.0	22
		1	24	20.7	20.9	20.4	2.0	22
		12	0	19.6	19.6	19.6	3.0	21
		12	7	19.6	19.7	19.7	3.0	21
		12	13	19.5	19.6	19.6	3.0	21
	25	0	19.6	19.6	19.6	3.0	21	
	256QAM	1	0	17.8	17.6	17.3	5.0	19
		1	12	17.8	17.7	17.3	5.0	19
		1	24	17.7	17.6	17.2	5.0	19
		12	0	17.7	17.6	17.6	5.0	19
		12	7	17.7	17.7	17.6	5.0	19
		12	13	17.6	17.6	17.5	5.0	19
	25	0	17.7	17.7	17.6	5.0	19	

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	22.6	22.5	22.6	0.0	24	
		1	8	22.5	22.5	22.5	0.0	24	
		1	14	22.4	22.5	22.4	0.0	24	
		8	0	21.6	21.5	21.5	1.0	23	
		8	4	21.6	21.6	21.6	1.0	23	
		8	7	21.6	21.6	21.6	1.0	23	
	16QAM	15	0	21.6	21.6	21.6	1.0	23	
		1	0	21.7	21.4	22.0	1.0	23	
		1	8	21.6	21.4	21.9	1.0	23	
		1	14	21.5	21.4	21.9	1.0	23	
		8	0	20.7	20.7	20.6	2.0	22	
		8	4	20.7	20.7	20.6	2.0	22	
	64QAM	8	7	20.7	20.7	20.7	2.0	22	
		15	0	20.6	20.6	20.6	2.0	22	
		1	0	20.8	20.9	20.9	2.0	22	
		1	8	20.7	20.8	20.9	2.0	22	
		1	14	20.7	20.9	20.9	2.0	22	
		8	0	19.7	19.5	19.6	3.0	21	
	256QAM	8	4	19.7	19.6	19.7	3.0	21	
		8	7	19.7	19.6	19.7	3.0	21	
		15	0	19.6	19.7	19.6	3.0	21	
1		0	17.4	17.6	18.0	5.0	19		
1		8	17.4	17.6	17.9	5.0	19		
1		14	17.3	17.6	17.9	5.0	19		
1.4 MHz	QPSK	8	0	17.6	17.7	17.7	5.0	19	
		8	4	17.7	17.8	17.7	5.0	19	
		8	7	17.6	17.8	17.7	5.0	19	
		15	0	17.8	17.7	17.6	5.0	19	
		16QAM	1	0	22.5	22.5	22.5	0.0	24
			1	3	22.6	22.5	22.5	0.0	24
	1		5	22.4	22.4	22.4	0.0	24	
	3		0	22.5	22.4	22.4	0.0	24	
	3		1	22.6	22.5	22.4	0.0	24	
	3		3	22.5	22.5	22.4	0.0	24	
	6		0	21.5	21.6	21.5	1.0	23	
	64QAM		1	0	22.0	21.4	21.6	1.0	23
			1	3	22.0	21.5	21.7	1.0	23
			1	5	22.0	21.4	21.6	1.0	23
		3	0	21.7	21.7	21.5	1.0	23	
		3	1	21.7	21.8	21.6	1.0	23	
		3	3	21.7	21.8	21.6	1.0	23	
	256QAM	6	0	20.5	20.7	20.6	2.0	22	
		1	0	20.8	20.9	20.6	2.0	22	
		1	3	20.9	21.0	20.7	2.0	22	
		1	5	20.8	20.8	20.6	2.0	22	
3		0	20.5	20.9	20.6	2.0	22		
3		1	20.6	20.9	20.7	2.0	22		
QPSK	3	3	20.5	20.9	20.7	2.0	22		
	6	0	19.7	19.5	19.8	3.0	21		
	16QAM	1	0	17.7	17.7	17.5	5.0	19	
		1	3	17.5	17.7	17.6	5.0	19	
		1	5	17.8	17.6	17.4	5.0	19	
		3	0	17.7	17.5	17.6	5.0	19	
3		1	17.8	17.6	17.6	5.0	19		
3		3	18.0	17.6	17.6	5.0	19		
64QAM	6	0	17.4	17.5	17.5	5.0	19		

2. Reduced power of Hotspot & Proximity sensor back-off

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18700	18900	19100			18700	18900	19100		
				1860 MHz	1880 MHz	1900 MHz			1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	19.3	19.5	19.6	0.0	21.0	19.2	19.5	19.6	0.0	21.0
		1	49	19.3	19.6	19.5	0.0	21.0	19.2	19.7	19.5	0.0	21.0
		1	99	19.5	19.6	19.4	0.0	21.0	19.4	19.6	19.4	0.0	21.0
		50	0	19.3	19.5	19.6	0.0	21.0	19.3	19.5	19.6	0.0	21.0
		50	24	19.5	19.7	19.6	0.0	21.0	19.5	19.7	19.6	0.0	21.0
		50	50	19.5	19.6	19.5	0.0	21.0	19.4	19.7	19.6	0.0	21.0
	16QAM	100	0	19.4	19.6	19.5	0.0	21.0	19.4	19.6	19.6	0.0	21.0
		1	0	19.7	20.1	20.0	0.0	21.0	19.7	20.1	20.1	0.0	21.0
		1	49	19.8	20.1	19.9	0.0	21.0	19.8	20.1	19.9	0.0	21.0
		1	99	19.9	20.1	19.8	0.0	21.0	19.9	20.1	19.8	0.0	21.0
		50	0	19.2	19.5	19.6	0.0	21.0	19.2	19.6	19.6	0.0	21.0
		50	24	19.4	19.7	19.6	0.0	21.0	19.4	19.7	19.6	0.0	21.0
	64QAM	50	50	19.4	19.7	19.5	0.0	21.0	19.4	19.7	19.6	0.0	21.0
		100	0	19.4	19.6	19.5	0.0	21.0	19.4	19.6	19.6	0.0	21.0
		1	0	19.7	19.6	19.9	0.0	21.0	19.5	20.0	19.9	0.0	21.0
		1	49	19.8	20.1	19.8	0.0	21.0	19.8	20.1	19.8	0.0	21.0
		1	99	19.9	20.1	19.6	0.0	21.0	19.9	20.1	19.6	0.0	21.0
		50	0	19.4	19.6	19.6	0.0	21.0	19.4	19.6	19.7	0.0	21.0
	256QAM	50	24	19.6	19.7	19.7	0.0	21.0	19.6	19.7	19.7	0.0	21.0
		50	50	19.6	19.7	19.6	0.0	21.0	19.6	19.7	19.6	0.0	21.0
		100	0	19.5	19.6	19.6	0.0	21.0	19.5	19.6	19.6	0.0	21.0
		1	0	17.4	17.6	17.7	2.0	19.0	17.4	17.6	17.8	2.0	19.0
		1	49	17.8	18.0	17.9	2.0	19.0	17.8	18.1	17.9	2.0	19.0
		1	99	17.7	17.8	17.6	2.0	19.0	17.7	17.9	17.7	2.0	19.0
15 MHz	QPSK	50	0	17.4	17.7	17.8	2.0	19.0	17.5	17.7	17.8	2.0	19.0
		50	24	17.7	17.8	17.8	2.0	19.0	17.7	17.8	17.8	2.0	19.0
		50	50	17.6	17.8	17.7	2.0	19.0	17.7	17.8	17.7	2.0	19.0
		100	0	17.5	17.7	17.7	2.0	19.0	17.6	17.7	17.7	2.0	19.0
		1	0	19.4	19.8	19.7	0.0	21.0	19.4	19.8	19.7	0.0	21.0
		1	37	19.6	19.8	19.7	0.0	21.0	19.6	19.8	19.6	0.0	21.0
	16QAM	1	74	19.5	19.8	19.6	0.0	21.0	19.4	19.8	19.5	0.0	21.0
		36	0	19.5	19.7	19.7	0.0	21.0	19.4	19.7	19.7	0.0	21.0
		36	20	19.5	19.8	19.8	0.0	21.0	19.5	19.8	19.8	0.0	21.0
		36	39	19.6	19.8	19.8	0.0	21.0	19.6	19.8	19.8	0.0	21.0
		75	0	19.5	19.8	19.7	0.0	21.0	19.5	19.8	19.7	0.0	21.0
		1	0	19.7	19.9	19.7	0.0	21.0	19.7	20.1	19.7	0.0	21.0
	64QAM	1	37	19.9	19.9	19.6	0.0	21.0	19.9	20.0	19.6	0.0	21.0
		1	74	19.9	19.9	19.5	0.0	21.0	19.9	20.0	19.5	0.0	21.0
		36	0	19.4	19.7	19.7	0.0	21.0	19.4	19.7	19.7	0.0	21.0
		36	20	19.6	19.8	19.7	0.0	21.0	19.6	19.7	19.7	0.0	21.0
		36	39	19.6	19.8	19.7	0.0	21.0	19.6	19.7	19.7	0.0	21.0
		75	0	19.6	19.7	19.7	0.0	21.0	19.5	19.7	19.7	0.0	21.0
	256QAM	1	0	19.7	19.9	20.0	0.0	21.0	19.3	20.0	20.1	0.0	21.0
		1	37	19.6	19.9	20.0	0.0	21.0	19.6	20.0	20.0	0.0	21.0
		1	74	19.5	19.9	19.9	0.0	21.0	19.6	19.9	19.9	0.0	21.0
		36	0	19.5	19.9	19.8	0.0	21.0	19.5	19.8	19.8	0.0	21.0
		36	20	19.7	19.9	19.9	0.0	21.0	19.6	19.9	19.9	0.0	21.0
		36	39	19.7	20.0	19.9	0.0	21.0	19.7	19.9	19.8	0.0	21.0
QPSK	75	0	19.6	19.9	19.8	0.0	21.0	19.6	19.8	19.8	0.0	21.0	
	1	0	17.7	17.5	18.1	1.0	20.0	17.7	18.1	17.6	1.0	20.0	
	1	37	17.9	17.7	18.1	1.0	20.0	17.9	18.3	18.0	1.0	20.0	
	1	74	17.9	17.6	17.9	1.0	20.0	17.9	18.2	17.9	1.0	20.0	
	36	0	17.6	17.8	17.8	1.0	20.0	17.5	17.8	17.8	1.0	20.0	
	36	20	17.6	17.9	17.8	1.0	20.0	17.6	17.9	17.8	1.0	20.0	
QPSK	36	39	17.6	17.9	17.8	1.0	20.0	17.6	17.9	17.8	1.0	20.0	
	75	0	17.6	17.8	17.8	1.0	20.0	17.5	17.8	17.8	1.0	20.0	

LTE Band 2 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pw r (dBm)			MPR	Tune-up Limit	Measured Pw r (dBm)			MPR	Tune-up Limit
				18650	18900	19150			18650	18900	19150		
				1855 MHz	1880 MHz	1905 MHz			1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	19.3	19.5	19.8	0.0	21.0	19.6	19.4	19.7	0.0	21.0
		1	25	19.6	19.9	19.7	0.0	21.0	19.5	19.8	19.6	0.0	21.0
		1	49	19.4	19.7	19.7	0.0	21.0	19.3	19.5	19.6	0.0	21.0
		25	0	19.6	19.8	19.7	0.0	21.0	19.5	19.8	19.6	0.0	21.0
		25	12	19.7	19.9	19.7	0.0	21.0	19.6	19.8	19.7	0.0	21.0
		25	25	19.6	19.8	19.6	0.0	21.0	19.5	19.7	19.6	0.0	21.0
	16QAM	50	0	19.6	19.8	19.7	0.0	21.0	19.5	19.7	19.6	0.0	21.0
		1	0	19.2	19.6	19.7	0.0	21.0	19.6	19.6	19.8	0.0	21.0
		1	25	19.5	19.9	19.6	0.0	21.0	19.9	19.9	19.6	0.0	21.0
		1	49	19.3	19.6	19.6	0.0	21.0	19.7	19.6	19.6	0.0	21.0
		25	0	19.5	19.9	19.7	0.0	21.0	19.5	19.9	19.7	0.0	21.0
		25	12	19.7	20.0	19.7	0.0	21.0	19.6	20.0	19.8	0.0	21.0
	64QAM	25	25	19.6	19.9	19.6	0.0	21.0	19.5	19.8	19.7	0.0	21.0
		50	0	19.6	19.8	19.6	0.0	21.0	19.5	19.8	19.7	0.0	21.0
		1	0	19.7	19.8	19.9	0.0	21.0	19.1	19.8	20.1	0.0	21.0
		1	25	19.9	20.1	19.8	0.0	21.0	20.2	20.1	20.1	0.0	21.0
		1	49	19.7	19.9	19.9	0.0	21.0	19.4	19.9	20.0	0.0	21.0
		25	0	19.6	19.9	19.8	0.0	21.0	19.6	19.9	19.8	0.0	21.0
	256QAM	25	12	19.7	20.0	20.0	0.0	21.0	19.7	19.9	19.9	0.0	21.0
		25	25	19.6	19.8	19.8	0.0	21.0	19.6	19.9	19.8	0.0	21.0
		50	0	19.6	19.8	19.8	0.0	21.0	19.5	19.8	19.7	0.0	21.0
		1	0	17.5	18.0	17.5	1.0	20.0	17.6	17.9	17.8	1.0	20.0
		1	25	17.5	18.4	17.6	1.0	20.0	17.5	17.9	17.8	1.0	20.0
		1	49	17.5	18.1	17.6	1.0	20.0	17.5	17.7	17.6	1.0	20.0
	5 MHz	QPSK	25	0	17.6	17.9	17.8	1.0	20.0	17.6	17.9	17.8	1.0
25			12	17.7	18.1	18.0	1.0	20.0	17.6	18.0	17.9	1.0	20.0
25			25	17.6	17.9	17.8	1.0	20.0	17.6	17.9	17.8	1.0	20.0
50			0	17.6	17.9	17.8	1.0	20.0	17.5	17.9	17.8	1.0	20.0
1			0	19.5	19.9	19.8	0.0	21.0	19.5	19.8	19.8	0.0	21.0
1			12	19.6	20.0	19.8	0.0	21.0	19.6	19.9	19.7	0.0	21.0
16QAM	1	24	19.5	19.9	19.7	0.0	21.0	19.4	19.8	19.6	0.0	21.0	
	12	0	19.6	19.9	19.8	0.0	21.0	19.6	19.9	19.7	0.0	21.0	
	12	7	19.6	19.9	19.8	0.0	21.0	19.6	19.9	19.8	0.0	21.0	
	12	13	19.6	19.9	19.7	0.0	21.0	19.6	19.9	19.7	0.0	21.0	
	25	0	19.6	19.9	19.7	0.0	21.0	19.6	19.8	19.7	0.0	21.0	
	1	0	19.7	20.0	19.9	0.0	21.0	20.0	20.0	19.9	0.0	21.0	
64QAM	1	12	19.7	20.1	19.9	0.0	21.0	20.1	20.1	19.9	0.0	21.0	
	1	24	19.7	20.1	19.8	0.0	21.0	20.0	20.0	19.8	0.0	21.0	
	12	0	19.6	20.0	19.8	0.0	21.0	19.7	19.9	19.9	0.0	21.0	
	12	7	19.7	20.0	19.8	0.0	21.0	19.7	20.0	19.8	0.0	21.0	
	12	13	19.6	20.1	19.7	0.0	21.0	19.7	20.0	19.8	0.0	21.0	
	25	0	19.5	20.0	19.7	0.0	21.0	19.6	19.8	19.8	0.0	21.0	
256QAM	1	0	19.5	20.2	19.7	0.0	21.0	19.5	20.2	19.6	0.0	21.0	
	1	12	19.5	20.1	19.7	0.0	21.0	19.6	20.1	19.7	0.0	21.0	
	1	24	19.5	20.2	19.6	0.0	21.0	19.5	20.1	19.6	0.0	21.0	
	12	0	19.7	19.9	19.9	0.0	21.0	19.7	19.9	19.8	0.0	21.0	
	12	7	19.7	19.9	19.9	0.0	21.0	19.7	19.9	19.9	0.0	21.0	
	12	13	19.7	19.9	19.8	0.0	21.0	19.7	19.9	19.8	0.0	21.0	
5 MHz	256QAM	25	0	19.6	19.9	19.8	0.0	21.0	19.6	19.8	19.7	0.0	21.0
		1	0	17.7	18.7	18.5	1.0	20.0	17.7	18.7	18.5	1.0	20.0
		1	12	17.7	18.8	18.5	1.0	20.0	17.7	18.8	18.5	1.0	20.0
		1	24	17.7	18.0	17.7	1.0	20.0	17.6	17.9	17.7	1.0	20.0
		12	0	17.6	18.0	17.9	1.0	20.0	17.6	18.0	17.9	1.0	20.0
		12	7	17.7	18.0	17.9	1.0	20.0	17.6	18.0	17.9	1.0	20.0
5 MHz	256QAM	12	13	17.6	18.0	17.8	1.0	20.0	17.6	18.0	17.8	1.0	20.0
		25	0	17.6	18.0	17.9	1.0	20.0	17.5	18.0	17.8	1.0	20.0

LTE Band 2 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				18615	18900	19185			18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz			1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	19.5	19.8	19.7	0.0	21.0	20.0	19.8	19.7	0.0	21.0
		1	8	19.4	19.8	19.7	0.0	21.0	20.0	19.8	19.6	0.0	21.0
		1	14	19.4	19.8	19.6	0.0	21.0	19.8	19.8	19.6	0.0	21.0
		8	0	19.6	19.8	19.7	0.0	21.0	19.6	19.9	19.8	0.0	21.0
		8	4	19.6	19.9	19.7	0.0	21.0	19.6	20.0	19.8	0.0	21.0
		8	7	19.6	19.9	19.7	0.0	21.0	19.6	20.0	19.8	0.0	21.0
		15	0	19.5	19.8	19.7	0.0	21.0	19.6	19.9	19.7	0.0	21.0
	16QAM	1	0	19.6	19.8	20.1	0.0	21.0	20.0	20.0	19.7	0.0	21.0
		1	8	19.6	19.8	20.1	0.0	21.0	20.0	20.0	19.7	0.0	21.0
		1	14	19.5	19.8	20.0	0.0	21.0	19.9	19.9	19.6	0.0	21.0
		8	0	19.6	20.0	19.8	0.0	21.0	19.7	20.0	19.9	0.0	21.0
		8	4	19.6	20.0	19.8	0.0	21.0	19.7	20.0	19.9	0.0	21.0
		8	7	19.6	20.1	19.8	0.0	21.0	19.7	20.1	19.9	0.0	21.0
		15	0	19.5	19.9	19.7	0.0	21.0	19.6	19.9	19.8	0.0	21.0
	64QAM	1	0	19.7	20.1	20.1	0.0	21.0	20.1	20.1	20.1	0.0	21.0
		1	8	19.7	20.1	20.0	0.0	21.0	20.1	20.1	20.0	0.0	21.0
		1	14	19.6	20.1	20.0	0.0	21.0	20.0	20.2	20.0	0.0	21.0
		8	0	19.7	19.9	19.9	0.0	21.0	19.6	20.0	19.8	0.0	21.0
		8	4	19.7	19.9	19.9	0.0	21.0	19.7	20.0	19.9	0.0	21.0
		8	7	19.7	20.0	19.9	0.0	21.0	19.6	20.0	19.9	0.0	21.0
		15	0	19.6	20.0	19.8	0.0	21.0	19.6	19.9	19.7	0.0	21.0
	256QAM	1	0	18.4	18.2	18.3	1.0	20.0	18.3	18.4	18.1	1.0	20.0
		1	8	18.3	18.3	18.4	1.0	20.0	18.2	18.0	18.0	1.0	20.0
		1	14	18.3	17.9	17.7	1.0	20.0	18.3	17.9	17.7	1.0	20.0
8		0	17.5	18.1	17.9	1.0	20.0	17.5	18.0	17.9	1.0	20.0	
8		4	17.6	18.1	17.9	1.0	20.0	17.5	18.1	17.9	1.0	20.0	
8		7	17.6	18.2	17.9	1.0	20.0	17.5	18.1	17.9	1.0	20.0	
15		0	17.7	18.0	17.9	1.0	20.0	17.7	18.0	17.8	1.0	20.0	
1.4 MHz	QPSK	1	0	19.3	19.7	19.6	0.0	21.0	19.5	19.9	19.7	0.0	21.0
		1	3	19.4	19.8	19.6	0.0	21.0	19.6	20.0	19.7	0.0	21.0
		1	5	19.3	19.7	19.5	0.0	21.0	19.5	19.9	19.6	0.0	21.0
		3	0	19.3	19.6	19.5	0.0	21.0	19.5	19.8	19.7	0.0	21.0
		3	1	19.4	19.8	19.6	0.0	21.0	19.6	20.0	19.7	0.0	21.0
		3	3	19.4	19.7	19.6	0.0	21.0	19.6	19.9	19.7	0.0	21.0
		6	0	19.4	19.7	19.6	0.0	21.0	19.6	19.9	19.7	0.0	21.0
	16QAM	1	0	19.5	19.9	20.0	0.0	21.0	19.7	20.0	20.1	0.0	21.0
		1	3	19.5	20.0	20.0	0.0	21.0	19.7	20.1	20.0	0.0	21.0
		1	5	19.5	19.9	19.9	0.0	21.0	19.7	20.1	20.1	0.0	21.0
		3	0	19.6	19.8	19.8	0.0	21.0	19.8	20.0	19.9	0.0	21.0
		3	1	19.6	19.9	19.8	0.0	21.0	19.8	20.1	19.9	0.0	21.0
		3	3	19.6	19.9	19.8	0.0	21.0	19.8	20.1	19.9	0.0	21.0
		6	0	19.6	19.9	19.5	0.0	21.0	19.8	20.1	19.7	0.0	21.0
	64QAM	1	0	19.7	20.1	19.9	0.0	21.0	19.7	20.0	19.9	0.0	21.0
		1	3	19.7	20.1	20.2	0.0	21.0	19.7	20.1	19.9	0.0	21.0
		1	5	19.6	20.1	20.0	0.0	21.0	19.7	20.0	19.8	0.0	21.0
		3	0	19.6	20.1	20.0	0.0	21.0	19.5	20.1	19.6	0.0	21.0
		3	1	19.7	20.2	20.0	0.0	21.0	19.5	20.1	19.7	0.0	21.0
		3	3	19.7	20.1	20.0	0.0	21.0	19.5	20.0	19.6	0.0	21.0
		6	0	19.8	19.7	19.6	0.0	21.0	19.6	19.8	19.7	0.0	21.0
	256QAM	1	0	18.3	17.7	17.8	1.0	20.0	18.3	18.2	18.9	1.0	20.0
		1	3	17.6	18.1	17.9	1.0	20.0	18.2	18.1	18.7	1.0	20.0
		1	5	17.5	18.0	17.7	1.0	20.0	17.6	17.7	17.7	1.0	20.0
3		0	17.6	17.8	17.7	1.0	20.0	17.5	17.7	17.7	1.0	20.0	
3		1	17.6	18.0	17.7	1.0	20.0	17.5	17.8	17.8	1.0	20.0	
3		3	17.6	17.9	17.7	1.0	20.0	17.5	17.8	17.8	1.0	20.0	
6		0	17.5	17.8	17.6	1.0	20.0	17.5	17.9	17.7	1.0	20.0	

LTE Band 41 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off							Reduced Average Power (dBm) Proximity sensor back-off						
				Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
20 MHz	QPSK	1	0	19.4	19.0	19.1	19.2	18.8	0.0	21.0	19.4	19.0	19.2	19.2	18.8	0.0	21.0
		1	49	19.2	19.0	19.5	19.4	19.1	0.0	21.0	18.8	19.1	19.6	19.3	19.2	0.0	21.0
		1	99	18.9	19.1	19.2	18.9	19.0	0.0	21.0	18.9	19.1	19.2	18.9	19.1	0.0	21.0
		50	0	18.7	18.9	19.4	19.3	19.1	0.0	21.0	18.8	18.9	19.4	19.4	19.1	0.0	21.0
		50	24	18.9	19.1	19.5	19.4	19.2	0.0	21.0	19.0	19.1	19.5	19.5	19.3	0.0	21.0
		50	50	18.8	19.0	19.4	19.1	19.1	0.0	21.0	18.9	19.0	19.4	19.3	19.2	0.0	21.0
		100	0	18.8	19.0	19.4	19.3	19.1	0.0	21.0	18.9	19.1	19.4	19.4	19.2	0.0	21.0
	16QAM	1	0	18.7	19.1	19.0	19.0	18.9	0.0	21.0	19.0	19.0	18.9	19.3	18.8	0.0	21.0
		1	49	18.6	19.2	19.4	19.2	19.3	0.0	21.0	19.0	19.0	19.3	19.5	19.1	0.0	21.0
		1	99	18.7	19.2	19.1	18.7	19.2	0.0	21.0	19.0	19.1	19.0	19.0	19.0	0.0	21.0
		50	0	18.7	18.9	19.3	19.4	19.1	0.0	21.0	18.8	18.9	19.4	19.4	19.1	0.0	21.0
		50	24	18.9	19.1	19.4	19.4	19.3	0.0	21.0	19.0	19.1	19.5	19.5	19.3	0.0	21.0
		50	50	18.9	19.0	19.4	19.2	19.2	0.0	21.0	19.0	19.0	19.4	19.2	19.2	0.0	21.0
		100	0	18.8	19.0	19.3	19.3	19.2	0.0	21.0	18.9	19.0	19.4	19.3	19.2	0.0	21.0
	64QAM	1	0	19.9	19.0	19.0	19.5	18.7	0.0	21.0	18.8	18.9	19.4	19.8	19.3	0.0	21.0
		1	49	19.8	19.0	19.4	19.6	19.1	0.0	21.0	18.8	18.9	19.9	19.9	19.1	0.0	21.0
		1	99	19.5	19.1	19.1	19.1	18.9	0.0	21.0	18.8	19.0	19.5	19.4	19.4	0.0	21.0
		50	0	19.4	18.9	19.4	19.4	19.1	0.0	21.0	18.8	19.0	19.4	19.9	19.6	0.0	21.0
		50	24	19.5	19.1	19.5	19.4	19.2	0.0	21.0	19.0	19.2	19.5	19.5	19.8	0.0	21.0
		50	50	19.5	19.0	19.5	19.2	19.1	0.0	21.0	18.9	19.1	19.5	19.2	19.7	0.0	21.0
		100	0	19.4	19.0	19.4	19.3	19.1	0.0	21.0	18.9	19.0	19.4	19.4	19.7	0.0	21.0
	256QAM	1	0	18.7	18.2	18.8	17.7	17.5	1.0	20.0	17.5	18.2	18.7	18.0	17.6	1.0	20.0
		1	49	19.1	18.6	19.3	17.9	17.7	1.0	20.0	17.6	18.6	19.1	18.1	17.7	1.0	20.0
		1	99	18.8	18.3	19.0	17.5	17.5	1.0	20.0	17.5	18.3	18.8	17.6	17.6	1.0	20.0
50		0	18.8	18.4	18.9	17.8	17.6	1.0	20.0	17.5	18.5	18.9	17.9	17.6	1.0	20.0	
50		24	19.0	18.6	19.0	17.9	17.7	1.0	20.0	17.5	18.6	19.0	17.9	17.7	1.0	20.0	
50		50	18.9	18.5	19.0	17.6	17.6	1.0	20.0	17.6	18.6	19.0	17.7	17.7	1.0	20.0	
100		0	18.9	18.5	18.9	17.8	17.6	1.0	20.0	17.5	18.6	18.9	17.8	17.7	1.0	20.0	
15 MHz	QPSK	1	0	18.8	18.8	19.2	19.2	19.4	0.0	21.0	18.9	18.7	19.2	19.2	18.9	0.0	21.0
		1	37	18.7	19.1	19.4	19.2	19.6	0.0	21.0	18.9	18.9	19.4	19.3	19.1	0.0	21.0
		1	74	18.8	18.9	19.3	19.0	19.1	0.0	21.0	18.9	18.8	19.3	19.0	19.1	0.0	21.0
		36	0	18.8	19.0	19.4	19.4	19.1	0.0	21.0	18.8	19.0	19.4	19.4	19.2	0.0	21.0
		36	20	18.9	19.1	19.5	19.4	19.2	0.0	21.0	18.6	19.1	19.5	19.4	19.3	0.0	21.0
		36	39	18.9	19.1	19.5	19.2	19.2	0.0	21.0	18.6	19.1	19.5	19.3	19.2	0.0	21.0
		75	0	18.8	19.0	19.5	19.3	19.2	0.0	21.0	19.4	19.0	19.5	19.3	19.2	0.0	21.0
	16QAM	1	0	18.9	18.9	19.2	19.2	18.9	0.0	21.0	19.6	18.9	19.2	19.3	18.9	0.0	21.0
		1	37	18.9	19.2	19.5	19.3	19.2	0.0	21.0	19.6	19.1	19.5	19.4	19.2	0.0	21.0
		1	74	18.9	19.0	19.3	19.0	19.2	0.0	21.0	19.6	18.9	19.3	19.1	19.1	0.0	21.0
		36	0	18.7	19.0	19.4	19.4	19.1	0.0	21.0	18.5	19.0	19.4	19.4	19.2	0.0	21.0
		36	20	18.9	19.1	19.5	19.4	19.3	0.0	21.0	18.9	19.1	19.5	19.5	19.3	0.0	21.0
		36	39	18.9	19.1	19.5	19.2	19.2	0.0	21.0	18.9	19.1	19.5	19.3	19.2	0.0	21.0
		75	0	18.9	19.1	19.4	19.3	19.2	0.0	21.0	18.9	19.0	19.4	19.4	19.2	0.0	21.0
	64QAM	1	0	19.2	19.0	19.1	19.1	19.9	0.0	21.0	20.0	18.6	19.0	18.8	19.2	0.0	21.0
		1	37	19.2	19.2	19.5	19.1	19.2	0.0	21.0	19.9	19.9	19.3	18.9	19.4	0.0	21.0
		1	74	19.2	19.1	19.2	19.8	19.1	0.0	21.0	19.8	18.7	19.1	18.5	19.3	0.0	21.0
		36	0	19.3	19.0	19.9	20.0	19.7	0.0	21.0	19.4	19.6	19.4	19.5	19.2	0.0	21.0
		36	20	19.5	19.1	20.0	20.0	19.8	0.0	21.0	19.5	19.6	19.5	19.5	19.3	0.0	21.0
		36	39	19.5	19.7	20.0	19.8	19.7	0.0	21.0	19.5	19.2	19.5	19.3	19.2	0.0	21.0
		75	0	19.4	19.7	20.0	19.9	19.7	0.0	21.0	19.4	19.1	19.5	19.3	19.2	0.0	21.0
	256QAM	1	0	17.6	18.4	18.8	17.5	17.5	1.0	20.0	17.5	18.1	18.8	17.8	17.5	1.0	20.0
		1	37	17.5	18.6	19.1	17.6	17.7	1.0	20.0	17.5	18.4	19.1	17.9	17.5	1.0	20.0
		1	74	17.5	18.5	18.9	17.6	17.7	1.0	20.0	17.5	18.2	18.9	17.6	17.6	1.0	20.0
36		0	17.5	18.5	18.9	17.9	17.6	1.0	20.0	17.5	18.5	18.9	17.9	17.7	1.0	20.0	
36		20	17.6	18.6	19.0	17.9	17.7	1.0	20.0	17.5	18.7	19.0	17.9	17.8	1.0	20.0	
36		39	17.5	18.6	19.0	17.8	17.7	1.0	20.0	17.5	18.6	19.0	17.7	17.7	1.0	20.0	
75		0	17.6	18.6	19.0	17.8	17.7	1.0	20.0	17.5	18.6	19.0	17.9	17.7	1.0	20.0	

LTE Band 41 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit	
				39750	40185	40620	41055	41490			39750	40185	40620	41055	41490			
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			
10 MHz	QPSK	1	0	18.8	18.7	19.1	19.1	19.4	0.0	21.0	19.3	18.8	19.1	19.0	18.9	0.0	21.0	
		1	25	18.8	19.1	19.4	19.3	19.7	0.0	21.0	19.3	19.0	19.4	19.3	19.1	0.0	21.0	
		1	49	18.9	18.8	19.2	19.0	18.7	0.0	21.0	19.2	18.9	19.2	18.9	18.8	0.0	21.0	
		25	0	18.9	19.0	19.5	19.4	19.2	0.0	21.0	19.7	19.1	19.5	19.4	19.2	0.0	21.0	
		25	12	18.9	19.2	19.5	19.5	19.3	0.0	21.0	19.0	19.2	19.6	19.4	19.3	0.0	21.0	
		25	25	18.9	19.1	19.5	19.3	19.1	0.0	21.0	18.9	19.1	19.5	19.3	19.2	0.0	21.0	
		50	0	18.9	19.1	19.5	19.4	19.2	0.0	21.0	18.8	19.1	19.5	19.4	19.1	0.0	21.0	
	16QAM	1	0	18.7	19.0	19.3	19.1	19.0	0.0	21.0	19.0	18.8	19.2	19.2	18.8	0.0	21.0	
		1	25	18.7	19.2	19.5	19.3	19.2	0.0	21.0	18.8	19.0	19.5	19.4	19.1	0.0	21.0	
		1	49	18.7	19.0	19.2	19.0	18.9	0.0	21.0	18.9	18.8	19.4	19.1	18.8	0.0	21.0	
		25	0	18.8	19.0	19.5	19.4	19.2	0.0	21.0	18.9	19.1	19.5	19.4	19.2	0.0	21.0	
		25	12	18.9	19.2	19.6	19.4	19.3	0.0	21.0	18.9	19.1	19.6	19.4	19.2	0.0	21.0	
		25	25	18.9	19.1	19.5	19.3	19.2	0.0	21.0	18.9	19.1	19.5	19.3	19.1	0.0	21.0	
		50	0	18.8	19.1	19.5	19.3	19.2	0.0	21.0	18.8	19.1	19.5	19.4	19.1	0.0	21.0	
	64QAM	1	0	19.4	18.6	19.5	19.3	18.6	0.0	21.0	19.2	18.5	19.3	19.5	20.0	0.0	21.0	
		1	25	19.5	18.7	19.9	19.6	18.8	0.0	21.0	19.1	18.6	19.6	19.6	18.6	0.0	21.0	
		1	49	19.1	18.5	19.5	19.2	18.6	0.0	21.0	19.1	18.5	19.3	19.3	18.5	0.0	21.0	
		25	0	18.8	19.1	19.5	19.3	19.2	0.0	21.0	18.9	19.1	19.4	19.3	19.2	0.0	21.0	
		25	12	18.8	19.2	19.6	19.4	19.3	0.0	21.0	18.9	19.2	19.5	19.4	19.2	0.0	21.0	
		25	25	18.8	19.2	19.5	19.3	19.2	0.0	21.0	18.9	19.1	19.4	19.3	19.2	0.0	21.0	
		50	0	18.8	19.1	19.5	19.3	19.2	0.0	21.0	18.8	19.1	19.5	19.3	19.1	0.0	21.0	
	256QAM	1	0	17.5	18.4	18.5	17.6	17.6	1.0	20.0	17.6	18.4	18.8	17.5	17.5	1.0	20.0	
		1	25	17.5	18.8	18.9	17.9	17.8	1.0	20.0	17.5	18.8	19.1	17.6	17.8	1.0	20.0	
		1	49	17.5	18.5	18.5	17.5	17.6	1.0	20.0	17.6	18.5	18.8	17.5	17.5	1.0	20.0	
		25	0	17.5	18.5	19.0	17.8	17.7	1.0	20.0	17.5	18.6	18.9	17.9	17.6	1.0	20.0	
		25	12	17.5	18.7	19.1	17.9	17.7	1.0	20.0	17.5	18.7	19.0	18.0	17.7	1.0	20.0	
		25	25	17.5	18.6	19.1	17.8	17.7	1.0	20.0	17.5	18.6	19.0	17.9	17.6	1.0	20.0	
		50	0	17.5	18.7	18.9	17.9	17.7	1.0	20.0	17.5	18.7	18.9	17.8	17.7	1.0	20.0	
	5 MHz	Mode	RB Allocation	RB offset	Measured Pwr (dBm)					MPR	Tune-up Limit	Measured Pwr (dBm)					MPR	Tune-up Limit
	BW (MHz)	Mode	RB Allocation	RB offset	39750	40185	40620	41055	41490			39750	40185	40620	41055	41490		
2506 MHz					2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz	2506 MHz			2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz			
5 MHz	QPSK	1	0	19.4	19.0	19.4	19.3	19.1	0.0	21.0	18.8	19.0	19.4	19.4	19.2	0.0	21.0	
		1	12	19.4	19.0	19.5	19.4	19.1	0.0	21.0	18.8	19.1	19.5	19.4	19.2	0.0	21.0	
		1	24	18.9	19.0	19.4	19.3	19.0	0.0	21.0	18.9	19.1	19.4	19.3	19.1	0.0	21.0	
		12	0	18.9	19.1	19.5	19.4	19.3	0.0	21.0	19.0	19.2	19.6	19.5	19.3	0.0	21.0	
		12	7	18.9	19.2	19.6	19.4	19.3	0.0	21.0	19.0	19.2	19.6	19.5	19.3	0.0	21.0	
		12	13	18.9	19.2	19.5	19.4	19.3	0.0	21.0	19.0	19.2	19.6	19.4	19.3	0.0	21.0	
		25	0	18.9	19.2	19.5	19.4	19.3	0.0	21.0	19.0	19.2	19.6	19.5	19.3	0.0	21.0	
	16QAM	1	0	18.9	18.9	19.5	19.4	19.1	0.0	21.0	18.9	19.1	19.4	19.4	19.3	0.0	21.0	
		1	12	19.1	19.0	19.6	19.5	19.0	0.0	21.0	19.0	19.3	19.5	19.4	19.3	0.0	21.0	
		1	24	19.0	19.0	19.5	19.4	19.0	0.0	21.0	19.0	19.2	19.4	19.3	19.2	0.0	21.0	
		12	0	18.9	19.2	19.5	19.5	19.3	0.0	21.0	18.9	19.2	19.5	19.4	19.3	0.0	21.0	
		12	7	19.0	19.2	19.5	19.5	19.3	0.0	21.0	18.9	19.2	19.6	19.4	19.3	0.0	21.0	
		12	13	18.9	19.1	19.5	19.5	19.2	0.0	21.0	18.9	19.2	19.6	19.4	19.3	0.0	21.0	
		25	0	18.9	19.2	19.6	19.4	19.2	0.0	21.0	19.0	19.2	19.5	19.4	19.3	0.0	21.0	
	64QAM	1	0	19.3	18.7	19.5	19.8	19.3	0.0	21.0	20.0	18.9	19.7	19.1	19.6	0.0	21.0	
		1	12	19.3	18.8	19.6	19.8	19.3	0.0	21.0	20.0	19.5	19.6	19.1	19.6	0.0	21.0	
		1	24	19.3	18.8	19.5	19.7	18.7	0.0	21.0	20.0	19.6	19.6	18.9	19.5	0.0	21.0	
		12	0	18.9	19.2	19.5	19.5	19.2	0.0	21.0	19.4	19.2	19.5	19.4	19.3	0.0	21.0	
		12	7	19.0	19.2	19.5	19.5	19.2	0.0	21.0	19.5	19.3	19.5	19.4	19.3	0.0	21.0	
		12	13	18.9	19.2	19.5	19.5	19.2	0.0	21.0	19.4	19.2	19.5	19.4	19.3	0.0	21.0	
		25	0	18.9	19.2	19.4	19.4	19.3	0.0	21.0	19.4	19.2	19.4	19.4	19.2	0.0	21.0	
256QAM	1	0	17.6	18.9	19.2	18.0	17.9	1.0	20.0	17.7	18.6	19.1	18.1	17.7	1.0	20.0		
	1	12	17.6	18.9	19.1	17.9	18.0	1.0	20.0	17.7	18.7	19.2	18.2	17.7	1.0	20.0		
	1	24	17.5	18.9	19.1	17.8	17.9	1.0	20.0	17.7	18.7	19.1	18.0	17.6	1.0	20.0		
	12	0	17.5	18.7	19.0	17.9	17.7	1.0	20.0	17.6	18.6	19.0	17.9	17.7	1.0	20.0		
	12	7	17.6	18.7	19.0	17.9	17.7	1.0	20.0	17.5	18.7	19.0	17.9	17.7	1.0	20.0		
	12	13	17.6	18.7	19.0	17.9	17.7	1.0	20.0	17.5	18.6	19.0	17.9	17.7	1.0	20.0		
	25	0	17.6	18.7	19.0	17.9	17.7	1.0	20.0	17.6	18.7	19.0	17.9	17.7	1.0	20.0		

LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Reduced Average Power (dBm) Hotspot back-off					Reduced Average Power (dBm) Proximity sensor back-off				
				Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				132072	132322	132572			132072	132322	132572		
				1720 MHz	1745 MHz	1770 MHz			1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	17.5	17.7	18.1	0.0	19.5	18.9	19.2	19.4	0.0	21
		1	49	17.9	18.0	17.8	0.0	19.5	19.3	19.4	19.2	0.0	21
		1	99	17.7	17.8	17.8	0.0	19.5	19.2	19.2	19.1	0.0	21
		50	0	18.1	18.1	18.0	0.0	19.5	19.5	19.5	19.4	0.0	21
		50	24	18.1	18.1	18.2	0.0	19.5	19.5	19.6	19.6	0.0	21
		50	50	18.0	18.1	17.8	0.0	19.5	19.4	19.5	19.2	0.0	21
	16QAM	1	0	18.1	18.3	18.5	0.0	19.5	19.7	19.6	19.9	0.0	21
		1	49	18.4	18.6	18.3	0.0	19.5	19.9	19.9	19.7	0.0	21
		1	99	18.2	18.4	18.2	0.0	19.5	19.8	19.6	19.6	0.0	21
		50	0	18.0	18.1	18.0	0.0	19.5	19.5	19.6	19.3	0.0	21
		50	24	18.1	18.2	17.9	0.0	19.5	19.6	19.6	19.3	0.0	21
		50	50	18.0	18.1	17.8	0.0	19.5	19.5	19.5	19.2	0.0	21
	64QAM	1	0	18.0	17.9	18.0	0.0	19.5	19.5	19.4	19.5	0.0	21
		1	49	18.2	17.9	18.0	0.0	19.5	19.7	19.4	19.5	0.0	21
		1	99	18.1	17.9	18.0	0.0	19.5	19.6	19.4	19.5	0.0	21
		50	0	18.1	17.9	18.0	0.0	19.5	19.6	19.4	19.5	0.0	21
		50	24	18.1	17.9	18.0	0.0	19.5	19.6	19.4	19.5	0.0	21
		50	50	18.0	17.9	18.0	0.0	19.5	19.3	19.1	19.2	0.0	21
	256QAM	100	0	18.0	17.9	18.0	0.0	19.5	19.3	19.1	19.2	0.0	21
		1	0	17.5	17.4	17.1	1.0	18.5	17.2	17.1	16.8	2.0	19
		1	49	17.7	17.7	17.2	1.0	18.5	17.4	17.4	17.0	2.0	19
		1	99	17.5	17.5	16.9	1.0	18.5	17.2	17.2	16.7	2.0	19
		50	0	17.5	17.5	17.4	1.0	18.5	17.3	17.2	17.1	2.0	19
		50	24	17.5	17.6	17.3	1.0	18.5	17.3	17.3	17.0	2.0	19
15 MHz	QPSK	50	50	17.4	17.5	17.3	1.0	18.5	17.2	17.2	17.0	2.0	19
		100	0	17.5	17.5	17.3	1.0	18.5	17.2	17.2	17.0	2.0	19
		1	0	18.0	17.9	18.0	0.0	19.5	19.5	19.5	19.5	0.0	21
		1	37	18.0	18.0	17.8	0.0	19.5	19.5	19.6	19.3	0.0	21
		1	74	17.9	17.9	17.9	0.0	19.5	19.4	19.5	19.4	0.0	21
		36	0	18.1	18.0	18.0	0.0	19.5	19.6	19.6	19.5	0.0	21
	16QAM	36	20	18.1	18.1	17.9	0.0	19.5	19.6	19.6	19.4	0.0	21
		36	39	18.0	18.1	18.0	0.0	19.5	19.6	19.6	19.5	0.0	21
		75	0	18.0	18.1	17.9	0.0	19.5	19.6	19.6	19.4	0.0	21
		1	0	18.4	18.4	18.0	0.0	19.5	19.9	19.9	19.6	0.0	21
		1	37	18.4	18.4	17.8	0.0	19.5	19.9	20.0	19.4	0.0	21
		1	74	18.3	18.4	17.9	0.0	19.5	19.8	19.9	19.4	0.0	21
	64QAM	36	0	18.2	18.0	18.0	0.0	19.5	19.7	19.6	19.5	0.0	21
		36	20	18.2	18.1	17.9	0.0	19.5	19.6	19.7	19.5	0.0	21
		36	39	18.0	18.1	18.0	0.0	19.5	19.5	19.7	19.5	0.0	21
		75	0	18.1	18.1	17.9	0.0	19.5	19.6	19.7	19.5	0.0	21
		1	0	18.5	18.5	18.4	0.0	19.5	19.6	19.8	19.9	0.0	21
		1	37	18.6	18.6	18.2	0.0	19.5	19.7	19.8	19.8	0.0	21
	256QAM	1	74	18.6	18.6	18.3	0.0	19.5	19.5	19.9	19.8	0.0	21
		36	0	18.1	18.1	18.0	0.0	19.5	19.7	19.6	19.5	0.0	21
		36	20	18.0	18.2	18.0	0.0	19.5	19.7	19.7	19.5	0.0	21
		36	39	18.1	18.2	18.1	0.0	19.5	19.7	19.6	19.6	0.0	21
		75	0	18.0	18.2	18.0	0.0	19.5	19.6	19.7	19.5	0.0	21
		1	0	17.2	17.7	17.9	1.0	18.5	17.2	17.7	17.9	2.0	19
256QAM	1	37	17.4	17.9	17.9	1.0	18.5	17.4	17.9	17.8	2.0	19	
	1	74	17.2	17.8	17.8	1.0	18.5	17.2	17.8	17.8	2.0	19	
	36	0	17.7	17.6	17.6	1.0	18.5	17.7	17.6	17.6	2.0	19	
	36	20	17.6	17.7	17.5	1.0	18.5	17.6	17.7	17.5	2.0	19	
	36	39	17.6	17.7	17.5	1.0	18.5	17.6	17.7	17.5	2.0	19	
	75	0	17.6	17.7	17.5	1.0	18.5	17.6	17.7	17.5	2.0	19	

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	17.9	17.6	17.6	0.0	19.5	19.3	19.1	19.1	0.0	21
		1	25	18.0	17.9	17.9	0.0	19.5	19.5	19.5	19.4	0.0	21
		1	49	17.7	17.7	17.7	0.0	19.5	19.3	19.2	19.2	0.0	21
		25	0	18.1	17.9	17.8	0.0	19.5	18.6	19.5	19.3	0.0	21
		25	12	18.1	18.1	17.9	0.0	19.5	19.6	19.6	19.4	0.0	21
		25	25	17.9	18.0	17.9	0.0	19.5	19.5	19.5	19.4	0.0	21
	16QAM	50	0	17.9	18.0	17.9	0.0	19.5	19.5	19.5	19.4	0.0	21
		1	0	18.2	17.8	17.6	0.0	19.5	19.7	19.3	19.1	0.0	21
		1	25	18.4	18.0	17.9	0.0	19.5	19.9	19.6	19.4	0.0	21
		1	49	18.1	17.9	17.7	0.0	19.5	19.7	19.4	19.2	0.0	21
		25	0	18.2	18.0	17.9	0.0	19.5	19.7	19.6	19.4	0.0	21
		25	12	18.2	18.2	17.9	0.0	19.5	19.7	19.7	19.4	0.0	21
	64QAM	25	25	18.0	18.1	17.9	0.0	19.5	19.5	19.6	19.5	0.0	21
		50	0	18.0	18.0	17.8	0.0	19.5	19.6	19.6	19.4	0.0	21
		1	0	17.8	18.0	18.1	0.0	19.5	19.5	19.5	19.5	0.0	21
		1	25	18.2	18.3	18.3	0.0	19.5	19.7	19.9	19.8	0.0	21
		1	49	17.9	18.1	18.2	0.0	19.5	19.4	19.6	19.6	0.0	21
		25	0	18.2	18.1	18.0	0.0	19.5	19.6	19.6	19.5	0.0	21
	256QAM	25	12	18.2	18.3	18.1	0.0	19.5	19.7	19.7	19.6	0.0	21
		25	25	18.1	18.2	18.1	0.0	19.5	19.5	19.7	19.6	0.0	21
		50	0	18.1	18.1	17.9	0.0	19.5	19.6	19.5	19.4	0.0	21
		1	0	17.3	17.3	17.6	1.0	18.5	17.2	17.3	17.6	2.0	19
		1	25	17.4	17.6	17.9	1.0	18.5	17.3	17.7	17.9	2.0	19
		1	49	17.2	17.5	17.8	1.0	18.5	17.2	17.5	17.8	2.0	19
5 MHz	QPSK	25	0	17.7	17.6	17.4	1.0	18.5	17.7	17.6	17.4	2.0	19
		25	12	17.7	17.7	17.6	1.0	18.5	17.7	17.7	17.5	2.0	19
		25	25	17.6	17.7	17.6	1.0	18.5	17.6	17.7	17.6	2.0	19
		50	0	17.6	17.6	17.5	1.0	18.5	17.5	17.6	17.5	2.0	19
		1	0	18.2	18.0	18.0	0.0	19.5	19.5	19.5	19.5	0.0	21
		1	12	18.2	18.0	18.1	0.0	19.5	19.5	19.6	19.6	0.0	21
	16QAM	1	24	18.1	18.0	17.9	0.0	19.5	19.3	19.6	19.4	0.0	21
		12	0	18.1	18.0	18.0	0.0	19.5	19.6	19.6	19.5	0.0	21
		12	7	18.2	18.1	18.1	0.0	19.5	19.6	19.6	19.5	0.0	21
		12	13	18.1	18.1	18.0	0.0	19.5	19.5	19.6	19.5	0.0	21
		25	0	18.1	18.0	18.0	0.0	19.5	19.6	19.6	19.5	0.0	21
		1	0	18.7	18.1	18.1	0.0	19.5	19.9	19.7	19.6	0.0	21
	64QAM	1	12	18.6	18.1	18.1	0.0	19.5	19.9	19.7	19.6	0.0	21
		1	24	18.5	18.1	18.1	0.0	19.5	20.0	19.7	19.6	0.0	21
		12	0	18.2	18.1	18.1	0.0	19.5	19.8	19.6	19.6	0.0	21
		12	7	18.2	18.1	18.1	0.0	19.5	19.7	19.7	19.6	0.0	21
		12	13	18.1	18.1	18.1	0.0	19.5	19.6	19.6	19.6	0.0	21
		25	0	18.1	18.0	18.0	0.0	19.5	19.7	19.6	19.6	0.0	21
	256QAM	1	0	18.6	18.3	18.0	0.0	19.5	20.0	19.8	19.5	0.0	21
		1	12	18.5	18.4	18.0	0.0	19.5	19.9	19.8	19.5	0.0	21
		1	24	18.4	18.4	18.0	0.0	19.5	19.8	19.8	19.4	0.0	21
		12	0	18.1	18.2	18.2	0.0	19.5	19.6	19.6	19.6	0.0	21
		12	7	18.1	18.3	18.2	0.0	19.5	19.6	19.7	19.6	0.0	21
		12	13	18.1	18.2	18.1	0.0	19.5	19.5	19.6	19.6	0.0	21
256QAM	25	0	18.1	18.2	18.1	0.0	19.5	19.6	19.6	19.5	0.0	21	
	1	0	17.8	17.6	17.3	1.0	18.5	17.8	17.6	17.3	2.0	19	
	1	12	17.8	17.7	17.3	1.0	18.5	17.8	17.7	17.3	2.0	19	
	1	24	17.7	17.6	17.2	1.0	18.5	17.6	17.6	17.2	2.0	19	
	12	0	17.7	17.6	17.6	1.0	18.5	17.7	17.6	17.6	2.0	19	
	12	7	17.7	17.7	17.6	1.0	18.5	17.6	17.6	17.6	2.0	19	
256QAM	12	13	17.6	17.6	17.5	1.0	18.5	17.6	17.6	17.5	2.0	19	
	25	0	17.7	17.7	17.7	1.0	18.5	17.7	17.6	17.6	2.0	19	

LTE Band 66 Measured Results (Continued)

BW (MHz)	Mode	RB Allocation	RB offset	Measured Pwr (dBm)			MPR	Tune-up Limit	Measured Pwr (dBm)			MPR	Tune-up Limit
				131987	132322	132657			131987	132322	132657		
				1711.5 MHz	1745 MHz	1778.5 MHz			1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	18.1	18.0	17.9	0.0	19.5	19.6	19.5	19.5	0.0	21
		1	8	18.0	18.0	17.9	0.0	19.5	19.5	19.5	19.4	0.0	21
		1	14	17.9	18.0	17.9	0.0	19.5	19.5	19.5	19.4	0.0	21
		8	0	18.1	18.0	18.0	0.0	19.5	19.6	19.5	19.5	0.0	21
		8	4	18.1	18.2	18.0	0.0	19.5	19.6	19.6	19.5	0.0	21
		8	7	18.1	18.1	18.1	0.0	19.5	19.6	19.6	19.6	0.0	21
	16QAM	15	0	18.1	18.1	18.0	0.0	19.5	19.6	19.6	19.5	0.0	21
		1	0	18.2	18.0	17.9	0.0	19.5	20.1	19.6	19.5	0.0	21
		1	8	18.1	18.0	17.9	0.0	19.5	20.0	19.6	19.4	0.0	21
		1	14	18.0	17.9	17.9	0.0	19.5	19.9	19.6	19.4	0.0	21
		8	0	18.2	18.2	18.1	0.0	19.5	19.8	19.6	19.7	0.0	21
		8	4	18.2	18.2	18.1	0.0	19.5	19.8	19.7	19.7	0.0	21
	64QAM	8	7	18.2	18.2	18.2	0.0	19.5	19.7	19.7	19.7	0.0	21
		15	0	18.1	18.2	18.1	0.0	19.5	19.6	19.6	19.6	0.0	21
		1	0	18.6	18.2	18.4	0.0	19.5	19.8	19.9	19.9	0.0	21
		1	8	18.4	18.2	18.3	0.0	19.5	19.7	19.8	19.8	0.0	21
		1	14	18.4	18.2	18.4	0.0	19.5	19.7	19.8	19.8	0.0	21
		8	0	18.3	18.1	18.2	0.0	19.5	19.7	19.5	19.7	0.0	21
	256QAM	8	4	18.2	18.2	18.2	0.0	19.5	19.7	19.6	19.6	0.0	21
		8	7	18.4	18.2	18.2	0.0	19.5	19.7	19.6	19.7	0.0	21
		15	0	18.2	18.2	18.1	0.0	19.5	19.6	19.7	19.5	0.0	21
		1	0	17.5	17.6	18.0	1.0	18.5	17.4	17.6	18.0	2.0	19
		1	8	17.2	17.6	17.9	1.0	18.5	17.2	17.6	17.9	2.0	19
		1	14	17.3	17.6	18.0	1.0	18.5	17.3	17.6	18.0	2.0	19
1.4 MHz	QPSK	8	0	17.6	17.7	17.7	1.0	18.5	17.6	17.7	17.7	2.0	19
		8	4	17.7	17.8	17.7	1.0	18.5	17.6	17.8	17.7	2.0	19
		8	7	17.6	17.8	17.7	1.0	18.5	17.6	17.8	17.7	2.0	19
		15	0	17.8	17.7	17.6	1.0	18.5	17.7	17.7	17.6	2.0	19
		1	0	18.5	17.9	17.8	0.0	19.5	19.5	19.4	19.4	0.0	21
		1	3	18.0	17.9	17.9	0.0	19.5	20.0	19.5	19.5	0.0	21
	16QAM	1	5	17.9	17.8	17.8	0.0	19.5	19.4	19.4	19.4	0.0	21
		3	0	17.9	17.9	17.8	0.0	19.5	19.5	19.3	19.4	0.0	21
		3	1	17.9	17.9	17.9	0.0	19.5	19.6	19.4	19.4	0.0	21
		3	3	17.9	17.8	17.8	0.0	19.5	19.5	19.4	19.4	0.0	21
		6	0	18.0	17.9	17.9	0.0	19.5	19.5	19.5	19.5	0.0	21
		1	0	18.1	18.4	18.0	0.0	19.5	20.0	19.5	19.6	0.0	21
	64QAM	1	3	18.2	18.3	18.0	0.0	19.5	20.0	19.6	19.7	0.0	21
		1	5	18.1	18.3	17.9	0.0	19.5	19.9	19.5	19.6	0.0	21
		3	0	18.0	18.1	18.1	0.0	19.5	19.7	19.7	19.5	0.0	21
		3	1	18.1	18.1	18.1	0.0	19.5	19.7	19.7	19.6	0.0	21
		3	3	18.0	18.1	18.1	0.0	19.5	19.7	19.7	19.6	0.0	21
		6	0	18.2	17.8	18.1	0.0	19.5	19.5	19.7	19.6	0.0	21
	256QAM	1	0	18.2	18.2	18.2	0.0	19.5	19.7	19.9	19.6	0.0	21
		1	3	18.2	18.3	18.2	0.0	19.5	19.7	20.0	19.7	0.0	21
		1	5	18.6	18.1	18.1	0.0	19.5	19.6	19.9	19.5	0.0	21
		3	0	18.4	18.2	18.2	0.0	19.5	19.7	19.9	19.6	0.0	21
		3	1	18.5	18.3	18.2	0.0	19.5	19.7	20.0	19.6	0.0	21
		3	3	18.5	18.3	18.2	0.0	19.5	19.7	19.9	19.7	0.0	21
256QAM	6	0	18.1	18.4	18.3	0.0	19.5	19.8	19.5	19.8	0.0	21	
	1	0	17.8	17.7	17.6	1.0	18.5	17.6	17.7	17.7	2.0	19	
	1	3	17.9	17.7	17.7	1.0	18.5	17.7	17.7	17.7	2.0	19	
	1	5	17.7	17.6	17.6	1.0	18.5	17.6	17.6	17.6	2.0	19	
	3	0	17.6	17.6	17.5	1.0	18.5	17.5	17.6	17.5	2.0	19	
	3	1	17.7	17.6	17.6	1.0	18.5	17.6	17.6	17.5	2.0	19	
256QAM	3	3	17.6	17.6	17.5	1.0	18.5	17.6	17.5	17.5	2.0	19	
	6	0	17.5	17.5	17.5	1.0	18.5	17.5	17.5	17.4	2.0	19	

9.3.1. LTE Down-Link Carrier Aggregation

DL CA output power results

E-UTRA CA configuration (BCS)	Bands		UL					DL						LTE Rel 8 Tx. Power [dBm]	LTE Rel 10 Tx. Power [dBm]	Delta
	PCC	SCC1	PCC					PCC			SCC1					
	1st	2nd	Mode	BW (MHz)	Channel	Freq. (MHz)	RB/Offset	BW (MHz)	Channel	Freq. (MHz)	BW (MHz)	Channel	Freq. (MHz)			
66B	66B	66B	QPSK	15	132597	1772.5	1/0	15	67061	2172.5	5	66968	2163.2	22.6	22.5	-0.06
66C	66C	66C	QPSK	20	132572	1770	1/0	20	67036	2170	20	66838	2150.2	22.2	22.2	-0.03
66A-66A	66A	66A	QPSK	20	132572	1770	1/0	20	67036	2170	20	66536	2120	22.2	22.2	-0.01

Note:

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

9.4. Wi-Fi 2.4 GHz (DTS Band)

When the RCV is activated 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.

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode					
					Max.Average Power			Reduced Average Power		
					Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi SISO Ant.1	802.11b	1 Mbps	1	2412.0	16.8	18.0	Yes	12.7	13.0	Yes
			6	2437.0	16.7			12.8		
			11	2462.0	16.8			12.4		
			12	2467.0	8.8			9.0		
			13	2472.0	2.5			3.0		
	802.11g	6 Mbps	1	2412.0	Not Required	18.0	No	Not Required	13.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0						
			13	2472.0						
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	18.0	No	Not Required	13.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0						
			13	2472.0						
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	18.0	No	Not Required	13.0	No
6			2437.0							
11			2462.0							
12			2467.0							
13			2472.0							
WiFi SISO Ant.2	802.11b	1 Mbps	1	2412.0	16.9	18.0	Yes	12.2	13.0	Yes
			6	2437.0	15.4			12.4		
			11	2462.0	15.1			12.4		
			12	2467.0	8.9			9.0		
			13	2472.0	2.4			3.0		
	802.11g	6 Mbps	1	2412.0	Not Required	18.0	No	Not Required	13.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0						
			13	2472.0						
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	18.0	No	Not Required	13.0	No
			6	2437.0						
			11	2462.0						
			12	2467.0						
			13	2472.0						
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	18.0	No	Not Required	13.0	No
6			2437.0							
11			2462.0							
12			2467.0							
13			2472.0							

Measured Results of Wi-Fi MIMO

Antenna	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode		
					Max.Average Power		
					Meas. Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
WiFi MIMO Ant.1	802.11b	1 Mbps	1	2412.0	15.7	16.0	Yes
			6	2437.0	15.4		
			11	2462.0	15.1		
			12	2467.0	8.6	9.0	
			13	2472.0	2.5	3.0	
	802.11g	6 Mbps	1	2412.0	Not Required	18.0	No
			6	2437.0			
			11	2462.0			
			12	2467.0			
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	18.0	No
			6	2437.0			
			11	2462.0			
			12	2467.0			
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	18.0	No
			6	2437.0			
			11	2462.0			
12			2467.0				
WiFi MIMO Ant.2	802.11b	1 Mbps	1	2412.0	15.5	16.0	Yes
			6	2437.0	15.8		
			11	2462.0	15.3		
			12	2467.0	8.3	9.0	
			13	2472.0	2.3	3.0	
	802.11g	6 Mbps	1	2412.0	Not Required	18.0	No
			6	2437.0			
			11	2462.0			
			12	2467.0			
	802.11n (HT20)	6.5 Mbps	1	2412.0	Not Required	18.0	No
			6	2437.0			
			11	2462.0			
			12	2467.0			
	802.11ax (HE20)	7.3 Mbps	1	2412.0	Not Required	18.0	No
			6	2437.0			
			11	2462.0			
12			2467.0				
			13	2472.0		3.0	

Note(s):

- SAR is not required for 802.11g/n/ax modes when the adjusted SAR for 802.11b is < 1.2 W/kg.
- 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.
- 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.
- Hotspot MIMO measurement to meet FCC simultaneous transmission limits

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

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

Measured Results of Wi-Fi SISO Ant.1

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
SISO Ant.1	5.3 (U-NII 2A)	802.11a	6 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
				64	5320						
		802.11n (HT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
		802.11n (HT40)	13.5 Mbps	54	5270	16.2	17.0	Yes	Not Required	11.0	No
				62	5310	16.0					
		802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
	802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	17.0	No	Not Required	11.0	No	
			62	5310							
	802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	16.0	No	10.6	11.0	Yes	
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
		802.11n (HT40)	13.5 Mbps	102	5510	15.5	17.0	Yes	Not Required	11.0	No
				118	5590	16.2					
				126	5630	16.3					
				142	5710	15.5					
		802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
802.11ac (VHT40)		13.5 Mbps	102	5510	Not Required	17.0	No	Not Required	11.0	No	
			118	5590							
			126	5630							
	142		5710								
802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	16.0	No	10.4	11.0	Yes		
		122	5610				10.7				
		138	5690				10.3				
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No	
			157	5785							
			165	5825							
	802.11n (HT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No	
			157	5785							
			165	5825							
	802.11n (HT40)	13.5 Mbps	151	5755	15.7	17.0	Yes	Not Required	11.0	No	
			159	5795	15.9						
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	11.0	No	
			157	5785							
			165	5825							
	802.11ac (VHT40)	13.5 Mbps	151	5755	Not Required	17.0	No	Not Required	11.0	No	
159			5795								
802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	16.0	No	10.7	11.0	Yes		

Measured Results of Wi-Fi SISO Ant.2

Antenna	Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	WLAN mode power					
						Max. Average Power			Reduced Average Power		
						Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
SISO Ant.2	5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
		802.11n (HT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	11.0	No
				56	5280						
				60	5300						
		802.11n (HT40)	13.5 Mbps	54	5270	16.3	17.0	Yes	Not Required	11.0	No
				62	5310	16.2					
				52	5260						
		802.11ac (VHT20)	6.5 Mbps	56	5280	Not Required	17.0	No	Not Required	11.0	No
				60	5300						
				64	5320						
	802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	17.0	No	Not Required	11.0	No	
			62	5310							
	802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	16.0	No	10.6	11.0	Yes	
	5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No
				120	5600						
				124	5620						
				144	5720						
		802.11n (HT40)	13.5 Mbps	102	5510	16.5	17.0	Yes	Not Required	11.0	No
				118	5590	16.4					
				126	5630	16.5					
				142	5710	16.4					
	802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	11.0	No	
			120	5600							
124			5620								
144			5720								
802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	17.0	No	Not Required	11.0	No		
		118	5590								
		126	5630								
		142	5710								
802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	16.0	No	10.2	11.0	Yes		
		122	5610				10.7				
		138	5690				10.5				
		149	5745								
5.8 (U-NII 3)	802.11a	6 Mbps	157	5785	Not Required	17.0	No	Not Required	11.0	No	
			165	5825							
			149	5745							
	802.11n (HT20)	6.5 Mbps	157	5785	Not Required	17.0	No	Not Required	11.0	No	
			165	5825							
			151	5755							16.4
	802.11n (HT40)	13.5 Mbps	159	5795	16.4	17.0	Yes	Not Required	11.0	No	
			149	5745							
	802.11ac (VHT20)	6.5 Mbps	157	5785	Not Required	17.0	No	Not Required	11.0	No	
			165	5825							
			151	5755							
	802.11ac (VHT40)	13.5 Mbps	159	5795	Not Required	17.0	No	Not Required	11.0	No	
151			5755								
802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	16.0	No	10.8	11.0	Yes		

Measured Results of Wi-Fi MIMO

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	MIMO mode power					
					MIMO Ant 1			MIMO Ant 2		
					Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)	Avg Pwr (dBm)	Max. Tune-up Limit (dBm)	SAR Test (Yes/No)
5.3 (UNII 2A)	802.11a	6 Mbps	52	5260	Not Required	17.0	No	Not Required	17.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11n (HT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	17.0	No
			56	5280						
			60	5300						
			64	5320						
	802.11n (HT40)	13.5 Mbps	54	5270	16.1	17.0	Yes	16.0	17.0	Yes
			62	5310	16.0			15.9		
	802.11ac (VHT20)	6.5 Mbps	52	5260	Not Required	17.0	No	Not Required	17.0	No
			56	5280						
60			5300							
64			5320							
802.11ac (VHT40)	13.5 Mbps	54	5270	Not Required	17.0	No	Not Required	17.0	No	
		62	5310							
802.11ac (VHT80)	29.3 Mbps	58	5290	Not Required	16.0	No	Not Required	16.0	No	
5.5 (U-NII 2C)	802.11a	6 Mbps	100	5500	Not Required	17.0	No	Not Required	17.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11n (HT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	17.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11n (HT40)	13.5 Mbps	102	5510	15.2	17.0	Yes	16.3	17.0	Yes
			118	5590	16.0			16.2		
			126	5630	16.1			16.3		
			142	5710	15.3			16.2		
	802.11ac (VHT20)	6.5 Mbps	100	5500	Not Required	17.0	No	Not Required	17.0	No
			120	5600						
			124	5620						
			144	5720						
	802.11ac (VHT40)	13.5 Mbps	102	5510	Not Required	17.0	No	Not Required	17.0	No
			118	5590						
126			5630							
142			5710							
802.11ac (VHT80)	29.3 Mbps	106	5530	Not Required	16.0	No	Not Required	16.0	No	
		122	5610							
		138	5690							
		149	5745							
5.8 (U-NII 3)	802.11a	6 Mbps	149	5745	Not Required	17.0	No	Not Required	17.0	No
			157	5785						
			165	5825						
			149	5745						
	802.11n (HT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	17.0	No
			157	5785						
			165	5825						
			151	5755						
	159	5795	15.7	16.2						
	802.11ac (VHT20)	6.5 Mbps	149	5745	Not Required	17.0	No	Not Required	17.0	No
			157	5785						
			165	5825						
151			5755	Not Required						
159	5795									
802.11ac (VHT80)	29.3 Mbps	155	5775	Not Required	16.0	No	Not Required	16.0	No	

Note(s):

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

9.6. Bluetooth

Measured Results

Band (GHz)	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)	
				Meas Pwr	Tune-up Limit
2.4 Ant 1	GFSK	0	2402	13.6	15.5
		39	2441	15.3	
		78	2480	14.2	
	EDR, 8-DPSK	0	2402	11.1	14.0
		39	2441	12.6	
		78	2480	12.0	
	LE, GFSK, 1M (37 pkt)	0	2402	3.8	7.0
		19	2440	6.1	
		39	2480	4.3	
		0	2402	3.7	
		19	2440	5.9	
		39	2480	4.1	
2.4 Ant 2	GFSK	0	2402	16.9	18.0
		39	2441	17.7	
		78	2480	15.4	
	EDR, 8-DPSK	0	2402	16.7	16.0
		39	2441	17.5	
		78	2480	15.3	

Note(s):

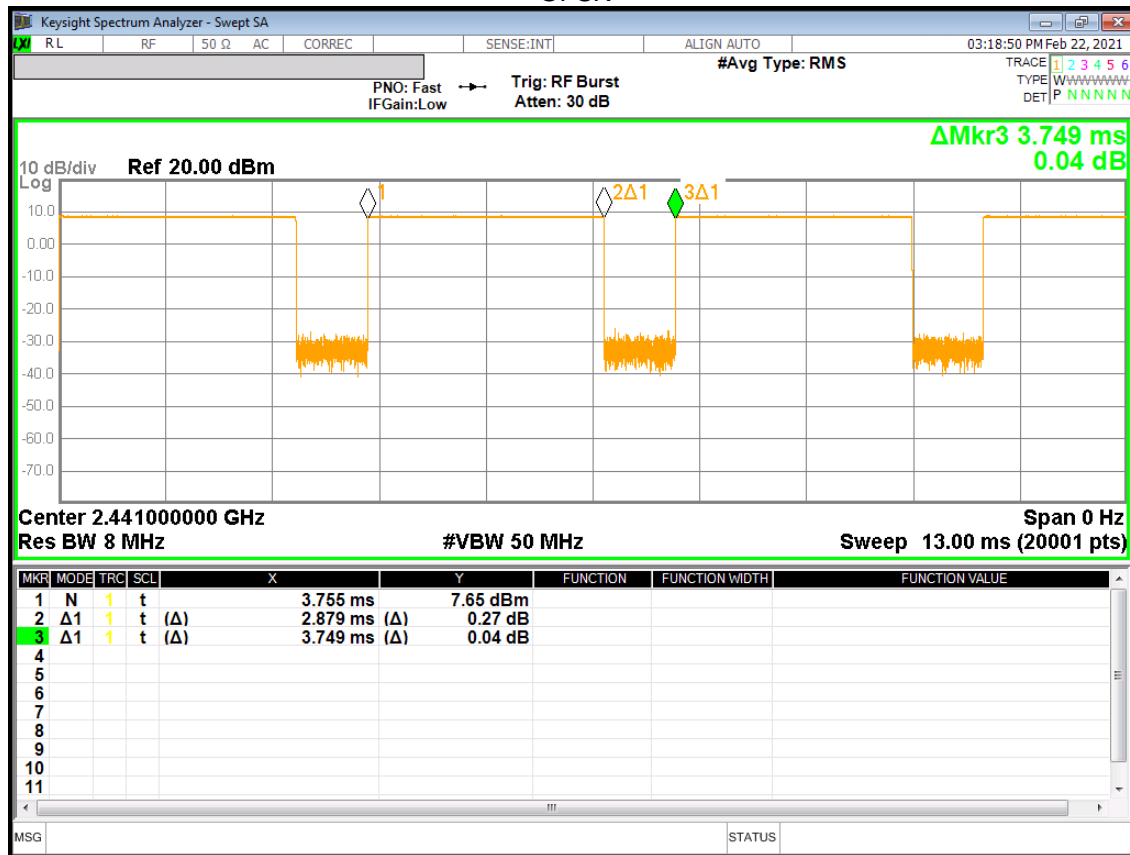
SAR test is evaluated at GFSK mode in Bluetooth

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	2.879	3.749	76.8%	1.30

Duty Cycle plots

GFSK



10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

- Reported SAR(W/kg) for WWAN= Measured SAR *Tune-up Scaling Factor
- Reported SAR(W/kg) for Wi-Fi and Bluetooth= Measured SAR * Tune-up scaling factor * Duty Cycle scaling factor
- Duty Cycle scaling factor = 1 / Duty cycle (%)

KDB 447498 D01 General RF Exposure Guidance:

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

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

KDB 648474 D04 Handset SAR:

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

KDB 648474 D04 Handset SAR (Phablet Only):

For smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm.

When hotspot mode does not apply, 10-g extremity SAR is required for all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; 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 $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.
- For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply.

KDB 248227 D01 SAR meas for 802.11:

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

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

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

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

10.1. GSM 850

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	GPRS 3 Slots	N/A	0	Left Touch	190	836.6	30.5	29.5	0.106	0.132	1
					Left Tilt	190	836.6	30.5	29.5	0.074	0.092	
					Right Touch	190	836.6	30.5	29.5	0.154	0.192	
					Right Tilt	190	836.6	30.5	29.5	0.075	0.093	
	Body-worn	GPRS 3 Slots	N/A	15	Rear	190	836.6	30.5	29.5	0.212	0.265	2
					Front	190	836.6	30.5	29.5	0.188	0.235	
	Hotspot	GPRS 3 Slots	N/A	10	Rear	190	836.6	30.5	29.5	0.541	0.676	3
					Front	190	836.6	30.5	29.5	0.447	0.558	
					Edge 2	190	836.6	30.5	29.5	0.131	0.164	
					Edge 3	190	836.6	30.5	29.5	0.388	0.485	
				Edge 4	190	836.6	30.5	29.5	0.059	0.073		

10.2. GSM 1900

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	GPRS 3 Slots	Off	0	Left Touch	661	1880.0	27.5	26.5	0.073	0.091	4
					Left Tilt	661	1880.0	27.5	26.5	0.018	0.023	
					Right Touch	661	1880.0	27.5	26.5	0.035	0.044	
					Right Tilt	661	1880.0	27.5	26.5	0.028	0.035	
	Body-worn	GPRS 3 Slots	Off	15	Rear	661	1880.0	27.5	26.5	0.260	0.325	5
					Front	661	1880.0	27.5	26.5	0.247	0.308	
	Hotspot	GPRS 3 Slots	On	10	Rear	661	1880.0	24.5	23.8	0.340	0.402	
					Front	661	1880.0	24.5	23.8	0.301	0.356	
					Edge 2	661	1880.0	24.5	23.8	0.055	0.065	
					Edge 3	661	1880.0	24.5	23.8	0.638	0.755	6
				Edge 4	661	1880.0	24.5	23.8	0.039	0.046		
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		10-g SAR (W/kg)		Plot No.
Main 1 Ant.	Product specific 10-g SAR	GPRS 3 Slots	Off	12	Edge 3	661	1880.0	27.5	26.5	0.512	0.639	
			On	0	Edge 3	661	1880.0	24.5	23.7	1.350	1.623	7

10.3. W-CDMA Band II

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	Rel 99 RMC	Off	0	Left Touch	9400	1880.0	24.0	23.2	0.116	0.139	8
					Left Tilt	9400	1880.0	24.0	23.2	0.029	0.035	
					Right Touch	9400	1880.0	24.0	23.2	0.063	0.075	
					Right Tilt	9400	1880.0	24.0	23.2	0.046	0.056	
	Body-worn	Rel 99 RMC	Off	15	Rear	9400	1880.0	24.0	23.2	0.503	0.605	9
					Front	9400	1880.0	24.0	23.2	0.481	0.578	
	Hotspot	Rel 99 RMC	On	10	Rear	9400	1880.0	21.0	20.0	0.447	0.564	
					Front	9400	1880.0	21.0	20.0	0.432	0.545	
					Edge 2	9400	1880.0	21.0	20.0	0.078	0.099	
					Edge 3	9262	1852.4	21.0	19.6	0.814	1.137	
						9400	1880.0	21.0	20.0	0.908	1.146	
					Edge 4	9400	1880.0	21.0	20.0	0.049	0.061	
Edge 3	9400	1880.0	24.0	23.2	0.727	0.874						
Main 1 Ant.	Product Specific 10-g	Rel 99 RMC	Off	12	Edge 3	9400	1880.0	24.0	23.2	0.727	0.874	
			On	0	Edge 3	9262	1852.4	21.0	19.6	1.760	2.455	11
						9400	1880.0	21.0	20.0	1.640	2.065	
						9538	1907.6	21.0	19.7	1.470	1.961	

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 1 Ant.	Head	Rel 99 RMC	Off	0	Left Touch	1413	1732.6	24.0	22.7	0.080	0.108	12
					Left Tilt	1413	1732.6	24.0	22.7	0.026	0.035	
					Right Touch	1413	1732.6	24.0	22.7	0.054	0.073	
					Right Tilt	1413	1732.6	24.0	22.7	0.037	0.049	
	Body-worn	Rel 99 RMC	Off	15	Rear	1413	1732.6	24.0	22.7	0.369	0.498	13
					Front	1413	1732.6	24.0	22.7	0.301	0.407	
	Hotspot	Rel 99 RMC	On	10	Rear	1413	1732.6	21.0	19.9	0.364	0.468	
					Front	1413	1732.6	21.0	19.9	0.327	0.421	
					Edge 2	1413	1732.6	21.0	19.9	0.062	0.080	
					Edge 3	1312	1712.4	21.0	19.9	0.556	0.717	
						1413	1732.6	21.0	19.9	0.591	0.761	
					Edge 4	1413	1732.6	21.0	19.9	0.712	0.916	14
Edge 3	1413	1732.6	21.0	19.9	0.051	0.065						
Main 1 Ant.	Product specific 10-g SAR	Rel 99 RMC	Off	12	Edge 3	1413	1732.6	24.0	22.7	0.475	0.642	
			On	0	Edge 3	1312	1712.4	21.0	19.9	1.570	2.015	
						1413	1732.6	21.0	19.9	1.620	2.087	
						1513	1752.6	21.0	19.9	1.850	2.370	15

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 1 Ant.	Head	Rel 99 RMC	N/A	0	Left Touch	4183	836.6	25.8	24.8	0.129	0.163	16
					Left Tilt	4183	836.6	25.8	24.8	0.093	0.117	
					Right Touch	4183	836.6	25.8	24.8	0.181	0.229	
					Right Tilt	4183	836.6	25.8	24.8	0.129	0.163	
	Body-worn	Rel 99 RMC	N/A	15	Rear	4183	836.6	25.8	24.8	0.271	0.343	17
					Front	4183	836.6	25.8	24.8	0.252	0.319	
	Hotspot	Rel 99 RMC	N/A	10	Rear	4183	836.6	25.8	24.8	0.571	0.723	18
					Front	4183	836.6	25.8	24.8	0.551	0.698	
					Edge 2	4183	836.6	25.8	24.8	0.191	0.242	
					Edge 3	4183	836.6	25.8	24.8	0.379	0.480	
					Edge 4	4183	836.6	25.8	24.8	0.056	0.071	

10.6. LTE Band 2 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.					
										Tune-up limit	Meas.	Meas.	Scaled						
Main 1 Ant.	Head	QPSK	Off	0	Left Touch	18900	1880.0	1	49	24.0	22.6	0.103	0.142	19					
								50	24	23.0	21.6	0.080	0.110						
								Left Tilt	18900	1880.0	1	49	24.0		22.6	0.042	0.058		
											50	24	23.0		21.6	0.033	0.046		
								Right Touch	18900	1880.0	1	49	24.0		22.6	0.049	0.067		
											50	24	23.0		21.6	0.043	0.059		
					Right Tilt	18900	1880.0	1	49	24.0	22.6	0.044	0.061						
								50	24	23.0	21.6	0.033	0.045						
					Body-worn	QPSK	Off	15	Rear	18900	1880.0	1	49	24.0	22.6	0.399	0.550	20	
												50	24	23.0	21.6	0.326	0.446		
												Front	18900	1880.0	1	49	24.0		22.6
									50	24	23.0				21.6	0.304	0.416		
	Hotspot	QPSK	On	10					Rear	18900	1880.0	1	49	21.0	19.6	0.418	0.572		21
												50	24	21.0	19.7	0.417	0.565		
					Front	18900	1880.0	1				49	21.0	19.6	0.377	0.516			
								50				24	21.0	19.7	0.375	0.508			
					Edge 2	18900	1880.0	1				49	21.0	19.6	0.060	0.082			
								50				24	21.0	19.7	0.062	0.084			
					Edge 3	18700	1860.0	1	49	21.0	19.3	0.736	1.079						
								50	24	21.0	19.5	0.756	1.074						
								18900	1880.0	1	49	21.0	19.6	0.796	1.089				
										50	24	21.0	19.7	0.801	1.085				
								19100	1900.0	100	0	21.0	19.6	0.791	1.097				
										1	49	21.0	19.5	0.852	1.202				
Edge 4	18900	1880.0	50	24	21.0	19.6	0.839	1.161											
			1	49	21.0	19.6	0.042	0.058											
			50	24	21.0	19.7	0.044	0.059											
			Main 1 Ant.	Product specific 10-g SAR	QPSK	Off	12	Edge 3	18900	1880.0	1	49	24.0	22.6	0.654	0.901	22		
											50	24	23.0	21.6	0.510	0.698			
			Main 1 Ant.	Product specific 10-g SAR	QPSK	On	0	Edge 3	18700	1860.0	1	49	21.0	19.5	1.710	2.424			
50	24	21.0									19.7	1.460	1.991						
1	49	21.0									19.7	1.490	2.020						
50	24	21.0									19.5	1.400	1.985						

10.7. LTE Band 5 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	N/A	0	Left Touch	20525	836.5	1	25	25.8	24.5	0.149	0.202	
								25	12	24.8	23.6	0.117	0.155	
					Left Tilt	20525	836.5	1	25	25.8	24.5	0.090	0.121	
								25	12	24.8	23.6	0.070	0.093	
					Right Touch	20525	836.5	1	25	25.8	24.5	0.214	0.289	23
								25	12	24.8	23.6	0.167	0.221	
					Right Tilt	20525	836.5	1	25	25.8	24.5	0.098	0.133	
								25	12	24.8	23.6	0.077	0.101	
	Body-w orn	QPSK	N/A	15	Rear	20525	836.5	1	25	25.8	24.5	0.274	0.371	24
								25	12	24.8	23.6	0.217	0.287	
					Front	20525	836.5	1	25	25.8	24.5	0.256	0.346	
								25	12	24.8	23.6	0.202	0.267	
	Hotspot	QPSK	N/A	10	Rear	20525	836.5	1	25	25.8	24.5	0.562	0.760	25
								25	12	24.8	23.6	0.446	0.589	
					Front	20525	836.5	1	25	25.8	24.5	0.523	0.707	
								25	12	24.8	23.6	0.416	0.550	
					Edge 2	20525	836.5	1	25	25.8	24.5	0.167	0.226	
								25	12	24.8	23.6	0.133	0.176	
					Edge 3	20525	836.5	1	25	25.8	24.5	0.328	0.444	
								25	12	24.8	23.6	0.309	0.408	
					Edge 4	20525	836.5	1	25	25.8	24.5	0.062	0.083	
								25	12	24.8	23.6	0.049	0.065	

10.8. LTE Band 12 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	N/A	0	Left Touch	23095	707.5	1	0	24.0	22.8	0.066	0.088	
								25	0	23.0	21.8	0.049	0.065	
					Left Tilt	23095	707.5	1	0	24.0	22.8	0.036	0.048	
								25	0	23.0	21.8	0.027	0.036	
					Right Touch	23095	707.5	1	0	24.0	22.8	0.091	0.122	26
								25	0	23.0	21.8	0.070	0.091	
					Right Tilt	23095	707.5	1	0	24.0	22.8	0.047	0.062	
								25	0	23.0	21.8	0.035	0.046	
	Body-w orn	QPSK	N/A	15	Rear	23095	707.5	1	0	24.0	22.8	0.142	0.189	27
								25	0	23.0	21.8	0.113	0.149	
					Front	23095	707.5	1	0	24.0	22.8	0.129	0.172	
								25	0	23.0	21.8	0.100	0.131	
	Hotspot	QPSK	N/A	10	Rear	23095	707.5	1	0	24.0	22.8	0.179	0.238	28
								25	0	23.0	21.8	0.144	0.189	
					Front	23095	707.5	1	0	24.0	22.8	0.156	0.208	
								25	0	23.0	21.8	0.128	0.168	
					Edge 2	23095	707.5	1	0	24.0	22.8	0.081	0.107	
								25	0	23.0	21.8	0.060	0.079	
					Edge 3	23095	707.5	1	0	24.0	22.8	0.128	0.170	
								25	0	23.0	21.8	0.108	0.142	
					Edge 4	23095	707.5	1	0	24.0	22.8	0.052	0.069	
								25	0	23.0	21.8	0.050	0.066	

10.9. LTE Band 13 (10MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	N/A	0	Left Touch	23230	782.0	1	49	24.0	22.6	0.073	0.100	
								25	25	23.0	21.7	0.066	0.089	
					Left Tilt	23230	782.0	1	49	24.0	22.6	0.044	0.060	
								25	25	23.0	21.7	0.037	0.050	
					Right Touch	23230	782.0	1	49	24.0	22.6	0.103	0.142	29
								25	25	23.0	21.7	0.082	0.111	
	Right Tilt	23230	782.0	1	49	24.0	22.6	0.042	0.058					
				25	25	23.0	21.7	0.034	0.045					
	Body-w orn	QPSK	N/A	15	Rear	23230	782.0	1	49	24.0	22.6	0.158	0.217	30
								25	25	23.0	21.7	0.130	0.174	
					Front	23230	782.0	1	49	24.0	22.6	0.148	0.203	
	25	25	23.0	21.7				0.122	0.164					
	Hotspot	QPSK	N/A	10	Rear	23230	782.0	1	49	24.0	22.6	0.307	0.422	31
								25	25	23.0	21.7	0.253	0.339	
					Front	23230	782.0	1	49	24.0	22.6	0.289	0.397	
								25	25	23.0	21.7	0.241	0.323	
					Edge 2	23230	782.0	1	49	24.0	22.6	0.117	0.161	
								25	25	23.0	21.7	0.092	0.124	
					Edge 3	23230	782.0	1	49	24.0	22.6	0.175	0.241	
								25	25	23.0	21.7	0.146	0.196	
					Edge 4	23230	782.0	1	49	24.0	22.6	0.087	0.120	
25								25	23.0	21.7	0.074	0.099		

10.10. LTE Band 26 (15MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 1 Ant.	Head	QPSK	N/A	0	Left Touch	26865	831.5	1	37	23.5	23.1	0.081	0.088	
								36	39	22.5	22.2	0.070	0.075	
					Left Tilt	26865	831.5	1	37	23.5	23.1	0.056	0.061	
								36	39	22.5	22.2	0.047	0.050	
					Right Touch	26865	831.5	1	37	23.5	23.1	0.127	0.138	32
								36	39	22.5	22.2	0.101	0.108	
	Right Tilt	26865	831.5	1	37	23.5	23.1	0.053	0.057					
				36	39	22.5	22.2	0.041	0.044					
	Body-w orn	QPSK	N/A	15	Rear	26865	831.5	1	37	23.5	23.1	0.221	0.240	33
								36	39	22.5	22.2	0.174	0.185	
					Front	26865	831.5	1	37	23.5	23.1	0.165	0.179	
	36	39	22.5	22.2				0.131	0.140					
	Hotspot	QPSK	N/A	10	Rear	26865	831.5	1	37	23.5	23.1	0.440	0.478	34
								36	39	23.5	22.2	0.350	0.469	
					Front	26865	831.5	1	37	23.5	23.1	0.361	0.393	
								36	39	23.5	22.2	0.286	0.384	
					Edge 2	26865	831.5	1	37	23.5	23.1	0.123	0.134	
								36	39	23.5	22.2	0.097	0.130	
					Edge 3	26865	831.5	1	37	23.5	23.1	0.279	0.303	
								36	39	23.5	22.2	0.220	0.295	
					Edge 4	26865	831.5	1	37	23.5	23.1	0.054	0.058	
36								39	23.5	22.2	0.043	0.057		

10.11. LTE Band 41 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Main 2 Ant.	Head	QPSK	Off	0	Left Touch	40620	2593.0	1	49	25.0	24.1	0.054	0.067	35
								50	24	24.0	22.9	0.041	0.052	
					Left Tilt	40620	2593.0	1	49	25.0	24.1	0.019	0.024	
								50	24	24.0	22.9	0.014	0.018	
					Right Touch	40620	2593.0	1	49	25.0	24.1	0.037	0.045	
								50	24	24.0	22.9	0.028	0.036	
					Right Tilt	40620	2593.0	1	49	25.0	24.1	0.036	0.045	
								50	24	24.0	22.9	0.028	0.036	
	Body-w orn	QPSK	Off	15	Rear	40620	2593.0	1	49	25.0	24.1	0.322	0.400	36
								50	24	24.0	22.9	0.257	0.327	
					Front	40620	2593.0	1	49	25.0	24.1	0.211	0.262	
								50	24	24.0	22.9	0.167	0.213	
	Hotspot	QPSK	On	10	Rear	40620	2593.0	1	49	21.0	19.5	0.145	0.207	
								50	24	21.0	19.5	0.145	0.205	
					Front	40620	2593.0	1	49	21.0	19.5	0.096	0.137	
								50	24	21.0	19.5	0.099	0.139	
					Edge 3	40620	2593.0	1	49	21.0	19.5	0.193	0.275	37
								50	24	21.0	19.5	0.192	0.271	
Edge 4					40620	2593.0	1	49	21.0	19.5	0.068	0.097		
							50	24	21.0	19.5	0.069	0.097		

10.12. LTE Band 66 (20MHz Bandwidth)

Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.					
										Tune-up limit	Meas.	Meas.	Scaled						
Main 1 Ant.	Head	QPSK	Off	0	Left Touch	132572	1770.0	1	0	24.0	22.2	0.090	0.135	38					
								50	24	23.0	21.3	0.080	0.120						
					Left Tilt	132572	1770.0	1	0	24.0	22.2	0.023	0.035						
								50	24	23.0	21.3	0.018	0.027						
					Right Touch	132572	1770.0	1	0	24.0	22.2	0.070	0.105						
								50	24	23.0	21.3	0.060	0.089						
					Right Tilt	132572	1770.0	1	0	24.0	22.2	0.033	0.049						
								50	24	23.0	21.3	0.026	0.039						
	Body-worn	QPSK	Off	15	Rear	132572	1770.0	1	0	24.0	22.2	0.458	0.688	39					
								50	24	23.0	21.3	0.382	0.570						
					Front	132572	1770.0	1	0	24.0	22.2	0.402	0.604						
								50	24	23.0	21.3	0.331	0.494						
	Hotspot	QPSK	On	10	Rear	132572	1770.0	1	0	19.5	18.1	0.329	0.456						
								50	24	19.5	18.2	0.341	0.460						
					Front	132572	1770.0	1	0	19.5	18.1	0.326	0.452						
								50	24	19.5	18.2	0.341	0.460						
					Edge 2	132572	1770.0	1	0	19.5	18.1	0.060	0.083						
								50	24	19.5	18.2	0.059	0.079						
					Edge 3	132072	1720.0	1	0	19.5	17.5	0.388	0.615						
								50	24	19.5	18.1	0.453	0.631						
						132322	1745.0	1	0	19.5	17.7	0.491	0.745						
								50	24	19.5	18.1	0.572	0.784						
					132572	1770.0	1	0	19.5	18.1	0.604	0.838	40						
							50	24	19.5	18.2	0.611	0.825							
Edge 4	132572	1770.0	1	0	19.5	18.1	0.039	0.054											
			50	24	19.5	18.2	0.036	0.049											
Antenna	RF Exposure Conditions	Mode	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.					
Main 1 Ant.	Product specific 10-g SAR	QPSK	Off	7	Rear	132572	1770.0	1	0	24.0	22.2	0.809	1.215						
								50	24	23.0	21.3	0.513	0.765						
								6	Front	132572	1770.0	1	0		24.0	22.2	0.956	1.435	
												50	24		23.0	21.3	0.513	0.765	
								12	Edge 3	132572	1770.0	1	0		24.0	22.2	0.629	0.944	
												50	24		23.0	21.3	0.513	0.765	
			On	0	Rear	132572	1770.0	1	0	21.0	19.4	1.140	1.634						
								50	24	21.0	19.5	1.480	2.081						
					Front	132072	1720.0	1	0	21.0	19.0	1.050	1.660						
								50	24	21.0	19.4	1.440	2.064						
					132322	1745.0	1	0	21.0	19.4	1.390	2.198							
							50	24	21.0	19.5	1.480	2.081							
					Edge 3	132072	1720.0	1	0	21.0	19.0	1.390	2.198						
								50	24	21.0	19.5	1.480	2.081						
					132322	1745.0	1	0	21.0	19.2	1.140	1.729							
							50	24	21.0	19.6	1.680	2.338							
					132572	1770.0	1	0	21.0	19.4	1.900	2.723	41						
							50	24	21.0	19.6	1.710	2.377							

10.13. Wi-Fi (DTS Band)

Frequency Band	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		
Ant 1	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.344	99.8%	13.0	12.8				
						Left Tilt	6	2437.0	0.453	99.8%	13.0	12.8				
						Right Touch	6	2437.0	0.566	99.8%	13.0	12.8	0.463	0.483	2	
						Right Tilt	6	2437.0	0.568	99.8%	13.0	12.8	0.488	0.509		42
			Body-worn	Off	15	Rear	11	2462.0	0.155	99.8%	18.0	16.8	0.100	0.131	1	43
						Front	11	2462.0	0.143	99.8%	18.0	16.8				
			Hotspot	Off	10	Rear	11	2462.0	0.305	99.8%	18.0	16.8	0.200	0.262	2	
						Front	11	2462.0	0.284	99.8%	18.0	16.8	0.190	0.249	4	
						Edge 1	11	2462.0	0.611	99.8%	18.0	16.8	0.428	0.560		44
						Edge 4	11	2462.0	0.100	99.8%	18.0	16.8				
Ant 2	2.4GHz	802.11b 1 Mbps	Head	On	0	Left Touch	6	2437.0	0.038	99.8%	13.0	12.4				
						Left Tilt	6	2437.0	0.042	99.8%	13.0	12.4				
						Right Touch	6	2437.0	0.199	99.8%	13.0	12.4	0.122	0.140	1	
						Right Tilt	6	2437.0	0.157	99.8%	13.0	12.4				
			Body-worn	Off	15	Rear	6	2437.0	0.155	99.8%	18.0	17.3	0.010	0.011	1	
						Front	6	2437.0	0.011	99.8%	18.0	17.3				
			Hotspot	Off	10	Rear	6	2437.0	0.041	99.8%	18.0	17.3				
						Front	6	2437.0	0.035	99.8%	18.0	17.3				
						Edge 1	6	2437.0	0.030	99.8%	18.0	17.3				
						Edge 4	6	2437.0	0.083	99.8%	18.0	17.3	0.051	0.059	1	

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.

10.14. Wi-Fi (U-NII Bands)

U-NII 2A Results

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Note	Plot No.		
											Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled				
Ant 1	5.3 GHz U-NII 2A	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	58	5290.0	0.016	99.7%	11.0	10.6								
						Left Tilt	58	5290.0	0.012	99.7%	11.0	10.6								
						Right Touch	58	5290.0	0.040	99.7%	11.0	10.6	0.013	0.014					1	
						Right Tilt	58	5290.0	0.026	99.7%	11.0	10.6								
		802.11n (HT40)	Body-worn	Off	15	Rear	54	5270.0	0.160	99.6%	17.0	16.2	0.073	0.087					1	
						Front	54	5270.0	0.032	99.6%	17.0	16.2								
			Product Specific 10-g	Off	0	Rear	54	5270.0	7.156	99.6%	17.0	16.2			0.656	0.788	1	45		
						Front	54	5270.0	0.640	99.6%	17.0	16.2			0.086	0.103	4			
						Edge 1	54	5270.0	0.385	99.6%	17.0	16.2								
						Edge 4	54	5270.0	2.123	99.6%	17.0	16.2								

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				
Ant 1	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	122	5610.0	0.037	99.7%	11.0	10.7								
						Left Tilt	122	5610.0	0.048	99.7%	11.0	10.7								
						Right Touch	122	5610.0	0.046	99.7%	11.0	10.7								
						Right Tilt	122	5610.0	0.053	99.7%	11.0	10.7	0.023	0.025					1	
		802.11n (HT40)	Body-worn	Off	15	Rear	126	5630.0	0.252	99.6%	17.0	16.3	0.117	0.139					1	
						Front	126	5630.0	0.036	99.6%	17.0	16.3								
			Product Specific 10-g	Off	0	Rear	126	5630.0	7.245	99.6%	17.0	16.3			1.150	1.366				
						Front	126	5630.0	0.355	99.6%	17.0	16.3			0.056	0.067	4			
						Edge 1	126	5630.0	0.582	99.6%	17.0	16.3								
						Edge 4	126	5630.0	3.928	99.6%	17.0	16.3			0.366	0.435	2			
Ant 2	5.5 GHz U-NII 2C	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	122	5610.0	0.090	99.7%	11.0	10.7								
						Left Tilt	122	5610.0	0.053	99.7%	11.0	10.7								
						Right Touch	122	5610.0	0.249	99.7%	11.0	10.7	0.142	0.153					1	48
						Right Tilt	122	5610.0	0.235	99.7%	11.0	10.7								
		802.11n (HT40)	Body-worn	Off	15	Rear	126	5630.0	0.290	99.6%	17.0	16.5	0.136	0.153					1	49
						Front	126	5630.0	0.136	99.6%	17.0	16.5								
			Product Specific 10-g	Off	0	Rear	126	5630.0	1.767	99.6%	17.0	16.5			0.266	0.299	4			
						Front	126	5630.0	4.252	99.6%	17.0	16.5			0.509	0.572	2			
						Edge 1	126	5630.0	1.593	99.6%	17.0	16.5								
						Edge 4	126	5630.0	7.056	99.6%	17.0	16.5			1.290	1.450		50		

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.

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		
Ant 1	5.8 GHz U-NII 3	802.11ac VHT 80 29.3 Mbps	Head	On	0	Left Touch	155	5775.0	0.045	99.7%	11.0	10.7				
						Left Tilt	155	5775.0	0.060	99.7%	11.0	10.7	0.026	0.028	1	
						Right Touch	155	5775.0	0.047	99.7%	11.0	10.7				
						Right Tilt	155	5775.0	0.059	99.7%	11.0	10.7				
		802.11n (HT40)	Body-worn	Off	15	Rear	159	5795.0	0.278	99.6%	17.0	15.9	0.119	0.153	1	51
						Front	159	5795.0	0.035	99.6%	17.0	15.9				
			Hotspot	Off	10	Rear	151	5755.0	0.311	99.6%	17.0	15.7	0.139	0.187	1	
						Front	151	5755.0	0.045	99.6%	17.0	15.7				
						Edge 1	151	5755.0	0.074	99.6%	17.0	15.7				
						Edge 4	151	5755.0	0.175	99.6%	17.0	15.7				

Note(s):

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

10.15. Bluetooth

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Ant 1	2.4 GHz	GFSK	Head	N/A	0	Left Touch	39	2441.0	76.8%	15.5	15.3	0.461	0.633	
						Left Tilt	0	2402.0	76.8%	15.5	13.6	0.376	0.764	
							39	2441.0	76.8%	15.5	15.3	0.631	0.866	
						Right Touch	78	2480.0	76.8%	15.5	14.2	0.376	0.655	
							0	2402.0	76.8%	15.5	13.6	0.421	0.856	
						Right Tilt	39	2441.0	76.8%	15.5	15.3	0.697	0.957	54
							78	2480.0	76.8%	15.5	14.2	0.438	0.762	
						GFSK	Body-worn	N/A	15	Rear	39	2441.0	76.8%	15.5
		Front	39	2441.0	76.8%					15.5	15.3	0.084	0.115	55
		GFSK	Hotspot	N/A	10	Rear	39	2441.0	76.8%	15.5	15.3	0.133	0.183	
						Front	39	2441.0	76.8%	15.5	15.3	0.144	0.198	
						Edge 1	39	2441.0	76.8%	15.5	15.3	0.322	0.439	56
						Edge 4	39	2441.0	76.8%	15.5	15.3	0.055	0.075	

Antenna	Frequency Band	Mode	RF Exposure Conditions	PWR Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Duty Cycle (%)	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up limit	Meas.	Meas.	Scaled	
Ant 2	2.4 GHz	GFSK	Head	N/A	0	Left Touch	39	2441.0	76.8%	18.0	17.3	0.039	0.059	
						Left Tilt	39	2441.0	76.8%	18.0	17.3	0.031	0.048	
						Right Touch	39	2441.0	76.8%	18.0	17.3	0.157	0.242	
						Right Tilt	39	2441.0	76.8%	18.0	17.3	0.137	0.212	
		GFSK	Body-worn	N/A	15	Rear	39	2441.0	76.8%	18.0	17.3	0.013	0.020	
						Front	39	2441.0	76.8%	18.0	17.3	0.008	0.013	
		GFSK	Hotspot	N/A	10	Rear	39	2441.0	76.8%	18.0	17.3	0.029	0.045	
						Front	39	2441.0	76.8%	18.0	17.3	0.024	0.037	
						Edge 1	39	2441.0	76.8%	18.0	17.3	0.019	0.029	
						Edge 4	39	2441.0	76.8%	18.0	17.3	0.050	0.077	

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	0.179	N/A	N/A
	LTE Band 13	Hotspot	Rear	No	0.307	N/A	N/A
835	GSM 850	Hotspot	Rear	No	0.541	N/A	N/A
	WCDMA Band V	Hotspot	Rear	No	0.571	N/A	N/A
	LTE Band 5	Hotspot	Rear	No	0.562	N/A	N/A
	LTE Band 26	Hotspot	Rear	No	0.440	N/A	N/A
1750	WCDMA Band IV	Hotspot	Edge 3	No	0.712	N/A	N/A
	LTE Band 66	Hotspot	Edge 3	No	0.611	N/A	N/A
1900	GSM 1900	Hotspot	Edge 3	No	0.638	N/A	N/A
	WCDMA Band II	Hotspot	Edge 3	No	0.961	0.959	1.00
	LTE Band 2	Hotspot	Edge 3	No	0.852	N/A	N/A
2400	Wi-Fi 802.11b/g/n	Head	Right Tilt	No	0.488	N/A	N/A
	Bluetooth	Head	Right Touch	No	0.697	N/A	N/A
2600	LTE Band 41	Body-w orn	Rear	Yes	0.322	N/A	N/A
5300	Wi-Fi 802.11a/n	Body-w orn	Rear	No	0.097	N/A	N/A
5500	Wi-Fi 802.11a/n	Body-w orn	Rear	No	0.136	N/A	N/A
5800	Wi-Fi 802.11a/n	Hotspot	Edge 4	No	0.221	N/A	N/A

Peak spatial-average (10g of tissue)

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
1750	WCDMA Band IV	Product Specific 10g	Edge 3	No	1.850	N/A	N/A
	LTE Band 66	Product Specific 10g	Edge 3	No	1.900	N/A	N/A
1900	GSM 1900	Product Specific 10g	Edge 3	No	1.350	N/A	N/A
	WCDMA Band II	Product Specific 10g	Edge 3	No	1.760	N/A	N/A
	LTE Band 2	Product Specific 10g	Edge 3	No	1.710	N/A	N/A
5300	Wi-Fi 802.11a/n	Product Specific 10g	Rear	No	0.656	N/A	N/A
5500	Wi-Fi 802.11a/n	Product Specific 10g	Edge 4	No	1.290	N/A	N/A

Note(s):

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

12. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

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

Notes:

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

RSDB scenarios

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

Simultaneous transmission SAR test exclusion considerations

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

Sum of SAR

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

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.192	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.701	0.332	0.841	0.220	0.345	0.373	1.149	1.289	1.177	1.330
Body-Worn (1-g SAR)	All position	0.265	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.396	0.276	0.407	0.418	0.418	0.571	0.380	0.391	0.533	0.686
Hotspot (1-g SAR)	Rear	0.676	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.938	0.735	0.997	0.863	0.889	1.076	0.859	0.918	1.046	1.259
	Front	0.558	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.807	0.617	0.866	0.745	0.816	1.003	0.756	0.815	0.943	1.201
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2	0.164																	
	Edge 3	0.485																	
	Edge 4	0.073	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.633	0.132	0.692	0.260	0.331	0.518	0.148	0.207	0.335	0.593

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.091	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.600	0.231	0.740	0.119	0.244	0.272	1.048	1.188	1.076	1.229
Body-Worn (1-g SAR)	All position	0.325	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.456	0.336	0.467	0.478	0.478	0.631	0.440	0.451	0.593	0.746
Hotspot (1-g SAR)	Rear	0.402	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.664	0.461	0.723	0.589	0.615	0.802	0.585	0.644	0.772	0.985
	Front	0.356	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.605	0.415	0.664	0.543	0.614	0.801	0.554	0.613	0.741	0.999
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2	0.065																	
	Edge 3	0.755																	
	Edge 4	0.046	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.606	0.105	0.665	0.233	0.304	0.491	0.121	0.180	0.308	0.566
Product Specific 10-g (10-g SAR)	Rear					1.366	0.332	1.698											
	Front					0.103	0.627	0.730											
	Edge 1					1.366	1.450	2.816											
	Edge 2																		
	Edge 3	1.623																	
Edge 4					0.435	1.450	1.885												

Note(s):

- Green values are referenced from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
- Blue values are summed each SISO SAR value (DTS Ant1 + DTS Ant2 or UNII Ant.1 + UNII Ant.2)
- For Simultaneous Transmission SAR analysis, BT SAR value are determined to be the higher of both BT Ant.1 and BT Ant.2

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.139	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.648	0.279	0.788	0.167	0.292	0.320	1.096	1.236	1.124	1.277
Body-Worn (1-g SAR)	All position	0.605	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.736	0.616	0.747	0.758	0.758	0.911	0.720	0.731	0.873	1.026
Hotspot (1-g SAR)	Rear	0.564	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.826	0.623	0.885	0.751	0.777	0.964	0.747	0.806	0.934	1.147
	Front	0.545	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.794	0.604	0.853	0.732	0.803	0.990	0.743	0.802	0.930	1.188
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2	0.099																	
	Edge 3	1.281																	
	Edge 4	0.061	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.621	0.120	0.680	0.248	0.319	0.506	0.136	0.195	0.323	0.581
Product Specific 10-g (10-g SAR)	Rear					1.366	0.332	1.698											
	Front					1.103	0.627	0.730											
	Edge 1					1.366	1.450	2.816											
	Edge 2																		
	Edge 3	2.455																	
	Edge 4					0.435	1.450	1.885											

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.108	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.617	0.248	0.757	0.136	0.261	0.289	1.065	1.205	1.093	1.246
Body-Worn (1-g SAR)	All position	0.498	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.629	0.509	0.640	0.651	0.651	0.804	0.613	0.624	0.766	0.919
Hotspot (1-g SAR)	Rear	0.564	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.826	0.623	0.885	0.751	0.777	0.964	0.747	0.806	0.934	1.147
	Front	0.507	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.756	0.566	0.815	0.694	0.765	0.952	0.705	0.764	0.892	1.150
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2	0.096																	
	Edge 3	1.088																	
	Edge 4	0.079	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.639	0.138	0.698	0.266	0.337	0.524	0.154	0.213	0.341	0.599
Product Specific 10-g (10-g SAR)	Rear					1.366	0.332	1.698											
	Front					1.103	0.627	0.730											
	Edge 1					1.366	1.450	2.816											
	Edge 2																		
	Edge 3	2.816																	
	Edge 4					0.435	1.450	1.885											

Note(s):

- Green values are referenced from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
- Blue values are summed each SISO SAR value (DTS Ant1 + DTS Ant2 or UNII Ant.1 + UNII Ant.2)
- For Simultaneous Transmission SAR analysis, BT SAR value are determined to be the higher of both BT Ant.1 and BT Ant.2

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.229	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.738	0.369	0.878	0.257	0.382	0.410	1.186	1.326	1.214	1.367
Body-Worn (1-g SAR)	All position	0.343	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.474	0.354	0.485	0.496	0.496	0.649	0.458	0.469	0.611	0.764
Hotspot (1-g SAR)	Rear	0.723	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.985	0.782	1.044	0.910	0.936	1.123	0.906	0.965	1.083	1.306
	Front	0.698	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.947	0.757	1.006	0.885	0.956	1.143	0.896	0.955	1.083	1.341
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2	0.242																	
	Edge 3	0.480																	
	Edge 4	0.071	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.631	0.130	0.690	0.258	0.329	0.516	0.146	0.205	0.333	0.591

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.142	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.651	0.282	0.791	0.170	0.295	0.323	1.099	1.239	1.127	1.280
Body-Worn (1-g SAR)	All position	0.550	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.681	0.561	0.692	0.703	0.703	0.856	0.665	0.676	0.818	0.971
Hotspot (1-g SAR)	Rear	0.572	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.834	0.631	0.893	0.759	0.785	0.972	0.755	0.814	0.942	1.155
	Front	0.516	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.765	0.575	0.824	0.703	0.774	0.961	0.714	0.773	0.901	1.159
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2	0.084																	
	Edge 3	1.202																	
	Edge 4	0.059	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.619	0.118	0.678	0.246	0.317	0.504	0.134	0.193	0.321	0.579
Product Specific 10-g (10-g SAR)	Rear					1.366	0.332	1.698											
	Front					0.103	0.627	0.730											
	Edge 1					1.366	1.450	2.816											
	Edge 2																		
	Edge 3	2.424																	
	Edge 4					0.435	1.450	1.885											

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.289	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.798	0.429	0.938	0.317	0.442	0.470	1.246	1.386	1.274	1.427
Body-Worn (1-g SAR)	All position	0.371	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.502	0.382	0.513	0.524	0.524	0.677	0.486	0.497	0.639	0.792
Hotspot (1-g SAR)	Rear	0.760	0.262	0.059	0.321	0.187	0.213	0.400	0.183	1.022	0.819	1.081	0.947	0.973	1.160	0.943	1.002	1.130	1.343
	Front	0.707	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.956	0.766	1.015	0.894	0.965	1.152	0.905	0.964	1.092	1.350
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2	0.226																	
	Edge 3	0.444																	
	Edge 4	0.083	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.643	0.142	0.702	0.270	0.341	0.528	0.158	0.217	0.345	0.603

Note(s):

- Green values are referenced from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
- Blue values are summed each SISO SAR value (DTS Ant.1 + DTS Ant.2 or UNII Ant.1 + UNII Ant.2)
- For Simultaneous Transmission SAR analysis, BT SAR value are determined to be the higher of both BT Ant.1 and BT Ant.2

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)										
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT	
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8	
Head (1-g SAR)	All position	0.122	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.631	0.262	0.771	0.150	0.275	0.303	1.079	1.219	1.107	1.260	
Body-Worn (1-g SAR)	All position	0.189	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.320	0.200	0.331	0.342	0.342	0.495	0.304	0.315	0.457	0.610	
Hotspot (1-g SAR)	Rear	0.238	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.500	0.297	0.559	0.425	0.451	0.638	0.421	0.480	0.608	0.821	
	Front	0.208	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.457	0.267	0.516	0.395	0.466	0.653	0.406	0.465	0.593	0.851	
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439											
	Edge 2	0.107																		
	Edge 3	0.170																		
	Edge 4	0.069	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.629	0.128	0.688	0.256	0.327	0.514	0.144	0.203	0.331	0.589	

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)										
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT	
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8	
Head (1-g SAR)	All position	0.142	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.651	0.282	0.791	0.170	0.295	0.323	1.099	1.239	1.127	1.280	
Body-Worn (1-g SAR)	All position	0.217	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.348	0.228	0.359	0.370	0.370	0.523	0.332	0.343	0.485	0.638	
Hotspot (1-g SAR)	Rear	0.422	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.684	0.481	0.743	0.609	0.635	0.822	0.605	0.664	0.792	1.005	
	Front	0.397	0.240	0.059	0.299	0.187	0.258	0.445	0.198	0.637	0.456	0.696	0.584	0.655	0.842	0.595	0.654	0.782	1.040	
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439											
	Edge 2	0.161																		
	Edge 3	0.241																		
	Edge 4	0.120	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.680	0.179	0.739	0.307	0.378	0.565	0.195	0.254	0.382	0.640	

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)										
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT	
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8	
Head (1-g SAR)	All position	0.138	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.647	0.278	0.787	0.166	0.291	0.319	1.095	1.235	1.123	1.276	
Body-Worn (1-g SAR)	All position	0.240	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.371	0.251	0.382	0.393	0.393	0.546	0.355	0.366	0.508	0.661	
Hotspot (1-g SAR)	Rear	0.478	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.740	0.537	0.799	0.665	0.691	0.878	0.661	0.720	0.848	1.061	
	Front	0.393	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.642	0.452	0.701	0.580	0.651	0.838	0.591	0.650	0.778	1.036	
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439											
	Edge 2	0.134																		
	Edge 3	0.303																		
	Edge 4	0.058	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.618	0.117	0.677	0.245	0.316	0.503	0.133	0.192	0.320	0.578	

Note(s):

- Green values are referenced from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
- Blue values are summed each SISO SAR value (DTS Ant1 + DTS Ant2 + UNII Ant.1 + UNII Ant.2)
- For Simultaneous Transmission SAR analysis, BT SAR value are determined to be the higher of both BT Ant.1 and BT Ant.2

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.067	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.576	0.207	0.716	0.095	0.220	0.248	1.024	1.164	1.052	1.205
Body-Worn (1-g SAR)	All position	0.400	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.531	0.411	0.542	0.553	0.553	0.706	0.515	0.526	0.668	0.821
Hotspot (1-g SAR)	Rear	0.207	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.469	0.266	0.528	0.394	0.420	0.607	0.390	0.449	0.577	0.790
	Front	0.139	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.388	0.198	0.447	0.326	0.397	0.584	0.337	0.396	0.524	0.782
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2																		
	Edge 3	0.275																	
	Edge 4	0.097	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.657	0.156	0.716	0.284	0.365	0.542	0.172	0.231	0.359	0.617

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

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)									
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1 & BT Ant.2	WWAN + DTS Ant.1	WWAN + DTS Ant.2	WWAN + DTS MIMO	WWAN + UNII Ant.1	WWAN + UNII Ant.2	WWAN + UNII MIMO	WWAN + BT	WWAN + DTS Ant.2 + BT	WWAN + UNII Ant.1 + BT	WWAN + UNII MIMO + BT
		1	2	3	4	5	6	7	8	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+3+8	1+5+8	1+7+8
Head (1-g SAR)	All position	0.135	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.644	0.275	0.784	0.163	0.288	0.316	1.092	1.232	1.120	1.273
Body-Worn (1-g SAR)	All position	0.688	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.819	0.699	0.830	0.841	0.841	0.994	0.803	0.814	0.966	1.109
Hotspot (1-g SAR)	Rear	0.460	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.722	0.519	0.781	0.647	0.673	0.860	0.643	0.702	0.830	1.043
	Front	0.460	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.709	0.519	0.768	0.647	0.718	0.905	0.658	0.717	0.845	1.103
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439										
	Edge 2	0.083																	
	Edge 3	0.838																	
	Edge 4	0.054	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.614	0.113	0.673	0.241	0.312	0.499	0.129	0.188	0.316	0.574
Product Specific 10-g (10-g SAR)	Rear	1.634				1.366	0.332	1.698					3.000	1.966	3.332				
	Front	2.064				0.103	0.627	0.730				2.167	2.691	2.794					
	Edge 1					1.366	1.450	2.816											
	Edge 2																		
	Edge 3	2.723																	
Edge 4					0.435	1.450	1.885												

12.13. Sum of the SAR for WWAN & Wi-Fi(RSDB) & BT Ant. 1

RF Exposure	Test Position	Standalone SAR (W/kg)								Sum of SAR (W/kg)						
		WWAN	DTS Ant.1	DTS Ant.2	DTS MIMO	UNII Ant.1	UNII Ant.2	UNII MIMO	BT Ant.1	WWAN + DTS Ant.2 + UNII Ant.1	WWAN + DTS MIMO + UNII Ant.1	WWAN + DTS Ant.2 + UNII MIMO	WWAN + DTS Ant.2 + UNII Ant.1 + UNII MIMO	WWAN + DTS Ant.2 + UNII Ant.1 + BT Ant.1	DTS Ant.1 + DTS Ant.2 + UNII Ant.1 + UNII Ant.2	
		1	2	3	4	5	6	7	8	1+3+5	1+4+5	1+3+7	1+4+7	1+3+5+8	1+3+7+8	2+3+5+6
Head (1-g SAR)	All position	0.289	0.509	0.140	0.649	0.028	0.153	0.181	0.957	0.457	0.966	0.610	1.119	1.414	1.567	0.830
Body-Worn (1-g SAR)	All position	0.688	0.131	0.011	0.142	0.153	0.153	0.306	0.115	0.852	0.983	1.005	1.136	0.967	1.120	0.448
Hotspot (1-g SAR)	Rear	0.723	0.262	0.059	0.321	0.187	0.213	0.400	0.183	0.969	1.231	1.182	1.444	1.152	1.365	0.721
	Front	0.698	0.249	0.059	0.308	0.187	0.258	0.445	0.198	0.944	1.193	1.202	1.451	1.142	1.400	0.753
	Edge 1		0.560	0.059	0.619	0.187	0.258	0.445	0.439							
	Edge 2	0.243														
	Edge 3	1.281														
	Edge 4	0.120	0.560	0.059	0.619	0.187	0.258	0.445	0.075	0.366	0.926	0.624	1.184	0.441	0.699	1.064

Note(s):

- Green values are referenced from highest SAR value of *initial test position* procedure in each RF exposure of each bands.
- Blue values are summed each SISO SAR value (DTS Ant1 + DTS Ant2 or UNII Ant.1 + UNII Ant.2)

Conclusion:

Simultaneous Transmission SAR analysis results is satisfied the FCC Limit requirement according to procedures of "Sum of SAR"

Appendixes

Refer to separated files for the following appendixes.

4790047196-S1 FCC Report SAR_App A_Photos & Ant. Locations

4790047196-S1 FCC Report SAR_App B_Highest SAR Test Plots

4790047196-S1 FCC Report SAR_App C_System Check Plots

4790047196-S1 FCC Report SAR_App D_SAR Tissue Ingredients

4790047196-S1 FCC Report SAR_App E_Probe Cal. Certificates

4790047196-S1 FCC Report SAR_App F_Dipole Cal. Certificates

END OF REPORT