SAR EVALUATION REPORT

IEEE Std 1528-2013

For

GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC

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Prepared for

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ACCREDITED
CERT #0751.06

Revision History

Rev.	Date	Revisions	Revised By
V1	8/3/2022	Initial Issue	--
V2	8/10/2022	Removed highlighting 9.5. Added notes to 10.9 to indicate DSSS results scaled by ratio to OFDM specified maximum output power exempt OFDM measurements. Increased significant digits in 9.6 to not round tune-up value. Corrected incorrect values in 12.3 and 12.5, and updated results in Section 1. Correct measured value in 10.7 for Hotspot, Rear.	Richard Jankovics
V3	8/11/2022	Corrected 900 MHz TSL parameters for 7/16/2022 in 8.1	Richard Jankovics

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1. Attestation of Test Results

Applicant Name	Sony Corporation			
FCC ID	PY7-93060R			
Applicable Standards	Published RF exposure KDB procedures IEEE Std 1528-2013			
Exposure Category	SAR Limits (W/Kg)			
	Peak spatial-average (1g of tissue)		Extremities (hands, wrists, ankles, etc.) (10g of tissue)	
General population / Uncontrolled exposure	1.6		4	
RF Exposure Conditions	Equipment Class - Highest Reported SAR (W/kg)			
	PCE	DTS	NII	DSS
Head	0.186	0.580	0.284	0.195
Body-worn*	0.492	0.122	0.099	0.045
Hotspot/BT Tethering	0.492	0.232	0.116	0.070
Extremity (10g)	N/A	N/A	0.440	N/A
Simultaneous TX	0.779	0.779	0.779	0.686
Date Tested	7/6/2022 to 8/2/2022			
Test Results	Pass			

***Note:** The Body-worn minimum separation distance is 10 mm. To cover both body-worn and hotspot RF exposure conditions testing was performed at a separation distance of 10 mm.

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the U.S. Government, or any agency of the U.S. government.

Approved & Released By:	Prepared By
Dave Weaver Operations Leader UL Verification Services Inc.	AJ Newcomer Laboratory Engineer UL Verification Services Inc.

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2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE Std 1528-2013, the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 447498 D03 Supplement C Cross-Reference v01
- 648474 D04 Handset SAR v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet v01r02

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

- TCB Workshop October 2014; RF Exposure Procedures (Other LTE Considerations)
- TCB Workshop April 2015; RF Exposure Procedures (Overlapping LTE Bands)
- TCB Workshop October 2015; RF Exposure Procedures (KDB 941225 D05A)
- 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 (Broadband Liquid Above 3 GHz)
- TCB Workshop April 2019; RF Exposure Procedures (Tissue Simulating Liquids (TSL))
- TCB Workshop April 2019; RF Exposure Procedures (802.11ax SAR Testing)

3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at 2800 Perimeter Park Dr, Morrisville, NC, USA.

- SAR Lab 1A
- SAR Lab 2A
- SAR Lab 2B

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

UL LLC is accredited by A2LA, Certificate Number #0751.06

The Test Lab Conformity Assessment Body Identifier (CABID)

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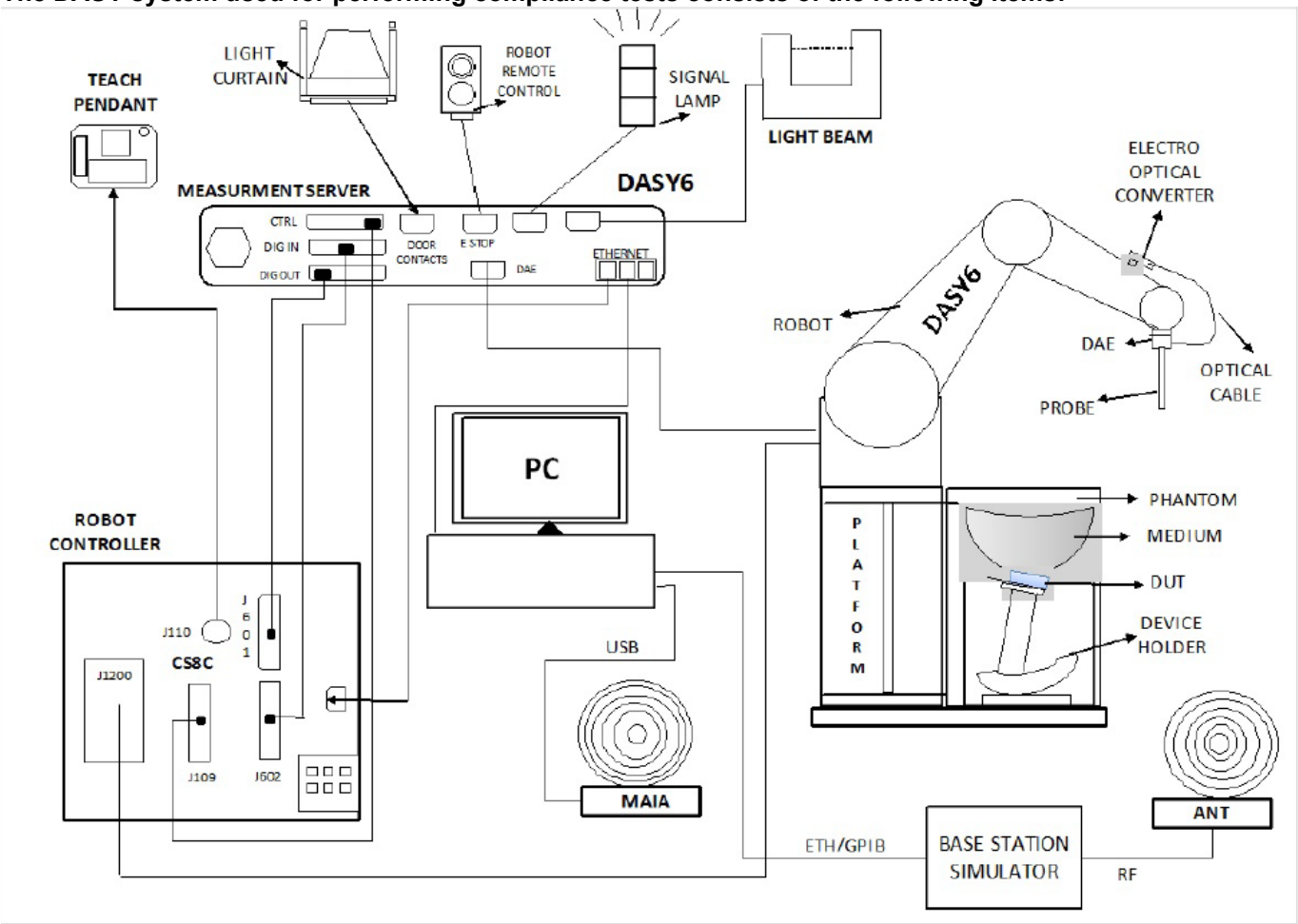
4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY 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 Win7, Win10 and the DASY52[1] and DASY6[2] 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.

[1] DASY8 software used: DASY16.0.2.83 and older generations.

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4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

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

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Std 1528-2013, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

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

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

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Step 3: Zoom Scan

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

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

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

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

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

Step 4: Power drift measurement

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

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4.3. Test Equipment

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

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Keysight	E5063A	MY54100681	08/20/2022
Dielectric Probe	SPEAG	DAKS-3.5	1051	11/16/2022
Shorting Block	SPEAG	DAK-3.5 Short	SMDAK 200 DA	11/16/2022
Thermometer	Fisher Scientific	15-078-181	210204689	03/13/2023

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Signal Generator	Keysight	N5181A	MY50140788	12/09/2022
Signal Generator	Agilent	83640B	3844A00978	08/18/2022
Signal Generator	Keysight	N5182B	MY51350128	05/19/2023
Power Meter*	Keysight	N1912A	MY55136012	07/31/2022
Power Meter*	Keysight	N1912A	MY55116004	07/31/2022
Power Sensor	Keysight	N1921A	MY55090023	03/22/2023
Power Sensor	Keysight	N1921A	MY55090025	09/07/2022
Amplifier	MITEQ	AMF-4D-00400600-50-30P	N/A	N/A
Directional coupler	Mini-Circuits	ZUDC10-183+	1438	NA
DC Power Supply	Miteq	PS 15V1	1990186	N/A
RF Power Source	Speag	PowerSource1	4278	06/21/2023

Note(s):

1) Equipment not used past calibration due date.

Lab Equipment

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
E-Field Probe	SPEAG	EX3DV4	7549	02/21/2023
E-Field Probe	SPEAG	EX3DV4	7709	02/25/2023
E-Field Probe	SPEAG	EX3DV4	7711	03/11/2023
Data Acquisition Electronics	SPEAG	DAE4	1716	03/08/2023
Data Acquisition Electronics	SPEAG	DAE4	1714	02/23/2023
Data Acquisition Electronics	SPEAG	DAE4	1715	02/22/2023
System Validation Dipole	SPEAG	D750V3	1139	10/06/2022
System Validation Dipole	SPEAG	D900V2	1d180	10/06/2022
System Validation Dipole	SPEAG	D1750V2	1136	10/12/2022
System Validation Dipole	SPEAG	D1900V2	5d202	10/06/2022
System Validation Dipole	SPEAG	D2450V2	963	10/06/2022
System Validation Dipole	SPEAG	D2600V2	1104	11/09/2022
System Validation Dipole	SPEAG	D5GHzV2	1213	10/12/2022
Environmental Indicator	Control Company	06-662-4	200037610	02/24/2023
Environmental Indicator	Control Company	06-662-4	200037635	02/24/2023

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Other

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
3-Path Diode Pow er Sensor	Rohde & Schw arz	NRP8S	112236	5/31/2023
3-Path Diode Pow er Sensor	Rohde & Schw arz	NRP8S	112237	5/31/2023
RF Pow er Meter	Keysight	N1911a	MY55116001	7/07/2023
RF Pow er Meter	Keysight	N1911a	MY55116003	8/17/2022
RF Pow er Sensor	Keysight	N1921a	MY55090047	12/17/2022
RF Pow er Sensor	ETS Lindgren	7002-006	151058	3/09/2023
RF Pow er Sensor	ETS Lindgren	7002-006	160130	3/11/2023
RF Pow er Sensor	Boonton Electronics	RTP5008	12001	10/01/2022
RF Pow er Sensor	Boonton Electronics	RTP5008	12002	10/01/2022
Base Station Simulator	R & S	CMW 500	170733	11/15/2022
Base Station Simulator	R & S	CMW 500	170732	11/18/2022
Base Station Simulator	R & S	CMW 500	170193	4/29/2023
Base Station Simulator	R & S	CMW 500	170194	5/05/2023
DC Pow er Supply	Keysight	E3633A	MY58426145	N/A
DC Pow er Supply	Keysight	E3633A	MY62176088	N/A
DC Pow er Supply	Keysight	E3633A	MY62176089	N/A
DC Pow er Supply	Keysight	E3633A	MY61466084	N/A

Note(s):

1) Equipment not used past calibration due date.
2) Equipment returned from calibration.

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. These conditions have been met, therefore the measurement uncertainty is not required.

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6. Device Under Test (DUT) Information

6.1. DUT Description

Device Dimension	Overall (Length x Width): 155.74 mm x 67.1 mm Overall Diagonal: 165.87 mm Display Diagonal: 153.5 mm This is a Phablet Device (display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm)
Back Cover	The Back Cover is not removable
Battery Options	The rechargeable battery is not user accessible.
Accessory	Headset & Wireless Charger
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. ☒ Mobile Hotspot (Wi-Fi 2.4 GHz) ☒ Mobile Hotspot (Wi-Fi 5.2GHz & 5.8GHz Only)
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other Per Manufacturer, the DUT support only as a group client and not support as a group owner.
Bluetooth Tethering (Hotspot)	BT Tethering mode permits the device to share its cellular data connection with other devices. ☒ BT Tethering (Bluetooth 2.4 GHz)
Test sample information	**S/N** / **IMEI** / **Notes** QV77005UBL / 44025434-00521 / FCC Cellular (conducted) #1 QV77006NBL / 44025434-00240 / FCC Cellular (conducted) #2 QV77004SBL / 44025434-00364 / FCC SAR & CE SAR Low Band Backoff Power - (Conducted) QV77004JBL / 44025434-00547 / FCC SAR & CE SAR Mid/High Band Backoff Power - (Conducted) QV770045D5 / 00440254-380898-8 / FCC SAR & CE SAR Low Power #1 QV77005FD5 / 00440254-380886-3 / FCC SAR & CE SAR Low Power #2 QV77005HD5 / 44025438-07527 / RF/SAR WLAN/BT - 2.4GHz/5GHz (Conducted) #1 QV770041D5 / 44025438-07626 / RF/SAR WLAN/BT - 2.4GHz/5GHz (Conducted) #2 QV770048D5 / 00440254-380900-2 / SAR WLAN/BT - 2.4GHz/5GHz/6GHz (Radiated) #1
Hardware Version	A
Software Version	(WWAN) 64.0.J.0.55 (WLAN) 64.0.C.2.40

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6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EDGE (8PSK)	GSM Class : A Multi-Slot Class: Class 33 - 4 Up, 5 Down	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
	Does this device support DTM (Dual Transfer Mode)? ☒ Yes ☐ No			
W-CDMA (UMTS)	Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Rel. 5) HSUPA (Rel. 6)		100%
LTE	FDD Band 4 FDD Band 5 FDD Band 12 FDD Band 13 FDD Band 17 TDD Band 41	QPSK 16QAM 64QAM Rel. 10 Does not support Carrier Aggregation (CA)		100% (FDD) 63.3% (TDD) Power Class 3 Refer to §6.4
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 802.11ac (VHT20) 802.11ax (HE20)		99.92% (802.11b)[1]
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80) 802.11ac (VHT160) 802.11ax (HE20) 802.11ax (HE40) 802.11ax (HE80) 802.11ax(HE160)		99.63% (802.11ac 80MHz BW)[2] 99.65% (802.11ac 160MHz BW)[2]
	Does this device support bands 5.60 ~ 5.65 GHz? ☒ Yes ☐ No			
	Does this device support Band gap channel(s)? ☒ Yes ☐ No			
Bluetooth	2.4 GHz	BR, EDR, LE		76.8% (GFSK)[3]
NFC	13.56 MHz	Type A/B/F/V		N/A

Notes:

1. Refer to §9.4 for Wi-Fi 2.4GHz Duty Cycle Measurement.
2. Refer to §9.5 for Wi-Fi 5GHz Duty Cycle Measurements.
3. Refer to §9.6 for Bluetooth Duty Cycle Measurement.
4. Measured Duty Cycle is not required due to SAR test exemption.

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6.3. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 4	Frequency range: 1710 - 1755 MHz (BW = 45 MHz)					
		Channel Bandwidth					
		20 MHz [1]	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 (BW = 25 MHz)					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz [1]	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 (BW = 17 MHz)					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz [1]	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 (BW = 10 MHz)					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz [1]	5 MHz [1]	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 (BW = 12 MHz)					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz [1]	5 MHz [1]	3 MHz	1.4 MHz
	Low			23780/ 709	23755/ 706.5		
	Mid			**23790/ 710**	23790/ 710		
	High			23800/ 711	23825/ 713.5		
	Band 41[2]	Frequency range: 2496 - 2690 MHz (BW = 194 MHz)					
		Channel Bandwidth					
		20 MHz	15 `MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	**39750 / 2506.0**					
	Mid- Low	**40185 / 2549.5**					
	Mid	**40620 / 2593.0**					
	Mid-High	**41055 / 2636.5**					
	High	**41490 / 2680.0**					

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General LTE SAR Test and Reporting Considerations (continued)

<table>
<tr><td>LTE transmitter and antenna implementation</td><td>Refer to Appendix A.</td></tr>
<tr><td>Maximum power reduction (MPR)</td><td>

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

<table>
<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>
<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>
</table>

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

</td></tr>
<tr><td>Power reduction</td><td>No</td></tr>
<tr><td>Spectrum plots for RB configurations</td><td>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.</td></tr>
</table>

Notes:

1. Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices.
2. LTE band 41 test channels in accordance with October 2014 TCB workshop for all channels bandwidths.
3. SAR Testing for LTE was performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

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6.4. 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	$6592 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$	$7680 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$
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	$26336 \cdot T_s$			$7680 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$
5	$6592 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-
10	$13168 \cdot T_s$	$13152 \cdot T_s$	$12800 \cdot T_s$	-	-	-

Table 4.2-2: Uplink-downlink configurations & 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	63.3%
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.3%
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.3%
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.7%
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.7%
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.7%
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.3%

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

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.

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6.6. Power Back-off Operation

The DUT supports power reduction when Simultaneous WLAN transmission is active (i.e. WLAN Chain 0 and Chain 1 transmitting simultaneously).

Power Back-off mode	Technologies Supported	Exposure Conditions Active			
		Head	Body-worn	Hotspot	Phablet SAR (Extremity 10g)
WLAN Simultaneous Tx	Wi-Fi 2.4GHz Wi-Fi 5GHz	✓	✓	✓	✓

Note(s):

Tune-Up Limits for WLAN (Simultaneous 2G_5G state) is Reduced Average Power. Please refer to §9 for all conducted power measurements.

Phablet SAR (Extremity 10g):

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.

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.

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.

Antenna	Band	Head	Rear	Front	Edge 1 (Top Edge)	Edge 2 (Right Edge)	Edge 3 (Bottom Edge)	Edge 4 (Left Edge)	Extremity (0 mm)
Cellular Main Antenna 1	GSM 850 W-CDMA BV LTE B5/12/13/17	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Cellular Main Antenna 2	GSM 1900 LTE B4/41	Yes	Yes	Yes	No	Yes	Yes	No	Yes
WLAN/BT Chain 0	Wi-Fi 2.4GHz Wi-Fi 5GHz Bluetooth	Yes	Yes	Yes	Yes	No	No	Yes	Yes
WLAN/BT Chain 1	Wi-Fi 2.4GHz Wi-Fi 5GHz Bluetooth	Yes	Yes	Yes	No	No	Yes	Yes	Yes

Notes:

1. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
2. The Body-worn minimum separation distance is 10 mm. To cover both body-worn and hotspot RF exposure conditions testing was performed at a separation distance of 10 mm.
3. 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. 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.

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8. Dielectric Property Measurements & System Check

8.1. Dielectric Property Measurements

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

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

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

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

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

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

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Dielectric Property Measurements Results:

SAR Lab	Date	Band (MHz)	Tissue Type	Frequency (MHz)	Relative Permittivity (εr)			Conductivity (σ)		
					Measured	Target	Delta (%)	Measured	Target	Delta (%)
1A	7/25/2022	5250	Head	5250	35.42	35.93	-1.43	4.56	4.70	-3.07
				5150	35.60	36.05	-1.24	4.45	4.60	-3.32
				5350	35.24	35.82	-1.62	4.67	4.80	-2.84
1A	7/25/2022	5600	Head	5600	34.79	35.53	-2.09	4.94	5.06	-2.34
				5500	34.96	35.65	-1.93	4.83	4.96	-2.66
				5725	34.57	35.39	-2.32	5.09	5.19	-1.99
1A	7/28/2022	5250	Head	5250	34.83	35.93	-3.07	4.54	4.70	-3.38
				5150	35.02	36.05	-2.85	4.43	4.60	-3.65
				5350	34.65	35.82	-3.26	4.65	4.80	-3.17
1A	7/28/2022	5600	Head	5600	34.21	35.53	-3.73	4.92	5.06	-2.79
				5500	34.40	35.65	-3.50	4.80	4.96	-3.12
				5725	34.01	35.39	-3.90	5.06	5.19	-2.41
1A	7/28/2022	5750	Head	5750	33.97	35.36	-3.94	5.09	5.21	-2.47
				5700	34.04	35.42	-3.90	5.03	5.16	-2.49
				5850	33.79	35.30	-4.28	5.19	5.32	-2.42
1A	8/1/2022	5250	Head	5250	35.10	35.93	-2.32	4.70	4.70	-0.02
				5150	35.30	36.05	-2.07	4.59	4.60	-0.28
				5350	34.91	35.82	-2.54	4.81	4.80	0.20
1A	8/1/2022	5600	Head	5600	34.44	35.53	-3.08	5.11	5.06	0.90
				5500	34.62	35.65	-2.88	4.99	4.96	0.55
				5725	34.20	35.39	-3.37	5.25	5.19	1.13
1A	8/1/2022	5750	Head	5750	34.15	35.36	-3.43	5.27	5.21	1.14
				5700	34.24	35.42	-3.33	5.22	5.16	1.11
				5850	33.94	35.30	-3.85	5.40	5.32	1.41
2A	7/6/2022	900	Head	900	40.07	41.50	-3.45	0.99	0.97	2.06
				880	40.17	41.50	-3.20	0.98	0.95	3.70
				915	40.00	41.50	-3.61	0.99	0.98	1.02
2A	7/7/2022	750	Head	750	40.28	41.96	-4.01	0.91	0.89	2.07
				660	40.56	42.42	-4.39	0.88	0.89	-0.55
				800	40.21	41.71	-3.58	0.93	0.90	3.31
2A	7/11/2022	900	Head	900	39.98	41.50	-3.66	0.99	0.97	2.06
				880	40.08	41.50	-3.42	0.98	0.95	4.13
				915	39.90	41.50	-3.86	1.00	0.98	1.74
2A	7/15/2022	1900	Head	1900	40.02	40.00	0.05	1.45	1.40	3.57
				1850	40.10	40.00	0.25	1.43	1.40	2.14
				1920	40.00	40.00	0.00	1.47	1.40	5.00
2A	7/18/2022	750	Head	750	41.61	41.96	-0.84	0.93	0.89	3.72
				660	41.90	42.42	-1.23	0.90	0.89	1.02
				800	41.54	41.71	-0.40	0.94	0.90	4.71
2A	7/21/2022	900	Head	900	40.26	41.50	-2.99	0.97	0.97	-0.38
				880	40.35	41.50	-2.77	0.96	0.95	1.63
				915	40.19	41.50	-3.16	0.97	0.98	-0.62
2A	7/21/2022	1900	Head	1900	38.44	40.00	-3.90	1.44	1.40	3.14
				1850	38.53	40.00	-3.68	1.42	1.40	1.21
				1920	38.41	40.00	-3.98	1.46	1.40	4.21

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Dielectric Property Measurements Results (Continued):

SAR Lab	Date	Band (MHz)	Tissue Type	Frequency (MHz)	Relative Permittivity (εr)			Conductivity (σ)		
					Measured	Target	Delta (%)	Measured	Target	Delta (%)
2A	7/25/2022	900	Head	900	40.64	41.50	-2.07	0.96	0.97	-1.16
				880	40.73	41.50	-1.86	0.94	0.95	-0.44
				915	40.57	41.50	-2.24	0.97	0.98	-1.41
2A	7/28/2022	5250	Head	5250	36.26	35.93	0.91	4.59	4.70	-2.38
				5150	36.44	36.05	1.09	4.47	4.60	-2.78
				5350	36.09	35.82	0.76	4.70	4.80	-2.09
2A	7/28/2022	5600	Head	5600	35.64	35.53	0.30	4.99	5.06	-1.49
				5500	35.82	35.65	0.48	4.86	4.96	-1.91
				5725	35.44	35.39	0.14	5.14	5.19	-0.91
2A	7/28/2022	5750	Head	5750	35.42	35.36	0.16	5.16	5.21	-0.97
				5700	35.47	35.42	0.14	5.14	5.16	-0.42
				5850	35.23	35.30	-0.20	5.28	5.32	-0.83
2A	8/1/2022	5250	Head	5250	35.36	35.93	-1.60	4.59	4.70	-2.34
				5150	35.54	36.05	-1.41	4.48	4.60	-2.69
				5350	35.18	35.82	-1.78	4.70	4.80	-2.09
2A	8/1/2022	5600	Head	5600	34.73	35.53	-2.26	4.99	5.06	-1.45
				5500	34.92	35.65	-2.04	4.86	4.96	-1.91
				5725	34.53	35.39	-2.43	5.14	5.19	-0.99
2A	8/1/2022	5750	Head	5750	34.49	35.36	-2.47	5.16	5.21	-1.09
				5700	34.55	35.42	-2.46	5.11	5.16	-1.08
				5850	34.30	35.30	-2.83	5.27	5.32	-1.03
2B	7/7/2022	2600	Head	2600	40.14	39.01	2.89	1.97	1.96	0.35
				2495	40.32	39.14	3.01	1.89	1.85	2.02
				2690	40.00	38.90	2.83	2.04	2.06	-0.90
2B	7/8/2022	1750	Head	1750	40.91	40.08	2.06	1.38	1.37	0.88
				1710	40.97	40.15	2.05	1.35	1.35	0.42
				1755	40.91	40.08	2.08	1.38	1.37	0.89
2B	7/11/2022	1900	Head	1900	39.29	40.00	-1.78	1.45	1.40	3.57
				1850	39.36	40.00	-1.60	1.43	1.40	2.14
				1920	39.27	40.00	-1.82	1.47	1.40	5.00
2B	7/15/2022	2600	Head	2600	39.36	39.01	0.90	1.96	1.96	-0.11
				2495	39.50	39.14	0.91	1.88	1.85	1.70
				2690	39.21	38.90	0.80	2.03	2.06	-1.43
2B	7/16/2022	900	Head	900	41.86	41.50	0.87	0.99	0.97	1.68
				880	41.96	41.50	1.11	0.98	0.95	3.66
				915	41.79	41.50	0.70	0.99	0.98	1.42
2B	7/16/2022	1750	Head	1750	40.17	40.08	0.21	1.40	1.37	2.27
				1710	40.25	40.15	0.26	1.37	1.35	1.75
				1755	40.16	40.08	0.21	1.40	1.37	2.06
2B	7/25/2022	2600	Head	2600	37.63	39.01	-3.54	1.94	1.96	-1.18
				2495	37.80	39.14	-3.43	1.86	1.85	0.56
				2690	37.47	38.90	-3.67	2.01	2.06	-2.50
2B	7/26/2022	2450	Head	2450	37.85	39.20	-3.44	1.83	1.80	1.56
				2400	37.94	39.30	-3.45	1.79	1.75	2.42
				2480	37.81	39.16	-3.45	1.85	1.83	0.96
2B	7/29/2022	2450	Head	2450	37.88	39.20	-3.37	1.82	1.80	1.00
				2400	37.95	39.30	-3.43	1.78	1.75	1.73
				2480	37.85	39.16	-3.35	1.84	1.83	0.47

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8.2. System Check

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

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 5 mm (above 6 GHz) , 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 3 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was recorded and the results are normalized to 1 W input power.

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System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within ±10% of the manufacturer calibrated dipole SAR target. Refer to Appendix B for the SAR System Check Plots.

SAR Lab	Date	Tissue Type	Dipole Type _Serial #	Dipole Cal. Due Data	Dipole Power (dBm)	Measured Results for 1g SAR				Measured Results for 10g SAR				Plot No.
						Zoom Scan to 100 mW	Normalize to 1 W	Target (Ref. Value)	Delta ±10 %	Zoom Scan to 100 mW	Normalize to 1 W	Target (Ref. Value)	Delta ±10 %	
1A	7/25/2022	Head	D5GHzV2 SN: 1213 (5.25 GHz)	10/12/2022	17.0	3.850	76.82	76.20	0.81	1.110	22.15	22.30	-0.68	
1A	7/25/2022	Head	D5GHzV2 SN: 1213 (5.60 GHz)	10/12/2022	17.0	4.130	82.40	81.80	0.74	1.170	23.34	23.60	-1.08	
1A	7/28/2022	Head	D5GHzV2 SN: 1213 (5.25 GHz)	10/12/2022	17.0	3.800	75.82	76.20	-0.50	1.080	21.55	22.30	-3.37	
1A	7/28/2022	Head	D5GHzV2 SN: 1213 (5.60 GHz)	10/12/2022	17.0	4.100	81.81	81.80	0.01	1.160	23.15	23.60	-1.93	
1A	7/28/2022	Head	D5GHzV2 SN: 1213 (5.75 GHz)	10/12/2022	17.0	3.610	72.03	75.50	**-4.60**	1.020	20.35	22.00	-7.49	1
1A	8/1/2022	Head	D5GHzV2 SN: 1213 (5.25 GHz)	10/12/2022	17.0	4.000	79.81	76.20	**4.74**	1.140	22.75	22.30	2.00	2
1A	8/1/2022	Head	D5GHzV2 SN: 1213 (5.60 GHz)	10/12/2022	17.0	4.260	85.00	81.80	**3.91**	1.200	23.94	23.60	1.45	3
1A	8/1/2022	Head	D5GHzV2 SN: 1213 (5.75 GHz)	10/12/2022	17.0	3.780	75.42	75.50	-0.10	1.070	21.35	22.00	-2.96	
2A	7/6/2022	Head	D900V2 SN: 1d180	10/6/2022	17.0	0.539	10.75	10.63	1.17	0.346	6.90	6.97	-0.95	
2A	7/7/2022	Head	D750V3 SN: 1139	10/6/2022	17.0	0.412	8.22	8.12	**1.24**	0.268	5.35	5.41	-1.16	4
2A	7/11/2022	Head	D900V2 SN: 1d180	10/6/2022	17.0	0.545	10.87	10.63	**2.30**	0.348	6.94	6.97	-0.38	5
2A	7/15/2022	Head	D1900V2 SN: 5d202	10/6/2022	17.0	1.880	37.51	37.86	-0.92	0.976	19.47	20.26	-3.88	
2A	7/18/2022	Head	D750V3 SN: 1139	10/6/2022	17.0	0.404	8.06	8.12	-0.73	0.264	5.27	5.41	-2.63	
2A	7/21/2022	Head	D900V2 SN: 1d180	10/6/2022	17.0	0.536	10.69	10.63	0.61	0.345	6.88	6.97	-1.24	
2A	7/21/2022	Head	D1900V2 SN: 5d202	10/6/2022	17.0	2.000	39.91	37.86	**5.40**	1.030	20.55	20.26	1.44	6
2A	7/26/2022	Head	D900V2 SN: 1d180	10/6/2022	17.0	0.534	10.65	10.63	0.23	0.341	6.80	6.97	-2.38	
2A	7/28/2022	Head	D5GHzV2 SN: 1213 (5.25 GHz)	10/12/2022	17.0	3.540	70.63	76.20	**-7.31**	1.020	20.35	22.30	-8.74	7
2A	7/28/2022	Head	D5GHzV2 SN: 1213 (5.60 GHz)	10/12/2022	17.0	3.900	77.82	81.80	**-4.87**	1.100	21.95	23.60	-7.00	8
2A	7/28/2022	Head	D5GHzV2 SN: 1213 (5.75 GHz)	10/12/2022	17.0	3.640	72.63	75.50	-3.80	1.040	20.75	22.00	-5.68	
2A	8/1/2022	Head	D5GHzV2 SN: 1213 (5.25 GHz)	10/12/2022	17.0	3.730	74.42	76.20	-2.33	1.080	21.55	22.30	-3.37	
2A	8/1/2022	Head	D5GHzV2 SN: 1213 (5.60 GHz)	10/12/2022	17.0	4.040	80.61	81.80	-1.46	1.140	22.75	23.60	-3.62	
2A	8/1/2022	Head	D5GHzV2 SN: 1213 (5.75 GHz)	10/12/2022	17.0	3.520	70.23	75.50	**-6.98**	1.010	20.15	22.00	-8.40	9
2B	7/7/2022	Head	D2600V2 SN: 1104	11/9/2022	17.0	2.690	53.67	58.00	-7.46	1.200	23.94	26.10	-8.26	
2B	7/8/2022	Head	D1750V2 SN: 1136	10/12/2022	17.0	1.740	34.72	34.44	0.81	0.919	18.34	18.63	-1.58	
2B	7/11/2022	Head	D1900V2 SN: 5d202	10/6/2022	17.0	2.020	40.30	37.86	**6.46**	1.040	20.75	20.26	2.42	10
2B	7/15/2022	Head	D2600V2 SN: 1104	11/9/2022	17.0	2.640	52.67	58.00	**-9.18**	1.180	23.54	26.10	-9.79	11
2B	7/16/2022	Head	D900V2 SN: 1d180	10/6/2022	17.0	0.532	10.61	10.63	**-0.14**	0.341	6.80	6.97	-2.38	12
2B	7/16/2022	Head	D1750V2 SN: 1136	10/12/2022	17.0	1.820	36.31	34.44	**5.44**	0.956	19.07	18.63	2.39	13
2B	7/25/2022	Head	D2600V2 SN: 1104	11/9/2022	17.0	2.840	56.67	58.00	-2.30	1.270	25.34	26.10	-2.91	
2B	7/26/2022	Head	D2450V2 SN: 963	10/6/2022	17.0	2.640	52.67	51.36	2.56	1.220	24.34	24.56	-0.89	
2B	7/29/2022	Head	D2450V2 SN: 963	10/6/2022	17.0	2.660	53.07	51.36	**3.34**	1.230	24.54	24.56	-0.07	14

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9. Conducted Output Power Measurements

Tune-Up Power Limits provided by the manufacturer are used to scale measured SAR values.

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.

When different maximum output power applies to GSM voice or GPRS/EDGE time slots, GSM voice and GPRS/EDGE time slots should be tested separately to determine compliance by summing the corresponding reported SAR.

The GMSK EDGE configurations are grouped with GPRS and considered with respect to time-averaged maximum output power to determine compliance

Per October 2013 TCB Workshop:
When the maximum frame-averaged powers levels are within 0.25 dB of each other, test the configuration with the most number of time slots.

GSM 850 Main Ant 1 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GPRS/EDGE (GMSK)	CS1	1	128	824.2	32.5	23.5	33.2	24.2
			190	836.6	32.6	23.6		
			251	848.8	32.8	23.7		
		2	128	824.2	29.5	23.4	30.2	24.2
			190	836.6	29.6	23.6		
			251	848.8	29.5	23.5		
		3	128	824.2	27.7	23.5	28.4	24.1
			190	836.6	27.7	23.5		
			251	848.8	27.8	23.5		
		4	128	824.2	26.5	23.4	27.2	**24.2**
			190	836.6	26.5	23.5		
			251	848.8	26.5	23.5		
EDGE (8PSK)	MCS5	1	128	824.2	27.0	17.9	27.7	18.7
			190	836.6	27.1	18.0		
			251	848.8	27.3	18.2		
		2	128	824.2	24.1	18.1	24.7	18.7
			190	836.6	24.4	18.3		
			251	848.8	23.9	17.9		
		3	128	824.2	22.1	17.9	22.9	18.6
			190	836.6	22.4	18.1		
			251	848.8	22.6	18.3		
		4	128	824.2	20.9	17.9	21.7	18.7
			190	836.6	21.0	17.9		
			251	848.8	21.5	18.5		

Notes:
Based on the Tune-up Procedure, GPRS/EDGE (GMSK) mode with 4 time slots for Max power has maximum frame-averaged power.

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GSM 850 DTM Main Ant 1 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)							
					Measured				Tune-up Limit			
					CS Burst Pwr	PS Burst Pwr	CS Frame Pwr	PS Frame Pwr	CS Burst Pwr	PS Burst Pwr	CS Frame Pwr	PS Frame Pwr
GSM (Voice) + GPRS/EDGE (GMSK)	CS1	1	128	824.2	32.6		23.6		33.2		24.2	
			190	836.6	32.7		23.7					
			251	848.8	32.8		23.8					
		2	128	824.2	29.2	29.3	23.2	23.2	30.2	30.2	**24.2**	**24.2**
			190	836.6	29.3	29.3	23.3	23.3				
			251	848.8	29.3	29.4	23.3	23.4				
		3	128	824.2	27.1	27.0	22.9	22.7	28.4	28.4	24.1	24.1
			190	836.6	27.2	27.1	23.0	22.9				
			251	848.8	27.4	27.3	23.1	23.0				
GSM (Voice) + EDGE (8PSK)	MCS5	1	128	824.2	32.6		23.6		33.2		24.2	
			190	836.6	32.7		23.7					
			251	848.8	32.8		23.8					
		2	128	824.2	29.4	23.1	23.4	17.1	30.2	24.7	**24.2**	18.7
			190	836.6	29.4	23.3	23.4	17.3				
			251	848.8	29.4	23.3	23.4	17.3				
		3	128	824.2	27.3	21.1	23.1	16.8	28.4	22.9	24.1	18.6
			190	836.6	27.3	21.3	23.1	17.0				
			251	848.8	27.4	21.4	23.1	17.1				

Notes:

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

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

GSM 1900 Main Ant 2 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)			
					Measured		Tune-up Limit	
					Burst Pwr	Frame Pwr	Burst Pwr	Frame Pwr
GPRS/EDGE (GMSK)	CS1	1	512	1850.2	27.1	18.0	27.7	18.7
			661	1880.0	27.2	18.2		
			810	1909.8	27.1	18.1		
		2	512	1850.2	23.9	17.9	24.7	18.7
			661	1880.0	24.1	18.1		
			810	1909.8	24.0	18.0		
		3	512	1850.2	22.0	17.8	22.9	18.6
			661	1880.0	22.4	18.2		
			810	1909.8	22.3	18.1		
		4	512	1850.2	21.1	18.1	21.9	**18.9**
			661	1880.0	21.3	18.2		
			810	1909.8	21.1	18.1		
EDGE (8PSK)	MCS5	1	512	1850.2	26.2	17.1	26.7	17.7
			661	1880.0	26.6	17.6		
			810	1909.8	26.2	17.2		
		2	512	1850.2	23.2	17.2	23.7	17.7
			661	1880.0	23.2	17.2		
			810	1909.8	23.1	17.1		
		3	512	1850.2	21.5	17.2	21.9	17.6
			661	1880.0	21.8	17.6		
			810	1909.8	21.4	17.2		
		4	512	1850.2	20.0	17.0	20.7	17.7
			661	1880.0	20.4	17.4		
			810	1909.8	20.0	17.0		

Notes:

Based on the Tune-up Procedure, GPRS/EDGE (GMSK) mode with 4 time slots for Max power has maximum frame-averaged power.

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GSM 1900 DTM Main Ant 2 Measured Results

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Maximum Average Power (dBm)							
					Measured				Tune-up Limit			
					CS Burst Pwr	PS Burst Pwr	CS Frame Pwr	PS Frame Pwr	CS Burst Pwr	PS Burst Pwr	CS Frame Pwr	PS Frame Pwr
GSM (Voice) + GPRS/EDGE (GMSK)	CS1	1	512	1850.2	27.2		18.2		27.7		18.7	
			661	1880.0	27.4		18.4					
			810	1909.8	27.1		18.1					
		2	512	1850.2	23.3	23.6	17.3	17.5	24.7	24.7	**18.7**	**18.7**
			661	1880.0	23.4	23.6	17.3	17.6				
			810	1909.8	23.2	23.4	17.2	17.4				
		3	512	1850.2	21.3	21.3	17.1	17.0	22.9	22.9	18.6	18.6
			661	1880.0	21.4	21.4	17.1	17.1				
			810	1909.8	21.2	21.2	17.0	16.9				
GSM (Voice) + EDGE (8PSK)	MCS5	1	512	1850.2	27.2		18.2		27.7		18.7	
			661	1880.0	27.4		18.4					
			810	1909.8	27.1		18.1					
		2	512	1850.2	23.3	23.2	17.3	17.2	24.7	23.7	**18.7**	17.7
			661	1880.0	23.4	23.2	17.3	17.2				
			810	1909.8	23.2	23.1	17.2	17.1				
		3	512	1850.2	21.3	21.2	17.1	16.9	22.9	21.9	18.6	17.6
			661	1880.0	21.4	21.3	17.1	17.0				
			810	1909.8	21.2	21.1	17.0	16.8				

Notes:

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

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

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9.2. W-CDMA

Per KDB 941225 D01 3G SAR Procedures for W-CDMA:

Maximum output power is verified on the high, middle and low channels and using the appropriate 12.2 kbps RMC with TPC (transmit power control) set to all "1's"

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. A summary of these settings is illustrated below:

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

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to procedures in table C.10.1.4 of 3GPP TS 34.121-1
A summary of these settings is illustrated below:

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

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HSUPA Setup Procedures used to establish the test signals

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

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c . For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c .

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

HSPA+

DUT supports HSPA+ DL only. Therefore, conducted power measurements is not required.

Notes:

SAR measurement is not required for the HSDPA and HSUPA. When primary mode and the adjusted SAR is ≤ 1.2 W/kg and secondary mode is ≤ ¼ dB higher than the primary mode

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W-CDMA Band V Main Ant 1 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	21.7	N/A	22.7
		4183	836.6	21.8		
		4233	846.6	21.8		
HSDPA	Subtest 1	4132	826.4	21.1	0	22.0
		4183	836.6	20.8		
		4233	846.6	20.8		
	Subtest 2	4132	826.4	20.7	0	22.0
		4183	836.6	20.8		
		4233	846.6	20.8		
	Subtest 3	4132	826.4	20.2	0.5	21.5
		4183	836.6	20.3		
		4233	846.6	20.3		
	Subtest 4	4132	826.4	20.2	0.5	21.5
		4183	836.6	20.3		
		4233	846.6	20.3		
HSUPA	Subtest 1	4132	826.4	20.8	0	22.0
		4183	836.6	20.8		
		4233	846.6	20.8		
	Subtest 2	4132	826.4	18.7	2	20.0
		4183	836.6	18.8		
		4233	846.6	18.8		
	Subtest 3	4132	826.4	19.7	1	21.0
		4183	836.6	19.7		
		4233	846.6	19.8		
	Subtest 4	4132	826.4	18.7	2	20.0
		4183	836.6	18.8		
		4233	846.6	18.8		
	Subtest 5	4132	826.4	20.3	0	22.0
		4183	836.6	20.3		
		4233	846.6	20.3		

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9.3. LTE

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

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

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

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

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

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

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

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

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

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

For some LTE Bands, certain channel bandwidths do not support at least three non-overlapping channels. When a device supports overlapping channel assignments in a channel bandwidth configuration, the middle channel of the group of overlapping channels is selected for testing per KDB 941225 D05 SAR for LTE Devices.

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

Please refer to §6.3. for a detailed list of LTE test channels.

When the highest maximum output power for 16QAM and 64QAM is ≤ ½ dB higher than the QPSK or when the reported SAR for the QPSK configuration is ≤ 1.45 W/kg, SAR measurement is not required for 16QAM and 64QAM modes.

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LTE Band 4 Main Ant 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20050	20175	20300		
				1720 MHz	1732.5 MHz	1745 MHz		
20 MHz	QPSK	1	0	18.3	17.8	18.2	0	19.0
		1	49	18.2	17.7	18.1	0	19.0
		1	99	18.1	17.7	18.1	0	19.0
		50	0	18.3	17.8	18.2	0	19.0
		50	24	18.2	17.8	18.2	0	19.0
		50	50	18.2	17.7	18.2	0	19.0
		100	0	18.2	17.8	18.2	0	19.0
	16QAM	1	0	18.6	18.0	18.4	0	19.0
		1	49	18.7	18.0	18.5	0	19.0
		1	99	18.5	18.0	18.4	0	19.0
		50	0	18.3	17.8	18.2	0	19.0
		50	24	18.2	17.8	18.2	0	19.0
		50	50	18.2	17.8	18.2	0	19.0
		100	0	18.2	17.8	18.2	0	19.0
	64QAM	1	0	18.7	18.2	18.4	0	19.0
		1	49	18.7	18.0	18.4	0	19.0
		1	99	18.6	18.1	18.3	0	19.0
		50	0	18.4	17.8	18.2	0	19.0
		50	24	18.3	17.8	18.2	0	19.0
		50	50	18.3	17.8	18.2	0	19.0
		100	0	18.3	17.8	18.2	0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20025	20175	20325		
				1717.5 MHz	1732.5 MHz	1747.5 MHz		
15 MHz	QPSK	1	0	17.8	17.7	17.6	0	19.0
		1	37	17.8	17.7	17.7	0	19.0
		1	74	17.7	17.7	17.7	0	19.0
		36	0	17.8	17.8	17.7	0	19.0
		36	20	17.8	17.8	17.7	0	19.0
		36	39	17.8	17.7	17.7	0	19.0
		75	0	17.8	17.7	17.7	0	19.0
	16QAM	1	0	18.1	18.0	18.0	0	19.0
		1	37	18.1	17.9	18.0	0	19.0
		1	74	18.1	17.9	18.0	0	19.0
		36	0	17.9	17.8	17.7	0	19.0
		36	20	17.9	17.8	17.7	0	19.0
		36	39	17.7	17.8	17.8	0	19.0
		75	0	17.9	17.8	17.7	0	19.0
	64QAM	1	0	18.1	18.0	18.0	0	19.0
		1	37	18.1	18.0	18.0	0	19.0
		1	74	18.1	18.0	18.0	0	19.0
		36	0	17.9	17.8	17.7	0	19.0
		36	20	17.8	17.8	17.7	0	19.0
		36	39	17.8	17.8	17.8	0	19.0
		75	0	17.9	17.8	17.7	0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20000	20175	20350		
				1715 MHz	1732.5 MHz	1750 MHz		
10 MHz	QPSK	1	0	17.9	17.8	17.8	0	19.0
		1	25	17.9	17.9	17.9	0	19.0
		1	49	17.8	17.8	17.8	0	19.0
		25	0	18.0	17.9	17.8	0	19.0
		25	12	17.9	17.9	17.8	0	19.0
		25	25	17.9	17.9	17.9	0	19.0
		50	0	17.9	17.9	17.8	0	19.0
	16QAM	1	0	18.4	18.2	18.2	0	19.0
		1	25	18.2	18.1	18.1	0	19.0
		1	49	18.2	18.2	18.2	0	19.0
		25	0	18.0	17.9	17.8	0	19.0
		25	12	18.0	17.9	17.8	0	19.0
		25	25	17.9	17.9	17.9	0	19.0
		50	0	17.9	17.9	17.8	0	19.0
	64QAM	1	0	18.2	18.1	18.1	0	19.0
		1	25	18.1	18.1	18.2	0	19.0
		1	49	18.1	18.0	18.1	0	19.0
		25	0	18.0	17.9	17.8	0	19.0
		25	12	18.0	17.9	17.9	0	19.0
		25	25	17.9	17.9	17.9	0	19.0
		50	0	17.9	17.9	17.8	0	19.0

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LTE Band 4 Main Ant 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				19975	20175	20375		
				1712.5 MHz	1732.5 MHz	1752.5 MHz		
5 MHz	QPSK	1	0	17.9	17.8	17.7	0	19.0
		1	12	18.0	17.9	17.9	0	19.0
		1	24	17.9	17.8	17.8	0	19.0
		12	0	17.9	17.9	17.9	0	19.0
		12	7	18.0	17.9	17.9	0	19.0
		12	13	18.0	17.9	17.9	0	19.0
		25	0	17.9	17.9	17.9	0	19.0
	16QAM	1	0	18.3	18.2	18.2	0	19.0
		1	12	18.3	18.3	18.3	0	19.0
		1	24	18.3	18.2	18.2	0	19.0
		12	0	18.0	17.9	17.9	0	19.0
		12	7	18.0	17.9	18.0	0	19.0
		12	13	18.0	17.9	17.9	0	19.0
		25	0	18.0	17.9	17.9	0	19.0
	64QAM	1	0	18.3	18.1	18.0	0	19.0
		1	12	18.3	18.1	18.2	0	19.0
		1	24	18.2	18.1	18.1	0	19.0
		12	0	18.0	17.9	17.9	0	19.0
		12	7	18.1	18.0	17.9	0	19.0
		12	13	18.0	18.0	17.9	0	19.0
		25	0	18.0	17.9	17.9	0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				19965	20175	20385		
				1711.5 MHz	1732.5 MHz	1753.5 MHz		
3 MHz	QPSK	1	0	17.9	17.8	17.8	0	19.0
		1	8	18.0	17.8	17.9	0	19.0
		1	14	17.9	17.8	17.8	0	19.0
		8	0	18.0	17.8	17.8	0	19.0
		8	4	18.0	17.9	17.9	0	19.0
		8	7	18.0	17.9	17.9	0	19.0
		15	0	18.0	17.8	17.8	0	19.0
	16QAM	1	0	18.3	18.1	18.1	0	19.0
		1	8	18.3	18.2	18.2	0	19.0
		1	14	18.2	18.0	18.1	0	19.0
		8	0	18.1	17.9	17.9	0	19.0
		8	4	18.1	18.0	17.9	0	19.0
		8	7	18.1	18.0	17.9	0	19.0
		15	0	18.0	17.9	17.9	0	19.0
	64QAM	1	0	18.2	18.0	18.2	0	19.0
		1	8	18.3	18.1	18.2	0	19.0
		1	14	18.2	18.1	18.1	0	19.0
		8	0	18.0	17.9	17.9	0	19.0
		8	4	18.1	18.0	17.9	0	19.0
		8	7	18.0	17.9	17.9	0	19.0
		15	0	18.0	17.9	17.9	0	19.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				19957	20175	20393		
				1710.7 MHz	1732.5 MHz	1754.3 MHz		
1.4 MHz	QPSK	1	0	18.0	17.8	17.8	0	19.0
		1	3	18.0	17.8	17.8	0	19.0
		1	5	18.0	17.8	17.8	0	19.0
		3	0	18.0	17.8	17.8	0	19.0
		3	1	18.0	17.8	17.8	0	19.0
		3	3	18.0	17.8	17.8	0	19.0
		6	0	18.0	17.8	17.8	0	19.0
	16QAM	1	0	18.3	18.1	18.2	0	19.0
		1	3	18.3	18.2	18.2	0	19.0
		1	5	18.3	18.2	18.2	0	19.0
		3	0	18.1	18.0	18.0	0	19.0
		3	1	18.2	18.0	18.1	0	19.0
		3	3	18.2	18.0	18.1	0	19.0
		6	0	18.0	17.9	17.9	0	19.0
	64QAM	1	0	18.3	18.2	18.1	0	19.0
		1	3	18.3	18.2	18.2	0	19.0
		1	5	18.2	18.2	18.2	0	19.0
		3	0	18.1	18.0	18.0	0	19.0
		3	1	18.1	18.0	18.0	0	19.0
		3	3	18.1	18.0	17.9	0	19.0
		6	0	18.0	17.9	17.9	0	19.0

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LTE Band 5 Main Ant 1 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20450	20525	20600		
				829 MHz	836.5 MHz	844 MHz		
10 MHz	QPSK	1	0	21.0	20.9	21.1	0	22.0
		1	25	21.0	20.9	21.1	0	22.0
		1	49	21.1	20.9	20.9	0	22.0
		25	0	21.0	20.9	21.1	0	22.0
		25	12	21.1	20.9	21.1	0	22.0
		25	25	21.1	20.9	21.0	0	22.0
		50	0	21.0	20.8	21.0	0	22.0
	16QAM	1	0	21.4	21.2	21.1	0	22.0
		1	25	21.3	21.2	21.4	0	22.0
		1	49	21.4	21.2	21.3	0	22.0
		25	0	21.0	20.9	21.1	0	22.0
		25	12	21.1	20.9	21.1	0	22.0
		25	25	21.0	20.9	21.1	0	22.0
		50	0	21.1	20.9	21.0	0	22.0
	64QAM	1	0	21.3	21.0	21.2	0	22.0
		1	25	21.2	21.2	21.2	0	22.0
		1	49	21.4	21.0	21.1	0	22.0
		25	0	21.0	20.9	20.9	0	22.0
		25	12	21.1	20.9	20.9	0	22.0
		25	25	21.0	20.9	20.8	0	22.0
		50	0	20.9	20.9	20.9	0	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20425	20525	20625		
				826.5 MHz	836.5 MHz	846.5 MHz		
5 MHz	QPSK	1	0	20.8	20.9	20.8	0	22.0
		1	12	20.9	21.0	20.9	0	22.0
		1	24	20.7	20.8	20.8	0	22.0
		12	0	20.8	20.9	20.8	0	22.0
		12	7	20.9	20.8	20.9	0	22.0
		12	13	20.8	20.9	20.9	0	22.0
		25	0	20.8	20.8	20.7	0	22.0
	16QAM	1	0	21.1	21.2	21.2	0	22.0
		1	12	21.2	21.3	21.3	0	22.0
		1	24	21.1	21.2	21.2	0	22.0
		12	0	21.0	20.8	20.8	0	22.0
		12	7	21.0	20.8	20.8	0	22.0
		12	13	20.9	21.0	20.8	0	22.0
		25	0	20.9	20.9	20.8	0	22.0
	64QAM	1	0	21.1	21.1	21.1	0	22.0
		1	12	21.1	21.1	21.3	0	22.0
		1	24	21.1	21.0	21.2	0	22.0
		12	0	20.8	20.8	20.9	0	22.0
		12	7	20.8	20.9	21.0	0	22.0
		12	13	20.8	20.9	20.9	0	22.0
		25	0	20.9	20.8	20.8	0	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20415	20525	20635		
				825.5 MHz	836.5 MHz	847.5 MHz		
3 MHz	QPSK	1	0	20.7	20.7	20.8	0	22.0
		1	8	20.8	21.0	20.9	0	22.0
		1	14	20.7	20.8	20.8	0	22.0
		8	0	20.8	20.8	20.8	0	22.0
		8	4	20.9	20.8	20.9	0	22.0
		8	7	20.9	20.9	20.9	0	22.0
		15	0	20.8	20.8	20.8	0	22.0
	16QAM	1	0	21.2	21.1	21.1	0	22.0
		1	8	21.2	21.2	21.2	0	22.0
		1	14	21.1	21.1	21.1	0	22.0
		8	0	20.9	20.9	20.9	0	22.0
		8	4	20.9	21.0	20.9	0	22.0
		8	7	20.9	21.0	20.9	0	22.0
		15	0	20.9	20.8	20.9	0	22.0
	64QAM	1	0	21.1	21.0	21.1	0	22.0
		1	8	21.1	21.1	21.2	0	22.0
		1	14	21.0	21.1	21.1	0	22.0
		8	0	20.9	20.9	20.9	0	22.0
		8	4	20.9	20.9	21.0	0	22.0
		8	7	20.9	21.0	21.0	0	22.0
		15	0	20.8	20.8	20.9	0	22.0

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LTE Band 5 Main Ant 1 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20407	20525	20643		
				824.7 MHz	836.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	20.8	20.8	20.8	0	22.0
		1	3	20.8	20.9	20.8	0	22.0
		1	5	20.8	20.9	20.8	0	22.0
		3	0	20.8	20.8	20.8	0	22.0
		3	1	20.8	20.8	20.8	0	22.0
		3	3	20.8	20.9	20.8	0	22.0
		6	0	20.8	20.8	20.8	0	22.0
	16QAM	1	0	21.2	21.2	21.0	0	22.0
		1	3	21.2	21.3	21.0	0	22.0
		1	5	21.1	21.3	21.0	0	22.0
		3	0	21.1	21.1	20.9	0	22.0
		3	1	21.1	21.1	20.9	0	22.0
		3	3	21.0	21.1	21.0	0	22.0
		6	0	20.9	20.9	20.9	0	22.0
	64QAM	1	0	21.1	21.0	21.1	0	22.0
		1	3	21.2	21.2	21.2	0	22.0
		1	5	21.1	21.1	21.1	0	22.0
		3	0	20.9	21.0	21.0	0	22.0
		3	1	20.9	20.9	21.0	0	22.0
		3	3	20.9	21.0	20.9	0	22.0
		6	0	20.9	20.9	20.9	0	22.0

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LTE Band 12 Main Ant 1 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23060	23095	23130		
				704 MHz	707.5 MHz	711 MHz		
10 MHz	QPSK	1	0	20.7	20.7	20.7	0	22.0
		1	25	20.7	20.7	20.7	0	22.0
		1	49	20.6	20.8	20.7	0	22.0
		25	0	20.5	20.7	20.8	0	22.0
		25	12	20.7	20.7	20.8	0	22.0
		25	25	20.8	20.8	20.8	0	22.0
		50	0	20.8	20.6	20.7	0	22.0
	16QAM	1	0	21.0	21.0	21.0	0	22.0
		1	25	21.0	21.0	21.1	0	22.0
		1	49	21.1	21.1	21.0	0	22.0
		25	0	20.6	20.8	20.7	0	22.0
		25	12	20.7	20.7	20.8	0	22.0
		25	25	20.7	20.8	20.9	0	22.0
		50	0	20.7	20.6	20.7	0	22.0
	64QAM	1	0	21.0	21.0	20.9	0	22.0
		1	25	21.0	21.0	21.1	0	22.0
		1	49	21.0	21.0	20.8	0	22.0
		25	0	20.6	20.7	20.7	0	22.0
		25	12	20.7	20.7	20.8	0	22.0
		25	25	20.6	20.7	20.7	0	22.0
		50	0	20.8	20.6	20.7	0	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23035	23095	23155		
				701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	20.7	20.6	20.8	0	22.0
		1	12	20.7	20.8	20.8	0	22.0
		1	24	20.5	20.7	20.7	0	22.0
		12	0	20.6	20.6	20.7	0	22.0
		12	7	20.6	20.7	20.7	0	22.0
		12	13	20.6	20.8	20.8	0	22.0
		25	0	20.6	20.6	20.7	0	22.0
	16QAM	1	0	21.0	20.9	21.1	0	22.0
		1	12	21.1	21.1	21.1	0	22.0
		1	24	20.9	21.0	21.0	0	22.0
		12	0	20.7	20.6	20.7	0	22.0
		12	7	20.8	20.6	20.7	0	22.0
		12	13	20.7	20.7	20.7	0	22.0
		25	0	20.7	20.7	20.7	0	22.0
	64QAM	1	0	20.8	21.0	21.0	0	22.0
		1	12	20.9	21.1	21.0	0	22.0
		1	24	20.9	20.9	20.9	0	22.0
		12	0	20.6	20.7	20.7	0	22.0
		12	7	20.6	20.7	20.8	0	22.0
		12	13	20.6	20.8	20.8	0	22.0
		25	0	20.7	20.6	20.7	0	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23025	23095	23165		
				700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	20.6	20.6	20.7	0	22.0
		1	8	20.7	20.7	20.8	0	22.0
		1	14	20.6	20.6	20.7	0	22.0
		8	0	20.6	20.6	20.7	0	22.0
		8	4	20.7	20.7	20.8	0	22.0
		8	7	20.7	20.7	20.8	0	22.0
		15	0	20.7	20.6	20.7	0	22.0
	16QAM	1	0	21.0	21.0	21.0	0	22.0
		1	8	21.1	21.2	21.1	0	22.0
		1	14	21.0	21.0	21.0	0	22.0
		8	0	20.8	20.7	20.8	0	22.0
		8	4	20.7	20.8	20.8	0	22.0
		8	7	20.8	20.8	20.8	0	22.0
		15	0	20.7	20.7	20.8	0	22.0
	64QAM	1	0	20.8	20.8	21.0	0	22.0
		1	8	20.9	21.0	21.1	0	22.0
		1	14	20.8	20.9	21.0	0	22.0
		8	0	20.8	20.7	20.8	0	22.0
		8	4	20.8	20.8	20.8	0	22.0
		8	7	20.8	20.8	20.9	0	22.0
		15	0	20.7	20.6	20.8	0	22.0

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LTE Band 12 Main Ant 1 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23017	23095	23173		
				699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	20.6	20.6	20.8	0	22.0
		1	3	20.6	20.7	20.8	0	22.0
		1	5	20.6	20.7	20.7	0	22.0
		3	0	20.6	20.7	20.7	0	22.0
		3	1	20.6	20.6	20.7	0	22.0
		3	3	20.6	20.7	20.7	0	22.0
		6	0	20.6	20.7	20.8	0	22.0
	16QAM	1	0	20.9	21.0	21.1	0	22.0
		1	3	20.8	21.0	21.1	0	22.0
		1	5	20.8	21.0	21.1	0	22.0
		3	0	20.9	20.9	20.9	0	22.0
		3	1	20.8	20.9	20.9	0	22.0
		3	3	20.8	20.8	21.0	0	22.0
		6	0	20.7	20.7	20.8	0	22.0
	64QAM	1	0	20.9	20.9	21.0	0	22.0
		1	3	21.0	21.0	21.0	0	22.0
		1	5	20.9	20.9	21.0	0	22.0
		3	0	20.8	20.8	20.9	0	22.0
		3	1	20.8	20.7	20.9	0	22.0
		3	3	20.8	20.7	20.9	0	22.0
		6	0	20.7	20.7	20.9	0	22.0

LTE Band 13 Main Ant 1 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
					23230			
					782 MHz			
10 MHz	QPSK	1	0		21.0		0	22.0
		1	25		21.0		0	22.0
		1	49		20.8		0	22.0
		25	0		21.0		0	22.0
		25	12		20.9		0	22.0
		25	25		20.9		0	22.0
		50	0		21.0		0	22.0
	16QAM	1	0		21.4		0	22.0
		1	25		21.3		0	22.0
		1	49		21.3		0	22.0
		25	0		21.0		0	22.0
		25	12		21.0		0	22.0
		25	25		21.0		0	22.0
		50	0		21.1		0	22.0
	64QAM	1	0		21.2		0	22.0
		1	25		21.3		0	22.0
		1	49		21.2		0	22.0
		25	0		21.0		0	22.0
		25	12		21.0		0	22.0
		25	25		21.0		0	22.0
		50	0		21.0		0	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				23205	23230	23255		
				779.5	782 MHz	784.5		
5 MHz	QPSK	1	0	21.1	21.0	21.1	0	22.0
		1	12	21.1	21.1	21.1	0	22.0
		1	24	20.9	20.9	21.1	0	22.0
		12	0	21.0	21.0	21.1	0	22.0
		12	7	21.1	21.0	21.1	0	22.0
		12	13	21.1	21.0	21.1	0	22.0
		25	0	20.9	20.9	21.1	0	22.0
	16QAM	1	0	21.4	21.3	21.5	0	22.0
		1	12	21.6	21.5	21.5	0	22.0
		1	24	21.3	21.3	21.3	0	22.0
		12	0	21.1	21.0	21.0	0	22.0
		12	7	21.1	21.0	21.0	0	22.0
		12	13	21.1	21.1	20.9	0	22.0
		25	0	21.1	21.0	21.1	0	22.0
	64QAM	1	0	21.4	21.2	21.3	0	22.0
		1	12	21.5	21.4	21.4	0	22.0
		1	24	21.4	21.3	21.4	0	22.0
		12	0	21.1	21.0	21.2	0	22.0
		12	7	21.0	21.0	21.2	0	22.0
		12	13	21.2	21.0	21.1	0	22.0
		25	0	21.1	21.0	21.1	0	22.0

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LTE Band 41 Main Ant 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (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	18.8	18.8	18.8	18.7	18.7	0	20.0
		1	49	18.8	18.8	18.7	18.6	18.7	0	20.0
		1	99	18.8	18.7	18.9	18.7	18.7	0	20.0
		50	0	18.9	18.9	18.9	18.7	18.7	0	20.0
		50	24	18.9	18.9	18.9	18.7	18.8	0	20.0
		50	50	18.9	18.9	18.9	18.7	18.8	0	20.0
		100	0	18.9	18.9	18.8	18.7	18.8	0	20.0
	16QAM	1	0	18.9	18.9	18.9	18.8	18.8	0	20.0
		1	49	19.0	19.0	19.1	18.8	18.9	0	20.0
		1	99	18.8	18.8	18.8	18.7	18.9	0	20.0
		50	0	18.9	18.9	18.9	18.7	18.7	0	20.0
		50	24	18.9	18.9	18.9	18.8	18.8	0	20.0
		50	50	18.9	18.9	18.9	18.7	18.8	0	20.0
		100	0	18.9	18.9	18.9	18.7	18.8	0	20.0
	64QAM	1	0	18.8	18.8	18.9	18.7	18.8	0	20.0
		1	49	18.9	18.8	19.0	18.6	18.9	0	20.0
		1	99	18.8	18.7	18.9	18.7	18.9	0	20.0
		50	0	18.9	18.9	18.9	18.7	18.7	0	20.0
		50	24	18.9	18.9	18.9	18.8	18.8	0	20.0
		50	50	18.9	18.9	18.9	18.8	18.8	0	20.0
		100	0	18.9	18.9	18.9	18.7	18.8	0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (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	18.8	18.8	18.8	18.6	18.6	0	20.0
		1	37	18.8	18.8	18.8	18.6	18.6	0	20.0
		1	74	18.7	18.9	18.8	18.7	18.7	0	20.0
		36	0	18.9	18.9	18.8	18.7	18.7	0	20.0
		36	20	18.9	18.9	18.8	18.7	18.8	0	20.0
		36	39	18.8	18.9	18.8	18.7	18.7	0	20.0
		75	0	18.8	18.9	18.8	18.7	18.7	0	20.0
	16QAM	1	0	18.9	18.8	18.8	18.7	18.6	0	20.0
		1	37	18.9	18.8	18.9	18.7	18.7	0	20.0
		1	74	18.8	18.9	18.9	18.7	18.8	0	20.0
		36	0	18.9	18.9	18.9	18.7	18.7	0	20.0
		36	20	18.9	18.9	18.9	18.7	18.7	0	20.0
		36	39	18.8	18.9	18.8	18.7	18.8	0	20.0
		75	0	18.9	18.9	18.8	18.7	18.8	0	20.0
	64QAM	1	0	18.7	18.9	18.7	18.6	18.7	0	20.0
		1	37	18.8	18.9	18.8	18.7	18.7	0	20.0
		1	74	18.7	18.9	18.8	18.7	18.8	0	20.0
		36	0	18.9	18.9	18.8	18.7	18.7	0	20.0
		36	20	18.9	18.9	18.9	18.7	18.8	0	20.0
		36	39	18.9	18.8	18.9	18.7	18.7	0	20.0
		75	0	18.9	18.9	18.9	18.7	18.7	0	20.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (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	18.9	18.9	18.9	18.7	18.8	0	20.0
		1	25	18.9	18.9	18.9	18.8	18.8	0	20.0
		1	49	18.9	18.9	18.9	18.7	18.8	0	20.0
		25	0	19.0	19.0	19.0	18.8	18.8	0	20.0
		25	12	19.0	19.0	19.0	18.9	18.9	0	20.0
		25	25	19.0	19.0	19.0	18.8	18.9	0	20.0
		50	0	19.0	19.0	19.0	18.8	18.9	0	20.0
	16QAM	1	0	19.0	19.0	19.0	18.9	18.9	0	20.0
		1	25	19.1	19.1	19.1	18.9	19.0	0	20.0
		1	49	19.0	19.0	19.0	18.9	18.9	0	20.0
		25	0	19.0	19.0	19.0	18.9	18.8	0	20.0
		25	12	19.0	19.0	19.0	18.9	18.9	0	20.0
		25	25	19.0	19.0	19.0	18.9	18.9	0	20.0
		50	0	19.0	19.0	19.0	18.8	18.9	0	20.0
	64QAM	1	0	19.0	19.0	18.9	18.7	18.8	0	20.0
		1	25	19.0	19.0	19.0	18.8	18.9	0	20.0
		1	49	19.0	19.0	18.9	18.8	18.8	0	20.0
		25	0	19.0	19.0	19.0	18.8	18.8	0	20.0
		25	12	19.0	19.0	19.0	18.9	18.9	0	20.0
		25	25	19.0	19.0	19.0	18.8	18.9	0	20.0
		50	0	19.0	19.0	19.0	18.8	18.9	0	20.0

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LTE Band 41 Main Ant 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)					MPR	Tune-up Limit
				39750	40185	40620	41055	41490		
				2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		
5 MHz	QPSK	1	0	18.9	18.9	18.9	18.7	18.8	0	20.0
		1	12	19.0	19.0	19.0	18.9	18.9	0	20.0
		1	24	18.9	18.9	18.9	18.7	18.8	0	20.0
		12	0	19.0	18.9	18.9	18.8	18.9	0	20.0
		12	7	19.0	19.0	19.0	18.8	18.9	0	20.0
		12	13	18.9	19.0	18.9	18.8	18.9	0	20.0
		25	0	18.9	19.0	18.9	18.8	18.8	0	20.0
	16QAM	1	0	18.9	18.9	19.0	18.8	18.8	0	20.0
		1	12	19.0	19.0	19.0	18.9	18.9	0	20.0
		1	24	18.9	18.9	19.0	18.8	18.8	0	20.0
		12	0	18.9	19.0	18.9	18.8	18.9	0	20.0
		12	7	18.9	19.0	18.9	18.8	18.9	0	20.0
		12	13	18.9	19.0	18.9	18.8	18.9	0	20.0
		25	0	18.9	18.9	18.9	18.8	18.9	0	20.0
	64QAM	1	0	19.0	18.9	18.9	18.8	18.9	0	20.0
		1	12	19.0	19.0	19.0	18.9	18.9	0	20.0
		1	24	19.0	18.9	18.9	18.8	18.9	0	20.0
		12	0	19.0	18.9	18.9	18.9	18.9	0	20.0
		12	7	19.0	18.9	19.0	18.8	18.9	0	20.0
		12	13	19.0	18.9	18.9	18.8	18.9	0	20.0
		25	0	19.0	19.0	18.9	18.8	18.9	0	20.0

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9.4. Wi-Fi 2.4GHz (DTS Band)

Maximum Output Power (Tune-up Limit) for Wi-Fi 2.4 GHz

The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures.

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 802.11g/n/ac/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.

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.

The Tune-Up Limits are the same between both MIMO and SISO transmission.

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Wi-Fi 2.4GHz Normal State Measured Results

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Normal Average Power(dBm)			Chain 1 Normal Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
DSSS 2.4 GHz	802.11b	1	2412	13.4	14.5	Yes	12.5	12.7	Yes
		6	2437	13.9	14.5		12.7	12.7	
		11	2462	13.3	14.5		12.6	12.7	
OFDM 2.4 GHz	802.11g	1	2412	13.2	14.0	No	13.1	14.0	No
		2	2417	14.0	15.0		14.2	15.0	
		6	2437	13.6	15.0		14.4	15.0	
		10	2457	13.9	15.0		14.5	15.0	
		11	2462	12.6	13.5		13.1	13.5	
	802.11n (HT20)	1	2412	12.2	13.5	No	12.7	13.5	No
		2	2417	13.8	15.0		14.1	15.0	
		6	2437	13.6	15.0		14.3	15.0	
		10	2457	13.7	15.0		14.4	15.0	
		11	2462	11.4	13.0		12.7	13.0	
OFDMA 2.4 GHz	802.11ax (HE20) 242T	1	2412	12.5	13.5	No	12.7	13.5	No
		2	2417	14.0	15.0		14.1	15.0	
		6	2437	13.6	15.0		14.2	15.0	
		10	2457	13.9	15.0		14.3	15.0	
		11	2462	11.5	13.0		12.7	13.0	

Wi-Fi 2.4GHz Simultaneous 2G_5G State Measured Results

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Simultaneous Average Power(dBm)			Chain 1 Simultaneous Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
DSSS 2.4 GHz	802.11b	1	2412	10.2	11.0	Yes	10.3	11.0	Yes
		6	2437	9.8	11.0		10.6	11.0	
		11	2462	10.1	11.0		10.5	11.0	
OFDM 2.4 GHz	802.11g	1	2412	10.3	11.0	No	10.1	11.0	No
		6	2437	9.9	11.0		10.5	11.0	
		11	2462	10.0	11.0		10.5	11.0	
	802.11n (HT20)	1	2412	10.3	11.0	No	10.0	11.0	No
		6	2437	9.9	11.0		10.5	11.0	
		11	2462	9.9	11.0		10.7	11.0	
OFDMA 2.4 GHz	802.11ax (HE20) 242T	1	2412	10.4	11.0	No	10.3	11.0	No
		6	2437	10.0	11.0		10.6	11.0	
		11	2462	9.9	11.0		10.6	11.0	

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Duty Factor Measured Results

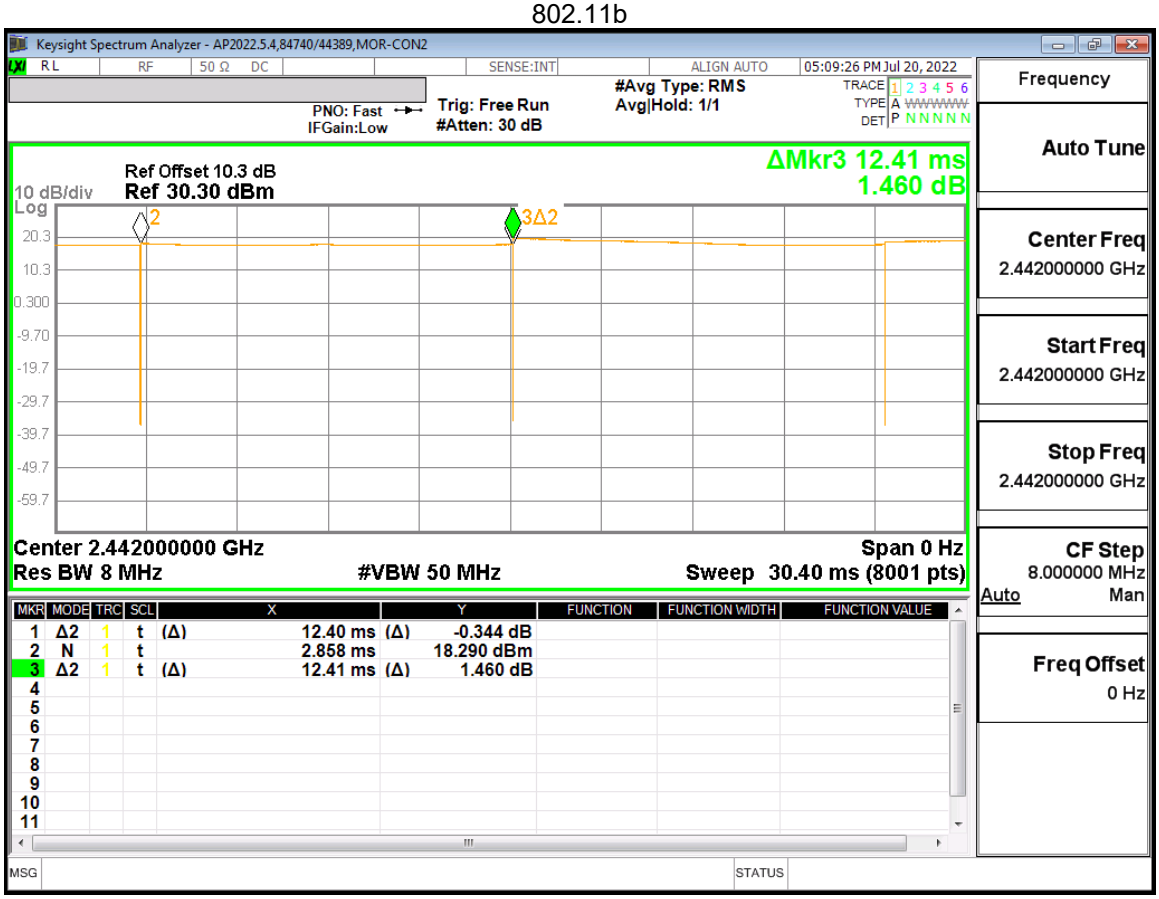
Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
802.11b	1 Mb	12.4	12.410	99.92%	1.00

Note(s):

Duty Cycle = (T on / period) * 100%

WLAN 2.4GHz Duty Cycle

802.11b



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

Maximum Output Power (Tune-up Limit) for Wi-Fi 5 GHz

When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/n/ac/ax modes, the channel in the lower order/sequence 802.11 transmission mode is selected.

The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures.

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/n/ac/ax mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.

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. Hotspot mode is supported in U-NII Band 1. Therefore, Hotspot mode was tested separately for SAR for U-NII Band 1.

The Tune-Up Limits are the same between both MIMO and SISO transmission.

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Wi-Fi 5 GHz Normal State Measured Results

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Normal Average Power(dBm)			Chain 1 Normal Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-1 5.2 GHz	802.11a	36	5180		11.5	No		11.5	No
		40	5200		11.5			11.5	
		44	5220		11.5			11.5	
		48	5240		11.5			11.5	
	802.11n (HT20)	36	5180		11.5	No		11.5	No
		40	5200		11.5			11.5	
		44	5220		11.5			11.5	
		48	5240		11.5			11.5	
	802.11ac (VHT20)	36	5180		11.5	No		11.5	No
		40	5200		11.5			11.5	
		44	5220		11.5			11.5	
		48	5240		11.5			11.5	
	802.11ax (HE20) 242T	36	5180		11.5	No		11.5	No
		40	5200		11.5			11.5	
		44	5220		11.5			11.5	
		48	5240		11.5			11.5	
	802.11n (HT40)	38	5190		11.5	No		11.5	No
		46	5230		11.5			11.5	
	802.11ac (VHT40)	38	5190		11.5	No		11.5	No
		46	5230		11.5			11.5	
	802.11ax (HE40) 484T	38	5190		11.5	No		11.5	No
		46	5230		11.5			11.5	
	802.11ac (VHT80)	42	5210	11.1	11.5	Yes	11.4	11.5	Yes
	802.11ax (HE80) 996T	42	5210		11.5	No		11.5	No

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Normal Average Power(dBm)			Chain 1 Normal Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2A 5.3 GHz	802.11a	52	5260		11.5	No		11.5	No
		56	5280		11.5			11.5	
		60	5300		11.5			11.5	
		64	5320		11.5			11.5	
	802.11n (HT20)	52	5260		11.5	No		11.5	No
		56	5280		11.5			11.5	
		60	5300		11.5			11.5	
		64	5320		11.5			11.5	
	802.11ac (VHT20)	52	5260		11.5	No		11.5	No
		56	5280		11.5			11.5	
		60	5300		11.5			11.5	
		64	5320		11.5			11.5	
	802.11ax (HE20) 242T	52	5260		11.5	No		11.5	No
		56	5280		11.5			11.5	
		60	5300		11.5			11.5	
		64	5320		11.5			11.5	
	802.11n (HT40)	54	5270		11.5	No		11.5	No
		62	5310		11.5			11.5	
	802.11ac (VHT40)	54	5270		11.5	No		11.5	No
		62	5310		11.5			11.5	
	802.11ax (HE40) 484T	54	5270		11.5	No		11.5	No
		62	5310		11.5			11.5	
	802.11ac (VHT80)	58	5290		11.5	No		11.5	No
	802.11ax (HE80) 996T	58	5290		11.5	No		11.5	No
UNII-1 & 2A	802.11ac (VHT160)	50	5250	11.4	11.5	Yes	11.3	11.5	Yes
	802.11ax (HE160) 996T*2	50	5250		11.5	No		11.5	No

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Wi-Fi 5 GHz Normal State Measured Results (continued)

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Normal Average Power(dBm)			Chain 1 Normal Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2C 5.5 GHz	802.11a	100	5500		11.5	No		11.5	No
		116	5580		11.5			11.5	
		124	5620		11.5			11.5	
		144	5720		11.5			11.5	
	802.11n (HT20)	100	5500		11.5	No		11.5	No
		116	5580		11.5			11.5	
		124	5620		11.5			11.5	
		144	/5720		11.5			11.5	
	802.11ac (VHT20)	100	5500		11.5	No		11.5	No
		116	5580		11.5			11.5	
		124	5620		11.5			11.5	
		144	/5720		11.5			11.5	
	802.11ax (HE20) 242T	100	5500		11.5	No		11.5	No
		116	5580		11.5			11.5	
		124	5620		11.5			11.5	
		144	/5720		11.5			11.5	
	802.11n (HT40)	102	5510		11.5	No		11.5	No
		118	5590		11.5			11.5	
		126	5630		11.5			11.5	
		142	5710		11.5			11.5	
	802.11ac (VHT40)	102	5510		11.5	No		11.5	No
		118	5590		11.5			11.5	
		126	5630		11.5			11.5	
		142	5710		11.5			11.5	
	802.11ax (HE40) 484T	102	5510		11.5	No		11.5	No
		118	5590		11.5			11.5	
		126	5630		11.5			11.5	
		142	5710		11.5			11.5	
	802.11ac (VHT80)	106	5530		11.5	No		11.5	No
		122	5610		11.5			11.5	
		138	5690		11.5			11.5	
	802.11ax (HE80) 996T	106	5530		11.5	No		11.5	No
		122	5610		11.5			11.5	
		138	5690		11.5			11.5	
UNII-2C 5.5 GHz	802.11ac (VHT160)	114	5570	11.4	11.5	Yes	11.1	11.5	Yes
	802.11ax (HE160) 996T*2	114	5570		11.5	No		11.5	No

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Normal Average Power(dBm)			Chain 1 Normal Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-3 5.8 GHz	802.11a	149	5745		11.5	No		11.5	No
		157	5785		11.5			11.5	
		165	5825		11.5			11.5	
	802.11n (HT20)	149	5745		11.0	No		11.0	No
		157	5785		11.5			11.5	
		165	5825		11.5			11.5	
	802.11ac (VHT20)	149	5745		11.0	No		11.0	No
		157	5785		11.5			11.5	
		165	5825		11.5			11.5	
	802.11ax (HE20) 242T	149	5745		11.0	No		11.0	No
		157	5785		11.5			11.5	
		165	5825		11.5			11.5	
	802.11n (HT40)	151	5755		11.0	No		11.0	No
		159	5795		11.5			11.5	
	802.11ac (VHT40)	151	5755		11.0	No		11.0	No
		159	5795		11.5			11.5	
	802.11ax (HE40) 484T	151	5755		11.0	No		11.0	No
		159	5795		11.5			11.5	
	802.11ac (VHT80)	155	5775	10.9	11.5	Yes	11.2	11.5	Yes
	802.11ax (HE80) 996T	155	5775		11.5	No		11.5	No

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Wi-Fi 5 GHz Simultaneous 2G_5G State Measured Results

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Simulatenous Average Power(dBm)			Chain 1 Simultaneous Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-1 5.2 GHz	802.11a	36	5180		9.5	No		9.5	No
		40	5200		9.5			9.5	
		44	5220		9.5			9.5	
		48	5240		9.5			9.5	
	802.11n (HT20)	36	5180		9.5	No		9.5	No
		40	5200		9.5			9.5	
		44	5220		9.5			9.5	
		48	5240		9.5			9.5	
	802.11ac (VHT20)	36	5180		9.5	No		9.5	No
		40	5200		9.5			9.5	
		44	5220		9.5			9.5	
		48	5240		9.5			9.5	
	802.11ax (HE20) 242T	36	5180		9.5	No		9.5	No
		40	5200		9.5			9.5	
		44	5220		9.5			9.5	
		48	5240		9.5			9.5	
	802.11n (HT40)	38	5190		9.5	No		9.5	No
		46	5230		9.5			9.5	
	802.11ac (VHT40)	38	5190		9.5	No		9.5	No
		46	5230		9.5			9.5	
	802.11ax (HE40) 484T	38	5190		9.5	No		9.5	No
		46	5230		9.5			9.5	
	802.11ac (VHT80)	42	5210	8.7	9.5	Yes	8.5	9.5	Yes
	802.11ax (HE80) 996T	42	5210		9.5	No		9.5	No

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Simulatenous Average Power(dBm)			Chain 1 Simultaneous Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2A 5.3 GHz	802.11a	52	5260		9.5	No		9.5	No
		56	5280		9.5			9.5	
		60	5300		9.5			9.5	
		64	5320		9.5			9.5	
	802.11n (HT20)	52	5260		9.5	No		9.5	No
		56	5280		9.5			9.5	
		60	5300		9.5			9.5	
		64	5320		9.5			9.5	
	802.11ac (VHT20)	52	5260		9.5	No		9.5	No
		56	5280		9.5			9.5	
		60	5300		9.5			9.5	
		64	5320		9.5			9.5	
	802.11ax (HE20) 242T	52	5260		9.5	No		9.5	No
		56	5280		9.5			9.5	
		60	5300		9.5			9.5	
		64	5320		9.5			9.5	
	802.11n (HT40)	54	5270		9.5	No		9.5	No
		62	5310		9.5			9.5	
	802.11ac (VHT40)	54	5270		9.5	No		9.5	No
		62	5310		9.5			9.5	
	802.11ax (HE40) 484T	54	5270		9.5	No		9.5	No
		62	5310		9.5			9.5	
	802.11ac (VHT80)	58	5290		9.5	No		9.5	No
	802.11ax (HE80) 996T	58	5290		9.5	No		9.5	No
UNII-1 & 2A	802.11ac (VHT160)	50	5250	8.9	9.5	Yes	8.5	9.5	Yes
	802.11ax (HE160) 996T*2	50	5250		9.5	No		9.5	No

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Wi-Fi 5 GHz Simultaneous 2G_5G State Measured Results (continued)

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Simulatenous Average Power(dBm)			Chain 1 Simultaneous Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-2C 5.5 GHz	802.11a	100	5500		9.5	No		9.5	No
		116	5580		9.5			9.5	
		124	5620		9.5			9.5	
		144	5720		9.5			9.5	
	802.11n (HT20)	100	5500		9.5	No		9.5	No
		116	5580		9.5			9.5	
		124	5620		9.5			9.5	
		144	5720		9.5			9.5	
	802.11ac (VHT20)	100	5500		9.5	No		9.5	No
		116	5580		9.5			9.5	
		124	5620		9.5			9.5	
		144	5720		9.5			9.5	
	802.11ax (HE20) 242T	100	5500		9.5	No		9.5	No
		116	5580		9.5			9.5	
		124	5620		9.5			9.5	
		144	5720		9.5			9.5	
	802.11n (HT40)	102	5510		9.5	No		9.5	No
		118	5590		9.5			9.5	
		126	5630		9.5			9.5	
		142	5710		9.5			9.5	
	802.11ac (VHT40)	102	5510		9.5	No		9.5	No
		118	5590		9.5			9.5	
		126	5630		9.5			9.5	
		142	5710		9.5			9.5	
	802.11ax (HE40) 484T	102	5510		9.5	No		9.5	No
		118	5590		9.5			9.5	
		126	5630		9.5			9.5	
		142	5710		9.5			9.5	
	802.11ac (VHT80)	106	5530		9.5	No		9.5	No
		122	5610		9.5			9.5	
		138	5690		9.5			9.5	
	802.11ax (HE80) 996T	106	5530		9.5	No		9.5	No
		122	5610		9.5			9.5	
		138	5690		9.5			9.5	
UNII-2C 5.5 GHz	802.11ac (VHT160)	114	5570	8.8	9.5	Yes	8.9	9.5	Yes
	802.11ax (HE160) 996T*2	114	5570		9.5	No		9.5	No

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Simulatenous Average Power(dBm)			Chain 1 Simultaneous Average Power(dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
UNII-3 5.8 GHz	802.11a	149	5745		9.5	No		9.5	No
		157	5785		9.5			9.5	
		165	5825		9.5			9.5	
	802.11n (HT20)	149	5745		9.5	No		9.5	No
		157	5785		9.5			9.5	
		165	5825		9.5			9.5	
	802.11ac (VHT20)	149	5745		9.5	No		9.5	No
		157	5785		9.5			9.5	
		165	5825		9.5			9.5	
	802.11ax (HE20) 242T	149	5745		9.5	No		9.5	No
		157	5785		9.5			9.5	
		165	5825		9.5			9.5	
	802.11n (HT40)	151	5755		9.5	No		9.5	No
		159	5795		9.5			9.5	
	802.11ac (VHT40)	151	5755		9.5	No		9.5	No
		159	5795		9.5			9.5	
	802.11ax (HE40) 484T	151	5755		9.5	No		9.5	No
		159	5795		9.5			9.5	
	802.11ac (VHT80)	155	5775	9.0	9.5	Yes	8.9	9.5	Yes
	802.11ax (HE80) 996T	155	5775		9.5	No		9.5	No

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Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
802.11ac VHT80	MCS0	5.425	5.445	99.63%	1.00
802.11ac VHT160	MCS0	5.427	5.446	99.65%	1.00

Note(s):

Duty Cycle = (T on / period) * 100%

WLAN 5GHz Duty Cycle

802.11ac VHT80

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802.11ac VHT160

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9.6. Bluetooth

Maximum Output Power (Tune-up Limit) for Bluetooth

From October 2016 TCB workshop, Power and SAR measurements were performed with test software using DH5 modulation. The duty cycle value from the device is taken from the Duty Cycle plot below.

Bluetooth Measured Results

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Average Power (dBm)			Chain 1 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)	Meas Pwr	Tune-up	SAR Test (Yes/No)
2.4	BR GFSK	0	2402	13.83	14.00	Yes	13.35	14.00	Yes
		39	2441	13.89	14.00		13.74	14.00	
		78	2480	13.64	14.00		13.14	14.00	
	EDR, π/4 DQPSK	0	2402	12.49	13.00	No	12.18	13.00	No
		39	2441	12.62	13.00		12.63	13.00	
		78	2480	12.40	13.00		12.13	13.00	
	EDR, 8-DPSK	0	2402	12.58	13.00	No	12.17	13.00	No
		39	2441	12.57	13.00		12.69	13.00	
		78	2480	12.36	13.00		12.11	13.00	
	LE, GFSK	0	2402	10.01	10.79	No	9.82	10.79	No
		19	2440	9.88	10.79		10.29	10.79	
		39	2480	10.18	10.79		10.05	10.79	

Note(s):

SAR measurement is not required for the EDR and LE. When the secondary mode is ≤ ¼ dB higher than the primary mode.

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Duty Factor Measured Results

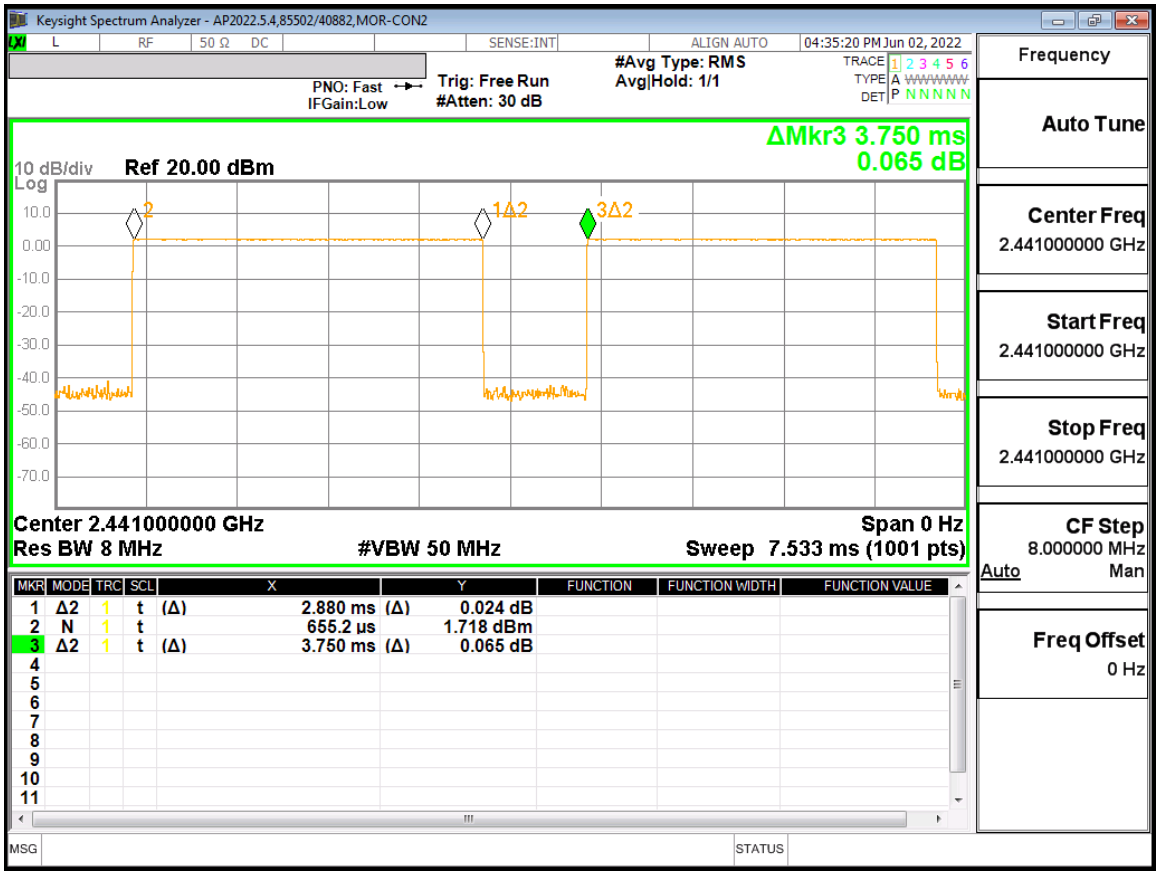
Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH1	2.88	3.750	76.80%	1.30

Note(s):

Duty Cycle = (T on / period) * 100%

Bluetooth Duty Cycle

GFSK



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10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

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

KDB 941225 D01 SAR test for 3G devices:

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

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

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

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KDB 248227 D01 SAR meas for 802.11:

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

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

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

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

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10.1. GSM 850

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Pow er (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up Limit	Meas.	Meas.	Scaled	
Head	GPRS 4 Slots	Main Ant 1	0	Left Touch	190	836.6	27.2	26.5	0.130	0.153	
				Left Tilt	190	836.6	27.2	26.5	0.090	0.106	
				Right Touch	190	836.6	27.2	26.5	0.139	**0.163**	1
				Right Tilt	190	836.6	27.2	26.5	0.091	0.107	
Body-w orn & Hotspot	GPRS 4 Slots	Main Ant 1	10	Rear	190	836.6	27.2	26.5	0.419	**0.492**	2
				Front	190	836.6	27.2	26.5	0.189	0.222	
Hotspot	GPRS 4 Slots	Main Ant 1	10	Edge 3	190	836.6	27.2	26.5	0.102	0.120	
				Edge 4	190	836.6	27.2	26.5	0.203	0.239	
Body-w orn & Hotspot	DTM (CS + 1 PS slot)	Main Ant 1	10	Rear	190	836.6	30.2	29.3	0.176	0.217	

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

10.2. GSM 1900

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Pow er (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up Limit	Meas.	Meas.	Scaled	
Head	GPRS 4 Slots	Main Ant 2	0	Left Touch	661	1880.0	21.9	21.3	0.011	0.013	
				Left Tilt	661	1880.0	21.9	21.3	0.006	0.007	
				Right Touch	661	1880.0	21.9	21.3	0.012	**0.014**	3
				Right Tilt	661	1880.0	21.9	21.3	0.002	0.002	
Body-w orn & Hotspot	GPRS 4 Slots	Main Ant 2	10	Rear	661	1880.0	21.9	21.3	0.065	0.075	
				Front	661	1880.0	21.9	21.3	0.078	**0.090**	4
Hotspot	GPRS 4 Slots	Main Ant 2	10	Edge 2	661	1880.0	21.9	21.3	0.053	0.061	
				Edge 3	661	1880.0	21.9	21.3	0.152	**0.175**	5
Hotspot	DTM (CS + 1 PS slot)	Main Ant 2	10	Edge 3	661	1880.0	24.7	23.6	0.087	0.112	

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

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10.3. W-CDMA Band V

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Pow er (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up Limit	Meas.	Meas.	Scaled	
Head	Rel. 99 RMC	Main Ant 1	0	Left Touch	4183	836.6	22.7	21.8	0.135	0.166	
				Left Tilt	4183	836.6	22.7	21.8	0.060	0.074	
				Right Touch	4183	836.6	22.7	21.8	0.151	**0.186**	6
				Right Tilt	4183	836.6	22.7	21.8	0.081	0.100	
Body-w orn & Hotspot	Rel. 99 RMC	Main Ant 1	10	Rear	4183	836.6	22.7	21.8	0.324	**0.399**	7
				Front	4183	836.6	22.7	21.8	0.175	0.215	
Hotspot	Rel. 99 RMC	Main Ant 1	10	Edge 3	4183	836.6	22.7	21.8	0.089	0.109	
				Edge 4	4183	836.6	22.7	21.8	0.153	0.188	

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

10.4. LTE Band 4 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Pow er (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	Main Ant 2	0	Left Touch	20175	1732.5	1	0	19.0	17.8	0.015	0.020	
							50	0	19.0	17.8	0.016	0.021	
				Left Tilt	20175	1732.5	1	0	19.0	17.8	0.013	0.017	
							50	0	19.0	17.8	0.013	0.017	
				Right Touch	20175	1732.5	1	0	19.0	17.8	0.015	0.020	
							50	0	19.0	17.8	0.018	**0.024**	8
				Right Tilt	20175	1732.5	1	0	19.0	17.8	0.008	0.011	
							50	0	19.0	17.8	0.008	0.011	
Body-w orn & Hotspot	QPSK	Main Ant 2	10	Rear	20175	1732.5	1	0	19.0	17.8	0.124	0.163	
							50	0	19.0	17.8	0.126	**0.166**	9
				Front	20175	1732.5	1	0	19.0	17.8	0.111	0.146	
							50	0	19.0	17.8	0.113	0.149	
Hotspot	QPSK	Main Ant 2	10	Edge 2	20175	1732.5	1	0	19.0	17.8	0.025	0.033	
							50	0	19.0	17.8	0.025	0.033	
				Edge 3	20175	1732.5	1	0	19.0	17.8	0.256	0.337	
							50	0	19.0	17.8	0.264	**0.348**	10

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

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10.5. LTE Band 5 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Pow er (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	Main Ant 1	0	Left Touch	20525	836.5	1	0	22.0	20.9	0.089	**0.115**	11
							25	0	22.0	20.9	0.086	0.111	
				Left Tilt	20525	836.5	1	0	22.0	20.9	0.037	0.048	
							25	0	22.0	20.9	0.037	0.048	
				Right Touch	20525	836.5	1	0	22.0	20.9	0.088	0.113	
							25	0	22.0	20.9	0.085	0.110	
				Right Tilt	20525	836.5	1	0	22.0	20.9	0.030	0.039	
							25	0	22.0	20.9	0.030	0.039	
Body-w orn & Hotspot	QPSK	Main Ant 1	10	Rear	20525	836.5	1	0	22.0	20.9	0.237	**0.305**	12
							25	0	22.0	20.9	0.233	0.300	
				Front	20525	836.5	1	0	22.0	20.9	0.110	0.142	
							25	0	22.0	20.9	0.108	0.139	
Hotspot	QPSK	Main Ant 1	10	Edge 3	20525	836.5	1	0	22.0	20.9	0.068	0.088	
							25	0	22.0	20.9	0.066	0.085	
				Edge 4	20525	836.5	1	0	22.0	20.9	0.098	0.126	
							25	0	22.0	20.9	0.099	0.128	

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

10.6. LTE Band 12 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Pow er (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	Main Ant 1	0	Left Touch	23095	707.5	1	49	22.0	20.8	0.062	**0.082**	13
							25	25	22.0	20.8	0.061	0.080	
				Left Tilt	23095	707.5	1	49	22.0	20.8	0.033	0.044	
							25	25	22.0	20.8	0.032	0.042	
				Right Touch	23095	707.5	1	49	22.0	20.8	0.055	0.073	
							25	25	22.0	20.8	0.055	0.073	
				Right Tilt	23095	707.5	1	49	22.0	20.8	0.030	0.040	
							25	25	22.0	20.8	0.029	0.038	
Body-w orn & Hotspot	QPSK	Main Ant 1	10	Rear	23095	707.5	1	49	22.0	20.8	0.119	**0.157**	14
							25	25	22.0	20.8	0.118	0.156	
				Front	23095	707.5	1	49	22.0	20.8	0.098	0.129	
							25	25	22.0	20.8	0.098	0.129	
Hotspot	QPSK	Main Ant 1	10	Edge 3	23095	707.5	1	49	22.0	20.8	0.041	0.054	
							25	25	22.0	20.8	0.042	0.055	
				Edge 4	23095	707.5	1	49	22.0	20.8	0.106	0.140	
							25	25	22.0	20.8	0.105	0.138	

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

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10.7. LTE Band 13 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	Main Ant 1	0	Left Touch	23230	782.0	1	0	22.0	21.0	0.096	0.121	
							25	0	22.0	21.0	0.098	**0.123**	15
				Left Tilt	23230	782.0	1	0	22.0	21.0	0.059	0.074	
							25	0	22.0	21.0	0.058	0.073	
				Right Touch	23230	782.0	1	0	22.0	21.0	0.083	0.104	
							25	0	22.0	21.0	0.085	0.107	
				Right Tilt	23230	782.0	1	0	22.0	21.0	0.049	0.062	
							25	0	22.0	21.0	0.039	0.049	
Body-worn & Hotspot	QPSK	Main Ant 1	10	Rear	23230	782.0	1	0	22.0	21.0	0.143	**0.180**	16
							25	0	22.0	21.0	0.140	0.176	
				Front	23230	782.0	1	0	22.0	21.0	0.106	0.133	
							25	0	22.0	21.0	0.108	0.136	
Hotspot	QPSK	Main Ant 1	10	Edge 3	23230	782.0	1	0	22.0	21.0	0.049	0.062	
							25	0	22.0	21.0	0.050	0.063	
				Edge 4	23230	782.0	1	0	22.0	21.0	0.147	**0.185**	17
							25	0	22.0	21.0	0.118	0.149	

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

10.8. LTE Band 41 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	Main Ant 2	0	Left Touch	40620	2593.0	1	99	20.0	18.9	0.014	0.018	
							50	0	20.0	18.9	0.010	0.013	
				Left Tilt	40620	2593.0	1	99	20.0	18.9	0.010	0.013	
							50	0	20.0	18.9	0.009	0.012	
				Right Touch	40620	2593.0	1	99	20.0	18.9	0.061	**0.079**	18
							50	0	20.0	18.9	0.011	0.014	
				Right Tilt	40620	2593.0	1	99	20.0	18.9	0.010	0.013	
							50	0	20.0	18.9	0.013	0.017	
Body-worn & Hotspot	QPSK	Main Ant 2	10	Rear	40620	2593.0	1	99	20.0	18.9	0.087	0.112	
							50	0	20.0	18.9	0.087	0.112	
				Front	40620	2593.0	1	99	20.0	18.9	0.090	**0.116**	19
							50	0	20.0	18.9	0.089	0.115	
Hotspot	QPSK	Main Ant 2	10	Edge 2	40620	2593.0	1	99	20.0	18.9	0.057	0.073	
							50	0	20.0	18.9	0.057	0.073	
				Edge 3	40620	2593.0	1	99	20.0	18.9	0.151	0.195	
							50	0	20.0	18.9	0.153	**0.197**	20

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

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10.9. Wi-Fi (DTS Band)

When the 802.11b reported SAR of the highest measured maximum output power channel is ≤ 0.8 W/kg, no further SAR testing is required. If SAR is > 0.8 W/kg and ≤ 1.2 W/kg, SAR is required for the next highest measured output power channel. If SAR is > 1.2 W/kg, SAR is required for the third channel.

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.

Wi-Fi DTS Normal State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11b	Chain 0	0	Left Touch	6	2437	0.150	99.92%	14.5	13.9			
				Left Tilt	6	2437	0.046	99.92%	14.5	13.9			
				Right Touch	6	2437	0.683	99.92%	14.5	13.9	0.505	**0.580**	21
				Right Tilt	6	2437	0.153	99.92%	14.5	13.9	0.128	0.147	
Body-worn & Hotspot	802.11b	Chain 0	10	Rear	6	2437	0.144	99.92%	14.5	13.9	0.106	**0.122**	22
				Front	6	2437	0.094	99.92%	14.5	13.9			
Hotspot	802.11b	Chain 0	10	Edge 1	6	2437	0.017	99.92%	14.5	13.9			
				Edge 4	6	2437	0.268	99.92%	14.5	13.9	0.202	**0.232**	23
Head	802.11b	Chain 1	0	Left Touch	6	2437	<0.001	99.92%	12.7	12.7			
				Left Tilt	6	2437	0.004	99.92%	12.7	12.7	<0.001	**<0.001**	24
				Right Touch	6	2437	<0.001	99.92%	12.7	12.7			
				Right Tilt	6	2437	<0.001	99.92%	12.7	12.7			
Body-worn & Hotspot	802.11b	Chain 1	10	Rear	6	2437	0.146	99.92%	12.7	12.7	0.121	**0.121**	25
				Front	6	2437	0.004	99.92%	12.7	12.7			
Hotspot	802.11b	Chain 1	10	Edge 3	6	2437	<0.001	99.92%	12.7	12.7			
				Edge 4	6	2437	0.014	99.92%	12.7	12.7			

Notes:

- 10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg
- Highest reported SAR for DSSS on Chain 0 was 0.580 W/kg. Adjusted by the ratio of OFDM to DSSS specified maximum output power, the adjusted SAR is 0.651 W/kg, which is ≤ 1.2 W/kg
- Highest reported SAR for DSSS on Chain 1 was 0.121 W/kg. Adjusted by the ratio of OFDM to DSSS specified maximum output power, the adjusted SAR is 0.205 W/kg, which is ≤ 1.2 W/kg

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Wi-Fi DTS Simultaneous State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11b	Chain 0	0	Left Touch	1	2412	0.078	99.92%	11.0	10.2	0.061	0.073	
				Left Tilt	1	2412	0.015	99.92%	11.0	10.2			
				Right Touch	1	2412	0.447	99.92%	11.0	10.2	0.345	**0.415**	26
				Right Tilt	1	2412	0.064	99.92%	11.0	10.2			
Body-worn & Hotspot	802.11b	Chain 0	10	Rear	1	2412	0.055	99.92%	11.0	10.2	0.040	**0.048**	27
				Front	1	2412	0.046	99.92%	11.0	10.2			
Hotspot	802.11b	Chain 0	10	Edge 1	1	2412	0.004	99.92%	11.0	10.2			
				Edge 4	1	2412	0.131	99.92%	11.0	10.2	0.099	**0.119**	28
Head	802.11b	Chain 1	0	Left Touch	6	2437	<0.001	99.92%	11.0	10.6			
				Left Tilt	6	2437	<0.001	99.92%	11.0	10.6			
				Right Touch	6	2437	<0.001	99.92%	11.0	10.6			
				Right Tilt	6	2437	0.002	99.92%	11.0	10.6	<0.001	**<0.001**	29
Body-worn & Hotspot	802.11b	Chain 1	10	Rear	6	2437	0.130	99.92%	11.0	10.6	0.102	**0.112**	30
				Front	6	2437	0.002	99.92%	11.0	10.6			
Hotspot	802.11b	Chain 1	10	Edge 3	6	2437	0.000	99.92%	11.0	10.6			
				Edge 4	6	2437	0.004	99.92%	11.0	10.6			

Notes:

- 10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg
- Wi-Fi Simultaneous Tx SAR results are used for Sum of SAR Analysis. Refer to §12 for Sum of SAR Analysis

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10.10. Wi-Fi (U-NII Band)

UNII-1 &2A

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.

Wi-Fi UNII-1 Normal State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Hotspot	802.11ac (VHT80)	Chain 0	10	Rear	42	5210	0.076	99.63%	11.5	11.1			
				Front	42	5210	0.029	99.63%	11.5	11.1			
				Edge 1	42	5210	0.010	99.63%	11.5	11.1			
				Edge 4	42	5210	0.104	99.63%	11.5	11.1	0.105	**0.116**	31
Hotspot	802.11ac (VHT80)	Chain 1	10	Rear	42	5210	0.061	99.63%	11.5	11.4	0.063	**0.065**	32
				Front	42	5210	0.006	99.63%	11.5	11.4			
				Edge 1	42	5210	0.008	99.63%	11.5	11.4			
				Edge 4	42	5210	0.007	99.63%	11.5	11.4			

Notes:

- UNII-1 Supports Hotspot mode so Hotspot mode SAR was tested independently.
- 10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

Wi-Fi UNII-1 Simultaneous 2G_5G State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Hotspot	802.11ac (VHT80)	Chain 0	10	Rear	42	5210	0.029	99.63%	9.5	8.7			
				Front	42	5210	0.017	99.63%	9.5	8.7			
				Edge 1	42	5210	0.012	99.63%	9.5	8.7			
				Edge 4	42	5210	0.049	99.63%	9.5	8.7	0.041	**0.049**	33
Hotspot	802.11ac (VHT80)	Chain 1	10	Rear	42	5210	0.021	99.63%	9.5	8.5	0.021	**0.027**	34
				Front	42	5210	0.000	99.63%	9.5	8.5			
				Edge 1	42	5210	0.001	99.63%	9.5	8.5			
				Edge 4	42	5210	0.005	99.63%	9.5	8.5			

Notes:

- UNII-1 Supports Hotspot mode so Hotspot mode SAR was tested independently.
- 10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg
- Wi-Fi Simultaneous 2G_5G state SAR results are used for Sum of SAR Analysis. Refer to §12 for Sum of SAR Analysis

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Wi-Fi UNII-2A Normal State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11ac (VHT160)	Chain 0	0	Left Touch	50	5250	0.128	99.65%	11.5	11.4			
				Left Tilt	50	5250	0.074	99.65%	11.5	11.4			
				Right Touch	50	5250	0.325	99.65%	11.5	11.4	0.277	**0.284**	35
				Right Tilt	50	5250	0.121	99.65%	11.5	11.4			
Body-worn	802.11ac (VHT160)	Chain 0	10	Rear	50	5250	0.056	99.65%	11.5	11.4	0.049	**0.050**	36
				Front	50	5250	0.037	99.65%	11.5	11.4			
Head	802.11ac (VHT160)	Chain 1	0	Left Touch	50	5250	<0.001	99.65%	11.5	11.3			
				Left Tilt	50	5250	<0.001	99.65%	11.5	11.3	<0.001	**<0.001**	37
				Right Touch	50	5250	0.002	99.65%	11.5	11.3			
				Right Tilt	50	5250	<0.001	99.65%	11.5	11.3			
Body-worn	802.11ac (VHT160)	Chain 1	10	Rear	50	5250	0.094	99.65%	11.5	11.3	0.071	**0.075**	38
				Front	50	5250	0.010	99.65%	11.5	11.3			

Notes:

10-g extremity SAR is required since hotspot mode not supported for this band

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		10-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	802.11ac (VHT160)	Chain 0	0	Rear	50	5250	1.270	99.65%	11.5	11.4			
				Front	50	5250	0.590	99.65%	11.5	11.4			
				Edge 1	50	5250	0.103	99.65%	11.5	11.4			
				Edge 4	50	5250	1.470	99.65%	11.5	11.4	0.321	**0.330**	39
Extremity	802.11ac (VHT160)	Chain 1	0	Rear	50	5250	0.703	99.65%	11.5	11.3	0.194	**0.204**	40
				Front	50	5250	0.050	99.65%	11.5	11.3			
				Edge 3	50	5250	0.026	99.65%	11.5	11.3			
				Edge 4	50	5250	0.026	99.65%	11.5	11.3			

Wi-Fi UNII-2A Simultaneous 2G_5G State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11ac (VHT160)	Chain 0	0	Left Touch	50	5250	0.050	99.65%	9.5	8.9			
				Left Tilt	50	5250	0.008	99.65%	9.5	8.9			
				Right Touch	50	5250	0.109	99.65%	9.5	8.9	0.153	**0.176**	41
				Right Tilt	50	5250	0.032	99.65%	9.5	8.9			
Body-worn	802.11ac (VHT160)	Chain 0	10	Rear	50	5250	0.027	99.65%	9.5	8.9	0.025	**0.029**	42
				Front	50	5250	0.017	99.65%	9.5	8.9			
Head	802.11ac (VHT160)	Chain 1	0	Left Touch	50	5250	<0.001	99.65%	9.5	8.5	<0.001	**<0.001**	43
				Left Tilt	50	5250	<0.001	99.65%	9.5	8.5			
				Right Touch	50	5250	<0.001	99.65%	9.5	8.5			
				Right Tilt	50	5250	<0.001	99.65%	9.5	8.5			
Body-worn	802.11ac (VHT160)	Chain 1	10	Rear	50	5250	0.034	99.65%	9.5	8.5	0.032	**0.040**	44
				Front	50	5250	<0.001	99.65%	9.5	8.5			

Notes:

- Wi-Fi Simultaneous 2G_5G State SAR results are used for Sum of SAR Analysis. Refer to §12 for Sum of SAR Analysis
- 10-g extremity SAR is not required since Sum of SAR is not required for Extremity Exposure Condition.

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Wi-Fi UNII-2C Normal State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11ac (VHT160)	Chain 0	0	Left Touch	114	5570	0.055	99.65%	11.5	11.4			
				Left Tilt	114	5570	0.006	99.65%	11.5	11.4			
				Right Touch	114	5570	0.113	99.65%	11.5	11.4	0.167	**0.171**	45
				Right Tilt	114	5570	0.043	99.65%	11.5	11.4			
Body-worn	802.11ac (VHT160)	Chain 0	10	Rear	114	5570	0.029	99.65%	11.5	11.4	0.024	**0.025**	46
				Front	114	5570	0.018	99.65%	11.5	11.4			
Head	802.11ac (VHT160)	Chain 1	0	Left Touch	114	5570	0.002	99.65%	11.5	11.1			
				Left Tilt	114	5570	0.004	99.65%	11.5	11.1	<0.001	**<0.001**	47
				Right Touch	114	5570	0.002	99.65%	11.5	11.1			
				Right Tilt	114	5570	0.002	99.65%	11.5	11.1			
Body-worn	802.11ac (VHT160)	Chain 1	10	Rear	114	5570	0.123	99.65%	11.5	11.1	0.077	**0.085**	48
				Front	114	5570	0.002	99.65%	11.5	11.1			

Notes:

10-g extremity SAR is required since hotspot mode not supported for this band

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		10-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	802.11ac (VHT160)	Chain 0	0	Rear	114	5570	0.220	99.65%	11.5	11.4			
				Front	114	5570	0.280	99.65%	11.5	11.4			
				Edge 1	114	5570	0.058	99.65%	11.5	11.4			
				Edge 4	114	5570	1.400	99.65%	11.5	11.4	0.357	**0.367**	49
Extremity	802.11ac (VHT160)	Chain 1	0	Rear	114	5570	2.010	99.65%	11.5	11.1	0.400	**0.440**	50
				Front	114	5570	0.047	99.65%	11.5	11.1			
				Edge 3	114	5570	0.045	99.65%	11.5	11.1			
				Edge 4	114	5570	0.059	99.65%	11.5	11.1			

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Wi-Fi UNII-2C Simultaneous 2G_5G State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11ac (VHT160)	Chain 0	0	Left Touch	114	5570	0.026	99.65%	9.5	8.8			
				Left Tilt	114	5570	0.002	99.65%	9.5	8.8			
				Right Touch	114	5570	0.055	99.65%	9.5	8.8	0.072	**0.085**	51
				Right Tilt	114	5570	0.023	99.65%	9.5	8.8			
Body-worn	802.11ac (VHT160)	Chain 0	10	Rear	114	5570	0.006	99.65%	9.5	8.8	0.002	**0.002**	52
				Front	114	5570	0.003	99.65%	9.5	8.8			
Head	802.11ac (VHT160)	Chain 1	0	Left Touch	114	5570	<0.001	99.65%	9.5	8.9	<0.001	**<0.001**	53
				Left Tilt	114	5570	<0.001	99.65%	9.5	8.9			
				Right Touch	114	5570	<0.001	99.65%	9.5	8.9			
				Right Tilt	114	5570	<0.001	99.65%	9.5	8.9			
Body-worn	802.11ac (VHT160)	Chain 1	10	Rear	114	5570	0.040	99.65%	9.5	8.9	0.040	**0.046**	54
				Front	114	5570	<0.001	99.65%	9.5	8.9			

Notes:

- Wi-Fi Simultaneous 2G_5G State SAR results are used for Sum of SAR Analysis. Refer to §12 for Sum of SAR Analysis
- 10-g extremity SAR is not required since Sum of SAR is not required for Extremity Exposure Condition.

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Wi-Fi UNII-3 Normal State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11ac (VHT80)	Chain 0	0	Left Touch	155	5775	0.030	99.63%	11.5	10.9			
				Left Tilt	155	5775	0.007	99.63%	11.5	10.9			
				Right Touch	155	5775	0.056	99.63%	11.5	10.9	0.072	**0.083**	55
				Right Tilt	155	5775	0.026	99.63%	11.5	10.9			
Body-worn & Hotspot	802.11ac (VHT80)	Chain 0	10	Rear	155	5775	0.040	99.63%	11.5	10.9	0.035	**0.040**	56
				Front	155	5775	0.006	99.63%	11.5	10.9			
Hotspot	802.11ac (VHT80)	Chain 0	10	Edge 1	155	5775	0.011	99.63%	11.5	10.9			
				Edge 4	155	5775	0.061	99.63%	11.5	10.9	0.059	**0.068**	57
Head	802.11ac (VHT80)	Chain 1	0	Left Touch	155	5775	0.000	99.63%	11.5	11.2			
				Left Tilt	155	5775	0.000	99.63%	11.5	11.2			
				Right Touch	155	5775	0.003	99.63%	11.5	11.2	<0.001	**<0.001**	58
				Right Tilt	155	5775	0.000	99.63%	11.5	11.2			
Body-worn & Hotspot	802.11ac (VHT80)	Chain 1	10	Rear	155	5775	0.144	99.63%	11.5	11.2	0.092	**0.099**	59
				Front	155	5775	0.000	99.63%	11.5	11.2			
Hotspot	802.11ac (VHT80)	Chain 1	10	Edge 3	155	5775	0.011	99.63%	11.5	11.2			
				Edge 4	155	5775	0.003	99.63%	11.5	11.2			

Notes:

10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg

Wi-Fi UNII-3 Simultaneous 2G_5G State

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11ac (VHT80)	Chain 0	0	Left Touch	155	5775	0.015	99.63%	9.5	9.0			
				Left Tilt	155	5775	0.006	99.63%	9.5	9.0			
				Right Touch	155	5775	0.031	99.63%	9.5	9.0	0.057	**0.064**	60
				Right Tilt	155	5775	0.008	99.63%	9.5	9.0			
Body-worn & Hotspot	802.11ac (VHT80)	Chain 0	10	Rear	155	5775	0.014	99.63%	9.5	9.0	0.009	**0.010**	61
				Front	155	5775	0.005	99.63%	9.5	9.0			
Hotspot	802.11ac (VHT80)	Chain 0	10	Edge 1	155	5775	0.005	99.63%	9.5	9.0			
				Edge 4	155	5775	0.032	99.63%	9.5	9.0	0.029	**0.033**	62
Head	802.11ac (VHT80)	Chain 1	0	Left Touch	155	5775	<0.001	99.63%	9.5	8.9			
				Left Tilt	155	5775	<0.001	99.63%	9.5	8.9			
				Right Touch	155	5775	<0.001	99.63%	9.5	8.9	<0.001	**<0.001**	63
				Right Tilt	155	5775	<0.001	99.63%	9.5	8.9			
Body-worn & Hotspot	802.11ac (VHT80)	Chain 1	10	Rear	155	5775	0.046	99.63%	9.5	8.9	0.048	**0.055**	64
				Front	155	5775	0.006	99.63%	9.5	8.9			
Hotspot	802.11ac (VHT80)	Chain 1	10	Edge 3	155	5775	0.003	99.63%	9.5	8.9			
				Edge 4	155	5775	<0.001	99.63%	9.5	8.9			

Notes:

- 10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg
- Wi-Fi Simultaneous 2G_5G State SAR results are used for Sum of SAR Analysis. Refer to §12 for Sum of SAR Analysis

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10.11. Bluetooth

RF Exposure Conditions	Mode	Antenna	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Pow er (dBm)		1-g SAR (W/kg)		Plot No.
							Tune-up Limit	Meas.	Meas.	Scaled	
Head	GFSK	Chain 0	0	Left Touch	39	2441	14.0	13.9	0.039	0.040	
				Left Tilt	39	2441	14.0	13.9	0.007	0.007	
				Right Touch	39	2441	14.0	13.9	0.191	**0.195**	65
				Right Tilt	39	2441	14.0	13.9	0.038	0.039	
Body-w orn & Hotspot	GFSK	Chain 0	10	Rear	39	2441	14.0	13.9	0.044	**0.045**	66
				Front	39	2441	14.0	13.9	0.026	0.027	
Hotspot	GFSK	Chain 0	10	Edge 1	39	2441	14.0	13.9	0.002	0.002	
				Edge 4	39	2441	14.0	13.9	0.068	**0.070**	67
Head	GFSK	Chain 1	0	Left Touch	39	2441	14.0	13.7	<0.001	**<0.001**	68
				Left Tilt	39	2441	14.0	13.7	<0.001	<0.001	
				Right Touch	39	2441	14.0	13.7	<0.001	<0.001	
				Right Tilt	39	2441	14.0	13.7	<0.001	<0.001	
Body-w orn & Hotspot	GFSK	Chain 1	10	Rear	39	2441	14.0	13.7	0.034	**0.036**	69
				Front	39	2441	14.0	13.7	<0.001	<0.001	
Hotspot	GFSK	Chain 1	10	Edge 3	39	2441	14.0	13.7	<0.001	<0.001	
				Edge 4	39	2441	14.0	13.7	0.004	0.004	

Notes:

10-g extremity SAR is not required since hotspot mode/BT Tethering 1-g reported SAR < 1.2 W/kg

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11. SAR Measurement Variability

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

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

SAR Measurement Variability

Repeated measurement is not required since the original highest measured SAR is <0.8 W/kg (1-g) or 2 W/kg (10-g) .

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12. Simultaneous Transmission Conditions

RF Exposure Conditions	Tx Mode	WWAN	WLAN/BT Chain 0			WLAN/BT Chain 1		
		ain Ant 1/ Ant	2.4 GHz	5 GHz	BT	2.4 GHz	5 GHz	BT
Head & Body-worn & Hotspot	1	x	x			x		
	2	x		x			x	
	3	x		x	x		x	
	4	x		x			x	x
	5	x	x	x		x	x	
Extremity	6	x	x			x		
	7	x		x			x	
	8	x		x	x		x	
	9	x		x			x	x
	10	x	x	x		x	x	

Note(s):
- Cellular Main Antenna 1 and Cellular Main Antenna 2 can not transmit simultaneously
- WLAN 2.4GHz and Bluetooth radio can not transmit simultaneously
- WLAN 2.4GHz and WLAN 5GHz radio can transmit simultaneously
- 10-g extremity SAR is not required since hotspot mode 1-g reported SAR < 1.2 W/kg for all bands that supports hotspot

12.1. 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.

12.2. Sum of the SAR for WWAN Main Ant 1 & Wi-Fi Normal State & BT

RF Exposure conditions	Test Position	Standalone SAR (W/kg)							∑ 1-g SAR (W/kg)			
		WWAN	DTS		U-NII		BT		WWAN + DTS	WWAN + U-NII	WWAN + UNII + BT	WWAN + UNII + BT
		Main Ant 1 ①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	Chain 0 ⑥	Chain 1 ⑦	①+②+③	①+④+⑤	①+④+⑤+⑥	①+④+⑤+⑦
Head	Left Touch	0.166	0.147	0.001	0.284	0.001	0.040	0.001	0.314	0.451	0.491	0.452
	Left Tilt	0.106	0.147	0.001	0.284	0.001	0.007	0.001	0.254	0.391	0.398	0.392
	Right Touch	0.186	0.580	0.001	0.284	0.001	0.195	0.001	0.767	0.471	0.666	0.472
	Right Tilt	0.107	0.147	0.001	0.284	0.001	0.039	0.001	0.255	0.392	0.431	0.393
Body-worn & Hotspot	Rear	0.492	0.122	0.121	0.050	0.099	0.045	0.036	0.735	0.641	**0.686**	0.677
	Front	0.222	0.122	0.121	0.050	0.099	0.027	0.001	0.465	0.371	0.398	0.372
Hotspot	Edge 1		0.232		0.050		0.002		0.232	0.050	0.052	0.050
	Edge 3	0.120		0.121		0.099		0.001	0.241	0.219	0.219	0.220
	Edge 4	0.239	0.232	0.121	0.116	0.099	0.070	0.004	0.592	0.454	0.524	0.458

Conclusion:

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

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12.3. Sum of the SAR for WWAN Main Ant 1 & Wi-Fi Simultaneous 2G_5G State

RF Exposure conditions	Test Position	Standalone SAR (W/kg)					∑ 1-g SAR (W/kg)
		WWAN	DTS		U-NII		WWAN + DTS + UNII
		Main Ant 1 ①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	①+②+③+④+⑤
Head	Left Touch	0.166	0.073	0.001	0.176	0.001	0.417
	Left Tilt	0.106	0.073	0.001	0.176	0.001	0.357
	Right Touch	0.186	0.415	0.001	0.176	0.001	**0.779**
	Right Tilt	0.107	0.073	0.001	0.176	0.001	0.358
Body-worn & Hotspot	Rear	0.492	0.048	0.112	0.029	0.055	0.736
	Front	0.222	0.048	0.112	0.029	0.055	0.466
Hotspot	Edge 1		0.048		0.032		0.080
	Edge 3	0.120		0.112		0.055	0.287
	Edge 4	0.239	0.119	0.112	0.049	0.055	0.574

Conclusion:

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

12.4. Sum of the SAR for WWAN Main Ant 2 & Wi-Fi Normal State & BT

RF Exposure conditions	Test Position	Standalone SAR (W/kg)							∑ 1-g SAR (W/kg)			
		WWAN	DTS		U-NII		BT		WWAN + DTS	WWAN + U-NII	WWAN + UNII + BT	WWAN + UNII + BT
		Main Ant 2 ①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	Chain 0 ⑥	Chain 1 ⑦	①+②+③	①+④+⑤	①+④+⑤+⑥	①+④+⑤+⑦
Head	Left Touch	0.021	0.147	0.001	0.284	0.001	0.040	0.001	0.169	0.306	0.346	0.307
	Left Tilt	0.017	0.147	0.001	0.284	0.001	0.007	0.001	0.165	0.302	0.309	0.303
	Right Touch	0.079	0.580	0.001	0.284	0.001	0.195	0.001	0.660	0.364	0.559	0.365
	Right Tilt	0.017	0.147	0.001	0.284	0.001	0.039	0.001	0.165	0.302	0.341	0.303
Body-worn & Hotspot	Rear	0.166	0.122	0.121	0.050	0.099	0.045	0.036	0.409	0.315	0.360	0.351
	Front	0.149	0.122	0.121	0.050	0.099	0.027	0.001	0.392	0.298	0.325	0.299
Hotspot	Edge 1		0.232		0.050		0.002		0.232	0.050	0.052	0.050
	Edge 3	0.348		0.121		0.099		0.001	0.469	0.447	0.447	0.448
	Edge 4		0.232	0.121	0.116	0.099	0.070	0.004	0.353	0.215	0.285	0.219

Conclusion:

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

12.5. Sum of the SAR for WWAN Main Ant 2 & Wi-Fi Simultaneous 2G_5G State

RF Exposure conditions	Test Position	Standalone SAR (W/kg)					∑ 1-g SAR (W/kg)
		WWAN	DTS		U-NII		WWAN + DTS + UNII
		Main Ant 2 ①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	①+②+③+④+⑤
Head	Left Touch	0.021	0.073	0.001	0.176	0.001	0.272
	Left Tilt	0.017	0.073	0.001	0.176	0.001	0.268
	Right Touch	0.079	0.415	0.001	0.176	0.001	0.672
	Right Tilt	0.017	0.073	0.001	0.176	0.001	0.268
Body-worn & Hotspot	Rear	0.166	0.048	0.112	0.029	0.055	0.410
	Front	0.149	0.048	0.112	0.029	0.055	0.393
Hotspot	Edge 1		0.048		0.032		0.080
	Edge 3	0.348		0.112		0.055	0.515
	Edge 4		0.119	0.112	0.049	0.055	0.335

Conclusion:

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

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Appendixes

Refer to separated files for the following appendixes.

Appendix A: SAR Setup Photos

Appendix B: SAR System Check Plots

Appendix C: SAR Highest Test Plots

Appendix D: SAR Tissue Ingredients

Appendix E: SAR Probe Certificates

Appendix F: SAR Dipole Certificates

END OF REPORT

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