



FCC SAR TEST REPORT

FCC ID : MSQZ01QD
Equipment : ASUS Phone (Mobile Phone)
Brand Name : ASUS
Model Name : ASUS_Z01QD
Applicant : ASUSTeK COMPUTER INC.
4F, No. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN
Manufacturer : Arima Communications (Jiangsu) Co., LTD
No.168,Jiao Tong North Road,Wu Jiang, Su
Zhou,Jiang Su,PRC.
Standard : FCC 47 CFR Part 2 (2.1093)
ANSI/IEEE C95.1-1992
IEEE 1528-2013

The product was received on Jun. 26, 2018 and testing was started from Jul. 01, 2018 and completed on Jul. 20, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Jones Tsai / Manager

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History of this test report

Report No.	Version	Description	Issued Date
FA852405	01	Initial issue of report	Jul. 26, 2018
FA852405	02	Update Tuner description	Aug. 16, 2018



1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for ASUSTeK COMPUTER INC., ASUS Phone (Mobile Phone), ASUS_Z01QD, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)
		Head (Separation 0mm)	Body-worn (Separation 15mm)	Hotspot (Separation 10mm)	Product Specific (Separation 0mm)	
		1g SAR (W/kg)			10g SAR (W/kg)	
Licensed	GSM850	0.41	0.79	0.81		1.59
	GSM1900	0.07	0.26	0.90		
	WCDMA II	0.09	0.35	1.15	2.50	
	WCDMA IV	0.12	0.58	1.01	2.59	
	WCDMA V	0.66	0.75	0.74		
	LTE Band 2	0.10	0.33	1.09	2.33	
	LTE Band 4	0.11	0.47	1.08	2.09	
	LTE Band 7	0.18	0.33	0.91		
	LTE Band 12 / 17	0.44	0.37	0.49		
	LTE Band 13	0.68	0.49	0.58		
	LTE Band 5 / 26	0.78	0.49	0.68		
	LTE Band 38 / 41	0.18	0.39	1.05		
DTS	2.4GHz WLAN	0.66	0.15	0.11		1.58
NII	5GHz WLAN	0.72	0.80	1.19	1.54	1.59
DSS	Bluetooth	0.29	0.01	0.04		1.50

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

Reviewed by: Eric Huang
Report Producer: Wan Liu

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	ASUS Phone (Mobile Phone)
Brand Name	ASUS
Model Name	ASUS_Z01QD
FCC ID	MSQZ01QD
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	GSM/GPRS/EGPRS AMR / RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	R2.0
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark: - This device 2.4GHz / 5.2GHz WLAN / 5.8GHz WLAN supports Hotspot operation. - This device implements antenna tuning techniques for several WWAN (cellular) operating modes and frequencies for the purpose of improving antenna efficiency over a broad range of frequencies. Specifically, this technique is employed in the WCDMA B5 and LTE B5/B12/B13/B17/B26 on WWAN LAT antenna. In this report SAR was measured according to the normally required SAR configurations with the tuner active and worst tune state (auto tune) was used for SAR testing and this design will provide the highest power at different user scenarios and would not influence to the antenna characteristics other than impedance matching. The detail descriptions of the antenna tuner are included in the operational description and supplemental data for additional information on section15. - The device has 2 antennas (LAT antenna located in the bottom, UAT antenna located in the top edge), the antenna selection is based on the connection quality condition, and only one antenna will transmit at a time. - When operating in a call in talk position at the head, the device will reduce output powers on the WWAN UAT WCDMA B5 and 2.4GHz WLAN transmitter, and the At-Head power table is used; detail descriptions of the power reduction mechanism are included in the operational description. - When the mobile hotspot session is turn on by end user, the device will reduced output powers on the GSM850, WCDMA B2 / B4 / B5, LTE B2 / B4 of WWAN LAT transmitter and 2.4GHz WLAN transmitter and the Hotspot mode power table is used; detail descriptions of the power reduction mechanism are included in the operational description. - When WWAN operation is active and transmit with 5.8GHz WLAN at the same time, the 5.8GHz WLAN will reduce difference output power in difference exposure conditions and the WWAN on power table is used; detail descriptions of the power reduction mechanism are included in the operational description.	



3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05									
FCC ID		MSQZ01QD							
Equipment Name		ASUS Phone (Mobile Phone)							
Operating Frequency Range of each LTE transmission band		LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13: 779.5 MHz ~ 784.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz							
Channel Bandwidth		LTE Band 02:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 04:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 05:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 07: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz							
uplink modulations used		QPSK / 16QAM / 64QAM							
LTE Voice / Data requirements		Voice and Data							
LTE MPR permanently built-in by design		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	
LTE A-MPR		In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)							
Spectrum plots for RB configuration		A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.							
Power reduction applied to satisfy SAR compliance		The device has several different power modes for head / hotspot / body-worn conditions SAR compliance; power selection is determined by the device's positioning and usage scenarios, the power selection is defined in operation description							
LTE Carrier Aggregation Combinations		Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 12.							
LTE Carrier Aggregation Additional Information		1. This device supports LTE Carrier Aggregation uplink in LTE B2/B4/B5/B7/B12 with two component carriers. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 4 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA. 3. For intra-band UL CA supports WWAN UAT and LAT transmitting, for Inter-band UL CA only limit on WWAN LAT transmitting.							

Transmission (H, M, L) channel numbers and frequencies in each LTE band														
LTE Band 2														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860		
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880		
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900		
LTE Band 4														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720		
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5		
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745		
LTE Band 5														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	20407	824.7	20415	825.5	20425	826.5	20450	829						
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5						
H	20643	848.3	20635	847.5	20625	846.5	20600	844						
LTE Band 7														
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510						
M	21100	2535	21100	2535	21100	2535	21100	2535						
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560						
LTE Band 12														
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz							
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	23017	699.7	23025	700.5	23035	701.5	23060	704						
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5						
H	23173	715.3	23165	714.5	23155	713.5	23130	711						
LTE Band 13														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)							
L	23205		779.5		23230		782							
M	23230		782											
H	23255		784.5											
LTE Band 17														
	Bandwidth 5 MHz				Bandwidth 10 MHz									
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)							
L	23755		706.5		23780		709							
M	23790		710		23790		710							
H	23825		713.5		23800		711							

LTE Band 26										
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5
LTE Band 38										
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580		
M	38000	2595	38000	2595	38000	2595	38000	2595		
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610		
LTE Band 41										
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506		
L	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5		
M	40620	2593	40620	2593	40620	2593	40620	2593		
H	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5		
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680		

4. RF Exposure Limits

4.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

4.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

5. Specific Absorption Rate (SAR)

5.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

5.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dv} \right)$$

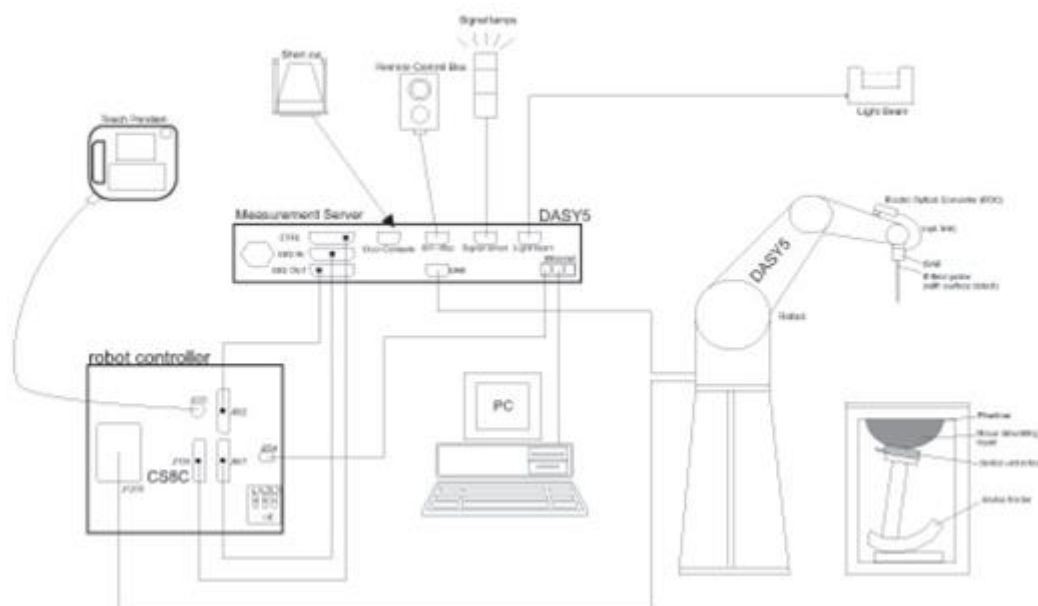
SAR is expressed in units of Watts per kilogram (W/kg)

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

6. System Description and Setup

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 WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

6.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – 4 GHz; Linearity: ± 0.2 dB (30 MHz – 4 GHz)	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 μ W/g – >100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz – >6 GHz Linearity: ± 0.2 dB (30 MHz – 6 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

6.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



Fig 5.1 Photo of DAE

6.3 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

6.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



Mounting Device for Laptops

7. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

7.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

7.2 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. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

7.3 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 found in the scanned area, within a range of the global maximum. The range (in dB0) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

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

7.4 Zoom Scan

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram 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 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			≤ 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: $\Delta z_{\text{Zoom}}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

7.5 Volume Scan Procedures

The volume scan is used to assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

7.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.



8. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1107	Feb. 27, 2018	Feb. 26, 2019
SPEAG	835MHz System Validation Kit	D835V2	4d167	Feb. 27, 2018	Feb. 26, 2019
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 15, 2017	Nov. 14, 2018
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Sep. 28, 2017	Sep. 27, 2018
SPEAG	2450MHz System Validation Kit	D2450V2	736	Sep. 18, 2017	Sep. 17, 2018
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Sep. 18, 2017	Sep. 17, 2018
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Sep. 26, 2017	Sep. 25, 2018
SPEAG	Data Acquisition Electronics	DAE4	1424	Jan. 18, 2018	Jan. 17, 2019
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 16, 2017	Nov. 15, 2018
SPEAG	Data Acquisition Electronics	DAE4	778	May. 25, 2018	May. 24, 2019
SPEAG	Data Acquisition Electronics	DAE3	577	Sep. 25, 2017	Sep. 24, 2018
SPEAG	Data Acquisition Electronics	DAE4	854	Jun. 14, 2018	Jun. 13, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	Jan. 23, 2018	Jan. 22, 2019
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	Mar. 31, 2018	May. 30, 2019
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 25, 2017	Sep. 24, 2018
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 29, 2017	Sep. 28, 2018
SPEAG	Dosimetric E-Field Probe	ES3DV3	3170	Oct. 26, 2017	Oct. 25, 2018
RCPTWN	Thermometer	HTC-1	TM685-1	Mar. 16, 2018	Mar. 15, 2019
RCPTWN	Thermometer	HTC-1	TM281-1	Mar. 16, 2018	Mar. 15, 2019
RCPTWN	Thermometer	HTC-1	TM560-1	Mar. 16, 2018	Mar. 15, 2019
Gencom	Thermometer	TE1	TM225-1	Mar. 16, 2018	Mar. 15, 2019
WonDer	Thermometer	WD-5016	TM642-1	Mar. 16, 2018	Mar. 15, 2019
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Apr. 17, 2018	Apr. 16, 2019
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 21, 2018	May. 20, 2019
R&S	BT Base Station	CBT	100815	Feb. 05, 2018	Feb. 04, 2019
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Dec. 07, 2017	Dec. 06, 2018
Agilent	ENA Network Analyzer	E5071C	MY46316648	Jan. 17, 2018	Jan. 16, 2019
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 26, 2017	Sep. 25, 2018
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3169	Sep. 06, 2017	Sep. 05, 2018
Anritsu	Power Meter	ML2495A	1419002	May. 18, 2018	May. 17, 2019
Anritsu	Power Sensor	MA2411B	1339124	May. 18, 2018	May. 17, 2019
Anritsu	Power Meter	ML2495A	1218006	Oct. 06, 2017	Oct. 05, 2018
Anritsu	Power Sensor	MA2411B	1207363	Oct. 06, 2017	Oct. 05, 2018
Agilent	Spectrum Analyzer	E4408B	MY44211028	Aug. 23, 2017	Aug. 22, 2018
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jun. 23, 2018	Jun. 22, 2019
Mini-Circuits	Power Amplifier	ZVE-8G+	D120604	Mar. 12, 2018	Mar. 11, 2019
Mini-Circuits	Power Amplifier	ZHL-42W+	QA1344002	Mar. 12, 2018	Mar. 11, 2019
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.

9. System Verification

9.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 10.2.

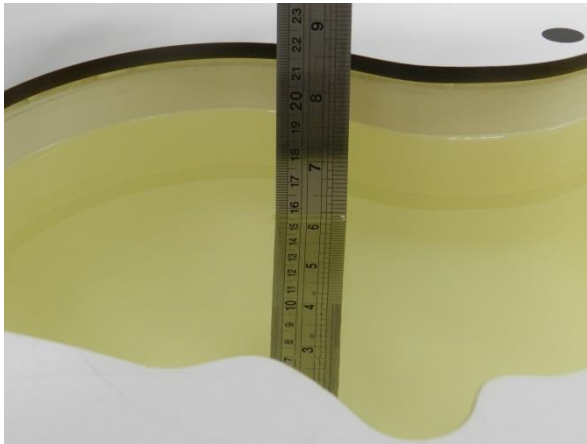


Fig 10.1 Photo of Liquid Height for Head SAR

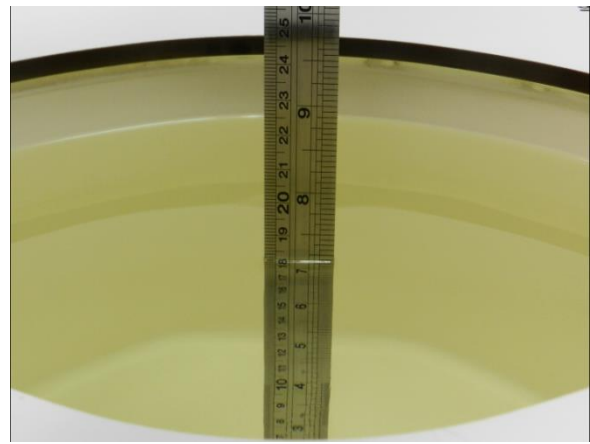


Fig 10.2 Photo of Liquid Height for Body SAR

9.2 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	HSL	22.3	0.896	43.017	0.89	41.90	0.67	2.67	±5	2018/7/10
750	HSL	22.4	0.894	40.536	0.89	41.90	0.45	-3.26	±5	2018/7/12
750	MSL	22.5	0.962	56.194	0.96	55.50	0.21	1.25	±5	2018/7/4
750	MSL	22.3	0.967	53.678	0.96	55.50	0.73	-3.28	±5	2018/7/5
835	HSL	22.4	0.877	41.944	0.90	41.50	-2.56	1.07	±5	2018/7/13
835	MSL	22.5	0.986	55.456	0.97	55.20	1.65	0.46	±5	2018/7/5
835	MSL	22.1	0.968	54.432	0.97	55.20	-0.21	-1.39	±5	2018/7/6
835	MSL	22.1	0.968	54.432	0.97	55.20	-0.21	-1.39	±5	2018/7/6
835	MSL	22.4	0.988	57.291	0.97	55.20	1.86	3.79	±5	2018/7/14
1750	HSL	22.4	1.392	41.488	1.37	40.10	1.61	3.46	±5	2018/7/14
1750	MSL	22.4	1.460	55.233	1.49	53.40	-2.01	3.43	±5	2018/7/9
1900	HSL	22.4	1.426	38.626	1.40	40.00	1.86	-3.44	±5	2018/7/14
1900	MSL	22.4	1.554	51.750	1.52	53.30	2.24	-2.91	±5	2018/7/8
1900	MSL	22.4	1.554	51.750	1.52	53.30	2.24	-2.91	±5	2018/7/8
2450	HSL	22.5	1.800	40.717	1.80	39.20	0.00	3.87	±5	2018/7/17
2450	HSL	22.5	1.801	38.814	1.80	39.20	0.06	-0.98	±5	2018/7/19
2450	MSL	22.2	2.015	54.712	1.95	52.70	3.33	3.82	±5	2018/7/17
2450	MSL	22.5	1.978	51.246	1.95	52.70	1.44	-2.76	±5	2018/7/19
2600	HSL	22.6	1.935	38.348	1.96	39.00	-1.28	-1.67	±5	2018/7/15
2600	MSL	22.2	2.226	51.082	2.16	52.50	3.06	-2.70	±5	2018/7/1
2600	MSL	22.5	2.230	53.010	2.16	52.50	3.24	0.97	±5	2018/7/4
2600	MSL	22.4	2.188	50.704	2.16	52.50	1.30	-3.42	±5	2018/7/12
5250	HSL	22.1	4.717	36.709	4.71	35.95	0.15	2.11	±5	2018/7/16
5250	MSL	22.1	5.477	46.848	5.36	48.95	2.18	-4.29	±5	2018/7/16
5600	HSL	22.1	5.059	36.240	5.07	35.50	-0.22	2.08	±5	2018/7/16
5600	MSL	22.1	5.931	46.232	5.77	48.50	2.79	-4.68	±5	2018/7/16
5750	HSL	22.3	5.210	35.974	5.22	35.35	-0.19	1.77	±5	2018/7/18
5750	HSL	22.4	5.203	36.028	5.22	35.35	-0.33	1.92	±5	2018/7/20
5750	MSL	22.3	6.145	46.009	5.94	48.28	3.45	-4.70	±5	2018/7/18
5750	MSL	22.4	6.133	45.931	5.94	48.28	3.25	-4.87	±5	2018/7/20

9.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2018/7/10	750	HSL	250	D750V3-1107	EX3DV4 - SN3931	DAE4 Sn1399	2.15	8.18	8.6	5.13
2018/7/12	750	HSL	250	D750V3-1107	ES3DV3 - SN3270	DAE4 Sn778	2.07	8.18	8.28	1.22
2018/7/4	750	MSL	250	D750V3-1107	EX3DV4 - SN3976	DAE4 Sn778	2.24	8.52	8.96	5.16
2018/7/5	750	MSL	250	D750V3-1107	EX3DV4 - SN3976	DAE4 Sn778	2.25	8.52	9	5.63
2018/7/13	835	HSL	250	D835V2-4d167	ES3DV3 - SN3270	DAE4 Sn778	2.27	9.26	9.08	-1.94
2018/7/5	835	MSL	250	D835V2-4d167	EX3DV4 - SN3976	DAE4 Sn778	2.56	9.62	10.24	6.44
2018/7/6	835	MSL	250	D835V2-4d167	EX3DV4 - SN3976	DAE4 Sn778	2.51	9.62	10.04	4.37
2018/7/6	835	MSL	250	D835V2-4d167	EX3DV4 - SN3931	DAE4 Sn1399	2.39	9.62	9.56	-0.62
2018/7/14	835	MSL	250	D835V2-4d167	ES3DV3 - SN3270	DAE4 Sn778	2.40	9.62	9.6	-0.21
2018/7/14	1750	HSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE4 Sn778	8.97	36.70	35.88	-2.23
2018/7/9	1750	MSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE4 Sn1424	8.73	37.20	34.92	-6.13
2018/7/14	1900	HSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn778	10.10	40.50	40.4	-0.25
2018/7/8	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn1399	10.10	40.70	40.4	-0.74
2018/7/8	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn1424	9.63	40.70	38.52	-5.36
2018/7/17	2450	HSL	250	D2450V2-736	ES3DV3 - SN3170	DAE3 Sn577	12.70	52.40	50.8	-3.05
2018/7/19	2450	HSL	250	D2450V2-736	EX3DV4 - SN3931	DAE4 Sn1399	12.80	52.40	51.2	-2.29
2018/7/17	2450	MSL	250	D2450V2-736	ES3DV3 - SN3270	DAE4 Sn778	13.10	50.80	52.4	3.15
2018/7/19	2450	MSL	250	D2450V2-736	EX3DV4 - SN3931	DAE4 Sn1399	12.50	50.80	50	-1.57
2018/7/15	2600	HSL	250	D2600V2-1008	ES3DV3 - SN3270	DAE4 Sn778	14.20	56.80	56.8	0.00
2018/7/1	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3925	DAE4 Sn854	13.50	55.00	54	-1.82
2018/7/4	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3976	DAE4 Sn778	14.00	55.00	56	1.82
2018/7/12	2600	MSL	250	D2600V2-1008	ES3DV3 - SN3270	DAE4 Sn778	13.90	55.00	55.6	1.09
2018/7/16	5250	HSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.79	78.30	77.9	-0.51
2018/7/16	5250	MSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.61	77.00	76.1	-1.17
2018/7/16	5600	HSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	8.94	85.00	89.4	5.18
2018/7/16	5600	MSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	8.01	80.10	80.1	0.00
2018/7/18	5750	HSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.89	78.50	78.9	0.51
2018/7/20	5750	MSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.88	78.50	78.8	0.38
2018/7/18	5750	MSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.52	75.10	75.2	0.13
2018/7/20	5750	MSL	100	D5GHZV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	7.23	75.10	72.3	-3.73

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)	Targeted 10g SAR (W/kg)
2018/7/9	1750	MSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE4 Sn1424	19.70	19.32	-1.93	19.70
2018/7/8	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE4 Sn1399	21.40	21.2	-0.93	21.40
2018/7/8	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn1424	21.40	20.36	-4.86	21.40
2018/7/16	5250	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	21.30	20.3	-4.69	21.30
2018/7/16	5600	MSL	100	D5GHzV2-1006	EX3DV4 - SN3931	DAE4 Sn1399	22.40	22.6	0.89	22.40

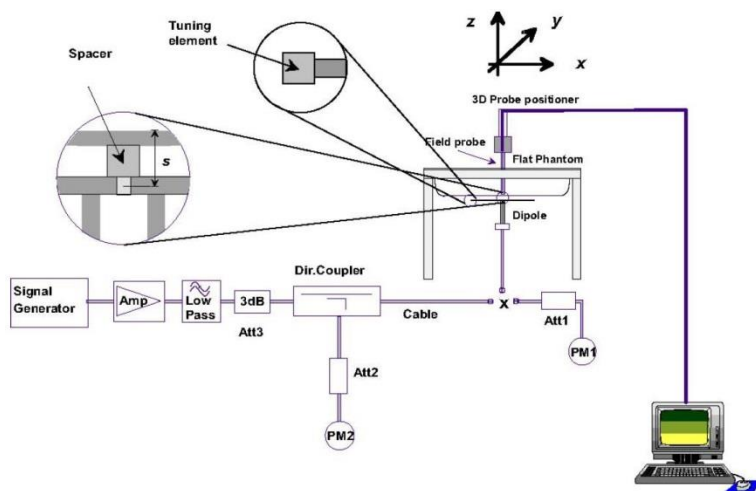


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

10. RF Exposure Positions

10.1 Ear and handset reference point

Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 9.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 9.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

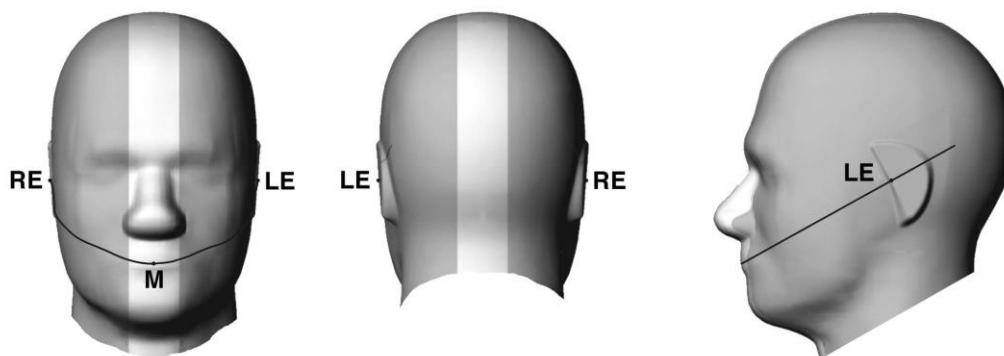


Fig 9.1.1 Front, back, and side views of SAM twin phantom

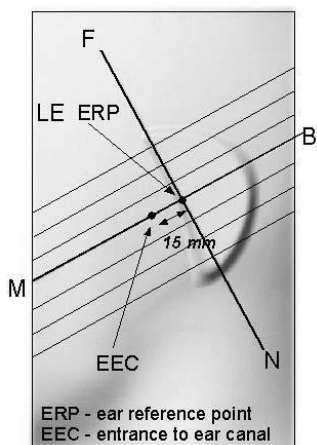


Fig 9.1.2 Close-up side view of phantom showing the ear region.

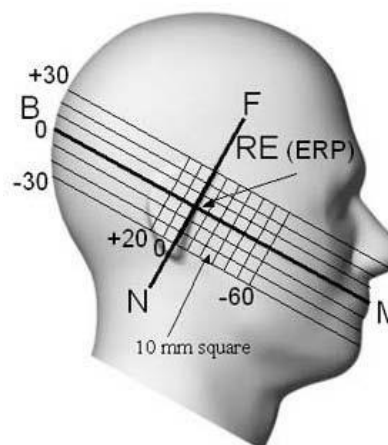


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

10.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 9.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 9.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 9.2.3. The actual rotation angles should be documented in the test report.

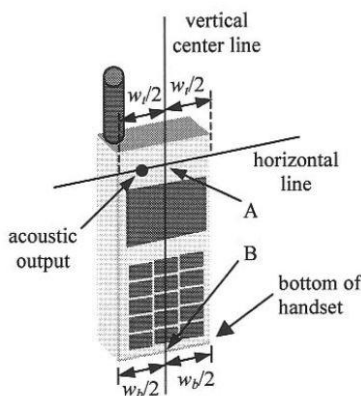


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case"

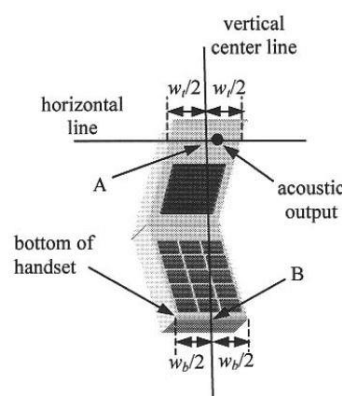


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

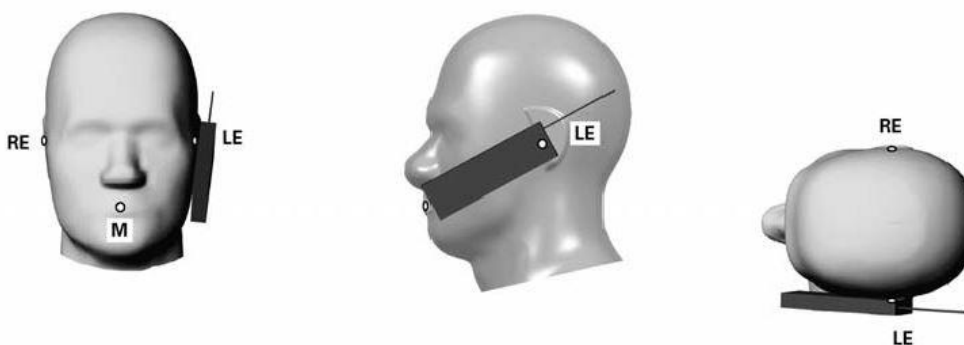


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

10.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15° .
3. Rotate the handset around the horizontal line by 15° .
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 9.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

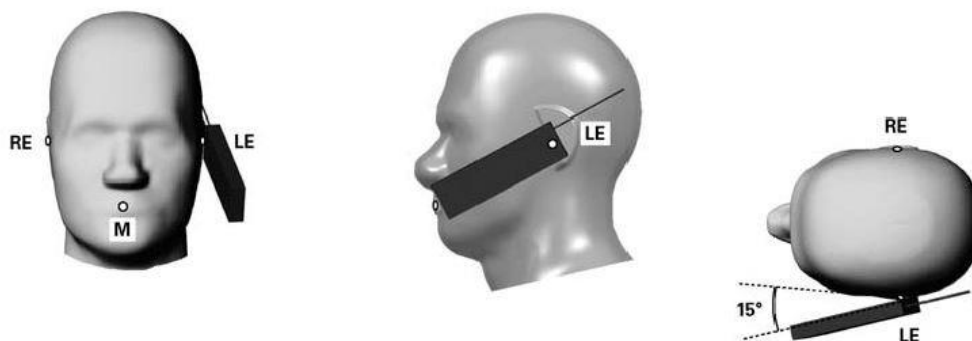


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

10.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 9.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is $> 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

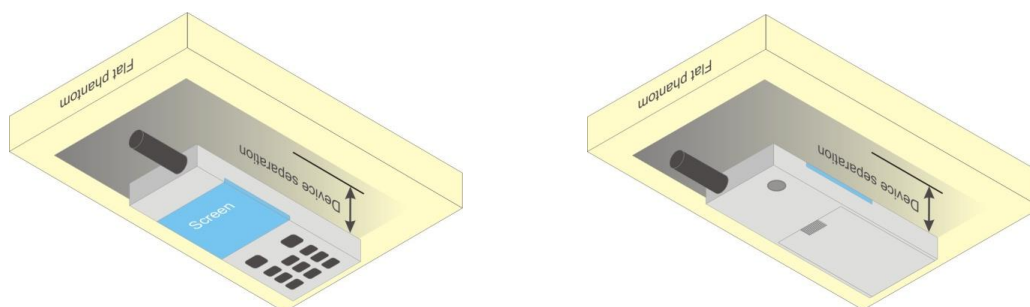


Fig 9.4 Body Worn Position



10.5 Extremity Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.⁶ The UMPC mini-tablet 1-g SAR at 5 mm is not required. 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.

10.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets ($L \times W \geq 9$ cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

11. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The 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. Therefore, the GPRS (2Tx slots) for GSM850/GSM1900 is considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode
4. Power reduction which is triggered by hotspot mode is implemented in GSM850 band, for hotspot mode SAR testing EUT was set in reduced power mode and GPRS 2Tx slot due to its highest frame-average power.

<Default Power Mode for WWAN LAT/UAT>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	32.51	32.71	32.60	33.00	23.51	23.71	23.60	24.00
GPRS 1 Tx slot	32.44	32.66	32.60	33.00	23.44	23.66	23.60	24.00
GPRS 2 Tx slots	32.25	32.49	32.56	33.00	26.25	26.49	26.56	27.00
EDGE 1 Tx slot	26.74	26.17	25.78	27.00	17.74	17.17	16.78	18.00
EDGE 2 Tx slots	26.54	26.12	25.69	27.00	20.54	20.12	19.69	21.00

GSM1900	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM 1 Tx slot	29.40	29.54	29.67	30.00	20.40	20.54	20.67	21.00
GPRS 1 Tx slot	29.36	29.52	29.66	30.00	20.36	20.52	20.66	21.00
GPRS 2 Tx slots	29.10	29.32	29.52	30.00	23.10	23.32	23.52	24.00
EDGE 1 Tx slot	24.75	24.66	24.86	26.00	15.75	15.66	15.86	17.00
EDGE 2 Tx slots	24.66	24.56	24.78	26.00	18.66	18.56	18.78	20.00

<Hotspot mode for WWAN LAT>

GSM850	Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GSM 1 Tx slot	31.42	31.00	30.65	31.50	22.42	22.00	21.65	22.50
GPRS 1 Tx slot	31.44	31.04	30.65	31.50	22.44	22.04	21.65	22.50
GPRS 2 Tx slots	31.06	30.70	30.43	31.50	25.06	24.70	24.43	25.50
EDGE 1 Tx slot	26.74	26.17	25.78	27.00	17.74	17.17	16.78	18.00
EDGE 2 Tx slots	26.54	26.12	25.69	27.00	20.54	20.12	19.69	21.00

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set Gain Factors (β_c and β_d) and parameters were set according to each
 - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - iii. Set RMC 12.2Kbps + HSDPA mode.
 - iv. Set Cell Power = -86 dBm
 - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
 - vi. Select HSDPA Uplink Parameters
 - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
 - viii. Set Ack-Nack Repetition Factor to 3
 - ix. Set CQI Feedback Cycle (k) to 4 ms
 - x. Set CQI Repetition Factor to 2
 - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

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} (Note 1, 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 $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. 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 $\Delta_{NACK} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{hs} = 24/15 * \beta_c$. Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPCCH, DPDCH 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 $\beta_c = 11/15$ and $\beta_d = 15/15$.							

Setup Configuration

HSUPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting * :
 - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
 - iii. Set Cell Power = -86 dBm
 - iv. Set Channel Type = 12.2k + HSPA
 - v. Set UE Target Power
 - vi. Power Ctrl Mode= Alternating bits
 - vii. Set and observe the E-TFCI
 - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

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} (Note 1)	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	209/25	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	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	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 $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

Note 2: CM = 1 for $\beta_d/\beta_c = 12/15$, $\beta_{hs}/\beta_c = 24/15$. 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 $\beta_c = 10/15$ and $\beta_d = 15/15$.

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.

Setup Configuration

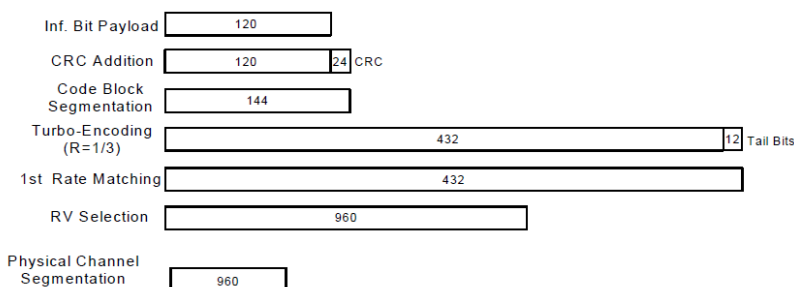
DC-HSDPA 3GPP release 8 Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set RMC 12.2Kbps + HSDPA mode.
 - ii. Set Cell Power = -25 dBm
 - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
 - iv. Select HSDPA Uplink Parameters
 - v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - a). Subtest 1: $\beta_c/\beta_d=2/15$
 - b). Subtest 2: $\beta_c/\beta_d=12/15$
 - c). Subtest 3: $\beta_c/\beta_d=15/8$
 - d). Subtest 4: $\beta_c/\beta_d=15/4$
 - vi. Set Delta ACK, Delta NACK and Delta CQI = 8
 - vii. Set Ack-Nack Repetition Factor to 3
 - viii. Set CQI Feedback Cycle (k) to 4 ms
 - ix. Set CQI Repetition Cycle to 2
 - x. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

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

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


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

<WCDMA Conducted Power>
General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

<Default power mode for WWAN LAT/UAT>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938		1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	24.38	24.30	24.06	24.50	24.13	24.12	24.08	24.50	23.42	23.32	23.12	24.00
3GPP Rel 99	RMC 12.2Kbps	24.41	24.29	23.94	24.50	24.14	24.13	24.09	24.50	23.43	23.22	23.14	24.00
3GPP Rel 6	HSDPA Subtest-1	23.41	23.30	22.95	24.00	23.14	23.15	23.20	24.00	22.43	22.33	22.14	23.50
3GPP Rel 6	HSDPA Subtest-2	23.42	23.30	22.94	24.00	23.17	23.25	23.22	24.00	22.45	22.32	22.15	23.50
3GPP Rel 6	HSDPA Subtest-3	22.96	22.84	22.50	23.50	22.66	22.78	22.73	23.50	21.47	21.84	21.65	23.00
3GPP Rel 6	HSDPA Subtest-4	22.94	22.85	22.58	23.50	22.67	22.71	22.74	23.50	21.96	21.76	21.65	23.00
3GPP Rel 8	DC-HSDPA Subtest-1	23.42	23.31	23.09	24.00	23.16	23.26	23.20	24.00	22.45	22.23	22.14	23.50
3GPP Rel 8	DC-HSDPA Subtest-2	23.42	23.30	22.98	24.00	23.18	23.26	23.21	24.00	22.42	22.30	22.11	23.50
3GPP Rel 8	DC-HSDPA Subtest-3	22.92	22.83	22.57	23.50	22.68	22.77	22.73	23.50	21.93	21.80	21.62	23.00
3GPP Rel 8	DC-HSDPA Subtest-4	22.92	22.84	22.47	23.50	22.68	22.76	22.73	23.50	21.92	21.80	21.61	23.00
3GPP Rel 6	HSUPA Subtest-1	23.42	23.34	22.96	24.00	23.19	23.28	23.24	24.00	22.42	22.31	22.12	23.50
3GPP Rel 6	HSUPA Subtest-2	21.46	21.36	21.12	22.00	21.20	21.30	21.25	22.00	20.43	20.34	20.13	21.50
3GPP Rel 6	HSUPA Subtest-3	22.47	22.37	22.09	23.00	22.22	22.29	22.25	23.00	21.45	21.35	21.12	22.50
3GPP Rel 6	HSUPA Subtest-4	21.46	21.34	21.10	22.00	21.20	21.30	21.24	22.00	20.43	20.32	20.11	21.50
3GPP Rel 6	HSUPA Subtest-5	23.46	23.35	23.09	24.00	23.19	23.29	23.24	24.00	22.45	22.32	22.15	23.50

<At-Head mode for WWAN UAT>

Band		WCDMA V			Tune-up Limit (dBm)
TX Channel		4132	4182	4233	
Rx Channel		4357	4407	4458	
Frequency (MHz)		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	21.45	21.35	21.20	22.00
3GPP Rel 99	RMC 12.2Kbps	21.47	21.36	21.21	22.00
3GPP Rel 6	HSDPA Subtest-1	20.49	20.42	20.20	21.50
3GPP Rel 6	HSDPA Subtest-2	20.46	20.39	20.18	21.50
3GPP Rel 6	HSDPA Subtest-3	19.52	19.89	19.66	21.00
3GPP Rel 6	HSDPA Subtest-4	20.03	19.85	19.71	21.00
3GPP Rel 8	DC-HSDPA Subtest-1	20.46	20.25	20.20	21.50
3GPP Rel 8	DC-HSDPA Subtest-2	20.48	20.36	20.13	21.50
3GPP Rel 8	DC-HSDPA Subtest-3	19.94	19.85	19.62	21.00
3GPP Rel 8	DC-HSDPA Subtest-4	19.92	19.86	19.66	21.00
3GPP Rel 6	HSUPA Subtest-1	20.42	20.40	20.22	21.50
3GPP Rel 6	HSUPA Subtest-2	18.46	18.37	18.16	19.50
3GPP Rel 6	HSUPA Subtest-3	19.47	19.36	19.14	20.50
3GPP Rel 6	HSUPA Subtest-4	18.50	18.37	18.15	19.50
3GPP Rel 6	HSUPA Subtest-5	20.47	20.32	20.25	21.50

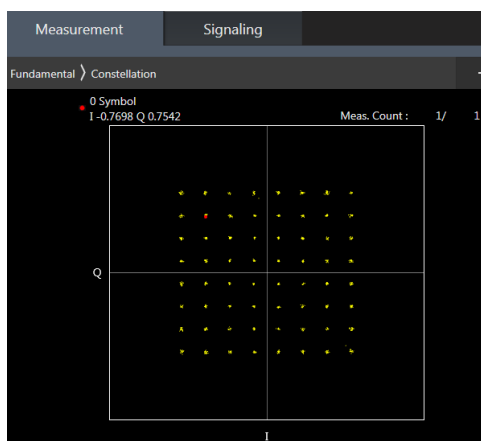
<Hotspot mode for WWAN LAT>

Band		WCDMA II			Tune-up Limit (dBm)	WCDMA IV			Tune-up Limit (dBm)	WCDMA V			Tune-up Limit (dBm)
TX Channel		9262	9400	9538		1312	1413	1513		4132	4182	4233	
Rx Channel		9662	9800	9938	Tune-up Limit (dBm)	1537	1638	1738		4357	4407	4458	
Frequency (MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.4	846.6	
3GPP Rel 99	AMR 12.2Kbps	23.49	23.37	23.02	24.00	21.74	21.80	21.79	22.50	22.39	22.27	22.20	23.00
3GPP Rel 99	RMC 12.2Kbps	23.50	23.38	23.04	24.00	21.76	21.81	21.79	22.50	22.40	22.34	22.20	23.00
3GPP Rel 6	HSDPA Subtest-1	22.45	22.32	22.05	23.50	20.67	20.67	20.71	22.00	21.40	21.40	21.12	22.50
3GPP Rel 6	HSDPA Subtest-2	22.46	22.31	21.97	23.50	20.77	20.76	20.82	22.00	21.42	21.32	21.16	22.50
3GPP Rel 6	HSDPA Subtest-3	22.02	21.93	21.57	23.00	20.20	20.37	20.28	21.50	20.50	20.83	20.66	22.00
3GPP Rel 6	HSDPA Subtest-4	21.99	21.95	21.68	23.00	20.25	20.28	20.27	21.50	20.99	20.84	20.68	22.00
3GPP Rel 8	DC-HSDPA Subtest-1	22.46	22.32	22.15	23.50	20.73	20.82	20.79	22.00	21.40	21.23	21.13	22.50
3GPP Rel 8	DC-HSDPA Subtest-2	22.42	22.37	22.03	23.50	20.75	20.81	20.75	22.00	21.43	21.29	21.04	22.50
3GPP Rel 8	DC-HSDPA Subtest-3	21.96	21.83	21.66	23.00	20.18	20.35	20.31	21.50	20.91	20.77	20.55	22.00
3GPP Rel 8	DC-HSDPA Subtest-4	22.00	21.88	21.50	23.00	20.23	20.28	20.32	21.50	20.90	20.76	20.65	22.00
3GPP Rel 6	HSUPA Subtest-1	22.49	22.42	21.96	23.50	20.79	20.84	20.76	22.00	21.36	21.39	21.22	22.50
3GPP Rel 6	HSUPA Subtest-2	20.46	20.36	20.13	21.50	18.72	18.90	18.85	20.00	19.41	19.33	19.11	20.50
3GPP Rel 6	HSUPA Subtest-3	21.53	21.43	21.12	22.50	19.73	19.88	19.81	21.00	20.39	20.31	20.05	21.50
3GPP Rel 6	HSUPA Subtest-4	20.53	20.34	20.14	21.50	18.75	18.88	18.76	20.00	19.47	19.31	19.14	20.50
3GPP Rel 6	HSUPA Subtest-5	22.51	22.36	22.19	23.50	20.69	20.82	20.80	22.00	21.46	21.30	21.21	22.50

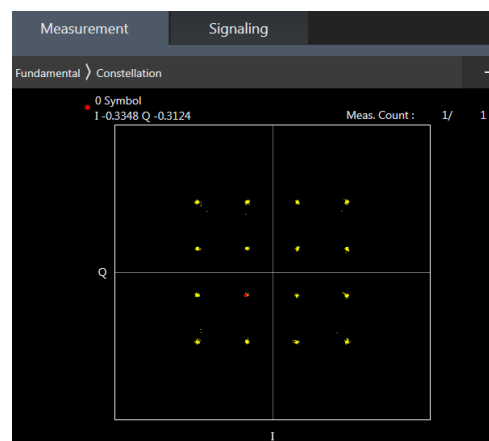
<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B12 / B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, 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.
9. LTE band 5 / 17 / 38 SAR test was covered by Band 26 / 12 / 41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM



16QAM



<Default power mode for WWAN LAT/UAT>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	23.80	23.71	24.20	24.5	0
20	QPSK	1	49	23.61	23.67	23.93		
20	QPSK	1	99	23.52	23.70	23.76		
20	QPSK	50	0	22.79	22.78	23.04	23.5	1
20	QPSK	50	24	22.69	22.77	23.03		
20	QPSK	50	50	22.59	22.74	22.92		
20	QPSK	100	0	22.72	22.74	22.94	23.5	1
20	16QAM	1	0	23.11	22.99	23.49		
20	16QAM	1	49	22.99	22.98	23.25		
20	16QAM	1	99	22.79	23.00	23.11	22.5	2
20	16QAM	50	0	21.89	21.87	22.11		
20	16QAM	50	24	21.77	21.82	22.10		
20	16QAM	50	50	21.71	21.81	21.99	22.5	2
20	16QAM	100	0	21.76	21.84	21.99		
20	64QAM	1	0	22.04	21.87	22.32		
20	64QAM	1	49	21.83	21.91	22.12	22.5	2
20	64QAM	1	99	21.68	21.94	21.97		
20	64QAM	50	0	20.88	20.85	21.12		
20	64QAM	50	24	20.78	20.81	21.11	21.5	3
20	64QAM	50	50	20.71	20.84	21.02		
20	64QAM	100	0	20.77	20.79	21.02		
Channel				18675	18900	19125	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.89	23.82	24.19	24.5	0
15	QPSK	1	37	23.58	23.69	23.91		
15	QPSK	1	74	23.65	23.77	23.79		
15	QPSK	36	0	22.74	22.79	23.01	23.5	1
15	QPSK	36	20	22.74	22.74	22.86		
15	QPSK	36	39	22.63	22.73	22.76		
15	QPSK	75	0	22.74	22.77	22.91	23.5	1
15	16QAM	1	0	23.15	23.14	23.46		
15	16QAM	1	37	22.84	22.96	23.04		
15	16QAM	1	74	23.00	23.04	23.05	22.5	2
15	16QAM	36	0	21.88	21.84	22.06		
15	16QAM	36	20	21.88	21.79	21.94		
15	16QAM	36	39	21.82	21.81	21.83	22.5	2
15	16QAM	75	0	21.89	21.83	21.96		
15	64QAM	1	0	22.17	22.02	22.34		
15	64QAM	1	37	21.78	21.93	22.08	22.5	2
15	64QAM	1	74	21.84	21.97	22.07		
15	64QAM	36	0	20.82	20.85	21.18		
15	64QAM	36	20	20.83	20.85	21.09	21.5	3
15	64QAM	36	39	20.75	20.84	20.96		
15	64QAM	75	0	20.79	20.83	21.09		



Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.87	23.75	24.09	24.5	0
10	QPSK	1	25	23.69	23.70	23.89		
10	QPSK	1	49	23.72	23.72	23.79		
10	QPSK	25	0	22.79	22.75	23.01	23.5	1
10	QPSK	25	12	22.74	22.75	22.94		
10	QPSK	25	25	22.77	22.75	22.79		
10	QPSK	50	0	22.84	22.75	22.85	23.5	1
10	16QAM	1	0	23.19	23.07	23.31		
10	16QAM	1	25	22.97	23.00	23.14		
10	16QAM	1	49	23.03	22.97	22.99	22.5	2
10	16QAM	25	0	21.89	21.83	21.97		
10	16QAM	25	12	21.83	21.83	21.90		
10	16QAM	25	25	21.86	21.79	21.83	22.5	2
10	16QAM	50	0	21.90	21.82	21.89		
10	64QAM	1	0	22.06	21.95	22.14		
10	64QAM	1	25	21.89	21.92	22.12	22.5	2
10	64QAM	1	49	21.93	21.93	22.07		
10	64QAM	25	0	20.77	20.83	21.08		
10	64QAM	25	12	20.76	20.86	21.02	21.5	3
10	64QAM	25	25	20.77	20.82	20.95		
10	64QAM	50	0	20.80	20.83	21.04		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.83	23.75	23.95	24.5	0
5	QPSK	1	12	23.76	23.72	23.78		
5	QPSK	1	24	23.70	23.71	23.74		
5	QPSK	12	0	22.82	22.75	22.81	23.5	1
5	QPSK	12	7	22.80	22.78	22.82		
5	QPSK	12	13	22.72	22.74	22.74		
5	QPSK	25	0	22.78	22.70	22.75	23.5	1
5	16QAM	1	0	23.15	23.09	23.11		
5	16QAM	1	12	22.98	23.05	23.07		
5	16QAM	1	24	22.98	23.03	23.08	22.5	2
5	16QAM	12	0	21.90	21.81	21.86		
5	16QAM	12	7	21.88	21.82	21.86		
5	16QAM	12	13	21.82	21.84	21.79	22.5	2
5	16QAM	25	0	21.86	21.81	21.85		
5	64QAM	1	0	22.04	21.92	22.02		
5	64QAM	1	12	21.92	21.95	21.99	22.5	2
5	64QAM	1	24	21.91	21.90	21.96		
5	64QAM	12	0	20.88	20.83	21.00		
5	64QAM	12	7	20.86	20.82	20.98	21.5	3
5	64QAM	12	13	20.78	20.86	20.94		
5	64QAM	25	0	20.80	20.81	20.97		

Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	23.85	23.74	23.88	24.5	0
3	QPSK	1	8	23.80	23.73	23.82		
3	QPSK	1	14	23.72	23.73	23.80		
3	QPSK	8	0	22.83	22.74	22.77	23.5	1
3	QPSK	8	4	22.80	22.78	22.80		
3	QPSK	8	7	22.81	22.74	22.75		
3	QPSK	15	0	22.78	22.74	22.74		
3	16QAM	1	0	23.11	23.00	23.11	23.5	1
3	16QAM	1	8	23.12	22.97	23.07		
3	16QAM	1	14	23.03	22.97	22.99		
3	16QAM	8	0	21.92	21.83	21.88	22.5	2
3	16QAM	8	4	21.92	21.85	21.87		
3	16QAM	8	7	21.87	21.85	21.83		
3	16QAM	15	0	21.87	21.82	21.82		
3	64QAM	1	0	22.03	21.93	21.98	22.5	2
3	64QAM	1	8	22.03	21.92	22.04		
3	64QAM	1	14	21.94	21.93	21.98		
3	64QAM	8	0	20.83	20.82	20.95	21.5	3
3	64QAM	8	4	20.84	20.87	20.96		
3	64QAM	8	7	20.79	20.82	20.91		
3	64QAM	15	0	20.79	20.80	20.94		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.67	23.66	23.75	24.5	0
1.4	QPSK	1	3	23.74	23.71	23.80		
1.4	QPSK	1	5	23.67	23.66	23.73		
1.4	QPSK	3	0	23.72	23.68	23.79		
1.4	QPSK	3	1	23.75	23.73	23.82		
1.4	QPSK	3	3	23.71	23.69	23.76		
1.4	QPSK	6	0	22.68	22.66	22.75	23.5	1
1.4	16QAM	1	0	23.01	22.96	23.03	23.5	1
1.4	16QAM	1	3	23.06	23.05	23.06		
1.4	16QAM	1	5	22.93	23.02	23.04		
1.4	16QAM	3	0	22.76	22.78	22.82		
1.4	16QAM	3	1	22.81	22.80	22.85		
1.4	16QAM	3	3	22.73	22.74	22.82		
1.4	16QAM	6	0	21.85	21.81	21.92	22.5	2
1.4	64QAM	1	0	22.32	22.38	22.44	22.5	2
1.4	64QAM	1	3	22.39	22.37	22.49		
1.4	64QAM	1	5	22.31	22.34	22.40		
1.4	64QAM	3	0	22.29	22.27	22.39		
1.4	64QAM	3	1	22.34	22.36	22.43		
1.4	64QAM	3	3	22.29	22.28	22.39		
1.4	64QAM	6	0	21.24	21.23	21.32	21.5	3

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300	24.5	0
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	23.60	23.85	23.90	24.5	0
20	QPSK	1	49	23.55	23.71	23.65		
20	QPSK	1	99	23.72	23.70	23.66		
20	QPSK	50	0	22.74	22.82	22.81	23.5	1
20	QPSK	50	24	22.62	22.80	22.74		
20	QPSK	50	50	22.67	22.75	22.69		
20	QPSK	100	0	22.62	22.78	22.74		
20	16QAM	1	0	22.94	23.19	23.21	23.5	1
20	16QAM	1	49	22.88	22.99	23.00		
20	16QAM	1	99	23.13	22.96	23.01		
20	16QAM	50	0	21.80	21.92	21.89	22.5	2
20	16QAM	50	24	21.72	21.86	21.83		
20	16QAM	50	50	21.76	21.81	21.78		
20	16QAM	100	0	21.70	21.85	21.83		
20	64QAM	1	0	21.81	22.04	22.10	22.5	2
20	64QAM	1	49	21.78	21.87	21.93		
20	64QAM	1	99	21.95	21.90	21.89		
20	64QAM	50	0	20.82	20.96	20.93	21.5	3
20	64QAM	50	24	20.77	20.87	20.85		
20	64QAM	50	50	20.77	20.82	20.77		
20	64QAM	100	0	20.72	20.88	20.84		
Channel				20025	20175	20325	24.5	0
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	23.58	23.79	23.86	24.5	0
15	QPSK	1	37	23.53	23.69	23.67		
15	QPSK	1	74	23.71	23.71	23.67		
15	QPSK	36	0	22.60	22.84	22.77	23.5	1
15	QPSK	36	20	22.69	22.77	22.74		
15	QPSK	36	39	22.69	22.72	22.71		
15	QPSK	75	0	22.65	22.78	22.75		
15	16QAM	1	0	22.90	23.12	23.14	23.5	1
15	16QAM	1	37	22.87	23.06	22.99		
15	16QAM	1	74	23.06	23.08	23.01		
15	16QAM	36	0	21.72	21.89	21.84	22.5	2
15	16QAM	36	20	21.74	21.86	21.83		
15	16QAM	36	39	21.79	21.84	21.79		
15	16QAM	75	0	21.74	21.85	21.85		
15	64QAM	1	0	21.86	22.04	22.08	22.5	2
15	64QAM	1	37	21.75	21.91	21.93		
15	64QAM	1	74	21.99	21.90	21.90		
15	64QAM	36	0	20.71	20.95	20.89	21.5	3
15	64QAM	36	20	20.78	20.90	20.85		
15	64QAM	36	39	20.82	20.83	20.79		
15	64QAM	75	0	20.77	20.87	20.85		

Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	23.49	23.74	23.79	24.5	0
10	QPSK	1	25	23.51	23.73	23.68		
10	QPSK	1	49	23.58	23.71	23.68		
10	QPSK	25	0	22.62	22.79	22.75	23.5	1
10	QPSK	25	12	22.57	22.79	22.72		
10	QPSK	25	25	22.60	22.72	22.72		
10	QPSK	50	0	22.56	22.77	22.73	23.5	1
10	16QAM	1	0	22.83	23.13	23.10		
10	16QAM	1	25	22.82	23.04	23.05		
10	16QAM	1	49	22.90	22.98	23.01	22.5	2
10	16QAM	25	0	21.68	21.89	21.85		
10	16QAM	25	12	21.65	21.86	21.85		
10	16QAM	25	25	21.71	21.81	21.81	22.5	2
10	16QAM	50	0	21.64	21.83	21.80		
10	64QAM	1	0	21.72	21.95	22.00		
10	64QAM	1	25	21.77	21.94	21.91	21.5	3
10	64QAM	1	49	21.83	21.88	21.90		
10	64QAM	25	0	20.68	20.91	20.87		
10	64QAM	25	12	20.63	20.89	20.82	21.5	3
10	64QAM	25	25	20.74	20.85	20.80		
10	64QAM	50	0	20.67	20.89	20.84		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	23.50	23.80	23.74	24.5	0
5	QPSK	1	12	23.45	23.75	23.73		
5	QPSK	1	24	23.54	23.75	23.67		
5	QPSK	12	0	22.46	22.80	22.73	23.5	1
5	QPSK	12	7	22.61	22.79	22.72		
5	QPSK	12	13	22.56	22.77	22.70		
5	QPSK	25	0	22.59	22.75	22.73	23.5	1
5	16QAM	1	0	22.81	23.10	23.13		
5	16QAM	1	12	22.73	23.05	23.03		
5	16QAM	1	24	22.86	23.04	23.03	22.5	2
5	16QAM	12	0	21.54	21.85	21.83		
5	16QAM	12	7	21.66	21.86	21.84		
5	16QAM	12	13	21.64	21.81	21.78	22.5	2
5	16QAM	25	0	21.64	21.85	21.82		
5	64QAM	1	0	21.74	22.03	21.94		
5	64QAM	1	12	21.68	21.99	21.93	21.5	3
5	64QAM	1	24	21.76	21.96	21.93		
5	64QAM	12	0	20.60	20.89	20.85		
5	64QAM	12	7	20.68	20.88	20.87	21.5	3
5	64QAM	12	13	20.69	20.84	20.82		
5	64QAM	25	0	20.65	20.84	20.80		



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Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	23.48	23.80	23.70	24.5	0
3	QPSK	1	8	23.46	23.73	23.72		
3	QPSK	1	14	23.56	23.72	23.67		
3	QPSK	8	0	22.48	22.76	22.71	23.5	1
3	QPSK	8	4	22.48	22.79	22.75		
3	QPSK	8	7	22.56	22.74	22.71		
3	QPSK	15	0	22.59	22.73	22.70		
3	16QAM	1	0	22.79	23.04	23.06	23.5	1
3	16QAM	1	8	22.75	23.07	23.05		
3	16QAM	1	14	22.84	23.07	23.02		
3	16QAM	8	0	21.58	21.86	21.87	22.5	2
3	16QAM	8	4	21.64	21.91	21.89		
3	16QAM	8	7	21.69	21.86	21.87		
3	16QAM	15	0	21.69	21.82	21.81		
3	64QAM	1	0	21.71	21.99	21.97	22.5	2
3	64QAM	1	8	21.69	21.99	21.92		
3	64QAM	1	14	21.72	21.92	21.98		
3	64QAM	8	0	20.57	20.85	20.84	21.5	3
3	64QAM	8	4	20.62	20.89	20.86		
3	64QAM	8	7	20.66	20.84	20.82		
3	64QAM	15	0	20.66	20.87	20.83		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	23.41	23.65	23.61	24.5	0
1.4	QPSK	1	3	23.45	23.71	23.68		
1.4	QPSK	1	5	23.38	23.64	23.59		
1.4	QPSK	3	0	23.41	23.71	23.63		
1.4	QPSK	3	1	23.46	23.72	23.69		
1.4	QPSK	3	3	23.41	23.68	23.65		
1.4	QPSK	6	0	22.39	22.66	22.63	23.5	1
1.4	16QAM	1	0	22.70	22.92	22.89	23.5	1
1.4	16QAM	1	3	22.79	23.04	23.04		
1.4	16QAM	1	5	22.71	23.04	22.96		
1.4	16QAM	3	0	22.52	22.77	22.72		
1.4	16QAM	3	1	22.53	22.78	22.74		
1.4	16QAM	3	3	22.48	22.72	22.75		
1.4	16QAM	6	0	21.55	21.83	21.78	22.5	2
1.4	64QAM	1	0	22.11	22.40	22.32	22.5	2
1.4	64QAM	1	3	22.17	22.41	22.40		
1.4	64QAM	1	5	22.05	22.33	22.26		
1.4	64QAM	3	0	22.02	22.30	22.25		
1.4	64QAM	3	1	22.05	22.31	22.31		
1.4	64QAM	3	3	22.02	22.27	22.21		
1.4	64QAM	6	0	21.47	21.26	21.20	21.5	3

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	24.36	24.42	24.49	24.5	0
10	QPSK	1	25	24.42	24.45	24.29		
10	QPSK	1	49	24.44	24.32	24.12		
10	QPSK	25	0	23.48	23.43	23.47	23.5	1
10	QPSK	25	12	23.43	23.50	23.36		
10	QPSK	25	25	23.42	23.48	23.28		
10	QPSK	50	0	23.42	23.49	23.32		
10	16QAM	1	0	23.46	23.42	23.48	23.5	1
10	16QAM	1	25	23.42	23.41	23.41		
10	16QAM	1	49	23.46	23.40	23.44		
10	16QAM	25	0	22.47	22.40	22.48	22.5	2
10	16QAM	25	12	22.44	22.40	22.45		
10	16QAM	25	25	22.42	22.46	22.39		
10	16QAM	50	0	22.31	22.39	22.42		
10	64QAM	1	0	22.40	22.43	22.40	22.5	2
10	64QAM	1	25	22.38	22.39	22.31		
10	64QAM	1	49	22.37	22.32	22.34		
10	64QAM	25	0	21.35	21.31	21.35	21.5	3
10	64QAM	25	12	21.33	21.32	21.44		
10	64QAM	25	25	21.38	21.36	21.36		
10	64QAM	50	0	21.32	21.36	21.41		
Channel				20425	20525	20625		
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	24.37	24.49	24.32	24.5	0
5	QPSK	1	12	24.34	24.45	24.19		
5	QPSK	1	24	24.41	24.44	24.17		
5	QPSK	12	0	23.40	23.32	23.34	23.5	1
5	QPSK	12	7	23.47	23.49	23.32		
5	QPSK	12	13	23.44	23.47	23.21		
5	QPSK	25	0	23.46	23.31	23.29		
5	16QAM	1	0	23.45	23.46	23.39	23.5	1
5	16QAM	1	12	23.40	23.48	23.31		
5	16QAM	1	24	23.46	23.40	23.49		
5	16QAM	12	0	22.47	22.32	22.39	22.5	2
5	16QAM	12	7	22.33	22.29	22.43		
5	16QAM	12	13	22.33	22.38	22.26		
5	16QAM	25	0	22.36	22.30	22.40		
5	64QAM	1	0	22.35	22.45	22.31	22.5	2
5	64QAM	1	12	22.32	22.41	22.42		
5	64QAM	1	24	22.37	22.38	22.37		
5	64QAM	12	0	21.48	21.32	21.44	21.5	3
5	64QAM	12	7	21.39	21.33	21.44		
5	64QAM	12	13	21.35	21.38	21.29		
5	64QAM	25	0	21.35	21.37	21.36		



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Channel				20415	20525	20635	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	24.34	24.48	24.20	24.5	0
3	QPSK	1	8	24.34	24.44	24.16		
3	QPSK	1	14	24.30	24.43	24.16		
3	QPSK	8	0	23.39	23.49	23.21	23.5	1
3	QPSK	8	4	23.39	23.49	23.22		
3	QPSK	8	7	23.35	23.48	23.17		
3	QPSK	15	0	23.35	23.48	23.20		
3	16QAM	1	0	23.41	23.39	23.46	23.5	1
3	16QAM	1	8	23.36	23.47	23.31		
3	16QAM	1	14	23.34	23.45	23.40		
3	16QAM	8	0	22.50	22.32	22.33	22.5	2
3	16QAM	8	4	22.33	22.34	22.35		
3	16QAM	8	7	22.48	22.31	22.33		
3	16QAM	15	0	22.45	22.34	22.30		
3	64QAM	1	0	22.32	22.40	22.40	22.5	2
3	64QAM	1	8	22.29	22.41	22.39		
3	64QAM	1	14	22.34	22.37	22.35		
3	64QAM	8	0	21.48	21.38	21.28	21.5	3
3	64QAM	8	4	21.33	21.32	21.31		
3	64QAM	8	7	21.43	21.38	21.28		
3	64QAM	15	0	21.43	21.35	21.28		
Channel				20407	20525	20643	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.99	24.10	23.79	24.5	0
1.4	QPSK	1	3	24.05	24.17	23.88		
1.4	QPSK	1	5	23.96	24.09	23.75		
1.4	QPSK	3	0	24.03	24.10	23.80		
1.4	QPSK	3	1	24.05	24.16	23.87		
1.4	QPSK	3	3	23.99	24.12	23.82		
1.4	QPSK	6	0	23.01	23.12	22.84	23.5	1
1.4	16QAM	1	0	23.30	23.36	23.08	23.5	1
1.4	16QAM	1	3	23.39	23.47	23.19		
1.4	16QAM	1	5	23.30	23.44	23.07		
1.4	16QAM	3	0	23.11	23.20	22.89		
1.4	16QAM	3	1	23.12	23.26	22.95		
1.4	16QAM	3	3	23.05	23.19	22.90		
1.4	16QAM	6	0	22.17	22.24	22.02	22.5	2
1.4	64QAM	1	0	22.33	22.50	22.21	22.5	2
1.4	64QAM	1	3	22.44	22.48	22.25		
1.4	64QAM	1	5	22.38	22.50	22.19		
1.4	64QAM	3	0	22.30	22.42	22.14		
1.4	64QAM	3	1	22.37	22.47	22.17		
1.4	64QAM	3	3	22.31	22.44	22.13		
1.4	64QAM	6	0	21.26	21.39	21.10	21.5	3

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	20.69	20.36	20.29	21.5	0
20	QPSK	1	49	20.61	20.09	20.25		
20	QPSK	1	99	20.43	20.22	20.24		
20	QPSK	50	0	19.72	19.18	19.26	20.5	1
20	QPSK	50	24	19.58	19.17	19.19		
20	QPSK	50	50	19.46	19.15	19.25		
20	QPSK	100	0	19.57	19.19	19.21		
20	16QAM	1	0	19.94	19.69	19.70	20.5	1
20	16QAM	1	49	19.94	19.44	19.63		
20	16QAM	1	99	19.82	19.63	19.63		
20	16QAM	50	0	18.83	18.32	18.37	19.5	2
20	16QAM	50	24	18.73	18.29	18.33		
20	16QAM	50	50	18.54	18.26	18.38		
20	16QAM	100	0	18.67	18.27	18.31		
20	64QAM	1	0	18.91	18.69	18.65	19.5	2
20	64QAM	1	49	18.94	18.40	18.51		
20	64QAM	1	99	18.77	18.54	18.51		
20	64QAM	50	0	17.86	17.32	17.36	18.5	3
20	64QAM	50	24	17.71	17.29	17.32		
20	64QAM	50	50	17.57	17.28	17.39		
20	64QAM	100	0	17.71	17.31	17.31		
Channel				20825	21100	21375		
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	20.65	20.32	20.26	21.5	0
15	QPSK	1	37	20.64	20.10	20.23		
15	QPSK	1	74	20.55	20.16	20.25		
15	QPSK	36	0	19.72	19.18	19.18	20.5	1
15	QPSK	36	20	19.60	19.18	19.28		
15	QPSK	36	39	19.56	19.14	19.24		
15	QPSK	75	0	19.57	19.15	19.19		
15	16QAM	1	0	19.94	19.66	19.66	20.5	1
15	16QAM	1	37	19.95	19.42	19.58		
15	16QAM	1	74	19.95	19.53	19.60		
15	16QAM	36	0	18.82	18.28	18.33	19.5	2
15	16QAM	36	20	18.74	18.28	18.40		
15	16QAM	36	39	18.65	18.28	18.36		
15	16QAM	75	0	18.69	18.29	18.28		
15	64QAM	1	0	18.94	18.66	18.56	19.5	2
15	64QAM	1	37	18.96	18.34	18.53		
15	64QAM	1	74	18.86	18.41	18.53		
15	64QAM	36	0	17.85	17.30	17.36	18.5	3
15	64QAM	36	20	17.76	17.32	17.42		
15	64QAM	36	39	17.72	17.27	17.39		
15	64QAM	75	0	17.70	17.27	17.31		



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Channel				20800	21100	21400	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	20.61	20.24	20.25	21.5	0
10	QPSK	1	25	20.64	20.11	20.22		
10	QPSK	1	49	20.61	20.09	20.19		
10	QPSK	25	0	19.69	19.13	19.24	20.5	1
10	QPSK	25	12	19.69	19.15	19.25		
10	QPSK	25	25	19.62	19.11	19.22		
10	QPSK	50	0	19.66	19.11	19.24		
10	16QAM	1	0	19.94	19.56	19.59	20.5	1
10	16QAM	1	25	19.97	19.44	19.52		
10	16QAM	1	49	19.96	19.42	19.45		
10	16QAM	25	0	18.79	18.22	18.32	19.5	2
10	16QAM	25	12	18.80	18.25	18.33		
10	16QAM	25	25	18.76	18.22	18.29		
10	16QAM	50	0	18.75	18.23	18.30		
10	64QAM	1	0	18.95	18.52	18.50	19.5	2
10	64QAM	1	25	18.91	18.36	18.45		
10	64QAM	1	49	18.88	18.35	18.43		
10	64QAM	25	0	17.80	17.23	17.34	18.5	3
10	64QAM	25	12	17.78	17.22	17.35		
10	64QAM	25	25	17.73	17.21	17.27		
10	64QAM	50	0	17.76	17.23	17.31		
Channel				20775	21100	21425	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	20.60	20.12	20.20	21.5	0
5	QPSK	1	12	20.62	20.09	20.18		
5	QPSK	1	24	20.63	20.10	20.17		
5	QPSK	12	0	19.78	19.13	19.19	20.5	1
5	QPSK	12	7	19.72	19.17	19.23		
5	QPSK	12	13	19.66	19.10	19.18		
5	QPSK	25	0	19.68	19.10	19.19		
5	16QAM	1	0	19.94	19.45	19.54	20.5	1
5	16QAM	1	12	19.98	19.42	19.48		
5	16QAM	1	24	19.92	19.41	19.43		
5	16QAM	12	0	18.88	18.23	18.31	19.5	2
5	16QAM	12	7	18.81	18.23	18.33		
5	16QAM	12	13	18.75	18.21	18.29		
5	16QAM	25	0	18.77	18.19	18.30		
5	64QAM	1	0	18.95	18.37	18.45	19.5	2
5	64QAM	1	12	18.97	18.33	18.42		
5	64QAM	1	24	18.88	18.33	18.40		
5	64QAM	12	0	17.94	17.26	17.36	18.5	3
5	64QAM	12	7	17.84	17.27	17.37		
5	64QAM	12	13	17.80	17.23	17.34		
5	64QAM	25	0	17.77	17.20	17.32		

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	22.81	23.03	23.24	24.5	0
10	QPSK	1	25	22.83	23.02	23.13		
10	QPSK	1	49	22.90	23.00	23.23		
10	QPSK	25	0	21.80	22.11	22.18	23.5	1
10	QPSK	25	12	21.94	22.08	22.17		
10	QPSK	25	25	21.95	22.03	22.17		
10	QPSK	50	0	21.89	22.04	22.15		
10	16QAM	1	0	22.06	22.23	22.40	23.5	1
10	16QAM	1	25	22.19	22.41	22.46		
10	16QAM	1	49	22.18	22.42	22.57		
10	16QAM	25	0	20.91	21.18	21.14	22.5	2
10	16QAM	25	12	20.99	21.16	21.25		
10	16QAM	25	25	21.06	21.11	21.28		
10	16QAM	50	0	20.97	21.14	21.25		
10	64QAM	1	0	20.97	21.18	21.32	22.5	2
10	64QAM	1	25	21.23	21.27	21.40		
10	64QAM	1	49	21.21	21.26	21.51		
10	64QAM	25	0	20.05	20.20	20.17	21.5	3
10	64QAM	25	12	20.10	20.17	20.25		
10	64QAM	25	25	20.10	20.09	20.30		
10	64QAM	50	0	20.09	20.16	20.23		
Channel				23035	23095	23155	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	22.72	22.96	23.15	24.5	0
5	QPSK	1	12	22.77	23.01	23.18		
5	QPSK	1	24	22.84	23.14	23.22		
5	QPSK	12	0	21.79	22.09	22.16	23.5	1
5	QPSK	12	7	21.77	22.07	22.24		
5	QPSK	12	13	21.85	22.03	22.19		
5	QPSK	25	0	21.78	22.04	22.23		
5	16QAM	1	0	22.08	22.27	22.48	23.5	1
5	16QAM	1	12	22.01	22.37	22.53		
5	16QAM	1	24	22.13	22.44	22.56		
5	16QAM	12	0	20.88	21.14	21.24	22.5	2
5	16QAM	12	7	20.87	21.15	21.29		
5	16QAM	12	13	20.95	21.11	21.29		
5	16QAM	25	0	20.85	21.14	21.31		
5	64QAM	1	0	20.92	21.23	21.43	22.5	2
5	64QAM	1	12	21.10	21.26	21.50		
5	64QAM	1	24	21.20	21.39	21.49		
5	64QAM	12	0	20.02	20.18	20.25	21.5	3
5	64QAM	12	7	20.03	20.17	20.35		
5	64QAM	12	13	20.09	20.12	20.32		
5	64QAM	25	0	19.98	20.13	20.30		



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Channel				23025	23095	23165	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	22.79	22.93	23.23	24.5	0
3	QPSK	1	8	22.76	23.01	23.22		
3	QPSK	1	14	22.76	23.00	23.23		
3	QPSK	8	0	21.80	22.07	22.21	23.5	1
3	QPSK	8	4	21.79	22.07	22.23		
3	QPSK	8	7	21.78	22.04	22.16		
3	QPSK	15	0	21.77	22.04	22.19		
3	16QAM	1	0	21.98	22.18	22.53	23.5	1
3	16QAM	1	8	22.09	22.34	22.58		
3	16QAM	1	14	22.02	22.31	22.54		
3	16QAM	8	0	20.91	21.20	21.31	22.5	2
3	16QAM	8	4	20.91	21.22	21.33		
3	16QAM	8	7	20.90	21.14	21.34		
3	16QAM	15	0	20.85	21.12	21.28		
3	64QAM	1	0	20.92	21.18	21.45	22.5	2
3	64QAM	1	8	21.12	21.26	21.56		
3	64QAM	1	14	21.06	21.23	21.57		
3	64QAM	8	0	20.03	20.15	20.31	21.5	3
3	64QAM	8	4	20.03	20.17	20.35		
3	64QAM	8	7	20.01	20.13	20.32		
3	64QAM	15	0	19.98	20.14	20.27		
Channel				23017	23095	23173	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.56	22.63	22.87	24.5	0
1.4	QPSK	1	3	22.62	22.72	22.95		
1.4	QPSK	1	5	22.54	22.60	22.87		
1.4	QPSK	3	0	22.62	22.66	22.92		
1.4	QPSK	3	1	22.62	22.68	22.97		
1.4	QPSK	3	3	22.61	22.64	22.93		
1.4	QPSK	6	0	21.59	21.66	21.94	23.5	1
1.4	16QAM	1	0	21.52	21.97	22.22	23.5	1
1.4	16QAM	1	3	21.70	22.00	22.34		
1.4	16QAM	1	5	21.60	21.97	22.15		
1.4	16QAM	3	0	21.61	21.76	21.99		
1.4	16QAM	3	1	21.63	21.80	22.02		
1.4	16QAM	3	3	21.54	21.75	21.97		
1.4	16QAM	6	0	20.57	20.84	21.08	22.5	2
1.4	64QAM	1	0	21.42	21.84	22.09	22.5	2
1.4	64QAM	1	3	21.55	21.92	22.14		
1.4	64QAM	1	5	21.41	21.80	22.00		
1.4	64QAM	3	0	21.40	21.80	22.03		
1.4	64QAM	3	1	21.46	21.81	21.13		
1.4	64QAM	3	3	21.42	21.75	21.08		
1.4	64QAM	6	0	20.37	20.76	20.01	21.5	3

<LTE Band 13>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23230				
Frequency (MHz)				782				
10	QPSK	1	0	24.23			24.5	0
10	QPSK	1	25	24.22				
10	QPSK	1	49	24.13				
10	QPSK	25	0	23.29			23.5	1
10	QPSK	25	12	23.25				
10	QPSK	25	25	23.20				
10	QPSK	50	0	23.28				
10	16QAM	1	0	23.36			23.5	1
10	16QAM	1	25	23.48				
10	16QAM	1	49	23.35				
10	16QAM	25	0	22.24			22.5	2
10	16QAM	25	12	22.27				
10	16QAM	25	25	22.15				
10	16QAM	50	0	22.23				
10	64QAM	1	0	22.19			22.5	2
10	64QAM	1	25	22.43				
10	64QAM	1	49	22.34				
10	64QAM	25	0	21.33			21.5	3
10	64QAM	25	12	21.36				
10	64QAM	25	25	21.28				
10	64QAM	50	0	21.34				
Channel				23205	23230	23255	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				779.5	782	784.5		
5	QPSK	1	0	23.98	24.20	24.22	24.5	0
5	QPSK	1	12	24.15	24.20	24.18		
5	QPSK	1	24	24.20	24.17	24.13		
5	QPSK	12	0	23.12	23.21	23.23	23.5	1
5	QPSK	12	7	23.19	23.17	23.21		
5	QPSK	12	13	23.25	23.11	23.16		
5	QPSK	25	0	23.19	23.16	23.23	23.5	1
5	16QAM	1	0	23.11	23.37	23.50		
5	16QAM	1	12	23.34	23.42	23.35		
5	16QAM	1	24	23.39	23.30	23.37	22.5	2
5	16QAM	12	0	22.08	22.27	22.31		
5	16QAM	12	7	22.15	22.24	22.29		
5	16QAM	12	13	22.25	22.18	22.25		
5	16QAM	25	0	22.16	22.25	22.30	22.5	2
5	64QAM	1	0	22.09	22.35	22.49		
5	64QAM	1	12	22.36	22.46	22.34		
5	64QAM	1	24	22.43	22.40	22.38	21.5	3
5	64QAM	12	0	21.23	21.40	21.36		
5	64QAM	12	7	21.28	21.41	21.42		
5	64QAM	12	13	21.35	21.28	21.29		
5	64QAM	25	0	21.24	21.32	21.33		



<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.06	23.12	23.25	24.5	0
10	QPSK	1	25	23.07	23.09	23.16		
10	QPSK	1	49	23.14	23.19	23.24		
10	QPSK	25	0	22.02	22.03	22.12	23.5	1
10	QPSK	25	12	22.05	22.10	22.11		
10	QPSK	25	25	22.08	22.08	22.10		
10	QPSK	50	0	22.09	22.11	22.14		
10	16QAM	1	0	22.10	22.23	22.24	23.5	1
10	16QAM	1	25	22.42	22.40	22.47		
10	16QAM	1	49	22.55	22.51	22.59		
10	16QAM	25	0	21.10	21.10	21.17	22.5	2
10	16QAM	25	12	21.19	21.20	21.14		
10	16QAM	25	25	21.11	21.25	21.25		
10	16QAM	50	0	21.16	21.18	21.16		
10	64QAM	1	0	21.05	21.14	21.17	22.5	2
10	64QAM	1	25	21.32	21.32	21.42		
10	64QAM	1	49	21.38	21.40	21.54		
10	64QAM	25	0	20.12	20.13	20.20	21.5	3
10	64QAM	25	12	20.20	20.20	20.19		
10	64QAM	25	25	20.14	20.26	20.19		
10	64QAM	50	0	20.18	20.16	20.19		
Channel				23755	23790	23825		
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	22.86	23.02	23.17	24.5	0
5	QPSK	1	12	22.86	23.03	23.20		
5	QPSK	1	24	22.99	23.15	23.24		
5	QPSK	12	0	21.93	22.11	22.18	23.5	1
5	QPSK	12	7	22.05	22.14	22.16		
5	QPSK	12	13	21.99	22.05	22.22		
5	QPSK	25	0	21.99	22.15	22.13		
5	16QAM	1	0	22.12	22.23	22.53	23.5	1
5	16QAM	1	12	22.11	22.37	22.61		
5	16QAM	1	24	22.26	22.40	22.54		
5	16QAM	12	0	21.00	21.20	21.26	22.5	2
5	16QAM	12	7	21.11	21.20	21.28		
5	16QAM	12	13	21.07	21.13	21.32		
5	16QAM	25	0	21.06	21.15	21.22		
5	64QAM	1	0	21.07	21.29	21.41	22.5	2
5	64QAM	1	12	21.08	21.28	21.44		
5	64QAM	1	24	21.21	21.39	21.55		
5	64QAM	12	0	20.06	20.24	20.28	21.5	3
5	64QAM	12	7	20.15	20.24	20.29		
5	64QAM	12	13	20.10	20.21	20.34		
5	64QAM	25	0	20.08	20.16	20.26		

<LTE Band 26>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				26765	26865	26965		
Frequency (MHz)				821.5	831.5	841.5		
15	QPSK	1	0	24.35	24.50	24.33	24.5	0
15	QPSK	1	37	24.46	24.29	24.21		
15	QPSK	1	74	24.32	24.17	24.08		
15	QPSK	36	0	23.33	23.39	23.27	23.5	1
15	QPSK	36	20	23.34	23.36	23.26		
15	QPSK	36	39	23.36	23.21	23.20		
15	QPSK	75	0	23.35	23.37	23.23		
15	16QAM	1	0	23.43	23.42	23.32	23.5	1
15	16QAM	1	37	23.44	23.32	23.31		
15	16QAM	1	74	23.35	23.50	23.38		
15	16QAM	36	0	22.32	22.44	22.35	22.5	2
15	16QAM	36	20	22.30	22.40	22.32		
15	16QAM	36	39	22.50	22.34	22.26		
15	16QAM	75	0	22.38	22.38	22.31		
15	64QAM	1	0	22.46	22.38	22.35	22.5	2
15	64QAM	1	37	22.31	22.34	22.44		
15	64QAM	1	74	22.38	22.45	22.31		
15	64QAM	36	0	21.34	21.32	21.40	21.5	3
15	64QAM	36	20	21.33	21.35	21.37		
15	64QAM	36	39	21.32	21.37	21.27		
15	64QAM	75	0	21.37	21.46	21.31		
Channel				26740	26865	26990		
Frequency (MHz)				819	831.5	844		
10	QPSK	1	0	24.44	24.43	24.24	24.5	0
10	QPSK	1	25	24.38	24.25	24.16		
10	QPSK	1	49	24.28	24.19	24.10		
10	QPSK	25	0	23.46	23.32	23.24	23.5	1
10	QPSK	25	12	23.45	23.29	23.21		
10	QPSK	25	25	23.37	23.28	23.20		
10	QPSK	50	0	23.43	23.29	23.23		
10	16QAM	1	0	23.34	23.35	23.33	23.5	1
10	16QAM	1	25	23.37	23.38	23.43		
10	16QAM	1	49	23.33	23.32	23.43		
10	16QAM	25	0	22.32	22.44	22.32	22.5	2
10	16QAM	25	12	22.33	22.41	22.32		
10	16QAM	25	25	22.47	22.31	22.26		
10	16QAM	50	0	22.48	22.38	22.29		
10	64QAM	1	0	22.37	22.34	22.50	22.5	2
10	64QAM	1	25	22.38	22.30	22.45		
10	64QAM	1	49	22.38	22.34	22.37		
10	64QAM	25	0	21.30	21.49	21.31	21.5	3
10	64QAM	25	12	21.30	21.50	21.29		
10	64QAM	25	25	21.33	21.43	21.23		
10	64QAM	50	0	21.39	21.47	21.29		

Channel				26715	26865	27015	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				816.5	831.5	846.5		
5	QPSK	1	0	24.44	24.34	24.22	24.5	0
5	QPSK	1	12	24.41	24.26	24.15		
5	QPSK	1	24	24.45	24.24	24.15		
5	QPSK	12	0	23.38	23.30	23.20	23.5	1
5	QPSK	12	7	23.35	23.32	23.19		
5	QPSK	12	13	23.49	23.27	23.16		
5	QPSK	25	0	23.34	23.29	23.18	23.5	1
5	16QAM	1	0	23.41	23.38	23.48		
5	16QAM	1	12	23.38	23.39	23.50		
5	16QAM	1	24	23.36	23.30	23.41	22.5	2
5	16QAM	12	0	22.38	22.42	22.26		
5	16QAM	12	7	22.36	22.38	22.30		
5	16QAM	12	13	22.39	22.32	22.24	22.5	2
5	16QAM	25	0	22.31	22.39	22.29		
5	64QAM	1	0	22.47	22.37	22.49	22.5	2
5	64QAM	1	12	22.44	22.37	22.39		
5	64QAM	1	24	22.40	22.30	22.35		
5	64QAM	12	0	21.37	21.31	21.30	21.5	3
5	64QAM	12	7	21.36	21.50	21.33		
5	64QAM	12	13	21.32	21.45	21.28		
5	64QAM	25	0	21.39	21.47	21.29	21.5	3
5	64QAM	25	0	21.39	21.47	21.29		
Channel				26705	26865	27025	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				815.5	831.5	847.5		
3	QPSK	1	0	24.46	24.31	24.17	24.5	0
3	QPSK	1	8	24.45	24.24	24.14		
3	QPSK	1	14	24.45	24.23	24.12		
3	QPSK	8	0	23.32	23.32	23.17	23.5	1
3	QPSK	8	4	23.35	23.33	23.19		
3	QPSK	8	7	23.33	23.27	23.17		
3	QPSK	15	0	23.32	23.27	23.16	23.5	1
3	16QAM	1	0	23.48	23.38	23.42		
3	16QAM	1	8	23.41	23.38	23.39		
3	16QAM	1	14	23.46	23.37	23.42	22.5	2
3	16QAM	8	0	22.44	22.42	22.31		
3	16QAM	8	4	22.37	22.46	22.32		
3	16QAM	8	7	22.35	22.40	22.30	22.5	2
3	16QAM	15	0	22.30	22.38	22.27		
3	64QAM	1	0	22.40	22.36	22.35		
3	64QAM	1	8	22.42	22.32	22.38	22.5	2
3	64QAM	1	14	22.39	22.35	22.34		
3	64QAM	8	0	21.33	21.45	21.29		
3	64QAM	8	4	21.37	21.50	21.30	21.5	3
3	64QAM	8	7	21.39	21.45	21.26		
3	64QAM	15	0	21.39	21.45	21.22		



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Channel				26697	26865	27033	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				814.7	831.5	848.3		
1.4	QPSK	1	0	24.11	23.90	23.75	24.5	0
1.4	QPSK	1	3	24.19	23.96	23.82		
1.4	QPSK	1	5	24.10	23.85	23.73		
1.4	QPSK	3	0	24.17	23.95	23.81		
1.4	QPSK	3	1	24.22	23.95	23.83		
1.4	QPSK	3	3	24.15	23.93	23.80		
1.4	QPSK	6	0	23.15	22.91	22.82	23.5	1
1.4	16QAM	1	0	23.36	23.26	23.12	23.5	1
1.4	16QAM	1	3	23.48	23.28	23.23		
1.4	16QAM	1	5	23.36	23.18	23.08		
1.4	16QAM	3	0	23.21	23.01	22.87		
1.4	16QAM	3	1	23.21	23.00	22.94		
1.4	16QAM	3	3	23.22	22.93	22.81		
1.4	16QAM	6	0	22.30	22.09	21.93	22.5	2
1.4	64QAM	1	0	22.31	22.09	22.01	22.5	2
1.4	64QAM	1	3	22.42	22.22	22.07		
1.4	64QAM	1	5	22.29	22.08	22.02		
1.4	64QAM	3	0	22.34	22.13	21.98		
1.4	64QAM	3	1	22.36	22.17	22.01		
1.4	64QAM	3	3	22.35	22.08	21.99		
1.4	64QAM	6	0	21.24	21.00	20.87	21.5	3



<Hotspot mode for WWAN LAT>

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	22.53	22.42	22.91	24	0
20	QPSK	1	49	22.37	22.41	22.70		
20	QPSK	1	99	22.25	22.41	22.54		
20	QPSK	50	0	21.58	21.56	21.84	23	1
20	QPSK	50	24	21.47	21.52	21.83		
20	QPSK	50	50	21.38	21.53	21.71		
20	QPSK	100	0	21.49	21.53	21.71	23	1
20	16QAM	1	0	21.89	21.72	22.22		
20	16QAM	1	49	21.64	21.73	21.97		
20	16QAM	1	99	21.53	21.71	21.79	22	2
20	16QAM	50	0	20.67	20.63	20.92		
20	16QAM	50	24	20.56	20.62	20.89		
20	16QAM	50	50	20.47	20.62	20.75	22	2
20	16QAM	100	0	20.53	20.59	20.77		
20	64QAM	1	0	20.74	20.65	21.15		
20	64QAM	1	49	20.54	20.59	20.83	22	2
20	64QAM	1	99	20.48	20.64	20.70		
20	64QAM	50	0	19.65	19.62	19.92		
20	64QAM	50	24	19.55	19.61	19.90	21	3
20	64QAM	50	50	19.48	19.63	19.77		
20	64QAM	100	0	19.55	19.60	19.78		
Channel				18675	18900	19125		
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	22.56	22.58	22.90	24	0
15	QPSK	1	37	22.32	22.45	22.68		
15	QPSK	1	74	22.37	22.51	22.59		
15	QPSK	36	0	21.47	21.53	21.86	23	1
15	QPSK	36	20	21.50	21.52	21.76		
15	QPSK	36	39	21.39	21.54	21.67		
15	QPSK	75	0	21.49	21.55	21.77	23	1
15	16QAM	1	0	21.91	21.89	22.22		
15	16QAM	1	37	21.54	21.78	21.86		
15	16QAM	1	74	21.62	21.79	21.92	22	2
15	16QAM	36	0	20.57	20.60	20.90		
15	16QAM	36	20	20.57	20.60	20.85		
15	16QAM	36	39	20.48	20.59	20.74	22	2
15	16QAM	75	0	20.55	20.62	20.85		
15	64QAM	1	0	20.82	20.75	21.13		
15	64QAM	1	37	20.50	20.66	20.85	22	2
15	64QAM	1	74	20.57	20.74	20.77		
15	64QAM	36	0	19.56	19.64	19.94		
15	64QAM	36	20	19.60	19.63	19.89	21	3
15	64QAM	36	39	19.51	19.62	19.75		
15	64QAM	75	0	19.57	19.61	19.85		



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Channel				18650	18900	19150	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	22.53	22.52	22.82	24	0
10	QPSK	1	25	22.38	22.47	22.63		
10	QPSK	1	49	22.36	22.44	22.56		
10	QPSK	25	0	21.47	21.55	21.77	23	1
10	QPSK	25	12	21.45	21.53	21.69		
10	QPSK	25	25	21.46	21.51	21.62		
10	QPSK	50	0	21.51	21.51	21.70	23	1
10	16QAM	1	0	21.85	21.84	22.13		
10	16QAM	1	25	21.66	21.72	21.87		
10	16QAM	1	49	21.56	21.66	21.86	22	2
10	16QAM	25	0	20.55	20.58	20.87		
10	16QAM	25	12	20.51	20.60	20.80		
10	16QAM	25	25	20.50	20.60	20.70	22	2
10	16QAM	50	0	20.62	20.59	20.77		
10	64QAM	1	0	20.73	20.66	21.04		
10	64QAM	1	25	20.47	20.61	20.78	22	2
10	64QAM	1	49	20.60	20.62	20.77		
10	64QAM	25	0	19.57	19.58	19.87		
10	64QAM	25	12	19.53	19.63	19.80	21	3
10	64QAM	25	25	19.54	19.58	19.72		
10	64QAM	50	0	19.62	19.59	19.79		
Channel				18625	18900	19175	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	22.52	22.55	22.84	24	0
5	QPSK	1	12	22.25	22.39	22.68		
5	QPSK	1	24	22.35	22.45	22.52		
5	QPSK	12	0	21.40	21.51	21.83	23	1
5	QPSK	12	7	21.40	21.52	21.76		
5	QPSK	12	13	21.36	21.53	21.60		
5	QPSK	25	0	21.40	21.49	21.70	23	1
5	16QAM	1	0	21.91	21.89	22.13		
5	16QAM	1	12	21.52	21.74	21.77		
5	16QAM	1	24	21.61	21.78	21.91	22	2
5	16QAM	12	0	20.51	20.51	20.84		
5	16QAM	12	7	20.50	20.58	20.81		
5	16QAM	12	13	20.38	20.54	20.72	22	2
5	16QAM	25	0	20.52	20.54	20.81		
5	64QAM	1	0	20.73	20.69	21.08		
5	64QAM	1	12	20.46	20.59	20.81	22	2
5	64QAM	1	24	20.52	20.65	20.71		
5	64QAM	12	0	19.55	19.62	19.85		
5	64QAM	12	7	19.60	19.61	19.86	21	3
5	64QAM	12	13	19.50	19.52	19.65		
5	64QAM	25	0	19.50	19.60	19.85		



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Channel				18615	18900	19185	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	22.52	22.51	22.85	24	0
3	QPSK	1	8	22.22	22.38	22.58		
3	QPSK	1	14	22.37	22.49	22.49		
3	QPSK	8	0	21.37	21.51	21.79	23	1
3	QPSK	8	4	21.48	21.52	21.74		
3	QPSK	8	7	21.36	21.53	21.65		
3	QPSK	15	0	21.48	21.49	21.71		
3	16QAM	1	0	21.84	21.86	22.14	23	1
3	16QAM	1	8	21.54	21.70	21.81		
3	16QAM	1	14	21.57	21.73	21.84		
3	16QAM	8	0	20.53	20.54	20.81	22	2
3	16QAM	8	4	20.51	20.56	20.84		
3	16QAM	8	7	20.39	20.56	20.64		
3	16QAM	15	0	20.47	20.59	20.78		
3	64QAM	1	0	20.77	20.71	21.04	22	2
3	64QAM	1	8	20.48	20.57	20.80		
3	64QAM	1	14	20.53	20.65	20.77		
3	64QAM	8	0	19.56	19.57	19.88	21	3
3	64QAM	8	4	19.53	19.59	19.87		
3	64QAM	8	7	19.42	19.59	19.70		
3	64QAM	15	0	19.50	19.59	19.82		
Channel				18607	18900	19193	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	22.45	22.42	22.52	24	0
1.4	QPSK	1	3	22.43	22.44	22.56		
1.4	QPSK	1	5	22.38	22.39	22.49		
1.4	QPSK	3	0	22.45	22.43	22.55		
1.4	QPSK	3	1	22.46	22.46	22.55		
1.4	QPSK	3	3	22.43	22.42	22.52		
1.4	QPSK	6	0	21.45	21.44	21.54	23	1
1.4	16QAM	1	0	21.71	21.62	21.75	23	1
1.4	16QAM	1	3	21.71	21.73	21.83		
1.4	16QAM	1	5	21.64	21.60	21.77		
1.4	16QAM	3	0	21.52	21.51	21.56		
1.4	16QAM	3	1	21.56	21.58	21.57		
1.4	16QAM	3	3	21.45	21.47	21.51		
1.4	16QAM	6	0	20.58	20.55	20.68	22	2
1.4	64QAM	1	0	20.65	20.54	20.74	22	2
1.4	64QAM	1	3	20.71	20.64	20.77		
1.4	64QAM	1	5	20.54	20.56	20.64		
1.4	64QAM	3	0	20.57	20.53	20.69		
1.4	64QAM	3	1	20.64	20.58	20.71		
1.4	64QAM	3	3	20.58	20.54	20.67		
1.4	64QAM	6	0	19.50	19.51	19.55	21	3

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.83	22.10	22.14	23.5	0
20	QPSK	1	49	21.81	21.93	21.88		
20	QPSK	1	99	21.99	21.92	21.92		
20	QPSK	50	0	20.96	21.08	21.06	22.5	1
20	QPSK	50	24	20.86	21.03	20.95		
20	QPSK	50	50	20.93	20.96	20.94		
20	QPSK	100	0	20.90	21.04	20.99		
20	16QAM	1	0	21.21	21.46	21.49	22.5	1
20	16QAM	1	49	21.18	21.26	21.19		
20	16QAM	1	99	21.42	21.17	21.22		
20	16QAM	50	0	20.06	20.24	20.17	21.5	2
20	16QAM	50	24	20.00	20.16	20.12		
20	16QAM	50	50	20.02	20.11	20.03		
20	16QAM	100	0	19.98	20.15	20.11		
20	64QAM	1	0	20.10	20.30	20.51	21.5	2
20	64QAM	1	49	20.08	20.14	20.10		
20	64QAM	1	99	20.35	20.17	20.18		
20	64QAM	50	0	19.07	19.24	19.22	20.5	3
20	64QAM	50	24	19.03	19.16	19.13		
20	64QAM	50	50	19.11	19.15	19.06		
20	64QAM	100	0	19.03	19.21	19.14		
Channel				20025	20175	20325		
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.87	22.05	22.12	23.5	0
15	QPSK	1	37	21.78	21.94	21.86		
15	QPSK	1	74	21.95	21.99	21.96		
15	QPSK	36	0	20.87	21.14	21.02	22.5	1
15	QPSK	36	20	20.93	21.03	20.98		
15	QPSK	36	39	20.96	20.97	20.94		
15	QPSK	75	0	20.96	21.03	21.00		
15	16QAM	1	0	21.24	21.44	21.39	22.5	1
15	16QAM	1	37	21.11	21.24	21.18		
15	16QAM	1	74	21.40	21.24	21.26		
15	16QAM	36	0	19.98	20.21	20.13	21.5	2
15	16QAM	36	20	19.97	20.19	20.09		
15	16QAM	36	39	20.07	20.14	20.09		
15	16QAM	75	0	20.00	20.18	20.11		
15	64QAM	1	0	20.14	20.29	20.39	21.5	2
15	64QAM	1	37	19.95	20.20	20.19		
15	64QAM	1	74	20.32	20.21	20.19		
15	64QAM	36	0	18.99	19.25	19.16	20.5	3
15	64QAM	36	20	19.05	19.18	19.12		
15	64QAM	36	39	19.12	19.16	19.11		
15	64QAM	75	0	19.06	19.16	19.14		



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Channel				20000	20175	20350	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.80	21.97	22.06	23.5	0
10	QPSK	1	25	21.77	21.97	21.95		
10	QPSK	1	49	21.86	21.95	21.91		
10	QPSK	25	0	20.84	21.06	21.00	22.5	1
10	QPSK	25	12	20.86	21.04	20.99		
10	QPSK	25	25	20.89	20.98	20.93		
10	QPSK	50	0	20.83	21.05	21.00	22.5	1
10	16QAM	1	0	21.12	21.22	21.28		
10	16QAM	1	25	21.03	21.26	21.29		
10	16QAM	1	49	21.14	21.27	21.23	21.5	2
10	16QAM	25	0	19.95	20.17	20.10		
10	16QAM	25	12	19.89	20.13	20.08		
10	16QAM	25	25	19.95	20.06	20.05	21.5	2
10	16QAM	50	0	19.90	20.12	20.05		
10	64QAM	1	0	20.03	20.15	20.23		
10	64QAM	1	25	19.98	20.20	20.15	21.5	2
10	64QAM	1	49	20.06	20.16	20.18		
10	64QAM	25	0	18.94	19.16	19.12		
10	64QAM	25	12	18.94	19.15	19.11	20.5	3
10	64QAM	25	25	19.00	19.07	19.04		
10	64QAM	50	0	18.95	19.13	19.07		
Channel				19975	20175	20375	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	21.82	22.05	22.07	23.5	0
5	QPSK	1	12	21.69	21.84	21.79		
5	QPSK	1	24	21.93	21.99	21.88		
5	QPSK	12	0	20.83	21.08	20.92	22.5	1
5	QPSK	12	7	20.86	20.98	20.91		
5	QPSK	12	13	20.95	20.97	20.84		
5	QPSK	25	0	20.94	21.02	20.98	22.5	1
5	16QAM	1	0	21.23	21.39	21.37		
5	16QAM	1	12	21.09	21.21	21.13		
5	16QAM	1	24	21.35	21.16	21.23	21.5	2
5	16QAM	12	0	19.96	20.16	20.06		
5	16QAM	12	7	19.96	20.09	20.02		
5	16QAM	12	13	20.05	20.09	20.00	21.5	2
5	16QAM	25	0	19.96	20.16	20.04		
5	64QAM	1	0	20.09	20.23	20.30		
5	64QAM	1	12	19.86	20.17	20.15	21.5	2
5	64QAM	1	24	20.23	20.13	20.16		
5	64QAM	12	0	18.98	19.16	19.16		
5	64QAM	12	7	18.95	19.17	19.07	20.5	3
5	64QAM	12	13	19.02	19.12	19.05		
5	64QAM	25	0	18.99	19.07	19.09		



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Channel				19965	20175	20385	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	21.80	22.00	22.07	23.5	0
3	QPSK	1	8	21.71	21.92	21.81		
3	QPSK	1	14	21.90	21.93	21.90		
3	QPSK	8	0	20.87	21.07	20.96	22.5	1
3	QPSK	8	4	20.88	20.95	20.94		
3	QPSK	8	7	20.94	20.96	20.92		
3	QPSK	15	0	20.86	20.95	20.97		
3	16QAM	1	0	21.19	21.35	21.30	22.5	1
3	16QAM	1	8	21.09	21.15	21.11		
3	16QAM	1	14	21.38	21.24	21.16		
3	16QAM	8	0	19.98	20.17	20.07	21.5	2
3	16QAM	8	4	19.95	20.11	20.06		
3	16QAM	8	7	20.06	20.12	20.04		
3	16QAM	15	0	20.00	20.11	20.10		
3	64QAM	1	0	20.08	20.27	20.35	21.5	2
3	64QAM	1	8	19.92	20.19	20.09		
3	64QAM	1	14	20.25	20.11	20.12		
3	64QAM	8	0	18.93	19.20	19.14	20.5	3
3	64QAM	8	4	18.95	19.10	19.12		
3	64QAM	8	7	19.12	19.10	19.08		
3	64QAM	15	0	18.97	19.13	19.13		
Channel				19957	20175	20393	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	21.66	21.89	21.83	23.5	0
1.4	QPSK	1	3	21.72	21.94	21.91		
1.4	QPSK	1	5	21.63	21.90	21.83		
1.4	QPSK	3	0	21.67	21.90	21.90		
1.4	QPSK	3	1	21.70	21.97	21.94		
1.4	QPSK	3	3	21.67	21.92	21.87		
1.4	QPSK	6	0	20.66	20.91	20.90	22.5	1
1.4	16QAM	1	0	21.00	21.24	21.10	22.5	1
1.4	16QAM	1	3	21.00	21.21	21.31		
1.4	16QAM	1	5	20.99	21.15	21.17		
1.4	16QAM	3	0	20.74	21.01	20.95		
1.4	16QAM	3	1	20.82	21.01	21.03		
1.4	16QAM	3	3	20.77	20.92	20.94		
1.4	16QAM	6	0	19.80	20.08	20.02	21.5	2
1.4	64QAM	1	0	19.90	20.12	20.14	21.5	2
1.4	64QAM	1	3	19.93	20.21	20.14		
1.4	64QAM	1	5	19.82	20.06	20.08		
1.4	64QAM	3	0	19.86	20.09	20.07		
1.4	64QAM	3	1	19.88	20.14	20.07		
1.4	64QAM	3	3	19.82	20.07	20.03		
1.4	64QAM	6	0	18.74	19.02	18.95	20.5	3

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

- 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- “special subframe S” contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
- Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

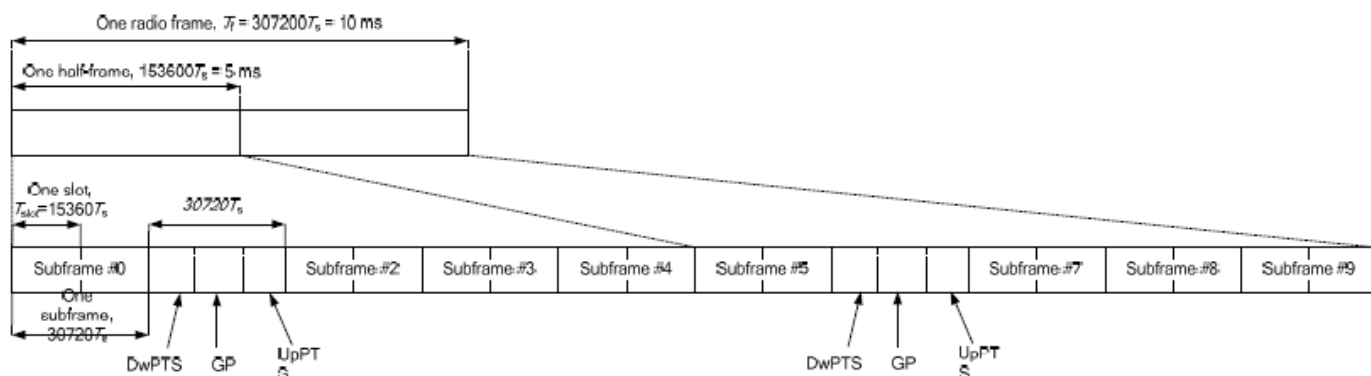


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

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

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

Special subframe (30720·T _s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~4	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T _s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~3	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

- Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.167)/5 = 63.3\%$
- for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is:
 $(3+0.143)/5 = 62.9\%$
- For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.



<Default power mode for WWAN LAT/UAT>

<LTE Band 38>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				37850	38000	38150		
Frequency (MHz)				2580	2595	2610		
20	QPSK	1	0	24.04	23.89	23.82	24.5	0
20	QPSK	1	49	23.71	23.60	23.67		
20	QPSK	1	99	23.57	23.49	23.59		
20	QPSK	50	0	22.93	22.80	22.75	23.5	1
20	QPSK	50	24	22.83	22.68	22.66		
20	QPSK	50	50	22.69	22.61	22.67		
20	QPSK	100	0	22.78	22.69	22.67		
20	16QAM	1	0	23.15	23.05	22.97	23.5	1
20	16QAM	1	49	22.86	22.68	22.80		
20	16QAM	1	99	22.68	22.60	22.72		
20	16QAM	50	0	22.03	21.89	21.84	22.5	2
20	16QAM	50	24	21.90	21.79	21.75		
20	16QAM	50	50	21.79	21.68	21.74		
20	16QAM	100	0	21.90	21.77	21.76		
20	64QAM	1	0	22.38	21.61	21.55	22.5	2
20	64QAM	1	49	22.07	21.32	21.39		
20	64QAM	1	99	22.40	21.18	21.29		
20	64QAM	50	0	21.01	20.86	20.82	21.5	3
20	64QAM	50	24	20.89	20.76	20.72		
20	64QAM	50	50	20.75	20.65	20.74		
20	64QAM	100	0	20.88	20.77	20.73		
Channel				37825	38000	38175		
Frequency (MHz)				2577.5	2595	2612.5		
15	QPSK	1	0	24.03	23.88	23.81	24.5	0
15	QPSK	1	37	23.80	23.65	23.74		
15	QPSK	1	74	23.71	23.56	23.69		
15	QPSK	36	0	22.92	22.78	22.74	23.5	1
15	QPSK	36	20	22.82	22.69	22.76		
15	QPSK	36	39	22.72	22.62	22.69		
15	QPSK	75	0	22.85	22.70	22.67		
15	16QAM	1	0	23.13	22.98	22.93	23.5	1
15	16QAM	1	37	22.91	22.73	22.82		
15	16QAM	1	74	22.79	22.64	22.78		
15	16QAM	36	0	21.96	21.84	21.77	22.5	2
15	16QAM	36	20	21.89	21.73	21.78		
15	16QAM	36	39	21.79	21.65	21.73		
15	16QAM	75	0	21.93	21.80	21.76		
15	64QAM	1	0	21.73	21.58	21.51	22.5	2
15	64QAM	1	37	21.49	21.35	21.43		
15	64QAM	1	74	21.39	21.26	21.35		
15	64QAM	36	0	20.97	20.82	20.77	21.5	3
15	64QAM	36	20	20.91	20.75	20.82		
15	64QAM	36	39	20.79	20.66	20.74		
15	64QAM	75	0	20.93	20.79	20.76		

Channel				37800	38000	38200	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2575	2595	2615		
10	QPSK	1	0	23.92	23.73	23.79	24.5	0
10	QPSK	1	25	23.78	23.62	23.70		
10	QPSK	1	49	23.68	23.57	23.64		
10	QPSK	25	0	22.86	22.71	22.77	23.5	1
10	QPSK	25	12	22.79	22.66	22.76		
10	QPSK	25	25	22.76	22.57	22.67		
10	QPSK	50	0	22.84	22.67	22.74	23.5	1
10	16QAM	1	0	23.02	22.87	22.94		
10	16QAM	1	25	22.91	22.76	22.82		
10	16QAM	1	49	22.79	22.60	22.76	22.5	2
10	16QAM	25	0	21.92	21.77	21.82		
10	16QAM	25	12	21.92	21.75	21.80		
10	16QAM	25	25	21.83	21.67	21.75	22.5	2
10	16QAM	50	0	21.94	21.76	21.83		
10	64QAM	1	0	22.25	22.10	22.14		
10	64QAM	1	25	22.11	22.46	22.04	22.5	2
10	64QAM	1	49	22.03	22.36	22.48		
10	64QAM	25	0	21.40	21.23	21.29		
10	64QAM	25	12	21.39	21.21	21.27	21.5	3
10	64QAM	25	25	21.29	21.12	21.21		
10	64QAM	50	0	21.38	21.20	21.25		
Channel				37775	38000	38225	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2572.5	2595	2617.5		
5	QPSK	1	0	23.83	23.68	23.73	24.5	0
5	QPSK	1	12	23.81	23.63	23.69		
5	QPSK	1	24	23.70	23.54	23.62		
5	QPSK	12	0	22.85	22.69	22.73	23.5	1
5	QPSK	12	7	22.85	22.65	22.74		
5	QPSK	12	13	22.80	22.60	22.69		
5	QPSK	25	0	22.82	22.63	22.73	23.5	1
5	16QAM	1	0	22.97	22.80	22.85		
5	16QAM	1	12	22.90	22.76	22.82		
5	16QAM	1	24	22.84	22.71	22.79	22.5	2
5	16QAM	12	0	21.89	21.69	21.76		
5	16QAM	12	7	21.86	21.69	21.75		
5	16QAM	12	13	21.81	21.64	21.72	22.5	2
5	16QAM	25	0	21.90	21.73	21.80		
5	64QAM	1	0	21.58	21.42	21.44		
5	64QAM	1	12	21.52	21.34	21.42	22.5	2
5	64QAM	1	24	21.50	21.28	21.38		
5	64QAM	12	0	20.97	20.77	20.85		
5	64QAM	12	7	20.94	20.76	20.84	21.5	3
5	64QAM	12	13	20.92	20.68	20.79		
5	64QAM	25	0	20.93	20.77	20.83		

<LTE Band 41>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Low Middle Ch. / Freq.	Power Middle Ch. / Freq.	Power High Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)	MPR (dB)
Channel				39750	40185	40620	41055	41490	24.5	0
Frequency (MHz)				2506	2549.5	2593	2636.5	2680		
20	QPSK	1	0	23.72	24.15	24.26	24.32	24.33	24.5	0
20	QPSK	1	49	23.42	23.75	23.81	24.08	24.23		
20	QPSK	1	99	23.41	23.73	23.78	24.02	23.26		
20	QPSK	50	0	22.51	22.92	22.99	23.09	23.38	23.5	1
20	QPSK	50	24	22.51	22.96	22.86	23.16	23.31		
20	QPSK	50	50	22.45	22.83	22.76	23.07	23.01		
20	QPSK	100	0	22.45	22.90	22.88	23.03	23.04		
20	16QAM	1	0	22.73	23.11	23.26	23.32	23.24	23.5	1
20	16QAM	1	49	22.56	22.86	22.90	23.20	23.33		
20	16QAM	1	99	22.51	22.85	22.86	23.13	22.45		
20	16QAM	50	0	21.60	22.00	22.08	22.20	22.45	22.5	2
20	16QAM	50	24	21.56	22.03	21.97	22.24	22.36		
20	16QAM	50	50	21.52	21.94	21.85	22.14	22.14		
20	16QAM	100	0	21.57	22.01	21.96	22.13	22.17		
20	64QAM	1	0	21.30	21.70	21.83	21.90	21.99	22.5	2
20	64QAM	1	49	21.15	21.49	21.53	21.80	21.95		
20	64QAM	1	99	21.13	21.44	21.48	21.73	21.09		
20	64QAM	50	0	20.59	20.98	21.06	21.19	21.45	21.5	3
20	64QAM	50	24	20.55	21.02	20.94	21.22	21.34		
20	64QAM	50	50	20.52	20.89	20.85	21.15	21.03		
20	64QAM	100	0	20.55	21.00	20.95	21.10	21.09		
Channel				39725	40173	40620	41068	41515	24.5	0
Frequency (MHz)				2503.5	2548.3	2593	2637.8	2682.5		
15	QPSK	1	0	23.61	23.99	24.01	24.17	24.29	24.5	0
15	QPSK	1	37	23.48	23.83	23.87	24.15	24.26		
15	QPSK	1	74	23.48	23.90	23.91	24.12	23.91		
15	QPSK	36	0	22.52	22.93	22.99	23.24	23.34	23.5	1
15	QPSK	36	20	22.51	22.94	22.93	23.15	23.28		
15	QPSK	36	39	22.46	22.89	22.81	23.08	23.06		
15	QPSK	75	0	22.47	22.95	22.88	23.17	23.10		
15	16QAM	1	0	22.72	23.10	23.22	23.40	23.42	23.5	1
15	16QAM	1	37	22.58	22.94	22.95	23.23	23.34		
15	16QAM	1	74	22.57	22.97	22.94	23.22	22.99		
15	16QAM	36	0	21.57	21.95	22.00	22.24	22.37	22.5	2
15	16QAM	36	20	21.55	21.97	21.94	22.19	22.32		
15	16QAM	36	39	21.48	21.92	21.82	22.12	22.10		
15	16QAM	75	0	21.58	22.05	21.98	22.24	22.23		
15	64QAM	1	0	21.31	21.73	21.80	22.00	22.14	22.5	2
15	64QAM	1	37	21.19	21.54	21.58	21.84	21.97		
15	64QAM	1	74	21.19	21.57	21.60	21.79	21.66		
15	64QAM	36	0	20.58	20.96	21.02	21.25	21.38	21.5	3
15	64QAM	36	20	20.57	21.02	20.95	21.22	21.21		
15	64QAM	36	39	20.50	20.92	20.86	21.14	20.99		
15	64QAM	75	0	20.58	21.03	20.98	21.24	21.12		

Channel				39700	40160	40620	41080	41540	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2501	2547	2593	2639	2685		
10	QPSK	1	0	23.49	23.91	23.94	24.17	24.29	24.5	0
10	QPSK	1	25	23.44	23.79	23.83	24.09	24.18		
10	QPSK	1	49	23.41	23.84	23.89	24.06	23.81		
10	QPSK	25	0	22.43	22.85	22.91	23.15	23.16	23.5	1
10	QPSK	25	12	22.43	22.84	22.88	23.12	23.09		
10	QPSK	25	25	22.43	22.85	22.77	23.07	22.91		
10	QPSK	50	0	22.45	22.93	22.87	23.11	22.84	23.5	1
10	16QAM	1	0	22.62	23.03	23.10	23.34	23.39		
10	16QAM	1	25	22.57	22.93	22.94	23.23	23.22		
10	16QAM	1	49	22.50	22.91	22.91	23.16	22.97	22.5	2
10	16QAM	25	0	21.54	21.94	21.94	22.21	22.24		
10	16QAM	25	12	21.53	21.91	21.91	22.17	22.20		
10	16QAM	25	25	21.48	21.92	21.85	22.12	22.03	22.5	2
10	16QAM	50	0	21.55	22.00	21.96	22.19	21.99		
10	64QAM	1	0	22.33	22.36	21.69	21.91	22.05	22.5	2
10	64QAM	1	25	22.27	22.24	21.56	21.83	21.91		
10	64QAM	1	49	22.28	22.26	21.57	21.76	21.69		
10	64QAM	25	0	21.50	20.95	21.01	21.24	21.19	21.5	3
10	64QAM	25	12	21.47	20.94	20.97	21.24	21.12		
10	64QAM	25	25	21.44	20.96	20.91	21.18	20.92		
10	64QAM	50	0	21.49	20.99	20.93	21.19	20.98		
Channel				39675	40148	40620	41093	41565	Tune-up limit (dBm)	MPR (dB)
Frequency (MHz)				2498.5	2545.8	2593	2640.30	2687.5		
5	QPSK	1	0	23.44	23.84	23.88	24.12	24.02	24.5	0
5	QPSK	1	12	23.41	23.80	23.83	24.10	24.11		
5	QPSK	1	24	23.37	23.73	23.74	24.03	23.78		
5	QPSK	12	0	22.46	22.85	22.88	23.11	22.99	23.5	1
5	QPSK	12	7	22.44	22.83	22.85	23.12	22.96		
5	QPSK	12	13	22.42	22.77	22.82	23.06	22.87		
5	QPSK	25	0	22.41	22.77	22.84	23.09	22.88	23.5	1
5	16QAM	1	0	22.56	22.96	22.98	23.25	23.14		
5	16QAM	1	12	22.55	22.92	22.93	23.23	23.09		
5	16QAM	1	24	22.54	22.89	22.88	23.18	22.99	22.5	2
5	16QAM	12	0	21.46	21.85	21.87	22.12	22.05		
5	16QAM	12	7	21.47	21.87	21.87	22.13	21.96		
5	16QAM	12	13	21.43	21.83	21.81	22.09	21.90	22.5	2
5	16QAM	25	0	21.50	21.87	21.91	22.17	21.99		
5	64QAM	1	0	21.16	21.56	21.62	21.83	21.83	22.5	2
5	64QAM	1	12	21.16	21.54	21.58	21.83	21.68		
5	64QAM	1	24	21.15	21.52	21.50	21.77	21.64		
5	64QAM	12	0	20.53	20.94	20.94	21.20	21.09	21.5	3
5	64QAM	12	7	20.53	20.96	20.97	21.20	21.03		
5	64QAM	12	13	20.52	20.90	20.90	21.17	20.95		
5	64QAM	25	0	20.55	20.94	20.97	21.21	20.97		

<LTE Carrier Aggregation combinations>
General Note:

1. This device supports carrier aggregation on uplink and downlink for inter and intra band. For the device supports combination bands and configurations are according to 3GPP and the combinations list as below table.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configuration require power measurement.
3. All permutations exist. No restrictions on Pcell & SCell combinations. Only LTE B29 and B46 is limited to SCell.

2CC Downlink Carrier Aggregation					3CC Downlink Carrier Aggregation				
Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset
1	CA_2A-4A			3CC-1	1	CA_2A-2A-4A			
2	CA_2A-5A			3CC-2	2	CA_2A-2A-5A			
3	CA_2A-12A			3CC-4	3	CA_2C-5A			
4	CA_2A-17A				4	CA_2A-2A-12A			
5	CA_2A-29A		B29 SCC only		5	CA_2A-2A-12A	2A		
6	CA_2A-46A		B46 SCC only	3CC-12	6	CA_2C-12A			
7	CA_2A-46A	2A	B46 SCC only	3CC-13	7	CA_2A-4A-4A			
8	CA_4A-5A			3CC-8	8	CA_2A-4A-5A			
9	CA_4A-12A			3CC-10	9	CA_2A-4A-5A	2A		
10	CA_4A-29A				10	CA_2A-4A-12A			
11	CA_4A-46A		B46 SCC only	3CC-15	11	CA_2A-4A-12A	2A		
12	CA_7A-46A		B46 SCC only	3CC-16	12	CA_2A-46C		B46 SCC only	4CC-1
13	CA_2C				13	CA_2A-46C	2A	B46 SCC only	4CC-2
14	CA_5B				14	CA_4A-4A-12A			
15	CA_7B				15	CA_4A-46C		B46 SCC only	4CC-3
16	CA_7C				16	CA_7A-46C		B46 SCC only	4CC-4
17	CA_2A-2A								
18	CA_4A-4A								
19	CA_7A-7A								
19	CA_41A-41A								

4CC Downlink Carrier Aggregation					2CC Uplink Carrier Aggregation				
Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset	Number	Combination	4X4 MIMO	Restriction	Covered by Measurement Superset
1	CA_2A-46D		B46 SCC only		1	5B			
2	CA_2A-46D	2A	B46 SCC only		2	7C			
3	CA_4A-46D		B46 SCC only		3	2A-5A			
4	CA_7A-46D		B46 SCC only		4	4A-5A			
					5	2A-12A			
					6	4A-12A			

<Power verification when Downlink LTE Carrier Aggregation Active>
General Note:

- i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
- ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.
- iii. The device supports downlink four carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
- v. For intra-band non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vi. For Intra-band, contiguous CA, the channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lceil \frac{BW_{\text{Channel}(1)} + BW_{\text{Channel}(2)} - 0.1|BW_{\text{Channel}(1)} - BW_{\text{Channel}(2)}|}{0.6} \right\rceil 0.3 \text{ [MHz]}$$

<Downlink two carrier power verification>

Configure		PCC						SCC				Power		
		LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band		2	10	1905	19150	QPSK	1	0	17	10	740	5790	24.04	24.09
		17	10	711	23800	QPSK	1	0	2	10	1960	900	23.21	23.25
		2	20	1900	19100	QPSK	1	0	29	10	722.5	9715	24.10	24.20
		4	20	1745	20300	QPSK	1	0	29	10	722.5	9715	23.86	23.90
Intra-Band	Non-Contiguous	2	20	1900	19100	QPSK	1	0	2	5	1932.5	625	24.11	24.20
		4	20	1745	20300	QPSK	1	0	4	5	2112.5	1975	23.88	23.90
		7	20	2510	20850	QPSK	1	0	7	5	2687.5	3425	21.32	21.39
		41	20	2680	41490	QPSK	1	0	41	5	2545.8	40148	24.26	24.33
	Contiguous	2	20	1900	19100	QPSK	1	0	2	20	1960.20	902	24.19	24.20
		5	10	844	20600	QPSK	1	0	5	10	879.10	2501	24.47	24.49
		7	15	2507.5	20825	QPSK	1	0	7	5	2636.80	2918	21.35	21.38
		7	20	2510	20850	QPSK	1	0	7	20	2649.80	3048	21.32	21.39

<Downlink three carrier power verification>

Configure	PCC							SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1900	19100	QPSK	1	0	2	5	1932.5	625	4	20	2132.5	2175	24.17	24.20
	4	20	1745	20300	QPSK	1	0	2	20	1960	900	2	5	1987.5	1175	23.83	23.90
	2	20	1900	19100	QPSK	1	0	2	5	1932.5	625	5	10	881.5	2525	24.20	24.20
	5	10	844	20600	QPSK	1	0	2	20	1960	900	2	5	1987.5	1175	24.47	24.49
	2	20	1900	19100	QPSK	1	0	2	20	1960.2	902	5	10	881.5	2525	24.14	24.20
	5	10	844	20600	QPSK	1	0	2	20	1960	900	2	20	1979.8	1098	24.49	24.49
	2	20	1900	19100	QPSK	1	0	2	5	1932.5	625	12	10	737.5	5095	24.14	24.20
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	2	5	1932.5	625	12	10	737.5	5095	24.17	24.20
	12	10	711	23130	QPSK	1	0	2	20	1960	900	2	5	1987.5	1175	23.17	23.24
	2	20	1900	19100	QPSK	1	0	2	20	1960.2	902	12	10	737.5	5095	24.20	24.20
	12	10	711	23130	QPSK	1	0	2	20	1960	900	2	20	1979.8	1098	23.14	23.24
	2	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	4	5	2152.5	2375	24.12	24.20
	4	20	1745	20300	QPSK	1	0	4	5	2112.5	1975	2	20	1960	900	23.83	23.90
	2	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	24.11	24.20
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	24.15	24.20
	4	20	1745	20300	QPSK	1	0	2	20	1960	900	5	10	881.5	2525	23.81	23.90
	5	10	844	20600	QPSK	1	0	2	20	1960	900	4	20	2132.5	2175	24.42	24.49
	2	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	12	10	737.5	5095	24.18	24.20
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	4	20	2132.5	2175	12	10	737.5	5095	24.14	24.20
	4	20	1745	20300	QPSK	1	0	2	20	1960	900	12	10	737.5	5095	23.86	23.90
	12	10	711	23130	QPSK	1	0	2	20	1960	900	4	20	2132.5	2175	23.20	23.24
	4	20	1745	20300	QPSK	1	0	4	5	2112.5	1975	12	10	737.5	5095	23.88	23.90
	12	10	711	23130	QPSK	1	0	4	20	2132.5	2175	4	5	2152.5	2375	23.14	23.24

<Downlink four carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1900	19100	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	24.18	24.20
	2(4X4MIMO)	20	1900	19100	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	24.12	24.20
	4	20	1745	20300	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.88	23.90
	7	20	2510	20850	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	21.32	21.39

<Power measurement when Uplink LTE Carrier Aggregation Active>
<Intra-Band Uplink carrier aggregation>
General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B5/B7 with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- ii. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- iii. Uplink CA is only operating with power class3, and additional SAR measurement for LTE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.

CA_5B										
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20450	20549	QPSK	1	0	0	0	1	0	24.49	24.5
20575	20476	QPSK	1	0	1	49	2	0	24.13	24.5
20600	20501	QPSK	1	0	1	49	2	0	24.11	24.5

CA_7C										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20850	21048	QPSK	1	0	0	0	1	0	20.6	21.5
21100	20902	QPSK	1	0	1	99	2	0	20.56	21.5
21350	21152	QPSK	1	0	1	99	2	0	19.68	21.5

<Inter-Band Uplink carrier aggregation>**General Note:**

- i. The device supports inter-band uplink carrier aggregation for LTE 2A-5A, 4A-5A, 2A-12A and 4A-12A for the bandwidth combination is according to 3GPP36.101 table 5.6A.1-2, For Inter Band UE Power Class 1 and 3, the allowed Maximum Power Reduction (MPR) is according to 3GPP 36.521 6.2.3A.2 requirements.
- ii. For the maximum power in each intra-band combination will not higher than the maximum power in LTE non-CA Rel.8 operation.
- iii. According TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers in each PCC / SCC.
- iv. Uplink CA is only operating with power class3, and additional SAR measurement for LTE UL CA whit other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.
- v. For inter-band uplink carrier aggregation SAR evaluation proposal as following step:
 - step 1. LTE standalone SAR measurement is performed for all applicable exposure positions
 - step 2. For the consideration of inter-band UL CA: use the LTE standalone SAR result to do the simultaneous TX analysis (i.e., SAR summation), as this is quick and conservative
 - step 3. In step (2), when the summation of 1g SAR > 1.6W/kg, test LTE standalone SAR while configured at TX power level in the UL CA operation again, and so the simultaneous TX analysis. The test LTE configuration (bandwidth, RB, modulation, RB allocation) for PCC and for SCC, analogy to the guidance for intra-band UL CA, in 2017-Nov TCBC workshop material.
 - step 4. The maximum output is measured for each UL CA configuration for required test channel will according to KDB 941225 D05 for each PCC / SCC, when the maximum output for UL CA is < standalone LTE mode (without CA), PCC / SCC is configured according to the highest standalone SAR configuration tested analogy to the guidance for intra-band UL CA, in 2017-Nov TCBC workshop material, additionally the other BWs combination to verify the maximum power will not higher then maximum BW combination 0.25dB according to KDB 941225 D05, please refer to page 3 to show inter-band UL CA power measurement.

<Inter-Band 2A-5A>

CA 2A-5A										
Combination 20MHz+10MHz (100RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18700	20450	QPSK	1	0	1	0	21.11	21.41	24.27	24.5
			1	49	1	25	21.04	21.49	24.28	24.5
			1	99	1	49	20.85	21.44	24.17	24.5
			50	0	25	0	21.23	21.49	24.37	24.5
			50	24	25	12	21.15	21.48	24.33	24.5
			50	50	25	25	21.07	21.47	24.28	24.5
			100	0	50	0	21.26	21.46	24.37	24.5
		16QAM	1	0	1	0	21.32	21.48	24.41	24.5
			1	49	1	25	20.92	21.49	24.22	24.5
			1	99	1	49	21.26	21.45	24.37	24.5
			50	0	25	0	21.05	21.46	24.27	24.5
			50	24	25	12	20.91	21.47	24.21	24.5
			50	50	25	25	21.2	21.37	24.30	24.5
			100	0	50	0	21.26	21.47	24.38	24.5
		64QAM	1	0	1	0	21.34	21.48	24.42	24.5
			1	49	1	25	21.31	21.43	24.38	24.5
			1	99	1	49	21.12	21.39	24.27	24.5
			50	0	25	0	21.03	21.45	24.28	24.5
			50	24	25	12	20.96	21.47	24.23	24.5
			50	50	25	25	20.78	21.46	24.14	24.5
			100	0	50	0	20.96	21.48	24.24	24.5
18900	20525	QPSK	1	0	1	0	21.34	21.32	24.30	24.5
			1	49	1	25	20.88	21.11	24.01	24.5
			1	99	1	49	20.86	21.05	23.97	24.5
			50	0	25	0	21.04	21.2	24.13	24.5
			50	24	25	12	20.99	21.21	24.11	24.5
			50	50	25	25	20.97	21.12	24.06	24.5
			100	0	50	0	21.01	21.15	24.09	24.5
		16QAM	1	0	1	0	21.07	21.41	24.25	24.5
			1	49	1	25	21.01	21.27	24.15	24.5
			1	99	1	49	21.13	21.32	24.24	24.5
			50	0	25	0	21.14	21.31	24.24	24.5
			50	24	25	12	21.09	21.3	24.21	24.5
			50	50	25	25	21.08	21.22	24.16	24.5
			100	0	50	0	21.07	21.29	24.19	24.5
		64QAM	1	0	1	0	21.04	21.33	24.20	24.5
			1	49	1	25	21.03	21.26	24.16	24.5
			1	99	1	49	20.94	21.11	24.04	24.5
			50	0	25	0	20.89	21.11	24.01	24.5
			50	24	25	12	20.87	21.09	23.99	24.5
			50	50	25	25	20.84	21.07	23.97	24.5
			100	0	50	0	20.9	21.12	24.02	24.5
19100	20600	QPSK	1	0	1	0	21.39	21.48	24.45	24.5
			1	49	1	25	21.21	21.46	24.35	24.5
			1	99	1	49	21	21.47	24.25	24.5
			50	0	25	0	21.32	21.43	24.39	24.5
			50	24	25	12	21.31	21.48	24.41	24.5
			50	50	25	25	21.17	21.47	24.33	24.5
			100	0	50	0	21.23	21.45	24.35	24.5
		16QAM	1	0	1	0	21.25	21.48	24.38	24.5
			1	49	1	25	21.24	21.43	24.35	24.5
			1	99	1	49	21.19	21.38	24.30	24.5
			50	0	25	0	21.29	21.42	24.37	24.5
			50	24	25	12	21.31	21.4	24.37	24.5
			50	50	25	25	21.24	21.32	24.29	24.5
			100	0	50	0	21.26	21.42	24.35	24.5
		64QAM	1	0	1	0	21.35	21.46	24.42	24.5
			1	49	1	25	21.22	21.33	24.29	24.5
			1	99	1	49	21.17	21.35	24.27	24.5
			50	0	25	0	21.16	21.31	24.25	24.5
			50	24	25	12	21.17	21.37	24.28	24.5
			50	50	25	25	21.06	21.28	24.18	24.5
			100	0	50	0	21.12	21.36	24.25	24.5

Combination 20MHz+5MHz (100RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	20525	QPSK	1	0	1	0	20.32	21.49	23.95	24.5
		16QAM	1	0	1	0	20.97	21.42	24.21	24.5
		64QAM	1	0	1	0	20.96	21.47	24.23	24.5
Combination 15MHz+10MHz (75RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	20525	QPSK	1	0	1	0	21.03	21.46	24.26	24.5
		16QAM	1	0	1	0	21.06	21.45	24.27	24.5
		64QAM	1	0	1	0	21.11	21.49	24.31	24.5
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	20525	QPSK	1	0	1	0	21.02	21.49	24.27	24.5
		16QAM	1	0	1	0	21.08	21.47	24.29	24.5
		64QAM	1	0	1	0	21.09	21.42	24.27	24.5
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	20525	QPSK	1	0	1	0	20.93	21.4	24.18	24.5
		16QAM	1	0	1	0	21.02	21.49	24.27	24.5
		64QAM	1	0	1	0	20.97	21.37	24.18	24.5
Combination 10MHz+5MHz (50RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	20525	QPSK	1	0	1	0	20.92	21.34	24.15	24.5
		16QAM	1	0	1	0	21.12	21.47	24.31	24.5
		64QAM	1	0	1	0	21.02	21.38	24.21	24.5
Combination 5MHz+10MHz (25RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	20525	QPSK	1	0	1	0	20.91	21.36	24.15	24.5
		16QAM	1	0	1	0	20.98	21.49	24.25	24.5
		64QAM	1	0	1	0	20.96	21.38	24.19	24.5
Combination 5MHz+5MHz (25RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	20525	QPSK	1	0	1	0	20.94	21.14	24.05	24.5
		16QAM	1	0	1	0	21.08	21.49	24.30	24.5
		64QAM	1	0	1	0	20.93	21.39	24.18	24.5

<Inter-Band 4A-5A>

CA_4A-5A												
Combination 20MHz+10MHz (100RB+50RB)												
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)		
			RB Size	RB offset	RB Size	RB offset						
20050	20450	QPSK	1	0	1	0	21.37	21.49	24.44	24.5		
			1	49	1	25	21.19	21.41	24.31	24.5		
			1	99	1	49	21.17	21.25	24.22	24.5		
			50	0	25	0	21.27	21.47	24.38	24.5		
			50	24	25	12	21.31	21.39	24.36	24.5		
			50	50	25	25	21.24	21.34	24.30	24.5		
		16QAM	100	0	50	0	21.3	21.37	24.35	24.5		
			1	0	1	0	21.26	21.36	24.32	24.5		
			1	49	1	25	21.26	21.36	24.32	24.5		
			1	99	1	49	21.35	21.4	24.39	24.5		
			50	0	25	0	21.31	21.46	24.40	24.5		
			50	24	25	12	21.34	21.45	24.41	24.5		
		64QAM	50	50	25	25	21.33	21.42	24.39	24.5		
			100	0	50	0	21.39	21.41	24.41	24.5		
			1	0	1	0	21.38	21.43	24.42	24.5		
			1	49	1	25	21.16	21.32	24.25	24.5		
			1	99	1	49	21.21	21.36	24.30	24.5		
			50	0	25	0	21.15	21.38	24.28	24.5		
		20175	20525	QPSK	50	24	25	12	21.19	21.29	24.25	24.5
					50	50	25	25	21.13	21.22	24.19	24.5
					100	0	50	0	21.16	21.3	24.24	24.5
					1	0	1	0	21.2	21.42	24.32	24.5
					1	49	1	25	20.88	21.24	24.07	24.5
					1	99	1	49	20.99	21.21	24.11	24.5
16QAM	50			0	25	0	21.05	21.33	24.20	24.5		
	50			24	25	12	20.97	21.34	24.17	24.5		
	50			50	25	25	20.91	21.26	24.10	24.5		
	100			0	50	0	20.98	21.33	24.17	24.5		
	1			0	1	0	21.15	21.35	24.26	24.5		
	1			49	1	25	21.05	21.46	24.27	24.5		
64QAM	1			99	1	49	21.27	21.25	24.27	24.5		
	50			0	25	0	21.14	21.21	24.19	24.5		
	50			24	25	12	21.07	21.41	24.25	24.5		
	50			50	25	25	21.05	21.39	24.23	24.5		
	100			0	50	0	21.08	21.44	24.27	24.5		
	1			0	1	0	21.19	21.25	24.23	24.5		
20300	20600			QPSK	1	49	1	25	20.9	21.31	24.12	24.5
					1	99	1	49	20.98	21.22	24.11	24.5
					50	0	25	0	20.92	21.21	24.08	24.5
					50	24	25	12	20.86	21.19	24.04	24.5
					50	50	25	25	20.77	21.17	23.98	24.5
					100	0	50	0	20.83	21.21	24.03	24.5
		16QAM	1	0	1	0	21.24	21.33	24.30	24.5		
			1	49	1	25	21.11	21.23	24.18	24.5		
			1	99	1	49	21.2	21.24	24.23	24.5		
			50	0	25	0	21.17	21.32	24.26	24.5		
			50	24	25	12	21.21	21.36	24.30	24.5		
			50	50	25	25	21.12	21.23	24.19	24.5		
		64QAM	100	0	50	0	21.18	21.38	24.29	24.5		
			1	0	1	0	21.25	21.44	24.36	24.5		
			1	49	1	25	21.12	21.29	24.22	24.5		
			1	99	1	49	21.32	21.18	24.26	24.5		
			50	0	25	0	21.28	21.39	24.35	24.5		
			50	24	25	12	21.31	21.36	24.35	24.5		
		64QAM	50	50	25	25	21.26	21.23	24.26	24.5		
			100	0	50	0	21.28	21.37	24.34	24.5		
			1	0	1	0	21.3	21.42	24.37	24.5		
			1	49	1	25	21.17	21.21	24.20	24.5		
			1	99	1	49	21.24	21.14	24.20	24.5		
			50	0	25	0	21.01	21.21	24.12	24.5		
50	24		25	12	20.83	21.2	24.03	24.5				
50	50		25	25	21.06	21.04	24.06	24.5				
100	0		50	0	20.81	21.18	24.01	24.5				

Combination 20MHz+5MHz (100RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	20525	QPSK	1	0	1	0	21.43	20.75	24.11	24.5
		16QAM	1	0	1	0	21.48	21.09	24.30	24.5
		64QAM	1	0	1	0	21.21	21.35	24.29	24.5
Combination 15MHz+10MHz (75RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	20525	QPSK	1	0	1	0	21.45	20.89	24.19	24.5
		16QAM	1	0	1	0	21.42	21.11	24.28	24.5
		64QAM	1	0	1	0	21.19	21.32	24.27	24.5
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	20525	QPSK	1	0	1	0	21.44	20.87	24.17	24.5
		16QAM	1	0	1	0	21.39	21.15	24.28	24.5
		64QAM	1	0	1	0	21.22	21.29	24.27	24.5
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	20525	QPSK	1	0	1	0	21.35	20.89	24.14	24.5
		16QAM	1	0	1	0	21.23	21.06	24.16	24.5
		64QAM	1	0	1	0	21.13	21.18	24.17	24.5
Combination 10MHz+5MHz (50RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	20525	QPSK	1	0	1	0	21.33	20.88	24.12	24.5
		16QAM	1	0	1	0	21.21	21.09	24.16	24.5
		64QAM	1	0	1	0	21.14	21.12	24.14	24.5
Combination 5MHz+10MHz (25RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	20525	QPSK	1	0	1	0	21.31	20.87	24.11	24.5
		16QAM	1	0	1	0	21.25	21.14	24.21	24.5
		64QAM	1	0	1	0	21.09	21.06	24.09	24.5
Combination 5MHz+5MHz (25RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	20525	QPSK	1	0	1	0	21.29	20.86	24.09	24.5
		16QAM	1	0	1	0	21.22	21.16	24.20	24.5
		64QAM	1	0	1	0	21.11	21.07	24.10	24.5

<Inter-Band 2A-12A>

CA 2A-12A										
Combination 20MHz+10MHz (100RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18700	23060	QPSK	1	0	1	0	20.84	20.02	23.46	24.5
			1	49	1	25	20.82	20.12	23.49	24.5
			1	99	1	49	20.64	20.12	23.40	24.5
			50	0	25	0	21	20.12	23.59	24.5
			50	24	25	12	20.92	20.18	23.58	24.5
			50	50	25	25	20.8	20.21	23.53	24.5
			100	0	50	0	20.92	20.17	23.57	24.5
		16QAM	1	0	1	0	21.09	20.19	23.67	24.5
			1	49	1	25	20.96	20.26	23.63	24.5
			1	99	1	49	20.95	20.31	23.65	24.5
			50	0	25	0	21.06	20.2	23.66	24.5
			50	24	25	12	20.99	20.28	23.66	24.5
			50	50	25	25	20.94	20.25	23.62	24.5
			100	0	50	0	20.99	20.24	23.64	24.5
		64QAM	1	0	1	0	20.98	20.1	23.57	24.5
			1	49	1	25	20.9	20.21	23.58	24.5
			1	99	1	49	20.82	20.21	23.54	24.5
			50	0	25	0	20.86	20.01	23.47	24.5
			50	24	25	12	20.79	20.11	23.47	24.5
			50	50	25	25	20.7	20.12	23.43	24.5
			100	0	50	0	20.79	20.08	23.46	24.5
18900	23095	QPSK	1	0	1	0	21.16	21.12	24.12	24.5
			1	49	1	25	20.62	21.45	24.07	24.5
			1	99	1	49	20.69	20.87	23.79	24.5
			50	0	25	0	21.01	21.06	24.05	24.5
			50	24	25	12	20.98	21.02	24.01	24.5
			50	50	25	25	20.95	20.95	23.96	24.5
			100	0	50	0	21.01	21.03	24.03	24.5
		16QAM	1	0	1	0	21	21.05	24.04	24.5
			1	49	1	25	21.1	21.09	24.11	24.5
			1	99	1	49	21	21	24.01	24.5
			50	0	25	0	21.1	21	24.06	24.5
			50	24	25	12	21.06	21.08	24.08	24.5
			50	50	25	25	21.04	20.99	24.03	24.5
			100	0	50	0	21.08	21.13	24.12	24.5
		64QAM	1	0	1	0	20.95	20.92	23.95	24.5
			1	49	1	25	20.95	21.03	24.00	24.5
			1	99	1	49	20.89	20.97	23.94	24.5
			50	0	25	0	20.9	20.95	23.94	24.5
			50	24	25	12	20.86	20.91	23.90	24.5
			50	50	25	25	20.82	20.86	23.85	24.5
			100	0	50	0	20.85	20.95	23.91	24.5
19100	23130	QPSK	1	0	1	0	21.35	20.57	23.99	24.5
			1	49	1	25	21.14	20.45	23.82	24.5
			1	99	1	49	21.03	20.44	23.76	24.5
			50	0	25	0	21.24	20.53	23.91	24.5
			50	24	25	12	21.21	20.51	23.88	24.5
			50	50	25	25	21.07	20.42	23.77	24.5
			100	0	50	0	21.12	20.48	23.82	24.5
		16QAM	1	0	1	0	21.45	20.64	24.07	24.5
			1	49	1	25	21.19	20.51	23.87	24.5
			1	99	1	49	21.22	20.64	23.95	24.5
			50	0	25	0	21.3	20.59	23.97	24.5
			50	24	25	12	21.28	20.58	23.95	24.5
			50	50	25	25	21.17	20.51	23.86	24.5
			100	0	50	0	21.18	20.57	23.90	24.5
		64QAM	1	0	1	0	21.44	20.62	24.06	24.5
			1	49	1	25	21.2	20.54	23.89	24.5
			1	99	1	49	21.08	20.52	23.82	24.5
			50	0	25	0	21.09	20.43	23.78	24.5
			50	24	25	12	21.11	20.42	23.79	24.5
			50	50	25	25	20.96	20.37	23.69	24.5
			100	0	50	0	20.98	20.41	23.71	24.5

Combination 20MHz+5MHz (100RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.72	20.28	23.52	24.5
		16QAM	1	0	1	0	20.96	20.84	23.91	24.5
		64QAM	1	0	1	0	21.21	19.86	23.60	24.5
Combination 20MHz+3MHz (100RB+15RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.52	20.24	23.39	24.5
		16QAM	1	0	1	0	20.88	20.36	23.64	24.5
		64QAM	1	0	1	0	20.76	20.29	23.54	24.5
Combination 15MHz+10MHz (75RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.86	20.23	23.57	24.5
		16QAM	1	0	1	0	20.93	20.46	23.71	24.5
		64QAM	1	0	1	0	20.87	20.27	23.59	24.5
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.85	20.29	23.59	24.5
		16QAM	1	0	1	0	20.91	20.44	23.69	24.5
		64QAM	1	0	1	0	20.82	20.19	23.53	24.5
Combination 15MHz+3MHz (75RB+15RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.83	20.25	23.56	24.5
		16QAM	1	0	1	0	20.94	20.41	23.69	24.5
		64QAM	1	0	1	0	20.79	20.16	23.50	24.5
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.78	20.24	23.53	24.5
		16QAM	1	0	1	0	20.72	20.32	23.53	24.5
		64QAM	1	0	1	0	20.75	20.27	23.53	24.5
Combination 10MHz+5MHz (50RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.77	20.31	23.56	24.5
		16QAM	1	0	1	0	20.74	20.26	23.52	24.5
		64QAM	1	0	1	0	20.71	20.29	23.52	24.5
Combination 10MHz+3MHz (50RB+15RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.72	20.27	23.51	24.5
		16QAM	1	0	1	0	20.71	20.21	23.48	24.5
		64QAM	1	0	1	0	20.66	20.26	23.47	24.5
Combination 5MHz+10MHz (25RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.73	20.19	23.48	24.5
		16QAM	1	0	1	0	20.71	20.37	23.55	24.5
		64QAM	1	0	1	0	20.79	20.31	23.57	24.5
Combination 5MHz+5MHz (25RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.75	20.33	23.56	24.5
		16QAM	1	0	1	0	20.69	20.35	23.53	24.5
		64QAM	1	0	1	0	20.74	20.26	23.52	24.5
Combination 5MHz+3MHz (25RB+15RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18900	23095	QPSK	1	0	1	0	20.73	20.28	23.52	24.5
		16QAM	1	0	1	0	20.62	20.33	23.49	24.5
		64QAM	1	0	1	0	20.68	20.29	23.50	24.5

<Inter-Band 4A-12A>

CA_4A-12A										
Combination 20MHz+10MHz (100RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC1 Power (dBm)	SCC2 Power (dBm)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20050	23060	QPSK	1	0	1	0	21.47	19.94	23.78	24.5
			1	49	1	25	21.46	20.03	23.81	24.5
			1	99	1	49	21.48	20.02	23.82	24.5
			50	0	25	0	21.46	20.31	23.93	24.5
			50	24	25	12	21.47	20.32	23.94	24.5
			50	50	25	25	21.41	20.33	23.91	24.5
		16QAM	100	0	50	0	21.49	20.29	23.94	24.5
			1	0	1	0	21.48	20.51	24.03	24.5
			1	49	1	25	21.39	20.31	23.89	24.5
			1	99	1	49	21.43	20.27	23.90	24.5
			50	0	25	0	21.34	20.67	24.03	24.5
			50	24	25	12	21.39	20.62	24.03	24.5
		64QAM	50	50	25	25	21.33	20.63	24.00	24.5
			100	0	50	0	21.31	20.65	24.00	24.5
			1	0	1	0	21.12	20.54	23.85	24.5
			1	49	1	25	21.06	20.52	23.81	24.5
			1	99	1	49	21.07	20.53	23.82	24.5
			50	0	25	0	20.95	20.61	23.79	24.5
20175	23095	QPSK	50	24	25	12	20.94	20.65	23.81	24.5
			50	50	25	25	20.94	20.61	23.79	24.5
			100	0	50	0	20.93	20.62	23.79	24.5
			1	0	1	0	21.4	21.2	24.31	24.5
			1	49	1	25	21.01	20.78	23.91	24.5
			1	99	1	49	21.11	20.63	23.89	24.5
		16QAM	50	0	25	0	21.17	20.87	24.03	24.5
			50	24	25	12	21.07	20.84	23.97	24.5
			50	50	25	25	21.03	20.73	23.89	24.5
			100	0	50	0	21.12	20.79	23.97	24.5
			1	0	1	0	21.4	20.85	24.14	24.5
			1	49	1	25	21.14	20.89	24.03	24.5
		64QAM	1	99	1	49	21.28	20.77	24.04	24.5
			50	0	25	0	21.28	20.95	24.13	24.5
			50	24	25	12	21.19	20.9	24.06	24.5
			50	50	25	25	21.11	20.8	23.97	24.5
			100	0	50	0	21.18	20.88	24.04	24.5
			1	0	1	0	21.27	20.78	24.04	24.5
20300	23130	QPSK	1	49	1	25	21.02	20.86	23.95	24.5
			1	99	1	49	21.08	20.67	23.89	24.5
			50	0	25	0	21.03	20.77	23.91	24.5
			50	24	25	12	20.96	20.72	23.85	24.5
			50	50	25	25	20.91	20.65	23.79	24.5
			100	0	50	0	20.97	20.73	23.86	24.5
		16QAM	1	0	1	0	21.48	20.03	23.83	24.5
			1	49	1	25	21.46	20.02	23.81	24.5
			1	99	1	49	21.44	19.95	23.77	24.5
			50	0	25	0	21.42	20.31	23.91	24.5
			50	24	25	12	21.39	20.25	23.87	24.5
			50	50	25	25	21.38	20.17	23.83	24.5
		64QAM	100	0	50	0	21.41	20.22	23.87	24.5
			1	0	1	0	21.44	20.48	24.00	24.5
			1	49	1	25	21.42	20.38	23.94	24.5
			1	99	1	49	21.46	20.24	23.90	24.5
			50	0	25	0	21.26	20.53	23.92	24.5
			50	24	25	12	21.24	20.61	23.95	24.5
64QAM	50	50	25	25	21.23	20.48	23.88	24.5		
	100	0	50	0	21.24	20.6	23.94	24.5		
	1	0	1	0	21.32	20.53	23.95	24.5		
	1	49	1	25	21.09	20.51	23.82	24.5		
	1	99	1	49	21.23	20.33	23.81	24.5		
	50	0	25	0	20.87	20.62	23.76	24.5		
	50	24	25	12	20.71	20.58	23.66	24.5		
	50	50	25	25	20.89	20.48	23.70	24.5		
	100	0	50	0	20.72	20.58	23.66	24.5		

Combination 15MHz+10MHz (75RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.23	20.92	24.09	24.5
		16QAM	1	0	1	0	21.39	21	24.21	24.5
		64QAM	1	0	1	0	21.5	20.95	24.24	24.5
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.12	20.93	24.04	24.5
		16QAM	1	0	1	0	21.27	20.99	24.14	24.5
		64QAM	1	0	1	0	21.13	20.94	24.05	24.5
Combination 5MHz+10MHz (25RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.13	20.96	24.06	24.5
		16QAM	1	0	1	0	21.21	21.06	24.15	24.5
		64QAM	1	0	1	0	21.13	20.96	24.06	24.5
Combination 3MHz+10MHz (15RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.03	20.94	24.00	24.5
		16QAM	1	0	1	0	21.17	21.01	24.10	24.5
		64QAM	1	0	1	0	21.06	20.94	24.01	24.5
Combination 1.4MHz+10MHz (6RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	20.98	20.88	23.94	24.5
		16QAM	1	0	1	0	21.06	21.01	24.05	24.5
		64QAM	1	0	1	0	21.02	21	24.02	24.5
Combination 20MHz+5MHz (100RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.25	20.94	24.11	24.5
		16QAM	1	0	1	0	21.4	21.05	24.24	24.5
		64QAM	1	0	1	0	21.29	20.98	24.15	24.5
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.25	20.94	24.11	24.5
		16QAM	1	0	1	0	21.39	21.11	24.26	24.5
		64QAM	1	0	1	0	21.28	20.99	24.15	24.5
Combination 10MHz+5MHz (50RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.18	20.96	24.08	24.5
		16QAM	1	0	1	0	21.28	21.08	24.19	24.5
		64QAM	1	0	1	0	1.15	21.06	21.10	24.5

Combination 5MHz+5MHz (25RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.12	20.95	24.05	24.5
		16QAM	1	0	1	0	21.25	21.12	24.20	24.5
		64QAM	1	0	1	0	21.07	21.05	24.07	24.5
Combination 3MHz+5MHz (15RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.09	20.96	24.04	24.5
		16QAM	1	0	1	0	21.11	21.06	24.10	24.5
		64QAM	1	0	1	0	21.05	20.99	24.03	24.5
Combination 1.4MHz+5MHz (6RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	20.95	20.94	23.96	24.5
		16QAM	1	0	1	0	21.12	21.06	24.10	24.5
		64QAM	1	0	1	0	21.02	21	24.02	24.5
Combination 20MHz+3MHz (100RB+15RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.28	20.89	24.10	24.5
		16QAM	1	0	1	0	21.42	21.04	24.24	24.5
		64QAM	1	0	1	0	21.33	20.91	24.14	24.5
Combination 15MHz+3MHz (75RB+15RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.28	20.93	24.12	24.5
		16QAM	1	0	1	0	21.41	21.04	24.24	24.5
		64QAM	1	0	1	0	21.26	20.96	24.12	24.5
Combination 10MHz+3MHz (50RB+15RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.16	20.92	24.05	24.5
		16QAM	1	0	1	0	21.31	21.05	24.19	24.5
		64QAM	1	0	1	0	21.22	20.99	24.12	24.5
Combination 5MHz+3MHz (25RB+15RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		PCC Measured Power (dBm)	SCC Measured Power (dBm)	Total Measured Power (dBm)	Total Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20175	23095	QPSK	1	0	1	0	21.08	20.92	24.01	24.5
		16QAM	1	0	1	0	21.25	21.05	24.16	24.5
		64QAM	1	0	1	0	21.16	20.99	24.09	24.5

<WLAN Conducted Power>**General Note:**

1. For each antenna, transmit power in SISO operation is larger than (or equal to) the power in MIMO operation, RF exposure compliance of MIMO mode can be deduced from the compliance simultaneous transmission of antennas operating in SISO mode.
2. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is $< 1.6\text{W/kg}$ and SAR peak to location ratio ≤ 0.04 , no additional SAR measurements for MIMO.
3. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
4. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
5. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
6. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.¹⁸ The initial test position procedure is described in the following:
 - a. When the reported SAR of the initial test position is $\leq 0.4\text{ W/kg}$, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
 - b. When the reported SAR of the test position is $> 0.4\text{ W/kg}$, SAR is repeated for the 802.11 transmission mode 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 report SAR is $\leq 0.8\text{ W/kg}$ or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is $> 0.8\text{ W/kg}$, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is $\leq 1.2\text{ W/kg}$ or all required channels are tested.

<Default power mode for WLAN Transmitter>
<2.4GHz WLAN ANT 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.79	18.00	99.04
		6	2437	17.85	18.00	
		11	2462	17.99	18.00	
	802.11g 6Mbps	1	2412	17.96	18.00	98.01
		6	2437	17.79	18.00	
		11	2462	17.98	18.00	
	802.11n-HT20 MCS0	1	2412	17.99	18.00	96.97
		6	2437	17.74	18.00	
		11	2462	17.91	18.00	

<2.4GHz WLAN ANT 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.90	18.00	98.57
		6	2437	17.85	18.00	
		11	2462	17.88	18.00	
	802.11g 6Mbps	1	2412	17.92	18.00	98.01
		6	2437	17.86	18.00	
		11	2462	17.96	18.00	
	802.11n-HT20 MCS0	1	2412	17.80	18.00	97.47
		6	2437	17.71	18.00	
		11	2462	17.90	18.00	

<2.4GHz WLAN ANT 0+1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	17.82	18.00	99.04
		6	2437	17.86	18.00	
		11	2462	17.70	18.00	
	802.11g 6Mbps	1	2412	17.75	18.00	98.10
		6	2437	17.97	18.00	
		11	2462	17.99	18.00	
	802.11n-HT20 MCS0	1	2412	17.96	18.00	97.96
		6	2437	17.93	18.00	
		11	2462	17.91	18.00	

<5GHz WLAN ANT 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.94	18.00	97.64
		40	5200	17.80	18.00	
		44	5220	17.90	18.00	
		48	5240	17.84	18.00	
	802.11n-HT20 MCS0	36	5180	17.79	18.00	97.56
		40	5200	17.74	18.00	
		44	5220	17.76	18.00	
		48	5240	17.93	18.00	
	802.11n-HT40 MCS0	38	5190	15.41	15.50	94.97
		46	5230	17.85	18.00	
	802.11ac-VHT20 MCS0	36	5180	17.78	18.00	97.56
		40	5200	17.76	18.00	
		44	5220	17.75	18.00	
		48	5240	17.91	18.00	
	802.11ac-VHT40 MCS0	38	5190	15.38	15.50	95.00
		46	5230	17.83	18.00	
	802.11ac-VHT80 MCS0	42	5210	14.70	15.00	94.87

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.82	18.00	97.64
		56	5280	17.83	18.00	
		60	5300	17.92	18.00	
		64	5320	17.85	18.00	
	802.11n-HT20 MCS0	52	5260	17.99	18.00	97.56
		56	5280	17.92	18.00	
		60	5300	17.96	18.00	
		64	5320	17.98	18.00	
	802.11n-HT40 MCS0	54	5270	17.94	18.00	94.97
		62	5310	16.71	17.00	
	802.11ac-VHT20 MCS0	52	5260	17.97	18.00	97.56
		56	5280	17.96	18.00	
		60	5300	17.95	18.00	
		64	5320	17.96	18.00	
	802.11ac-VHT40 MCS0	54	5270	17.92	18.00	95.00
		62	5310	16.68	17.00	
	802.11ac-VHT80 MCS0	58	5290	14.88	15.00	94.87

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.79	18.00	97.64
		116	5580	17.74	18.00	
		124	5620	17.70	18.00	
		132	5660	17.73	18.00	
		140	5700	17.76	18.00	
	802.11n-HT20 MCS0	100	5500	17.97	18.00	97.56
		116	5580	17.93	18.00	
		124	5620	17.92	18.00	
		132	5660	17.93	18.00	
		140	5700	17.95	18.00	
	802.11n-HT40 MCS0	102	5510	17.99	18.00	94.97
		110	5550	17.97	18.00	
		126	5630	17.93	18.00	
		134	5670	17.95	18.00	
	802.11ac-VHT20 MCS0	100	5500	17.95	18.00	97.56
		116	5580	17.91	18.00	
		124	5620	17.90	18.00	
		132	5660	17.91	18.00	
		140	5700	17.93	18.00	
	802.11ac-VHT40 MCS0	102	5510	17.97	18.00	95.00
		110	5550	17.95	18.00	
		126	5630	17.93	18.00	
		134	5670	17.93	18.00	
	802.11ac-VHT80 MCS0	106	5530	14.85	15.00	94.87
		122	5610	14.91	15.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	16.38	16.50	97.64
		157	5785	16.37	16.50	
		165	5825	16.17	16.50	
	802.11n-HT20 MCS0	149	5745	16.10	16.50	97.56
		157	5785	16.16	16.50	
		165	5825	16.09	16.50	
	802.11n-HT40 MCS0	151	5755	16.22	16.50	94.97
		159	5795	16.08	16.50	
	802.11ac-VHT20 MCS0	149	5745	16.07	16.50	97.56
		157	5785	16.13	16.50	
		165	5825	16.07	16.50	
	802.11ac-VHT40 MCS0	151	5755	16.17	16.50	95.00
		159	5795	16.03	16.50	
	802.11ac-VHT80 MCS0	155	5775	16.16	16.50	94.87

<5GHz WLAN ANT 1>

5.2GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	36	5180	17.61	18.00	97.64
		40	5200	17.72	18.00	
		44	5220	17.76	18.00	
		48	5240	17.95	18.00	
	802.11n-HT20 MCS0	36	5180	17.88	18.00	97.56
		40	5200	17.82	18.00	
		44	5220	17.97	18.00	
		48	5240	17.93	18.00	
	802.11n-HT40 MCS0	38	5190	16.75	17.00	94.95
		46	5230	17.80	18.00	
	802.11ac-VHT20 MCS0	36	5180	17.86	18.00	97.58
		40	5200	17.93	18.00	
		44	5220	17.95	18.00	
		48	5240	17.91	18.00	
	802.11ac-VHT40 MCS0	38	5190	16.72	17.00	95.00
		46	5230	17.77	18.00	
	802.11ac-VHT80 MCS0	42	5210	14.73	15.00	93.59

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	CH 52	5260	17.91	18.00	97.64
		56	5280	17.95	18.00	
		60	5300	17.96	18.00	
		64	5320	17.95	18.00	
	802.11n-HT20 MCS0	52	5260	17.82	18.00	97.56
		56	5280	17.80	18.00	
		60	5300	17.86	18.00	
		64	5320	17.98	18.00	
	802.11n-HT40 MCS0	54	5270	17.81	18.00	94.95
		62	5310	16.74	17.00	
	802.11ac-VHT20 MCS0	52	5260	17.81	18.00	97.58
		56	5280	17.82	18.00	
		60	5300	17.84	18.00	
		64	5320	17.96	18.00	
	802.11ac-VHT40 MCS0	54	5270	17.78	18.00	95.00
		62	5310	16.71	17.00	
	802.11ac-VHT80 MCS0	58	5290	14.98	15.00	93.59

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.5GHz WLAN	802.11a 6Mbps	100	5500	17.81	18.00	97.64
		116	5580	17.78	18.00	
		124	5620	17.77	18.00	
		132	5660	17.75	18.00	
		140	5700	17.68	18.00	
	802.11n-HT20 MCS0	100	5500	17.77	18.00	97.56
		116	5580	17.73	18.00	
		124	5620	17.75	18.00	
		132	5660	17.77	18.00	
		140	5700	17.86	18.00	
	802.11n-HT40 MCS0	102	5510	17.98	18.00	94.95
		110	5550	17.95	18.00	
		126	5630	17.90	18.00	
		134	5670	17.94	18.00	
	802.11ac-VHT20 MCS0	100	5500	17.76	18.00	97.58
		116	5580	17.71	18.00	
		124	5620	17.76	18.00	
		132	5660	17.86	18.00	
	802.11ac-VHT40 MCS0	102	5510	17.96	18.00	95.00
		110	5550	17.92	18.00	
		126	5630	17.90	18.00	
		134	5670	17.90	18.00	
	802.11ac-VHT80 MCS0	106	5530	14.96	15.00	93.59
		122	5610	14.97	15.00	

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	16.13	16.50	97.64
		157	5785	16.24	16.50	
		165	5825	16.43	16.50	
	802.11n-HT20 MCS0	149	5745	16.23	16.50	97.56
		157	5785	16.37	16.50	
		165	5825	16.11	16.50	
	802.11n-HT40 MCS0	151	5755	16.47	16.50	94.95
		159	5795	16.23	16.50	
	802.11ac-VHT20 MCS0	149	5745	16.21	16.50	97.58
		157	5785	16.28	16.50	
		165	5825	16.09	16.50	
	802.11ac-VHT40 MCS0	151	5755	16.32	16.50	95.00
		159	5795	16.15	16.50	
	802.11ac-VHT80 MCS0	155	5775	16.12	16.50	93.59

<5GHz WLAN ANT 0+1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN	802.11a 6Mbps	36	5180	17.97	18.00	97.14
		40	5200	17.95	18.00	
		44	5220	17.99	18.00	
		48	5240	17.62	18.00	
	802.11n-HT20 MCS0	36	5180	17.83	18.00	97.56
		40	5200	17.90	18.00	
		44	5220	17.92	18.00	
		48	5240	17.97	18.00	
	802.11n-HT40 MCS0	38	5190	17.97	18.00	95.96
		46	5230	17.98	18.00	
	802.11ac-VHT20 MCS0	36	5180	17.82	18.00	96.75
		40	5200	17.86	18.00	
		44	5220	17.91	18.00	
		48	5240	17.96	18.00	
	802.11ac-VHT40 MCS0	38	5190	17.95	18.00	95.96
		46	5230	17.96	18.00	
	802.11ac-VHT80 MCS0	42	5210	14.68	15.00	94.87

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.3GHz WLAN	802.11a 6Mbps	52	5260	17.90	18.00	97.14
		56	5280	17.95	18.00	
		60	5300	17.99	18.00	
		64	5320	17.95	18.00	
	802.11n-HT20 MCS0	52	5260	17.91	18.00	97.56
		56	5280	17.90	18.00	
		60	5300	17.96	18.00	
		64	5320	17.97	18.00	
	802.11n-HT40 MCS0	54	5270	17.82	18.00	95.96
		62	5310	17.74	18.00	
	802.11ac-VHT20 MCS0	52	5260	17.90	18.00	96.75
		56	5280	17.91	18.00	
		60	5300	17.95	18.00	
		64	5320	17.96	18.00	
	802.11ac-VHT40 MCS0	54	5270	17.80	18.00	95.96
		62	5310	17.72	18.00	
	802.11ac-VHT80 MCS0	58	5290	14.71	15.00	94.87

5.5GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a 6Mbps	100	5500	17.96	18.00	97.14
		116	5580	17.85	18.00	
		124	5620	17.83	18.00	
		132	5660	17.86	18.00	
		140	5700	17.88	18.00	
	802.11n-HT20 MCS0	100	5500	17.95	18.00	97.56
		116	5580	17.80	18.00	
		124	5620	17.83	18.00	
		132	5660	17.80	18.00	
		140	5700	17.86	18.00	
	802.11n-HT40 MCS0	102	5510	17.81	18.00	95.96
		110	5550	17.78	18.00	
		126	5630	17.77	18.00	
		134	5670	17.80	18.00	
	802.11ac-VHT20 MCS0	100	5500	17.94	18.00	96.75
		116	5580	17.79	18.00	
		124	5620	17.78	18.00	
		132	5660	17.83	18.00	
		140	5700	17.85	18.00	
	802.11ac-VHT40 MCS0	102	5510	17.79	18.00	95.96
		110	5550	17.76	18.00	
		126	5630	17.78	18.00	
		134	5670	17.78	18.00	
	802.11ac-VHT80 MCS0	106	5530	14.88	15.00	94.87
		122	5610	14.76	15.00	

5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a MCS0	149	5745	16.18	16.50	97.14
		157	5785	16.49	16.50	
		165	5825	16.46	16.50	
	802.11n-HT20 MCS0	149	5745	16.20	16.50	97.56
		157	5785	16.08	16.50	
		165	5825	16.38	16.50	
	802.11n-HT40 MCS0	151	5755	16.37	16.50	95.96
		159	5795	16.23	16.50	
	802.11ac-VHT20 MCS0	149	5745	16.17	16.50	96.75
		157	5785	16.08	16.50	
		165	5825	16.35	16.50	
	802.11ac-VHT40 MCS0	151	5755	16.30	16.50	95.96
		159	5795	16.19	16.50	
	802.11ac-VHT80 MCS0	155	5775	16.19	16.50	94.87

<At-Head and Hotspot for 2.4GHz WLAN Transmitter>
<2.4GHz WLAN ANT 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	13.60	14.00	99.04
		6	2437	13.87	14.00	
		11	2462	13.90	14.00	
	802.11g 6Mbps	1	2412	13.80	14.00	98.01
		6	2437	13.51	14.00	
		11	2462	13.73	14.00	
	802.11n-HT20 MCS0	1	2412	13.63	14.00	96.97
		6	2437	13.93	14.00	
		11	2462	13.54	14.00	

<2.4GHz WLAN ANT 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	13.71	14.00	98.57
		6	2437	13.65	14.00	
		11	2462	13.59	14.00	
	802.11g 6Mbps	1	2412	13.89	14.00	98.01
		6	2437	13.70	14.00	
		11	2462	13.90	14.00	
	802.11n-HT20 MCS0	1	2412	13.76	14.00	97.47
		6	2437	13.52	14.00	
		11	2462	13.66	14.00	

<2.4GHz WLAN ANT 0+1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN	802.11b 1Mbps	1	2412	13.67	14.00	99.04
		6	2437	13.89	14.00	
		11	2462	13.67	14.00	
	802.11g 6Mbps	1	2412	13.64	14.00	98.10
		6	2437	13.92	14.00	
		11	2462	13.61	14.00	
	802.11n-HT20 MCS0	1	2412	13.67	14.00	97.96
		6	2437	13.88	14.00	
		11	2462	13.90	14.00	

<When 5.8GHz WLAN transmit in At-Head and body-worn condition with WWAN operation>
<5.8GHz WLAN Ant 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	14.53	15.00	97.64
		157	5785	14.64	15.00	
		165	5825	14.66	15.00	
	802.11n-HT20 MCS0	149	5745	14.95	15.00	97.56
		157	5785	14.98	15.00	
		165	5825	14.87	15.00	
	802.11n-HT40 MCS0	151	5755	14.53	15.00	94.97
		159	5795	14.95	15.00	
	802.11ac-VHT20 MCS0	149	5745	14.91	15.00	97.56
		157	5785	14.91	15.00	
		165	5825	14.81	15.00	
	802.11ac-VHT40 MCS0	151	5755	14.51	15.00	95.00
		159	5795	14.92	15.00	
	802.11ac-VHT80 MCS0	155	5775	14.94	15.00	94.87

<5.8GHz WLAN Ant 1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	14.80	15.00	97.64
		157	5785	14.91	15.00	
		165	5825	14.66	15.00	
	802.11n-HT20 MCS0	149	5745	14.60	15.00	97.56
		157	5785	14.79	15.00	
		165	5825	14.94	15.00	
	802.11n-HT40 MCS0	151	5755	14.81	15.00	94.95
		159	5795	14.53	15.00	
	802.11ac-VHT20 MCS0	149	5745	14.56	15.00	97.58
		157	5785	14.73	15.00	
		165	5825	14.91	15.00	
	802.11ac-VHT40 MCS0	151	5755	14.78	15.00	95.00
		159	5795	14.51	15.00	
	802.11ac-VHT80 MCS0	155	5775	14.87	15.00	93.59

<5.8GHz WLAN Ant 0+1>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	14.84	15.00	97.14
		157	5785	14.66	15.00	
		165	5825	14.71	15.00	
	802.11n-HT20 MCS0	149	5745	14.62	15.00	97.56
		157	5785	14.61	15.00	
		165	5825	14.59	15.00	
	802.11n-HT40 MCS0	151	5755	14.75	15.00	95.96
		159	5795	14.81	15.00	
	802.11ac-VHT20 MCS0	149	5745	14.60	15.00	96.75
		157	5785	14.60	15.00	
		165	5825	14.56	15.00	
	802.11ac-VHT40 MCS0	151	5755	14.71	15.00	95.96
		159	5795	14.77	15.00	
	802.11ac-VHT80 MCS0	155	5775	14.95	15.00	94.87

<When 5.8GHz WLAN transmit in Hotspot condition with WWAN operation>
<5.8GHz WLAN Ant 0>

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.8GHz WLAN	802.11a MCS0	149	5745	13.97	14.00	97.64
		157	5785	13.99	14.00	
		165	5825	13.96	14.00	
	802.11n-HT20 MCS0	149	5745	13.83	14.00	97.56
		157	5785	13.87	14.00	
		165	5825	13.85	14.00	
	802.11n-HT40 MCS0	151	5755	13.88	14.00	94.97
		159	5795	13.73	14.00	
	802.11ac-VHT20 MCS0	149	5745	13.81	14.00	97.56
		157	5785	13.84	14.00	
		165	5825	13.83	14.00	
	802.11ac-VHT40 MCS0	151	5755	13.83	14.00	95.00
		159	5795	13.70	14.00	
	802.11ac-VHT80 MCS0	155	5775	13.86	14.00	94.87

<5.8GHz WLAN Ant 1>

5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a MCS0	149	5745	13.67	14.00	97.64
		157	5785	13.68	14.00	
		165	5825	13.85	14.00	
	802.11n-HT20 MCS0	149	5745	13.94	14.00	97.56
		157	5785	13.98	14.00	
		165	5825	13.68	14.00	
	802.11n-HT40 MCS0	151	5755	13.98	14.00	94.95
		159	5795	13.84	14.00	
	802.11ac-VHT20 MCS0	149	5745	13.90	14.00	97.58
		157	5785	13.94	14.00	
		165	5825	13.63	14.00	
	802.11ac-VHT40 MCS0	151	5755	13.92	14.00	95.00
		159	5795	13.75	14.00	
	802.11ac-VHT80 MCS0	155	5775	13.65	14.00	93.59

<5.8GHz WLAN Ant 0+1>

5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
	802.11a MCS0	149	5745	13.72	14.00	97.14
		157	5785	13.76	14.00	
		165	5825	13.73	14.00	
	802.11n-HT20 MCS0	149	5745	13.60	14.00	97.56
		157	5785	13.73	14.00	
		165	5825	13.99	14.00	
	802.11n-HT40 MCS0	151	5755	13.74	14.00	95.96
		159	5795	13.82	14.00	
	802.11ac-VHT20 MCS0	149	5745	13.56	14.00	96.75
		157	5785	13.71	14.00	
		165	5825	13.95	14.00	
	802.11ac-VHT40 MCS0	151	5755	13.70	14.00	95.96
		159	5795	13.79	14.00	
	802.11ac-VHT80 MCS0	155	5775	13.78	14.00	94.87

<2.4GHz Bluetooth>

Mode	Channel	Frequency (MHz)	Average power (dBm)			Tune-up Limit		
			1Mbps	2Mbps	3Mbps	1Mbps	2Mbps	3Mbps
BR / EDR	CH 00	2402	10.53	8.29	8.31	11.00	8.50	8.50
	CH 39	2441	7.89	5.18	5.18	8.00	6.00	6.00
	CH 78	2480	9.86	7.68	7.70	11.00	8.50	8.50

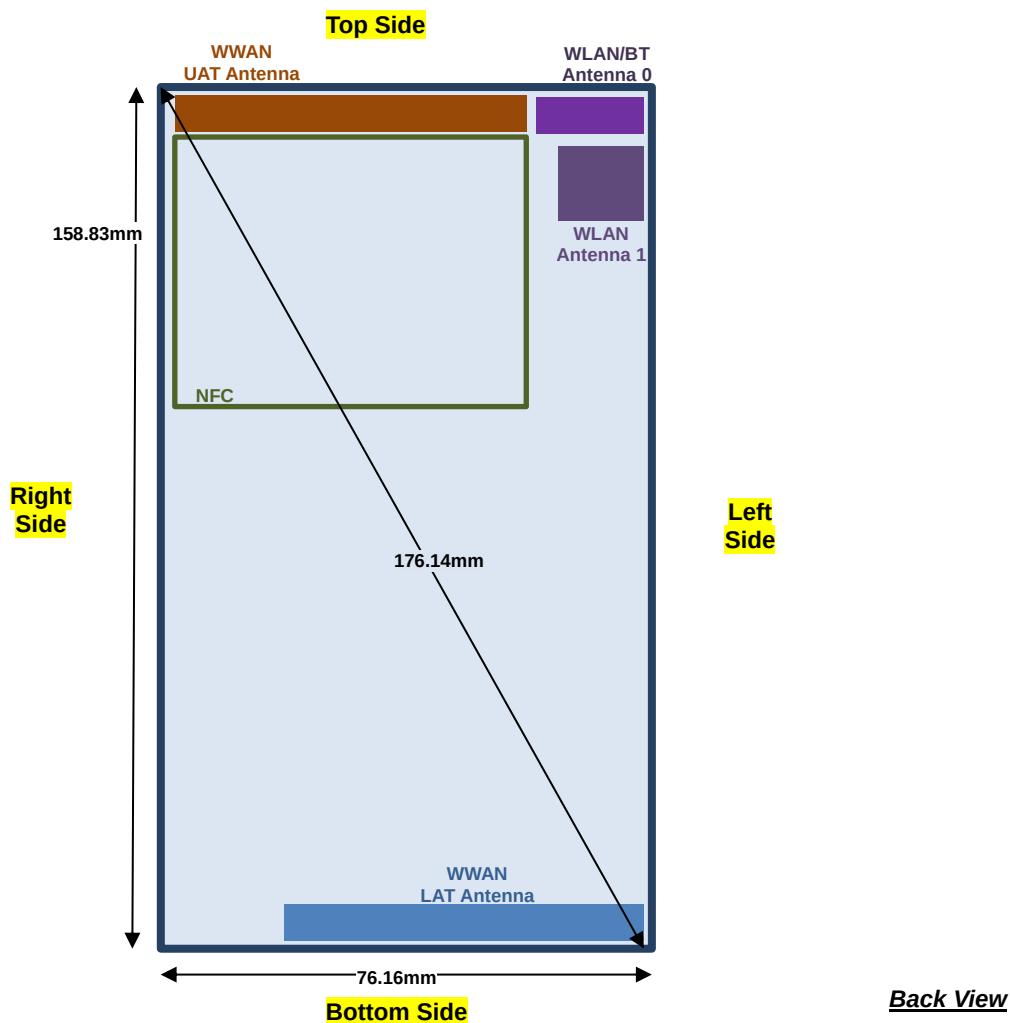
Mode	Channel	Frequency (MHz)	Average power (dBm)		Tune-up Limit	
			1Mbps	2Mbps	1Mbps	2Mbps
LE	CH 00	2402	4.32	4.27	5.00	5.00
	CH 19	2440	2.01	1.94	3.00	3.00
	CH 39	2480	5.00	4.96	5.00	5.00

General Note:

- For 2.4GHz Bluetooth SAR testing was selected 1Mbps due to its highest average power and duty cycle is 76.6% considered in SAR testing, and the duty cycle would be scaled to theoretical 83.3% in reported SAR calculation.

12. Antenna Location

<Mobile Phone>



Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN LAT	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm	≤ 25mm
WWAN UAT	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	≤ 25mm
WLAN Ant 0	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	>25mm	≤ 25mm
WLAN/BT Ant 1	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	>25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN LAT	Yes	Yes	No	Yes	Yes	Yes
WWAN UAT	Yes	Yes	Yes	No	Yes	Yes
WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
WLAN/BT Ant 0	Yes	Yes	Yes	No	No	Yes

General Note:

- Referring to KDB 941225 D06 v02r01, when the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge

13. SAR Test Results

General Note:

- Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result.
The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
- Per KDB 447498 D01v06, for each exposure position, 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
- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
- Per KDB 648474 D04v01r03, when the reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
- Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g product specific 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, for this device only bottom side SAR scaled to maximum output power is higher than 1.2W/kg of WCDMA B2/B4 and LTE B2/B4.
- For 5.3GHz / 5.5GHz WLAN product specific SAR is necessary too, due to an overall diagonal dimension is > 16 cm.

GSM Note:

- Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
- Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The 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. Therefore, the GPRS (2Tx slots) for GSM850/GSM1900 is considered as the primary mode.
- Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode
- Power reduction which is triggered by hotspot mode is implemented in GSM850 band, for hotspot mode SAR testing EUT was set in reduced power mode and GPRS 2Tx slot due to its highest frame-average power.

UMTS Note:

- Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
- Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B2 / B12 / B26 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, 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.
7. LTE B5/B17/B38 SAR test was covered by B26/B12/B41 according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. The maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion.
 - b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required 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.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode 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 report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
6. Per KDB 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6 W/kg and SAR peak to location ratio ≤ 0.04 , no additional SAR measurements for MIMO.
7. During SAR testing the WLAN transmission was verified using a spectrum analyzer.



13.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_LAT	GPRS (2 Tx slots)	Right Cheek	0mm	251	848.8	32.56	33.00	1.107	0.01	0.350	0.387
01	GSM850_LAT	GPRS (2 Tx slots)	Right Cheek	0mm	128	824.2	32.25	33.00	1.189	0	0.341	0.405
	GSM850_LAT	GPRS (2 Tx slots)	Right Cheek	0mm	189	836.4	32.49	33.00	1.125	0	0.354	0.398
	GSM850_LAT	GPRS (2 Tx slots)	Right Tilted	0mm	251	848.8	32.56	33.00	1.107	0.02	0.130	0.144
	GSM850_LAT	GPRS (2 Tx slots)	Left Cheek	0mm	251	848.8	32.56	33.00	1.107	-0.19	0.232	0.257
	GSM850_LAT	GPRS (2 Tx slots)	Left Tilted	0mm	251	848.8	32.56	33.00	1.107	0.09	0.120	0.133
02	GSM1900_LAT	GPRS (2 Tx slots)	Right Cheek	0mm	810	1909.8	29.52	30.00	1.117	0.14	0.063	0.070
	GSM1900_LAT	GPRS (2 Tx slots)	Right Cheek	0mm	512	1850.2	29.10	30.00	1.230	0.11	0.052	0.064
	GSM1900_LAT	GPRS (2 Tx slots)	Right Cheek	0mm	661	1880	29.32	30.00	1.169	0.09	0.058	0.068
	GSM1900_LAT	GPRS (2 Tx slots)	Right Tilted	0mm	810	1909.8	29.52	30.00	1.117	0.12	0.053	0.059
	GSM1900_LAT	GPRS (2 Tx slots)	Left Cheek	0mm	810	1909.8	29.52	30.00	1.117	0.11	0.044	0.049
	GSM1900_LAT	GPRS (2 Tx slots)	Left Tilted	0mm	810	1909.8	29.52	30.00	1.117	0.13	0.025	0.028

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II_LAT	RMC 12.2Kbps	Right Cheek	0mm	9262	1852.4	24.41	24.50	1.021	-0.01	0.075	0.077
03	WCDMA II_LAT	RMC 12.2Kbps	Right Tilted	0mm	9262	1852.4	24.41	24.50	1.021	0.1	0.083	0.085
	WCDMA II_LAT	RMC 12.2Kbps	Right Tilted	0mm	9400	1880	24.29	24.50	1.050	0.12	0.078	0.082
	WCDMA II_LAT	RMC 12.2Kbps	Right Tilted	0mm	9538	1907.6	23.94	24.50	1.138	0.14	0.064	0.073
	WCDMA II_LAT	RMC 12.2Kbps	Left Cheek	0mm	9262	1852.4	24.41	24.50	1.021	0.02	0.064	0.065
	WCDMA II_LAT	RMC 12.2Kbps	Left Tilted	0mm	9262	1852.4	24.41	24.50	1.021	0.16	0.036	0.037
	WCDMA IV_LAT	RMC 12.2Kbps	Right Cheek	0mm	1312	1712.4	24.14	24.50	1.086	0.07	0.094	0.102
	WCDMA IV_LAT	RMC 12.2Kbps	Right Tilted	0mm	1312	1712.4	24.14	24.50	1.086	0.14	0.087	0.095
	WCDMA IV_LAT	RMC 12.2Kbps	Left Cheek	0mm	1312	1712.4	24.14	24.50	1.086	0.19	0.102	0.111
04	WCDMA IV_LAT	RMC 12.2Kbps	Left Cheek	0mm	1413	1732.6	24.13	24.50	1.089	0.19	0.110	0.120
	WCDMA IV_LAT	RMC 12.2Kbps	Left Cheek	0mm	1513	1752.6	24.09	24.50	1.099	0.14	0.063	0.069
	WCDMA IV_LAT	RMC 12.2Kbps	Left Tilted	0mm	1312	1712.4	24.14	24.50	1.086	0.12	0.048	0.052
	WCDMA V_UAT	RMC 12.2Kbps	Right Cheek	0mm	4132	826.4	21.47	22.00	1.130	0.02	0.508	0.574
	WCDMA V_UAT	RMC 12.2Kbps	Right Tilted	0mm	4132	826.4	21.47	22.00	1.130	-0.04	0.373	0.421
05	WCDMA V_UAT	RMC 12.2Kbps	Left Cheek	0mm	4132	826.4	21.47	22.00	1.130	0.03	0.584	0.660
	WCDMA V_UAT	RMC 12.2Kbps	Left Cheek	0mm	4182	836.4	21.36	22.00	1.159	0.04	0.560	0.649
	WCDMA V_UAT	RMC 12.2Kbps	Left Cheek	0mm	4233	846.6	21.21	22.00	1.199	0.02	0.535	0.642
	WCDMA V_UAT	RMC 12.2Kbps	Left Tilted	0mm	4132	826.4	21.47	22.00	1.130	0.02	0.414	0.468
	WCDMA V_LAT	RMC 12.2Kbps	Right Cheek	0mm	4132	826.4	23.43	24.00	1.140	0.09	0.302	0.344
	WCDMA V_LAT	RMC 12.2Kbps	Right Cheek	0mm	4182	836.4	23.22	24.00	1.197	0.01	0.318	0.381
	WCDMA V_LAT	RMC 12.2Kbps	Right Cheek	0mm	4233	846.6	23.14	24.00	1.219	0.06	0.306	0.373
	WCDMA V_LAT	RMC 12.2Kbps	Right Tilted	0mm	4132	826.4	23.43	24.00	1.140	0.08	0.132	0.151
	WCDMA V_LAT	RMC 12.2Kbps	Left Cheek	0mm	4132	826.4	23.43	24.00	1.140	0.02	0.209	0.238
	WCDMA V_LAT	RMC 12.2Kbps	Left Tilted	0mm	4132	826.4	23.43	24.00	1.140	0.04	0.126	0.144



<LTE SAR>

Note	Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	06	LTE Band 2_LAT	20M	QPSK	1	0	Right Cheek	0mm	19100	1900	24.20	24.50	1.072	0.1	0.096	0.103
		LTE Band 2_LAT	20M	QPSK	1	0	Right Cheek	0mm	18700	1860	23.80	24.50	1.175	0.12	0.048	0.056
		LTE Band 2_LAT	20M	QPSK	1	0	Right Cheek	0mm	18900	1880	23.71	24.50	1.199	0.14	0.061	0.073
		LTE Band 2_LAT	20M	QPSK	50	0	Right Cheek	0mm	19100	1900	23.04	23.50	1.112	0.09	0.078	0.087
		LTE Band 2_LAT	20M	QPSK	1	0	Right Tilted	0mm	19100	1900	24.20	24.50	1.072	0.12	0.094	0.101
		LTE Band 2_LAT	20M	QPSK	50	0	Right Tilted	0mm	19100	1900	23.04	23.50	1.112	-0.18	0.077	0.086
		LTE Band 2_LAT	20M	QPSK	1	0	Left Cheek	0mm	19100	1900	24.20	24.50	1.072	0.14	0.066	0.071
		LTE Band 2_LAT	20M	QPSK	50	0	Left Cheek	0mm	19100	1900	23.04	23.50	1.112	-0.11	0.049	0.054
		LTE Band 2_LAT	20M	QPSK	1	0	Left Tilted	0mm	19100	1900	24.20	24.50	1.072	0.04	0.032	0.034
		LTE Band 2_LAT	20M	QPSK	50	0	Left Tilted	0mm	19100	1900	23.04	23.50	1.112	-0.14	0.027	0.030
		LTE Band 4_LAT	20M	QPSK	1	0	Right Cheek	0mm	20175	1732.5	23.85	24.50	1.161	0.04	0.077	0.089
		LTE Band 4_LAT	20M	QPSK	50	0	Right Cheek	0mm	20175	1732.5	22.82	23.50	1.169	-0.11	0.061	0.071
		LTE Band 4_LAT	20M	QPSK	1	0	Right Tilted	0mm	20175	1732.5	23.85	24.50	1.161	0.16	0.085	0.099
		LTE Band 4_LAT	20M	QPSK	50	0	Right Tilted	0mm	20175	1732.5	22.82	23.50	1.169	-0.11	0.068	0.080
	07	LTE Band 4_LAT	20M	QPSK	1	0	Left Cheek	0mm	20175	1732.5	23.85	24.50	1.161	0.09	0.097	0.113
		LTE Band 4_LAT	20M	QPSK	50	0	Left Cheek	0mm	20175	1732.5	22.82	23.50	1.169	-0.07	0.075	0.088
		LTE Band 4_LAT	20M	QPSK	1	0	Left Tilted	0mm	20175	1732.5	23.85	24.50	1.161	0.04	0.039	0.045
		LTE Band 4_LAT	20M	QPSK	50	0	Left Tilted	0mm	20175	1732.5	22.82	23.50	1.169	-0.16	0.030	0.035
		LTE Band 7_LAT	20M	QPSK	1	0	Right Cheek	0mm	20850	2510	20.69	21.50	1.205	0.07	0.078	0.094
		LTE Band 7_LAT	20M	QPSK	50	0	Right Cheek	0mm	20850	2510	19.72	20.50	1.197	0.13	0.062	0.074
		LTE Band 7_LAT	20M	QPSK	1	0	Right Tilted	0mm	20850	2510	20.69	21.50	1.205	0.13	0.081	0.098
		LTE Band 7_LAT	20M	QPSK	50	0	Right Tilted	0mm	20850	2510	19.72	20.50	1.197	0.11	0.059	0.071
		LTE Band 7_LAT	20M	QPSK	1	0	Left Cheek	0mm	20850	2510	20.69	21.50	1.205	0.16	0.122	0.147
		LTE Band 7_LAT	20M	QPSK	1	0	Left Cheek	0mm	21100	2535	20.36	21.50	1.300	0.02	0.129	0.168
	08	LTE Band 7_LAT	20M	QPSK	1	0	Left Cheek	0mm	21350	2560	20.29	21.50	1.321	0.09	0.138	0.182
		LTE Band 7_LAT	20M	QPSK	50	0	Left Cheek	0mm	20850	2510	19.72	20.50	1.197	0.18	0.095	0.114
		LTE Band 7_LAT	20M	QPSK	1	0	Left Tilted	0mm	20850	2510	20.69	21.50	1.205	0.15	0.047	0.057
		LTE Band 7_LAT	20M	QPSK	50	0	Left Tilted	0mm	20850	2510	19.72	20.50	1.197	0.19	0.036	0.043
Intra UL CA		LTE Band 7_LAT	20M	QPSK	1	0	Left Cheek	0mm	20850	2510	20.60	21.50	1.230	-0.1	0.114	0.140
		LTE Band 12_UAT	10M	QPSK	1	0	Right Cheek	0mm	23095	707.5	23.03	24.50	1.403	0	0.270	0.379
		LTE Band 12_UAT	10M	QPSK	25	0	Right Cheek	0mm	23095	707.5	22.11	23.50	1.377	0.03	0.225	0.310
		LTE Band 12_UAT	10M	QPSK	1	0	Right Tilted	0mm	23095	707.5	23.03	24.50	1.403	-0.03	0.200	0.281
		LTE Band 12_UAT	10M	QPSK	25	0	Right Tilted	0mm	23095	707.5	22.11	23.50	1.377	-0.02	0.164	0.226
	09	LTE Band 12_UAT	10M	QPSK	1	0	Left Cheek	0mm	23095	707.5	23.03	24.50	1.403	-0.04	0.316	0.443
		LTE Band 12_UAT	10M	QPSK	25	0	Left Cheek	0mm	23095	707.5	22.11	23.50	1.377	-0.05	0.257	0.354
		LTE Band 12_UAT	10M	QPSK	1	0	Left Tilted	0mm	23095	707.5	23.03	24.50	1.403	-0.17	0.225	0.316
		LTE Band 12_UAT	10M	QPSK	25	0	Left Tilted	0mm	23095	707.5	22.11	23.50	1.377	-0.04	0.185	0.255
		LTE Band 12_LAT	10M	QPSK	1	0	Right Cheek	0mm	23095	707.5	23.03	24.50	1.403	0.08	0.113	0.159
		LTE Band 12_LAT	10M	QPSK	25	0	Right Cheek	0mm	23095	707.5	22.11	23.50	1.377	0.08	0.105	0.145
		LTE Band 12_LAT	10M	QPSK	1	0	Right Tilted	0mm	23095	707.5	23.03	24.50	1.403	0.05	0.045	0.063
		LTE Band 12_LAT	10M	QPSK	25	0	Right Tilted	0mm	23095	707.5	22.11	23.50	1.377	-0.06	0.040	0.055
		LTE Band 12_LAT	10M	QPSK	1	0	Left Cheek	0mm	23095	707.5	23.03	24.50	1.403	0.03	0.078	0.109
		LTE Band 12_LAT	10M	QPSK	25	0	Left Cheek	0mm	23095	707.5	22.11	23.50	1.377	0.07	0.066	0.091
		LTE Band 12_LAT	10M	QPSK	1	0	Left Tilted	0mm	23095	707.5	23.03	24.50	1.403	0.05	0.049	0.069
		LTE Band 12_LAT	10M	QPSK	25	0	Left Tilted	0mm	23095	707.5	22.11	23.50	1.377	-0.16	0.044	0.061



FCC SAR TEST REPORT

Report No. : FA852405

Note.	Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
		LTE Band 13_UAT	10M	QPSK	1	0	Right Cheek	0mm	23230	782	24.23	24.50	1.064	-0.05	0.535	0.569
		LTE Band 13_UAT	10M	QPSK	25	0	Right Cheek	0mm	23230	782	23.29	23.50	1.050	-0.06	0.478	0.502
		LTE Band 13_UAT	10M	QPSK	1	0	Right Tilted	0mm	23230	782	24.23	24.50	1.064	0	0.386	0.411
		LTE Band 13_UAT	10M	QPSK	25	0	Right Tilted	0mm	23230	782	23.29	23.50	1.050	0.02	0.338	0.355
	10	LTE Band 13_UAT	10M	QPSK	1	0	Left Cheek	0mm	23230	782	24.23	24.50	1.064	-0.03	0.640	0.681
		LTE Band 13_UAT	10M	QPSK	25	0	Left Cheek	0mm	23230	782	23.29	23.50	1.050	0.03	0.563	0.591
		LTE Band 13_UAT	10M	QPSK	1	0	Left Tilted	0mm	23230	782	24.23	24.50	1.064	-0.13	0.454	0.483
		LTE Band 13_UAT	10M	QPSK	25	0	Left Tilted	0mm	23230	782	23.29	23.50	1.050	-0.12	0.396	0.416
		LTE Band 13_LAT	10M	QPSK	1	0	Right Cheek	0mm	23230	782	24.23	24.50	1.064	0.03	0.203	0.216
		LTE Band 13_LAT	10M	QPSK	25	0	Right Cheek	0mm	23230	782	23.29	23.50	1.050	-0.05	0.179	0.188
		LTE Band 13_LAT	10M	QPSK	1	0	Right Tilted	0mm	23230	782	24.23	24.50	1.064	0.08	0.099	0.105
		LTE Band 13_LAT	10M	QPSK	25	0	Right Tilted	0mm	23230	782	23.29	23.50	1.050	-0.1	0.089	0.093
		LTE Band 13_LAT	10M	QPSK	1	0	Left Cheek	0mm	23230	782	24.23	24.50	1.064	0.17	0.133	0.142
		LTE Band 13_LAT	10M	QPSK	25	0	Left Cheek	0mm	23230	782	23.29	23.50	1.050	0.03	0.114	0.120
		LTE Band 13_LAT	10M	QPSK	1	0	Left Tilted	0mm	23230	782	24.23	24.50	1.064	0.02	0.088	0.094
		LTE Band 13_LAT	10M	QPSK	25	0	Left Tilted	0mm	23230	782	23.29	23.50	1.050	-0.12	0.080	0.084
		LTE Band 26_UAT	15M	QPSK	1	0	Right Cheek	0mm	26865	831.5	24.50	24.50	1.000	-0.01	0.725	0.725
		LTE Band 26_UAT	15M	QPSK	36	0	Right Cheek	0mm	26865	831.5	23.39	23.50	1.026	-0.02	0.577	0.592
		LTE Band 26_UAT	15M	QPSK	1	0	Right Tilted	0mm	26865	831.5	24.50	24.50	1.000	0.03	0.521	0.521
		LTE Band 26_UAT	15M	QPSK	36	0	Right Tilted	0mm	26865	831.5	23.39	23.50	1.026	-0.18	0.417	0.428
	11	LTE Band 26_UAT	15M	QPSK	1	0	Left Cheek	0mm	26865	831.5	24.50	24.50	1.000	0.05	0.780	0.780
		LTE Band 26_UAT	15M	QPSK	36	0	Left Cheek	0mm	26865	831.5	23.39	23.50	1.026	-0.05	0.668	0.685
		LTE Band 26_UAT	15M	QPSK	1	0	Left Tilted	0mm	26865	831.5	24.50	24.50	1.000	-0.03	0.568	0.568
		LTE Band 26_UAT	15M	QPSK	36	0	Left Tilted	0mm	26865	831.5	23.39	23.50	1.026	-0.07	0.456	0.468
Intra UL CA		LTE Band 5_UAT	10M	QPSK	1	0	Left Cheek	0mm	20450	829	24.49	24.50	1.002	-0.17	0.774	0.776
		LTE Band 26_LAT	15M	QPSK	1	0	Right Cheek	0mm	26865	831.5	24.50	24.50	1.000	0.01	0.226	0.226
		LTE Band 26_LAT	15M	QPSK	36	0	Right Cheek	0mm	26865	831.5	23.39	23.50	1.026	0.04	0.180	0.185
		LTE Band 26_LAT	15M	QPSK	1	0	Right Tilted	0mm	26865	831.5	24.50	24.50	1.000	0.09	0.097	0.097
		LTE Band 26_LAT	15M	QPSK	36	0	Right Tilted	0mm	26865	831.5	23.39	23.50	1.026	0.06	0.077	0.079
		LTE Band 26_LAT	15M	QPSK	1	0	Left Cheek	0mm	26865	831.5	24.50	24.50	1.000	0.05	0.156	0.156
		LTE Band 26_LAT	15M	QPSK	36	0	Left Cheek	0mm	26865	831.5	23.39	23.50	1.026	-0.04	0.124	0.127
		LTE Band 26_LAT	15M	QPSK	1	0	Left Tilted	0mm	26865	831.5	24.50	24.50	1.000	-0.08	0.105	0.105
		LTE Band 26_LAT	15M	QPSK	36	0	Left Tilted	0mm	26865	831.5	23.39	23.50	1.026	0	0.085	0.087
Intra UL CA		LTE Band 5_LAT	10M	QPSK	1	0	Right Cheek	0mm	20450	829	24.49	24.50	1.002	0	0.231	0.232

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41_LAT	20M	QPSK	1	0	Right Cheek	0mm	41490	2680	24.33	24.50	1.040	62.9	1.006	0.12	0.085	0.089
	LTE Band 41_LAT	20M	QPSK	50	0	Right Cheek	0mm	41490	2680	23.38	23.50	1.028	62.9	1.006	0.02	0.066	0.068
	LTE Band 41_LAT	20M	QPSK	1	0	Right Tilted	0mm	41490	2680	24.33	24.50	1.040	62.9	1.006	0.15	0.093	0.097
	LTE Band 41_LAT	20M	QPSK	50	0	Right Tilted	0mm	41490	2680	23.38	23.50	1.028	62.9	1.006	0.06	0.071	0.073
	LTE Band 41_LAT	20M	QPSK	1	0	Left Cheek	0mm	41490	2680	24.33	24.50	1.040	62.9	1.006	-0.06	0.104	0.109
	LTE Band 41_LAT	20M	QPSK	1	0	Left Cheek	0mm	39750	2506	23.72	24.50	1.197	62.9	1.006	0.06	0.126	0.152
12	LTE Band 41_LAT	20M	QPSK	1	0	Left Cheek	0mm	40185	2549.5	24.15	24.50	1.084	62.9	1.006	0.08	0.163	0.178
	LTE Band 41_LAT	20M	QPSK	1	0	Left Cheek	0mm	40620	2593	24.26	24.50	1.057	62.9	1.006	0.06	0.167	0.178
	LTE Band 41_LAT	20M	QPSK	1	0	Left Cheek	0mm	41055	2636.5	24.32	24.50	1.042	62.9	1.006	0.02	0.138	0.145
	LTE Band 41_LAT	20M	QPSK	50	0	Left Cheek	0mm	41490	2680	23.38	23.50	1.028	62.9	1.006	0.08	0.082	0.085
	LTE Band 41_LAT	20M	QPSK	1	0	Left Tilted	0mm	41490	2680	24.33	24.50	1.040	62.9	1.006	0.09	0.056	0.059
	LTE Band 41_LAT	20M	QPSK	50	0	Left Tilted	0mm	41490	2680	23.38	23.50	1.028	62.9	1.006	0.01	0.043	0.044



<WLAN SAR>

WWAN off / WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
13	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 0	11	2462	13.90	14.00	1.023	99.04	1.010	0.13	0.642	0.664
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 0	1	2412	13.60	14.00	1.096	99.04	1.010	-0.14	0.493	0.546
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 0	6	2437	13.87	14.00	1.030	99.04	1.010	-0.05	0.502	0.522
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 0	11	2462	13.90	14.00	1.023	99.04	1.010	-0.06	0.479	0.495
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0	11	2462	13.90	14.00	1.023	99.04	1.010	0.01	0.393	0.406
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 0	11	2462	13.90	14.00	1.023	99.04	1.010	0.08	0.260	0.269
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 0	1	2412	13.71	14.00	1.069	98.57	1.015	-0.18	0.034	0.037
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 0	1	2412	13.71	14.00	1.069	98.57	1.015	0.13	0.025	0.027
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 0	1	2412	13.71	14.00	1.069	98.57	1.015	-0.17	0.005	0.005
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 0	1	2412	13.71	14.00	1.069	98.57	1.015	-0.15	0.008	0.008
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	-0.05	0.110	0.117
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	-0.04	0.122	0.130
14	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 0	62	5310	16.71	17.00	1.069	94.97	1.053	-0.03	0.098	0.110
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	-0.05	0.082	0.088
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	0.18	0.089	0.095
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0	54	5270	17.81	18.00	1.045	94.95	1.053	-0.05	0.034	0.037
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 0	54	5270	17.81	18.00	1.045	94.95	1.053	-0.08	0.026	0.029
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 0	54	5270	17.81	18.00	1.045	94.95	1.053	0.01	0.013	0.014
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 0	54	5270	17.81	18.00	1.045	94.95	1.053	0.09	0.012	0.013
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	-0.06	0.441	0.465
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0	110	5550	17.97	18.00	1.007	94.97	1.053	-0.15	0.556	0.590
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0	126	5630	17.93	18.00	1.016	94.97	1.053	-0.02	0.541	0.579
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0	134	5670	17.95	18.00	1.012	94.97	1.053	-0.16	0.679	0.723
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0	142	5710	17.98	18.00	1.005	94.97	1.053	0.06	0.612	0.647
15	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	-0.04	0.394	0.416
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	-0.02	0.340	0.359
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	-0.05	0.325	0.343
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	0mm	Ant 0	102	5510	17.98	18.00	1.005	94.95	1.053	0.1	0.114	0.121
	WLAN5GHz	802.11n-HT40 MCS0	Right Tilted	0mm	Ant 0	102	5510	17.98	18.00	1.005	94.95	1.053	-0.16	0.088	0.093
	WLAN5GHz	802.11n-HT40 MCS0	Left Cheek	0mm	Ant 0	102	5510	17.98	18.00	1.005	94.95	1.053	0.12	0.088	0.093
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 0	102	5510	17.98	18.00	1.005	94.95	1.053	0.13	0.078	0.083
	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 0	102	5510	17.98	18.00	1.005	94.95	1.053	0.13	0.078	0.083

WWAN off															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
16	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 0	155	5775	16.16	16.50	1.08	94.87	1.054	-0.14	0.521	0.594
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 0	155	5775	16.16	16.50	1.08	94.87	1.054	0.12	0.470	0.536
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 0	155	5775	16.16	16.50	1.08	94.87	1.054	-0.05	0.370	0.422
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 0	155	5775	16.16	16.50	1.08	94.87	1.054	-0.1	0.365	0.416
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	155	5775	16.12	16.50	1.09	93.59	1.068	0.02	0.049	0.057
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	155	5775	16.12	16.50	1.09	93.59	1.068	0.06	0.053	0.062
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	155	5775	16.12	16.50	1.09	93.59	1.068	-0.03	0.044	0.051
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	155	5775	16.12	16.50	1.09	93.59	1.068	-0.12	0.041	0.048
WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 0	155	5775	14.94	15.00	1.014	94.87	1.054	-0.09	0.304	0.325
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 0	155	5775	14.94	15.00	1.014	94.87	1.054	0.12	0.376	0.402
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 0	155	5775	14.94	15.00	1.014	94.87	1.054	0.13	0.204	0.218
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 0	155	5775	14.94	15.00	1.014	94.87	1.054	0.17	0.200	0.214
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 1	155	5775	14.87	15.00	1.030	93.59	1.068	-0.05	0.050	0.055
	WLAN5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 1	155	5775	14.87	15.00	1.030	93.59	1.068	-0.1	0.060	0.066
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 1	155	5775	14.87	15.00	1.030	93.59	1.068	0.03	0.023	0.025
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 1	155	5775	14.87	15.00	1.030	93.59	1.068	0.03	0.001	0.001

<Bluetooth SAR>

WWAN off / WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Right Cheek	0mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	-0.16	0.190	0.230
	Bluetooth	1Mbps	Right Cheek	0mm	Ant 0	39	2441	7.89	8.00	1.026	76.6	1.087	-0.08	0.145	0.162
17	Bluetooth	1Mbps	Right Cheek	0mm	Ant 0	78	2480	9.86	11.00	1.300	76.6	1.087	-0.02	0.206	0.291
	Bluetooth	1Mbps	Right Tilted	0mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	-0.1	0.137	0.166
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	-0.05	0.089	0.108
	Bluetooth	1Mbps	Left Tilted	0mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	0.07	0.054	0.065

13.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_LAT	GPRS (2 Tx slots)	Front	10mm	128	824.2	31.06	31.50	1.107	-0.05	0.636	0.704
18	GSM850_LAT	GPRS (2 Tx slots)	Back	10mm	128	824.2	31.06	31.50	1.107	-0.18	0.729	0.807
	GSM850_LAT	GPRS (2 Tx slots)	Back	10mm	189	836.4	30.70	31.50	1.202	-0.18	0.507	0.610
	GSM850_LAT	GPRS (2 Tx slots)	Back	10mm	251	848.8	30.43	31.50	1.279	-0.16	0.557	0.713
	GSM850_LAT	GPRS (2 Tx slots)	Left Side	10mm	128	824.2	31.06	31.50	1.107	-0.02	0.071	0.079
	GSM850_LAT	GPRS (2 Tx slots)	Right Side	10mm	128	824.2	31.06	31.50	1.107	-0.03	0.396	0.438
	GSM850_LAT	GPRS (2 Tx slots)	Bottom Side	10mm	128	824.2	31.06	31.50	1.107	0.1	0.458	0.507
	GSM1900_LAT	GPRS (2 Tx slots)	Front	10mm	810	1909.8	29.52	30.00	1.117	-0.02	0.417	0.466
	GSM1900_LAT	GPRS (2 Tx slots)	Back	10mm	810	1909.8	29.52	30.00	1.117	-0.17	0.463	0.517
	GSM1900_LAT	GPRS (2 Tx slots)	Left Side	10mm	810	1909.8	29.52	30.00	1.117	-0.02	0.036	0.040
	GSM1900_LAT	GPRS (2 Tx slots)	Right Side	10mm	810	1909.8	29.52	30.00	1.117	-0.1	0.098	0.109
19	GSM1900_LAT	GPRS (2 Tx slots)	Bottom Side	10mm	810	1909.8	29.52	30.00	1.117	0.04	0.807	0.901
	GSM1900_LAT	GPRS (2 Tx slots)	Bottom Side	10mm	512	1850.2	29.10	30.00	1.230	0	0.706	0.869
	GSM1900_LAT	GPRS (2 Tx slots)	Bottom Side	10mm	661	1880	29.32	30.00	1.169	0.02	0.758	0.886

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II_LAT	RMC 12.2Kbps	Front	10mm	9262	1852.4	23.50	24.00	1.122	-0.13	0.536	0.601
	WCDMA II_LAT	RMC 12.2Kbps	Back	10mm	9262	1852.4	23.50	24.00	1.122	0	0.586	0.658
	WCDMA II_LAT	RMC 12.2Kbps	Left Side	10mm	9262	1852.4	23.50	24.00	1.122	0.01	0.071	0.080
	WCDMA II_LAT	RMC 12.2Kbps	Right Side	10mm	9262	1852.4	23.50	24.00	1.122	0.08	0.095	0.107
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	9262	1852.4	23.50	24.00	1.122	0.04	0.896	1.005
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	9400	1880	23.38	24.00	1.153	0	0.953	1.099
20	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	9538	1907.6	23.04	24.00	1.247	0.06	0.920	1.148
	WCDMA IV_LAT	RMC 12.2Kbps	Front	10mm	1413	1732.6	21.81	22.50	1.172	-0.1	0.587	0.688
	WCDMA IV_LAT	RMC 12.2Kbps	Back	10mm	1413	1732.6	21.81	22.50	1.172	-0.15	0.642	0.753
	WCDMA IV_LAT	RMC 12.2Kbps	Left Side	10mm	1413	1732.6	21.81	22.50	1.172	0.04	0.088	0.103
	WCDMA IV_LAT	RMC 12.2Kbps	Right Side	10mm	1413	1732.6	21.81	22.50	1.172	-0.12	0.056	0.066
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	1413	1732.6	21.81	22.50	1.172	0.01	0.849	0.995
21	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	1312	1712.4	21.76	22.50	1.186	-0.01	0.853	1.011
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	1513	1752.6	21.79	22.50	1.178	0.02	0.695	0.818
	WCDMA V_UAT	RMC 12.2Kbps	Front	10mm	4132	826.4	23.43	24.00	1.140	-0.17	0.203	0.231
	WCDMA V_UAT	RMC 12.2Kbps	Back	10mm	4132	826.4	23.43	24.00	1.140	-0.09	0.205	0.234
	WCDMA V_UAT	RMC 12.2Kbps	Back	10mm	4182	836.4	23.22	24.00	1.197	-0.02	0.215	0.257
	WCDMA V_UAT	RMC 12.2Kbps	Back	10mm	4233	846.6	23.14	24.00	1.219	-0.04	0.217	0.265
	WCDMA V_UAT	RMC 12.2Kbps	Left Side	10mm	4132	826.4	23.43	24.00	1.140	0.14	0.141	0.161
	WCDMA V_UAT	RMC 12.2Kbps	Right Side	10mm	4132	826.4	23.43	24.00	1.140	-0.04	0.030	0.034
	WCDMA V_UAT	RMC 12.2Kbps	Top Side	10mm	4132	826.4	23.43	24.00	1.140	0.09	0.128	0.146
	WCDMA V_LAT	RMC 12.2Kbps	Front	10mm	4132	826.4	22.40	23.00	1.148	0.13	0.582	0.669
	WCDMA V_LAT	RMC 12.2Kbps	Back	10mm	4132	826.4	22.40	23.00	1.148	-0.17	0.614	0.705
	WCDMA V_LAT	RMC 12.2Kbps	Back	10mm	4182	836.4	22.34	23.00	1.164	-0.15	0.631	0.735
22	WCDMA V_LAT	RMC 12.2Kbps	Back	10mm	4233	846.6	22.20	23.00	1.202	-0.15	0.612	0.736
	WCDMA V_LAT	RMC 12.2Kbps	Left Side	10mm	4132	826.4	22.40	23.00	1.148	-0.03	0.088	0.101
	WCDMA V_LAT	RMC 12.2Kbps	Right Side	10mm	4132	826.4	22.40	23.00	1.148	-0.02	0.395	0.454
	WCDMA V_LAT	RMC 12.2Kbps	Bottom Side	10mm	4132	826.4	22.40	23.00	1.148	0.11	0.392	0.450



<LTE SAR>

Note	Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
		LTE Band 2_LAT	20M	QPSK	1	0	Front	10mm	19100	1900	22.91	24.00	1.285	-0.02	0.460	0.591
		LTE Band 2_LAT	20M	QPSK	50	0	Front	10mm	19100	1900	21.84	23.00	1.306	-0.13	0.357	0.466
		LTE Band 2_LAT	20M	QPSK	1	0	Back	10mm	19100	1900	22.91	24.00	1.285	-0.09	0.511	0.657
		LTE Band 2_LAT	20M	QPSK	50	0	Back	10mm	19100	1900	21.84	23.00	1.306	-0.08	0.393	0.513
		LTE Band 2_LAT	20M	QPSK	1	0	Left Side	10mm	19100	1900	22.91	24.00	1.285	-0.12	0.016	0.021
		LTE Band 2_LAT	20M	QPSK	50	0	Left Side	10mm	19100	1900	21.84	23.00	1.306	-0.11	0.014	0.018
		LTE Band 2_LAT	20M	QPSK	1	0	Right Side	10mm	19100	1900	22.91	24.00	1.285	-0.02	0.080	0.103
		LTE Band 2_LAT	20M	QPSK	50	0	Right Side	10mm	19100	1900	21.84	23.00	1.306	-0.17	0.068	0.089
		LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	19100	1900	22.91	24.00	1.285	0.09	0.809	1.040
		LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	18700	1860	22.53	24.00	1.403	0.14	0.690	0.968
	23	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	10mm	18900	1880	22.42	24.00	1.439	0.07	0.757	1.089
		LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	19100	1900	21.84	23.00	1.306	0.01	0.625	0.816
		LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	18700	1860	21.58	23.00	1.387	0.1	0.561	0.778
		LTE Band 2_LAT	20M	QPSK	50	0	Bottom Side	10mm	18900	1880	21.56	23.00	1.393	0.07	0.572	0.797
		LTE Band 2_LAT	20M	QPSK	100	0	Bottom Side	10mm	19100	1900	21.71	23.00	1.346	0.07	0.643	0.865
Inter UL CA		LTE Band 2_LAT	20M	QPSK	1	0	Back	10mm	19100	1900	21.16	21.50	1.081	-0.07	0.309	0.334
		LTE Band 4_LAT	20M	QPSK	1	0	Front	10mm	20175	1732.5	22.10	23.50	1.380	-0.16	0.448	0.618
		LTE Band 4_LAT	20M	QPSK	50	0	Front	10mm	20175	1732.5	21.08	22.50	1.387	-0.07	0.348	0.483
		LTE Band 4_LAT	20M	QPSK	1	0	Back	10mm	20175	1732.5	22.10	23.50	1.380	-0.07	0.515	0.711
		LTE Band 4_LAT	20M	QPSK	50	0	Back	10mm	20175	1732.5	21.08	22.50	1.387	-0.09	0.407	0.564
		LTE Band 4_LAT	20M	QPSK	1	0	Left Side	10mm	20175	1732.5	22.10	23.50	1.380	-0.01	0.077	0.106
		LTE Band 4_LAT	20M	QPSK	50	0	Left Side	10mm	20175	1732.5	21.08	22.50	1.387	0.05	0.062	0.086
		LTE Band 4_LAT	20M	QPSK	1	0	Right Side	10mm	20175	1732.5	22.10	23.50	1.380	-0.02	0.056	0.077
		LTE Band 4_LAT	20M	QPSK	50	0	Right Side	10mm	20175	1732.5	21.08	22.50	1.387	-0.14	0.067	0.093
	24	LTE Band 4_LAT	20M	QPSK	1	0	Bottom Side	10mm	20175	1732.5	22.10	23.50	1.380	-0.03	0.782	1.079
		LTE Band 4_LAT	20M	QPSK	50	0	Bottom Side	10mm	20175	1732.5	21.08	22.50	1.387	0	0.619	0.858
		LTE Band 4_LAT	20M	QPSK	100	0	Bottom Side	10mm	20175	1732.5	21.04	22.50	1.400	-0.01	0.595	0.833
Inter UL CA		LTE Band 4_LAT	20M	QPSK	1	0	Back	10mm	20175	1732.5	21.40	21.50	1.023	0.12	0.428	0.438
		LTE Band 7_LAT	20M	QPSK	1	0	Front	10mm	20850	2510	20.69	21.50	1.205	0.03	0.450	0.542
		LTE Band 7_LAT	20M	QPSK	50	0	Front	10mm	20850	2510	19.72	20.50	1.197	-0.04	0.358	0.428
		LTE Band 7_LAT	20M	QPSK	1	0	Back	10mm	20850	2510	20.69	21.50	1.205	-0.04	0.422	0.509
		LTE Band 7_LAT	20M	QPSK	50	0	Back	10mm	20850	2510	19.72	20.50	1.197	0.06	0.338	0.404
		LTE Band 7_LAT	20M	QPSK	1	0	Left Side	10mm	20850	2510	20.69	21.50	1.205	-0.05	0.426	0.513
		LTE Band 7_LAT	20M	QPSK	50	0	Left Side	10mm	20850	2510	19.72	20.50	1.197	0.14	0.279	0.334
		LTE Band 7_LAT	20M	QPSK	1	0	Right Side	10mm	20850	2510	20.69	21.50	1.205	0.11	0.054	0.065
		LTE Band 7_LAT	20M	QPSK	50	0	Right Side	10mm	20850	2510	19.72	20.50	1.197	-0.19	0.043	0.051
		LTE Band 7_LAT	20M	QPSK	1	0	Bottom Side	10mm	20850	2510	20.69	21.50	1.205	0.01	0.694	0.836
		LTE Band 7_LAT	20M	QPSK	1	0	Bottom Side	10mm	21100	2535	20.36	21.50	1.300	0.03	0.639	0.831
	25	LTE Band 7_LAT	20M	QPSK	1	0	Bottom Side	10mm	21350	2560	20.29	21.50	1.321	0.03	0.691	0.913
		LTE Band 7_LAT	20M	QPSK	50	0	Bottom Side	10mm	20850	2510	19.72	20.50	1.197	0.01	0.495	0.592
		LTE Band 7_LAT	20M	QPSK	100	0	Bottom Side	10mm	20850	2510	19.57	20.50	1.239	0.02	0.506	0.627
Intra UL CA		LTE Band 7_LAT	20M	QPSK	1	0	Bottom Side	10mm	20850	2510	20.60	21.50	1.230	-0.05	0.700	0.861



FCC SAR TEST REPORT

Report No. : FA852405

Note	Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
		LTE Band 12_UAT	10M	QPSK	1	0	Front	10mm	23095	707.5	23.03	24.50	1.403	0	0.065	0.091
		LTE Band 12_UAT	10M	QPSK	25	0	Front	10mm	23095	707.5	22.11	23.50	1.377	-0.04	0.053	0.073
		LTE Band 12_UAT	10M	QPSK	1	0	Back	10mm	23095	707.5	23.03	24.50	1.403	0.04	0.073	0.102
		LTE Band 12_UAT	10M	QPSK	25	0	Back	10mm	23095	707.5	22.11	23.50	1.377	0.05	0.060	0.083
		LTE Band 12_UAT	10M	QPSK	1	0	Left Side	10mm	23095	707.5	23.03	24.50	1.403	0.07	0.038	0.053
		LTE Band 12_UAT	10M	QPSK	25	0	Left Side	10mm	23095	707.5	22.11	23.50	1.377	0.03	0.032	0.044
		LTE Band 12_UAT	10M	QPSK	1	0	Right Side	10mm	23095	707.5	23.03	24.50	1.403	-0.11	0.019	0.027
		LTE Band 12_UAT	10M	QPSK	25	0	Right Side	10mm	23095	707.5	22.11	23.50	1.377	0.11	0.016	0.022
		LTE Band 12_UAT	10M	QPSK	1	0	Top Side	10mm	23095	707.5	23.03	24.50	1.403	0.14	0.028	0.039
		LTE Band 12_UAT	10M	QPSK	25	0	Top Side	10mm	23095	707.5	22.11	23.50	1.377	-0.11	0.023	0.032
		LTE Band 12_LAT	10M	QPSK	1	0	Front	10mm	23095	707.5	23.03	24.50	1.403	0.08	0.332	0.466
		LTE Band 12_LAT	10M	QPSK	25	0	Front	10mm	23095	707.5	22.11	23.50	1.377	0.11	0.283	0.390
	26	LTE Band 12_LAT	10M	QPSK	1	0	Back	10mm	23095	707.5	23.03	24.50	1.403	-0.11	0.347	0.487
		LTE Band 12_LAT	10M	QPSK	25	0	Back	10mm	23095	707.5	22.11	23.50	1.377	-0.12	0.296	0.408
		LTE Band 12_LAT	10M	QPSK	1	0	Left Side	10mm	23095	707.5	23.03	24.50	1.403	0.01	0.126	0.177
		LTE Band 12_LAT	10M	QPSK	25	0	Left Side	10mm	23095	707.5	22.11	23.50	1.377	0	0.110	0.151
		LTE Band 12_LAT	10M	QPSK	1	0	Right Side	10mm	23095	707.5	23.03	24.50	1.403	0	0.235	0.330
		LTE Band 12_LAT	10M	QPSK	25	0	Right Side	10mm	23095	707.5	22.11	23.50	1.377	-0.11	0.204	0.281
		LTE Band 12_LAT	10M	QPSK	1	0	Bottom Side	10mm	23095	707.5	23.03	24.50	1.403	0	0.203	0.285
		LTE Band 12_LAT	10M	QPSK	25	0	Bottom Side	10mm	23095	707.5	22.11	23.50	1.377	-0.03	0.170	0.234
Inter UL CA		LTE Band 12_LAT	10M	QPSK	1	0	Back	10mm	23095	707.5	21.12	21.50	1.091	0	0.152	0.166
		LTE Band 13_UAT	10M	QPSK	1	0	Front	10mm	23230	782	24.23	24.50	1.064	-0.08	0.142	0.151
		LTE Band 13_UAT	10M	QPSK	25	0	Front	10mm	23230	782	23.29	23.50	1.050	0.09	0.127	0.133
		LTE Band 13_UAT	10M	QPSK	1	0	Back	10mm	23230	782	24.23	24.50	1.064	0.02	0.150	0.160
		LTE Band 13_UAT	10M	QPSK	25	0	Back	10mm	23230	782	23.29	23.50	1.050	0.11	0.135	0.142
		LTE Band 13_UAT	10M	QPSK	1	0	Left Side	10mm	23230	782	24.23	24.50	1.064	0	0.102	0.109
		LTE Band 13_UAT	10M	QPSK	25	0	Left Side	10mm	23230	782	23.29	23.50	1.050	0	0.090	0.094
		LTE Band 13_UAT	10M	QPSK	1	0	Right Side	10mm	23230	782	24.23	24.50	1.064	-0.13	0.036	0.038
		LTE Band 13_UAT	10M	QPSK	25	0	Right Side	10mm	23230	782	23.29	23.50	1.050	-0.04	0.034	0.036
		LTE Band 13_UAT	10M	QPSK	1	0	Top Side	10mm	23230	782	24.23	24.50	1.064	0.19	0.080	0.085
		LTE Band 13_UAT	10M	QPSK	25	0	Top Side	10mm	23230	782	23.29	23.50	1.050	0.09	0.071	0.075
		LTE Band 13_LAT	10M	QPSK	1	0	Front	10mm	23230	782	24.23	24.50	1.064	0.05	0.531	0.565
		LTE Band 13_LAT	10M	QPSK	25	0	Front	10mm	23230	782	23.29	23.50	1.050	-0.05	0.464	0.487
	27	LTE Band 13_LAT	10M	QPSK	1	0	Back	10mm	23230	782	24.23	24.50	1.064	-0.19	0.541	0.576
		LTE Band 13_LAT	10M	QPSK	25	0	Back	10mm	23230	782	23.29	23.50	1.050	-0.01	0.473	0.496
		LTE Band 13_LAT	10M	QPSK	1	0	Left Side	10mm	23230	782	24.23	24.50	1.064	-0.01	0.172	0.183
		LTE Band 13_LAT	10M	QPSK	25	0	Left Side	10mm	23230	782	23.29	23.50	1.050	-0.05	0.154	0.162
		LTE Band 13_LAT	10M	QPSK	1	0	Right Side	10mm	23230	782	24.23	24.50	1.064	-0.13	0.336	0.358
		LTE Band 13_LAT	10M	QPSK	25	0	Right Side	10mm	23230	782	23.29	23.50	1.050	-0.06	0.304	0.319
		LTE Band 13_LAT	10M	QPSK	1	0	Bottom Side	10mm	23230	782	24.23	24.50	1.064	0.01	0.329	0.350
		LTE Band 13_LAT	10M	QPSK	25	0	Bottom Side	10mm	23230	782	23.29	23.50	1.050	-0.08	0.281	0.295



FCC SAR TEST REPORT

Report No. : FA852405

Note	Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
		LTE Band 26_UAT	15M	QPSK	1	0	Front	10mm	26865	831.5	24.50	24.50	1.000	-0.02	0.165	0.165
		LTE Band 26_UAT	15M	QPSK	36	0	Front	10mm	26865	831.5	23.39	23.50	1.026	-0.05	0.130	0.133
		LTE Band 26_UAT	15M	QPSK	1	0	Back	10mm	26865	831.5	24.50	24.50	1.000	-0.15	0.164	0.164
		LTE Band 26_UAT	15M	QPSK	36	0	Back	10mm	26865	831.5	23.39	23.50	1.026	-0.07	0.129	0.132
		LTE Band 26_UAT	15M	QPSK	1	0	Left Side	10mm	26865	831.5	24.50	24.50	1.000	0.01	0.118	0.118
		LTE Band 26_UAT	15M	QPSK	36	0	Left Side	10mm	26865	831.5	23.39	23.50	1.026	-0.01	0.093	0.095
		LTE Band 26_UAT	15M	QPSK	1	0	Right Side	10mm	26865	831.5	24.50	24.50	1.000	-0.1	0.030	0.030
		LTE Band 26_UAT	15M	QPSK	36	0	Right Side	10mm	26865	831.5	23.39	23.50	1.026	-0.15	0.023	0.024
		LTE Band 26_UAT	15M	QPSK	1	0	Top Side	10mm	26865	831.5	24.50	24.50	1.000	0.17	0.107	0.107
		LTE Band 26_UAT	15M	QPSK	36	0	Top Side	10mm	26865	831.5	23.39	23.50	1.026	0.14	0.087	0.089
Intra UL CA		LTE Band 5_UAT	10M	QPSK	1	0	Front	10mm	20450	829	24.49	24.50	1.002	-0.1	0.160	0.160
		LTE Band 26_LAT	15M	QPSK	1	0	Front	10mm	26865	831.5	24.50	24.50	1.000	0.09	0.658	0.658
		LTE Band 26_LAT	15M	QPSK	36	0	Front	10mm	26865	831.5	23.39	23.50	1.026	-0.07	0.552	0.566
	28	LTE Band 26_LAT	15M	QPSK	1	0	Back	10mm	26865	831.5	24.50	24.50	1.000	-0.12	0.680	0.680
		LTE Band 26_LAT	15M	QPSK	36	0	Back	10mm	26865	831.5	23.39	23.50	1.026	-0.01	0.546	0.560
		LTE Band 26_LAT	15M	QPSK	1	0	Left Side	10mm	26865	831.5	24.50	24.50	1.000	-0.03	0.095	0.095
		LTE Band 26_LAT	15M	QPSK	36	0	Left Side	10mm	26865	831.5	23.39	23.50	1.026	-0.02	0.071	0.073
		LTE Band 26_LAT	15M	QPSK	1	0	Right Side	10mm	26865	831.5	24.50	24.50	1.000	-0.04	0.397	0.397
		LTE Band 26_LAT	15M	QPSK	36	0	Right Side	10mm	26865	831.5	23.39	23.50	1.026	0.01	0.312	0.320
		LTE Band 26_LAT	15M	QPSK	1	0	Bottom Side	10mm	26865	831.5	24.50	24.50	1.000	0.02	0.400	0.400
		LTE Band 26_LAT	15M	QPSK	36	0	Bottom Side	10mm	26865	831.5	23.39	23.50	1.026	-0.01	0.323	0.331
Intra UL CA		LTE Band 5_LAT	10M	QPSK	1	0	Back	10mm	20450	829	24.49	24.50	1.002	-0.14	0.614	0.615
Inter UL CA		LTE Band 5_LAT	10M	QPSK	1	0	Back	10mm	20525	836.5	21.32	21.50	1.042	-0.1	0.321	0.335

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41_LAT	20M	QPSK	1	0	Front	10mm	41490	2680	24.33	24.50	1.040	62.9	1.006	-0.07	0.572	0.598
	LTE Band 41_LAT	20M	QPSK	50	0	Front	10mm	41490	2680	23.38	23.50	1.028	62.9	1.006	-0.12	0.452	0.467
	LTE Band 41_LAT	20M	QPSK	1	0	Back	10mm	41490	2680	24.33	24.50	1.040	62.9	1.006	-0.03	0.656	0.686
	LTE Band 41_LAT	20M	QPSK	1	0	Back	10mm	39750	2506	23.70	24.50	1.202	62.9	1.006	0.01	0.503	0.608
	LTE Band 41_LAT	20M	QPSK	1	0	Back	10mm	40185	2549.5	24.15	24.50	1.084	62.9	1.006	0.04	0.735	0.801
	LTE Band 41_LAT	20M	QPSK	1	0	Back	10mm	40620	2593	24.26	24.50	1.057	62.9	1.006	0.02	0.750	0.797
	LTE Band 41_LAT	20M	QPSK	1	0	Back	10mm	41055	2636.5	24.32	24.50	1.042	62.9	1.006	0.06	0.763	0.800
	LTE Band 41_LAT	20M	QPSK	50	0	Back	10mm	41490	2680	23.38	23.50	1.028	62.9	1.006	0.05	0.579	0.599
	LTE Band 41_LAT	20M	QPSK	100	0	Back	10mm	41490	2680	23.04	23.50	1.112	62.9	1.006	0.02	0.573	0.641
	LTE Band 41_LAT	20M	QPSK	1	0	Left Side	10mm	41490	2680	24.33	24.50	1.040	62.9	1.006	0.03	0.511	0.535
	LTE Band 41_LAT	20M	QPSK	50	0	Left Side	10mm	41490	2680	23.38	23.50	1.028	62.9	1.006	-0.07	0.396	0.410
	LTE Band 41_LAT	20M	QPSK	1	0	Right Side	10mm	41490	2680	24.33	24.50	1.040	62.9	1.006	0.05	0.059	0.062
	LTE Band 41_LAT	20M	QPSK	50	0	Right Side	10mm	41490	2680	23.38	23.50	1.028	62.9	1.006	-0.16	0.045	0.047
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	41490	2680	24.33	24.50	1.040	62.9	1.006	-0.02	0.761	0.796
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	39750	2506	23.70	24.50	1.202	62.9	1.006	-0.04	0.870	1.052
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	40185	2549.5	24.15	24.50	1.084	62.9	1.006	-0.05	0.863	0.941
29	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	40620	2593	24.26	24.50	1.057	62.9	1.006	-0.06	0.990	1.053
	LTE Band 41_LAT	20M	QPSK	1	0	Bottom Side	10mm	41055	2636.5	24.32	24.50	1.042	62.9	1.006	-0.04	0.931	0.976
	LTE Band 41_LAT	20M	QPSK	50	0	Bottom Side	10mm	41490	2680	23.38	23.50	1.028	62.9	1.006	-0.06	0.575	0.595
	LTE Band 41_LAT	20M	QPSK	100	0	Bottom Side	10mm	41490	2680	23.04	23.50	1.112	62.9	1.006	-0.14	0.558	0.624



<WLAN SAR>

WWAN off / WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
30	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 0	11	2462	13.90	14.00	1.023	99.04	1.010	0.1	0.107	0.111
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 0	1	2412	13.60	14.00	1.096	99.04	1.010	0.13	0.059	0.065
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 0	6	2437	13.87	14.00	1.030	99.04	1.010	-0.06	0.071	0.074
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 0	11	2462	13.90	14.00	1.023	99.04	1.010	-0.08	0.086	0.089
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 0	11	2462	13.90	14.00	1.023	99.04	1.010	0.18	0.071	0.073
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 0	11	2462	13.90	14.00	1.023	99.04	1.010	0.11	0.059	0.061
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 1	1	2412	13.71	14.00	1.069	98.57	1.015	-0.16	0.007	0.008
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 1	1	2412	13.71	14.00	1.069	98.57	1.015	0.13	0.077	0.084
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant 1	1	2412	13.71	14.00	1.069	98.57	1.015	0.15	0.039	0.042
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 1	1	2412	13.71	14.00	1.069	98.57	1.015	0.15	0.011	0.012
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	Ant 0	46	5230	17.85	18.00	1.035	94.97	1.053	-0.15	0.043	0.047
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 0	46	5230	17.85	18.00	1.035	94.97	1.053	-0.15	0.077	0.084
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	10mm	Ant 0	46	5230	17.85	18.00	1.035	94.97	1.053	-0.18	0.040	0.044
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 0	46	5230	17.85	18.00	1.035	94.97	1.053	0.06	0.083	0.090
	WLAN5GHz	802.11n-HT40 MCS0	Front	10mm	Ant 1	46	5230	17.80	18.00	1.048	94.95	1.053	-0.1	0.006	0.007
31	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 1	46	5230	17.80	18.00	1.048	94.95	1.053	0.14	0.132	0.146
	WLAN5GHz	802.11n-HT40 MCS0	Back	10mm	Ant 1	38	5190	16.75	17.00	1.060	94.95	1.053	0.1	0.088	0.098
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	10mm	Ant 1	46	5230	17.80	18.00	1.048	94.95	1.053	-0.13	0.033	0.036
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	10mm	Ant 1	46	5230	17.80	18.00	1.048	94.95	1.053	-0.16	0.005	0.006

WWAN off															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 0	155	5775	16.16	16.50	1.081	94.87	1.054	-0.14	0.111	0.127
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0	155	5775	16.16	16.50	1.081	94.87	1.054	-0.18	0.128	0.146
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 0	155	5775	16.16	16.50	1.081	94.87	1.054	0	0.021	0.024
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 0	155	5775	16.16	16.50	1.081	94.87	1.054	-0.01	0.059	0.067
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	155	5775	16.12	16.50	1.091	93.59	1.068	-0.16	0.018	0.021
32	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	155	5775	16.12	16.50	1.091	93.59	1.068	-0.1	1.020	1.189
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 1	155	5775	16.12	16.50	1.091	93.59	1.068	-0.13	0.174	0.203
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 1	155	5775	16.12	16.50	1.091	93.59	1.068	-0.15	0.037	0.043
WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 0	155	5775	13.86	14.00	1.033	94.87	1.054	-0.08	0.029	0.032
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 0	155	5775	13.86	14.00	1.033	94.87	1.054	0.18	0.065	0.071
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 0	155	5775	13.86	14.00	1.033	94.87	1.054	-0.11	0.002	0.003
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 0	155	5775	13.86	14.00	1.033	94.87	1.054	-0.18	0.037	0.040
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	155	5775	13.65	14.00	1.084	93.59	1.068	-0.18	0.008	0.009
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	155	5775	13.65	14.00	1.084	93.59	1.068	-0.11	0.555	0.642
	WLAN5GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant 1	155	5775	13.65	14.00	1.084	93.59	1.068	-0.03	0.116	0.134
	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 1	155	5775	13.65	14.00	1.084	93.59	1.068	-0.16	0.017	0.020

<Bluetooth SAR>

WWAN off / WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	10mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	0.18	0.024	0.029
	Bluetooth	1Mbps	Front	10mm	Ant 0	39	2441	7.89	8.00	1.026	76.6	1.087	0.18	0.014	0.016
33	Bluetooth	1Mbps	Front	10mm	Ant 0	78	2480	9.86	11.00	1.300	76.6	1.087	0.18	0.026	0.037
	Bluetooth	1Mbps	Back	10mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	-0.07	0.023	0.028
	Bluetooth	1Mbps	Left Side	10mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	-0.12	0.016	0.019
	Bluetooth	1Mbps	Top Side	10mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	0.19	0.012	0.015

**13.3 Product Specific****<WCDMA SAR>**

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	0mm	9262	1852.4	24.41	24.50	1.021	0	2.130	2.175
34	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	0mm	9400	1880	24.29	24.50	1.050	0.08	2.380	2.498
	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	0mm	9538	1907.6	23.94	24.50	1.138	-0.03	1.730	1.968
35	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	0mm	1312	1712.4	24.14	24.50	1.086	0	2.380	2.586
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	0mm	1413	1732.6	24.13	24.50	1.089	0.08	2.180	2.374
	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	0mm	1513	1752.6	24.09	24.50	1.099	0.06	1.680	1.846

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	0mm	18700	1860	23.80	24.50	1.175	-0.04	1.800	2.115
36	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	0mm	18900	1880	23.71	24.50	1.199	-0.05	1.940	2.327
	LTE Band 2_LAT	20M	QPSK	1	0	Bottom Side	0mm	19100	1900	24.20	24.50	1.072	0.02	2.000	2.143
37	LTE Band 4_LAT	20M	QPSK	1	0	Bottom Side	0mm	20175	1732.5	23.85	24.50	1.161	0.02	1.800	2.091

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	0.02	0.098	0.105
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	-0.03	0.321	0.343
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	0.05	0.080	0.085
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	0.01	0.167	0.178
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	54	5270	17.81	18.00	1.045	94.95	1.053	0.03	0.023	0.025
38	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	54	5270	17.81	18.00	1.045	94.95	1.053	-0.09	0.687	0.756
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	62	5310	16.74	17.00	1.062	94.95	1.053	0.03	0.644	0.720
	WLAN5GHz	802.11n-HT40 MCS0	Left side	0mm	Ant 1	54	5270	17.81	18.00	1.045	94.95	1.053	-0.03	0.055	0.061
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 1	54	5270	17.81	18.00	1.045	94.95	1.053	-0.01	0.025	0.028
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	0.06	0.215	0.227
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	-0.05	0.386	0.407
	WLAN5GHz	802.11n-HT40 MCS0	Left side	0mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	0.05	0.118	0.125
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	-0.02	0.252	0.266
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 1	102	5510	17.98	18.00	1.005	94.95	1.053	0.15	0.032	0.034
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	102	5510	17.98	18.00	1.005	94.95	1.053	-0.17	1.340	1.418
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	110	5550	17.95	18.00	1.012	94.95	1.053	-0.17	1.250	1.331
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	126	5630	17.90	18.00	1.023	94.95	1.053	-0.01	1.190	1.282
39	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	134	5670	17.94	18.00	1.014	94.95	1.053	-0.18	1.440	1.537
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 1	142	5710	17.87	18.00	1.030	94.95	1.053	-0.15	1.330	1.443
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 1	102	5510	17.98	18.00	1.005	94.95	1.053	-0.14	0.091	0.096
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 1	102	5510	17.98	18.00	1.005	94.95	1.053	-0.12	0.051	0.054

13.4 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850_LAT	GPRS (2 Tx slots)	Front	15mm	251	848.8	32.56	33.00	1.107	-0.05	0.610	0.675
	GSM850_LAT	GPRS (2 Tx slots)	Back	15mm	251	848.8	32.56	33.00	1.107	0	0.687	0.760
	GSM850_LAT	GPRS (2 Tx slots)	Back	15mm	128	824.2	32.25	33.00	1.189	0.13	0.648	0.770
40	GSM850_LAT	GPRS (2 Tx slots)	Back	15mm	189	836.4	32.49	33.00	1.125	0.02	0.699	0.786
	GSM1900_LAT	GPRS (2 Tx slots)	Front	15mm	810	1909.8	29.52	30.00	1.117	-0.17	0.154	0.172
	GSM1900_LAT	GPRS (2 Tx slots)	Back	15mm	810	1909.8	29.52	30.00	1.117	-0.04	0.203	0.227
41	GSM1900_LAT	GPRS (2 Tx slots)	Back	15mm	512	1850.2	29.10	30.00	1.230	-0.02	0.208	0.256
	GSM1900_LAT	GPRS (2 Tx slots)	Back	15mm	661	1880	29.32	30.00	1.169	0.09	0.209	0.244

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA II_LAT	RMC 12.2Kbps	Front	15mm	9262	1852.4	24.41	24.50	1.021	0.01	0.262	0.267
	WCDMA II_LAT	RMC 12.2Kbps	Back	15mm	9262	1852.4	24.41	24.50	1.021	-0.06	0.306	0.312
42	WCDMA II_LAT	RMC 12.2Kbps	Back	15mm	9400	1880	24.29	24.50	1.050	-0.17	0.336	0.353
	WCDMA II_LAT	RMC 12.2Kbps	Back	15mm	9538	1907.6	23.94	24.50	1.138	0.03	0.262	0.298
	WCDMA IV_LAT	RMC 12.2Kbps	Front	15mm	1312	1712.4	24.14	24.50	1.086	-0.05	0.388	0.422
	WCDMA IV_LAT	RMC 12.2Kbps	Back	15mm	1312	1712.4	24.14	24.50	1.086	0.1	0.457	0.496
43	WCDMA IV_LAT	RMC 12.2Kbps	Back	15mm	1413	1732.6	24.13	24.50	1.089	0.04	0.535	0.583
	WCDMA IV_LAT	RMC 12.2Kbps	Back	15mm	1513	1752.6	24.09	24.50	1.099	0.1	0.464	0.510
	WCDMA V_UAT	RMC 12.2Kbps	Front	15mm	4132	826.4	23.43	24.00	1.140	-0.04	0.138	0.157
	WCDMA V_UAT	RMC 12.2Kbps	Back	15mm	4132	826.4	23.43	24.00	1.140	0.19	0.146	0.166
	WCDMA V_UAT	RMC 12.2Kbps	Back	15mm	4182	836.4	23.22	24.00	1.197	0.05	0.143	0.171
	WCDMA V_UAT	RMC 12.2Kbps	Back	15mm	4233	846.6	23.14	24.00	1.219	-0.01	0.143	0.174
	WCDMA V_LAT	RMC 12.2Kbps	Front	15mm	4132	826.4	23.43	24.00	1.140	-0.05	0.545	0.621
	WCDMA V_LAT	RMC 12.2Kbps	Back	15mm	4132	826.4	23.43	24.00	1.140	0.01	0.652	0.743
44	WCDMA V_LAT	RMC 12.2Kbps	Back	15mm	4182	836.4	23.22	24.00	1.197	-0.05	0.626	0.749
	WCDMA V_LAT	RMC 12.2Kbps	Back	15mm	4233	846.6	23.14	24.00	1.219	-0.11	0.580	0.707

<LTE SAR>

Note	Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
		LTE Band 2_LAT	20M	QPSK	1	0	Front	15mm	19100	1900	24.20	24.50	1.072	-0.18	0.248	0.266
		LTE Band 2_LAT	20M	QPSK	50	0	Front	15mm	19100	1900	23.04	23.50	1.112	-0.06	0.192	0.213
		LTE Band 2_LAT	20M	QPSK	1	0	Back	15mm	19100	1900	24.20	24.50	1.072	-0.15	0.296	0.317
		LTE Band 2_LAT	20M	QPSK	1	0	Back	15mm	18700	1860	23.80	24.50	1.175	-0.08	0.245	0.288
	45	LTE Band 2_LAT	20M	QPSK	1	0	Back	15mm	18900	1880	23.71	24.50	1.199	-0.06	0.273	0.327
		LTE Band 2_LAT	20M	QPSK	50	0	Back	15mm	19100	1900	23.04	23.50	1.112	-0.18	0.226	0.251
Inter UL CA		LTE Band 2_LAT	20M	QPSK	1	0	Back	15mm	19100	1900	21.16	21.50	1.081	0.07	0.192	0.208
		LTE Band 4_LAT	20M	QPSK	1	0	Front	15mm	20175	1732.5	23.85	24.50	1.161	0.08	0.355	0.412
		LTE Band 4_LAT	20M	QPSK	50	0	Front	15mm	20175	1732.5	22.82	23.50	1.169	0.09	0.281	0.329
	46	LTE Band 4_LAT	20M	QPSK	1	0	Back	15mm	20175	1732.5	23.85	24.50	1.161	-0.08	0.403	0.468
		LTE Band 4_LAT	20M	QPSK	50	0	Back	15mm	20175	1732.5	22.82	23.50	1.169	0.09	0.325	0.380
Inter UL CA		LTE Band 4_LAT	20M	QPSK	1	0	Back	15mm	20175	1732.5	21.40	21.50	1.023	0.01	0.212	0.217
		LTE Band 7_LAT	20M	QPSK	1	0	Front	15mm	20850	2510	20.69	21.50	1.205	-0.02	0.239	0.288
		LTE Band 7_LAT	20M	QPSK	1	0	Front	15mm	21100	2535	20.36	21.50	1.300	0	0.232	0.302
	47	LTE Band 7_LAT	20M	QPSK	1	0	Front	15mm	21350	2560	20.29	21.50	1.321	-0.01	0.247	0.326
		LTE Band 7_LAT	20M	QPSK	50	0	Front	15mm	20850	2510	19.72	20.50	1.197	-0.03	0.187	0.224
		LTE Band 7_LAT	20M	QPSK	1	0	Back	15mm	20850	2510	20.69	21.50	1.205	0.1	0.210	0.253
		LTE Band 7_LAT	20M	QPSK	50	0	Back	15mm	20850	2510	19.72	20.50	1.197	0.07	0.166	0.199
Intra UL CA		LTE Band 7_LAT	20M	QPSK	1	0	Front	15mm	20850	2510	20.60	21.50	1.230	-0.17	0.258	0.317
		LTE Band 12_UAT	10M	QPSK	1	0	Front	15mm	23095	707.5	23.03	24.50	1.403	-0.06	0.039	0.055
		LTE Band 12_UAT	10M	QPSK	25	0	Front	15mm	23095	707.5	22.11	23.50	1.377	-0.11	0.033	0.045
		LTE Band 12_UAT	10M	QPSK	1	0	Back	15mm	23095	707.5	23.03	24.50	1.403	0.03	0.045	0.063
		LTE Band 12_UAT	10M	QPSK	25	0	Back	15mm	23095	707.5	22.11	23.50	1.377	-0.07	0.037	0.051
		LTE Band 12_LAT	10M	QPSK	1	0	Front	15mm	23095	707.5	23.03	24.50	1.403	0.11	0.226	0.317
		LTE Band 12_LAT	10M	QPSK	25	0	Front	15mm	23095	707.5	22.11	23.50	1.377	-0.07	0.189	0.260
	48	LTE Band 12_LAT	10M	QPSK	1	0	Back	15mm	23095	707.5	23.03	24.50	1.403	-0.07	0.261	0.366
		LTE Band 12_LAT	10M	QPSK	25	0	Back	15mm	23095	707.5	22.11	23.50	1.377	-0.17	0.217	0.299
Inter UL CA		LTE Band 12_LAT	10M	QPSK	1	0	Back	15mm	23095	707.5	21.12	21.50	1.091	-0.05	0.111	0.121
		LTE Band 13_UAT	10M	QPSK	1	0	Front	15mm	23230	782	24.23	24.50	1.064	-0.13	0.085	0.090
		LTE Band 13_UAT	10M	QPSK	25	0	Front	15mm	23230	782	23.29	23.50	1.050	-0.12	0.078	0.082
		LTE Band 13_UAT	10M	QPSK	1	0	Back	15mm	23230	782	24.23	24.50	1.064	-0.09	0.095	0.101
		LTE Band 13_UAT	10M	QPSK	25	0	Back	15mm	23230	782	23.29	23.50	1.050	0.14	0.087	0.091
		LTE Band 13_LAT	10M	QPSK	1	0	Front	15mm	23230	782	24.23	24.50	1.064	-0.08	0.412	0.438
		LTE Band 13_LAT	10M	QPSK	25	0	Front	15mm	23230	782	23.29	23.50	1.050	-0.09	0.348	0.365
	49	LTE Band 13_LAT	10M	QPSK	1	0	Back	15mm	23230	782	24.23	24.50	1.064	-0.17	0.457	0.486
		LTE Band 13_LAT	10M	QPSK	25	0	Back	15mm	23230	782	23.29	23.50	1.050	-0.01	0.384	0.403



Note	Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
		LTE Band 26_UAT	15M	QPSK	1	0	Front	15mm	26865	831.5	24.50	24.50	1.000	-0.1	0.109	0.109
		LTE Band 26_UAT	15M	QPSK	36	0	Front	15mm	26865	831.5	23.39	23.50	1.026	-0.12	0.085	0.087
		LTE Band 26_UAT	15M	QPSK	1	0	Back	15mm	26865	831.5	24.50	24.50	1.000	-0.05	0.110	0.110
		LTE Band 26_UAT	15M	QPSK	36	0	Back	15mm	26865	831.5	23.39	23.50	1.026	-0.12	0.086	0.088
Intra UL CA		LTE Band 5_UAT	10M	QPSK	1	0	Back	15mm	20450	829	24.49	24.50	1.002	-0.07	0.103	0.103
		LTE Band 26_LAT	15M	QPSK	1	0	Front	15mm	26865	831.5	24.50	24.50	1.000	-0.06	0.431	0.431
		LTE Band 26_LAT	15M	QPSK	36	0	Front	15mm	26865	831.5	23.39	23.50	1.026	0	0.347	0.356
	50	LTE Band 26_LAT	15M	QPSK	1	0	Back	15mm	26865	831.5	24.50	24.50	1.000	-0.03	0.494	0.494
		LTE Band 26_LAT	15M	QPSK	36	0	Back	15mm	26865	831.5	23.39	23.50	1.026	-0.03	0.392	0.402
Intra UL CA		LTE Band 5_LAT	10M	QPSK	1	0	Back	15mm	20450	829	24.49	24.50	1.002	-0.02	0.431	0.432
Inter UL CA		LTE Band 5_LAT	10M	QPSK	1	0	Back	15mm	20525	836.5	21.32	21.50	1.042	-0.02	0.209	0.218

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 41_LAT	20M	QPSK	1	0	Front	15mm	41490	2680	24.33	24.50	1.040	62.9	1.006	-0.14	0.258	0.270
	LTE Band 41_LAT	20M	QPSK	50	0	Front	15mm	41490	2680	23.38	23.50	1.028	62.9	1.006	-0.03	0.191	0.198
	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	41490	2680	24.33	24.50	1.040	62.9	1.006	-0.02	0.319	0.334
	LTE Band 41_LAT	20M	QPSK	50	0	Back	15mm	41490	2680	23.38	23.50	1.028	62.9	1.006	0.01	0.249	0.258
	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	39750	2506	23.70	24.50	1.202	62.9	1.006	-0.12	0.269	0.325
	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	40185	2549.5	24.15	24.50	1.084	62.9	1.006	-0.09	0.331	0.361
51	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	40620	2593	24.26	24.50	1.057	62.9	1.006	0.04	0.370	0.393
	LTE Band 41_LAT	20M	QPSK	1	0	Back	15mm	41055	2636.5	24.32	24.50	1.042	62.9	1.006	-0.06	0.330	0.346

<WLAN SAR>

WWAN off / WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 0	11	2462	17.99	18.00	1.002	99.04	1.010	0.13	0.135	0.137
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 0	1	2412	17.79	18.00	1.050	99.04	1.010	-0.12	0.128	0.136
52	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 0	6	2437	17.85	18.00	1.035	99.04	1.010	0.14	0.142	0.148
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 0	11	2462	17.99	18.00	1.002	99.04	1.010	0.17	0.129	0.131
	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 1	1	2412	17.90	18.00	1.023	98.57	1.015	-0.17	0.001	0.001
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 1	1	2412	17.90	18.00	1.023	98.57	1.015	0	0.001	0.001
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	0.06	0.024	0.026
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0	54	5270	17.94	18.00	1.014	94.97	1.053	-0.01	0.031	0.033
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	Ant 1	54	5270	17.81	18.00	1.045	94.95	1.053	0	0.001	0.001
53	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	54	5270	17.81	18.00	1.045	94.95	1.053	-0.05	0.079	0.087
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	62	5310	16.74	17.00	1.062	94.95	1.053	0.17	0.074	0.083
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	0.07	0.073	0.077
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 0	102	5510	17.99	18.00	1.002	94.97	1.053	-0.02	0.083	0.088
	WLAN5GHz	802.11n-HT40 MCS0	Front	15mm	Ant 1	102	5510	17.98	18.00	1.005	94.95	1.053	-0.19	0.004	0.004
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	102	5510	17.98	18.00	1.005	94.95	1.053	0.06	0.279	0.295
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	110	5550	17.95	18.00	1.012	94.95	1.053	0.11	0.353	0.376
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	126	5630	17.90	18.00	1.023	94.95	1.053	0.03	0.322	0.347
54	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	134	5670	17.94	18.00	1.014	94.95	1.053	0.02	0.621	0.663
	WLAN5GHz	802.11n-HT40 MCS0	Back	15mm	Ant 1	142	5710	17.87	18.00	1.030	94.95	1.053	-0.04	0.574	0.623

WWAN off															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 0	155	5775	16.16	16.50	1.081	94.87	1.054	-0.15	0.072	0.082
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0	155	5775	16.16	16.50	1.081	94.87	1.054	-0.09	0.091	0.104
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 1	155	5775	16.12	16.50	1.091	93.59	1.068	0.12	0.009	0.011
55	WLAN5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 1	155	5775	16.12	16.50	1.091	93.59	1.068	-0.19	0.685	0.798
WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 0	155	5775	14.94	15.00	1.014	94.87	1.054	-0.09	0.035	0.037
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 0	155	5775	14.94	15.00	1.014	94.87	1.054	-0.05	0.036	0.038
	WLAN5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 1	155	5775	14.87	15.00	1.030	93.59	1.068	0	0.001	0.001
	WLAN5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 1	155	5775	14.87	15.00	1.030	93.59	1.068	-0.14	0.602	0.662

<Bluetooth SAR>

WWAN off / WWAN on															
Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
56	Bluetooth	1Mbps	Front	15mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	0.09	0.009	0.011
	Bluetooth	1Mbps	Front	15mm	Ant 0	39	2441	7.89	8.00	1.026	76.6	1.087	0.13	0.006	0.007
	Bluetooth	1Mbps	Front	15mm	Ant 0	78	2480	9.86	11.00	1.300	76.6	1.087	-0.05	0.007	0.010
	Bluetooth	1Mbps	Back	15mm	Ant 0	0	2402	10.53	11.00	1.114	76.6	1.087	-0.07	0.001	0.001

13.5 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	-	9400	1880	23.38	24.00	1.153	-	1.000	0	0.953	-	1.099
2nd	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	10mm	-	9400	1880	23.38	24.00	1.153	-	1.000	0.06	0.893	1.07	1.030
1st	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	-	1312	1712.4	21.76	22.50	1.186	-	1.000	-0.01	0.853	-	1.011
2nd	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	10mm	-	1312	1712.4	21.76	22.50	1.186	-	1.000	0	0.842	1.01	0.998
1st	LTE Band 41_LAT	20M_QPSK_1_0	Bottom Side	10mm	-	40620	2593	24.26	24.50	1.057	62.9	1.006	-0.06	0.990	-	1.053
2nd	LTE Band 41_LAT	20M_QPSK_1_0	Bottom Side	10mm	-	40620	2593	24.26	24.50	1.057	62.9	1.006	-0.02	0.946	1.05	1.006
1st	WLAN5GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 1	155	5775	16.12	16.50	1.091	93.59	1.068	-0.1	1.020	-	1.189
2nd	WLAN5GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 1	155	5775	16.12	16.50	1.091	93.59	1.068	-0.13	0.985	1.04	1.148

No.	Band	Mode	Test Position	Gap (mm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Ratio	Reported 10g SAR (W/kg)
1st	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	0mm	9400	1880	24.29	24.50	1.050	0.08	2.380	-	2.498
2nd	WCDMA II_LAT	RMC 12.2Kbps	Bottom Side	0mm	9400	1880	24.29	24.50	1.050	-0.01	2.230	1.07	2.340
1st	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	0mm	1312	1712.4	24.14	24.50	1.086	0	2.380	-	2.586
2nd	WCDMA IV_LAT	RMC 12.2Kbps	Bottom Side	0mm	1312	1712.4	24.14	24.50	1.086	0.02	2.370	1.01	2.575

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR < 1.45 W/kg, only one repeated measurement is required.
3. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

14. Simultaneous Transmission Analysis

Simultaneous transmission combination scenarios	WWAN LAT	WWAN UAT	2.4GHz WLAN/BT Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Remark
1	☒		☒			☒	1. WWAN data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 2. WWAN voice call, data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 3. WWAN voice call or data 2.4GHz WLAN data 5GHz WLAN data
2	☒		☒	☒			WWAN voice or data 2.4GHz WLAN data (and MIMO)
3	☒				☒	☒	WWAN voice or data 5GHz WLAN data (and MIMO)
4		☒	☒			☒	1. WWAN data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 2. WWAN voice call, data / 2.4GHz WLAN hotspot (for WWAN) 5GHz WLAN hotspot (for WWAN) 3. WWAN voice call or data 2.4GHz WLAN data 5GHz WLAN data
5		☒	☒	☒			WWAN voice or data 2.4GHz WLAN data (and MIMO)
6		☒			☒	☒	WWAN voice or data 5GHz WLAN data (and MIMO)
7			☒	☒			2.4GHz WLAN MIMO
8					☒	☒	5GHz WLAN MIMO
9			☒			☒	2.4GHz WLAN data 5GHz WLAN data
10				☒	☒		2.4GHz WLAN data 5GHz WLAN data

General Note:

1. This device WLAN 2.4GHz / 5.2GHz / 5.8GHz supports Hotspot operation and Bluetooth support tethering applications.
2. The worst case WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with WLAN.
3. The Scaled SAR summation is calculated based on the same configuration and test position.
4. For inter-band uplink carrier aggregation SAR summation proposal as following step:
Step1: For the consideration of inter-band UL CA: use the LTE standalone SAR result to do the simultaneous TX analysis (i.e., SAR summation), as this is quick and conservative
Step2: when the summation of 1g SAR > 1.6W/kg, test LTE standalone SAR while configured at TX power level in the UL CA operation again, and so the simultaneous TX analysis.

14.1 Head Exposure Conditions

<When WWAN operation is active>

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
GSM850_LAT	Right Cheek	0.405	0.664	0.037	0.723	0.121	0.291	1.106	1.249	1.190	0.817
	Right Tilted	0.144	0.495	0.027	0.416	0.093	0.166	0.666	0.653	0.732	0.403
	Left Cheek	0.257	0.406	0.005	0.359	0.093	0.108	0.668	0.709	0.756	0.458
	Left Tilted	0.133	0.269	0.008	0.343	0.083	0.065	0.410	0.559	0.485	0.281
GSM1900_LAT	Right Cheek	0.070	0.664	0.037	0.723	0.121	0.291	0.771	0.914	0.855	0.482
	Right Tilted	0.059	0.495	0.027	0.416	0.093	0.166	0.581	0.568	0.647	0.318
	Left Cheek	0.049	0.406	0.005	0.359	0.093	0.108	0.460	0.501	0.548	0.250
	Left Tilted	0.028	0.269	0.008	0.343	0.083	0.065	0.305	0.454	0.380	0.176
WCDMA II_LAT	Right Cheek	0.077	0.664	0.037	0.723	0.121	0.291	0.778	0.921	0.862	0.489
	Right Tilted	0.085	0.495	0.027	0.416	0.093	0.166	0.607	0.594	0.673	0.344
	Left Cheek	0.065	0.406	0.005	0.359	0.093	0.108	0.476	0.517	0.564	0.266
	Left Tilted	0.037	0.269	0.008	0.343	0.083	0.065	0.314	0.463	0.389	0.185
WCDMA IV_LAT	Right Cheek	0.102	0.664	0.037	0.723	0.121	0.291	0.803	0.946	0.887	0.514
	Right Tilted	0.095	0.495	0.027	0.416	0.093	0.166	0.617	0.604	0.683	0.354
	Left Cheek	0.120	0.406	0.005	0.359	0.093	0.108	0.531	0.572	0.619	0.321
	Left Tilted	0.052	0.269	0.008	0.343	0.083	0.065	0.329	0.478	0.404	0.200
WCDMA V_UAT	Right Cheek	0.574	0.664	0.037	0.723	0.121	0.291	1.275	1.418	1.359	0.986
	Right Tilted	0.421	0.495	0.027	0.416	0.093	0.166	0.943	0.930	1.009	0.680
	Left Cheek	0.660	0.406	0.005	0.359	0.093	0.108	1.071	1.112	1.159	0.861
	Left Tilted	0.468	0.269	0.008	0.343	0.083	0.065	0.745	0.894	0.820	0.616
WCDMA V_LAT	Right Cheek	0.381	0.664	0.037	0.723	0.121	0.291	1.082	1.225	1.166	0.793
	Right Tilted	0.151	0.495	0.027	0.416	0.093	0.166	0.673	0.660	0.739	0.410
	Left Cheek	0.238	0.406	0.005	0.359	0.093	0.108	0.649	0.690	0.737	0.439
	Left Tilted	0.144	0.269	0.008	0.343	0.083	0.065	0.421	0.570	0.496	0.292
LTE Band 2_LAT	Right Cheek	0.103	0.664	0.037	0.723	0.121	0.291	0.804	0.947	0.888	0.515
	Right Tilted	0.101	0.495	0.027	0.416	0.093	0.166	0.623	0.610	0.689	0.360
	Left Cheek	0.071	0.406	0.005	0.359	0.093	0.108	0.482	0.523	0.570	0.272
	Left Tilted	0.034	0.269	0.008	0.343	0.083	0.065	0.311	0.460	0.386	0.182
LTE Band 4_LAT	Right Cheek	0.089	0.664	0.037	0.723	0.121	0.291	0.790	0.933	0.874	0.501
	Right Tilted	0.099	0.495	0.027	0.416	0.093	0.166	0.621	0.608	0.687	0.358
	Left Cheek	0.113	0.406	0.005	0.359	0.093	0.108	0.524	0.565	0.612	0.314
	Left Tilted	0.045	0.269	0.008	0.343	0.083	0.065	0.322	0.471	0.397	0.193
LTE Band 7_LAT	Right Cheek	0.094	0.664	0.037	0.723	0.121	0.291	0.795	0.938	0.879	0.506
	Right Tilted	0.098	0.495	0.027	0.416	0.093	0.166	0.620	0.607	0.686	0.357
	Left Cheek	0.182	0.406	0.005	0.359	0.093	0.108	0.593	0.634	0.681	0.383
	Left Tilted	0.057	0.269	0.008	0.343	0.083	0.065	0.334	0.483	0.409	0.205
LTE Band 12_UAT	Right Cheek	0.379	0.664	0.037	0.723	0.121	0.291	1.080	1.223	1.164	0.791
	Right Tilted	0.281	0.495	0.027	0.416	0.093	0.166	0.803	0.790	0.869	0.540
	Left Cheek	0.443	0.406	0.005	0.359	0.093	0.108	0.854	0.895	0.942	0.644
	Left Tilted	0.316	0.269	0.008	0.343	0.083	0.065	0.593	0.742	0.668	0.464
LTE Band 12_LAT	Right Cheek	0.159	0.664	0.037	0.723	0.121	0.291	0.860	1.003	0.944	0.571
	Right Tilted	0.063	0.495	0.027	0.416	0.093	0.166	0.585	0.572	0.651	0.322
	Left Cheek	0.109	0.406	0.005	0.359	0.093	0.108	0.520	0.561	0.608	0.310
	Left Tilted	0.069	0.269	0.008	0.343	0.083	0.065	0.346	0.495	0.421	0.217

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
LTE Band 13_UAT	Right Cheek	0.569	0.664	0.037	0.723	0.121	0.291	1.270	1.413	1.354	0.981
	Right Tilted	0.411	0.495	0.027	0.416	0.093	0.166	0.933	0.920	0.999	0.670
	Left Cheek	0.681	0.406	0.005	0.359	0.093	0.108	1.092	1.133	1.180	0.882
	Left Tilted	0.483	0.269	0.008	0.343	0.083	0.065	0.760	0.909	0.835	0.631
LTE Band 13_LAT	Right Cheek	0.216	0.664	0.037	0.723	0.121	0.291	0.917	1.060	1.001	0.628
	Right Tilted	0.105	0.495	0.027	0.416	0.093	0.166	0.627	0.614	0.693	0.364
	Left Cheek	0.142	0.406	0.005	0.359	0.093	0.108	0.553	0.594	0.641	0.343
	Left Tilted	0.094	0.269	0.008	0.343	0.083	0.065	0.371	0.520	0.446	0.242
LTE Band 26_UAT	Right Cheek	0.725	0.664	0.037	0.723	0.121	0.291	1.426	1.569	1.510	1.137
	Right Tilted	0.521	0.495	0.027	0.416	0.093	0.166	1.043	1.030	1.109	0.780
	Left Cheek	0.780	0.406	0.005	0.359	0.093	0.108	1.191	1.232	1.279	0.981
	Left Tilted	0.568	0.269	0.008	0.343	0.083	0.065	0.845	0.994	0.920	0.716
LTE Band 26_LAT	Right Cheek	0.226	0.664	0.037	0.723	0.121	0.291	0.927	1.070	1.011	0.638
	Right Tilted	0.097	0.495	0.027	0.416	0.093	0.166	0.619	0.606	0.685	0.356
	Left Cheek	0.156	0.406	0.005	0.359	0.093	0.108	0.567	0.608	0.655	0.357
	Left Tilted	0.105	0.269	0.008	0.343	0.083	0.065	0.382	0.531	0.457	0.253
LTE Band 41_LAT	Right Cheek	0.088	0.664	0.037	0.723	0.121	0.291	0.789	0.932	0.873	0.500
	Right Tilted	0.097	0.495	0.027	0.416	0.093	0.166	0.619	0.606	0.685	0.356
	Left Cheek	0.177	0.406	0.005	0.359	0.093	0.108	0.588	0.629	0.676	0.378
	Left Tilted	0.058	0.269	0.008	0.343	0.083	0.065	0.335	0.484	0.410	0.206

<When WWAN operation is non-active>

Exposure Position	2	3	4	5	6	2+3 Summed 1g SAR (W/kg)	4+5 Summed 1g SAR (W/kg)	2+5 Summed 1g SAR (W/kg)	5+6 Summed 1g SAR (W/kg)
	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
Right Cheek	0.664	0.037	0.723	0.121	0.291	0.701	0.844	0.785	0.412
Right Tilted	0.495	0.027	0.536	0.093	0.166	0.522	0.629	0.588	0.259
Left Cheek	0.406	0.005	0.422	0.093	0.108	0.411	0.515	0.499	0.201
Left Tilted	0.269	0.008	0.416	0.083	0.065	0.277	0.499	0.352	0.148



<When Inter-band uplink carrier aggregation is active>

<Step 1>

WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)
		WWAN	LTE Band 12_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
LTE Band 2_LAT	Right Cheek	0.103	0.159	0.664	0.037	0.723	0.121	0.291	0.963	1.106	1.047	0.674
	Right Tilted	0.101	0.063	0.495	0.027	0.416	0.093	0.166	0.686	0.673	0.752	0.423
	Left Cheek	0.071	0.109	0.406	0.005	0.359	0.093	0.108	0.591	0.632	0.679	0.381
	Left Tilted	0.034	0.069	0.269	0.008	0.343	0.083	0.065	0.380	0.529	0.455	0.251
LTE Band 4_LAT	Right Cheek	0.089	0.159	0.664	0.037	0.723	0.121	0.291	0.949	1.092	1.033	0.660
	Right Tilted	0.099	0.063	0.495	0.027	0.416	0.093	0.166	0.684	0.671	0.750	0.421
	Left Cheek	0.113	0.109	0.406	0.005	0.359	0.093	0.108	0.633	0.674	0.721	0.423
	Left Tilted	0.045	0.069	0.269	0.008	0.343	0.083	0.065	0.391	0.540	0.466	0.262
WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)
		WWAN	LTE Band 5_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
LTE Band 2_LAT	Right Cheek	0.103	0.232	0.664	0.037	0.723	0.121	0.291	1.036	1.179	1.120	0.747
	Right Tilted	0.101	0.099	0.495	0.027	0.416	0.093	0.166	0.722	0.709	0.788	0.459
	Left Cheek	0.071	0.160	0.406	0.005	0.359	0.093	0.108	0.642	0.683	0.730	0.432
	Left Tilted	0.034	0.110	0.269	0.008	0.343	0.083	0.065	0.421	0.570	0.496	0.292
LTE Band 4_LAT	Right Cheek	0.089	0.232	0.664	0.037	0.723	0.121	0.291	1.022	1.165	1.106	0.733
	Right Tilted	0.099	0.099	0.495	0.027	0.416	0.093	0.166	0.720	0.707	0.786	0.457
	Left Cheek	0.113	0.160	0.406	0.005	0.359	0.093	0.108	0.684	0.725	0.772	0.474
	Left Tilted	0.045	0.110	0.269	0.008	0.343	0.083	0.065	0.432	0.581	0.507	0.303

14.2 Hotspot Exposure Conditions

<When WWAN operation is active>

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
		WWAN 1g SAR (W/kg)	2.4GHz WLAN Ant 0 1g SAR (W/kg)	2.4GHz WLAN Ant 1 1g SAR (W/kg)	5GHz WLAN Ant 0 1g SAR (W/kg)	5GHz WLAN Ant 1 1g SAR (W/kg)	Bluetooth Ant 0 1g SAR (W/kg)				
GSM850_LAT	Front	0.704	0.111	0.008	0.047	0.009	0.037	0.823	0.760	0.824	0.750
	Back	0.807	0.089	0.084	0.084	0.642	0.028	0.980	1.533	1.538	1.477
	Left side	0.079	0.073	0.042	0.044	0.134	0.019	0.194	0.257	0.286	0.232
	Right side	0.438						0.438	0.438	0.438	0.438
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	0.507						0.507	0.507	0.507	0.507
GSM1900_LAT	Front	0.466	0.111	0.008	0.047	0.009	0.037	0.585	0.522	0.586	0.512
	Back	0.517	0.089	0.084	0.084	0.642	0.028	0.690	1.243	1.248	1.187
	Left side	0.040	0.073	0.042	0.044	0.134	0.019	0.155	0.218	0.247	0.193
	Right side	0.109						0.109	0.109	0.109	0.109
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	0.901						0.901	0.901	0.901	0.901
WCDMA II_LAT	Front	0.601	0.111	0.008	0.047	0.009	0.037	0.720	0.657	0.721	0.647
	Back	0.658	0.089	0.084	0.084	0.642	0.028	0.831	1.384	1.389	1.328
	Left side	0.080	0.073	0.042	0.044	0.134	0.019	0.195	0.258	0.287	0.233
	Right side	0.107						0.107	0.107	0.107	0.107
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.148						1.148	1.148	1.148	1.148
WCDMA IV_LAT	Front	0.688	0.111	0.008	0.047	0.009	0.037	0.807	0.744	0.808	0.734
	Back	0.753	0.089	0.084	0.084	0.642	0.028	0.926	1.479	1.484	1.423
	Left side	0.103	0.073	0.042	0.044	0.134	0.019	0.218	0.281	0.310	0.256
	Right side	0.066						0.066	0.066	0.066	0.066
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.011						1.011	1.011	1.011	1.011
WCDMA V_UAT	Front	0.231	0.111	0.008	0.047	0.009	0.037	0.350	0.287	0.351	0.277
	Back	0.265	0.089	0.084	0.084	0.642	0.028	0.438	0.991	0.996	0.935
	Left side	0.161	0.073	0.042	0.044	0.134	0.019	0.276	0.339	0.368	0.314
	Right side	0.034						0.034	0.034	0.034	0.034
	Top side	0.146	0.061	0.012	0.090	0.020	0.015	0.219	0.256	0.227	0.181
WCDMA V_LAT	Front	0.669	0.111	0.008	0.047	0.009	0.037	0.788	0.725	0.789	0.715
	Back	0.736	0.089	0.084	0.084	0.642	0.028	0.909	1.462	1.467	1.406
	Left side	0.101	0.073	0.042	0.044	0.134	0.019	0.216	0.279	0.308	0.254
	Right side	0.454						0.454	0.454	0.454	0.454
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	0.450						0.450	0.450	0.450	0.450
LTE Band 2_LAT	Front	0.591	0.111	0.008	0.047	0.009	0.037	0.710	0.647	0.711	0.637
	Back	0.657	0.089	0.084	0.084	0.642	0.028	0.830	1.383	1.388	1.327
	Left side	0.021	0.073	0.042	0.044	0.134	0.019	0.136	0.199	0.228	0.174
	Right side	0.103						0.103	0.103	0.103	0.103
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.089						1.089	1.089	1.089	1.089
LTE Band 4_LAT	Front	0.618	0.111	0.008	0.047	0.009	0.037	0.737	0.674	0.738	0.664
	Back	0.711	0.089	0.084	0.084	0.642	0.028	0.884	1.437	1.442	1.381
	Left side	0.106	0.073	0.042	0.044	0.134	0.019	0.221	0.284	0.313	0.259
	Right side	0.093						0.093	0.093	0.093	0.093
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.079						1.079	1.079	1.079	1.079

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
LTE Band 7_LAT	Front	0.542	0.111	0.008	0.047	0.009	0.037	0.661	0.598	0.662	0.588
	Back	0.509	0.089	0.084	0.084	0.642	0.028	0.682	1.235	1.240	1.179
	Left side	0.513	0.073	0.042	0.044	0.134	0.019	0.628	0.691	0.720	0.666
	Right side	0.065						0.065	0.065	0.065	0.065
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	0.913						0.913	0.913	0.913	0.913
LTE Band 12_UAT	Front	0.091	0.111	0.008	0.047	0.009	0.037	0.210	0.147	0.211	0.137
	Back	0.102	0.089	0.084	0.084	0.642	0.028	0.275	0.828	0.833	0.772
	Left side	0.053	0.073	0.042	0.044	0.134	0.019	0.168	0.231	0.260	0.206
	Right side	0.027						0.027	0.027	0.027	0.027
	Top side	0.039	0.061	0.012	0.090	0.020	0.015	0.112	0.149	0.120	0.074
LTE Band 12_LAT	Front	0.466	0.111	0.008	0.047	0.009	0.037	0.585	0.522	0.586	0.512
	Back	0.487	0.089	0.084	0.084	0.642	0.028	0.660	1.213	1.218	1.157
	Left side	0.177	0.073	0.042	0.044	0.134	0.019	0.292	0.355	0.384	0.330
	Right side	0.330						0.330	0.330	0.330	0.330
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	0.285						0.285	0.285	0.285	0.285
LTE Band 13_UAT	Front	0.151	0.111	0.008	0.047	0.009	0.037	0.270	0.207	0.271	0.197
	Back	0.160	0.089	0.084	0.084	0.642	0.028	0.333	0.886	0.891	0.830
	Left side	0.109	0.073	0.042	0.044	0.134	0.019	0.224	0.287	0.316	0.262
	Right side	0.038						0.038	0.038	0.038	0.038
	Top side	0.085	0.061	0.012	0.090	0.020	0.015	0.158	0.195	0.166	0.120
LTE Band 13_LAT	Front	0.565	0.111	0.008	0.047	0.009	0.037	0.684	0.621	0.685	0.611
	Back	0.576	0.089	0.084	0.084	0.642	0.028	0.749	1.302	1.307	1.246
	Left side	0.183	0.073	0.042	0.044	0.134	0.019	0.298	0.361	0.390	0.336
	Right side	0.358						0.358	0.358	0.358	0.358
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	0.350						0.350	0.350	0.350	0.350
LTE Band 26_UAT	Front	0.165	0.111	0.008	0.047	0.009	0.037	0.284	0.221	0.285	0.211
	Back	0.164	0.089	0.084	0.084	0.642	0.028	0.337	0.890	0.895	0.834
	Left side	0.118	0.073	0.042	0.044	0.134	0.019	0.233	0.296	0.325	0.271
	Right side	0.030						0.030	0.030	0.030	0.030
	Top side	0.107	0.061	0.012	0.090	0.020	0.015	0.180	0.217	0.188	0.142
LTE Band 26_LAT	Front	0.658	0.111	0.008	0.047	0.009	0.037	0.777	0.714	0.778	0.704
	Back	0.680	0.089	0.084	0.084	0.642	0.028	0.853	1.406	1.411	1.350
	Left side	0.095	0.073	0.042	0.044	0.134	0.019	0.210	0.273	0.302	0.248
	Right side	0.397						0.397	0.397	0.397	0.397
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	0.400						0.400	0.400	0.400	0.400
LTE Band 41_LAT	Front	0.598	0.111	0.008	0.047	0.009	0.037	0.717	0.654	0.718	0.644
	Back	0.801	0.089	0.084	0.084	0.642	0.028	0.974	1.527	1.532	1.471
	Left side	0.535	0.073	0.042	0.044	0.134	0.019	0.650	0.713	0.742	0.688
	Right side	0.062						0.062	0.062	0.062	0.062
	Top side		0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.053						1.053	1.053	1.053	1.053

<When WWAN operation is non-active>

Exposure Position	2	3	4	5	6	2+3 Summed 1g SAR (W/kg)	4+5 Summed 1g SAR (W/kg)	2+5 Summed 1g SAR (W/kg)	5+6 Summed 1g SAR (W/kg)
	2.4GHz WLAN Ant 0 1g SAR (W/kg)	2.4GHz WLAN Ant 1 1g SAR (W/kg)	5GHz WLAN Ant 0 1g SAR (W/kg)	5GHz WLAN Ant 1 1g SAR (W/kg)	Bluetooth Ant 0 1g SAR (W/kg)				
Front	0.111	0.008	0.127	0.021	0.037	0.119	0.148	0.132	0.058
Back	0.089	0.084	0.146	1.189	0.028	0.173	1.335	1.278	1.217
Left side	0.073	0.042	0.044	0.203	0.019	0.115	0.247	0.276	0.222
Top side	0.061	0.012	0.090	0.043	0.015	0.073	0.133	0.104	0.058

<When Inter-band uplink carrier aggregation is active>
<Step 1>

WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)	Note
		WWAN 1g SAR (W/kg)	LTE Band 12_LAT 1g SAR (W/kg)	2.4GHz WLAN Ant 0 1g SAR (W/kg)	2.4GHz WLAN Ant 1 1g SAR (W/kg)	5GHz WLAN Ant 0 1g SAR (W/kg)	5GHz WLAN Ant 1 1g SAR (W/kg)	Bluetooth Ant 0 1g SAR (W/kg)					
LTE Band 2_LAT	Front	0.591	0.466	0.111	0.008	0.047	0.009	0.037	1.176	1.113	1.177	1.103	
	Back	0.657	0.487	0.089	0.084	0.084	0.642	0.028	1.317	1.870	1.875	1.814	Go to Step2
	Left side	0.021	0.177	0.073	0.042	0.044	0.134	0.019	0.313	0.376	0.405	0.351	
	Right side	0.103	0.330						0.433	0.433	0.433	0.433	
	Top side			0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035	
	Bottom side	1.089	0.285						1.374	1.374	1.374	1.374	
LTE Band 4_LAT	Front	0.618	0.466	0.111	0.008	0.047	0.009	0.037	1.203	1.140	1.204	1.130	
	Back	0.711	0.487	0.089	0.084	0.084	0.642	0.028	1.371	1.924	1.929	1.868	Go to Step2
	Left side	0.106	0.177	0.073	0.042	0.044	0.134	0.019	0.398	0.461	0.490	0.436	
	Right side	0.093	0.330						0.423	0.423	0.423	0.423	
	Top side			0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035	
	Bottom side	1.079	0.285						1.364	1.364	1.364	1.364	
WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)	SPLSR
		WWAN 1g SAR (W/kg)	LTE Band 5_LAT 1g SAR (W/kg)	2.4GHz WLAN Ant 0 1g SAR (W/kg)	2.4GHz WLAN Ant 1 1g SAR (W/kg)	5GHz WLAN Ant 0 1g SAR (W/kg)	5GHz WLAN Ant 1 1g SAR (W/kg)	Bluetooth Ant 0 1g SAR (W/kg)					
LTE Band 2_LAT	Front	0.591	0.658	0.111	0.008	0.047	0.009	0.037	1.368	1.305	1.369	1.295	
	Back	0.657	0.680	0.089	0.084	0.084	0.642	0.028	1.510	2.063	2.068	2.007	Go to Step2
	Left side	0.021	0.095	0.073	0.042	0.044	0.134	0.019	0.231	0.294	0.323	0.269	
	Right side	0.103	0.397						0.500	0.500	0.500	0.500	
	Top side			0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035	
	Bottom side	1.089	0.400						1.489	1.489	1.489	1.489	
LTE Band 4_LAT	Front	0.618	0.658	0.111	0.008	0.047	0.009	0.037	1.395	1.332	1.396	1.322	
	Back	0.711	0.680	0.089	0.084	0.084	0.642	0.028	1.564	2.117	2.122	2.061	Go to Step2
	Left side	0.106	0.095	0.073	0.042	0.044	0.134	0.019	0.316	0.379	0.408	0.354	
	Right side	0.093	0.397						0.490	0.490	0.490	0.490	
	Top side			0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035	
	Bottom side	1.079	0.400						1.479	1.479	1.479	1.479	



<Step 2>

WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)
		WWAN	LTE Band 12_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
LTE Band 2_LAT	Front	0.591	0.466	0.111	0.008	0.047	0.009	0.037	1.176	1.113	1.177	1.103
	Back	0.334	0.166	0.089	0.084	0.084	0.642	0.028	0.673	1.226	1.231	1.170
	Left side	0.021	0.177	0.073	0.042	0.044	0.134	0.019	0.313	0.376	0.405	0.351
	Right side	0.103	0.330						0.433	0.433	0.433	0.433
	Top side			0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.089	0.285						1.374	1.374	1.374	1.374
LTE Band 4_LAT	Front	0.618	0.466	0.111	0.008	0.047	0.009	0.037	1.203	1.140	1.204	1.130
	Back	0.438	0.166	0.089	0.084	0.084	0.642	0.028	0.777	1.330	1.335	1.274
	Left side	0.106	0.177	0.073	0.042	0.044	0.134	0.019	0.398	0.461	0.490	0.436
	Right side	0.093	0.330						0.423	0.423	0.423	0.423
	Top side			0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.079	0.285						1.364	1.364	1.364	1.364
WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)
		WWAN	LTE Band 5_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
LTE Band 2_LAT	Front	0.591	0.658	0.111	0.008	0.047	0.009	0.037	1.368	1.305	1.369	1.295
	Back	0.334	0.335	0.089	0.084	0.084	0.642	0.028	0.842	1.395	1.400	1.339
	Left side	0.021	0.095	0.073	0.042	0.044	0.134	0.019	0.231	0.294	0.323	0.269
	Right side	0.103	0.397						0.500	0.500	0.500	0.500
	Top side			0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.089	0.400						1.489	1.489	1.489	1.489
LTE Band 4_LAT	Front	0.618	0.658	0.111	0.008	0.047	0.009	0.037	1.395	1.332	1.396	1.322
	Back	0.438	0.335	0.089	0.084	0.084	0.642	0.028	0.946	1.499	1.504	1.443
	Left side	0.106	0.095	0.073	0.042	0.044	0.134	0.019	0.316	0.379	0.408	0.354
	Right side	0.093	0.397						0.490	0.490	0.490	0.490
	Top side			0.061	0.012	0.090	0.020	0.015	0.073	0.110	0.081	0.035
	Bottom side	1.079	0.400						1.479	1.479	1.479	1.479

14.3 Product Specific

<When WWAN operation is active and non-active>

Remark:

- According to KDB 941225 D06 v02r01 and KDB 648474 D04v01r03, for WWAN / 2.4GHz WLAN / Bluetooth and 5GHz WLAN SAR ("") was excluded, due to transmitting antenna located larger 25mm from that surface or edge and Hotspot SAR was < 1.2W/Kg.

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 10g SAR (W/kg)	1+4+5 Summed 10g SAR (W/kg)	1+2+5 Summed 10g SAR (W/kg)	1+5+6 Summed 10g SAR (W/kg)
		WWAN 10g SAR (W/kg)	2.4GHz WLAN Ant 0 10g SAR (W/kg)	2.4GHz WLAN Ant 1 10g SAR (W/kg)	5GHz WLAN Ant 0 10g SAR (W/kg)	5GHz WLAN Ant 1 10g SAR (W/kg)	Bluetooth Ant 0 10g SAR (W/kg)				
WCDMA II_LAT	Front	-	-	-	0.227	0.034	-	0.000	0.261	0.034	0.034
	Back	-	-	-	0.407	1.537	-	0.000	1.944	1.537	1.537
	Left side	-	-	-	0.125	0.096	-	0.000	0.221	0.096	0.096
	Right side	-	-	-	-	-	-	0.000	0.000	0.000	0.000
	Top side	-	-	-	0.266	0.054	-	0.000	0.320	0.054	0.054
	Bottom side	2.498	-	-	-	-	-	2.498	2.498	2.498	2.498
WCDMA IV_LAT	Front	-	-	-	0.227	0.034	-	0.000	0.261	0.034	0.034
	Back	-	-	-	0.407	1.537	-	0.000	1.944	1.537	1.537
	Left side	-	-	-	0.125	0.096	-	0.000	0.221	0.096	0.096
	Right side	-	-	-	-	-	-	0.000	0.000	0.000	0.000
	Top side	-	-	-	0.266	0.054	-	0.000	0.320	0.054	0.054
	Bottom side	2.586	-	-	-	-	-	2.586	2.586	2.586	2.586
LTE Band 2_LAT	Front	-	-	-	0.227	0.034	-	0.000	0.261	0.034	0.034
	Back	-	-	-	0.407	1.537	-	0.000	1.944	1.537	1.537
	Left side	-	-	-	0.125	0.096	-	0.000	0.221	0.096	0.096
	Right side	-	-	-	-	-	-	0.000	0.000	0.000	0.000
	Top side	-	-	-	0.266	0.054	-	0.000	0.320	0.054	0.054
	Bottom side	2.327	-	-	-	-	-	2.327	2.327	2.327	2.327
LTE Band 4_LAT	Front	-	-	-	0.227	0.034	-	0.000	0.261	0.034	0.034
	Back	-	-	-	0.407	1.537	-	0.000	1.944	1.537	1.537
	Left side	-	-	-	0.125	0.096	-	0.000	0.221	0.096	0.096
	Right side	-	-	-	-	-	-	0.000	0.000	0.000	0.000
	Top side	-	-	-	0.266	0.054	-	0.000	0.320	0.054	0.054
	Bottom side	2.091	-	-	-	-	-	2.091	2.091	2.091	2.091

<When Inter-band uplink carrier aggregation is active>
Remark:

- According to KDB 941225 D06 v02r01 and KDB 648474 D04v01r03, for WWAN / 2.4GHz WLAN / Bluetooth and 5GHz WLAN SAR ("–") was excluded, due to transmitting antenna located larger 25mm from that surface or edge and Hotspot SAR was < 1.2W/Kg.

<Step 1>

WWAN Band	Exposure Position	0	1	2	3	4	5	6	1+2+3 Summed 10g SAR (W/kg)	1+4+5 Summed 10g SAR (W/kg)	1+2+5 Summed 10g SAR (W/kg)	1+5+6 Summed 10g SAR (W/kg)
		WWAN	LTE Band 12_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)				
LTE Band 2_LAT	Front	-	-	-	-	0.227	0.034	-	0.000	0.261	0.034	0.034
	Back	-	-	-	-	0.407	1.537	-	0.000	1.944	1.537	1.537
	Left side	-	-	-	-	0.125	0.096	-	0.000	0.221	0.096	0.096
	Right side	-	-	-	-	-	-	-	0.000	0.000	0.000	0.000
	Top side	-	-	-	-	0.266	0.054	-	0.000	0.320	0.054	0.054
	Bottom side	2.327	-	-	-	-	-	-	2.327	2.327	2.327	2.327
LTE Band 4_LAT	Front	-	-	-	-	0.227	0.034	-	0.000	0.261	0.034	0.034
	Back	-	-	-	-	0.407	1.537	-	0.000	1.944	1.537	1.537
	Left side	-	-	-	-	0.125	0.096	-	0.000	0.221	0.096	0.096
	Right side	-	-	-	-	-	-	-	0.000	0.000	0.000	0.000
	Top side	-	-	-	-	0.266	0.054	-	0.000	0.320	0.054	0.054
	Bottom side	2.091	-	-	-	-	-	-	2.091	2.091	2.091	2.091
WWAN Band	Exposure Position	0	1	2	3	4	5	6	1+2+3 Summed 10g SAR (W/kg)	1+4+5 Summed 10g SAR (W/kg)	1+2+5 Summed 10g SAR (W/kg)	1+5+6 Summed 10g SAR (W/kg)
		WWAN	LTE Band 5_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)				
LTE Band 2_LAT	Front	-	-	-	-	0.227	0.034	-	0.000	0.261	0.034	0.034
	Back	-	-	-	-	0.407	1.537	-	0.000	1.944	1.537	1.537
	Left side	-	-	-	-	0.125	0.096	-	0.000	0.221	0.096	0.096
	Right side	-	-	-	-	-	-	-	0.000	0.000	0.000	0.000
	Top side	-	-	-	-	0.266	0.054	-	0.000	0.320	0.054	0.054
	Bottom side	2.327	-	-	-	-	-	-	2.327	2.327	2.327	2.327
LTE Band 4_LAT	Front	-	-	-	-	0.227	0.034	-	0.000	0.261	0.034	0.034
	Back	-	-	-	-	0.407	1.537	-	0.000	1.944	1.537	1.537
	Left side	-	-	-	-	0.125	0.096	-	0.000	0.221	0.096	0.096
	Right side	-	-	-	-	-	-	-	0.000	0.000	0.000	0.000
	Top side	-	-	-	-	0.266	0.054	-	0.000	0.320	0.054	0.054
	Bottom side	2.091	-	-	-	-	-	-	2.091	2.091	2.091	2.091

14.4 Body-Worn Accessory Exposure Conditions

<When WWAN operation is active>

WWAN Band	Exposure Position	1	2	3	4	5	6	1+2+3 Summed 1g SAR (W/kg)	1+4+5 Summed 1g SAR (W/kg)	1+2+5 Summed 1g SAR (W/kg)	1+5+6 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
GSM850_LAT	Front	0.675	0.148	0.001	0.077	0.004	0.011	0.824	0.756	0.827	0.690
	Back	0.786	0.131	0.001	0.088	0.663	0.001	0.918	1.537	1.580	1.450
GSM1900_LAT	Front	0.172	0.148	0.001	0.077	0.004	0.011	0.321	0.253	0.324	0.187
	Back	0.256	0.131	0.001	0.088	0.663	0.001	0.388	1.007	1.050	0.920
WCDMA II_LAT	Front	0.267	0.148	0.001	0.077	0.004	0.011	0.416	0.348	0.419	0.282
	Back	0.353	0.131	0.001	0.088	0.663	0.001	0.485	1.104	1.147	1.017
WCDMA IV_LAT	Front	0.422	0.148	0.001	0.077	0.004	0.011	0.571	0.503	0.574	0.437
	Back	0.583	0.131	0.001	0.088	0.663	0.001	0.715	1.334	1.377	1.247
WCDMA V_UAT	Front	0.157	0.148	0.001	0.077	0.004	0.011	0.306	0.238	0.309	0.172
	Back	0.174	0.131	0.001	0.088	0.663	0.001	0.306	0.925	0.968	0.838
WCDMA V_LAT	Front	0.621	0.148	0.001	0.077	0.004	0.011	0.770	0.702	0.773	0.636
	Back	0.749	0.131	0.001	0.088	0.663	0.001	0.881	1.500	1.543	1.413
LTE Band 2_LAT	Front	0.266	0.148	0.001	0.077	0.004	0.011	0.415	0.347	0.418	0.281
	Back	0.327	0.131	0.001	0.088	0.663	0.001	0.459	1.078	1.121	0.991
LTE Band 4_LAT	Front	0.412	0.148	0.001	0.077	0.004	0.011	0.561	0.493	0.564	0.427
	Back	0.468	0.131	0.001	0.088	0.663	0.001	0.600	1.219	1.262	1.132
LTE Band 7_LAT	Front	0.326	0.148	0.001	0.077	0.004	0.011	0.475	0.407	0.478	0.341
	Back	0.253	0.131	0.001	0.088	0.663	0.001	0.385	1.004	1.047	0.917
LTE Band 12_UAT	Front	0.055	0.148	0.001	0.077	0.004	0.011	0.204	0.136	0.207	0.070
	Back	0.063	0.131	0.001	0.088	0.663	0.001	0.195	0.814	0.857	0.727
LTE Band 12_LAT	Front	0.317	0.148	0.001	0.077	0.004	0.011	0.466	0.398	0.469	0.332
	Back	0.366	0.131	0.001	0.088	0.663	0.001	0.498	1.117	1.160	1.030
LTE Band 13_UAT	Front	0.090	0.148	0.001	0.077	0.004	0.011	0.239	0.171	0.242	0.105
	Back	0.101	0.131	0.001	0.088	0.663	0.001	0.233	0.852	0.895	0.765
LTE Band 13_LAT	Front	0.438	0.148	0.001	0.077	0.004	0.011	0.587	0.519	0.590	0.453
	Back	0.486	0.131	0.001	0.088	0.663	0.001	0.618	1.237	1.280	1.150
LTE Band 26_UAT	Front	0.109	0.148	0.001	0.077	0.004	0.011	0.258	0.190	0.261	0.124
	Back	0.110	0.131	0.001	0.088	0.663	0.001	0.242	0.861	0.904	0.774
LTE Band 26_LAT	Front	0.431	0.148	0.001	0.077	0.004	0.011	0.580	0.512	0.583	0.446
	Back	0.494	0.131	0.001	0.088	0.663	0.001	0.626	1.245	1.288	1.158
LTE Band 41_LAT	Front	0.270	0.148	0.001	0.077	0.004	0.011	0.419	0.351	0.422	0.285
	Back	0.393	0.131	0.001	0.088	0.663	0.001	0.525	1.144	1.187	1.057

<When WWAN operation is non-active>

Exposure Position	2	3	4	5	6	2+3 Summed 1g SAR (W/kg)	4+5 Summed 1g SAR (W/kg)	2+5 Summed 1g SAR (W/kg)	5+6 Summed 1g SAR (W/kg)
	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)				
Front	0.148	0.001	0.082	0.011	0.011	0.149	0.093	0.159	0.022
Back	0.131	0.001	0.104	0.798	0.001	0.132	0.902	0.929	0.799

<When Inter-band uplink carrier aggregation is active>
<Step 1>

WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)	Note
		WWAN	LTE Band 12_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0					
LTE Band 2_LAT	Front	0.266	0.317	0.148	0.001	0.077	0.004	0.011	0.732	0.664	0.735	0.598	
	Back	0.327	0.366	0.131	0.001	0.088	0.663	0.001	0.825	1.444	1.487	1.357	
LTE Band 4_LAT	Front	0.412	0.317	0.148	0.001	0.077	0.004	0.011	0.878	0.810	0.881	0.744	
	Back	0.468	0.366	0.131	0.001	0.088	0.663	0.001	0.966	1.585	1.628	1.498	Go to Step2
WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)	Note
		WWAN	LTE Band 5_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0					
LTE Band 2_LAT	Front	0.266	0.431	0.148	0.001	0.077	0.004	0.011	0.846	0.778	0.849	0.712	
	Back	0.327	0.494	0.131	0.001	0.088	0.663	0.001	0.953	1.572	1.615	1.485	Go to Step2
LTE Band 4_LAT	Front	0.412	0.431	0.148	0.001	0.077	0.004	0.011	0.992	0.924	0.995	0.858	
	Back	0.468	0.494	0.131	0.001	0.088	0.663	0.001	1.094	1.713	1.756	1.626	Go to Step2

<Step 2>

WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)
		WWAN	LTE Band 12_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
LTE Band 2_LAT	Front	0.266	0.317	0.148	0.001	0.077	0.004	0.011	0.732	0.664	0.735	0.598
	Back	0.208	0.121	0.131	0.001	0.088	0.663	0.001	0.461	1.080	1.123	0.993
LTE Band 4_LAT	Front	0.412	0.317	0.148	0.001	0.077	0.004	0.011	0.878	0.810	0.881	0.744
	Back	0.217	0.121	0.131	0.001	0.088	0.663	0.001	0.470	1.089	1.132	1.002
WWAN Band	Exposure Position	0	1	2	3	4	5	6	0+1+2+3 Summed 1g SAR (W/kg)	0+1+4+5 Summed 1g SAR (W/kg)	0+1+2+5 Summed 1g SAR (W/kg)	0+1+5+6 Summed 1g SAR (W/kg)
		WWAN	LTE Band 5_LAT	2.4GHz WLAN Ant 0	2.4GHz WLAN Ant 1	5GHz WLAN Ant 0	5GHz WLAN Ant 1	Bluetooth Ant 0				
LTE Band 2_LAT	Front	0.266	0.431	0.148	0.001	0.077	0.004	0.011	0.846	0.778	0.849	0.712
	Back	0.208	0.218	0.131	0.001	0.088	0.663	0.001	0.558	1.177	1.220	1.090
LTE Band 4_LAT	Front	0.412	0.431	0.148	0.001	0.077	0.004	0.011	0.992	0.924	0.995	0.858
	Back	0.217	0.218	0.131	0.001	0.088	0.663	0.001	0.567	1.186	1.229	1.099



15. Supplemental tuner tests results

General Note:

1. The following test procedure was followed to demonstrate that the SAR results in this report represent the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR will be measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements will be evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence to the antenna characteristics, other than impedance matching.
2. To evaluate all of the tuner states, the 144 tuner states are divided evenly among band, mode and exposure combinations so that at least one single point SAR measurement is measured in each configuration. Single point time-sweep measurements will be performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state will be established remotely so that the device is not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe will remain stationary at the same position throughout the entire series of single point measurements for each combination.
3. The device supports LTE B12/B17 and B5/B26. Since the supported frequency span for LTE B17/B5 falls completely within the supported frequency span for LTE B12/B26, and both bands have the same target power and both LTE bands share the same transmission path, therefore standalone SAR was only assessed for LTE B12/B26. The single point SAR time-sweep measurements were treated independently for each supported ACL frequency band. For the LTE Band 17/B5 single point SAR measurement selected the highest measured SAR configuration and exposure condition of LTE B12/B26. And the number of required single point measurements at least 11 applies to the band.
4. The tuner state was established remotely through Wi-Fi so that the device is not moved for the entire series of single point SAR for the tuner states in each combination (band, mode, exposure conditions).
5. The operational decryption contains more information about the design and implementation of the dynamic antenna tuning.

15.1 Supplemental Head SAR results

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																		
									Auto-Tune (State 25)	0	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136
WCDMA V	RMC12.2kbps	836.4	4182	N/A	N/A	Right Cheek	0 mm	0.318	0.341	0.022	0.217	0.326	0.291	0.216	0.062	0.251	0.042	0.161	0.007	0.118	0.167	0.133	0.11	0.027	0.137	0.016	0.09
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																		
									Auto-Tune (State 43)	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137
LTE Band 12	QPSK	707.5	23095	1	0	Left Cheek	0 mm	0.113	0.121	0.012	0.058	0.081	0.043	0.091	0.113	0.105	0.079	0.033	0.004	0.031	0.033	0.051	0.012	0.006	0.018	0.002	0.008
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																		
									Auto-Tune (State 63)	2	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122	130	138
LTE Band 13	QPSK	782	23230	1	0	Right Cheek	0 mm	0.203	0.218	0.017	0.148	0.006	0.182	0.191	0.101	0.199	0.068	0.196	0.038	0.192	0.009	0.192	0.124	0.085	0.155	0.064	0.092
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																		
									Auto-Tune (State 25)	3	11	19	27	35	43	51	59	67	75	83	91	99	107	115	123	131	139
LTE Band 26	QPSK	831.5	26865	1	0	Right Cheek	0 mm	0.226	0.242	0.032	0.235	0.029	0.241	0.175	0.113	0.195	0.12	0.135	0.019	0.143	0.011	0.151	0.099	0.061	0.119	0.062	0.082

15.2 Supplemental Body SAR results

Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																		
									Auto-Tune (State 25)	4	12	20	28	36	44	52	60	68	76	84	92	100	108	116	124	132	140
WCDMA V	RMC12.2kbps	846.6	4233	N/A	N/A	Back	10mm	0.612	0.74	0.159	0.733	0.167	0.515	0.038	0.464	0.581	0.515	0.381	0.09	0.399	0.057	0.259	0.016	0.223	0.316	0.249	0.209
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																		
									Auto-Tune (State 43)	5	13	21	29	37	45	53	61	69	77	85	93	101	109	117	125	133	141
LTE Band 12	QPSK	707.5	23095	1	0	Back	10mm	0.347	0.453	0.136	0.337	0.064	0.356	0.158	0.455	0.408	0.276	0.139	0.061	0.14	0.028	0.055	0.008	0.067	0.078	0.143	0.035
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																		
									Auto-Tune (State 63)	6	14	22	30	38	46	54	62	70	78	86	94	102	110	118	126	134	142
LTE Band 13	QPSK	782	23230	1	0	Back	10mm	0.541	0.641	0.191	0.516	0.156	0.605	0.142	0.634	0.042	0.635	0.506	0.288	0.517	0.218	0.303	0.066	0.395	0.015	0.455	0.223
Mode	Service/ Modulation	Frequency (MHz)	Channel	RB Size	RB Offset	Test Position	Spacing	Measured 1g SAR (W/kg)	Average Value of Time Sweep (W/kg)																		
									Auto-Tune (State 25)	7	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127	135	143
LTE Band 26	QPSK	831.5	26865	1	0	Back	10mm	0.68	0.835	0.413	0.834	0.548	0.649	0.138	0.736	0.092	0.744	0.524	0.298	0.531	0.308	0.361	0.064	0.443	0.037	0.466	0.301

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16. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, 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 $\leq 30\%$, 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. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

17. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [6] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [7] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [8] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [9] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [10] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [11] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [12] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [13] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.