



**KDB 865664 D01 SAR Measurement 100MHz to 6GHz
FCC 47 CFR part 2 (2.1093)**

SAR EVALUATION REPORT

For
Sony

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Prepared for
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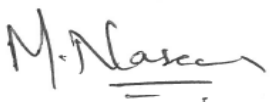
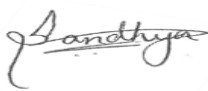
REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
--	26 July 2014	Initial Issue	--
1	01 Aug 2014	Made the following changes: 1. In Section 1, The EUT is a "GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac + NFC & ANT+ " 2. Description sentence removed in section 6.2	Naseer Mirza

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1. Attestation of Test Results

Applicant Name:	Sony Mobile Communications Inc			
Application Purpose	☒ Original Grant			
DUT Description	The EUT is a GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac + NFC & ANT+			
Test Device is	An identical prototype			
Device category	Portable			
Exposure Category	General Population/Uncontrolled Exposure (1g SAR limit: 1.6 W/kg)			
Date Tested	30 June 2014 to 09 July 2014			
The highest reported SAR values	RF Exposure Conditions	Equipment Class		
		Licensed	DTS	UNII
	Head	0.794 W/kg	0.332 W/kg	0.473 W/kg
	Body-worn Accessory	1.114 W/kg	0.030 W/kg	0.278 W/kg
	Wireless Router (Hotspot)	1.133 W/kg	0.030 W/kg	0.278 W/kg
	Simultaneous Transmission	1.398 W/kg	1.398 W/kg	1.398 W/kg
Applicable Standards	FCC 47 CFR part 2 (2.1093) KDB publication IEEE Std 1528-2013			
Test Results	Pass			
UL Verification Services Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties are in accordance with the above standard and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report. Note: The results documented in this report apply only to the tested sample(s), under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by UKAS. This report is written to support regulatory compliance of the applicable standards stated above.				
Approved & Released By:		Prepared By:		
				
Naseer Mirza Project Lead UL Verification Services Ltd.		Sandhya Menon Laboratory Engineer UL Verification Services Ltd.		

2. Test Specification, Methods and Procedures

2.1. Test Specification

Reference:	KDB 865664 D01 SAR Measurement 100 Mhz to 6 GHz v01r03
Title:	SAR Measurement Requirements for 100 MHz to 6 GHz
Purpose of Test:	Field probes, tissue dielectric properties, SAR scans, measurement accuracy and variability of the measured results are discussed. The field probe and SAR scan requirements are derived from criteria considered in draft standard IEEE P1528-2011.
The Equipment Under Test complied with the Specific Absorption Rate for general population/uncontrolled exposure limit of 1.6 W/kg as specified in FCC 47 CFR part 2 (2.1093) and ANSI C95.1-1992 and has been tested in accordance with the reference documents in section 2.2 of this report.	

2.2. Methods and Procedures Reference Documentation

The methods and procedures used were as detailed in:

IEEE 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

Thomas Schmid, Oliver Egger and Neils Kuster, "Automated E-field scanning system for dosimetric assessments", IEEE Transaction on microwave theory and techniques, Vol. 44, pp. 105-113, January 1996.

Neils Kuster, Ralph Kastle and Thomas Schmid, "Dosimetric evaluation of mobile communications equipment with known precision", IEICE Transactions of communications, Vol. E80-B, No.5, pp. 645-652, May 1997.

FCC KDB Publication:

KDB 248227 D01 SAR measurements for 802.11a b g v01r02

KDB 447498 D01 General RF Exposure Guidance v05r02

KDB 648474 D04 SAR Handsets SAR v01r02

KDB 941225 D01 SAR test for 3G devices v02

KDB 941225 D03 SAR Test Reduction GSM GPRS EDGE v01

KDB 941225 D05 SAR for LTE Devices v02r03

KDB 941225 D06 Hotspot Mode SAR v01r01

KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r03

KDB 865664 D02 RF Exposure Reporting v01r01

2.3. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures section above. Appendix 1 contains a list of the test equipment used.

3. Facilities and Accreditation

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

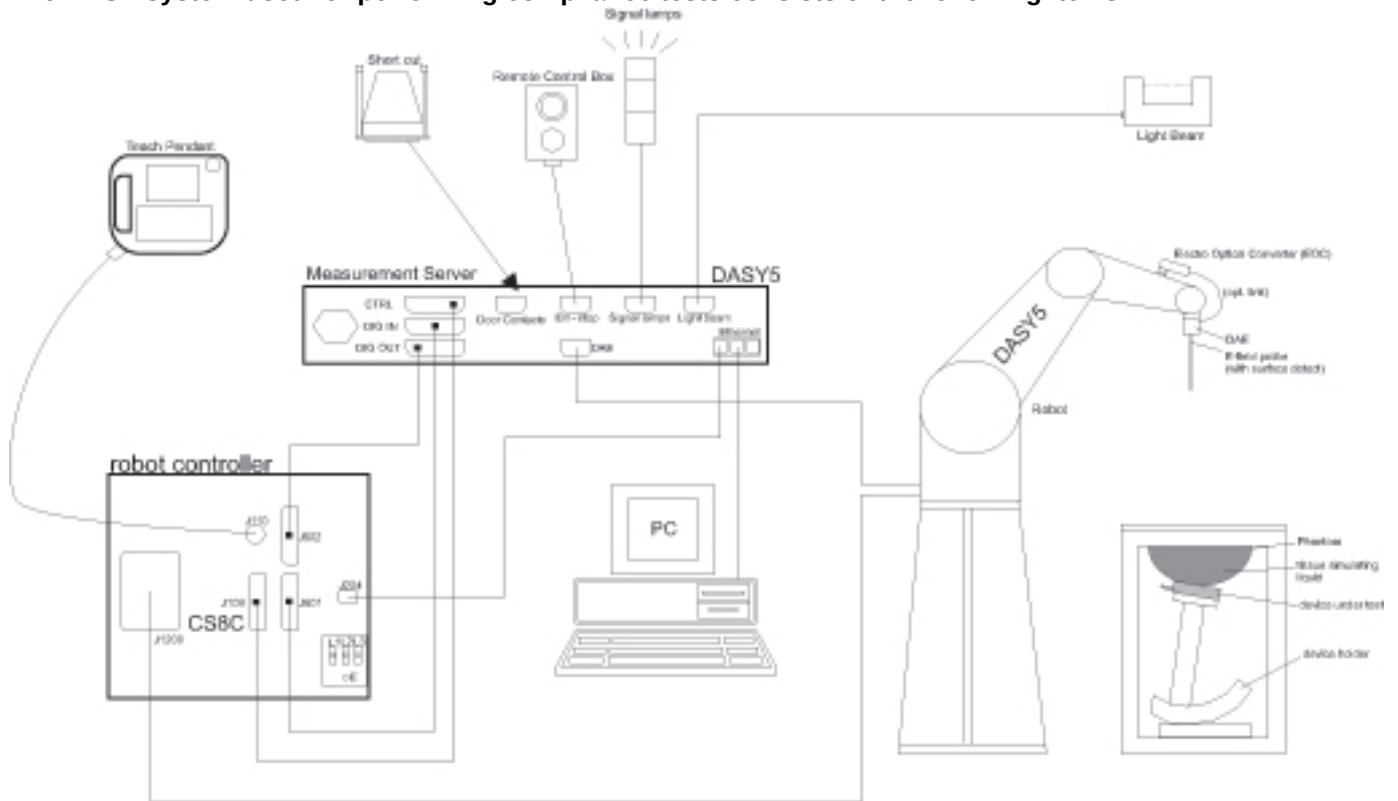
Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire, RG23 8BG UK	Facility Type
SAR Lab 56	Controlled Environment Chamber
SAR Lab 57	Controlled Environment Chamber
SAR Lab 58	Controlled Environment Chamber
SAR Lab 59	Controlled Environment Chamber
SAR Lab 60	Controlled Environment Chamber
SAR Lab 61	Controlled Environment Chamber

UL Verification Services Ltd, is accredited by UKAS (United Kingdom Accreditation Service), Laboratory UKAS Code 0644.

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

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



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

4.2. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards. [Appendix 1](#) of the report details the equipment used.

5. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Test Name	Confidence Level	Calculated Uncertainty
GSM 850 / UMTS FDD 5 / LTE Band 5 / LTE Band 17 Head Configuration 1g	95%	±18.77%
GSM / GPRS / EDGE 850 / UMTS FDD 5 / LTE Band 5 / LTE Band 17 Body Configurations 1g	95%	±18.36%
UMTS FDD 4 / LTE Band 4 Head Configuration 1g	95%	±18.45%
UMTS FDD 4 / LTE Band 4 Body Configuration 1g	95%	±18.45%
PCS 1900 / UMTS FDD 2/ LTE Band 2 Head Configuration 1g	95%	±18.88%
GSM / GPRS / EDGE 1900 / UMTS FDD 2 / LTE Band 2 Body Configuration 1g	95%	±18.26%
LTE Band 7 / Wi-Fi 2450 MHz Head Configuration 1g	95%	±18.13%
LTE Band 7 / Wi-Fi 2450 MHz Body Configuration 1g	95%	±18.35%
Wi-Fi 5GHz Head Configuration 1g	95%	±21.53%
Wi-Fi 5GHz Body Configuration 1g	95%	±19.90%

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

See [Appendix 7](#) for all uncertainty tables.

6. Equipment Under Test (EUT)

6.1. Identification of Equipment Under Test (EUT)

Serial Number/ IMEI Number:	Cellular Radiated Samples: CB5A1ZQX4A; 004402452979481 used to perform GSM 850 and PCS1900 SAR measurements only. CB5A1ZPD36; 004402452979549 used to perform UMTS FDD 4 Head and UMTS FDD 5 SAR measurements only. CB5A1ZPD2W; 004402452979531 used to perform UMTS FDD 2 and UMTS FDD 4 Body SAR measurements only. CB5A1ZPD2X; 004402452979655 used to perform LTE Band 2, LTE Band 7, LTE Band 17 Head SAR measurements only. CB5A1ZPD2Q; 004402452979663 used to perform LTE Band 4 SAR measurements only. CB5A1ZPD2Z; 004402452979556 used to perform LTE Band 5 and LTE Band 17 Body SAR measurements only. Cellular Conducted Sample: CB5A1ZPD37; 004402452979499 - used to perform Cellular Conducted power measurements. CB5A1ZPD34; 004402452979507 - used to perform Cellular Conducted power measurements. WLAN Radiated Samples: CB5A1ZQX1L; 004402452980075 - used to perform WLAN 2.4GHz SAR measurements only. CB5A1ZQX7D; 004402452980018 - used to perform WLAN 5GHz SAR measurements only. WLAN Conducted Sample: CB5A1ZQX8L; 004402452979606 - used to perform WLAN Conducted power measurements
Hardware Version Number:	Cellular Sample: A; WLAN Sample: A
Software Version Number:	Cellular Sample: ATPV:1283-9868 ; WLAN Sample: 0_25_3_16_A
Country of Manufacture:	China
Date of Receipt:	30 June 2014

6.2. Further Description of EUT

The EUT supports GSM 850/1900MHz bands, WCDMA FDD bands 2/4/5, LTE FDD bands 2/4/5/7/17 bands. It also supports Dual Transfer Mode Class 11 (DTM ~Voice +Data), GPRS service with multi-slots class 33, EGPRS service with multi-slots class 33, HSPA with HSDPA (Category 24) and HSUPA (Category 6) features are also supported.

It has MP3, camera, FM radio, USB memory, GPS receiver, NFC, Mobile High-Definition Link (MHL), Bluetooth (EDR and Bluetooth 4.0), WLAN (802.11 a/b/g/n/ac), Antenna Tuner and Wi-Fi hotspot functions with 'Auto RF Power Back-Off' (PCS1900, UMTS FDD 2/4, LTE Band 2/4) mode capabilities.

6.3. Modifications Incorporated in the EUT

There were no modification during the course of testing the device

6.4. Accessories

The following accessories were supplied with the EUT during testing:

Description:	Memory Card	Personal Hands-Free Kit (PHF) ²	Dummy Battery ¹
Brand Name:	None Stated (Generic)	Sony	None Stated
Model Name or Number:	None Stated	MH410c	None Stated
Serial Number:	None Stated	None Stated	None Stated
Cable Length and Type:	Not Applicable	~1.2 m	~0.5m
Country of Manufacture:	China	None Stated	None Stated
Connected to Port	Micro SD Slot	3.5mm Audio jack and custom type	Unique to Manufacturer

Note(s):

1. The Dummy Battery was only used to perform conducted power measurements.
2. Body worn configurations were not evaluated with PHF attached, as per KDB 648474 Section 2.3, "when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset."

6.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Brand Name:	Model Name or Number:	Serial Number:	Cable Length and Type:	Connected to Port
Communication Test Set	Agilent	8960 Series 10 (E5515C)	GB46311280	~4.0m Utiflex Cable	RF (Input / Output) Air Link
Communication Test Set	Agilent	8960 Series 10 (E5515E)	GB46200666	~4.0m Utiflex Cable	RF (Input / Output) Air Link
Communication Test Set	R&S	CMW500 (1201.0002K50)	145922	~4.0m Utiflex Cable	RF (Input / Output) Air Link
Communication Test Set	R&S	CMW500 (1201.0002K50)	146526	~4.0m Utiflex Cable	RF (Input / Output) Air Link
Communication Test Set	R&S	CMW500 (1201.0002K50)	145921	~4.0m Utiflex Cable	RF (Input / Output) Air Link
Communication Test Set	R&S	CMW500 (1201.0002K50)	145922	~4.0m Utiflex Cable	RF (Input / Output) Air Link

6.6.Additional Information Related to Testing

Equipment Category	2G GSM / PCS	TDMA 850/ 1900	Voice DTM (Voice + Data) GPRS (Data) EDGE (Data)
	3G UMTS Band	FDD 2 / 4 / 5	RMC12.2 Kbps HSDPA Cat 24 HSPA Data Cat 6
	4G LTE Band	FDD 2 / 4 / 5 / 7 / 17	Data
	Wi-Fi Band	(2.4 / 5.0) GHz	Data 802.11a/b/g/n/ac
Type of Unit	Portable Transceiver		
Intended Operating Environment:	Within GSM, UMTS, LTE , Wi-Fi and <i>Bluetooth</i> Coverage		
Transmitter Maximum Output Power Characteristics:	GSM850	Communication Test Set was configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5.	
	PCS1900	Communication Test Set was configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0.	
	UMTS FDD 2	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.	
	UMTS FDD 4	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.	
	UMTS FDD 5	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.	
	LTE Band 2	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D05.	
	LTE Band 4	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D05.	
	LTE Band 5	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D05.	
	LTE Band 7	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D05.	
	LTE Band 17	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D05.	
	2.4 GHz Wi-Fi 802.11b/g/n	Test Software was used to configure the EUT to transmit at a maximum measured power as per section 7.6	
	5.0 GHz Sub band 1 Wi-Fi 802.11a/n/ac	Test Software was used to configure the EUT to transmit at a maximum measured power as per section 7.6	
	5.0 GHz Sub band 2 Wi-Fi 802.11a/n/ac	Test Software was used to configure the EUT to transmit at a maximum measured power as per section 7.6	
	5.0 GHz Sub band 3 Wi-Fi 802.11a/n/ac	Test Software was used to configure the EUT to transmit at a maximum measured power as per section 7.6	
	5.0 GHz Sub band 4 Wi-Fi 802.11a/n/ac	Test Software was used to configure the EUT to transmit at a maximum measured power as per section 7.6	

Additional Information Related to Testing (Continued):

Transmitter Frequency Range:	GSM850	(824 to 849) MHz
	PCS1900	(1850 to 1910) MHz
	UMTS FDD 2	(1852 to 1908) MHz
	UMTS FDD 4	(1712 to 1753) MHz
	UMTS FDD 5	(826 to 847) MHz
	LTE Band 2	(1850 to 1910) MHz
	LTE Band 4	(1710 to 1755) MHz
	LTE Band 5	(820 to 850) MHz
	LTE Band 7	(2500 to 2570) MHz
	LTE Band 17	(705 to 715) MHz
	2.4 GHz Wi-Fi 802.11b/g/n	(2412 to 2462) MHz
	5.0 GHz Sub band 1 Wi-Fi 802.11a/n/ac	(5180 to 5240) MHz
	5.0 GHz Sub band 2 Wi-Fi 802.11a/n/ac	(5260 to 5320) MHz
	5.0 GHz Sub band 3 Wi-Fi 802.11a/n/ac	(5500 to 5700) MHz
	5.0 GHz Sub band 4 Wi-Fi 802.11a/n/ac	(5745 to 5825) MHz

Additional Information Related to Testing (Continued)

Transmitter Frequency Allocation of EUT When Under Test:	Bands	Channel Number	Channel Description	Frequency (MHz)
	GSM850	128	Low	824.2
		190	Middle	836.6
		251	High	848.8
	PCS1900	512	Low	1850.2
		661	Middle	1880.0
		810	High	1909.8
	UMTS FDD 2	9262	Low	1852.4
		9400	Middle	1880.0
		9538	High	1907.6
	UMTS FDD 4	1312	Low	1712.4
		1412	Middle	1732.6
		1513	High	1752.6
	UMTS FDD 5	4132	Low	826.4
		4183	Middle	836.6
		4233	High	846.6
	LTE Band 2	18700	Low	1860.0
		18900	Middle	1880.0
		19100	High	1900.0
	LTE Band 4	20050	Low	1720.0
		20175	Middle	1732.5
		20300	High	1745.0
	LTE Band 5	20450	Low	829.0
		20525	Middle	836.5
		20625	High	844.0
	LTE Band 7	20850	Low	2510.0
		21100	Middle	2535.0
		21350	High	2560.0
	LTE Band 17	24250	Low	709.0
		24300	Middle	710.0
		24350	High	711.0

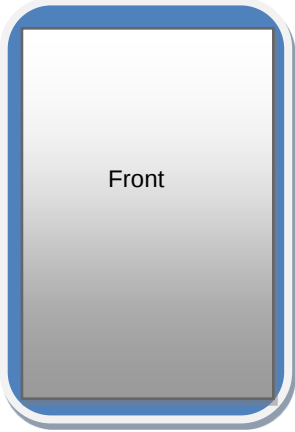
Additional Information Related to Testing (Continued)

Transmitter Frequency Allocation of EUT When Under Test:	Band: 2.4 / 5.0 GHz Wi-Fi 802.11a/n/AC (HT20 / HT40/HT80)								
	Rule	20 MHz BW Ch.#	Frq. (MHz)	40 MHz BW Ch.#	Frq. (MHz)	80 MHz BW Ch.#	Frq. (MHz)		
	15.247	1	2412.0						
		6	2436.0						
		11	2462.0						
	5.2 U-NII-1	36	5180.0	38	5190.0	42		5210.0	
		40	5200.0						
		44	5220.0	46	5230.0				
		48	5240.0						
	5.3 U-NII-2A	52	5260.0	54	5270.0	58		5290.0	
		56	5280.0						
		60	5300.0	62	5310.0				
		64	5320.0						
	5.6 U-NII-2C	100	5500.0	102	5510.0	106			5530.0
		104	5520.0						
		108	5540.0	110	5550.0				
		112	5560.0						
		116	5580.0	118	5590.0				
		120	5600.0			122	5610.0		
		124	5620.0	126	5630.0				
		128	5640.0						
		132	5660.0	134	5670.0				
		136	5680.0						
		140	5700.0						
	5.8 UNII-3	149	5745.0	151	5755.0	155			5775.0
		153	5765.0						
		157	5785.0	159	5795.0				
		161	5805.0						
		165	5825.0						
Modulation(s):	GMSK (DTM / GSM / GPRS): QPSK(UMTS / HSDPA/HSPA): DBPSK, BPSK, CCK (Wi-Fi): QPSK, 16QAM (LTE):					217 Hz			
						0Hz			
						0 Hz			
						0 Hz			
Modulation Scheme (Crest Factor):	GMSK (DTM Class 11)					4			
	GMSK (DTM Class 9)					2.67			
	GMSK (DTM Class 5)					2.67			
	GMSK (GPRS/EDGE 4 Uplink)					4			
	GMSK (GPRS/EDGE 3 Uplink)					2.67			
	GMSK (GPRS/EDGE 2 Uplink)					4			
	GMSK (GPRS/EDGE 1 Uplink)					8.3			
	DBPSK, BPSK, CCK (Wi-Fi802.11a/b/g/n/ac):					1			
	QPSK(UMTS/ FDD / HSDPA):					1			
Antenna Type:	Internal integral								
Antenna Length:	As specified in Appendix 10								
Number of Antenna Positions:	WWAN ~ LTE / UMTS / GSM					1 fixed			
	WLAN/ BT					1 fixed			
	Felica/NFC					1 fixed			
	Sub/GPS					1 fixed			
Power Supply Requirement:	4.2 V								
Battery Type(s):	Embedded Li-Polymer								

Additional Information Related to LTE Test parameter

#	Description	Parameter
1	Identify the operating frequency range of each LTE transmission FCC band used by the device	Band 2: frequency range – 1850 MHz– 1910 MHz Band 4: frequency range – 1710 MHz– 1755 MHz Band 5: frequency range – 820 MHz-850 MHz Band 7: frequency range – 2500 MHz-2570 MHz Band 17: frequency range – 705 MHz-715MHz
2	Identify the channel bandwidths used in each frequency band; e.g.: 1.4, 3, 5, 10, 15, 20 MHz etc.	Channel Bandwidths used are: B2 (1.4, 3, 5, 10, 15, 20) MHz B4 (1.4, 3, 5, 10, 15, 20) MHz B5 (1.4, 3, 5, 10) MHz B7 (5, 10, 15, 20) MHz B17 (5, 10) MHz
3	Identify the high, middle and low (H, M, L) channel numbers and frequencies tested in each LTE frequency band	B2 -20 MHz (H,M,L)= CH (19100,18900,18700); Freq (1900, 1880, 1860) MHz B4 -20 MHz (H,M,L)= CH (20300, 20175, 20050); Freq (1745, 1732.5, 1720) MHz B5 -10 MHz (H,M,L)= CH (20625, 20525, 20450); Freq (844, 836.5, 829) MHz B7 -20 MHz (H,M,L)= CH (21350, 21100, 20850); Freq (2560, 2535, 2510) MHz B17 -10 MHz (H,M,L)= CH (23800, 23790, 23780); Freq (711, 710, 709) MHz
4	Specify the UE category and uplink modulations used	The UE Category is 4 and the Uplink modulations used are QPSK, 16QAM.
5	Descriptions of the LTE transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware components and/or antenna(s) with other transmitters etc.	This model has only one main antenna for LTE/UMTS/GSM bands (as indicated in Appendix 10).

Additional Information Related to LTE Test parameter (Continued):

#	Description	Parameter
6	Identify the LTE Band Voice/data requirements in each operating mode and exposure condition with respect to head and body test configurations, antenna locations, handset flip-cover or slide positions, antenna diversity conditions, etc.	The following exposure condition with respect to head and body test are required for both voice and data modes due to EUT functionality and antenna locations. 1) Body-worn SAR is required at 15 mm separation distance 2) Mobile Hot Spot Mode will be tested by positioning the smart phone with 10 mm separation distance. - Wireless Personal Hotspot mode with consideration for the Front Display of EUT, Back of EUT, Left Hand side of EUT, Right Hand side of EUT, Top Edge of EUT and Bottom Edge of EUT with respect to the antenna location. The test separation distance between the EUT edge and phantom flat surface for this mode will be 10mm as the dimensions of the device is > 9cm x 5cm. 3) Head SAR is required in LTE Data Mode (QPSK) as this model does not supports SVLTE operation. Top  Left hand side Front Right hand side Bottom

Additional Information Related to LTE Test parameter (Continued):

#	Description	Parameter
7	Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design: a) only mandatory MPR may be considered during SAR testing, when the maximum output power is permanently limited by the MPR implemented within the UE; and only for the applicable RB (resource block) configurations specified in LTE standards b) A-MPR (additional MPR) must be disabled.	The EUT incorporates MPR as per 36.101 as shown in the section 8. MPR cannot be disabled after the phone is manufactured, MPR is mandatory. * Target MPR
8	Include the maximum average conducted output power measured on the required test channels for each channel bandwidth and UL modulation used in each frequency band: a) using 1 RB allocated at the low edge, centered and high edge of a channel b) using 50% RB allocated at the low edge, centered and high edge of a channel c) using 100% RB allocation	This is included in the section 7.6 of this report.
9	Identify all other U.S. wireless operating modes (3G, Wi-Fi, WiMax, Bluetooth etc), device/exposure configurations (head and body, antenna and handset flip-cover or slide positions, antenna diversity conditions etc.) and frequency bands used for these modes	The following bands are supported for the exposure conditions 1) GSM (850/1900) and UMTS FDD (2/4/5) - Exposure conditions: Head/Body worn SAR required for GSM / UMTS FDD and wireless personal hotspot. DTM is not supported. 2) Bluetooth 2.4GHz (Basic Rate & EDR) - Exposure conditions: BT SAR is not required as per 10.3.1 3) Wi-Fi 2.4GHz - Exposure conditions: Head/Body SAR required for wireless personal hotspot. No Power reduction is supported. 4) Wi-Fi 5 GHz - Exposure conditions: Head/Body SAR required for wireless personal hotspot. No power reduction is supported,

Additional Information Related to LTE Test parameter (Continued):

#	Description	Parameter
10	Include the maximum average conducted output power measured for the other wireless mode and frequency bands	This is included in the section 8 of this report.
11	Identify the simultaneous transmission conditions for the voice and data configurations supported by all wireless modes, device configurations and frequency bands, for the head and body exposure conditions and device operating configurations (handset flip or cover positions, antenna diversity conditions etc.)	Bluetooth average power measurement is below the rated threshold therefore Individual SAR will not be tested. Sim_Tx consideration will be based on the estimated SAR level. All simultaneous transmission combinations are identified and summarised in Section 9.4 of the report.
12	When power reduction is applied to certain wireless modes to satisfy SAR compliance for simultaneous transmission conditions, other equipment certification or operating requirements, include the maximum average conducted output power measured in each power reduction mode applicable to the simultaneous voice/data transmission configurations for such wireless configurations and frequency bands; and also include details of the power reduction implementation and measurement setup	Not applicable.
13	Include descriptions of the test equipment, test software, built-in test firmware etc. required to support testing the device when power reduction is applied to one or more transmitters/antennas for simultaneous voice/data transmission	R&S CMW500 communication simulator Communication tester which support LTE modes (Data) were used for testing.
14	When appropriate, include a SAR test plan proposal with respect to the above.	Not Applicable
15	If applicable, include preliminary SAR test data and/or supporting information in laboratory testing inquiries to address specific issues and concerns or for requesting further test reduction considerations appropriate for the device; for example simultaneous transmission configurations.	Not Applicable

6.6.1. Operating Modes

The EUT was tested in the following operating mode(s) unless otherwise stated:

- GSM850 Head and Body-Worn – DTM Class 9 – DTM (Voice + Data) allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5. Tested using 2 Uplink time slots with DTM multi class 9 (1 uplink for voice + 1 uplink for GPRS with CS1).
- GSM850 Hotspot Mode – DTM (Voice + Data) allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5. Tested using 2 Uplink time slots with DTM multi class 9 (1 uplink for voice + 1 uplink for GPRS with CS1).
- PCS1900 Head and Body-Worn – DTM (Voice + Data) allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0. Tested using 3 Uplink time slots with DTM multi class 11 (1 uplink for voice + 2 uplink for GPRS with CS1).
- PCS1900 Hotspot Mode – Data allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0. Tested using 4 Uplink time slots with CS1 for GPRS.

GSM850: Power Table Settings used for Test Set		PCS1900: Power Table Settings used for Test Set	
Power Control Level PCL	Nominal Power (dBm)	Power Control Level PCL	Nominal Power (dBm)
0 ... 2	39	22 ... 29	Reserved
3	37	30	33
4	35	31	32
5	33	0	30
6	31	1	28
7	29	2	26
8	27	3	24
9	25	4	22
10	23	5	20
11	21	6	18
12	19	7	16
13	17	8	14
14	15	9	12
15	13	10	10
16	11	11	8
17	9	12	6
18	7	13	4
19 ... 31	5	14	2
		15	0
		16 ... 21	Reserved

- UMTS FDD 2, 4, 5 - RMC 12.2kbps allocated mode with Communication Test Set configured to all "1's" to allow the EUT to transmit at a maximum as per KDB 941225 D01.
- UMTS FDD 2, 4, 5 - RMC 12.2kbps + HSUPA with Test loop mode 1 and TPC bits configured to all "1's", Sub-test 5, AG Index set to 21 and E-TFCI set to 81 with Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.
- UMTS FDD 2, 4, 5 - RMC 12.2kbps + HSDPA with Test loop mode 1 and TPC bits configured to all "1's", Sub-test 1 with Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.
- UMTS FDD 2, 4, 5 - DC HSDPA (Cat 24) with Test loop mode 1 and TPC bits configured to all "1's", Sub-test 1 with Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01. (See Appendix 9 for detailed description)

Operating Modes (Continued)

- LTE Band 2, LTE Band 4 and LTE Band 7 data allocated mode at QPSK on 20MHz BW channels, using a Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D05.
- LTE Band 5 and LTE Band 17 data allocated mode at QPSK on 20MHz BW channels, using a Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D05.
- 2.4 GHz Wi-Fi802.11b/g/n Data allocated mode using 'HyperTerminal' software to excise mode 'b', 'g' and 'n', with maximum power of up to 13.1 dBm, 13.0 dBm and 13.0 dBm respectively.
- 5.0 GHz Wi-Fi802.11a/n/ac Sub band 1 - Data allocated mode using 'HyperTerminal' software to excise mode 'a' 'n' and 'ac', with maximum power of up to 16.3 dBm, 16.2 dBm and 16.3 dBm respectively.
- 5.0 GHz Wi-Fi802.11a/n/ac Sub band 2 - Data allocated mode using 'HyperTerminal' software to excise mode 'a' 'n' and 'ac', with maximum power of up to 16.3 dBm, 16.2 dBm and 16.2 dBm respectively.
- 5.0 GHz Wi-Fi802.11a/n/ac Sub band 3 - Data allocated mode using 'HyperTerminal' software to excise mode 'a' 'n' and 'ac', with maximum power of up to 16.5 dBm, 16.5 dBm and 16.6 dBm respectively.
- 5.0 GHz Wi-Fi802.11a/n/ac Sub band 4 - Data allocated mode using 'HyperTerminal' software to excise mode 'a' 'n' and 'ac', with maximum power of up to 16.4 dBm, 16.2 dBm and 16.3 dBm respectively.

6.7.Nominal and Maximum Output power:**Power Back-Off Not Supported**

Bands	Speech (Voice Mode)	
	Target (dBm)	Tolerance ± (dB)
GSM850	32.5	-0.9~+0.6

Power Back-Off Supported & Disabled

Bands	Speech (Voice Mode)	
	Target (dBm)	Tolerance ± (dB)
PCS1900	30.0	-0.7~+0.7

Power Back-Off Supported & Enabled

Bands	Speech (Voice Mode)	
	Target (dBm)	Tolerance ± (dB)
PCS1900	25.0	-1.5~+1.5

Power Back-Off Not Supported

Bands	GPRS									
	Tx Slot 1		Tx Slot 2		Tx Slot 3		Tx Slot 4			
	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)
GSM850	32.5	-0.9~+0.6	31.0	-1.5~+0.6	29.0	-1.5~+0.6	28.0	-1.5~+0.6		
Bands	EDGE GMSK (MCS1-4)									
GSM850	32.5	-0.9~+0.6	31.0	-1.5~+0.6	29.0	-1.5~+0.6	28.0	-1.5~+0.6		
Bands	EDGE 8PSK (MCS5-9)									
GSM850	27.0	-1.5~+1.0	25.0	-1.5~+1.0	24.0	-1.5~+1.0	22.0	-1.5~+1.0		
Bands	DTM (GSM + GPRS [GMSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)
GSM850	32.5	-0.9~+0.6	31.0	-1.5~+0.6	31.0	-1.5~+0.6	29.0	-1.5~+0.6	29.0	-1.5~+0.6
Bands	DTM (GSM + EDGE [GMSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)
GSM850	32.5	-0.9~+0.6	31.0	-1.5~+0.6	31.0	-1.5~+0.6	29.0	-1.5~+0.6	29.0	-1.5~+0.6
Bands	DTM (GSM + EDGE [8PSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_8PSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_8PSK	Tol ± (dB)
GSM850	32.5	-0.9~+0.6	31.0	-1.5~+0.6	25.0	-1.5~+1.0	29.0	-1.5~+0.6	24.0	-1.5~+1.0

Nominal and Maximum Output power (Continued):**Power Back-Off Supported & Disabled**

Bands	GPRS									
	Tx Slot 1		Tx Slot 2			Tx Slot 3		Tx Slot 4		
	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)		
PCS1900	30.0	-0.7~+0.7	28.0	-1.5~+0.6	27.0	-1.5~+0.6	26.0	-1.5~+0.6		
Bands	EDGE GMSK (MCS1-4)									
PCS1900	30.0	-0.7~+0.7	28.0	-1.5~+0.6	27.0	-1.5~+0.6	26.0	-1.5~+0.6		
Bands	EDGE 8PSK (MCS5-9)									
PCS1900	26.0	-1.5~+1.0	24.0	-1.5~+1.0	23.0	-1.5~+1.0	22.2	-1.5~+1.0		
Bands	DTM (GSM + GPRS [GMSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)
PCS1900	30.0	-0.7~+0.7	28.0	-1.5~+0.6	28.0	-1.5~+0.6	27.0	-1.5~+0.6	27.0	-1.5~+0.6
Bands	DTM (GSM + EDGE [GMSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)
PCS1900	30.0	-0.7~+0.7	28.0	-1.5~+0.6	28.0	-1.5~+0.6	27.0	-1.5~+0.6	27.0	-1.5~+0.6
Bands	DTM (GSM + EDGE [8PSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_8PSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_8PSK	Tol ± (dB)
PCS1900	30.0	-0.7~+0.7	28.0	-1.5~+0.6	24.0	-1.5~+1.0	27.0	-1.5~+0.6	23.0	-1.5~+1.0

Power Back-Off Supported & Enabled

Bands	GPRS									
	Tx Slot 1		Tx Slot 2		Tx Slot 3		Tx Slot 4			
	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)	Target (dBm)	Tolerance ± (dB)		
PCS1900	25.0	-1.5~+1.5	23.0	-1.5~+1.5	22.0	-1.5~+1.5	21.0	-1.5~+1.5		
Bands	EDGE GMSK (MCS1-4)									
PCS1900	25.0	-1.5~+1.5	23.0	-1.5~+1.5	22.0	-1.5~+1.5	21.0	-1.5~+1.5		
Bands	EDGE 8PSK (MCS5-9)									
PCS1900	24.5	-1.5~+1.5	22.5	-1.5~+1.5	21.5	-1.5~+1.5	20.5	-1.5~+1.5		
Bands	DTM (GSM + GPRS [GMSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)
PCS1900	25.0	-1.5~+1.5	23.0	-1.5~+1.5	23.0	-1.5~+1.5	22.0	-1.5~+1.5	22.0	-1.5~+1.5
Bands	DTM (GSM + EDGE [GMSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_GMSK	Tol ± (dB)
PCS1900	25.0	-1.5~+1.5	23.0	-1.5~+1.5	23.0	-1.5~+1.5	22.0	-1.5~+1.5	22.0	-1.5~+1.5
Bands	DTM (GSM + EDGE [8PSK])									
	Tx Slot 1		Tx Slot 2				Tx Slot 3			
	CS_GMSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_8PSK	Tol ± (dB)	CS_GMSK	Tol ± (dB)	PS_8PSK	Tol ± (dB)
PCS1900	25.0	-1.5~+1.5	23.0	-1.5~+1.5	22.5	-1.5~+1.5	22.0	-1.5~+1.5	21.5	-1.5~+1.5

Nominal and Maximum Output power:**Power Back-Off Not Supported**

Band	CS		HS	
	Target (dBm)	Tolerance $\pm$ (dB)	Target (dBm)	Tolerance $\pm$ (dB)
UMTS FDD 5	24.0	-0.7~+0.5	24.0	-0.7~+0.5

Power Back-Off Supported & Disabled

UMTS FDD 2	23.5	-0.7~+0.5	23.5	-0.7~+0.5
UMTS FDD 4	23.5	-0.7~+0.5	23.5	-0.7~+0.5

Power Back-Off Supported & Enabled

UMTS FDD 2	18.5	-0.7~+0.5	18.5	-0.7~+0.5
UMTS FDD 4	22.0	-0.7~+0.5	22.0	-0.7~+0.5

Power Back-Off Not Supported

Bands	Target (dBm)						Tolerance ± (dB)
	QPSK			16QAM			
	1RB	50% RB	100% RB	1RB	50% RB	100% RB	
LTE Band 5	23.0	22.0	22.0	22.0	21.0	21.0	-1.0 ~ +1.0
LTE Band 7	23.0	22.0	22.0	22.0	21.0	21.0	-1.0 ~ +1.0
LTE Band 17	23.0	22.0	22.0	22.0	21.0	21.0	-1.0 ~ +1.0

Power Back-Off Supported & Disabled

Bands	Target (dBm)						Tolerance ± (dB)
	QPSK			16QAM			
	1RB	50% RB	100% RB	1RB	50% RB	100% RB	
LTE Band 2	23.0	22.0	22.0	22.0	21.0	21.0	-1.0 ~ +1.0
LTE Band 4	23.0	22.0	22.0	22.0	21.0	21.0	-1.0 ~ +1.0

Power Back-Off Supported & Enabled

Bands	Target (dBm)						Tolerance ± (dB)
	QPSK			16QAM			
	1RB	50% RB	100% RB	1RB	50% RB	100% RB	
LTE Band 2	19.0	19.0	19.0	19.0	19.0	19.0	-1.0 ~ +1.0
LTE Band 4	21.0	21.0	21.0	21.0	21.0	21.0	-1.0 ~ +1.0

Nominal and Maximum Output power (Continued):**Power Back-Off Not Supported**

	WLAN Modes					
	2.4 GHz 802.11b		2.4 GHz 802.11g		2.4 GHz 802.11n	
	1 Mbps	11 Mbps	6 Mbps	54 Mbps	6.5 Mbps	65 Mbps
Max Power {Target + Upper Tolerance} (dBm)	13.5	13.5	13.4	13.4	13.4	13.4

Power Back-Off Not Supported

5.0 GHz 802.11a	5.2 GHz		5.3 GHz		5.5 GHz		5.8 GHz	
	6 Mbps	54 Mbps	6 Mbps	54 Mbps	6 Mbps	54 Mbps	6 Mbps	54 Mbps
Max Power {Target + Upper Tolerance} (dBm)	16.3	16.3	16.3	16.3	16.5	16.5	16.5	16.5
5.0 GHz 802.11n HT-20 / 11ac VHT-20	5.2 GHz		5.3 GHz		5.5 GHz		5.8 GHz	
	6.5 Mbps	65 Mbps	6.5 Mbps	65 Mbps	6.5 Mbps	65 Mbps	6.5 Mbps	65 Mbps
Max Power {Target + Upper Tolerance} (dBm)	16.3	13.3	16.3	13.3	16.6	13.7	16.6	13.7
5.0 GHz 802.11n HT-40 / 11ac VHT-40	5.2 GHz		5.3 GHz		5.5 GHz		5.8 GHz	
	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps
Max Power {Target + Upper Tolerance} (dBm)	14.3	12.3	14.3	12.3	14.7	12.7	14.7	12.7
5.0 GHz 802.11ac VHT-80	5.2 GHz		5.3 GHz		5.5 GHz		5.8 GHz	
	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps
Max Power {Target + Upper Tolerance} (dBm)	14.2	12.2	14.2	12.2	14.5	12.6	14.5	12.6

Band	Max Power {Target (dBm) + Upper Tolerance (dBm)}		
Bluetooth	BR	EDR	BLE
	10.0	7.9	2.4

Note:

1. As per KDB865664 D02 SAR Reporting v01, 2.1.4(a), the nominal and maximum average source based rated power, declared and supplied by manufacturer are shown in the above tables.
2. These are specified maximum allowed average power for all the wireless modes and frequencies bands supported.

6.8. Simultaneous Transmission Conditions

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna.

	Simultaneous transmission conditions					
	WWAN			WLAN		WPAN
#	LTE BAND Data	GSM Voice / Data / Dual Transfer Mode (DTM)	UMTS Voice / Data	Wi-Fi 802.11b/g/n	Wi-Fi 802.11a/n	Bluetooth
1	X			X		
2		X		X		
3			X	X		
4	X				X	
5		X			X	
6			X		X	
7	X					X
8		X				X
9			X			X
10					X	X
11	X				X	X
12		X			X	X
13			X		X	X

Note:

Based on the customer declaration, the following are the possible combination of the Simultaneous Transmission possibilities in the EUT:

1. WWAN + WLAN 2.4 GHz
2. WWAN + WLAN 5.0 GHz
3. WWAN + WPAN
4. WPAN + WLAN 5.0 GHz
5. WWAN + WLAN 5.0 GHz + WPAN

7. RF Exposure Conditions (Test Configurations)

Refer to Appendix 10 "Antenna Locations and Separation Distances" for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

7.1. Configuration and Peripherals

The EUT was tested in the following configuration(s) unless otherwise stated:

- Standalone fully charged battery powered.
- Head, Hotspot Mode and Body-worn configurations were evaluated.
- The applied FCC body-worn Personal Hotspot orientations where the corresponding edge(s) closest to the user with the most conservative exposure condition were all evaluated at 10 mm from the body. For body-worn configuration indicated below the test position overlap with hotspot and the power back –off was not supported meaning hotspot mode was most conservative.
- GSM, DTM, GPRS and EDGE power measurement were all measured as per FCC pubs. 941225 D03. Although power reduction was allowed SAR test was performed on GPRS using GMSK. Test reduction was applied to EDGE using GMSK and 8PSK modulation scheme.

Head Configuration

- a) The EUT was placed in a normal operating position with the centre of the ear-piece aligned with the ear canal on the phantom.
- b) With the ear-piece touching the phantom the centre line of the EUT was aligned with an imaginary plane (X and Y axis) consisting of three lines connecting both ears and the mouth.
- c) For the cheek position the EUT was gradually moved towards the cheek until any point of the mouth-piece or keypad touched the cheek.
- d) For the tilted position the EUT was positioned as for the cheek position, and then the horizontal angle was increased by fifteen degrees (the phone keypad was moved away from the cheek by fifteen degrees).
- e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.
- f) The device was keyed to operate continuously in the transmit mode for the duration of the test.
- g) The location of the maximum spatial SAR distribution (hotspot) was determined relative to the EUT and its antenna.
- h) The EUT was transmitting at full power throughout the duration of the test powered by a fully charged battery.

Body Configuration

- a) The EUT was placed in a normal operating position where the centre of EUT was aligned with the centre reference point on the flat section of the 'SAM' or 'Eli' phantom.
- b) With the EUT touching the phantom at an imaginary centre line. The EUT was aligned with a marked plane (X and Y axis) consisting of two lines.
- c) For the touch-safe position the EUT was gradually moved towards the flat section of the 'SAM' phantom until any point of the EUT touched the phantom.
- d) For position(s) greater than 0mm separation the EUT was positioned as per the touch-safe position, and then the vertical height was decreased/adjusted as required.
- e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.
- f) The device was keyed to operate continuously in the transmit mode for the duration of the test.
- g) The location of the maximum spatial SAR distribution (hotspot) was determined relative to the EUT and its antenna.
- h) The EUT was transmitting at full power throughout the duration of the test powered by a fully charged battery.

7.2. Configuration Consideration

Technology Antenna	Configuration	Antenna-to-User Separation	Position	Antenna-to-Edge Separation	Evaluation Considered
WWAN	Head	0mm	Touch Left	<25mm	Yes
			Tilt Left	<25mm	Yes
			Touch Right	<25mm	Yes
			Tilt Right	<25mm	Yes
	Hotspot	10mm	Front	<25mm	Yes
			Back	<25mm	Yes
			Top Edge	>25mm	No
			Bottom Edge	<25mm	Yes
			Right Edge	<25mm	Yes
			Left Edge	<25mm	Yes
	Body	15mm	Front	<25mm	Yes
			Back	<25mm	Yes
WLAN	Head	0mm	Touch Left	<25mm	Yes
			Tilt Left	<25mm	Yes
			Touch Right	<25mm	Yes
			Tilt Right	<25mm	Yes
	Hotspot	10mm	Front	<25mm	Yes
			Back	<25mm	Yes
			Top Edge	<25mm	Yes
			Bottom Edge	>25mm	No
			Right Edge	>25mm	No
			Left Edge	<25mm	Yes
	Body	15mm	Front	<25mm	Yes
			Back	<25mm	Yes

Note:

1. The Antenna to Edge distances is included in the Appendix 10 of the report.
2. Test exemption is as per FCC KDB publication 447498 D01v05 for mobile handsets.
3. Bluetooth standalone SAR is excluded as the output power meets the exclusion threshold:

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{GHz}}}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR,}^{16} \text{ where}$$

- f_{GHz} is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation¹⁷
- The result is rounded to one decimal place for comparison

” Taken from FCC KDB publication 447498 D01v05r02

7.3. SAR Test Exclusion Consideration

Frequency Band	Configuration(s)		
	Head	Hotspot Mode	Body-worn
GSM850	No	No	No
PCS1900	No	No	No
UMTS FDD 2	No	No	No
UMTS FDD 4	No	No	No
UMTS FDD 5	No	No	No
LTE Band 2	No	No	No
LTE Band 4	No	No	No
LTE Band 5	No	No	No
LTE Band 7	No	No	No
LTE Band 17	No	No	No
WLAN 2.4 GHz	No	No	No
WLAN 5.0 GHz	No	No	No
<i>Bluetooth</i>	N/A	Yes	Yes

Note:

- As per KDB 447498 D01 General RF Exposure Guidance v05r02, The Frequency Bands with Rated Power including Upper tolerance, which qualify for **Standalone SAR Test Exclusion**, are as per the above table.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] * [\sqrt{f_{(\text{GHz})}}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$[\sqrt{f_{(\text{GHz})}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest *mW* and *mm* before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Applying the above formula for *Bluetooth* Hotspot Mode we get:

$$\text{➤ For 2450MHz, } [(10)/10] * [\sqrt{2.45}] = 1.6 \leq 3.0$$

Applying the above formula for *Bluetooth* Body-worn we get:

$$\text{➤ For 2450MHz, } [(10)/15] * [\sqrt{2.45}] = 1.1 \leq 3.0$$

Hence, no testing was performed on *Bluetooth* mode.

- The details for the **Maximum Rated Power** and tolerance(s) can be found in section 6.7.

7.4. RF Output Average Power Measurement: 2G**7.4.1. GSM850****Power Back-Off NOT Supported****Voice Mode GSM (GMSK)**

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)	Frame Power (dBm)
128	824.2	32.3	23.3
190	836.6	32.4	23.4
251	848.8	32.4	23.4

GPRS (GMSK) – Coding Scheme: CS1

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)				Frame Power (dBm)			
		1Uplink	2Uplink	3Uplink	4Uplink	1Uplink	2Uplink	3Uplink	4Uplink
128	824.2	32.3	30.7	28.6	27.5	23.3	24.7	24.3	24.5
190	836.6	32.3	30.7	28.6	27.5	23.3	24.7	24.3	24.5
251	848.8	32.3	30.7	28.6	27.5	23.3	24.7	24.3	24.5

EDGE (GMSK) – Coding Scheme: MCS4

128	824.2	32.3	30.7	28.6	27.4	23.3	24.7	24.3	24.4
190	836.6	32.3	30.6	28.5	27.5	23.3	24.6	24.2	24.5
251	848.8	32.3	30.7	28.6	27.5	23.3	24.7	24.3	24.5

EDGE (8PSK) – Coding Scheme: MCS9

128	824.2	27.7	25.1	24.2	22.2	18.7	19.1	19.9	19.2
190	836.6	27.6	25.1	24.2	22.2	18.6	19.1	19.9	19.2
251	848.8	27.6	25.1	24.2	22.2	18.6	19.1	19.9	19.2

DTM - Voice Mode GSM (GMSK) + GPRS (GMSK) – Coding Scheme: CS1

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)						Frame Power (dBm)					
		Class 5		Class 9		Class 11		Class 5		Class 9		Class 11	
		GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 2 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 2 Uplink
128	824.2	30.7	30.6	30.8	30.7	28.7	28.6	24.7	24.6	24.8	24.7	24.4	24.3
190	836.6	30.7	30.6	30.8	30.7	28.7	28.5	24.7	24.6	24.8	24.7	24.4	24.2
251	848.8	30.8	30.7	30.8	30.7	28.7	28.6	24.8	24.7	24.8	24.7	24.4	24.3

DTM - Voice Mode GSM (GMSK) + EDGE (GMSK) – Coding Scheme: MCS4

128	824.2	30.7	30.6	30.8	30.7	28.7	28.6	24.7	24.6	24.8	24.7	24.4	24.3
190	836.6	30.7	30.7	30.8	30.7	28.7	28.5	24.7	24.7	24.8	24.7	24.4	24.2
251	848.8	30.8	30.7	30.8	30.7	28.7	28.6	24.8	24.7	24.8	24.7	24.4	24.3

DTM - Voice Mode GSM (GMSK) + EDGE (8PSK) – Coding Scheme: MCS9

128	824.2	30.7	24.9	30.8	24.9	28.6	24.2	24.7	18.9	24.8	18.9	24.3	19.9
190	836.6	30.8	24.9	30.8	24.9	28.5	24.0	24.8	18.9	24.8	18.9	24.2	19.7
251	848.8	30.7	24.9	30.8	25.0	28.6	24.0	24.7	18.9	24.8	19.0	24.3	19.7

GSM850 (Continued)**Note:****Scale factor for uplink time slot:**

1. 1 Uplink: time slot ratio = 8:1 => $10 \cdot \log(8/1) = \mathbf{9.03 \text{ dB}}$
2. 2 Uplink: time slot ratio = 8:2 => $10 \cdot \log(8/2) = \mathbf{6.02 \text{ dB}}$
3. 3 Uplink: time slot ratio = 8:3 => $10 \cdot \log(8/3) = \mathbf{4.26 \text{ dB}}$
4. 4 Uplink: time slot ratio = 8:4 => $10 \cdot \log(8/4) = \mathbf{3.01 \text{ dB}}$

Conclusions:

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

- For Head SAR Testing, GSM and DTM should be evaluated; therefore the EUT was set in **DTM Multi-slot class 9** due its highest Frame Average Power (dBm)
- For Hotspot Mode SAR Testing, GPRS and DTM should be evaluated; therefore the EUT was set in **DTM Multi-slot class 9** due its highest Frame Average Power (dBm)
- For Body worn SAR Testing, GSM and DTM should be evaluated, therefore the EUT was set in **DTM Multi-slot class 9** due its highest Frame Average Power (dBm)

7.4.2.PCS1900**Power Back-Off Supported & Disabled****Voice Mode GSM (GMSK)**

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)	Frame Power (dBm)
512	1850.2	30.1	21.1
661	1880.0	30.2	21.2
810	1909.8	30.3	21.3

GPRS (GMSK) – Coding Scheme: CS1

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)				Frame Power (dBm)			
		1Uplink	2Uplink	3Uplink	4Uplink	1Uplink	2Uplink	3Uplink	4Uplink
512	1850.2	30.1	27.6	26.3	25.3	21.1	21.6	22.0	22.3
661	1880.0	30.2	27.7	26.4	25.5	21.2	21.7	22.1	22.5
810	1909.8	30.3	27.8	26.5	25.5	21.3	21.8	22.2	22.5

EDGE (GMSK) – Coding Scheme: MCS4

512	1850.2	30.1	27.6	26.3	25.3	21.1	21.6	22.0	22.3
661	1880.0	30.2	27.7	26.4	25.4	21.2	21.7	22.1	22.4
810	1909.8	30.1	27.7	26.3	25.4	21.1	21.7	22.0	22.4

EDGE (8PSK) – Coding Scheme: MCS9

512	1850.2	26.1	24.3	23.4	22.3	17.1	18.3	19.1	19.3
661	1880.0	26.1	24.3	23.4	22.4	17.1	18.3	19.1	19.4
810	1909.8	26.2	24.4	23.4	22.4	17.2	18.4	19.1	19.4

DTM - Voice Mode GSM (GMSK) + GPRS (GMSK) – Coding Scheme: CS1

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)						Frame Power (dBm)					
		Class 5		Class 9		Class 11		Class 5		Class 9		Class 11	
		GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 2 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 2 Uplink
512	1850.2	27.7	27.6	27.7	27.6	26.5	26.4	21.7	21.6	21.7	21.6	22.2	22.1
661	1880.0	27.8	27.7	27.7	27.6	26.5	26.4	21.8	21.7	21.7	21.6	22.2	22.1
810	1909.8	27.8	27.7	27.8	27.7	26.5	26.4	21.8	21.7	21.8	21.7	22.2	22.1

DTM - Voice Mode GSM (GMSK) + EDGE (GMSK) – Coding Scheme: MCS4

512	1850.2	27.7	27.6	27.7	27.6	26.5	26.4	21.7	21.6	21.7	21.6	22.2	22.1
661	1880.0	27.7	27.7	27.7	27.7	26.4	26.3	21.7	21.7	21.7	21.7	22.1	22.0
810	1909.8	27.8	27.7	27.7	27.7	26.4	26.3	21.8	21.7	21.7	21.7	22.1	22.0

DTM - Voice Mode GSM (GMSK) + EDGE (8PSK) – Coding Scheme: MCS9

512	1850.2	27.7	24.3	27.7	24.2	26.3	23.4	21.7	18.3	21.7	18.2	22.0	19.1
661	1880.0	27.7	24.3	27.7	24.2	26.4	23.4	21.7	18.3	21.7	18.2	22.1	19.1
810	1909.8	27.8	24.3	27.8	24.2	26.3	23.5	21.8	18.3	21.8	18.2	22.0	19.2

7.4.3.PCS1900**Power Back-Off Supported & Enabled****Voice Mode GSM (GMSK)**

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)	Frame Power (dBm)
512	1850.2	25.7	16.7
661	1880.0	25.8	16.8
810	1909.8	25.8	16.8

GPRS (GMSK) – Coding Scheme: CS1

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)				Frame Power (dBm)			
		1Uplink	2Uplink	3Uplink	4Uplink	1Uplink	2Uplink	3Uplink	4Uplink
512	1850.2	25.8	23.3	22.0	21.2	16.8	17.3	17.7	18.2
661	1880.0	25.8	23.3	22.1	21.2	16.8	17.3	17.8	18.2
810	1909.8	25.9	23.3	22.1	21.2	16.9	17.3	17.8	18.2

EDGE (GMSK) – Coding Scheme: MCS4

512	880.2	25.8	23.3	22.0	21.2	16.8	17.3	17.7	18.2
661	897.4	25.8	23.3	22.1	21.2	16.8	17.3	17.8	18.2
810	914.8	25.9	23.3	22.1	21.3	16.9	17.3	17.8	18.3

EDGE (8PSK) – Coding Scheme: MCS9

512	1850.2	24.8	22.6	21.0	20.1	15.8	16.6	16.7	17.1
661	1880.0	24.9	22.6	21.1	20.2	15.9	16.6	16.8	17.2
810	1909.8	24.9	22.6	21.1	20.3	15.9	16.6	16.8	17.3

DTM - Voice Mode GSM (GMSK) + GPRS (GMSK) – Coding Scheme: CS1

Channel Number	Frequency (MHZ)	Avg Burst Power (dBm)						Frame Power (dBm)					
		Class 5		Class 9		Class 11		Class 5		Class 9		Class 11	
		GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 2 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 1 Uplink	GSM 1 Uplink	GPRS 2 Uplink
512	1850.2	23.3	23.2	23.3	23.3	22.1	22.0	17.3	17.2	17.3	17.3	17.8	17.7
661	1880.0	23.3	23.2	23.3	23.2	22.1	22.1	17.3	17.2	17.3	17.2	17.8	17.8
810	1909.8	23.4	23.4	23.4	23.2	22.2	22.1	17.4	17.4	17.4	17.2	17.9	17.8

DTM - Voice Mode GSM (GMSK) + EDGE (GMSK) – Coding Scheme: MCS4

512	1850.2	23.3	23.2	23.3	23.3	22.1	22.0	17.3	17.2	17.3	17.3	17.8	17.7
661	1880.0	23.3	23.2	23.3	23.2	22.1	22.1	17.3	17.2	17.3	17.2	17.8	17.8
810	1909.8	23.4	23.4	23.4	23.2	22.2	22.1	17.4	17.4	17.4	17.2	17.9	17.8

DTM - Voice Mode GSM (GMSK) + EDGE (8PSK) – Coding Scheme: MCS9

512	1850.2	23.4	22.7	23.2	22.4	22.0	21.1	17.4	16.7	17.2	16.4	17.7	16.8
661	1880.0	23.4	22.7	23.2	22.5	22.1	21.1	17.4	16.7	17.2	16.5	17.8	16.8
810	1909.8	23.5	22.8	23.3	22.5	22.1	21.2	17.5	16.8	17.3	16.5	17.8	16.9

PCS1900 (Continued):**Note:****Scale factor for uplink time slot:**

1. 1 Uplink: time slot ratio = 8:1 => $10 \cdot \log(8/1) = 9.03 \text{ dB}$
2. 2 Uplink: time slot ratio = 8:2 => $10 \cdot \log(8/2) = 6.02 \text{ dB}$
3. 3 Uplink: time slot ratio = 8:3 => $10 \cdot \log(8/3) = 4.26 \text{ dB}$
4. 4 Uplink: time slot ratio = 8:4 => $10 \cdot \log(8/4) = 3.01 \text{ dB}$

Conclusions:

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

- For Head SAR Testing, GSM and DTM should be evaluated; therefore the EUT was set in **DTM Multi-slot class 11, Power Back-Off Disabled Mode** due its highest Frame Average Power (dBm)
- For Hotspot Mode SAR Testing, GSM and DTM should be evaluated, therefore the EUT was set in GPRS 4Tx, **Power Back-Off Enabled Mode** due its highest Frame Average Power (dBm)
- For Body-Worn SAR Testing, GPRS and DTM should be evaluated; therefore the EUT was set in **DTM Multi-slot class 11, Power Back-Off Disabled Mode** slots due its highest Frame Average Power (dBm)

7.5. RF Output Average Power Measurement: WCDMA**7.5.1. RMC / HSDPA / HSUPA
Power Back-off NOT Supported**

Modes		HSDPA				HSUPA					WCDMA
Sets		1	2	3	4	1	2	3	4	5	Voice / RMC 12.2kbps
Band	Channel	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]
Band 5 (850 MHz)	UL: 4132 DL: 4357	24.4	24.4	24.0	24.0	23.3	22.4	23.0	22.4	24.1	24.4
	UL: 4183 DL: 4408	24.4	24.4	24.0	24.0	23.9	22.6	23.6	22.5	24.1	24.4
	UL: 4233 DL: 4458	24.4	24.4	23.9	23.9	23.9	22.0	23.6	22.1	24.0	24.4

Power Back-off Supported & Disabled

1900 (Band 2)	UL:9262 DL:9662	23.2	23.2	23.2	23.2	22.8	21.6	22.5	21.5	23.3	23.7
	UL:9400 DL:9800	23.2	23.2	23.3	23.3	23.0	21.7	22.7	21.5	23.2	23.7
	UL:9538 DL:9938	23.1	23.1	23.2	23.2	23.1	21.9	22.8	21.8	23.3	23.7
1700 (Band 4)	UL: 1312 DL: 1537	23.0	23.0	23.0	23.1	23.0	21.7	22.7	21.6	23.3	23.6
	UL: 1412 DL: 1637	23.1	23.1	23.0	23.0	23.1	21.8	22.8	21.7	23.2	23.6
	UL: 1513 DL: 1738	23.1	23.1	23.1	23.1	23.0	21.7	22.7	21.7	23.2	23.6
β_c		2	12	15	15	11	6	15	2	15	
β_d		15	15	8	4	15	15	9	15	15	
$\Delta ACK, \Delta NACK, \Delta CQI$		8	8	8	8	8	8	8	8	8	
AGV		-	-	-	-	20	12	15	17	21	

**7.5.2. RMC / HSDPA / HSUPA
Power Back-off Supported & Enabled**

Modes		HSDPA				HSUPA					WCDMA
Sets		1	2	3	4	1	2	3	4	5	Voice / RMC 12.2kbps
Band	Channel	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]
1900 (Band 2)	UL:9262 DL:9662	17.7	17.7	17.8	17.9	17.5	16.4	17.3	16.3	17.7	18.3
	UL:9400 DL:9800	17.9	17.9	17.9	17.8	17.9	16.6	17.7	16.5	17.7	18.3
	UL:9538 DL:9938	17.7	17.7	17.7	17.7	17.3	16.3	17.1	16.2	17.6	18.3
1700 (Band 4)	UL: 1312 DL: 1537	21.3	21.3	21.4	21.4	21.3	20.7	21.1	20.8	21.3	21.8
	UL: 1412 DL: 1637	21.2	21.2	21.3	21.3	21.2	20.7	21.0	20.7	21.3	21.8
	UL: 1513 DL: 1738	21.4	21.4	21.4	21.4	21.3	20.8	21.1	20.7	21.3	21.8
β_c		2	12	15	15	11	6	15	2	15	
β_d		15	15	8	4	15	15	9	15	15	
$\Delta ACK, \Delta NACK, \Delta CQI$		8	8	8	8	8	8	8	8	8	
AGV		-	-	-	-	20	12	15	17	21	

7.5.3. DC-HSDPA (Cat 24)**Power Back-off Not Supported**

Modes		DC-HSDPA (Cat 24)				WCDMA
Sets		1	2	3	4	Voice / RMC 12.2kbps
Band	Channel	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]
Band 5 (850 MHz)	UL: 4132 DL: 4357	21.3	21.6	21.5	21.7	24.4
	UL: 4183 DL: 4408	21.4	21.6	21.5	21.6	24.4
	UL: 4233 DL: 4458	21.4	21.6	21.6	21.7	24.4
Power Back-off Supported & Disabled						
1900 (Band 2)	UL:9262 DL:9662	20.8	21.2	21.1	20.8	23.7
	UL:9400 DL:9800	21.0	21.1	21.1	21.1	23.7
	UL:9538 DL:9938	20.9	20.0	21.0	20.9	23.7
1700 (Band 4)	UL: 1312 DL: 1537	21.1	21.1	21.0	21.0	23.6
	UL: 1412 DL: 1637	20.9	20.8	21.0	21.0	23.6
	UL: 1513 DL: 1738	21.0	21.0	21.0	21.0	23.6
β_c		2	12	15	15	
β_d		15	15	8	4	
$\Delta ACK, \Delta NACK, \Delta CQI$		8	8	8	8	
AGV		-	-	-	-	

7.5.4. DC-HSDPA (Cat 24)**Power Back-off Supported & Enabled**

Modes		DC-HSDPA (Cat 24)				WCDMA
Sets		1	2	3	4	Voice / RMC 12.2kbps
Band	Channel	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]
1900 (Band 2)	UL:9262 DL:9662	17.2	17.3	17.2	17.2	18.3
	UL:9400 DL:9800	17.2	17.2	17.2	17.2	18.3
	UL:9538 DL:9938	17.3	17.1	17.2	17.2	18.3
1700 (Band 4)	UL: 1312 DL: 1537	19.9	19.7	19.7	19.6	21.8
	UL: 1412 DL: 1637	19.9	19.7	19.8	19.6	21.8
	UL: 1513 DL: 1738	20.0	19.9	19.9	19.7	21.8
β_c		2	12	15	15	
β_d		15	15	8	4	
$\Delta ACK, \Delta NACK, \Delta CQI$		8	8	8	8	
AGV		-	-	-	-	

The module power levels were measured in both HSPA and 3G RMC 12.2kbps modes and compared to ensure the correct mode of operation had been established.

The following tables taken from FCC 3G SAR procedures (KDB 941225 D01 SAR test for 3G devices v02) below were applied using an wireless communications test set which supports 3G / HSDPA release 5 / HSUPA release 6.

Sub-test Setup for Release 5 HSDPA

Sub-test	β_c	β_d	B_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	SM (dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $B_{hs}/\beta_c = 24/15$

Note 3: 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 $\beta_d = 15/15$

Sub-test Setup for Release 6 HSUPA

Sub-test	β_c	β_d	B_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	B_{oc}	B_{od}	B_{od} (SF)	B_{od} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾) Index	E- TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	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	31/15	B_{a11} : 47/15 B_{a12} : 47/15	4	1	2.0	1.0	15	92
4	2/15	15/15	64	2/15	2/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	24/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $B_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH AND E-DPCCH for the Power Back-off 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: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6: B_{od} can not be set directly; it is set by Absolute Grant Value.

7.6. RF Output Average Power Measurement: LTE**7.6.1. LTE Band 2 (1900 MHz)****Power Back-off Supported & Disabled**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1860.0 MHz (Low)	Frequency 1880.0 MHz (Middle)	Frequency 1900.0 MHz (High)
20 MHz	QPSK	1	Low	0	(0)	23.0	23.5	23.5	23.5
		1	Mid	49	(0)	23.0	23.5	23.6	23.5
		1	High	99	(0)	23.0	23.6	23.5	23.6
		50	low	0	(1)	22.0	22.6	22.6	22.6
		50	Mid	25	(1)	22.0	22.6	22.6	22.6
		50	High	50	(1)	22.0	22.6	22.6	22.6
		100	-	0	(1)	22.0	22.6	22.5	22.6
	16QAM	1	Low	0	(1)	22.0	22.4	22.5	22.9
		1	Mid	49	(1)	22.0	22.4	22.4	22.9
		1	High	99	(1)	22.0	22.5	22.5	22.9
		50	low	0	(2)	21.0	21.6	21.5	21.5
		50	Mid	25	(2)	21.0	21.5	21.4	21.5
		50	High	50	(2)	21.0	21.5	21.5	21.5
		100	-	0	(2)	21.0	21.5	21.5	21.6
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1857.5 MHz (Low)	Frequency 1880.0 MHz (Middle)	Frequency 1902.5 MHz (High)
15 MHz	QPSK	1	Low	0	(0)	23.0	23.5	23.4	23.5
		1	Mid	37	(0)	23.0	23.7	23.4	23.4
		1	High	74	(0)	23.0	23.6	23.5	23.5
		36	low	0	(1)	22.0	22.6	22.5	22.7
		36	Mid	19	(1)	22.0	22.7	22.5	22.5
		36	High	39	(1)	22.0	22.5	22.5	22.6
		75	-	0	(1)	22.0	22.8	22.6	22.7
	16QAM	1	Low	0	(1)	22.0	22.6	22.5	22.7
		1	Mid	37	(1)	22.0	22.7	22.5	22.5
		1	High	74	(1)	22.0	22.7	22.5	22.7
		36	low	0	(2)	21.0	21.6	21.5	21.6
		36	Mid	19	(2)	21.0	21.6	21.5	21.5
		36	High	39	(2)	21.0	21.5	21.5	21.6
		75	-	0	(2)	21.0	21.5	21.6	21.6

LTE Band 2 (1900 MHz)**Power Back-off Supported & Disabled (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1855.0 MHz (Low)	Frequency 1880.0 MHz (Middle)	Frequency 1905.0 MHz (High)
10 MHz	QPSK	1	Low	0	(0)	23.0	23.5	23.5	23.5
		1	Mid	24	(0)	23.0	23.4	23.4	23.5
		1	High	49	(0)	23.0	23.6	23.5	23.5
		25	Low	0	(1)	22.0	22.5	22.6	22.5
		25	Mid	12	(1)	22.0	22.5	22.5	22.5
		25	High	25	(1)	22.0	22.6	22.6	22.6
		50	-	0	(1)	22.0	22.6	22.5	22.6
	16QAM	1	Low	0	(1)	22.0	22.4	22.6	22.6
		1	mid	24	(1)	22.0	22.6	22.4	22.6
		1	High	49	(1)	22.0	22.7	22.6	22.6
		25	Low	0	(2)	21.0	21.6	21.5	21.6
		25	Mid	12	(2)	21.0	21.6	21.5	21.5
		25	High	25	(2)	21.0	21.6	21.5	21.6
		50	-	0	(2)	21.0	21.5	21.5	21.5
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1852.5 MHz (Low)	Frequency 1880.0 MHz (Middle)	Frequency 1907.5 MHz (High)
5 MHz	QPSK	1	Low	0	(0)	23.0	23.5	23.3	23.5
		1	Mid	12	(0)	23.0	23.5	23.3	23.5
		1	High	24	(0)	23.0	23.7	23.4	23.5
		12	low	0	(1)	22.0	22.6	22.4	22.5
		12	Mid	6	(1)	22.0	22.5	22.5	22.5
		12	High	13	(1)	22.0	22.6	22.5	22.6
		25	-	0	(1)	22.0	22.5	22.5	22.6
	16QAM	1	Low	0	(1)	22.0	22.6	22.4	22.7
		1	Mid	12	(1)	22.0	22.6	22.3	22.7
		1	High	24	(1)	22.0	22.7	22.4	22.7
		12	low	0	(2)	21.0	21.5	21.4	21.5
		12	Mid	6	(2)	21.0	21.5	21.4	21.5
		12	High	13	(2)	21.0	21.6	21.4	21.5
		25	-	0	(2)	21.0	21.5	21.5	21.6

LTE Band 2 (1900 MHz)**Power Back-off Supported & Disabled (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1851.5 MHz (Low)	Frequency 1880 MHz (Middle)	Frequency 1908.5 MHz (High)
3 MHz	QPSK	1	Low	0	(0)	23.0	23.6	23.4	23.5
		1	Mid	7	(0)	23.0	23.6	23.4	23.5
		1	High	14	(0)	23.0	23.6	23.5	23.5
		8	Low	0	(1)	22.0	22.5	22.4	22.6
		8	Mid	4	(1)	22.0	22.5	22.4	22.6
		8	High	7	(1)	22.0	22.5	22.5	22.6
		15	-	0	(1)	22.0	22.6	22.5	22.6
	16QAM	1	Low	0	(1)	22.0	22.6	22.4	22.7
		1	Mid	7	(1)	22.0	22.6	22.3	22.6
		1	High	14	(1)	22.0	22.6	22.4	22.7
		8	Low	0	(2)	21.0	21.5	21.5	21.7
		8	Mid	4	(2)	21.0	21.4	21.4	21.6
		8	High	7	(2)	21.0	21.4	21.4	21.7
		15	-	0	(2)	21.0	21.5	21.5	21.6
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1850.7 MHz (Low)	Frequency 1880 MHz (Middle)	Frequency 1909.3 MHz (High)
1.4 MHz	QPSK	1	Low	0	(0)	23.0	23.6	23.5	23.6
		1	Mid	3	(0)	23.0	23.6	23.4	23.5
		1	High	5	(0)	23.0	23.6	23.5	23.6
		3	Low	0	(0)	23.0	23.5	23.4	23.6
		3	Mid	1	(0)	23.0	23.5	23.5	23.6
		3	high	3	(0)	23.0	23.6	23.5	23.5
		6	-	0	(1)	22.0	22.5	22.6	22.7
	16QAM	1	Low	0	(1)	22.0	22.5	22.5	22.7
		1	Mid	3	(1)	22.0	22.4	22.5	22.7
		1	High	5	(1)	22.0	22.4	22.5	22.7
		3	Low	0	(1)	22.0	22.6	22.4	22.4
		3	Mid	1	(1)	22.0	22.6	22.3	22.4
		3	high	3	(1)	22.0	22.4	22.3	22.7
		6	-	0	(2)	21.0	21.6	21.5	21.7

7.6.2. LTE Band 2 (1900 MHz)**Power Back-off Supported & Enabled**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1860.0 MHz (Low)	Frequency 1880.0 MHz (Middle)	Frequency 1900.0 MHz (High)
20 MHz	QPSK	1	Low	0	(0)	19.0	19.4	19.4	19.4
		1	Mid	49	(0)	19.0	19.4	19.3	19.4
		1	High	99	(0)	19.0	19.5	19.4	19.5
		50	low	0	(0)	19.0	19.5	19.4	19.5
		50	Mid	25	(0)	19.0	19.5	19.4	19.5
		50	High	50	(0)	19.0	19.5	19.4	19.5
		100	-	0	(0)	19.0	19.5	19.4	19.5
	16QAM	1	Low	0	(0)	19.0	19.4	19.9	19.4
		1	Mid	49	(0)	19.0	19.4	19.8	19.3
		1	High	99	(0)	19.0	19.4	19.8	19.5
		50	low	0	(0)	19.0	19.5	19.4	19.5
		50	Mid	25	(0)	19.0	19.5	19.4	19.5
		50	High	50	(0)	19.0	19.5	19.4	19.5
		100	-	0	(0)	19.0	19.5	19.5	19.6
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1857.5 MHz (Low)	Frequency 1880.0 MHz (Middle)	Frequency 1902.5 MHz (High)
15 MHz	QPSK	1	Low	0	(0)	19.0	19.5	19.4	19.4
		1	Mid	37	(0)	19.0	19.6	19.4	19.3
		1	High	74	(0)	19.0	19.6	19.4	19.5
		36	low	0	(0)	19.0	19.5	19.5	19.6
		36	Mid	19	(0)	19.0	19.6	19.4	19.5
		36	High	39	(0)	19.0	19.5	19.5	19.5
		75	-	0	(0)	19.0	19.6	19.4	19.6
	16QAM	1	Low	0	(0)	19.0	19.5	19.5	19.6
		1	Mid	37	(0)	19.0	19.6	19.5	19.5
		1	High	74	(0)	19.0	19.6	19.5	19.7
		36	low	0	(0)	19.0	19.6	19.5	19.6
		36	Mid	19	(0)	19.0	19.6	19.5	19.5
		36	High	39	(0)	19.0	19.5	19.5	19.6
		75	-	0	(0)	19.0	19.5	19.4	19.6

LTE Band 2 (1900 MHz)**Power Back-off Supported & Enabled (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1855.0 MHz (Low)	Frequency 1880.0 MHz (Middle)	Frequency 1905.0 MHz (High)
10 MHz	QPSK	1	Low	0	(0)	19.0	19.4	19.5	19.5
		1	Mid	24	(0)	19.0	19.4	19.3	19.5
		1	High	49	(0)	19.0	19.6	19.4	19.5
		25	Low	0	(0)	19.0	19.5	19.5	19.5
		25	Mid	12	(0)	19.0	19.5	19.4	19.5
		25	High	25	(0)	19.0	19.5	19.4	19.5
		50	-	0	(0)	19.0	19.5	19.4	19.5
	16QAM	1	Low	0	(0)	19.0	19.4	19.5	19.6
		1	mid	24	(0)	19.0	19.5	19.3	19.5
		1	High	49	(0)	19.0	19.6	19.5	19.5
		25	Low	0	(0)	19.0	19.5	19.4	19.5
		25	Mid	12	(0)	19.0	19.6	19.5	19.5
		25	High	25	(0)	19.0	19.6	19.5	19.6
		50	-	0	(0)	19.0	19.5	19.4	19.5
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1852.5 MHz (Low)	Frequency 1880.0 MHz (Middle)	Frequency 1907.5 MHz (High)
5 MHz	QPSK	1	Low	0	(0)	19.0	19.5	19.3	19.4
		1	Mid	12	(0)	19.0	19.5	19.3	19.4
		1	High	24	(0)	19.0	19.6	19.3	19.5
		12	low	0	(0)	19.0	19.5	19.4	19.5
		12	Mid	6	(0)	19.0	19.5	19.4	19.5
		12	High	13	(0)	19.0	19.6	19.4	19.6
		25	-	0	(0)	19.0	19.5	19.4	19.5
	16QAM	1	Low	0	(0)	19.0	19.7	19.6	19.4
		1	Mid	12	(0)	19.0	19.7	19.5	19.4
		1	High	24	(0)	19.0	19.8	19.5	19.5
		12	low	0	(0)	19.0	19.5	19.5	19.5
		12	Mid	6	(0)	19.0	19.4	19.5	19.5
		12	High	13	(0)	19.0	19.5	19.5	19.5
		25	-	0	(0)	19.0	19.5	19.4	19.6

LTE Band 2 (1900 MHz)**Power Back-off Supported & Enabled (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1851.5 MHz (Low)	Frequency 1880 MHz (Middle)	Frequency 1908.5 MHz (High)
3 MHz	QPSK	1	Low	0	(0)	19.0	19.5	19.4	19.4
		1	Mid	7	(0)	19.0	19.5	19.3	19.4
		1	High	14	(0)	19.0	19.5	19.4	19.5
		8	Low	0	(0)	19.0	19.4	19.4	19.5
		8	Mid	4	(0)	19.0	19.5	19.4	19.6
		8	High	7	(0)	19.0	19.4	19.4	19.6
		15	-	0	(0)	19.0	19.5	19.5	19.6
	16QAM	1	Low	0	(0)	19.0	19.6	19.4	19.6
		1	Mid	7	(0)	19.0	19.5	19.3	19.6
		1	High	14	(0)	19.0	19.6	19.4	19.7
		8	Low	0	(0)	19.0	19.5	19.5	19.6
		8	Mid	4	(0)	19.0	19.4	19.5	19.6
		8	High	7	(0)	19.0	19.5	19.5	19.7
		15	-	0	(0)	19.0	19.5	19.5	19.6
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1850.7 MHz (Low)	Frequency 1880 MHz (Middle)	Frequency 1909.3 MHz (High)
1.4 MHz	QPSK	1	Low	0	(0)	19.0	19.6	19.5	19.6
		1	Mid	3	(0)	19.0	19.4	19.4	19.6
		1	High	5	(0)	19.0	19.5	19.4	19.7
		3	Low	0	(0)	19.0	19.5	19.5	19.6
		3	Mid	1	(0)	19.0	19.5	19.4	19.5
		3	high	3	(0)	19.0	19.5	19.4	19.6
		6	-	0	(0)	19.0	19.5	19.5	19.6
	16QAM	1	Low	0	(0)	19.0	19.6	19.4	19.6
		1	Mid	3	(0)	19.0	19.4	19.4	19.7
		1	High	5	(0)	19.0	19.4	19.4	19.7
		3	Low	0	(0)	19.0	19.5	19.2	19.6
		3	Mid	1	(0)	19.0	19.2	19.5	19.4
		3	high	3	(0)	19.0	19.5	19.3	19.3
		6	-	0	(0)	19.0	19.5	19.5	19.5

7.6.3. LTE Band 4 (1700 MHz)**Power Back-off Supported & Disabled**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1720.0 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1745.0 MHz (High)
20 MHz	QPSK	1	Low	0	(0)	23.0	23.7	23.7	23.6
		1	Mid	49	(0)	23.0	23.7	23.7	23.6
		1	High	99	(0)	23.0	23.7	23.7	23.6
		50	low	0	(1)	22.0	22.7	22.8	22.8
		50	Mid	25	(1)	22.0	22.8	22.8	22.7
		50	High	50	(1)	22.0	22.8	22.8	22.7
		100	-	0	(1)	22.0	22.8	22.8	22.7
	16QAM	1	Low	0	(1)	22.0	22.6	22.6	22.6
		1	Mid	49	(1)	22.0	22.6	22.7	22.6
		1	High	99	(1)	22.0	22.7	22.7	22.6
		50	low	0	(2)	21.0	21.7	21.7	21.7
		50	Mid	25	(2)	21.0	21.7	21.7	21.6
		50	High	50	(2)	21.0	21.7	21.7	21.7
		100	-	0	(2)	21.0	21.8	21.8	21.7
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1717.5 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1747.5 MHz (High)
15 MHz	QPSK	1	Low	0	(0)	23.0	23.7	23.7	23.6
		1	Mid	37	(0)	23.0	23.7	23.7	23.6
		1	High	74	(0)	23.0	23.8	23.6	23.6
		36	low	0	(1)	22.0	22.7	22.8	22.7
		36	Mid	19	(1)	22.0	22.8	22.8	22.7
		36	High	39	(1)	22.0	22.7	22.7	22.7
		75	-	0	(1)	22.0	22.9	22.9	22.8
	16QAM	1	Low	0	(1)	22.0	22.8	22.8	22.8
		1	Mid	37	(1)	22.0	22.8	22.8	22.8
		1	High	74	(1)	22.0	22.8	22.8	22.7
		36	low	0	(2)	21.0	21.7	21.7	21.7
		36	Mid	19	(2)	21.0	21.7	21.8	21.6
		36	High	39	(2)	21.0	21.7	21.7	21.7
		75	-	0	(2)	21.0	21.7	21.8	21.8

LTE Band 4 (1700 MHz)**Power Back-off Supported & Disabled (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1715.0 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1750 MHz (High)
10 MHz	QPSK	1	Low	0	(0)	23.0	23.7	23.7	23.5
		1	Mid	24	(0)	23.0	23.7	23.7	23.5
		1	High	49	(0)	23.0	23.7	23.6	23.5
		25	Low	0	(1)	22.0	22.7	22.8	22.7
		25	Mid	12	(1)	22.0	22.7	22.8	22.7
		25	High	25	(1)	22.0	22.7	22.8	22.7
		50	-	0	(1)	22.0	22.7	22.8	22.8
	16QAM	1	Low	0	(1)	22.0	22.8	22.6	22.7
		1	mid	24	(1)	22.0	22.8	22.6	22.7
		1	High	49	(1)	22.0	22.8	22.6	22.7
		25	Low	0	(2)	21.0	21.8	21.8	21.7
		25	Mid	12	(2)	21.0	21.7	21.8	21.7
		25	High	25	(2)	21.0	21.8	21.8	21.7
		50	-	0	(2)	21.0	21.7	21.7	21.7
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1712.5 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1752.5 MHz (High)
5 MHz	QPSK	1	Low	0	(0)	23.0	23.7	23.6	23.6
		1	Mid	12	(0)	23.0	23.7	23.6	23.6
		1	High	24	(0)	23.0	23.7	23.6	23.6
		12	low	0	(1)	22.0	22.8	22.8	22.7
		12	Mid	6	(1)	22.0	22.7	22.7	22.8
		12	High	13	(1)	22.0	22.7	22.8	22.7
		25	-	0	(1)	22.0	22.8	22.8	22.7
	16QAM	1	Low	0	(1)	22.0	22.9	22.9	22.6
		1	Mid	12	(1)	22.0	22.9	22.9	22.6
		1	High	24	(1)	22.0	22.9	22.9	22.6
		12	low	0	(2)	21.0	21.7	21.8	21.6
		12	Mid	6	(2)	21.0	21.7	21.7	21.7
		12	High	13	(2)	21.0	21.7	21.8	21.7
		25	-	0	(2)	21.0	21.7	21.7	21.8

LTE Band 4 (1700 MHz)**Power Back-off Supported & Disabled (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1711.5 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1753.5 MHz (High)
3 MHz	QPSK	1	Low	0	(0)	23.0	23.8	23.7	23.6
		1	Mid	7	(0)	23.0	23.7	23.7	23.5
		1	High	14	(0)	23.0	23.8	23.7	23.6
		8	Low	0	(1)	22.0	22.7	22.8	22.8
		8	Mid	4	(1)	22.0	22.7	22.8	22.8
		8	High	7	(1)	22.0	22.7	22.8	22.7
		15	-	0	(1)	22.0	22.8	22.8	22.8
	16QAM	1	Low	0	(1)	22.0	22.9	22.7	22.8
		1	Mid	7	(1)	22.0	22.8	22.7	22.7
		1	High	14	(1)	22.0	22.8	22.7	22.8
		8	Low	0	(2)	21.0	21.7	21.8	21.8
		8	Mid	4	(2)	21.0	21.7	21.8	21.8
		8	High	7	(2)	21.0	21.7	21.7	21.7
		15	-	0	(2)	21.0	21.7	21.8	21.8
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1710.7 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1754.3 MHz (High)
1.4 MHz	QPSK	1	Low	0	(0)	23.0	23.8	23.8	23.6
		1	Mid	3	(0)	23.0	23.8	23.7	23.6
		1	High	5	(0)	23.0	23.8	23.7	23.7
		3	Low	0	(0)	23.0	23.7	23.8	23.6
		3	Mid	1	(0)	23.0	23.7	23.7	23.6
		3	high	3	(0)	23.0	23.7	23.7	23.6
		6	-	0	(1)	22.0	22.7	22.8	22.7
	16QAM	1	Low	0	(1)	22.0	22.7	22.9	22.6
		1	Mid	3	(1)	22.0	22.8	22.6	22.7
		1	High	5	(1)	22.0	22.9	22.7	22.7
		3	Low	0	(1)	22.0	22.5	22.8	22.5
		3	Mid	1	(1)	22.0	22.7	22.7	22.6
		3	high	3	(1)	22.0	22.6	22.6	22.7
		6	-	0	(2)	21.0	21.7	21.6	21.7

7.6.4. LTE Band 4 (1700 MHz)**Power Back-off Supported & Enabled**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1720.0 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1745.0 MHz (High)
20 MHz	QPSK	1	Low	0	(0)	21.0	21.6	21.6	21.5
		1	Mid	49	(0)	21.0	21.6	21.6	21.5
		1	High	99	(0)	21.0	21.6	21.6	21.5
		50	low	0	(0)	21.0	21.7	21.6	21.6
		50	Mid	25	(0)	21.0	21.6	21.7	21.6
		50	High	50	(0)	21.0	21.7	21.6	21.6
		100	-	0	(0)	21.0	21.7	21.7	21.6
	16QAM	1	Low	0	(0)	21.0	21.5	21.6	22.0
		1	Mid	49	(0)	21.0	21.6	21.6	22.0
		1	High	99	(0)	21.0	21.6	21.5	22.0
		50	low	0	(0)	21.0	21.7	21.7	21.6
		50	Mid	25	(0)	21.0	21.7	21.7	21.6
		50	High	50	(0)	21.0	21.7	21.7	21.6
		100	-	0	(0)	21.0	21.7	21.7	21.7
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1717.5.0 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1747.5 MHz (High)
15 MHz	QPSK	1	Low	0	(0)	21.0	21.7	21.6	21.5
		1	Mid	37	(0)	21.0	21.7	21.6	21.5
		1	High	74	(0)	21.0	21.7	21.6	21.5
		36	low	0	(0)	21.0	21.7	21.7	21.6
		36	Mid	19	(0)	21.0	21.7	21.7	21.6
		36	High	39	(0)	21.0	21.7	21.6	21.7
		75	-	0	(0)	21.0	21.7	21.8	21.7
	16QAM	1	Low	0	(0)	21.0	21.8	21.8	21.7
		1	Mid	37	(0)	21.0	21.8	21.8	21.6
		1	High	74	(0)	21.0	21.8	21.7	21.6
		36	low	0	(0)	21.0	21.7	21.7	21.6
		36	Mid	19	(0)	21.0	21.7	21.7	21.6
		36	High	39	(0)	21.0	21.7	21.6	21.7
		75	-	0	(0)	21.0	21.6	21.8	21.7

LTE Band 4 (1700 MHz)**Power Back-off Supported & Enabled (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1715.0 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1750 MHz (High)
10 MHz	QPSK	1	Low	0	(0)	21.0	21.7	21.6	21.4
		1	Mid	24	(0)	21.0	21.7	21.6	21.5
		1	High	49	(0)	21.0	21.7	21.5	21.4
		25	Low	0	(0)	21.0	21.7	21.7	21.6
		25	Mid	12	(0)	21.0	21.6	21.7	21.6
		25	High	25	(0)	21.0	21.7	21.7	21.7
		50	-	0	(0)	21.0	21.7	21.7	21.7
	16QAM	1	Low	0	(0)	21.0	21.6	21.8	21.6
		1	mid	24	(0)	21.0	21.5	21.7	21.6
		1	High	49	(0)	21.0	21.6	21.7	21.6
		25	Low	0	(0)	21.0	21.7	21.7	21.7
		25	Mid	12	(0)	21.0	21.7	21.7	21.7
		25	High	25	(0)	21.0	21.7	21.7	21.7
		50	-	0	(0)	21.0	21.7	21.7	21.6
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1712.5 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1752.5 MHz (High)
5 MHz	QPSK	1	Low	0	(0)	21.0	21.7	21.5	21.6
		1	Mid	12	(0)	21.0	21.6	21.6	21.6
		1	High	24	(0)	21.0	21.7	21.6	21.6
		12	low	0	(0)	21.0	21.7	21.7	21.7
		12	Mid	6	(0)	21.0	21.6	21.7	21.7
		12	High	13	(0)	21.0	21.7	21.7	21.7
		25	-	0	(0)	21.0	21.7	21.7	21.7
	16QAM	1	Low	0	(0)	21.0	21.9	21.9	21.6
		1	Mid	12	(0)	21.0	21.9	21.8	21.6
		1	High	24	(0)	21.0	21.9	21.8	21.5
		12	low	0	(0)	21.0	21.6	21.7	21.6
		12	Mid	6	(0)	21.0	21.6	21.8	21.7
		12	High	13	(0)	21.0	21.6	21.7	21.7
		25	-	0	(0)	21.0	21.7	21.7	21.8

LTE Band 4 (1700 MHz)**Power Back-off Supported & Enabled (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1711.5 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1753.5 MHz (High)
3 MHz	QPSK	1	Low	0	(0)	21.0	21.7	21.7	21.6
		1	Mid	7	(0)	21.0	21.6	21.6	21.6
		1	High	14	(0)	21.0	21.6	21.8	21.6
		8	Low	0	(0)	21.0	21.7	21.7	21.7
		8	Mid	4	(0)	21.0	21.6	21.7	21.7
		8	High	7	(0)	21.0	21.6	21.6	21.6
		15	-	0	(0)	21.0	21.6	21.7	21.7
	16QAM	1	Low	0	(0)	21.0	21.8	21.8	21.6
		1	Mid	7	(0)	21.0	21.7	21.6	21.6
		1	High	14	(0)	21.0	21.7	21.6	21.7
		8	Low	0	(0)	21.0	21.6	21.7	21.7
		8	Mid	4	(0)	21.0	21.6	21.7	21.6
		8	High	7	(0)	21.0	21.7	21.7	21.6
		15	-	0	(0)	21.0	21.7	21.7	21.7
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 1710.7 MHz (Low)	Frequency 1732.5 MHz (Middle)	Frequency 1754.3 MHz (High)
1.4 MHz	QPSK	1	Low	0	(0)	21.0	21.7	21.7	21.7
		1	Mid	3	(0)	21.0	21.6	21.7	21.6
		1	High	5	(0)	21.0	21.7	21.7	21.6
		3	Low	0	(0)	21.0	21.6	21.7	21.6
		3	Mid	1	(0)	21.0	21.6	21.7	21.6
		3	high	3	(0)	21.0	21.6	21.7	21.6
		6	-	0	(0)	21.0	21.6	21.7	21.6
	16QAM	1	Low	0	(0)	21.0	21.6	21.8	21.7
		1	Mid	3	(0)	21.0	21.7	21.8	21.6
		1	High	5	(0)	21.0	21.6	21.8	21.6
		3	Low	0	(0)	21.0	21.6	21.7	21.6
		3	Mid	1	(0)	21.0	21.6	21.7	21.6
		3	high	3	(0)	21.0	21.6	21.7	21.6
		6	-	0	(0)	21.0	21.6	21.7	21.6

7.6.5.LTE Band 5 (850 MHz)**Power Back-off NOT Supported**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 829.0 MHz (Low)	Frequency 836.5 MHz (Middle)	Frequency 844.0 MHz (High)
10 MHz	QPSK	1	Low	0	(0)	23.0	23.0	23.3	23.1
		1	Mid	24	(0)	23.0	23.1	23.2	23.1
		1	High	49	(0)	23.0	23.1	23.2	23.1
		25	Low	0	(1)	22.0	22.2	22.3	22.3
		25	Mid	12	(1)	22.0	22.3	22.3	22.2
		25	High	25	(1)	22.0	22.3	22.3	22.3
		50	-	0	(1)	22.0	22.3	22.3	22.3
	16QAM	1	Low	0	(1)	22.0	22.3	22.3	22.1
		1	mid	24	(1)	22.0	22.3	22.3	22.1
		1	High	49	(1)	22.0	22.3	22.3	22.1
		25	Low	0	(2)	21.0	21.2	21.3	21.3
		25	Mid	12	(2)	21.0	21.3	21.3	21.3
		25	High	25	(2)	21.0	21.3	21.3	21.3
		50	-	0	(2)	21.0	21.3	21.2	21.2
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 826.5 MHz (Low)	Frequency 836.5 MHz (Middle)	Frequency 846.5 MHz (High)
5 MHz	QPSK	1	Low	0	(0)	23.0	23.2	23.1	23.1
		1	Mid	12	(0)	23.0	23.1	23.1	23.1
		1	High	24	(0)	23.0	23.3	23.1	23.1
		12	low	0	(1)	22.0	22.2	22.2	22.3
		12	Mid	6	(1)	22.0	22.2	22.3	22.2
		12	High	13	(1)	22.0	22.3	22.2	22.2
		25	-	0	(1)	22.0	22.2	22.3	22.2
	16QAM	1	Low	0	(1)	22.0	22.4	22.4	22.2
		1	Mid	12	(1)	22.0	22.4	22.4	22.1
		1	High	24	(1)	22.0	22.5	22.4	22.2
		12	low	0	(2)	21.0	21.2	21.3	21.2
		12	Mid	6	(2)	21.0	21.2	21.3	21.2
		12	High	13	(2)	21.0	21.3	21.3	21.2
		25	-	0	(2)	21.0	21.3	21.3	21.3

LTE Band 5 (850 MHz)**Power Back-off NOT Supported (Continued):**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 825.5 MHz (Low)	Frequency 836.5 MHz (Middle)	Frequency 847.5 MHz (High)
3 MHz	QPSK	1	Low	0	(0)	23.0	23.3	23.2	23.1
		1	Mid	7	(0)	23.0	23.2	23.2	23.0
		1	High	14	(0)	23.0	23.2	23.2	23.1
		8	Low	0	(1)	22.0	22.2	22.3	22.3
		8	Mid	4	(1)	22.0	22.2	22.3	22.2
		8	High	7	(1)	22.0	22.2	22.3	22.2
		15	-	0	(1)	22.0	22.3	22.3	22.3
	16QAM	1	Low	0	(1)	22.0	22.3	22.2	22.5
		1	Mid	7	(1)	22.0	22.3	22.1	22.3
		1	High	14	(1)	22.0	22.3	22.2	22.4
		8	Low	0	(2)	21.0	21.2	21.3	21.3
		8	Mid	4	(2)	21.0	21.2	21.3	21.3
		8	High	7	(2)	21.0	21.2	21.3	21.3
		15	-	0	(2)	21.0	21.2	21.3	21.3
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 824.7 MHz (Low)	Frequency 836.5 MHz (Middle)	Frequency 848.3 MHz (High)
1.4 MHz	QPSK	1	Low	0	(0)	23.0	23.3	23.3	23.2
		1	Mid	3	(0)	23.0	23.2	23.2	23.2
		1	High	5	(0)	23.0	23.3	23.3	23.3
		3	Low	0	(0)	23.0	23.1	23.3	23.2
		3	Mid	1	(0)	23.0	23.1	23.2	23.1
		3	high	3	(0)	23.0	23.2	23.2	23.2
		6	-	0	(1)	22.0	22.3	22.3	22.3
	16QAM	1	Low	0	(1)	22.0	22.3	22.2	22.3
		1	Mid	3	(1)	22.0	22.3	22.1	22.3
		1	High	5	(1)	22.0	22.4	22.2	22.3
		3	Low	0	(1)	23.0	22.0	22.4	22.1
		3	Mid	1	(1)	23.0	21.9	22.3	22.0
		3	high	3	(1)	23.0	22.3	22.2	22.0
		6	-	0	(2)	21.0	21.3	21.4	21.3

7.6.6.LTE Band 7 (2600 MHz)**Power Back-off NOT Supported**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 2510.0 MHz (Low)	Frequency 2535.0 MHz (Middle)	Frequency 2560.0 MHz (High)
20 MHz	QPSK	1	Low	0	(0)	23.0	23.7	23.7	23.7
		1	Mid	49	(0)	23.0	23.7	23.7	23.7
		1	High	99	(0)	23.0	23.7	23.6	23.6
		50	low	0	(1)	22.0	22.6	22.6	22.7
		50	Mid	25	(1)	22.0	22.7	22.7	22.7
		50	High	50	(1)	22.0	22.7	22.7	22.7
		100	-	0	(1)	22.0	22.7	22.6	22.7
	16QAM	1	Low	0	(1)	22.0	22.7	22.7	23.1
		1	Mid	49	(1)	22.0	22.6	22.5	23.0
		1	High	99	(1)	22.0	22.6	22.6	22.9
		50	low	0	(2)	21.0	21.7	21.6	21.6
		50	Mid	25	(2)	21.0	21.8	21.6	21.6
		50	High	50	(2)	21.0	21.8	21.6	21.6
		100	-	0	(2)	21.0	21.6	21.6	21.7
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 2507.5 MHz (Low)	Frequency 2535.0 MHz (Middle)	Frequency 2562.5 MHz (High)
15 MHz	QPSK	1	Low	0	(0)	23.0	23.8	23.6	23.6
		1	Mid	37	(0)	23.0	23.8	23.5	23.5
		1	High	74	(0)	23.0	23.7	23.6	23.5
		36	low	0	(1)	22.0	22.7	22.7	22.7
		36	Mid	19	(1)	22.0	22.7	22.6	22.7
		36	High	39	(1)	22.0	22.7	22.7	22.6
		75	-	0	(1)	22.0	22.7	22.7	22.8
	16QAM	1	Low	0	(1)	22.0	22.9	22.7	22.7
		1	Mid	37	(1)	22.0	22.8	22.7	22.8
		1	High	74	(1)	22.0	22.8	22.7	22.7
		36	low	0	(2)	21.0	21.8	21.7	21.7
		36	Mid	19	(2)	21.0	21.8	21.6	21.7
		36	High	39	(2)	21.0	21.8	21.7	21.7
		75	-	0	(2)	21.0	21.7	21.6	21.7

LTE Band 7 (2600 MHz)**Power Back-off NOT Supported (Continued):**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 2505.0 MHz (Low)	Frequency 2535.0 MHz (Middle)	Frequency 2565.0 MHz (High)
10 MHz	QPSK	1	Low	0	(0)	23.0	23.8	23.7	23.5
		1	Mid	24	(0)	23.0	23.7	23.5	23.5
		1	High	49	(0)	23.0	23.8	23.6	23.6
		25	Low	0	(1)	22.0	22.7	22.7	22.6
		25	Mid	12	(1)	22.0	22.7	22.6	22.5
		25	High	25	(1)	22.0	22.7	22.7	22.6
		50	-	0	(1)	22.0	22.7	22.6	22.6
	16QAM	1	Low	0	(1)	22.0	22.8	22.6	22.7
		1	mid	24	(1)	22.0	22.7	22.5	22.6
		1	High	49	(1)	22.0	22.8	22.6	22.7
		25	Low	0	(2)	21.0	21.8	21.7	21.7
		25	Mid	12	(2)	21.0	21.9	21.7	21.6
		25	High	25	(2)	21.0	21.8	21.6	21.7
		50	-	0	(2)	21.0	21.7	21.6	21.6
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 2510.0 MHz (Low)	Frequency 2535.0 MHz (Middle)	Frequency 2567.5 MHz (High)
5 MHz	QPSK	1	Low	0	(0)	23.0	23.7	23.5	23.6
		1	Mid	12	(0)	23.0	23.6	23.4	23.5
		1	High	24	(0)	23.0	23.6	23.4	23.6
		12	low	0	(1)	22.0	22.7	22.7	22.6
		12	Mid	6	(1)	22.0	22.6	22.6	22.6
		12	High	13	(1)	22.0	22.6	22.6	22.6
		25	-	0	(1)	22.0	22.6	22.6	22.6
	16QAM	1	Low	0	(1)	22.0	22.8	22.7	22.5
		1	Mid	12	(1)	22.0	22.7	22.7	22.5
		1	High	24	(1)	22.0	22.7	22.7	22.6
		12	low	0	(2)	21.0	21.7	21.6	21.6
		12	Mid	6	(2)	21.0	21.7	21.6	21.6
		12	High	13	(2)	21.0	21.7	21.6	21.7
		25	-	0	(2)	21.0	21.7	21.6	21.8

LTE Band 17 (700 MHz)**Power Back-off NOT Supported (Continued)**

Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 709.0 MHz (Low)	Frequency 710.0 MHz (Middle)	Frequency 711.0 MHz (High)
10 MHz	QPSK	1	Low	0	(0)	23.0	23.2	23.3	23.2
		1	Mid	24	(0)	23.0	23.1	23.3	23.2
		1	High	49	(0)	23.0	23.2	23.3	23.2
		25	Low	0	(1)	22.0	22.3	22.3	22.3
		25	Mid	12	(1)	22.0	22.3	22.3	22.3
		25	High	25	(1)	22.0	22.3	22.3	22.3
		50	-	0	(1)	22.0	22.3	22.3	22.3
	16QAM	1	Low	0	(1)	22.0	22.3	22.4	22.2
		1	mid	24	(1)	22.0	22.3	22.4	22.2
		1	High	49	(1)	22.0	22.3	22.3	22.2
		25	Low	0	(2)	21.0	21.3	21.3	21.4
		25	Mid	12	(2)	21.0	21.3	21.4	21.4
		25	High	25	(2)	21.0	21.3	21.4	21.4
		50	-	0	(2)	21.0	21.3	21.2	21.3
Ch. BW	Modulations	RB Config	Start RB Offset		MPR	Actual Max Power (dBm)	Measured Avg Power (dBm).		
							Frequency 706.5 MHz (Low)	Frequency 710.0 MHz (Middle)	Frequency 713.5 MHz (High)
5 MHz	QPSK	1	Low	0	(0)	23.0	23.2	23.1	23.2
		1	Mid	12	(0)	23.0	23.2	23.1	23.1
		1	High	24	(0)	23.0	23.2	23.1	23.2
		12	low	0	(1)	22.0	22.3	22.3	22.3
		12	Mid	6	(1)	22.0	22.3	22.2	22.3
		12	High	13	(1)	22.0	22.3	22.3	22.3
		25	-	0	(1)	22.0	22.3	22.3	22.2
	16QAM	1	Low	0	(1)	22.0	22.2	22.1	22.1
		1	Mid	12	(1)	22.0	22.3	22.2	22.2
		1	High	24	(1)	22.0	22.2	22.1	22.1
		12	low	0	(2)	21.0	21.3	21.2	21.2
		12	Mid	6	(2)	21.0	21.2	21.2	21.3
		12	High	13	(2)	21.0	21.2	21.2	21.2
		25	-	0	(2)	21.0	21.3	21.1	21.2

7.7.RF Output Average Power Measurement: Wi-Fi**7.7.1.WiFi 802.11b/g/n (2.4 GHz)****Power Back-off NOT Supported**

		Avg Power (dBm)	
Channel Number	Frequency (MHZ)	(1Mbps)	Operating Mode
1	2412.0	13.1	802.11b
6	2437.0	13.1	
11	2462.0	12.8	
Channel Number	Frequency (MHZ)	(6Mbps)	Operating Mode
1	2412.0	13.0	802.11g
6	2437.0	13.0	
11	2462.0	12.9	
Channel Number	Frequency (MHZ)	(6.5Mbps)	Operating Mode
1	2412.0	12.9	802.11n HT20
6	2437.0	12.9	
11	2462.0	13.0	

7.7.2.Wi-Fi802.11a/n/ac (5.0 GHz) –Sub Band 1 (5.2 GHz UNII) Power Back-off NOT Supported

		Avg Power (dBm)	
Channel Number	Frequency (MHZ)	6 Mbps	Operating Mode
36	5180.0	16.0	802.11a
40	5200.0	16.1	
44	5220.0	16.3	
48	5240.0	16.0	
Channel Number	Frequency (MHZ)	6.5 Mbps	Operating Mode
36	5180.0	16.1	802.11n, HT20
40	5200.0	15.8	
44	5220.0	15.9	
48	5240.0	16.2	
36	5180.0	16.1	802.11ac, VHT20
40	5200.0	15.7	
44	5220.0	16.2	
48	5240.0	16.3	
Channel Number	Frequency (MHZ)	13.5 Mbps	Operating Mode
38	5190.0	14.0	802.11n, HT40
46	5230.0	14.0	
Channel Number	Frequency (MHZ)	13.5 Mbps	Operating Mode
38	5190.0	14.0	802.11ac, VHT40
46	5230.0	13.8	
Channel Number	Frequency (MHZ)	29.3 Mbps	Operating Mode
42	5210.0	14.0	802.11ac, VHT80

7.7.3.Wi-Fi802.11a/n/ac (5.0 GHz) –Sub Band 2 (5.3 GHz UNII) Power Back-off NOT Supported

		Avg Power (dBm)	
Channel Number	Frequency (MHZ)	6 Mbps	Operating Mode
52	5260.0	16.3	802.11a
56	5280.0	16.0	
60	5300.0	16.3	
64	5320.0	16.0	
Channel Number	Frequency (MHZ)	6.5 Mbps	Operating Mode
52	5260.0	16.0	802.11n, HT20
56	5280.0	16.2	
60	5300.0	16.2	
64	5320.0	16.2	
52	5260.0	15.9	802.11ac, VHT20
56	5280.0	16.1	
60	5300.0	16.1	
64	5320.0	16.2	
Channel Number	Frequency (MHZ)	13.5 Mbps	Operating Mode
54	5270.0	14.2	802.11n, HT40
62	5310.0	14.0	
Channel Number	Frequency (MHZ)	13.5 Mbps	Operating Mode
54	5270.0	14.2	802.11ac, VHT40
62	5310.0	14.0	
Channel Number	Frequency (MHZ)	29.3 Mbps	Operating Mode
58	5290.0	14.0	802.11ac, VHT80

7.7.4.Wi-Fi802.11a/n/ac (5.0 GHz) –Sub Band 3 (5.5 GHz UNII)
Power Back-off NOT Supported

		Avg Power (dBm)	
Channel Number	Frequency (MHZ)	6 Mbps	Operating Mode
100	5500.0	16.4	802.11a
104	5520.0	16.4	
108	5540.0	16.5	
112	5560.0	16.5	
116	5580.0	16.5	
132	5660.0	16.2	
136	5680.0	16.1	
140	5700.0	16.4	
Channel Number	Frequency (MHZ)	6.5 Mbps	Operating Mode
100	5500.0	16.3	802.11n, HT20
104	5520.0	16.4	
108	5540.0	16.4	
112	5560.0	16.4	
116	5580.0	16.5	
132	5660.0	16.1	
136	5680.0	16.3	
140	5700.0	16.3	
100	5500.0	16.6	802.11ac, VHT20
104	5520.0	16.6	
108	5540.0	16.4	
112	5560.0	16.4	
116	5580.0	16.3	
132	5660.0	16.3	
136	5680.0	16.4	
140	5700.0	16.2	
Channel Number	Frequency (MHZ)	13.5 Mbps	Operating Mode
102	5510.0	14.4	802.11n, HT40
110	5550.0	14.5	
134	5670.0	14.3	
Channel Number	Frequency (MHZ)	13.5 Mbps	Operating Mode
102	5510.0	14.3	802.11ac, VHT40
110	5550.0	14.5	
134	5670.0	14.3	
Channel Number	Frequency (MHZ)	29.3 Mbps	Operating Mode
106	5530.0	14.4	802.11ac, VHT80

7.7.5.Wi-Fi802.11a/n/ac (5.0 GHz) –Sub Band 4 (5.8 GHz UNII)
Power Back-off NOT Supported

		Avg Power (dBm)	
Channel Number	Frequency (MHZ)	6 Mbps	Operating Mode
149	5745.0	16.3	802.11a
153	5765.0	16.1	
157	5785.0	16.4	
161	5805.0	16.0	
165	5825.0	16.2	
Channel Number	Frequency (MHZ)	6.5 Mbps	Operating Mode
149	5745.0	16.1	802.11n, HT20
153	5765.0	16.0	
157	5785.0	16.0	
161	5805.0	16.1	
165	5825.0	16.2	
149	5745.0	16.2	802.11ac, VHT20
153	5765.0	16.1	
157	5785.0	16.2	
161	5805.0	16.2	
165	5825.0	16.3	
Channel Number	Frequency (MHZ)	13.5 Mbps	Operating Mode
151	5755.0	14.2	802.11n, HT40
159	5795.0	14.2	
Channel Number	Frequency (MHZ)	13.5 Mbps	Operating Mode
151	5755.0	14.2	802.11ac, VHT40
159	5795.0	14.3	
Channel Number	Frequency (MHZ)	29.3 Mbps	Operating Mode
155	5775.0	14.0	802.11ac, VHT80

8. System Check and Dielectric Parameters

See [Appendix 5](#) and [Appendix 6](#) for tables and measurements.

9. Measurements, Examinations and Derived Results

9.1. General Comments

This section contains test results only.

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to section 5 for details of measurement uncertainties.

Prior to testing the FCC was contacted for LTE Release 10 SAR evaluations on the EUT and testing was performed as per KDB 941225 after their confirmation.

Prior to testing the FCC was contacted for Antenna Tuner SAR evaluations and testing was performed as per FCC response.

9.2. Specific Absorption Rate - Test Results**For All SAR measurement in this report the 1g-SAR limit tested to is 1.6 W/Kg****9.2.1. GSM 850 - Head - Power Back-Off Not Supported****Max Reported SAR = 0.306 (W/kg)**

					For LTE Only		Power (dBm)		1g : SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	Test Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune-up limit	Meas.	Meas.	Scaled	Note(s)	Scan No.
GMSK (DTM Class 9)	0	Touch Left	190	836.6	N/A	N/A	31.6	30.7	0.234	0.288	1, 2	1
GMSK (DTM Class 9)	0	Tilt Left	190	836.6	N/A	N/A	31.6	30.7	0.105	0.129	1, 2	2
GMSK (DTM Class 9)	0	Touch Right	190	836.6	N/A	N/A	31.6	30.7	0.249	0.306	1, 2	3
GMSK (DTM Class 9)	0	Tilt Right	190	836.6	N/A	N/A	31.6	30.7	0.164	0.202	1, 2	4

Note(s):

- DTM Multi-slot Class 9 - Tested using 2 Uplink time slots (with 1 time slots set as CS1 for GPRS and 1 time slot set for voice).
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.2. GSM 850 Hotspot Mode - Power Back-Off Not Supported**Max Reported SAR = 0.493 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
GMSK (DTM Class 9)	10	Front	190	836.6	N/A	N/A	31.6	30.7	0.377	0.464	1, 2	5
GMSK (DTM Class 9)	10	Back	190	836.6	N/A	N/A	31.6	30.7	0.384	0.472	1, 2	6
GMSK (DTM Class 9)	10	Left Hand Side	190	836.6	N/A	N/A	31.6	30.7	0.263	0.324	1, 2	7
GMSK (DTM Class 9)	10	Right Hand Side	190	836.6	N/A	N/A	31.6	30.7	0.401	0.493	1, 2	8
GMSK (DTM Class 9)	10	Bottom	190	836.6	N/A	N/A	31.6	30.7	0.100	0.123	1, 2	9

Note(s):

- DTM Multi-slot Class 9 - Tested using 2 Uplink time slots (with 1 time slots set as CS1 for GPRS and 1 time slot set for voice).
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*KDB 941225 D03 - SAR is not required for GPRS and EDGE technology when the maximum average output power is lower than that measured on the corresponding DTM channels.

9.2.3. GSM 850 - Body-Worn - Power Back-Off Not Supported**Max Reported SAR = 0.469 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
GMSK (DTM Class 9)	15	Front	190	836.6	N/A	N/A	31.6	30.7	0.381	0.469	1, 2	10
GMSK (DTM Class 9)	15	Back	190	836.6	N/A	N/A	31.6	30.7	0.366	0.450	1, 2	11

Note(s):

- DTM Multi-slot Class 9 - Tested using 2 Uplink time slots (with 1 time slots set as CS1 for GPRS and 1 time slot set for voice).
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.4. PCS 1900 - Head - Power Back-Off Supported and Disabled**Max Reported SAR = 0.269 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
GMSK (DTM Class 11)	0	Touch Left	661	1880.0	N/A	N/A	27.6	26.4	0.129	0.170	1, 2	12
GMSK (DTM Class 11)	0	Tilt Left	661	1880.0	N/A	N/A	27.6	26.4	0.079	0.104	1, 2	13
GMSK (DTM Class 11)	0	Touch Right	661	1880.0	N/A	N/A	27.6	26.4	0.204	0.269	1, 2	14
GMSK (DTM Class 11)	0	Tilt Right	661	1880.0	N/A	N/A	27.6	26.4	0.040	0.053	1, 2	15

Note(s):

- DTM Multi-slot Class 11 - Tested using 3 Uplink time slots (with 2 time slots set as CS1 for GPRS and 1 time slot set for voice).
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.5. PCS 1900 - Hotspot Mode - Power Back-Off Supported and Enabled**Max Reported SAR = 1.133 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
GMSK (GPRS 4 Slot)	10	Front	661	1880.0	N/A	N/A	22.5	21.2	0.615	0.830	-	16
GMSK (GPRS 4 Slot)	10	Front	512	1850.2	N/A	N/A	22.5	21.2	0.376	0.507	-	17
GMSK (GPRS 4 Slot)	10	Front	810	1909.8	N/A	N/A	22.5	21.2	0.656	0.885	-	18
GMSK (GPRS 4 Slot)	10	Back	661	1880.0	N/A	N/A	22.5	21.2	0.414	0.558	-	19
GMSK (GPRS 4 Slot)	10	Left Hand Side	661	1880.0	N/A	N/A	22.5	21.2	0.077	0.104	-	20
GMSK (GPRS 4 Slot)	10	Right Hand Side	661	1880.0	N/A	N/A	22.5	21.2	0.030	0.040	-	21
GMSK (GPRS 4 Slot)	10	Bottom	661	1880.0	N/A	N/A	22.5	21.2	0.767	1.035	-	22
GMSK (GPRS 4 Slot)	10	Bottom	512	1850.2	N/A	N/A	22.5	21.2	0.490	0.661	-	23
GMSK (GPRS 4 Slot)	10	Bottom	810	1909.8	N/A	N/A	22.5	21.2	0.840	1.133	1	24

Note(s):

- As per 865664 D01, the highest SAR measured > 0.8 W/kg has been re-measured and included in the report in Section 10 under **SAR Measurement Variability and Measurement Uncertainty Analysis Results** Table.

*KDB 941225 D03 - SAR is not required for EDGE or DTM technology when the maximum average output power is lower than that measured on the corresponding GPRS channels.

9.2.6. PCS 1900 - Body-Worn - Power Back-Off Supported and Disabled

Max Reported SAR = 0.614 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
GMSK (DTM Class 11)	15	Front	661	1880.0	N/A	N/A	27.6	26.4	0.442	0.583	1	25
GMSK (DTM Class 11)	15	Back	661	1850.2	N/A	N/A	27.6	26.4	0.466	0.614	1	26

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.7. UMTS FDD 2 - Head - Power Back-Off Supported and Disabled**Max Reported SAR = 0.447 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	0	Touch Left	9400	1880.0	N/A	N/A	24.0	23.7	0.231	0.248	1, 2	27
QPSK	0	Tilt Left	9400	1880.0	N/A	N/A	24.0	23.7	0.160	0.171	1, 2	28
QPSK	0	Touch Right	9400	1880.0	N/A	N/A	24.0	23.7	0.417	0.447	1, 2	29
QPSK	0	Tilt Right	9400	1880.0	N/A	N/A	24.0	23.7	0.117	0.125	1, 2	30

Note(s):

- Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.8. UMTS FDD 2 - Hotspot Mode - Power Back-Off Supported and Enabled**Max Reported SAR = 1.113 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	9400	1880.0	N/A	N/A	19.0	18.3	0.665	0.781	1	31
QPSK	10	Back	9400	1880.0	N/A	N/A	19.0	18.3	0.556	0.653	1	32
QPSK	10	Left Hand Side	9400	1880.0	N/A	N/A	19.0	18.3	0.071	0.084	1	33
QPSK	10	Right Hand Side	9400	1880.0	N/A	N/A	19.0	18.3	0.032	0.038	1	34
QPSK	10	Bottom	9400	1880.0	N/A	N/A	19.0	18.3	0.901	1.059	1	35
QPSK	10	Bottom	9262	1852.4	N/A	N/A	19.0	18.3	0.667	0.784	1	36
QPSK	10	Bottom	9538	1907.6	N/A	N/A	19.0	18.3	0.947	1.113	1	37

Note(s):

- Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's".

9.2.9. UMTS FDD 2 - Body-Worn - Power Back-Off Supported and Disabled

Max Reported SAR = 1.114 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	15	Front	9400	1880.0	N/A	N/A	24.0	23.7	1.020	1.093	1	38
QPSK	15	Front	9262	1852.4	N/A	N/A	24.0	23.7	0.823	0.882	1	39
QPSK	15	Front	9538	1907.6	N/A	N/A	24.0	23.7	1.040	1.114	1, 2	40
QPSK	15	Back	9400	1880.0	N/A	N/A	24.0	23.7	0.863	0.925	1	41
QPSK	15	Back	9262	1852.4	N/A	N/A	24.0	23.7	0.752	0.806	1	42
QPSK	15	Back	9538	1907.6	N/A	N/A	24.0	23.7	0.916	0.982	1	43

Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. As per 865664 D01, the highest SAR measured > 0.8 W/kg has been re-measured and included in the report in Section 10 under **SAR Measurement Variability and Measurement Uncertainty Analysis Results** Table

*KDB 941225 D02 - SAR is not required for RMC+HSPA or RMC+DC-HSDPA (HSDPA/HSUPA/DC-HSDPA) channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding RMC channels and 1g SAR level reported in 'RMC 12.2kbps' is <75% SAR limit.

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.10. UMTS FDD 4 Head - Power Back-Off Not Supported**Max Reported SAR = 0.794 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	0	Touch Left	1412	1732.6	N/A	N/A	24.0	23.6	0.449	0.492	1, 2	44
QPSK	0	Tilt Left	1412	1732.6	N/A	N/A	24.0	23.6	0.301	0.330	1, 2	45
QPSK	0	Touch Right	1412	1732.6	N/A	N/A	24.0	23.6	0.724	0.794	1, 2	46
QPSK	0	Tilt Right	1412	1732.6	N/A	N/A	24.0	23.6	0.214	0.235	1, 2	47

Note(s):

- Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.11. UMTS FDD 4 - Hotspot Mode - Power Back-Off Supported and Enabled**Max Reported SAR = 0.525 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	1412	1732.6	N/A	N/A	22.5	21.8	0.447	0.525	1, 2	48
QPSK	10	Back	1412	1732.6	N/A	N/A	22.5	21.8	0.445	0.523	1, 2	49
QPSK	10	Left Hand Side	1412	1732.6	N/A	N/A	22.5	21.8	0.208	0.244	1, 2	50
QPSK	10	Right Hand Side	1412	1732.6	N/A	N/A	22.5	21.8	0.117	0.137	1, 2	51
QPSK	10	Bottom	1412	1732.6	N/A	N/A	22.5	21.8	0.390	0.458	1, 2	52

Note(s):

- Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*KDB 941225 D02 - SAR is not required for RMC+HSPA or RMC+DC-HSDPA (HSDPA/HSUPA/DC-HSDPA) channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding RMC channels and 1g SAR level reported in 'RMC 12.2kbps' is <75% SAR limit.

9.2.12. UMTS FDD 4 - Body-Worn- Power Back-Off Supported and Disabled

Max Reported SAR = 0.400 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	15	Front	1412	1732.6	N/A	N/A	24.0	23.6	0.365	0.400	1, 2	53
QPSK	15	Back	1412	1732.6	N/A	N/A	24.0	23.6	0.328	0.360	1, 2	54

Note(s):

- Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*KDB 941225 D02 - SAR is not required for RMC+HSPA or RMC+DC-HSDPA (HSDPA/HSUPA/DC-HSDPA) channels when the maximum average output power is less than $\frac{1}{4}$ dB higher than that measured on the corresponding RMC channels and 1g SAR level reported in 'RMC 12.2kbps' is <75% SAR limit.

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.13. UMTS FDD 5 - Head - Power Back-Off Not Supported**Max Reported SAR = 0.381 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	0	Touch Left	4183	836.6	N/A	N/A	24.5	24.4	0.372	0.381	1, 2	55
QPSK	0	Tilt Left	4183	836.6	N/A	N/A	24.5	24.4	0.229	0.234	1, 2	56
QPSK	0	Touch Right	4183	836.6	N/A	N/A	24.5	24.4	0.361	0.369	1, 2	57
QPSK	0	Tilt Right	4183	836.6	N/A	N/A	24.5	24.4	0.207	0.212	1, 2	58

Note(s):

- Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.14. UMTS FDD 5 - Hotspot Mode - Power Back-Off Not Supported**Max Reported SAR = 0.523 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	4183	836.6	N/A	N/A	24.5	24.4	0.440	0.450	1, 2	59
QPSK	10	Back	4183	836.6	N/A	N/A	24.5	24.4	0.455	0.466	1, 2	60
QPSK	10	Left Hand Side	4183	836.6	N/A	N/A	24.5	24.4	0.477	0.488	1, 2	61
QPSK	10	Right Hand Side	4183	836.6	N/A	N/A	24.5	24.4	0.511	0.523	1, 2	62
QPSK	10	Bottom	4183	836.6	N/A	N/A	24.5	24.4	0.112	0.115	1, 2	63

Note(s):

- Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*KDB 941225 D02 - SAR is not required for RMC+HSPA or RMC+DC-HSDPA (HSDPA/HSUPA/DC-HSDPA) channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding RMC channels and 1g SAR level reported in 'RMC 12.2kbps' is <75% SAR limit.

9.2.15. UMTS FDD 5 - Body-Worn - Power Back-Off Not Supported**Max Reported SAR = 0.466 (W/kg)**

For body-worn configuration indicated below the test position overlap with hotspot and the power back –off was not supported meaning hotspot mode was most conservative and results re-used for body-worn configuration.

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	4183	836.6	N/A	N/A	24.5	24.4	0.440	0.450	1, 2	59
QPSK	10	Back	4183	836.6	N/A	N/A	24.5	24.4	0.455	0.466	1, 2	60

Note(s):

- Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*KDB 941225 D02 - SAR is not required for RMC+HSPA or RMC+DC-HSDPA (HSDPA/HSUPA/DC-HSDPA) channels when the maximum average output power is less than $\frac{1}{4}$ dB higher than that measured on the corresponding RMC channels and 1g SAR level reported in 'RMC 12.2kbps' is <75% SAR limit.

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.16. GENERAL NOTE FOR LTE SAR TESTING

As per KDB 941225 D05 SAR for LTE Devices v02r02, the following steps were followed to perform SAR evaluation Largest Channel BW

1. QPSK 1RB Allocation

Start with 1RB offset Config with the highest maximum output power on required test channel (1RB low, 1RB high or 1RB mid). If value in (1) is $< 0.8\text{W/kg}$, testing of remaining RB offset configurations and test channels not required for 1RB

2. QPSK 50% RB Allocation

Apply steps followed in (1) for measuring 50% RB

3. QPSK 100% RB Allocation

SAR not required if highest output power from (1) and (2) is higher than 100% RB output power and if SAR Values in step (1) and (2) $\leq 0.8\text{W/kg}$

4. 16 QAM

Apply steps (1), (2) and (3) for testing 16-QAM/64-QAM, for each configuration SAR required only when highest maximum output power for the highest order modulation (ex. 16-QAM) $>$ QPSK by 0.5dB or when reported SAR for QPSK $> 1.45\text{W/kg}$

9.2.17. LTE Band 2; 20MHz CH BW Head - Power Back-Off Supported and Disabled**Max Reported SAR = 0.266 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	0	Touch Left	18700	1860.0	1	99	24.0	23.6	0.163	0.179	1	64
QPSK	0	Touch Left	18700	1860.0	50	50	23.0	22.6	0.141	0.155	1	65
QPSK	0	Tilt Left	18700	1860.0	1	99	24.0	23.6	0.079	0.087	1	66
QPSK	0	Tilt Left	18700	1860.0	50	50	23.0	22.6	0.071	0.078	1	67
QPSK	0	Touch Right	18700	1860.0	1	99	24.0	23.6	0.243	0.266	1	68
QPSK	0	Touch Right	18700	1860.0	50	50	23.0	22.6	0.203	0.223	1	69
QPSK	0	Tilt Right	18700	1860.0	1	99	24.0	23.6	0.065	0.071	1	70
QPSK	0	Tilt Right	18700	1860.0	50	50	23.0	22.6	0.056	0.061	1	71

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.18. LTE Band 2; 20MHz CH BW - Hotspot Mode
Power Back-Off Supported and Enabled
Max Reported SAR = 0.882 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	18700	1860.0	1	99	20.0	19.5	0.396	0.444	-	72
QPSK	10	Front	18700	1860.0	50	50	20.0	19.5	0.387	0.434	-	73
QPSK	10	Back	18700	1860.0	1	99	20.0	19.5	0.325	0.365	-	74
QPSK	10	Back	18700	1860.0	50	50	20.0	19.5	0.318	0.357	-	75
QPSK	10	Left Hand Side	18700	1860.0	1	99	20.0	19.5	0.055	0.062	-	76
QPSK	10	Left Hand Side	18700	1860.0	50	50	20.0	19.5	0.057	0.064	-	77
QPSK	10	Right Hand Side	18700	1860.0	1	99	20.0	19.5	0.072	0.081	-	78
QPSK	10	Right Hand Side	18700	1860.0	50	50	20.0	19.5	0.062	0.070	-	79
QPSK	10	Bottom	18700	1860.0	1	99	20.0	19.5	0.786	0.882	-	80
QPSK	10	Bottom	18900	1880.0	1	99	20.0	19.4	0.668	0.767	-	81
QPSK	10	Bottom	19100	1900.0	1	99	20.0	19.5	0.736	0.826	-	82
QPSK	10	Bottom	18700	1860.0	50	50	20.0	19.5	0.746	0.837	-	83
QPSK	10	Bottom	18900	1880.0	50	50	20.0	19.4	0.642	0.737	-	84
QPSK	10	Bottom	19100	1900.0	50	50	20.0	19.5	0.714	0.801	-	85
QPSK	10	Bottom	18700	1860.0	100	0	20.0	19.5	0.771	0.865	-	86

**9.2.19. LTE Band 2; 20MHz CH BW - Body-Worn
Power Back-Off Supported and Disabled
Max Reported SAR = 0.648 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	15	Front	18700	1860.0	1	99	24.0	23.6	0.591	0.648	-	87
QPSK	15	Front	18700	1860.0	50	50	23.0	22.6	0.471	0.516	-	88
QPSK	15	Back	18700	1860.0	1	99	24.0	23.6	0.529	0.580	-	89
QPSK	15	Back	18700	1860.0	50	50	23.0	22.6	0.425	0.466	-	90

Note(s):

1. As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset".

9.2.20. LTE Band 4; 20MHz CH BW - Head
Power Back-Off Supported and Disabled
Max Reported SAR = 0.718 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	0	Touch Left	20175	1732.5	1	49	24.0	23.7	0.430	0.461	1	91
QPSK	0	Touch Left	20175	1732.5	50	25	23.0	22.8	0.339	0.355	1	92
QPSK	0	Tilt Left	20175	1732.5	1	49	24.0	23.7	0.272	0.291	1	93
QPSK	0	Tilt Left	20175	1732.5	50	25	23.0	22.8	0.222	0.232	1	94
QPSK	0	Touch Right	20175	1732.5	1	49	24.0	23.7	0.670	0.718	1	95
QPSK	0	Touch Right	20175	1732.5	50	25	23.0	22.8	0.549	0.575	1	96
QPSK	0	Tilt Right	20175	1732.5	1	49	24.0	23.7	0.210	0.225	1	97
QPSK	0	Tilt Right	20175	1732.5	50	25	23.0	22.8	0.166	0.174	1	98

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.21. LTE Band 4; 20MHz CH BW - Hotspot Mode
Power Back-Off Supported and Enabled
Max Reported SAR = 0.459 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	20050	1720.0	1	0	22.0	21.6	0.419	0.459	1	99
QPSK	10	Front	20050	1720.0	50	0	22.0	21.7	0.426	0.456	1	100
QPSK	10	Back	20050	1720.0	1	0	22.0	21.6	0.371	0.407	1	101
QPSK	10	Back	20050	1720.0	50	0	22.0	21.7	0.380	0.407	1	102
QPSK	10	Left Hand Side	20050	1720.0	1	0	22.0	21.6	0.158	0.173	1	103
QPSK	10	Left Hand Side	20050	1720.0	50	0	22.0	21.7	0.165	0.177	1	104
QPSK	10	Right Hand Side	20050	1720.0	1	0	22.0	21.6	0.119	0.130	1	105
QPSK	10	Right Hand Side	20050	1720.0	50	0	22.0	21.7	0.124	0.133	1	106
QPSK	10	Bottom	20050	1720.0	1	0	22.0	21.6	0.289	0.317	1	107
QPSK	10	Bottom	20050	1720.0	50	0	22.0	21.7	0.335	0.359	1	108

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.22. LTE Band 4; 20MHz CH BW – Body Worn
Power Back-Off Supported and Disabled
Max Reported SAR = 0.408 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	15	Front	20175	1732.5	1	49	24.0	23.7	0.381	0.408	1	109
QPSK	15	Front	20175	1732.5	50	25	23.0	22.8	0.307	0.321	1	110
QPSK	15	Back	20175	1732.5	1	49	24.0	23.7	0.319	0.342	1	111
QPSK	15	Back	20175	1732.5	50	25	23.0	22.8	0.262	0.274	1	112

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.23. LTE Band 5; 10MHz Channel BW Head**Power Back-Off Not Supported****Max Reported SAR = 0.385 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	
QPSK	0	Touch Left	20525	836.5	1	0	24.0	23.3	0.276	0.324	1	113
QPSK	0	Touch Left	20525	836.5	25	0	23.0	22.3	0.225	0.264	1	114
QPSK	0	Tilt Left	20525	836.5	1	0	24.0	23.3	0.198	0.233	1	115
QPSK	0	Tilt Left	20525	836.5	25	0	23.0	22.3	0.164	0.193	1	116
QPSK	0	Touch Right	20525	836.5	1	0	24.0	23.3	0.328	0.385	1	117
QPSK	0	Touch Right	20525	836.5	25	0	23.0	22.3	0.248	0.291	1	118
QPSK	0	Tilt Right	20525	836.5	1	0	24.0	23.3	0.239	0.281	1	119
QPSK	0	Tilt Right	20525	836.5	25	0	23.0	22.3	0.186	0.219	1	120

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.24. LTE Band 5; 10MHz Channel BW - Hotspot Mode**Power Back-Off Not Supported****Max Reported SAR = 0.477 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	20525	836.5	1	0	24.0	23.3	0.394	0.463	1	121
QPSK	10	Front	20525	836.5	25	0	23.0	22.3	0.239	0.281	1	122
QPSK	10	Back	20525	836.5	1	0	24.0	23.3	0.406	0.477	1	123
QPSK	10	Back	20525	836.5	25	0	23.0	22.3	0.334	0.392	1	124
QPSK	10	Left Hand Side	20525	836.5	1	0	24.0	23.3	0.295	0.347	1	125
QPSK	10	Left Hand Side	20525	836.5	25	0	23.0	22.3	0.237	0.278	1	126
QPSK	10	Right Hand Side	20525	836.5	1	0	24.0	23.3	0.342	0.402	1	127
QPSK	10	Right Hand Side	20525	836.5	25	0	23.0	22.3	0.277	0.325	1	128
QPSK	10	Bottom	20525	836.5	1	0	24.0	23.3	0.104	0.122	1	129
QPSK	10	Bottom	20525	836.5	25	0	23.0	22.3	0.084	0.099	1	130

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.25. LTE Band 5; 10MHz Channel BW Body Worn**Power Back-Off Not Supported****Max Reported SAR = 0.477 (W/kg)**

For body-worn configuration indicated below the test position overlap with hotspot and the power back –off was not supported meaning hotspot mode was most conservative and results re-used for body-worn configuration.

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	20525	836.5	1	0	24.0	23.3	0.394	0.463	1	121
QPSK	10	Front	20525	836.5	25	0	23.0	22.3	0.239	0.281	1	122
QPSK	10	Back	20525	836.5	1	0	24.0	23.3	0.406	0.477	1	123
QPSK	10	Back	20525	836.5	25	0	23.0	22.3	0.334	0.392	1	124

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.26. LTE Band 7; 20MHz CH BW Head**Power Back-Off Not Supported****Max Reported SAR = 0.462 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	0	Touch Left	21100	2535.0	1	49	24.0	23.7	0.431	0.462	1	131
QPSK	0	Touch Left	21100	2535.0	50	25	23.0	22.7	0.331	0.355	1	132
QPSK	0	Tilt Left	21100	2535.0	1	49	24.0	23.7	0.092	0.098	1	133
QPSK	0	Tilt Left	21100	2535.0	50	25	23.0	22.7	0.050	0.053	1	134
QPSK	0	Touch Right	21100	2535.0	1	49	24.0	23.7	0.107	0.115	1	135
QPSK	0	Touch Right	21100	2535.0	50	25	23.0	22.7	0.116	0.124	1	136
QPSK	0	Tilt Right	21100	2535.0	1	49	24.0	23.7	0.057	0.061	1	137
QPSK	0	Tilt Right	21100	2535.0	50	25	23.0	22.7	0.057	0.061	1	138

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.27. LTE Band 7; 20MHz CH BW Hotspot Mode**Power Back-Off Not Supported****Max Reported SAR = 1.104 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	21100	2535.0	1	49	24.0	23.7	1.030	1.104	-	139
QPSK	10	Front	20850	2510.0	1	49	24.0	23.7	1.030	1.104	1	140
QPSK	10	Front	21350	2560.0	1	49	24.0	23.7	0.996	1.067	-	141
QPSK	10	Front	21100	2535.0	50	25	23.0	22.7	0.830	0.889	-	142
QPSK	10	Front	20850	2510.0	50	25	23.0	22.7	0.770	0.825	-	143
QPSK	10	Front	21350	2560.0	50	25	23.0	22.7	0.718	0.769	-	144
QPSK	10	Front	21100	2535.0	100	0	23.0	22.6	0.662	0.726	-	145
QPSK	10	Back	21100	2535.0	1	49	24.0	23.7	0.571	0.612	-	146
QPSK	10	Back	21100	2535.0	50	25	23.0	22.7	0.618	0.662	-	147
QPSK	10	Left Hand Side	21100	2535.0	1	49	24.0	23.7	0.220	0.205	-	148
QPSK	10	Left Hand Side	21100	2535.0	50	25	23.0	22.7	0.240	0.224	-	149
QPSK	10	Right Hand Side	21100	2535.0	1	49	24.0	23.7	0.068	0.073	-	150
QPSK	10	Right Hand Side	21100	2535.0	50	25	23.0	22.7	0.039	0.041	-	151
QPSK	10	Bottom	21100	2535.0	1	49	24.0	23.7	0.685	0.734	-	152
QPSK	10	Bottom	21100	2535.0	50	25	23.0	22.7	0.519	0.556	-	153

Note(s):

- As per 865664 D01, the highest SAR measured > 0.8 W/kg has been re-measured and included in the report in Section 10 under **SAR Measurement Variability and Measurement Uncertainty Analysis Results** Table

9.2.28. LTE Band 7; 20MHz CH BW - Body-Worn**Power Back-Off Not Supported****Max Reported SAR = 1.104 (W/kg)**

For body-worn configuration indicated below the test position overlap with hotspot and the power back –off was not supported meaning hotspot mode was most conservative and results re-used for body-worn configuration.

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	21100	2535.0	1	49	24.0	23.7	1.030	1.104	-	139
QPSK	10	Front	20850	2510.0	1	49	24.0	23.7	1.030	1.104	1	140
QPSK	10	Front	21350	2560.0	1	49	24.0	23.7	0.996	1.067	-	141
QPSK	10	Front	21100	2535.0	50	25	23.0	22.7	0.830	0.889	-	142
QPSK	10	Front	20850	2510.0	50	25	23.0	22.7	0.770	0.825	-	143
QPSK	10	Front	21350	2560.0	50	25	23.0	22.7	0.718	0.769	-	144
QPSK	10	Front	21100	2535.0	100	0	23.0	22.6	0.662	0.726	-	145
QPSK	10	Back	21100	2535.0	1	49	24.0	23.7	0.571	0.612	-	146
QPSK	10	Back	21100	2535.0	50	25	23.0	22.7	0.618	0.662	-	147

Note(s):

- As per 865664 D01, the highest SAR measured > 0.8 W/kg has been re-measured and included in the report in Section 10 under **SAR Measurement Variability and Measurement Uncertainty Analysis Results** Table

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.29. LTE Band 17; 10MHz Channel BW Head**Power Back-Off Not Supported****Max Reported SAR = 0.243 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	0	Touch Left	23790	710.0	1	49	24.0	23.3	0.207	0.243	1	154
QPSK	0	Touch Left	23790	710.0	25	25	23.0	22.3	0.168	0.197	1	155
QPSK	0	Tilt Left	23790	710.0	1	49	24.0	23.3	0.125	0.147	1	156
QPSK	0	Tilt Left	23790	710.0	25	25	23.0	22.3	0.099	0.116	1	157
QPSK	0	Touch Right	23790	710.0	1	49	24.0	23.3	0.197	0.231	1	158
QPSK	0	Touch Right	23790	710.0	25	25	23.0	22.3	0.155	0.182	1	159
QPSK	0	Tilt Right	23790	710.0	1	49	24.0	23.3	0.136	0.160	1	160
QPSK	0	Tilt Right	23790	710.0	25	25	23.0	22.3	0.078	0.092	1	161

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.30. LTE Band 17; 10MHz Channel BW - Hotspot Mode**Power Back-Off Not Supported****Max Reported SAR = 0.296 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
QPSK	10	Front	23790	710.0	1	49	24.0	23.3	0.232	0.273	1	162
QPSK	10	Front	23790	710.0	25	25	23.0	22.3	0.187	0.220	1	163
QPSK	10	Back	23790	710.0	1	49	24.0	23.3	0.252	0.296	1	164
QPSK	10	Back	23790	710.0	25	25	23.0	22.3	0.201	0.236	1	165
QPSK	10	Left Hand Side	23790	710.0	1	49	24.0	23.3	0.180	0.211	1	166
QPSK	10	Left Hand Side	23790	710.0	25	25	23.0	22.3	0.145	0.170	1	167
QPSK	10	Right Hand Side	23790	710.0	1	49	24.0	23.3	0.133	0.156	1	168
QPSK	10	Right Hand Side	23790	710.0	25	25	23.0	22.3	0.110	0.129	1	169
QPSK	10	Bottom	23790	710.0	1	49	24.0	23.3	0.026	0.031	1	170
QPSK	10	Bottom	23790	710.0	25	25	23.0	22.3	0.021	0.025	1	171

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

9.2.31. LTE Band 17; 10MHz Channel BW - Body-Worn**Power Back-Off Not Supported****Max Reported SAR = 0.296 (W/kg)**

For body-worn configuration indicated below the test position overlap with hotspot and the power back –off was not supported meaning hotspot mode was most conservative and results re-used for body-worn configuration.

Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	For LTE Only		Power (dBm)		1g: SAR Results (W/kg)		Note(s)	Scan No.
					RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)		
QPSK	10	Front	23790	710.0	1	49	24.0	23.3	0.232	0.273	1	162
QPSK	10	Front	23790	710.0	25	25	23.0	22.3	0.187	0.220	1	163
QPSK	10	Back	23790	710.0	1	49	24.0	23.3	0.252	0.296	1	164
QPSK	10	Back	23790	710.0	25	25	23.0	22.3	0.201	0.236	1	165

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.32. Wi-Fi 2.4 GHz - Head - Power Back-Off Not Supported**Max Reported SAR = 0.332 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
DBPSK (802.11b 1Mbps)	0	Touch Left	6	2437.0	N/A	N/A	13.5	13.1	0.090	0.099	1	172
DBPSK (802.11b 1Mbps)	0	Tilt Left	6	2437.0	N/A	N/A	13.5	13.1	0.097	0.106	1	173
DBPSK (802.11b 1Mbps)	0	Touch Right	6	2437.0	N/A	N/A	13.5	13.1	0.303	0.332	1	174
DBPSK (802.11b 1Mbps)	0	Tilt Right	6	2437.0	N/A	N/A	13.5	13.1	0.158	0.173	1	175

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is equal to that measured on the corresponding 802.11b channels.

9.2.33. Wi-Fi 2.4 GHz - Hotspot Mode - Power Back-Off Not Supported**Max Reported SAR = 0.030 (W/kg)**

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
DBPSK (802.11b 1Mbps)	10	Front	6	2437.0	N/A	N/A	13.5	13.1	0.027	0.030	1	176
DBPSK (802.11b 1Mbps)	10	Back	6	2437.0	N/A	N/A	13.5	13.1	0.011	0.012	1	177
DBPSK (802.11b 1Mbps)	10	Left Hand Side	6	2437.0	N/A	N/A	13.5	13.1	0.001	0.001	1	178
DBPSK (802.11b 1Mbps)	10	Top	6	2437.0	N/A	N/A	13.5	13.1	0.002	0.002	1	179

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is equal to that measured on the corresponding 802.11b channels.

9.2.34. Wi-Fi 2.4 GHz - Body-Worn - Power Back-Off Not Supported**Max Reported SAR = 0.030 (W/kg)**

For body-worn configuration indicated below the test position overlap with hotspot and the power back –off was not supported meaning hotspot mode was most conservative and results re-used for body-worn configuration.

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	EUT Position	Channel No.	Freq (MHz)	RB Allocation	RB Offset	Tune up limit	Meas.	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Scan No.
DBPSK (802.11b 1Mbps)	10	Front	6	2437.0	N/A	N/A	13.5	13.1	0.027	0.030	1	176
DBPSK (802.11b 1Mbps)	10	Back	6	2437.0	N/A	N/A	13.5	13.1	0.011	0.012	1	177

Note(s):

- 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 for 1-g, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg for 1-g, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg for 1-g, when the transmission band is ≥ 200 MHz

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is equal to that measured on the corresponding 802.11b channels.

*As per 648474 D04 Handsets SAR v01r02, "When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset". Hence, Body worn configurations were not evaluated with PHF attached.

9.2.35. Wi-Fi 5.0 GHz - Head - Power Back-Off Not Supported

Max Reported SAR =0.473 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	Test Position	Ch No.	Freq (MHz)	RB Allocation	RB Offset	Tune-up limit	Meas.	Meas.	Scaled	Note(s)	Scan No.
BPSK (802.11a HT20 6Mbps)												
WiFi 5.0 GHz Sub Band 1	0	Touch Left	44	5220.0	N/A	N/A	16.3	16.3	0.000	0.000	1, 2	-
WiFi 5.0 GHz Sub Band 1	0	Tilt Left	44	5220.0	N/A	N/A	16.3	16.3	0.017	0.017	1	180
WiFi 5.0 GHz Sub Band 1	0	Touch Right	44	5220.0	N/A	N/A	16.3	16.3	0.033	0.033	1	181
WiFi 5.0 GHz Sub Band 1	0	Tilt Right	44	5220.0	N/A	N/A	16.3	16.3	0.021	0.021	1	182
WiFi 5.0 GHz Sub Band 2	0	Touch Right	60	5300.0	N/A	N/A	16.3	16.3	0.473	0.473	1	183
WiFi 5.0 GHz Sub Band 3	0	Touch Right	108	5540.0	N/A	N/A	16.5	16.5	0.198	0.198	1	184
WiFi 5.0 GHz Sub Band 4	0	Touch Right	157	5785.0	N/A	N/A	16.5	16.4	0.183	0.187	1	185
BPSK (802.11ac VHT40 13.5Mbps)												
WiFi 5.0 GHz Sub Band 1	0	Touch Right	38	5190.0	N/A	N/A	14.3	14.0	0.183	0.196	1	186
WiFi 5.0 GHz Sub Band 2	0	Touch Right	54	5270.0	N/A	N/A	14.3	14.2	0.305	0.312	1	187
WiFi 5.0 GHz Sub Band 3	0	Touch Right	110	5550.0	N/A	N/A	14.7	14.5	0.192	0.201	1	188
WiFi 5.0 GHz Sub Band 4	0	Touch Right	159	5795.0	N/A	N/A	14.7	14.3	0.113	0.124	1	189
BPSK (802.11ac VHT80 29.3Mbps)												
WiFi 5.0 GHz Sub Band 1	0	Touch Right	42	5210.0	N/A	N/A	14.2	14.0	0.234	0.245	1	190
WiFi 5.0 GHz Sub Band 2	0	Touch Right	58	5290.0	N/A	N/A	14.2	14.0	0.314	0.329	1	191
WiFi 5.0 GHz Sub Band 3	0	Touch Right	106	5530.0	N/A	N/A	14.5	14.4	0.250	0.256	1	192
WiFi 5.0 GHz Sub Band 4	0	Touch Right	155	5775.0	N/A	N/A	14.5	14.0	0.135	0.151	1	193

Note(s):

- 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
- The results measured are below Noise floor.

*KDB 248227 - SAR is not required for 802.11n HT20 / 802.11ac VHT20 channels as the maximum average output power is less than ¼ dB higher than 802.11a.

*KDB 248227 - SAR is not required for 802.11n HT40 channels as the maximum average output power is less than ¼ dB higher than 802.11ac VHT40.

9.2.36. Wi-Fi 5.0 GHz Hotspot Mode - Power Back-Off Not Supported

Max Reported SAR = 0.278 (W/kg)

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	Test Position	Ch No.	Freq (MHz)	RB Allocation	RB Offset	Tune-up limit	Meas.	Meas.	Scaled	Note(s)	Scan No.
BPSK (802.11a HT20 6Mbps)												
WiFi 5.0 GHz Sub Band 1	10	Front	44	5220.0	N/A	N/A	16.3	16.3	0.035	0.035	1	194
WiFi 5.0 GHz Sub Band 1	10	Back	44	5220.0	N/A	N/A	16.3	16.3	0.240	0.240	1	195
WiFi 5.0 GHz Sub Band 1	10	Left Hand Side	44	5220.0	N/A	N/A	16.3	16.3	0.032	0.032	1	196
WiFi 5.0 GHz Sub Band 1	10	Top	44	5220.0	N/A	N/A	16.3	16.3	0.027	0.027	1	197
WiFi 5.0 GHz Sub Band 2	10	Back	60	5300.0	N/A	N/A	16.3	16.3	0.278	0.278	1	198
WiFi 5.0 GHz Sub Band 3	10	Back	108	5540.0	N/A	N/A	16.5	16.5	0.076	0.076	1	199
WiFi 5.0 GHz Sub Band 4	10	Back	157	5785.0	N/A	N/A	16.5	16.4	0.051	0.053	1	200
BPSK (802.11ac VHT40 13.5Mbps)												
WiFi 5.0 GHz Sub Band 1	10	Back	38	5190.0	N/A	N/A	14.3	14.0	0.096	0.103	1	201
WiFi 5.0 GHz Sub Band 2	10	Back	54	5270.0	N/A	N/A	14.3	14.2	0.153	0.157	1	202
WiFi 5.0 GHz Sub Band 3	10	Back	110	5550.0	N/A	N/A	14.7	14.5	0.000	0.000	1, 2	-
WiFi 5.0 GHz Sub Band 4	10	Back	159	5795.0	N/A	N/A	14.7	14.3	0.052	0.057	1	203
BPSK (802.11ac VHT80 29.3Mbps)												
WiFi 5.0 GHz Sub Band 1	10	Back	42	5210.0	N/A	N/A	14.2	14.0	0.130	0.136	1	204
WiFi 5.0 GHz Sub Band 2	10	Back	58	5290.0	N/A	N/A	14.2	14.0	0.105	0.110	1	205
WiFi 5.0 GHz Sub Band 3	10	Back	106	5530.0	N/A	N/A	14.5	14.4	0.067	0.068	1	206
WiFi 5.0 GHz Sub Band 4	10	Back	155	5775.0	N/A	N/A	14.5	14.0	0.047	0.052	1	207

Note(s):

- 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
- The results measured are below Noise floor.

*KDB 248227 - SAR is not required for 802.11n HT20 / 802.11ac VHT20 channels as the maximum average output power is less than ¼ dB higher than 802.11a.

*KDB 248227 - SAR is not required for 802.11n HT40 channels as the maximum average output power is less than ¼ dB higher than 802.11ac VHT40.

9.2.37. Wi-Fi 5.0 GHz - Body-Worn - Power Back-Off Not Supported**Max Reported SAR = 0.278 (W/kg)**

For body-worn configuration indicated below the test position overlap with hotspot and the power back –off was not supported meaning hotspot mode was most conservative and results re-used for body-worn configuration.

					For LTE Only		Power (dBm)		1g: SAR Results (W/kg)			
Mode or Modulation	Dist (mm)	Test Position	Ch No.	Freq (MHz)	RB Allocation	RB Offset	Tune-up limit	Meas.	Meas.	Scaled	Note(s)	Scan No.
BPSK (802.11a HT20 6Mbps)												
WiFi 5.0 GHz Sub Band 1	10	Front	44	5220.0	N/A	N/A	16.3	16.3	0.035	0.035	1	194
WiFi 5.0 GHz Sub Band 1	10	Back	44	5220.0	N/A	N/A	16.3	16.3	0.240	0.240	1	195
WiFi 5.0 GHz Sub Band 2	10	Back	60	5300.0	N/A	N/A	16.3	16.3	0.278	0.278	1	198
WiFi 5.0 GHz Sub Band 3	10	Back	108	5540.0	N/A	N/A	16.5	16.5	0.076	0.076	1	199
WiFi 5.0 GHz Sub Band 4	10	Back	157	5785.0	N/A	N/A	16.5	16.4	0.051	0.053	1	200
BPSK (802.11ac VHT40 13.5Mbps)												
WiFi 5.0 GHz Sub Band 1	10	Back	38	5190.0	N/A	N/A	14.3	14.0	0.096	0.103	1	201
WiFi 5.0 GHz Sub Band 2	10	Back	54	5270.0	N/A	N/A	14.3	14.2	0.153	0.157	1	202
WiFi 5.0 GHz Sub Band 3	10	Back	110	5550.0	N/A	N/A	14.7	14.5	0.000	0.000	1, 2	-
WiFi 5.0 GHz Sub Band 4	10	Back	159	5795.0	N/A	N/A	14.7	14.3	0.052	0.057	1	203
BPSK (802.11ac VHT80 29.3Mbps)												
WiFi 5.0 GHz Sub Band 1	10	Back	42	5210.0	N/A	N/A	14.2	14.0	0.130	0.136	1	204
WiFi 5.0 GHz Sub Band 2	10	Back	58	5290.0	N/A	N/A	14.2	14.0	0.105	0.110	1	205
WiFi 5.0 GHz Sub Band 3	10	Back	106	5530.0	N/A	N/A	14.5	14.4	0.067	0.068	1	206
WiFi 5.0 GHz Sub Band 4	10	Back	155	5775.0	N/A	N/A	14.5	14.0	0.047	0.052	1	207

Note(s):

- 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
- The results measured are below Noise floor.

*KDB 248227 - SAR is not required for 802.11n HT20 / 802.11ac VHT20 channels as the maximum average output power is less than ¼ dB higher than 802.11a.

*KDB 248227 - SAR is not required for 802.11n HT40 channels as the maximum average output power is less than ¼ dB higher than 802.11ac VHT40.

9.3. Bluetooth

9.3.1. Standalone SAR Test Exclusion Considerations

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$, for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Body-worn Accessory Exposure Conditions

Max. tune-up tolerance limit		Min. test separation distance (mm)	Frequency (GHz)	Result
(dBm)	(mW)			
10.0	1	10	2.480	0.2

Conclusion:

The computed value is < 3 ; therefore, Bluetooth qualifies for Standalone SAR test exclusion.

9.3.2. Estimated SAR

When the standalone SAR test exclusion is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

- $(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})}/x] \text{ W/kg}$ for test separation distances ≤ 50 mm;
where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.
- 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm.

Estimated SAR Result for Body-worn Accessory Conditions:

Test Configuration	Max. tune-up tolerance limit (mW)	Min. test separation distance (mm)	Frequency (GHz)	Estimated 1-g SAR (W/kg)
Back/Front	10	10	2.4	0.207
Back/Front	10	15	2.4	0.138

10. SAR measurement variability

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

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

10.1. Repeated Measurement Results

Exposure Configuration	Technology Band	Measured 1g -SAR (W/Kg)	Equipment Class	Max Meas. Source base Avg Power [dBm]	Ratio of Largest to Smallest SAR Measured
HOTSPOT (Separation Distance 10mm)	PCS1900	0.840	PCE	22.5	1.04
		0.804			
	UMTS FDD 2	1.040	PCE	24.0	1.02
		1.020			
	LTE Band 7	1.030	PCE	24.0	1.12
		0.920			

11. Simultaneous Transmission SAR Analysis

KDB 447498 D01 General RF Exposure Guidance introduces a new formula for calculating the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

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

Where:

SAR₁ is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR₂ is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

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

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

A new threshold of 0.04 is also introduced in the KDB 447498. Thus, in order for a pair of simultaneously transmitting antennas, with the sum of 1-g SAR > 1.6 W/kg, to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

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

According to the worst case configuration Simultaneous transmission analysis of worst cases is shown in the tables below.

Overall Worst Cases considered in this section are indicated below:

1. WWAN + WLAN 2.4 GHz
2. WWAN + WLAN 5.0 GHz
3. WWAN + WPAN
4. WPAN + WLAN 5.0 GHz
5. WWAN + WLAN 5.0 GHz + WPAN

Simultaneous Transmission SAR Analysis (Continued)**Head 1g – Worst cases measurements WWAN + WLAN 2.4GHz**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11b/g/n	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4		
Touch Left	0.288				0.099	0.387
Tilt Left	0.129				0.106	0.235
Touch Right	0.306				0.332	0.638
Tilt Right	0.202				0.173	0.375
Touch Left		0.170			0.099	0.269
Tilt Left		0.104			0.106	0.210
Touch Right		0.269			0.332	0.601
Tilt Right		0.053			0.173	0.226
Touch Left			0.248		0.099	0.347
Tilt Left			0.171		0.106	0.277
Touch Right			0.447		0.332	0.779
Tilt Right			0.125		0.173	0.298
Touch Left				0.492	0.099	0.591
Tilt Left				0.330	0.106	0.436
Touch Right				0.794	0.332	1.126
Tilt Right				0.235	0.173	0.408

Head 1g – Worst cases measurements WWAN + WLAN 2.4GHz

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11b/g/n	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5		
Touch Left	0.381				0.099	0.480
Tilt Left	0.234				0.106	0.340
Touch Right	0.369				0.332	0.701
Tilt Right	0.212				0.173	0.385
Touch Left		0.179			0.099	0.278
Tilt Left		0.087			0.106	0.193
Touch Right		0.266			0.332	0.598
Tilt Right		0.071			0.173	0.244
Touch Left			0.461		0.099	0.560
Tilt Left			0.291		0.106	0.397
Touch Right			0.718		0.332	1.050
Tilt Right			0.225		0.173	0.398
Touch Left				0.324	0.099	0.423
Tilt Left				0.233	0.106	0.339
Touch Right				0.385	0.332	0.717
Tilt Right				0.281	0.173	0.454

Simultaneous Transmission SAR Analysis (Continued)**Head 1g – Worst cases measurements WWAN + WLAN 2.4GHz**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11b/g/n	
EUT Position	LTE Band 7	LTE Band 17	-	-		
Touch Left	0.462				0.099	0.561
Tilt Left	0.098				0.106	0.204
Touch Right	0.124				0.332	0.456
Tilt Right	0.061				0.173	0.234
Touch Left		0.243			0.099	0.342
Tilt Left		0.147			0.106	0.253
Touch Right		0.231			0.332	0.563
Tilt Right		0.160			0.173	0.333

Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 2.4GHz

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11b/g/n	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4		
Front	0.464				0.030	0.494
Back	0.472				0.012	0.484
Left Hand Side	0.324				0.001	0.325
Right Hand Side	0.493					0.493
Bottom	0.123					0.123
Top					0.002	0.002
Front		0.885			0.030	0.915
Back		0.558			0.012	0.570
Left Hand Side		0.104			0.001	0.105
Right Hand Side		0.040				0.040
Bottom		1.133				1.133
Top					0.002	0.002
Front			0.781		0.030	0.811
Back			0.653		0.012	0.665
Left Hand Side			0.084		0.001	0.085
Right Hand Side			0.038			0.038
Bottom			1.113			1.113
Top					0.002	0.002
Front				0.525	0.030	0.555
Back				0.523	0.012	0.535
Left Hand Side				0.244	0.001	0.245
Right Hand Side				0.137		0.137
Bottom				0.458		0.458
Top					0.002	0.002

Simultaneous Transmission SAR Analysis (Continued)**Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 2.4GHz**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11b/g/n	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5		
Front	0.450				0.030	0.480
Back	0.466				0.012	0.478
Left Hand Side	0.488				0.001	0.489
Right Hand Side	0.523					0.523
Bottom	0.115					0.115
Top					0.002	0.002
Front		0.444			0.030	0.474
Back		0.365			0.012	0.377
Left Hand Side		0.064			0.001	0.065
Right Hand Side		0.081				0.081
Bottom		0.882				0.882
Top					0.002	0.002
Front			0.459		0.030	0.489
Back			0.407		0.012	0.419
Left Hand Side			0.177		0.001	0.178
Right Hand Side			0.133			0.133
Bottom			0.359			0.359
Top					0.002	0.002
Front				0.463	0.030	0.493
Back				0.477	0.012	0.489
Left Hand Side				0.347	0.001	0.348
Right Hand Side				0.402		0.402
Bottom				0.122		0.122
Top					0.002	0.002

Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 2.4GHz

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11b/g/n	
EUT Position	LTE Band 7	LTE Band 17	-	-		
Front	1.104				0.030	1.134
Back	0.612				0.012	0.624
Left Hand Side	0.236				0.001	0.237
Right Hand Side	0.073					0.073
Bottom	0.734					0.734
Top					0.002	0.002
Front		0.273			0.030	0.303
Back		0.296			0.012	0.308
Left Hand Side		0.211			0.001	0.212
Right Hand Side		0.156				0.156
Bottom		0.031				0.031
Top					0.002	0.002

Simultaneous Transmission SAR Analysis (Continued)**Body-worn 1g – Worst cases measurements WWAN + WLAN 2.4GHz**

EUT Position	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN	
	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4	Wi-Fi 802.11b/g/n	
Front	0.469				0.030	0.499
Back	0.450				0.012	0.462
Front		0.583			0.030	0.613
Back		0.614			0.012	0.626
Front			1.114		0.030	1.144
Back			0.982		0.012	0.994
Front				0.400	0.030	0.430
Back				0.360	0.012	0.372

Body-worn 1g – Worst cases measurements WWAN + WLAN 2.4GHz

EUT Position	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN	
	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5	Wi-Fi 802.11b/g/n	
Front	0.450				0.030	0.480
Back	0.466				0.012	0.478
Front		0.648			0.030	0.678
Back		0.580			0.012	0.592
Front			0.408		0.030	0.438
Back			0.342		0.012	0.354
Front				0.463	0.030	0.493
Back				0.477	0.012	0.489

Body-worn 1g – Worst cases measurements WWAN + WLAN 2.4GHz

EUT Position	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN	
	LTE Band 7	LTE Band 17	-	-	Wi-Fi 802.11b/g/n	
Front	1.104				0.030	1.134
Back	0.612				0.012	0.624
Front		0.273			0.030	0.303
Back		0.296			0.012	0.308

Note(s):

- The sum of reported SAR does not exceed 1.6 W/kg in any of the above cases and hence, the SAR to peak location separation ratio distance was not calculated.

Simultaneous Transmission SAR Analysis (Continued)**Head 1g – Worst cases measurements WWAN + WLAN 5.0GHz**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11a/n/ac	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4		
Touch Left	0.288				0.000	0.288
Tilt Left	0.129				0.017	0.146
Touch Right	0.306				0.473	0.779
Tilt Right	0.202				0.021	0.223
Touch Left		0.170			0.000	0.170
Tilt Left		0.104			0.017	0.121
Touch Right		0.269			0.473	0.742
Tilt Right		0.053			0.021	0.074
Touch Left			0.248		0.000	0.248
Tilt Left			0.171		0.017	0.188
Touch Right			0.447		0.473	0.920
Tilt Right			0.125		0.021	0.146
Touch Left				0.492	0.000	0.492
Tilt Left				0.330	0.017	0.347
Touch Right				0.794	0.473	1.267
Tilt Right				0.235	0.021	0.256

Head 1g – Worst cases measurements WWAN + WLAN 5.0GHz

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11a/n/ac	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5		
Touch Left	0.381				0.000	0.381
Tilt Left	0.234				0.017	0.251
Touch Right	0.369				0.473	0.842
Tilt Right	0.212				0.021	0.233
Touch Left		0.179			0.000	0.179
Tilt Left		0.087			0.017	0.104
Touch Right		0.266			0.473	0.739
Tilt Right		0.071			0.021	0.092
Touch Left			0.461		0.000	0.461
Tilt Left			0.291		0.017	0.308
Touch Right			0.718		0.473	1.191
Tilt Right			0.225		0.021	0.246
Touch Left				0.324	0.000	0.324
Tilt Left				0.233	0.017	0.250
Touch Right				0.385	0.473	0.858
Tilt Right				0.281	0.021	0.302

Simultaneous Transmission SAR Analysis (Continued)**Head 1g – Worst cases measurements WWAN + WLAN 5.0GHz**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11a/n/ac	
EUT Position	LTE Band 7	LTE Band 17	-	-		
Touch Left	0.462				0.000	0.462
Tilt Left	0.098				0.017	0.115
Touch Right	0.124				0.473	0.597
Tilt Right	0.061				0.021	0.082
Touch Left		0.243			0.000	0.243
Tilt Left		0.147			0.017	0.164
Touch Right		0.231			0.473	0.704
Tilt Right		0.160			0.021	0.181

Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 5.0GHz

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11a/n/ac	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4		
Front	0.464				0.035	0.499
Back	0.472				0.278	0.750
Left Hand Side	0.324				0.032	0.356
Right Hand Side	0.493					0.493
Bottom	0.123					0.123
Top					0.027	0.027
Front		0.885			0.035	0.920
Back		0.558			0.278	0.836
Left Hand Side		0.104			0.032	0.136
Right Hand Side		0.040				0.040
Bottom		1.133				1.133
Top					0.027	0.027
Front			0.781		0.035	0.816
Back			0.653		0.278	0.931
Left Hand Side			0.084		0.032	0.116
Right Hand Side			0.038			0.038
Bottom			1.113			1.113
Top					0.027	0.027
Front				0.525	0.035	0.560
Back				0.523	0.278	0.801
Left Hand Side				0.244	0.032	0.276
Right Hand Side				0.137		0.137
Bottom				0.458		0.458
Top					0.027	0.027

Simultaneous Transmission SAR Analysis (Continued)**Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 5.0GHz**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11a/n/ac	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5		
Front	0.450				0.035	0.485
Back	0.466				0.278	0.744
Left Hand Side	0.488				0.032	0.520
Right Hand Side	0.523					0.523
Bottom	0.115					0.115
Top					0.027	0.027
Front		0.444			0.035	0.479
Back		0.365			0.278	0.643
Left Hand Side		0.064			0.032	0.096
Right Hand Side		0.081				0.081
Bottom		0.882				0.882
Top					0.027	0.027
Front			0.459		0.035	0.494
Back			0.407		0.278	0.685
Left Hand Side			0.177		0.032	0.209
Right Hand Side			0.133			0.133
Bottom			0.359			0.359
Top					0.027	0.027
Front				0.463	0.035	0.498
Back				0.477	0.278	0.755
Left Hand Side				0.347	0.032	0.379
Right Hand Side				0.402		0.402
Bottom				0.122		0.122
Top					0.027	0.027

Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 5.0GHz

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN Wi-Fi 802.11a/n/ac	
EUT Position	LTE Band 7	LTE Band 17	-	-		
Front	1.104				0.035	1.139
Back	0.612				0.278	0.890
Left Hand Side	0.236				0.032	0.268
Right Hand Side	0.073					0.073
Bottom	0.734					0.734
Top					0.027	0.027
Front		0.273			0.035	0.308
Back		0.296			0.278	0.574
Left Hand Side		0.211			0.032	0.243
Right Hand Side		0.156				0.156
Bottom		0.031				0.031
Top					0.027	0.027

Simultaneous Transmission SAR Analysis (Continued)**Body-worn 1g – Worst cases measurements WWAN + WLAN 5.0GHz**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4	Wi-Fi 802.11a/n/ac	
Front	0.469				0.035	0.504
Back	0.450				0.278	0.728
Front		0.583			0.035	0.618
Back		0.614			0.278	0.892
Front			1.114		0.035	1.149
Back			0.982		0.278	1.260
Front				0.400	0.035	0.435
Back				0.360	0.278	0.638

Body-worn 1g – Worst cases measurements WWAN + WLAN 5.0GHz

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5	Wi-Fi 802.11a/n/ac	
Front	0.450				0.035	0.485
Back	0.466				0.278	0.744
Front		0.648			0.035	0.683
Back		0.580			0.278	0.858
Front			0.408		0.035	0.443
Back			0.342		0.278	0.620
Front				0.463	0.035	0.498
Back				0.477	0.278	0.755

Body-worn 1g – Worst cases measurements WWAN + WLAN 5.0GHz

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WLAN	
EUT Position	LTE Band 7	LTE Band 17	-	-	Wi-Fi 802.11a/n/ac	
Front	1.104				0.035	1.139
Back	0.612				0.278	0.890
Front		0.273			0.035	0.308
Back		0.296			0.278	0.574

Note(s):

1. The sum of reported SAR does not exceed 1.6 W/kg in any of the above cases and hence, the SAR to peak location separation ratio distance was not calculated.

Simultaneous Transmission SAR Analysis (Continued)**Hotspot Mode 1g – Worst cases measurements WWAN + WPAN**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WPAN
	WWAN				WPAN	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4	Bluetooth	
Front	0.464				0.207	0.671
Back	0.472				0.207	0.679
Left Hand Side	0.324				0.207	0.531
Right Hand Side	0.493					0.493
Bottom	0.123					0.123
Top					0.207	0.207
Front		0.885			0.207	1.092
Back		0.558			0.207	0.765
Left Hand Side		0.104			0.207	0.311
Right Hand Side		0.040				0.040
Bottom		1.133				1.133
Top					0.207	0.207
Front			0.781		0.207	0.988
Back			0.653		0.207	0.860
Left Hand Side			0.084		0.207	0.291
Right Hand Side			0.038			0.038
Bottom			1.113			1.113
Top					0.207	0.207
Front				0.525	0.207	0.732
Back				0.523	0.207	0.730
Left Hand Side				0.244	0.207	0.451
Right Hand Side				0.137		0.137
Bottom				0.458		0.458
Top					0.207	0.207

Simultaneous Transmission SAR Analysis (Continued)**Hotspot Mode 1g – Worst cases measurements WWAN + WPAN**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WPAN
	WWAN				WPAN	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5	Bluetooth	
Front	0.450				0.207	0.657
Back	0.466				0.207	0.673
Left Hand Side	0.488				0.207	0.695
Right Hand Side	0.523					0.523
Bottom	0.115					0.115
Top					0.207	0.207
Front		0.444			0.207	0.651
Back		0.365			0.207	0.572
Left Hand Side		0.064			0.207	0.271
Right Hand Side		0.081				0.081
Bottom		0.882				0.882
Top					0.207	0.207
Front			0.459		0.207	0.666
Back			0.407		0.207	0.614
Left Hand Side			0.177		0.207	0.384
Right Hand Side			0.133			0.133
Bottom			0.359			0.359
Top					0.207	0.207
Front				0.463	0.207	0.670
Back				0.477	0.207	0.684
Left Hand Side				0.347	0.207	0.554
Right Hand Side				0.402		0.402
Bottom				0.122		0.122
Top					0.207	0.207

Hotspot Mode 1g – Worst cases measurements WWAN + WPAN

	Reported SAR 1g (W/Kg)					Sum of WWAN & WPAN
	WWAN				WPAN	
EUT Position	LTE Band 7	LTE Band 17	-	-	Bluetooth	
Front	1.104				0.207	1.311
Back	0.612				0.207	0.819
Left Hand Side	0.236				0.207	0.443
Right Hand Side	0.073					0.073
Bottom	0.734					0.734
Top					0.207	0.207
Front		0.273			0.207	0.480
Back		0.296			0.207	0.503
Left Hand Side		0.211			0.207	0.418
Right Hand Side		0.156				0.156
Bottom		0.031				0.031
Top					0.207	0.207

Simultaneous Transmission SAR Analysis (Continued)**Body-worn 1g – Worst cases measurements WWAN + WPAN**

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WPAN	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4	Bluetooth	
Front	0.469				0.138	0.607
Back	0.450				0.138	0.588
Front		0.583			0.138	0.721
Back		0.614			0.138	0.752
Front			1.114		0.138	1.252
Back			0.982		0.138	1.120
Front				0.400	0.138	0.538
Back				0.360	0.138	0.498

Body-worn 1g – Worst cases measurements WWAN + WPAN

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WPAN	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5	Bluetooth	
Front	0.450				0.138	0.588
Back	0.466				0.138	0.604
Front		0.648			0.138	0.786
Back		0.580			0.138	0.718
Front			0.408		0.138	0.546
Back			0.342		0.138	0.480
Front				0.463	0.138	0.601
Back				0.477	0.138	0.615

Body-worn 1g – Worst cases measurements WWAN + WPAN

	Reported SAR 1g (W/Kg)					Sum of WWAN & WLAN
	WWAN				WPAN	
EUT Position	LTE Band 7	LTE Band 17	-	-	Bluetooth	
Front	1.104				0.138	1.242
Back	0.612				0.138	0.750
Front		0.273			0.138	0.411
Back		0.296			0.138	0.434

Note(s):

1. The sum of reported SAR does not exceed 1.6 W/kg in any of the above cases and hence, the SAR to peak location separation ratio distance was not calculated.

Simultaneous Transmission SAR Analysis (Continued)**Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 5.0GHz + WPAN**

	Reported SAR 1g (W/Kg)						Sum of WWAN, WLAN & WPAN
	WWAN				WLAN	WPAN	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4	Wi-Fi 802.11a/n/ac	Bluetooth	
Front	0.464				0.035	0.207	0.706
Back	0.472				0.278	0.207	0.957
Left Hand Side	0.324				0.032	0.207	0.563
Right Hand Side	0.493						0.700
Bottom	0.123						0.330
Top					0.027	0.207	0.234
Front		0.885			0.035	0.207	1.127
Back		0.558			0.278	0.207	1.043
Left Hand Side		0.104			0.032	0.207	0.343
Right Hand Side		0.040					0.247
Bottom		1.133					1.340
Top					0.027	0.207	0.234
Front			0.781		0.035	0.207	1.023
Back			0.653		0.278	0.207	1.138
Left Hand Side			0.084		0.032	0.207	0.323
Right Hand Side			0.038				0.245
Bottom			1.113				1.320
Top					0.027	0.207	0.234
Front				0.525	0.035	0.207	0.767
Back				0.523	0.278	0.207	1.008
Left Hand Side				0.244	0.032	0.207	0.483
Right Hand Side				0.137			0.344
Bottom				0.458			0.665
Top					0.027	0.207	0.234

Simultaneous Transmission SAR Analysis (Continued)**Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 5.0GHz + WPAN**

	Reported SAR 1g (W/Kg)						Sum of WWAN, WLAN & WPAN
	WWAN				WLAN	WPAN	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5	Wi-Fi 802.11a/n/ac	Bluetooth	
Front	0.450				0.035	0.207	0.692
Back	0.466				0.278	0.207	0.951
Left Hand Side	0.488				0.032	0.207	0.727
Right Hand Side	0.523						0.730
Bottom	0.115						0.322
Top					0.027	0.207	0.234
Front		0.444			0.035	0.207	0.686
Back		0.365			0.278	0.207	0.850
Left Hand Side		0.064			0.032	0.207	0.303
Right Hand Side		0.081					0.288
Bottom		0.882					1.089
Top					0.027	0.207	0.234
Front			0.459		0.035	0.207	0.701
Back			0.407		0.278	0.207	0.892
Left Hand Side			0.177		0.032	0.207	0.416
Right Hand Side			0.133				0.340
Bottom			0.359				0.566
Top					0.027	0.207	0.234
Front				0.463	0.035	0.207	0.705
Back				0.477	0.278	0.207	0.962
Left Hand Side				0.347	0.032	0.207	0.586
Right Hand Side				0.402			0.609
Bottom				0.122			0.329
Top					0.027	0.207	0.234

Hotspot Mode 1g – Worst cases measurements WWAN + WLAN 5.0GHz + WPAN

	Reported SAR 1g (W/Kg)						Sum of WWAN, WLAN & WPAN
	WWAN				WLAN	WPAN	
EUT Position	LTE Band 7	LTE Band 17	-	-	Wi-Fi 802.11a/n/ac	Bluetooth	
Front	1.104				0.035	0.207	1.346
Back	0.612				0.278	0.207	1.097
Left Hand Side	0.236				0.032	0.207	0.475
Right Hand Side	0.073						0.280
Bottom	0.734						0.941
Top					0.027	0.207	0.234
Front		0.273			0.035	0.207	0.515
Back		0.296			0.278	0.207	0.781
Left Hand Side		0.211			0.032	0.207	0.450
Right Hand Side		0.156					0.363
Bottom		0.031					0.238
Top					0.027	0.207	0.234

Simultaneous Transmission SAR Analysis (Continued)**Body-Worn 1g – Worst cases measurements WWAN + WLAN 5.0GHz + WPAN**

	Reported SAR 1g (W/Kg)						Sum of WWAN, WLAN & WPAN
	WWAN				WLAN	WPAN	
EUT Position	GSM850	PCS1900	UMTS FDD 2	UMTS FDD 4	Wi-Fi 802.11a/n/ac	Bluetooth	
Front	0.469				0.035	0.138	0.642
Back	0.450				0.278	0.138	0.866
Front		0.583			0.035	0.138	0.756
Back		0.614			0.278	0.138	1.030
Front			1.114		0.035	0.138	1.287
Back			0.982		0.278	0.138	1.398
Front				0.400	0.035	0.138	0.573
Back				0.360	0.278	0.138	0.776

Body-Worn 1g – Worst cases measurements WWAN + WLAN 5.0GHz + WPAN

	Reported SAR 1g (W/Kg)						Sum of WWAN, WLAN & WPAN
	WWAN				WLAN	WPAN	
EUT Position	UMTS FDD 5	LTE Band 2	LTE Band 4	LTE Band 5	Wi-Fi 802.11a/n/ac	Bluetooth	
Front	0.450				0.035	0.138	0.623
Back	0.466				0.278	0.138	0.882
Front		0.648			0.035	0.138	0.821
Back		0.580			0.278	0.138	0.996
Front			0.408		0.035	0.138	0.581
Back			0.342		0.278	0.138	0.758
Front				0.463	0.035	0.138	0.636
Back				0.477	0.278	0.138	0.893

Body-Worn 1g – Worst cases measurements WWAN + WLAN 5.0GHz + WPAN

	Reported SAR 1g (W/Kg)						Sum of WWAN, WLAN & WPAN
	WWAN				WLAN	WPAN	
EUT Position	LTE Band 7	LTE Band 17	-	-	Wi-Fi 802.11a/n/ac	Bluetooth	
Front	1.104				0.035	0.138	1.277
Back	0.612				0.278	0.138	1.028
Front		0.273			0.035	0.138	0.446
Back		0.296			0.278	0.138	0.712

Note(s):

- The sum of reported SAR does not exceed 1.6 W/kg in any of the above cases and hence, the SAR to peak location separation ratio distance was not calculated.

Appendix 1. Test Equipment Used

UL No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A034	Narda 20W Termination	Narda	374BNM	8706	Calibrated as part of system	-
A1097	SMA Directional Coupler	MidISCO	MDC6223-30	None	Calibrated as part of system	-
A1137	3dB Attenuator	Narda	779	04690	Calibrated as part of system	-
A1174	Dielectric Probe Kit	Agilent Technologies	85070C	Us99360072	Calibrated before use	-
A1328	Handset Positioner	Schmid & Partner Engineering AG	Modification	SD 000 H01 DA	-	-
A1182	Handset Positioner	Schmid & Partner Engineering AG	V3.0	None	-	-
A2111	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	432	28 Aug 2013	12
A2110	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	431	18 Nov 2013	12
A1234	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	450	12 Nov 2013	12
A2109	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	417	10 Apr 2014	12
A2546	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE4	1435	12 May 2014	12
A2547	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE4	1438	12 May 2014	12
A2077	Probe	Schmid & Partner Engineering AG	EX3 DV4	3814	24 Sep 2013	12
A1185	Probe	Schmid & Partner Engineering AG	ET3 DV6	1528	16 Apr 2014	12
A2436	Probe	Schmid & Partner Engineering AG	ES3 DV3	3335	08 Jan 2014	12
A2243	Probe	Schmid & Partner Engineering AG	ES3 DV3	3304	02 Sept 2013	12
A2544	Probe	Schmid & Partner Engineering AG	EX3 DV4	3994	07 May 2014	12
A2545	Probe	Schmid & Partner Engineering AG	EX3 DV4	3995	09 May 2014	12
A1985	750 MHz Dipole Kit	Schmid & Partner Engineering AG	D750V3	1011	18 Apr 2013	24
A2201	900 MHz Dipole Kit	Schmid & Partner Engineering AG	D900V2	035	20 Jan 2014	12
A1236	1800 MHz Dipole Kit	Schmid & Partner Engineering AG	D1800V2	2d009	16 Jan 2014	12
A2200	1900 MHz Dipole Kit	Schmid & Partner Engineering AG	D1900V2	537	22 Jan 2014	12
A2202	2440 MHz Dipole Kit	Schmid & Partner Engineering AG	D2440V2	701	14 Jan 2014	12
A2244	2600 MHz Dipole Kit	Schmid & Partner Engineering AG	D2600V2	1046	30 Aug 2013	12
A1377	5.0 GHz Dipole Kit	Schmid & Partner Engineering AG	D5GHzV2	1016	26 Mar 2014	12
A1497	Amplifier	Mini-Circuits	zhl-42w (sma)	e020105	Calibrated as part of system	-
A1566	SAM Phantom	Schmid & Partner Engineering AG	SAM a (Site 56)	002	Calibrated before use	-
A1238	SAM Phantom	Schmid & Partner Engineering AG	SAM b (Site 56)	001	Calibrated before use	-

UL No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A2125	SAM Phantom	Schmid & Partner Engineering AG	SAM b (Site 57)	TP-1031	Calibrated before use	-
A2124	SAM Phantom	Schmid & Partner Engineering AG	SAM a (Site 57)	TP-1030	Calibrated before use	-
A2438	SAM Phantom	Schmid & Partner Engineering AG	SAM a	1805	Calibrated before use	-
A2551	SAM Phantom	Schmid & Partner Engineering AG	SAM a	1832	Calibrated before use	-
A2552	SAM Phantom	Schmid & Partner Engineering AG	SAM a	1836	Calibrated before use	-
A2437	Eli Phantom	Schmid & Partner Engineering AG	Eli5	1235	Calibrated before use	-
A2252	2mm Oval Phantom	Schmid & Partner Engineering AG	Eli5	1177	Calibrated before use	-
A2549	2mm Oval Phantom	Schmid & Partner Engineering AG	Eli5	00T01 DA	Calibrated before use	-
A2550	2mm Oval Phantom	Schmid & Partner Engineering AG	Eli5	00T01 DA	Calibrated before use	-
A215	20 dB Attenuator	Narda	766-20	9402	Calibrated as part of system	-
A1531	Antenna	AARONIA AG	7025	02458	-	-
A2263	Digital Camera	Samsung	PL211	9453C90B 607487L	-	-
M1015	Network Analyser	Agilent Technologies	8753ES	US39172406	04 Oct 2013	12
C1145	Cable	Rosenberger MICRO-COAX	FA147A F003003030	41843-1	Calibrated as part of system	-
C1146	Cable	Rosenberger MICRO-COAX	FA147A F030003030	41752-1	Calibrated as part of system	-
G0528	Robot Power Supply	Schmid & Partner Engineering AG	DASY4	None	Calibrated before use	-
GO591	Robot Power Supply	Schmid & Partner Engineering AG	DASY4	None	Calibrated before use	-
G0592	Robot Power Supply	Schmid & Partner Engineering AG	DASY53	None	Calibrated before use	-
G0610	Robot Power Supply	Schmid & Partner Engineering AG	DASY53	None	Calibrated before use	-
G0611	Robot Power Supply	Schmid & Partner Engineering AG	DASY53	None	Calibrated before use	-
G0612	Robot Power Supply	Schmid & Partner Engineering AG	DASY53	None	Calibrated before use	-
G087	PSU	Thurlby Thandar	CPX200	100701	Calibrated before use	-
M1047	Robot Arm	Staubli	RX908 L	F00/SD8 9A1/A/01	Calibrated before use	-
M1653	Robot Arm	Staubli	RX908 L	F01/5J8 6A1/C/01	Calibrated before use	-
M1680	Robot Arm	Staubli	TX60 L	F12/5MZ7 A1/A/01	Calibrated before use	-
M1875	Robot Arm	Staubli	TX60 L	F13/5SC6F1/A/01	Calibrated before use	-
M1876	Robot Arm	Staubli	TX60 L	F14/5T5ZA1/A/01	Calibrated before use	-
M1877	Robot Arm	Staubli	TX60 L	F14/5UA6A1/A/01	Calibrated before use	-

UL No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
M1839	Signal Generator	R&S	SME06	837633/001	15 Apr 2014	12
M1838	Signal Generator	R&S	SME06	831377/005	15 Apr 2014	12
M1270	Digital Thermometer	RS	N/A	N/A	Internal Cal 06 May 2014	12
M1023	Dual Channel Power Meter	R & S	NRVD	863715/030	01 May 2014	12
S0566	SAR Lab	UL	Site 56	N/A	Calibrated before use	-
S0567	SAR Lab	UL	Site 57	N/A	Calibrated before use	-
S0568	SAR Lab	UL	Site 58	N/A	Calibrated before use	-
S0569	SAR Lab	UL	Site 59	N/A	Calibrated before use	-
S0570	SAR Lab	UL	Site 60	N/A	Calibrated before use	-
S0571	SAR Lab	UL	Site 61	N/A	Calibrated before use	-