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FCC SAR Compliance Test Report

Product Name: Smart Phone

Model: EVE-LX3

Report No.: SYBH(Z-SAR)20221017002001

FCC ID: 2ATEYEVE

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Modified History

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	2022-10-20	Zheng Xuan

1 General Information

1.1 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing are below Table 1.

Band	Max Reported SAR(W/kg)			
	1-g Head	1-g Body-worn (15mm)*	1-g Hotspot (10mm)	Product Specific 10-g SAR (0mm)**
GSM 850	0.39	0.36	0.57	/
PCS 1900	0.71	0.32	0.79	/
UMTS Band II	0.83	0.36	0.64	/
UMTS Band IV	1.04	0.58	1.00	1.88
UMTS Band V	0.34	0.46	0.60	/
LTE Band 2	0.88	0.36	0.59	/
LTE Band 4	1.01	0.61	0.83	/
LTE Band 5	0.41	0.44	0.37	/
LTE Band 7	0.76	0.77	0.83	2.65
LTE Band 13	0.34	0.29	0.36	/
LTE Band 26	0.35	0.34	0.55	/
LTE Band 38	1.05	0.79	1.07	1.50
LTE Band 66	1.01	0.61	0.83	/
2.4G Wi-Fi	0.15	0.20	0.42	/
BT	0.12	/	/	/
The highest reported SAR for Head, Body Worn, Hotspot, Product Specific 10-g and Simultaneous transmission exposure conditions are 1.05 W/kg, 0.79 W/kg, 1.07 W/kg, 2.65 W/kg and 1.49 W/kg per KDB690783 D01.				

Table 1: Summary of test result

Note:

1)* For body worn operation, this device has been tested with FCC RF exposure guidelines when used with any accessory that contains no metal and that positions the handset a minimum of 15mm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

2) ** For Product Specific 10-g SAR operation, this device has been tested and meets the 10-g SAR limits of 4.0 W/kg for general population/ uncontrolled exposure according to ANSI C95.1:1992/IEEE C95.1:1991.

3) According to TCB workshop October, 2014 RF Exposure Procedures Update(Overlapping LTE Bands):

a) SAR for LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66(Frequency range:1710-1780 MHz) due to similar frequency range, smaller maximum tune up limit and same channel bandwidth.

The device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits according to the FCC rule §2.1093, the ANSI C95.1:1992/IEEE C95.1:1991, the NCRP Report Number 86 for uncontrolled environment, and had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013.

1.2 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain/Body/Arms/Legs)	1.60 W/kg	8.00 W/kg
Spatial Average SAR** (Whole Body)	0.08 W/kg	0.40 W/kg
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	4.00 W/kg	20.00 W/kg

Table 2: RF exposure limits

The limit applied in this test report is shown in **bold** letters

Notes:

- * The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
- ** The Spatial Average value of the SAR averaged over the whole body.
- *** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation

1.3 EUT Description

Device type :	Portable device		
Product Name:	Smart Phone		
Models:	EVE-LX3		
SN :	1#: 9STBB22824000044 2#: 9STBB22824000019 3#: 9STBB22824000011 4#: 9STBB22824000034 5#: 9STBB22824000106		
Exposure category:	Uncontrolled environment / general population		
Hardware version :	HL1EVEM		
Software version :	6.0.0.115(C603E2R2P1)		
Antenna type :	Internal antenna		
Test device production information	Identical Prototype		
Test modulation	GSM(GMSK/8PSK), UMTS(QPSK), LTE(QPSK/16QAM/64QAM), Wi-Fi(DSSS/OFDM), BT(GFSK/π/4-DQPSK/8-DPSK)		
GPRS Multislot Class(12)	Max Number of Timeslots in Uplink:	4	
	Max Number of Timeslots in Downlink:	4	
	Max Total Timeslot:	5	
EGPRS Multislot Class(12)	Max Number of Timeslots in Uplink:	4	
	Max Number of Timeslots in Downlink:	4	
	Max Total Timeslot:	5	
Device Class :	B		
HSDPA UE Category:	14		
HSUPA UE Category:	6		
DC-HSDPA UE Category	24		
Supporting mode(s) and Operating frequency range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824-849	869-894
	PCS 1900	1850-1910	1930-1990
	UMTS Band II	1850-1910	1930-1990
	UMTS Band IV	1710-1755	2110-2155
	UMTS Band V	824-849	869-894
	LTE Band 2	1850-1910	1930-1990
	LTE Band 4	1710-1755	2110-2155
	LTE Band 5	824-849	869-894
	LTE Band 7	2500-2570	2620 -2690
	LTE Band 13	777-787	746-756
	LTE Band 26	814-849	859-894
	LTE Band 38	2570-2620	
	LTE Band 66	1710-1780	2110-2200
	2.4G Wi-Fi	2400-2483.5	
BT	2400-2483.5		

Power class :	4, tested with power level 5(GSM 850)
	1, tested with power level 0(PCS 1900)
	3, tested with power control "all 1"(UMTS Bands)
	3, tested with power control all Max.(LTE Bands)
Test channels (low-mid-high) :	128-190-251(GSM 850)
	512-661-810(PCS 1900)
	9262-9400-9538(UMTS Band II)
	1312-1413-1513(UMTS Band IV)
	4132-4182-4233(UMTS Band V)
	18607-18900-19193(LTE Band 2 BW=1.4MHz)
	18615-18900-19185(LTE Band 2 BW=3MHz)
	18625-18900-19175(LTE Band 2 BW=5MHz)
	18650-18900-19150(LTE Band 2 BW=10MHz)
	18675-18900-19125(LTE Band 2 BW=15MHz)
	18700-18900-19100(LTE Band 2 BW=20MHz)
	19957-20175-20393(LTE Band 4 BW=1.4MHz)
	19965-20175-20385(LTE Band 4 BW=3MHz)
	19975-20175-20375(LTE Band 4 BW=5MHz)
	20000-20175-20350(LTE Band 4 BW=10MHz)
	20025-20175-20325(LTE Band 4 BW=15MHz)
	20050-20175-20300(LTE Band 4 BW=20MHz)
	20407-20525-20643(LTE Band 5 BW=1.4MHz)
	20415-20525-20635(LTE Band 5 BW=3MHz)
	20425-20525-20625(LTE Band 5 BW=5MHz)
	20450-20525-20600(LTE Band 5 BW=10MHz)
	20775-21100-21425(LTE Band 7 BW=5MHz)
	20800-21100-21400(LTE Band 7 BW=10MHz)
	20825-21100-21375(LTE Band 7 BW=15MHz)
	20850-21100-21350(LTE Band 7 BW=20MHz)
	23205-23230-23255(LTE Band 13 BW=5MHz)
	23230(LTE Band 13 BW=10MHz)
	26697-26865-27033(LTE Band 26 BW=1.4MHz)
	26705-26865-27025(LTE Band 26 BW=3MHz)
	26715-26865-27015(LTE Band 26 BW=5MHz)
	26740-26865-26990(LTE Band 26 BW=10MHz)
	26765-26865-26965(LTE Band 26 BW=15MHz)
	37775-38000-38225(LTE Band 38 BW=5MHz)
	37800-38000-38200(LTE Band 38 BW=10MHz)
	37825-38000-38175(LTE Band 38 BW=15MHz)
	37850-38000-38150(LTE Band 38 BW=20MHz)
	131979-132322-132665(LTE Band 66 BW=1.4MHz)
	131987-132322-132657(LTE Band 66 BW=3MHz)
	131997-132322-132647(LTE Band 66 BW=5MHz)
	132022-132322-132622(LTE Band 66 BW=10MHz)
132047-132322-132597(LTE Band 66 BW=15MHz)	
132072-132322-132572(LTE Band 66 BW=20MHz)	
802.11b:1-6-11	
802.11g: 1-2-6-10-11	

	802.11n(20M): 1-6-11
	802.11n(40M):3-4-5-6-7-8-9(2.4G Wi-Fi)
	0-39-78(BT)

Table 3: Device information and operating configuration

1.3.1 General Description

EVE-LX3 is subscriber equipment in the GSM/WCDMA/LTE system. The Mobile Phone implements such functions as RF signal receiving/transmitting, LTE/WCDMA and GSM protocol processing, voice, video MMS service, GPS, AGPS, Wi-Fi etc. Externally it provides earphone port (to provide voice service), and dual SIM/single SIM card interface. EVE-LX3 is dual/single SIM smart phone. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

Battery information:

Name	Manufacturer/Trademark	Description
Rechargeable Li-ion	Huawei Device Co., Ltd. (Factory: NVT)	Battery Model: HB496590EFW-F Rated capacity: 4900mAH Nominal Voltage: +3.87V Charging Voltage: +4.45V
	Huawei Device Co., Ltd. (Factory: DESAY)	
	Huawei Device Co., Ltd. (Factory: SCUD)	

1.4 Test specification(s)

ANSI C95.1-1992 IEEE C95.1-1991	Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE Std 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 941225 D01	3G SAR Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 941225 D06	Hotspot SAR v02r01
KDB 447498 D01	General RF Exposure Guidance v06
KDB 648474 D04	Handsets SAR v01r03
KDB 248227 D01	SAR Guidance for IEEE 802.11 Wi-Fi SAR v02r02
KDB 865664 D01	SAR measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03

1.5 Testing laboratory

Test Site	Reliability Laboratory of Huawei Technologies Co., Ltd.
Test Location	NO.2 New City Avenue Songshan Lake Sci. & Tech. Industry Park, Dongguan, Guangdong, P.R.C
Telephone	+86 769 23830808
Fax	+86 769 23837628
State of accreditation	The Test laboratory (area of testing) is accredited according to ISO/IEC 17025.

1.6 Applicant and Manufacturer

Company Name	Huawei Device Co., Ltd
Address	No.2 of Xincheng Road, Songshan Lake Zone, Dongguan, Guangdong 523808, People's Republic of China

1.7 Application details

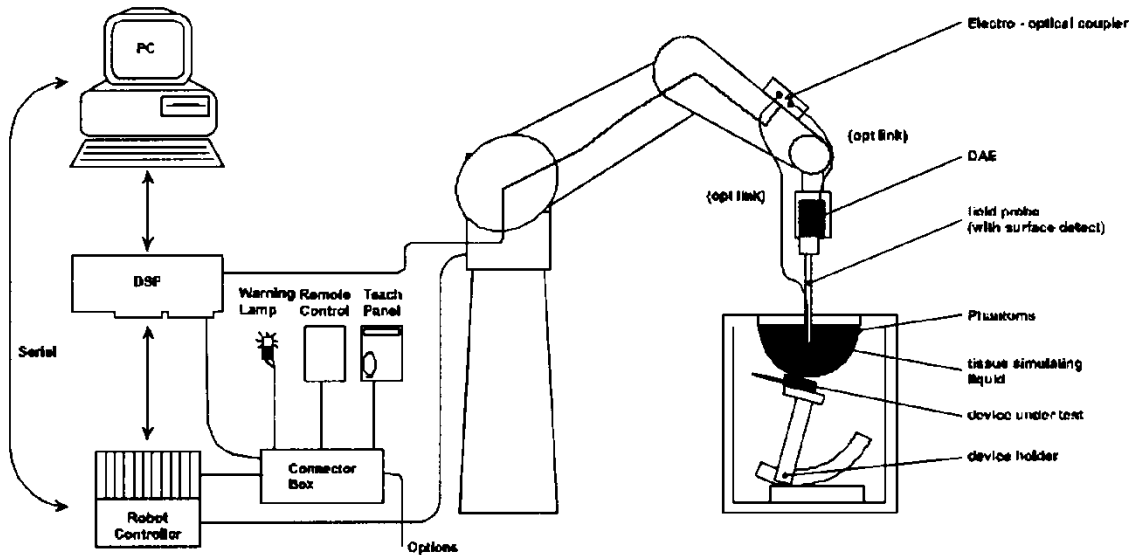
Start Date of test	2022-09-16
End Date of test	2022-10-13

1.8 Ambient Condition

Ambient temperature	18°C – 25°C
Relative Humidity	30% – 70%

2 SAR Measurement System

2.1 SAR Measurement Set-up



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

- A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronic (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.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY measurement server.
- The DASY measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows.
- DASY software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System check dipoles allowing to validate the proper functioning of the system.

2.2 Test environment

The DASY measurement system is placed at the head end of a room with dimensions: 5 x 2.5 x 3 m³, the SAM phantom is placed in a distance of 75 cm from the side walls and 1.1m from the rear wall. Above the test system a 1.5 x 1.5 m² array of pyramid absorbers is installed to reduce reflections from the ceiling.

Picture 1 of the photo documentation shows a complete view of the test environment.


The system allows the measurement of SAR values larger than 0.005 mW/g.

2.3 Data Acquisition Electronics description

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

The mechanical probe mounting device includes two different sensor systems for frontal and sideways Probe contacts. They are used for mechanical surface detection and probe collision detection.

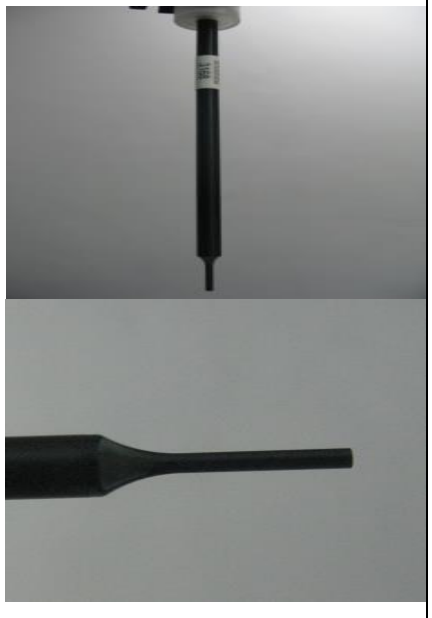
DAE

Input Impedance	200MΩ	
The Inputs	symmetrical and floating	
Common mode rejection	above 80 dB	


2.4 Probe description

These probes are specially designed and calibrated for use in liquids with high permittivities. They should not be used in air, since the spherical isotropy in air is poor (± 2 dB). The dosimetric probes have special calibrations in various liquids at different frequencies.

Isotropic E-Field Probe ES3DV3 for Dosimetric Measurements


Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration	ISO/IEC 17025 calibration service available.	
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)	
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)	
Dynamic range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm	
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones	

Isotropic E-Field Probe EX3DV4 for Dosimetric Measurements

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration	ISO/IEC 17025 calibration service available.	
Frequency	10 MHz to >6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic range	10 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)	
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%	

2.5 Phantom description

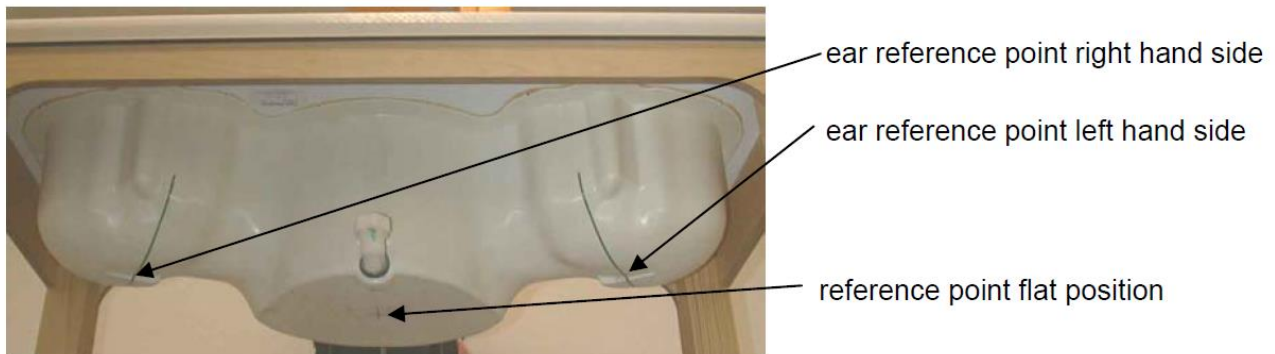
SAM Twin Phantom

Shell Thickness	2mm±0.2mm;The ear region:6.0±0.2mm	
Filling Volume	Approximately 25 liters	
Dimensions	Length:1000mm; Width:500mm; Height: adjustable feet	
Measurement Areas	Left hand Right hand Flat phantom	


The bottom plate contains three pairs of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections.

A white cover is provided to cover the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. Free space scans of devices on top of this phantom cover are possible. Three reference marks are provided on the phantom counter. These reference marks are used to teach the absolute phantom position relative to the robot.

The following figure shows the definition of reference point:




ELI4 Phantom

Shell Thickness	2mm±0.2mm	
Filling Volume	Approximately 30 liters	
Dimensions	Major axis:600mm; Minor axis:400mm;	
Measurement Areas	Flat phantom	

The ELI4 phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30MHz to 6GHz. ELI4 is fully compatible with the latest version of the standard IEC 62209-2 and all known tissue simulating liquids.

The phantom shell material is resistant to all ingredients used in the tissue-equivalent liquid recipes. The shell of the phantom including ear spacers is constructed from low permittivity and low loss material, with a relative permittivity $2 \leq \epsilon_r \leq 5$ at ≤ 3 GHz, $3 \leq \epsilon_r \leq 4$ at > 3 GHz and a loss tangent ≤ 0.05 .

Modular Triple Flat Phantom

Shell Thickness (bottom plate)	2mm±0.2mm	
Filling Volume (Module)	approx. 8.1 liters (filling height: 155 mm)	
Dimensions	Length: 292 mm Width: 178 mm Height: 178 mm Useable area: 280 x 175 mm	
Measurement Areas	Flat phantom	
<p>The Modular Flat Phantom consists of three identical modules that can be installed and removed separately without emptying the liquid. It is used for compliance testing of small wireless devices in body-worn configurations according to IEC 62209-2, etc.</p>		

2.6 Device holder description

The DASY device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. This device holder is used for standard mobile phones or PDA’s only. If necessary an additional support of polystyrene material is used.



The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon=3$ and loss tangent $\sigma=0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

The device holder permits the device to be positioned with a tolerance of $\pm 1^\circ$ in the tilt angle.

Larger DUT’s (e.g. notebooks) cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values.

Therefore those devices are normally only tested at the flat part of the SAM.

2.7 Test Equipment List

This table gives a complete overview of the SAR measurement equipment.

Devices used during the test described are marked

	Manufacturer	Device	Type	Serial number	Date of last calibration	Valid period*
<input checked="" type="checkbox"/>	SPEAG	Dosimetric E-Field Probe	EX3DV4	3744	2022-08-09	One year
<input checked="" type="checkbox"/>	SPEAG	Dosimetric E-Field Probe	EX3DV4	7505	2022-04-28	One year
<input checked="" type="checkbox"/>	SPEAG	Dosimetric E-Field Probe	EX3DV4	7381	2021-11-24	One year
<input checked="" type="checkbox"/>	SPEAG	750 MHz Dipole	D750V3	1044	2022-07-29	Three years
<input checked="" type="checkbox"/>	SPEAG	835 MHz Dipole	D835V2	4d126	2021-08-10	Three years
<input checked="" type="checkbox"/>	SPEAG	1750 MHz Dipole	D1750V2	1145	2022-02-24	Three years
<input checked="" type="checkbox"/>	SPEAG	1900 MHz Dipole	D1900V2	5d091	2022-04-28	Three years
<input checked="" type="checkbox"/>	SPEAG	2450 MHz Dipole	D2450V2	860	2021-11-25	Three years
<input checked="" type="checkbox"/>	SPEAG	2600 MHz Dipole	D2600V2	1032	2021-07-21	Three years
<input checked="" type="checkbox"/>	SPEAG	Data acquisition electronics	DAE4	1492	2022-08-04	One year
<input checked="" type="checkbox"/>	SPEAG	Data acquisition electronics	DAE4	1235	2021-11-22	One year
<input checked="" type="checkbox"/>	SPEAG	Software	DASY52	N/A	NCR	NCR
<input checked="" type="checkbox"/>	SPEAG	Twin Phantom	SAM	1475	NCR	NCR
<input checked="" type="checkbox"/>	SPEAG	Twin Phantom	SAM	1594	NCR	NCR
<input checked="" type="checkbox"/>	R & S	Universal Radio Communication Tester	CMW 500	116265	2022-07-05	One year
<input checked="" type="checkbox"/>	R & S	Universal Radio Communication Tester	CMW 500	158850	2021-11-10	One year
<input checked="" type="checkbox"/>	Anritsu	Signal Analyzer	MS2690A	6261767335	2022-02-24	One year
<input checked="" type="checkbox"/>	Anritsu	Radio Communication Analyser	MT8821C	6261806786	2022-07-05	One year
<input checked="" type="checkbox"/>	Anritsu	Radio Communication Analyser	MT8821C	6201830585	2022-04-11	One year
<input checked="" type="checkbox"/>	Agilent	Network Analyser	E5071C	MY46629448	2022-07-04	One year
<input checked="" type="checkbox"/>	SPEAG	Dielectric Probe Kit	DAK3.5	1143	NCR	NCR
<input checked="" type="checkbox"/>	Keysight	Signal Generator	E8257D	MY56440071	2021-11-11	One year
<input checked="" type="checkbox"/>	HBTE	Amplifier	HBTE-PAF-0.6-6-SF-SF	19113001	NCR	NCR
<input checked="" type="checkbox"/>	Agilent	Dual Directional Coupler	772D	MY52180173	2021-11-11	One year
<input checked="" type="checkbox"/>	AR	Directional Coupler	DC7144M1	0423264	2022-07-05	One year
<input checked="" type="checkbox"/>	R & S	Power Meter	NRX	103714	2022-01-14	One year
<input checked="" type="checkbox"/>	R & S	Power Meter Sensor	NRP18S	102528	2022-01-17	One year
<input checked="" type="checkbox"/>	R & S	Power Meter	NRX	103715	2022-01-17	One year
<input checked="" type="checkbox"/>	R & S	Power Meter Sensor	NRP18S	102529	2022-01-17	One year

Table 4: List of Test and Measurement Equipment

Note:

- 1) Per KDB865664 D01 requirements for dipole calibration, the test laboratory has adopted three-year extended calibration interval. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix.
 - a) There is no physical damage on the dipole;
 - b) System check with specific dipole is within 10% of calibrated value;
 - c) The most recent return-loss result, measured at least annually, deviates by no more than 20% from the previous measurement.
 - d) The most recent measurement of the real or imaginary parts of the impedance, measured at least annually is within 5Ω from the previous measurement.
- 2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.
- 3) *All the equipment are within the valid period when the tests are performed.

3 SAR Measurement Procedure

3.1 Scanning procedure

The DASY installation includes predefined files with recommended procedures for measurements and system check. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. +/- 5 %.
- For power drift measurement, DASY software supports that the reference position can be either the selected section’s grid reference point or a user point. If the E-field of power reference measurement in the default grid reference point is very small, the test lab may set the reference position to the user point near the hotspot location to avoid large measurement uncertainty.
- The “surface check” measurement tests the optical surface detection system of the DASY system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above $\pm 0.1\text{mm}$). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^\circ$.)
- The “area scan” measures the SAR above the DUT or verification dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The robot performs a stepped movement along one grid axis while the local electrical field strength is measured by the probe. The probe is touching the surface of the SAM during acquisition of measurement values. The standard scan uses large grid spacing for faster measurement. Standard grid spacing for head measurements is 15 mm in x- and y- dimension ($\leq 2\text{GHz}$), 12 mm in x- and y- dimension (2-4 GHz) and 10mm in x- and y- dimension (4-6GHz). If a finer resolution is needed, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result. For special applications where the standard scan method does not find the peak SAR within the grid, e.g. mobile phones with flip cover, the grid can be adapted in orientation. Results of this coarse scan are shown in Appendix B.
- A “zoom scan” measures the field in a volume around the 2D peak SAR value acquired in the previous “coarse” scan. This is a fine grid with maximum scan spatial resolution: $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}} \leq 2\text{GHz} - \leq 8\text{mm}$, 2-4GHz - $\leq 5\text{ mm}$ and 4-6 GHz- $\leq 4\text{mm}$; $\Delta z_{\text{zoom}} \leq 3\text{GHz} - \leq 5\text{ mm}$, 3-4 GHz- $\leq 4\text{mm}$ and 4-6GHz- $\leq 2\text{mm}$ where the robot additionally moves the probe along the z-axis away from the bottom of the Phantom. DASY is also able to perform repeated zoom scans if more than 1 peak is found during area scan. In this document, the evaluated peak 1g and 10g averaged SAR values are shown in the 2D-graphics in Appendix B. Test results relevant for the specified standard (see chapter 1.4.) are shown in table form in chapter 7.2.
- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 2 mm steps. This measurement shows the continuity of the liquid and can - depending in the field strength – also show the liquid depth. A z-axis scan of the measurement with maximum SAR value is shown in Appendix B.

The following table summarizes the area scan and zoom scan resolutions per FCC KDB865664 D01:

Frequency	Maximum Area Scan resolution ($\Delta x_{area}, \Delta y_{area}$)	Maximum Zoom Scan spatial resolution ($\Delta x_{zoom}, \Delta y_{zoom}$)	Maximum Zoom Scan spatial resolution			Minimum zoom scan volume (x,y,z)
			Uniform Grid	Graded Grid		
			$\Delta z_{zoom}(n)$	$\Delta z_{zoom}(1)^*$	$\Delta z_{zoom}(n>1)^*$	
≤2GHz	≤15mm	≤8mm	≤5mm	≤4mm	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥30mm
2-3GHz	≤12mm	≤5mm	≤5mm	≤4mm	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥30mm
3-4GHz	≤12mm	≤5mm	≤4mm	≤3mm	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥28mm
4-5GHz	≤10mm	≤4mm	≤3mm	≤2.5mm	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥25mm
5-6GHz	≤10mm	≤4mm	≤2mm	≤2mm	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥22mm

3.2 Spatial Peak SAR Evaluation

The spatial peak SAR - value for 1 and 10 g is evaluated after the Cube measurements have been done. The basis of the evaluation are the SAR values measured at the points of the fine cube grid consisting of 5 x 5 x 7 points (with 8mm horizontal resolution) or 7 x 7 x 7 points (with 5mm horizontal resolution) or 8 x 8 x 7 points (with 4mm horizontal resolution). The algorithm that finds the maximal averaged volume is separated into three different stages.

- The data between the dipole center of the probe and the surface of the phantom are extrapolated. This data cannot be measured since the center of the dipole is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is about 1 mm (see probe calibration sheet). The extrapolated data from a cube measurement can be visualized by selecting 'Graph Evaluated'.
- The maximum interpolated value is searched with a straight-forward algorithm. Around this maximum the SAR - values averaged over the spatial volumes (1g or 10 g) are computed using the 3d-spline interpolation algorithm. If the volume cannot be evaluated (i.e., if a part of the grid was cut off by the boundary of the measurement area) the evaluation will be started on the corners of the bottom plane of the cube.
- All neighboring volumes are evaluated until no neighboring volume with a higher average value is found.

Extrapolation

The extrapolation is based on a least square algorithm [W. Gander, Computermathematik, p.168-180]. Through the points in the first 3 cm along the z-axis, polynomials of order four are calculated. These polynomials are then used to evaluate the points between the surface and the probe tip. The points, calculated from the surface, have a distance of 1 mm from each other.

Interpolation

The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three one-dimensional splines with the "Not a knot"-condition [W. Gander, Computermathematik, p.141-150] (x, y and z -direction) [Numerical Recipes in C, Second Edition, p.123ff].

Volume Averaging

At First the size of the cube is calculated. Then the volume is integrated with the trapezoidal algorithm. 8000 points (20x20x20) are interpolated to calculate the average.

Advanced Extrapolation

DASY uses the advanced extrapolation option which is able to compensate boundary effects on E-field probes.

3.3 Data Storage and Evaluation

Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension "DAE". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Norm _i , a ₁₀ , a ₁₁ , a ₁₂
	- Conversion factor	ConvF _i
	- Diode compression point	Dcpi
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf/dcp_i$$

with	V _i	= compensated signal of channel i	(i = x, y, z)
	U _i	= input signal of channel i	(i = x, y, z)
	cf	= crest factor of exciting field (DASY parameter)	
	dcp _i	= diode compression point	(DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:
$$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

 H-field probes:
$$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1}f + a_{i2}f^2)/f$$

- with V_i = compensated signal of channel i (i = x, y, z)
- $Norm_i$ = sensor sensitivity of channel i (i = x, y, z)
 [mV/ (V/m)²] for E-field Probes
- ConvF = sensitivity enhancement in solution
- a_{ij} = sensor sensitivity factors for H-field probes
- f = carrier frequency [GHz]
- E_i = electric field strength of channel i in V/m
- H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot}^2 \cdot \sigma) / (\rho \cdot 1000)$$

- with SAR = local specific absorption rate in mW/g
- E_{tot} = total field strength in V/m
- σ = conductivity in [mho/m] or [Siemens/m]
- ρ = equivalent tissue density in g/cm³

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

- with P_{pwe} = equivalent power density of a plane wave in mW/cm²
- E_{tot} = total electric field strength in V/m
- H_{tot} = total magnetic field strength in A/m

4 System Verification Procedure

4.1 Tissue Verification

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine if the dielectric parameters are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within $\pm 5\%$ of the target values.

Simulating Head Liquid (HBBL600-6000MHz), Manufactured by SPEAG:

Ingredients	(% by weight)
Water	50-65%
Mineral oil	10-30%
Emulsifiers	8-25%
Sodium salt	0-1.5%

Table 1: Head tissue dielectric properties

Note: According to 201904 FCC TCB workshop slides for RF Exposure Procedures, FCC has permitted the use of single head tissue simulating liquid specified in IEC 62209-1 for all SAR tests. So the single head tissue simulating liquid is used for all SAR tests in this test report. The conservative $\pm 5\%$ tolerance is used in tissue dielectric parameters measurements.

Tissue Type	Target Frequency	Target Tissue		Measured Tissue		Deviation (Within +/-5%)		Liquid Temp.	Test Date
		ϵ_r	σ (S/m)	ϵ_r	σ (S/m)	$\Delta\epsilon_r$	$\Delta\sigma$		
750MHz	705	42.2	0.89	42.58	0.857	0.90%	-3.69%	22.5°C	2022-09-26
	710	42.1	0.89	42.56	0.859	1.09%	-3.53%		
	750	41.9	0.89	42.43	0.870	1.26%	-2.30%		
835MHz	825	41.6	0.90	42.10	0.883	1.20%	-1.93%	22.4°C	2022-09-22
	835	41.5	0.90	42.07	0.886	1.37%	-1.60%		
	850	41.5	0.92	42.03	0.890	1.28%	-3.32%		
835MHz	825	41.6	0.90	42.18	0.890	1.39%	-1.17%	23.0°C	2022-09-24
	835	41.5	0.90	42.15	0.893	1.57%	-0.82%		
	850	41.5	0.92	42.11	0.897	1.47%	-2.54%		
1750MHz	1710	40.1	1.35	38.87	1.339	-3.07%	-0.81%	22.8°C	2022-09-27
	1730	40.1	1.36	38.87	1.350	-3.07%	-0.74%		
	1750	40.1	1.37	38.86	1.363	-3.09%	-0.51%		
	1800	40.0	1.40	38.78	1.395	-3.05%	-0.36%		
1900MHz	1850	40.0	1.40	39.09	1.453	-2.27%	3.79%	22.5°C	2022-09-20
	1880	40.0	1.40	39.01	1.440	-2.48%	2.86%		
	1900	40.0	1.40	38.97	1.451	-2.58%	3.64%		
	1910	40.0	1.40	38.96	1.456	-2.60%	4.00%		
1900MHz	1850	40.0	1.40	39.42	1.344	-1.45%	-4.00%	22.1°C	2022-09-25
	1880	40.0	1.40	39.35	1.361	-1.63%	-2.79%		
	1900	40.0	1.40	39.32	1.373	-1.70%	-1.93%		
	1910	40.0	1.40	39.31	1.379	-1.72%	-1.50%		
2450MHz	2410	39.3	1.76	38.68	1.807	-1.58%	2.67%	22.5°C	2022-09-16
	2435	39.2	1.79	38.64	1.826	-1.43%	2.01%		
	2450	39.2	1.80	38.60	1.837	-1.53%	2.06%		
	2460	39.2	1.81	38.58	1.846	-1.58%	1.99%		
2600MHz	2510	39.1	1.87	40.41	1.910	3.35%	2.14%	22.3°C	2022-09-23
	2535	39.1	1.89	40.36	1.928	3.22%	2.01%		
	2560	39.1	1.92	40.33	1.950	3.15%	1.56%		
	2600	39.0	1.96	40.26	1.979	3.23%	0.97%		
	2610	39.0	1.97	40.24	1.987	3.18%	0.86%		
	2645	39.0	2.01	40.20	2.019	3.08%	0.45%		
2600MHz	2510	39.1	1.87	39.33	1.935	0.59%	3.48%	22.5°C	2022-10-12
	2535	39.1	1.89	39.28	1.959	0.46%	3.65%		
	2560	39.1	1.92	39.24	1.980	0.36%	3.13%		
	2600	39.0	1.96	39.16	2.012	0.41%	2.65%		
	2610	39.0	1.97	39.15	2.022	0.38%	2.64%		
	2645	39.0	2.01	39.08	2.052	0.21%	2.09%		

Table 5: Dielectric Performance of Head Tissue Simulating Liquid

Note:

- 1) The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 °C of the conditions expected during the SAR evaluation to satisfy protocol requirements.

- 2) KDB865664 was ensured to be applied for probe calibration frequencies greater than or equal to 50MHz of the EUT frequencies.
- 3) The above measured tissue parameters were used in the DASY software to perform interpolation via the DASY software to determine actual dielectric parameters at the test frequencies. The SAR test plots may slightly differ from the table above since the DASY rounds to three significant digits.

4.2 System Check

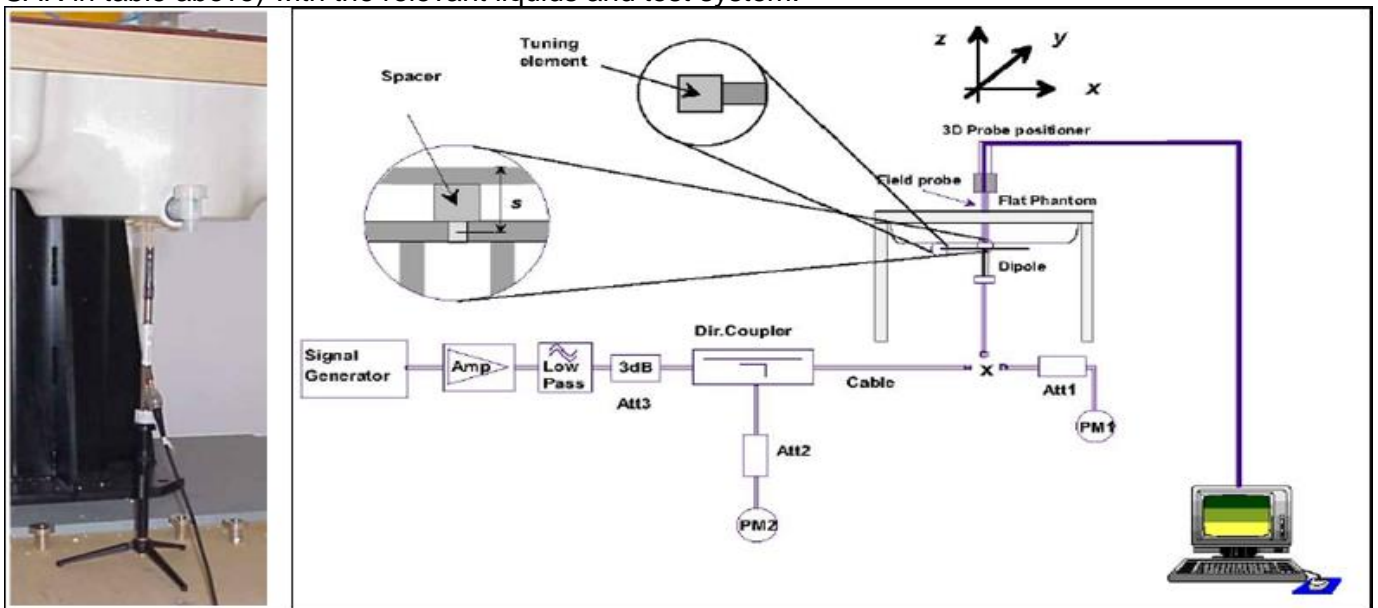
The system check is performed for verifying the accuracy of the complete measurement system and performance of the software. The system check is performed with tissue equivalent material according to IEEE 1528 (described above). The following table shows system check results for all frequency bands and tissue liquids used during the tests (Graphic Plot(s) see Appendix A).

Remark (Dipole SN)	System Check	Target SAR (Normalized to 1W)		Measured SAR (Normalized to 1W)		Deviation (Within +/-10%)		Test Date
		1-g (mW/g)	10-g (mW/g)	1-g (mW/g)	10-g (mW/g)	Δ1-g	Δ10-g	
1044	750MHz	8.59	5.60	8.16	5.28	-5.01%	-5.71%	2022-09-26
4d126	835MHz	9.80	6.36	9.24	6.00	-5.71%	-5.66%	2022-09-22
4d126	835MHz	9.80	6.36	9.28	5.96	-5.31%	-6.29%	2022-09-24
1145	1750MHz	37.10	19.60	36.52	19.28	-1.56%	-1.63%	2022-09-27
5d091	1900MHz	40.00	20.90	39.92	21.16	-0.20%	1.24%	2022-09-20
5d091	1900MHz	40.00	20.90	37.76	20.12	-5.60%	-3.73%	2022-09-25
860	2450MHz	53.50	25.10	49.60	23.40	-7.29%	-6.77%	2022-09-16
1032	2600MHz	57.30	25.50	58.00	26.84	1.22%	5.25%	2022-09-23
1032	2600MHz	57.30	25.50	56.40	26.68	-1.57%	4.63%	2022-10-12

Table 6: System Check Results

4.3 System check Procedure

The system check is performed by using a system check dipole which is positioned parallel to the planar part of the SAM phantom at the reference point. The distance of the dipole to the SAM phantom is determined by a plexiglass spacer. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SAM. It is fed with a power of 250 mW (below 3GHz) or 100mW (3-6GHz). To adjust this power, a power meter is used. The power sensor is connected to the cable before the system check to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the system check to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test (result on plot). System check results have to be equal or near the values determined during dipole calibration (target SAR in table above) with the relevant liquids and test system.



5 SAR measurement variability and uncertainty

5.1 SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The 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 .

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

The detailed repeated measurement results are shown in the following section.

5.2 SAR measurement uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

6 SAR Test Configuration

6.1 Test Positions Configuration

6.1.1 General considerations

Per IEEE 1528-2013, two imaginary lines on the handset were established: the vertical centerline and the horizontal line (See Figure 1).

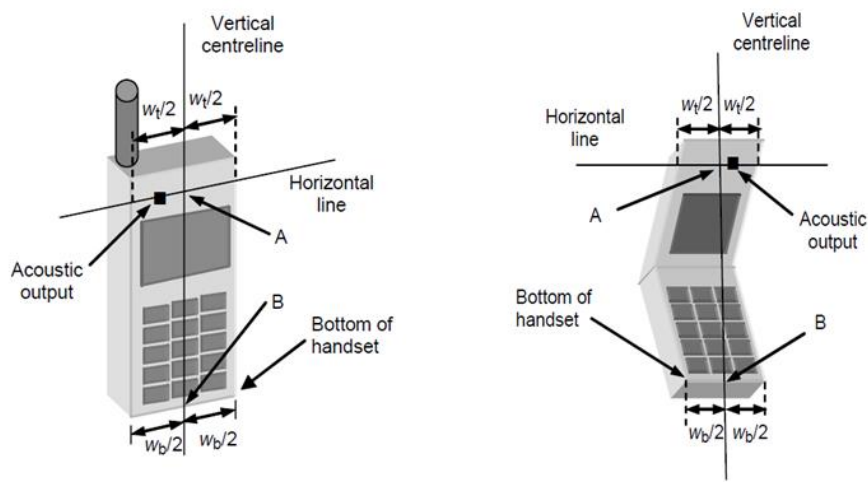


Figure 1 Hand Vertical Center & Horizontal Line Reference Points

6.1.2 Head Exposure Condition

Per IEEE 1528-2013, Head SAR measurements were made in the “cheek” position (See Figure 2) and the “tilt” position (See Figure 3). The device should be tested in both positions on left and right sides of the SAM phantom.

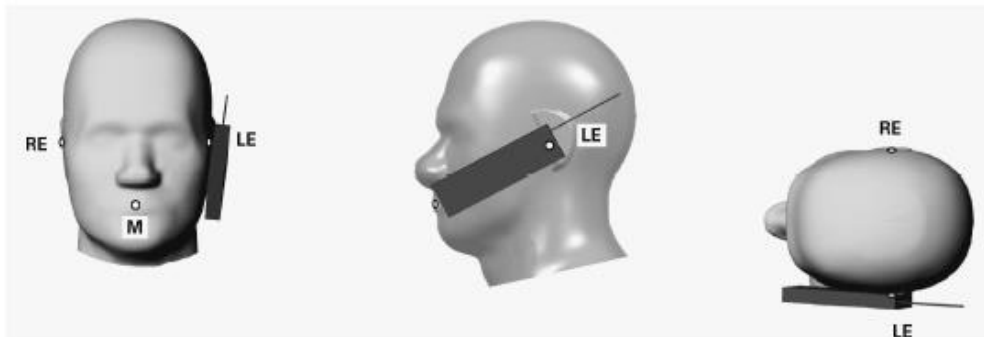


Figure 2 Front, Side and Top View of Cheek Position

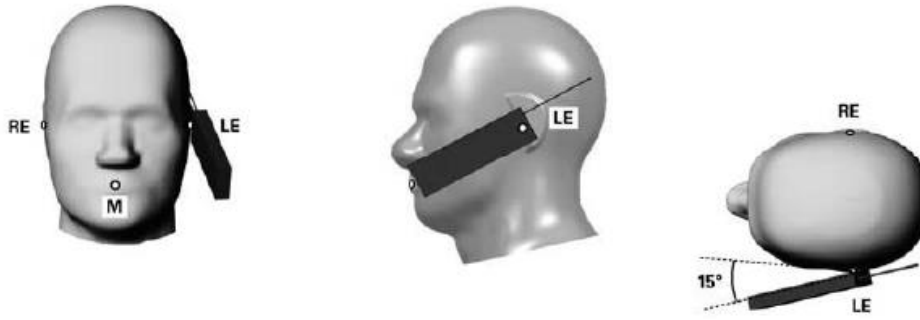


Figure 3 Front, Side and Top View of Tilt 15° Position

Note:

M Mouth reference point

LE Left ear reference point (ERP)

RE Right ear reference point(ERP)

6.1.3 Body-worn Exposure Condition

Body-worn operating configurations are tested with the holder attached to the device and positioned against a flat phantom with test separation distance of 15mm in a normal use configuration (See Figure 4). Per FCC KDB648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB447498 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is $> 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

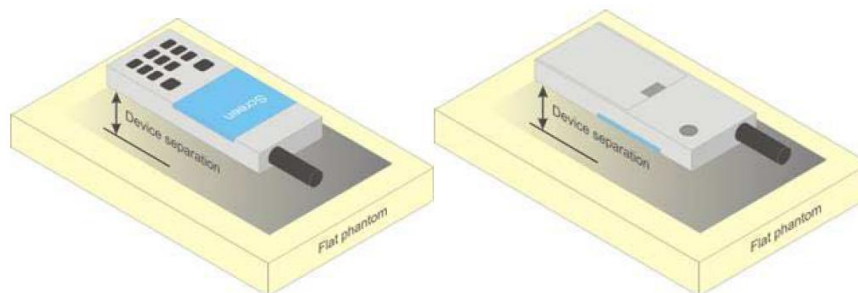


Figure 4 Test position for Body-Worn device

6.1.4 Hotspot Exposure Condition

Per FCC KDB941225 D06, the SAR test separation distance for hotspot mode is determined according to device form factor. When the overall length and width of a device is $> 9 \text{ cm} \times 5 \text{ cm}$, a test separation distance of 10 mm is required for hotspot mode SAR measurements. A test separation distance of 5 mm or less is required for smaller devices. Hotspot mode SAR is measured for all edges and surfaces of the device with a transmitting antenna located within 25 mm from that surface or edge; for the data modes, wireless technologies and frequency bands supporting hotspot mode. The SAR results are used to

determine simultaneous transmission SAR test exclusion for hotspot mode; otherwise, simultaneous transmission SAR measurement is required.

6.1.5 Product Specific 10-g SAR Exposure Condition

Per FCC KDB648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as “Phablet”.

The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

6.2 3G SAR Test Reduction Procedure

Per KDB941225 D01, in the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest *reported* SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

6.3 GSM Test Configuration

SAR tests for GSM 850 and PCS 1900, a communication link is set up with a base station by air link. The power lever is set to “5” and “0” in SAR of GSM 850 and PCS 1900 using a Radio Communication Tester. The tests in the band of GSM 850 and PCS 1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8 PSK.

6.4 UMTS Test Configuration

1) Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all “1’s” for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

2) WCDMA

a. Head SAR Measurements

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode.

b. Body SAR Measurements

SAR for body-worn accessory configurations is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode

3) HSDPA

SAR for body exposure configurations is measured according to the “Body SAR Measurements” procedures of 3G device. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest *reported* SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

Per KDB941225 D01, the 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSDPA using the HSDPA body SAR procedures for the highest reported SAR body exposure configuration in 12.2 kbps RMC.

HSDPA should be configured according to UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HAPRQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission condition, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. The β_c and β_d gain factors for DPCCH and DPDCH were set according to the values in the below table, β_{hs} for HS-DPCCH is set automatically to the correct value when $\Delta ACK, \Delta NACK, \Delta CQI = 8$. The variation of the β_c / β_d ratio causes a power reduction at sub-tests 2 - 4.

Sub-test [Ⓢ]	β_c [Ⓢ]	β_d [Ⓢ]	β_d (SF) [Ⓢ]	β_c/β_d [Ⓢ]	β_{hs} (1) [Ⓢ]	CM(dB)(2) [Ⓢ]	MPR (dB) [Ⓢ]
1 [Ⓢ]	2/15 [Ⓢ]	15/15 [Ⓢ]	64 [Ⓢ]	2/15 [Ⓢ]	4/15 [Ⓢ]	0.0 [Ⓢ]	0 [Ⓢ]
2 [Ⓢ]	12/15(3) [Ⓢ]	15/15(3) [Ⓢ]	64 [Ⓢ]	12/15(3) [Ⓢ]	24/15 [Ⓢ]	1.0 [Ⓢ]	0 [Ⓢ]
3 [Ⓢ]	15/15 [Ⓢ]	8/15 [Ⓢ]	64 [Ⓢ]	15/8 [Ⓢ]	30/15 [Ⓢ]	1.5 [Ⓢ]	0.5 [Ⓢ]
4 [Ⓢ]	15/15 [Ⓢ]	4/15 [Ⓢ]	64 [Ⓢ]	15/4 [Ⓢ]	30/15 [Ⓢ]	1.5 [Ⓢ]	0.5 [Ⓢ]

Note 1: ΔACK , $\Delta NACK$ and $\Delta CQI = 8$ $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$
 Note 2 : CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
 Note 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 $\beta_d = 15/15$

Table 7: Sub-tests for UMTS Release 5 HSDPA

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI's
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 8: settings of required H-Set 1 QPSK acc. to 3GPP 34.121

HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	Maximum HS-DSCH Transport Block Bits/HS-DSCH TTI	Total Soft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 9: HSDPA UE category

4) HSUPA

SAR for body exposure configurations is measured according to the “Body SAR Measurements” procedures of 3G device. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

Per KDB941225 D01, the 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures for the highest reported body exposure SAR configuration in 12.2 kbps RMC.

Due to inner loop power control requirements in HSDPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSDPA should be configured according to the values indicated below as well as other applicable procedures described in the ‘WCDMA Handset’ and ‘Release 5 HSDPA Data Device’ sections of 3G device.

Sub-test [⊕]	β_c [⊕]	β_d [⊕]	β_d (SF) [⊕]	β_c/β_d [⊕]	$\beta_{hs}^{(1)}$ [⊕]	β_{ec} [⊕]	β_{ed} [⊕]	β_c (SF) [⊕]	β_{ed} (code) [⊕]	CM ⁽²⁾ [⊕] (dB) [⊕]	MP R [⊕] (dB) [⊕]	AG ⁽⁴⁾ Index [⊕]	E-TFC I [⊕]
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 [⊕]	30/15 [⊕]	$\beta_{ed1}:47/15$ [⊕] $\beta_{ed2}:47/15$ [⊕]	4 [⊕]	2 [⊕]	2.0 [⊕]	1.0 [⊕]	15 [⊕]	92 [⊕]
4 [⊕]	2/15 [⊕]	15/15 [⊕]	64 [⊕]	2/15 [⊕]	4/15 [⊕]	2/15 [⊕]	56/75 [⊕]	4 [⊕]	1 [⊕]	3.0 [⊕]	2.0 [⊕]	17 [⊕]	71 [⊕]
5 [⊕]	15/15 ⁽⁴⁾ [⊕]	15/15 ⁽⁴⁾ [⊕]	64 [⊕]	15/15 ⁽⁴⁾ [⊕]	30/15 [⊕]	24/15 [⊕]	134/15 [⊕]	4 [⊕]	1 [⊕]	1.0 [⊕]	0.0 [⊕]	21 [⊕]	81 [⊕]

Note 1: $\Delta ACK, \Delta NACK$ and $\Delta CQI = 8$ $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$ [⊕]

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference[⊕]

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

Note 4 : 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: β_{ed} can not be set directly; it is set by Absolute Grant Value.[⊕]

Table 10: Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Spreading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF	11484	5.76
	4	4	2	4	20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF	22996	?
	4	4	10	4	20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4. UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM. (TS25.306-7.3.0).

Table 11: HSUPA UE category

5) DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a Second serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0. A summary of these settings are illustrated below:

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

The measurements were performed with a Fixed Reference Channel (FRC) H-Set 12 with QPSK

Parameter	Value
Nominal average inf. bit rate	60 kbit/s
Inter-TTI Distance	1 TTI's
Number of HARQ Processes	6 Processes
Information Bit Payload	120 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	960 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	3200 SMLs
Coding Rate	0.15
Number of Physical Channel Codes	1

Table 12: settings of required H-Set 12 QPSK acc. to 3GPP 34.121

Note:

1. The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table above.
2. Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.

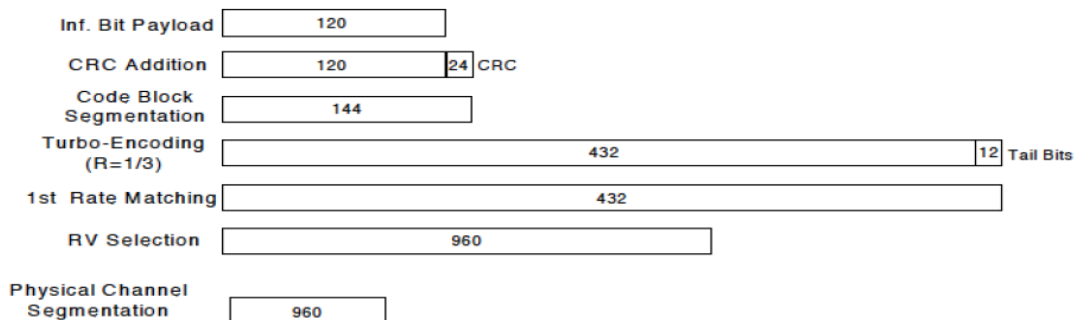


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 5 procedures. A summary of subtest settings are illustrated below:

Sub-test ^o	β_c ^o	β_d ^o	β_d (SF) ^o	β_c/β_d ^o	$\beta_{hs}(1)$ ^o	CM(dB)(2) ^o	MPR (dB) ^o
1 ^o	2/15 ^o	15/15 ^o	64 ^o	2/15 ^o	4/15 ^o	0.0 ^o	0 ^o
2 ^o	12/15(3) ^o	15/15(3) ^o	64 ^o	12/15(3) ^o	24/15 ^o	1.0 ^o	0 ^o
3 ^o	15/15 ^o	8/15 ^o	64 ^o	15/8 ^o	30/15 ^o	1.5 ^o	0.5 ^o
4 ^o	15/15 ^o	4/15 ^o	64 ^o	15/4 ^o	30/15 ^o	1.5 ^o	0.5 ^o

Note 1: Δ ACK, Δ NACK and Δ CQI=8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$
 Note 2: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
 Note 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 $\beta_d = 15/15$

Up commands are set continuously to set the UE to Max power.

Note:

1. The Dual Carriers transmission only applies to HSDPA physical channels
2. The Dual Carriers belong to the same Node and are on adjacent carriers.
3. The Dual Carriers do not support MIMO to serve UEs configured for dual cell operation
4. The Dual Carriers operate in the same frequency band.
5. The device doesn't support the modulation of 16QAM in uplink but 64QAM in downlink for DC-HSDPA mode.
6. The device doesn't support carrier aggregation for it just can operate in Release 8.

6.5 LTE Test Configuration

SAR for LTE band exposure configurations is measured according to the procedures of KDB941225 D05 SAR for LTE Devices. The Radio Communication Tester was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR test were performed with the same number of RB and RB offsets transmitting on all TTI frames (Maximum TTI)

1) Spectrum Plots for RB configurations

A properly configured base station simulator was used for LTE output power measurements and SAR testing. Therefore, spectrum plots for RB configurations were not required to be included in this report.

2) MPR

When MPR is implemented permanently within the UE, regardless of network requirements, only those RB configurations allowed by 3GPP for the channel bandwidth and modulation combinations may be tested with MPR active. Configurations with RB allocations less than the RB thresholds required by 3GPP must be tested without MPR.

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

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

3) A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by using Network Signaling Value of "NS_01" on the base station simulator.

4) LTE procedures for SAR testing

A) Largest channel bandwidth standalone SAR test requirements

i) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

ii) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in i) are applied to measure the SAR for QPSK with 50% RB allocation.

iii) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in i) and ii) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

iv) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

B) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2}$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

5) TDD LTE test configuration

According to KDB941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

TDD LTE Band 41 supports 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Figure 4.2-1: Frame structure type 2

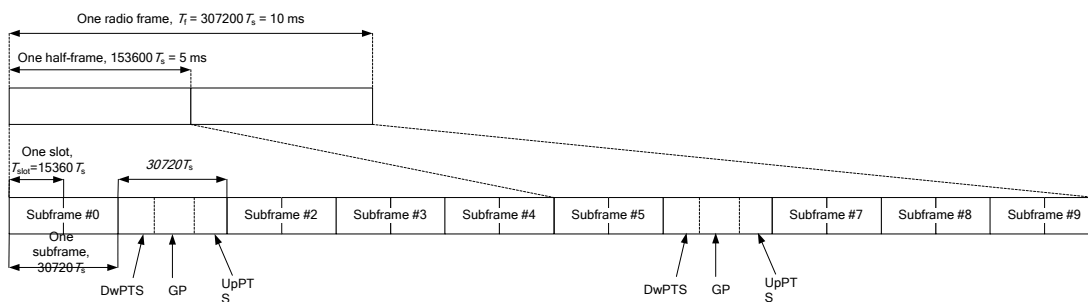


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

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

Table 4.2-2: Uplink-downlink configurations

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

According to Figure 4.2-1, one radio frame is configured by 10 subframes, which consist of Uplink-subframe, Downlink-subframe and Special subframe. For TDD-LTE, the Duty Cycle should be calculated on Uplink-subframes and Special subframes, due to Special subframe containing both Uplink transmissions. So for one radio frame, Duty Cycle can be calculated with formula as below. The count of Uplink subframes are according to Table 4.2-2:

$$\text{Duty cycle} = (30720T_s \cdot \text{Ups} + \text{Uplink Component} \cdot \text{Specials}) / (307200T_s)$$

About the uplink component of Special subframes, we can figure out by Table 4.2-1:

$$\text{Uplink Component} = \text{UpPTS}$$

In conclusion, for the TDD LTE Band, Duty Cycle can be calculated with formula as below .all these sets are ok when we test, or we can set as below.

$$\text{Duty cycle} = [(30720T_s \cdot \text{Ups}) + \text{UpPTS} \cdot \text{Specials}] / (307200T_s)$$

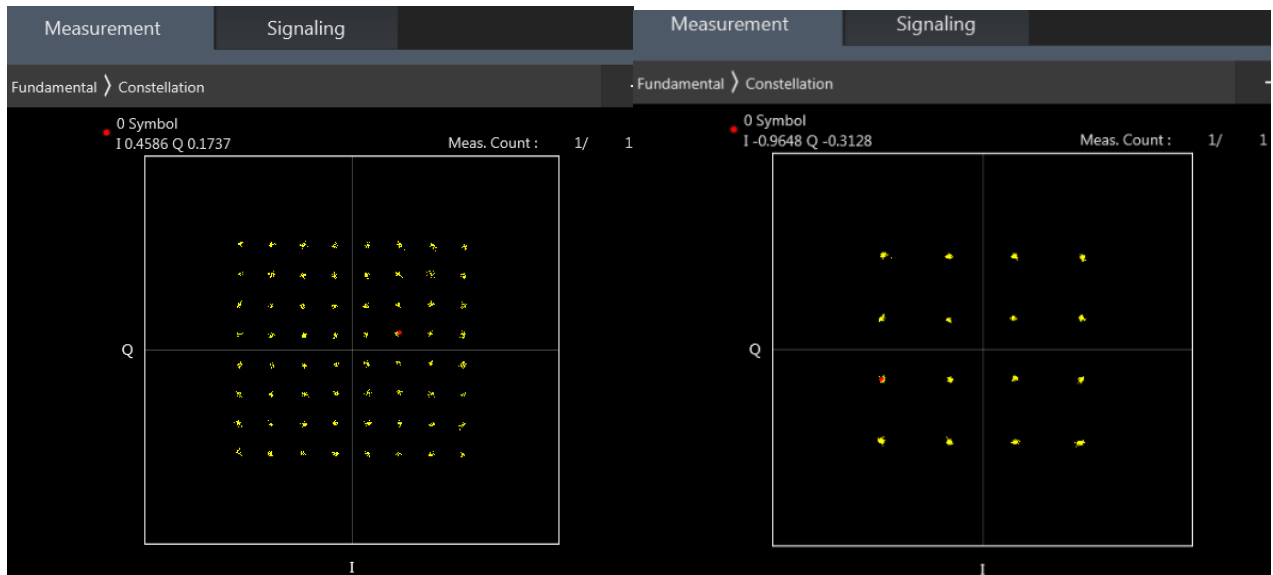
And we can get different Duty cycles under different configurations:

Uplink-Downlink configuration	Subframe number			Configuration of special subframe							
				Normal cyclice prefix in downlink				Extended cyclice prefix in downlink			
	D S U			Normal cyclice prefix in uplink		Extended cyclice prefix in uplink		Normal cyclice prefix in uplink		Extended cyclice prefix in uplink	
				configura tion 0~4	configura tion 5~9	configura tion 0~4	configura tion 5~9	configura tion 0~3	configura tion 4~7	configura tion 0~3	configura tion 4~7
0	2	2	6	61.43%	62.85%	61.67%	63.33%	61.43%	62.85%	61.67%	63.33%
1	4	2	4	41.43%	42.85%	41.67%	43.33%	41.43%	42.85%	41.67%	43.33%
2	6	2	2	21.43%	22.85%	21.67%	23.33%	21.43%	22.85%	21.67%	23.33%
3	6	1	3	30.71%	31.43%	30.83%	31.67%	30.71%	31.43%	30.83%	31.67%
4	7	1	2	20.71%	21.43%	20.83%	21.67%	20.71%	21.43%	20.83%	21.67%
5	8	1	1	10.71%	11.43%	10.83%	11.67%	10.71%	11.43%	10.83%	11.67%
6	3	2	5	51.43%	52.85%	51.67%	53.33%	51.43%	52.85%	51.67%	53.33%

For TDD LTE, SAR should be tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7 for Frame structure type 2.

6) 64QAM and 16 QAM signal constellation

According to 2017 TCB workshop, for 64QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the “Fundamental Measurement >> Modulation Analysis >> constellation” mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



6.6 Wi-Fi Test Configuration

For Wi-Fi SAR testing, a communication link is set up with the testing software for Wi-Fi mode test. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Per KDB248227 D01, a minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

6.6.1 Initial Test Position Procedure

For exposure condition with multiple test position, such as handsets operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all position in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is $\leq 0.4 \text{ W/kg}$, no additional testing for the remaining test position is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR position until the reported SAR result is $\leq 0.8 \text{ W/kg}$ or all test position are measured. For all positions/configurations tested using the initial test position and subsequent test positions, when the *reported* SAR is $> 0.8 \text{ W/kg}$, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is $\leq 1.2 \text{ W/kg}$ or all required channels are tested.

6.6.2 Initial Test Configuration Procedure

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required (see section 5.3.2 of KDB248227 D01). SAR test reduction of subsequent highest output test channels is based on the *reported* SAR of the initial test configuration.

For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.

When the *reported* SAR of the initial test configuration is $> 0.8 \text{ W/kg}$, SAR measurement is required for the subsequent next highest measured output power channel(s) in the initial test configuration until the *reported* SAR is $\leq 1.2 \text{ W/kg}$ or all required channels are tested.

6.6.3 Sub Test Configuration Procedure

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units.

When the highest reported SAR for the initial test configuration, according to the initial test position or

fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

6.6.4 2.4G Wi-Fi SAR Test Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.

A) 802.11b DSSS SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) When the *reported* SAR of the highest measured maximum output power channel (section 3.1 of of KDB248227 D01) for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) When the *reported* SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any *reported* SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

B) 2.4GHz 802.11g/n OFDM SAR Test Exclusion Requirements

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3 of of KDB248227 D01). SAR is not required for the following 2.4 GHz OFDM conditions.

- 1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
- 2) When the highest *reported* SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

6.6.5 OFDM Transmission Mode SAR Test Channel Selection Requirements

For 2.4 GHz bands, When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations (for example 802.11g and 802.11n, with the same channel bandwidth, modulation, and data rate, etc), the lower order 802.11 mode (i.e., 802.11g is chosen over 802.11n) is used for SAR measurement. When the maximum output power are the same for multiple test channel, either according to the default or additional power measurement requirement, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

6.7 BT Test Configuration

Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units. When SAR measurement is required, power measurement is also required to confirm output power settings and to determine reported SAR. Additional power measurements may be necessary to determine SAR test reduction for test channels in a transmission mode. If the required power measurement is not included in the default configurations, it is typically measured immediately before and/or after the SAR measurement. Otherwise, when power measurement is not required for a transmission mode, the maximum output power and tune-up tolerance specified for production units can generally be used to determine SAR test exclusion and reduction.

For BT SAR testing, there is set to the DUT continuous transmitting with maximum output power using the WideBand Radio Communication Tester CMW500.

6.8 Power Reduction Specification

This device uses the following power reduction features to reduce the transmit power and ensure SAR compliance. These power reduction features are implemented using a single fixed level of reduction through static table look-up for some wireless operating modes or frequency bands and triggered by a single event or operation. The published RF exposure KDB procedures are applicable to the specific implementation and applied for testing. So PAG is not required for these features.

- 1) A fixed level power reduction is applied for some antennas and frequency bands when hotspot mode becomes active. When the hotspot is disabled, the power value will be recovered.
- 2) This device uses the receiver to indicate whether the user is making a voice call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. A fixed level power reduction is applied for some antennas and frequency bands when the audio receiver is on.
- 3) This device uses the mobile country code (MCC) to indicate whether the users in CE countries or FCC countries. The selection between CE countries and FCC countries power levels is based on the country code detection mechanism. It can determine the countries where users are and set the relevant power level for Wi-Fi antennas accordingly.

Band	MCC OF CE COUNTRY (CE standard)	MCC OF FCC COUNTRY (FCC standard)
UMTS B5/LTE B7/B38	Power Level A1	Power Level B1
2.4G Wi-Fi	Power Level A2	Power Level B2

Note: In this test report, the mobile country and network operator codes of FCC(MCC = 730, MNC =06) was set during SAR testing to ensure SAR compliance for each frequency band.

6.8.1 Power Reduction Specification of 2G&3G&4G Main antenna

The following tables summarize the key power reduction information of 2G/3G/4G Main antenna triggered by specific use conditions. The detailed full power and reduced conducted power measurement results are provided in the report appendixs:

2G/3G/4G Main Antenna Max Power (dBm)				
Band	Main Antenna only/ Main Antenna+WiFi on		Main Antenna+Hotspot on	
	Receiver on	Receiver off	Receiver on	Receiver off
GSM 850	31.00	34.00	31.00	34.00
GSM 1900	27.50	31.00	27.50	31.00
UMTS Band II	17.50	21.00	16.50	20.00
UMTS Band IV	19.00	23.00	17.50	21.50
UMTS Band V	21.00	25.50	21.00	25.50
LTE Band 2	18.00	21.50	16.50	20.00
LTE Band 4	18.50	22.00	17.00	20.50
LTE Band 5	22.00	25.50	20.00	23.50
LTE Band 7	20.00	22.00	17.00	19.00
LTE Band 13	22.50	24.50	22.50	24.50
LTE Band 26	21.00	24.50	21.00	24.50
LTE Band 38	22.50	22.50	21.00	21.00
LTE Band 66	18.50	22.00	17.50	21.00

Note: For Head SAR test of 2G/3G/4G Antenna, standalone Head SAR should be evaluated with audio receiver on. The audio receiver only works in voice mode when the user is making a call in head scenario, lacking of the third-party VoIP server and the unstandardized VOIP operating characteristic, therefore, a test script tool is used to trigger the receiver on during the test. The test script is only used to trigger audio receiver on and simulate voice and VOIP usage scene. It can be ensured that the unmodified settings in production units, including maximum output power, amplifier gain and other RF performance or tuning parameters, are used for SAR measurement.

6.8.2 Power Reduction Specification of Wi-Fi antenna

The following tables summarize the key power reduction information of Wi-Fi antenna.

Wi-Fi Antenna Power Validation (dBm)			
Band	Mode	Wi-Fi Antenna only	
		Receiver ON	Receiver OFF
2.4G Wi-Fi	802.11b	11.50	18.50
	802.11g	11.50	18.50
	802.11n 20M	11.50	18.00
	802.11n 40M	11.50	14.50



7 SAR Measurement Results

7.1 Conducted power measurements

The conducted power measurement results are provided in the report Appendix C.

7.2 SAR measurement Results

General Notes:

- 1) Per KDB 447498 D01, all SAR measurement results are scaled to the maximum tune-up tolerance limit to demonstrate SAR compliance.
- 2) Per KDB 447498 D01, 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:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.
 When the maximum output power variation across the required test channels is $> \frac{1}{2}\text{ dB}$, instead of the middle channel, the highest output power channel must be used.
- 3) Per KDB 865664 D01, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8\text{W/kg}$; if the deviation among the repeated measurement is $\leq 20\%$, and the measured SAR $< 1.45\text{W/kg}$, only one repeated measurement is required.
- 4) Per KDB 941225 D06, the DUT Dimension is bigger than 9 cm x 5 cm, so 10mm is chosen as the test separation distance for Hotspot mode. When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.
- 5) Per KDB 648474 D04, SAR is evaluated without a headset connected to the device. When the standalone reported body-worn SAR is $\leq 1.2\text{ W/kg}$, no additional SAR evaluations using a headset are required.
- 6) Per KDB 865664 D02, SAR plot is only required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination; Plots are also required when the measured SAR is $> 1.5\text{ W/kg}$, or $> 7.0\text{ W/kg}$ for occupational exposure. The published RF exposure KDB procedures may require additional plots; for example, to support SAR to peak location separation ratio test exclusion and/or volume scan post-processing (Refer to appendix B for details).
- 7) Per KDB 648474 D04, Body-worn accessories that do not contain metallic or conductive components is tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics.
- 8) The 2G/3G/4G bands support two SIM card slots. Full SAR test is performed with SIM card slot 1. The highest reported SAR configuration for each Tx antenna and applicable exposure condition should be repeated with SIM card slot 2.
- 9) For plastic cover accessory, SAR is performed on each Tx antenna and applicable exposure condition.

GSM Notes:

- 1) Per KDB941225 D01, SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
- 2) Per KDB 648474 D04, the device does not support DTM function. Body-worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.

UMTS Notes:

- 1) Per KDB 941225 D01, When the maximum output power and tune-up tolerance specified for production units in a Second mode is $\leq \frac{1}{4}$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of Second to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the Second mode.

LTE Notes:

- 1) The LTE test configurations are determined according to KDB 941225 D05 SAR for LTE Devices. The general test procedures used for SAR testing can be found in Section 6.5.
- 2) A-MPR was disabled for all SAR test by setting NS_01 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI)
- 3) According to KDB 941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR is tested using a fixed periodic duty factor according to the highest transmission duty factor (63.33%) implemented for the device and supported by the defined 3GPP LTE TDD configurations.

Wi-Fi Notes:

Per KDB 248227D01:

- 1) When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test position is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR position until the reported SAR result is ≤ 0.8 W/kg or all test position are measured. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested..
- 2) When the DSSS reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 3) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations
- 4) The highest SAR measured for the initial test position or initial test configuration should be used to determine SAR test exclusion according to the sum of 1-g SAR and SAR peak to location ratio provisions in KDB 447498. In addition, a test lab may also choose to perform standalone SAR measurements for test positions and 802.11 configurations that are not required by the initial test position or initial test configuration procedures and apply the results to determine simultaneous



transmission SAR test exclusion, according to sum of 1-g and SAR peak to location ratio requirements to reduce the number of simultaneous transmission SAR measurements.

BT Notes:

BT was configured to transmit maximum averaged power level and max duty cycle for each operation mode to be tested. The max duty cycle of BT declared by the manufacturer is 76.72%.

7.2.1 SAR measurement Results of GSM 850

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	190/836.6	GSM	0.227	0.160	29.68	31.00	0.308	Battery 1#	/
Main	Left tilt	/	190/836.6	GSM	0.171	0.118	29.68	31.00	0.232	Battery 1#	/
Main	Right cheek	/	190/836.6	GSM	0.273	0.185	29.68	31.00	0.370	Battery 1#	/
Main	Right tilt	/	190/836.6	GSM	0.203	0.136	29.68	31.00	0.275	Battery 1#	/
Main	Right cheek	/	190/836.6	GSM	0.285	0.167	29.68	31.00	0.386	Battery 2#	Plot
Main	Right cheek	/	190/836.6	GSM	0.284	0.165	29.68	31.00	0.385	Battery 3#	/
Main	Right cheek	/	190/836.6	GSM	0.282	0.161	29.68	31.00	0.382	With SIM2	/
Main	Right cheek	/	190/836.6	GSM	0.262	0.153	29.68	31.00	0.355	With Non-metallic protective case	/

Table 13: Head SAR test results of GSM 850

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	190/836.6	GPRS 2TS	0.121	0.084	29.66	31.00	0.165	Battery 1#	/
Main	Back side	15mm	190/836.6	GPRS 2TS	0.206	0.137	29.66	31.00	0.280	Battery 1#	/
Main	Back side	15mm	190/836.6	GPRS 2TS	0.242	0.157	29.66	31.00	0.329	Battery 2#	/
Main	Back side	15mm	190/836.6	GPRS 2TS	0.264	0.190	29.66	31.00	0.359	Battery 3#	Plot
Main	Back side	15mm	190/836.6	GPRS 2TS	0.248	0.167	29.66	31.00	0.338	With SIM2	/
Main	Back side	15mm	190/836.6	GPRS 2TS	0.223	0.148	29.66	31.00	0.304	With Non-metallic protective case	/

Table 14: Body Worn SAR test results of GSM 850

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	10mm	190/836.6	GPRS 2TS	0.197	0.122	29.66	31.00	0.268	Battery 1#	/
Main	Back side	10mm	190/836.6	GPRS 2TS	0.337	0.223	29.66	31.00	0.459	Battery 1#	/
Main	Left side	10mm	190/836.6	GPRS 2TS	0.063	0.036	29.66	31.00	0.086	Battery 1#	/
Main	Top side	10mm	190/836.6	GPRS 2TS	0.155	0.085	29.66	31.00	0.211	Battery 1#	/
Main	Back side	10mm	190/836.6	GPRS 2TS	0.419	0.292	29.66	31.00	0.570	Battery 2#	Plot
Main	Back side	10mm	190/836.6	GPRS 2TS	0.405	0.265	29.66	31.00	0.551	Battery 3#	/
Main	Back side	10mm	190/836.6	GPRS 2TS	0.389	0.255	29.66	31.00	0.530	With SIM2	/
Main	Back side	10mm	190/836.6	GPRS 2TS	0.338	0.215	29.66	31.00	0.460	With Non-metallic protective case	/

Table 15: Hotspot SAR test results of GSM 850

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	190/836.6	GPRS 2TS	0.197	0.122	29.66	31.00	0.268	Yes
Main	Back side	10mm	190/836.6	GPRS 2TS	0.337	0.223	29.66	31.00	0.459	Yes
Main	Left side	10mm	190/836.6	GPRS 2TS	0.063	0.036	29.66	31.00	0.086	Yes
Main	Top side	10mm	190/836.6	GPRS 2TS	0.155	0.085	29.66	31.00	0.211	Yes
Main	Back side	10mm	190/836.6	GPRS 2TS	0.419	0.292	29.66	31.00	0.570	Yes
Main	Back side	10mm	190/836.6	GPRS 2TS	0.405	0.265	29.66	31.00	0.551	Yes
Main	Back side	10mm	190/836.6	GPRS 2TS	0.389	0.255	29.66	31.00	0.530	Yes
Main	Back side	10mm	190/836.6	GPRS 2TS	0.338	0.215	29.66	31.00	0.460	Yes

Table 16: Product Specific 10-g SAR test reduction evaluation of GSM 850

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.2 SAR measurement Results of PCS 1900

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	661/1880	GSM	0.438	0.206	26.22	27.50	0.588	Battery 1#	/
Main	Left tilt	/	661/1880	GSM	0.468	0.222	26.22	27.50	0.628	Battery 1#	/
Main	Right cheek	/	661/1880	GSM	0.488	0.243	26.22	27.50	0.655	Battery 1#	/
Main	Right tilt	/	661/1880	GSM	0.406	0.214	26.22	27.50	0.545	Battery 1#	/
Main	Right cheek	/	661/1880	GSM	0.532	0.258	26.22	27.50	0.714	Battery 2#	Plot
Main	Right cheek	/	661/1880	GSM	0.503	0.251	26.22	27.50	0.675	Battery 3#	/
Main	Right cheek	/	661/1880	GSM	0.530	0.257	26.22	27.50	0.712	With SIM2	/
Main	Right cheek	/	661/1880	GSM	0.504	0.244	26.22	27.50	0.677	With Non-metallic protective case	/

Table 17: Head SAR test results of PCS 1900

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	661/1880	GPRS 2TS	0.122	0.065	26.85	28.00	0.159	Battery 1#	/
Main	Back side	15mm	661/1880	GPRS 2TS	0.248	0.146	26.85	28.00	0.323	Battery 1#	Plot
Main	Back side	15mm	661/1880	GPRS 2TS	0.237	0.128	26.85	28.00	0.309	Battery 2#	/
Main	Back side	15mm	661/1880	GPRS 2TS	0.237	0.130	26.85	28.00	0.309	Battery 3#	/
Main	Back side	15mm	661/1880	GPRS 2TS	0.237	0.128	26.85	28.00	0.309	With SIM2	/
Main	Back side	15mm	661/1880	GPRS 2TS	0.238	0.131	26.85	28.00	0.310	With Non-metallic protective case	/

Table 18: Body Worn SAR test results of PCS 1900

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	10mm	661/1880	GPRS 2TS	0.273	0.134	26.85	28.00	0.356	Battery 1#	/
Main	Back side	10mm	661/1880	GPRS 2TS	0.421	0.221	26.85	28.00	0.549	Battery 1#	/
Main	Left side	10mm	661/1880	GPRS 2TS	0.121	0.066	26.85	28.00	0.158	Battery 1#	/
Main	Top side	10mm	661/1880	GPRS 2TS	0.606	0.315	26.85	28.00	0.790	Battery 1#	Plot
Main	Top side	10mm	661/1880	GPRS 2TS	0.589	0.300	26.85	28.00	0.768	Battery 2#	/
Main	Top side	10mm	661/1880	GPRS 2TS	0.564	0.293	26.85	28.00	0.735	Battery 3#	/
Main	Top side	10mm	661/1880	GPRS 2TS	0.497	0.259	26.85	28.00	0.648	With SIM2	/
Main	Top side	10mm	661/1880	GPRS 2TS	0.515	0.263	26.85	28.00	0.671	With Non-metallic protective case	/

Table 19: Hotspot SAR test results of PCS 1900

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	661/1880	GPRS 2TS	0.273	0.134	26.85	28.00	0.356	Yes
Main	Back side	10mm	661/1880	GPRS 2TS	0.421	0.221	26.85	28.00	0.549	Yes
Main	Left side	10mm	661/1880	GPRS 2TS	0.121	0.066	26.85	28.00	0.158	Yes
Main	Top side	10mm	661/1880	GPRS 2TS	0.606	0.315	26.85	28.00	0.790	Yes
Main	Top side	10mm	661/1880	GPRS 2TS	0.589	0.300	26.85	28.00	0.768	Yes
Main	Top side	10mm	661/1880	GPRS 2TS	0.564	0.293	26.85	28.00	0.735	Yes
Main	Top side	10mm	661/1880	GPRS 2TS	0.497	0.259	26.85	28.00	0.648	Yes
Main	Top side	10mm	661/1880	GPRS 2TS	0.515	0.263	26.85	28.00	0.671	Yes

Table 20: Product Specific 10-g SAR test reduction evaluation of PCS 1900

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.3 SAR measurement Results of UMTS Band II

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	9400/1880	RMC	0.462	0.216	16.42	17.50	0.592	Battery 1#	/
Main	Left tilt	/	9400/1880	RMC	0.484	0.225	16.42	17.50	0.621	Battery 1#	/
Main	Right cheek	/	9400/1880	RMC	0.524	0.259	16.42	17.50	0.672	Battery 1#	/
Main	Right tilt	/	9400/1880	RMC	0.650	0.316	16.42	17.50	0.834	Battery 1#	Plot
Main	Right tilt	/	9262/1852.4	RMC	0.637	0.313	16.56	17.50	0.791	Battery 1#	/
Main	Right tilt	/	9538/1907.6	RMC	0.638	0.303	16.36	17.50	0.830	Battery 1#	/
Main	Right tilt	/	9400/1880	RMC	0.647	0.308	16.42	17.50	0.830	Battery 2#	/
Main	Right tilt	/	9400/1880	RMC	0.647	0.306	16.42	17.50	0.830	Battery 3#	/
Main	Right tilt	/	9400/1880	RMC	0.635	0.319	16.42	17.50	0.814	With SIM2	/
Main	Right tilt	/	9400/1880	RMC	0.463	0.222	16.42	17.50	0.594	With Non-metallic protective case	/

Table 21: Head SAR test results of UMTS Band II

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	9400/1880	RMC	0.126	0.069	20.03	21.00	0.158	Battery 1#	/
Main	Back side	15mm	9400/1880	RMC	0.285	0.166	20.03	21.00	0.356	Battery 1#	Plot
Main	Back side	15mm	9400/1880	RMC	0.246	0.133	20.03	21.00	0.308	Battery 2#	/
Main	Back side	15mm	9400/1880	RMC	0.253	0.138	20.03	21.00	0.316	Battery 3#	/
Main	Back side	15mm	9400/1880	RMC	0.216	0.118	20.03	21.00	0.270	With SIM2	/
Main	Back side	15mm	9400/1880	RMC	0.185	0.102	20.03	21.00	0.231	With Non-metallic protective case	/

Table 22: Body Worn SAR test results of UMTS Band II

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	10mm	9400/1880	RMC	0.219	0.111	19.04	20.00	0.273	Battery 1#	/
Main	Back side	10mm	9400/1880	RMC	0.348	0.178	19.04	20.00	0.434	Battery 1#	/
Main	Left side	10mm	9400/1880	RMC	0.111	0.060	19.04	20.00	0.138	Battery 1#	/
Main	Top side	10mm	9400/1880	RMC	0.514	0.275	19.04	20.00	0.641	Battery 1#	Plot
Main	Top side	10mm	9400/1880	RMC	0.441	0.226	19.04	20.00	0.550	Battery 2#	/
Main	Top side	10mm	9400/1880	RMC	0.439	0.227	19.04	20.00	0.548	Battery 3#	/
Main	Top side	10mm	9400/1880	RMC	0.445	0.234	19.04	20.00	0.555	With SIM2	/
Main	Top side	10mm	9400/1880	RMC	0.410	0.216	19.04	20.00	0.511	With Non-metallic protective case	/

Table 23: Hotspot SAR test results of UMTS Band II

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	9400/1880	RMC	0.219	0.111	19.04	21.00	0.344	Yes
Main	Back side	10mm	9400/1880	RMC	0.348	0.178	19.04	21.00	0.546	Yes
Main	Left side	10mm	9400/1880	RMC	0.111	0.060	19.04	21.00	0.174	Yes
Main	Top side	10mm	9400/1880	RMC	0.514	0.275	19.04	21.00	0.807	Yes
Main	Top side	10mm	9400/1880	RMC	0.441	0.226	19.04	21.00	0.693	Yes
Main	Top side	10mm	9400/1880	RMC	0.439	0.227	19.04	21.00	0.689	Yes
Main	Top side	10mm	9400/1880	RMC	0.445	0.234	19.04	21.00	0.699	Yes
Main	Top side	10mm	9400/1880	RMC	0.410	0.216	19.04	21.00	0.644	Yes

Table 24: Product Specific 10-g SAR test reduction evaluation of UMTS Band II

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.4 SAR measurement Results of UMTS Band IV

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	1413/1732.6	RMC	0.449	0.225	17.12	19.00	0.692	Battery 1#	/
Main	Left tilt	/	1413/1732.6	RMC	0.474	0.237	17.12	19.00	0.731	Battery 1#	/
Main	Right cheek	/	1413/1732.6	RMC	0.529	0.268	17.12	19.00	0.816	Battery 1#	/
Main	Right tilt	/	1413/1732.6	RMC	0.571	0.287	17.12	19.00	0.880	Battery 1#	/
Main	Right tilt	/	1413/1732.6	RMC	0.664	0.340	17.12	19.00	1.024	Battery 2#	/
Main	Right tilt	/	1413/1732.6	RMC	0.672	0.322	17.12	19.00	1.036	Battery 3#	Plot
Main	Right tilt	/	1413/1732.6	RMC	0.642	0.315	17.12	19.00	0.990	With SIM2	/
Main	Right tilt	/	1413/1732.6	RMC	0.530	0.276	17.12	19.00	0.817	With Non-metallic protective case	/

Table 25: Head SAR test results of UMTS Band IV

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	1413/1732.6	RMC	0.162	0.092	21.20	23.00	0.245	Battery 1#	/
Main	Back side	15mm	1413/1732.6	RMC	0.350	0.193	21.20	23.00	0.530	Battery 1#	/
Main	Back side	15mm	1413/1732.6	RMC	0.377	0.208	21.20	23.00	0.571	Battery 2#	/
Main	Back side	15mm	1413/1732.6	RMC	0.384	0.219	21.20	23.00	0.581	Battery 3#	Plot
Main	Back side	15mm	1413/1732.6	RMC	0.381	0.214	21.20	23.00	0.577	With SIM2	/

Table 26: Body Worn SAR test results of UMTS Band IV

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	10mm	1413/1732.6	RMC	0.244	0.128	19.66	21.50	0.373	Battery 1#	/
Main	Back side	10mm	1413/1732.6	RMC	0.462	0.238	19.66	21.50	0.706	Battery 1#	/
Main	Left side	10mm	1413/1732.6	RMC	0.136	0.074	19.66	21.50	0.208	Battery 1#	/
Main	Top side	10mm	1413/1732.6	RMC	0.415	0.214	19.66	21.50	0.634	Battery 1#	/
Main	Back side	10mm	1413/1732.6	RMC	0.656	0.351	19.66	21.50	1.002	Battery 2#	Plot
Main	Back side	10mm	1413/1732.6	RMC	0.539	0.272	19.66	21.50	0.823	Battery 3#	/
Main	Back side	10mm	1413/1732.6	RMC	0.527	0.270	19.66	21.50	0.805	With SIM2	/
Main	Back side	10mm	1413/1732.6	RMC	0.445	0.232	19.66	21.50	0.680	With Non-metallic protective case	/

Table 27: Hotspot SAR test results of UMTS Band IV

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	1413/1732.6	RMC	0.244	0.128	19.66	23.00	0.526	Yes
Main	Back side	10mm	1413/1732.6	RMC	0.462	0.238	19.66	23.00	0.997	Yes
Main	Left side	10mm	1413/1732.6	RMC	0.136	0.074	19.66	23.00	0.293	Yes
Main	Top side	10mm	1413/1732.6	RMC	0.415	0.214	19.66	23.00	0.895	Yes
Main	Back side	10mm	1413/1732.6	RMC	0.656	0.351	19.66	23.00	1.415	No
Main	Back side	10mm	1413/1732.6	RMC	0.539	0.272	19.66	23.00	1.163	Yes
Main	Back side	10mm	1413/1732.6	RMC	0.527	0.270	19.66	23.00	1.137	Yes
Main	Back side	10mm	1413/1732.6	RMC	0.445	0.232	19.66	23.00	0.960	Yes

Table 28: Product Specific 10-g SAR test reduction evaluation of UMTS Band IV

Note: According to the table above, Product Specific 10-g SAR test is required for this frequency band on the back side.

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 10-g SAR (W/kg)	Accessory Information	Note
Main	Back side	0mm	1413/1732.6	RMC	2.560	1.160	21.20	23.00	1.756	Battery 1#	/
Main	Back side	0mm	1413/1732.6	RMC	2.560	1.210	21.20	23.00	1.831	Battery 2#	/
Main	Back side	0mm	1413/1732.6	RMC	2.640	1.240	21.20	23.00	1.877	Battery 3#	Plot
Main	Back side	0mm	1413/1732.6	RMC	2.610	1.190	21.20	23.00	1.801	With SIM2	/
Main	Back side	0mm	1413/1732.6	RMC	2.380	1.150	21.20	23.00	1.741	With Non-metallic protective case	/

Table 29: Product Specific 10-g SAR test results of UMTS Band IV

7.2.5 SAR measurement Results of UMTS Band V

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	4182/836.4	RMC	0.201	0.140	19.64	21.00	0.275	Battery 1#	/
Main	Left tilt	/	4182/836.4	RMC	0.155	0.108	19.64	21.00	0.212	Battery 1#	/
Main	Right cheek	/	4182/836.4	RMC	0.247	0.153	19.64	21.00	0.338	Battery 1#	Plot
Main	Right tilt	/	4182/836.4	RMC	0.178	0.117	19.64	21.00	0.243	Battery 1#	/
Main	Right cheek	/	4182/836.4	RMC	0.222	0.140	19.64	21.00	0.304	Battery 2#	/
Main	Right cheek	/	4182/836.4	RMC	0.229	0.144	19.64	21.00	0.313	Battery 3#	/
Main	Right cheek	/	4182/836.4	RMC	0.219	0.139	19.64	21.00	0.300	With SIM2	/
Main	Right cheek	/	4182/836.4	RMC	0.232	0.143	19.64	21.00	0.317	With Non-metallic protective case	/

Table 30: Head SAR test results of UMTS Band V

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	4182/836.4	RMC	0.136	0.094	23.68	25.50	0.207	Battery 1#	/
Main	Back side	15mm	4182/836.4	RMC	0.305	0.218	23.68	25.50	0.464	Battery 1#	Plot
Main	Back side	15mm	4182/836.4	RMC	0.253	0.168	23.68	25.50	0.385	Battery 2#	/
Main	Back side	15mm	4182/836.4	RMC	0.281	0.186	23.68	25.50	0.427	Battery 3#	/
Main	Back side	15mm	4182/836.4	RMC	0.268	0.179	23.68	25.50	0.408	With SIM2	/
Main	Back side	15mm	4182/836.4	RMC	0.228	0.153	23.68	25.50	0.347	With Non-metallic protective case	/

Table 31: Body Worn SAR test results of UMTS Band V

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	10mm	4182/836.4	RMC	0.223	0.145	23.68	25.50	0.339	Battery 1#	/
Main	Back side	10mm	4182/836.4	RMC	0.392	0.227	23.68	25.50	0.596	Battery 1#	Plot
Main	Left side	10mm	4182/836.4	RMC	0.086	0.044	23.68	25.50	0.131	Battery 1#	/
Main	Top side	10mm	4182/836.4	RMC	0.206	0.103	23.68	25.50	0.313	Battery 1#	/
Main	Back side	10mm	4182/836.4	RMC	0.384	0.212	23.68	25.50	0.584	Battery 2#	/
Main	Back side	10mm	4182/836.4	RMC	0.318	0.184	23.68	25.50	0.484	Battery 3#	/
Main	Back side	10mm	4182/836.4	RMC	0.368	0.205	23.68	25.50	0.560	With SIM2	/
Main	Back side	10mm	4182/836.4	RMC	0.359	0.236	23.68	25.50	0.546	With Non-metallic protective case	/

Table 32: Hotspot SAR test results of UMTS Band V

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	4182/836.4	RMC	0.223	0.145	23.68	25.50	0.339	Yes
Main	Back side	10mm	4182/836.4	RMC	0.392	0.227	23.68	25.50	0.596	Yes
Main	Left side	10mm	4182/836.4	RMC	0.086	0.044	23.68	25.50	0.131	Yes
Main	Top side	10mm	4182/836.4	RMC	0.206	0.103	23.68	25.50	0.313	Yes
Main	Back side	10mm	4182/836.4	RMC	0.384	0.212	23.68	25.50	0.584	Yes
Main	Back side	10mm	4182/836.4	RMC	0.318	0.184	23.68	25.50	0.484	Yes
Main	Back side	10mm	4182/836.4	RMC	0.368	0.205	23.68	25.50	0.560	Yes
Main	Back side	10mm	4182/836.4	RMC	0.359	0.236	23.68	25.50	0.546	Yes

Table 33: Product Specific 10-g SAR test reduction evaluation of UMTS Band V

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.6 SAR measurement Results of LTE Band 2

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	18900/1880.0	20M QPSK 1RB@0	0.374	0.196	16.49	18.00	0.530	Battery 1#	/
Main	Left tilt	/	18900/1880.0	20M QPSK 1RB@0	0.448	0.219	16.49	18.00	0.634	Battery 1#	/
Main	Right cheek	/	18900/1880.0	20M QPSK 1RB@0	0.538	0.269	16.49	18.00	0.762	Battery 1#	/
Main	Right tilt	/	18900/1880.0	20M QPSK 1RB@0	0.621	0.307	16.49	18.00	0.879	Battery 1#	Plot
Main	Right tilt	/	18700/1860	20M QPSK 1RB@99	0.562	0.256	16.48	18.00	0.798	Battery 1#	/
Main	Right tilt	/	19100/1900	20M QPSK 1RB@0	0.542	0.244	16.29	18.00	0.804	Battery 1#	/
Main	Right tilt	/	18700/1860.0	20M QPSK 100%RB@0	0.601	0.301	16.58	18.00	0.833	Battery 1#	/
Main	Left cheek	/	18700/1860.0	20M QPSK 50%RB@25	0.375	0.197	16.61	18.00	0.516	Battery 1#	/
Main	Left tilt	/	18700/1860.0	20M QPSK 50%RB@25	0.456	0.223	16.61	18.00	0.628	Battery 1#	/
Main	Right cheek	/	18700/1860.0	20M QPSK 50%RB@25	0.560	0.283	16.61	18.00	0.771	Battery 1#	/
Main	Right tilt	/	18700/1860.0	20M QPSK 50%RB@25	0.579	0.292	16.61	18.00	0.797	Battery 1#	/
Main	Right tilt	/	18900/1880.0	20M QPSK 1RB@0	0.612	0.305	16.49	18.00	0.866	Battery 2#	/
Main	Right tilt	/	18900/1880.0	20M QPSK 1RB@0	0.602	0.296	16.49	18.00	0.852	Battery 3#	/
Main	Right tilt	/	18900/1880.0	20M QPSK 1RB@0	0.618	0.301	16.49	18.00	0.875	With SIM2	/
Main	Right tilt	/	18900/1880.0	20M QPSK 1RB@0	0.492	0.248	16.49	18.00	0.697	With Non-metallic protective case	/

Table 34: Head SAR test results of LTE Band 2

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	18700/1860.0	20M QPSK 1RB@0	0.138	0.077	20.07	21.50	0.192	Battery 1#	/
Main	Back side	15mm	18700/1860.0	20M QPSK 1RB@0	0.253	0.139	20.07	21.50	0.352	Battery 1#	/
Main	Front side	15mm	18700/1860.0	20M QPSK 50%RB@0	0.138	0.077	20.19	21.50	0.187	Battery 1#	/
Main	Back side	15mm	18700/1860.0	20M QPSK 50%RB@0	0.255	0.143	20.19	21.50	0.345	Battery 1#	/
Main	Back side	15mm	18700/1860.0	20M QPSK 50%RB@0	0.265	0.159	20.19	21.50	0.358	Battery 2#	Plot
Main	Back side	15mm	18700/1860.0	20M QPSK 50%RB@0	0.262	0.148	20.19	21.50	0.354	Battery 3#	/
Main	Back side	15mm	18700/1860.0	20M QPSK 50%RB@0	0.258	0.146	20.19	21.50	0.349	With SIM2	/
Main	Back side	15mm	18700/1860.0	20M QPSK 50%RB@0	0.198	0.108	20.19	21.50	0.268	With Non-metallic protective case	/

Table 35: Body Worn SAR test results of LTE Band 2

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information
Main	Front side	10mm	18700/1860.0	20M QPSK 1RB@0	0.317	0.163	18.59	20.00	0.439	Battery 1#
Main	Back side	10mm	18700/1860.0	20M QPSK 1RB@0	0.403	0.212	18.59	20.00	0.558	Battery 1#
Main	Left side	10mm	18700/1860.0	20M QPSK 1RB@0	0.106	0.058	18.59	20.00	0.147	Battery 1#
Main	Top side	10mm	18700/1860.0	20M QPSK 1RB@0	0.425	0.219	18.59	20.00	0.588	Battery 1#
Main	Front side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.329	0.170	18.66	20.00	0.448	Battery 1#
Main	Back side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.400	0.211	18.66	20.00	0.545	Battery 1#
Main	Left side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.105	0.058	18.66	20.00	0.143	Battery 1#
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.433	0.229	18.66	20.00	0.590	Battery 1#
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.389	0.204	18.66	20.00	0.530	Battery 2#
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.414	0.211	18.66	20.00	0.564	Battery 3#
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.405	0.209	18.66	20.00	0.551	With SIM2
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.294	0.158	18.66	20.00	0.400	With Non-metallic protective case

Table 36: Hotspot SAR test results of LTE Band 2

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	18700/1860.0	20M QPSK 1RB@0	0.317	0.163	18.59	21.50	0.620	Yes
Main	Back side	10mm	18700/1860.0	20M QPSK 1RB@0	0.403	0.212	18.59	21.50	0.788	Yes
Main	Left side	10mm	18700/1860.0	20M QPSK 1RB@0	0.106	0.058	18.59	21.50	0.207	Yes
Main	Top side	10mm	18700/1860.0	20M QPSK 1RB@0	0.425	0.219	18.59	21.50	0.831	Yes
Main	Front side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.329	0.170	18.66	21.50	0.633	Yes
Main	Back side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.400	0.211	18.66	21.50	0.769	Yes
Main	Left side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.105	0.058	18.66	21.50	0.202	Yes
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.433	0.229	18.66	21.50	0.833	Yes
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.389	0.204	18.66	21.50	0.748	Yes
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.414	0.211	18.66	21.50	0.796	Yes
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.405	0.209	18.66	21.50	0.779	Yes
Main	Top side	10mm	18700/1860.0	20M QPSK 50%RB@0	0.294	0.158	18.66	21.50	0.565	Yes

Table 37: Product Specific 10-g SAR test reduction evaluation of LTE Band 2

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.7 SAR measurement Results of LTE Band 5

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	20450/829.0	10M QPSK 1RB@0	0.239	0.167	20.76	22.00	0.318	Battery 1#	/
Main	Left tilt	/	20450/829.0	10M QPSK 1RB@0	0.183	0.127	20.76	22.00	0.243	Battery 1#	/
Main	Right cheek	/	20450/829.0	10M QPSK 1RB@0	0.287	0.196	20.76	22.00	0.382	Battery 1#	/
Main	Right tilt	/	20450/829.0	10M QPSK 1RB@0	0.215	0.143	20.76	22.00	0.286	Battery 1#	/
Main	Left cheek	/	20450/829.0	10M QPSK 50%RB@0	0.249	0.173	20.86	22.00	0.324	Battery 1#	/
Main	Left tilt	/	20450/829.0	10M QPSK 50%RB@0	0.190	0.132	20.86	22.00	0.247	Battery 1#	/
Main	Right cheek	/	20450/829.0	10M QPSK 50%RB@0	0.287	0.196	20.86	22.00	0.373	Battery 1#	/
Main	Right tilt	/	20450/829.0	10M QPSK 50%RB@0	0.216	0.144	20.86	22.00	0.281	Battery 1#	/
Main	Right cheek	/	20450/829.0	10M QPSK 1RB@0	0.235	0.167	20.76	22.00	0.313	Battery 2#	/
Main	Right cheek	/	20450/829.0	10M QPSK 1RB@0	0.305	0.194	20.76	22.00	0.406	Battery 3#	Plot
Main	Right cheek	/	20450/829.0	10M QPSK 1RB@0	0.243	0.172	20.76	22.00	0.323	With SIM2	/
Main	Right cheek	/	20450/829.0	10M QPSK 1RB@0	0.292	0.184	20.76	22.00	0.388	With Non-metallic protective case	/

Table 38: Head SAR test results of LTE Band 5

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	20450/829.0	10M QPSK 1RB@0	0.137	0.094	24.17	25.50	0.186	Battery 1#	/
Main	Back side	15mm	20450/829.0	10M QPSK 1RB@0	0.263	0.178	24.17	25.50	0.357	Battery 1#	/
Main	Front side	15mm	20450/829.0	10M QPSK 50%RB@0	0.113	0.078	23.08	24.50	0.157	Battery 1#	/
Main	Back side	15mm	20450/829.0	10M QPSK 50%RB@0	0.222	0.150	23.08	24.50	0.308	Battery 1#	/
Main	Back side	15mm	20450/829.0	10M QPSK 1RB@0	0.249	0.168	24.17	25.50	0.338	Battery 2#	/
Main	Back side	15mm	20450/829.0	10M QPSK 1RB@0	0.321	0.230	24.17	25.50	0.436	Battery 3#	Plot
Main	Back side	15mm	20450/829.0	10M QPSK 1RB@0	0.285	0.190	24.17	25.50	0.387	With SIM2	/
Main	Back side	15mm	20450/829.0	10M QPSK 1RB@0	0.217	0.145	24.17	25.50	0.295	With Non-metallic protective case	/

Table 39: Body Worn SAR test results of LTE Band 5

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information
Main	Front side	10mm	20450/829.0	10M QPSK 1RB@0	0.140	0.091	22.31	23.50	0.184	Battery 1#
Main	Back side	10mm	20450/829.0	10M QPSK 1RB@0	0.272	0.181	22.31	23.50	0.358	Battery 1#
Main	Left side	10mm	20450/829.0	10M QPSK 1RB@0	0.054	0.032	22.31	23.50	0.071	Battery 1#
Main	Top side	10mm	20450/829.0	10M QPSK 1RB@0	0.160	0.072	22.31	23.50	0.210	Battery 1#
Main	Front side	10mm	20450/829.0	10M QPSK 50%RB@0	0.147	0.095	22.22	23.50	0.197	Battery 1#
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.273	0.189	22.22	23.50	0.367	Battery 1#
Main	Left side	10mm	20450/829.0	10M QPSK 50%RB@0	0.055	0.032	22.22	23.50	0.074	Battery 1#
Main	Top side	10mm	20450/829.0	10M QPSK 50%RB@0	0.154	0.073	22.22	23.50	0.207	Battery 1#
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.262	0.175	22.22	23.50	0.352	Battery 2#
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.276	0.194	22.22	23.50	0.371	Battery 3#
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.273	0.192	22.22	23.50	0.367	With SIM2
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.267	0.176	22.22	23.50	0.359	With Non-metallic protective case

Table 40: Hotspot SAR test results of LTE Band 5

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	20450/829.0	10M QPSK 1RB@0	0.140	0.091	22.31	25.50	0.292	Yes
Main	Back side	10mm	20450/829.0	10M QPSK 1RB@0	0.272	0.181	22.31	25.50	0.567	Yes
Main	Left side	10mm	20450/829.0	10M QPSK 1RB@0	0.054	0.032	22.31	25.50	0.113	Yes
Main	Top side	10mm	20450/829.0	10M QPSK 1RB@0	0.160	0.072	22.31	25.50	0.334	Yes
Main	Front side	10mm	20450/829.0	10M QPSK 50%RB@0	0.147	0.095	22.22	24.50	0.248	Yes
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.273	0.189	22.22	24.50	0.461	Yes
Main	Left side	10mm	20450/829.0	10M QPSK 50%RB@0	0.055	0.032	22.22	24.50	0.093	Yes
Main	Top side	10mm	20450/829.0	10M QPSK 50%RB@0	0.154	0.073	22.22	24.50	0.260	Yes
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.262	0.175	22.22	24.50	0.443	Yes
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.276	0.194	22.22	24.50	0.467	Yes
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.273	0.192	22.22	24.50	0.461	Yes
Main	Back side	10mm	20450/829.0	10M QPSK 50%RB@0	0.267	0.176	22.22	24.50	0.451	Yes

Table 41: Product Specific 10-g SAR test reduction evaluation of LTE Band 5

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.8 SAR measurement Results of LTE Band 7

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	21100/2535.0	20M QPSK 1RB@0	0.215	0.110	18.59	20.00	0.297	Battery 1#	/
Main	Left tilt	/	21100/2535.0	20M QPSK 1RB@0	0.172	0.090	18.59	20.00	0.238	Battery 1#	/
Main	Right cheek	/	21100/2535.0	20M QPSK 1RB@0	0.352	0.182	18.59	20.00	0.487	Battery 1#	/
Main	Right tilt	/	21100/2535.0	20M QPSK 1RB@0	0.289	0.141	18.59	20.00	0.400	Battery 1#	/
Main	Left cheek	/	21100/2535.0	20M QPSK 50%RB@25	0.213	0.111	18.58	20.00	0.295	Battery 1#	/
Main	Left tilt	/	21100/2535.0	20M QPSK 50%RB@25	0.174	0.093	18.58	20.00	0.241	Battery 1#	/
Main	Right cheek	/	21100/2535.0	20M QPSK 50%RB@25	0.347	0.179	18.58	20.00	0.481	Battery 1#	/
Main	Right tilt	/	21100/2535.0	20M QPSK 50%RB@25	0.295	0.144	18.58	20.00	0.409	Battery 1#	/
Main	Right cheek	/	21100/2535.0	20M QPSK 1RB@0	0.350	0.180	18.59	20.00	0.484	Battery 2#	/
Main	Right cheek	/	21100/2535.0	20M QPSK 1RB@0	0.348	0.108	18.59	20.00	0.481	Battery 3#	/
Main	Right cheek	/	21100/2535.0	20M QPSK 1RB@0	0.347	0.179	18.59	20.00	0.480	With SIM2	/
Main	Left cheek	/	21100/2535.0	20M QPSK 1RB@0	0.367	0.148	18.59	20.00	0.508	With Non-metallic protective case	/
Main	Left tilt	/	21100/2535.0	20M QPSK 1RB@0	0.340	0.135	18.59	20.00	0.470	With Non-metallic protective case	/
Main	Right cheek	/	21100/2535.0	20M QPSK 1RB@0	0.391	0.166	18.59	20.00	0.541	With Non-metallic protective case	/
Main	Right tilt	/	21100/2535.0	20M QPSK 1RB@0	0.383	0.161	18.59	20.00	0.530	With Non-metallic protective case	/
Main	Left cheek	/	21100/2535.0	20M QPSK 50%RB@25	0.373	0.155	18.58	20.00	0.517	With Non-metallic protective case	/
Main	Left tilt	/	21100/2535.0	20M QPSK 50%RB@25	0.353	0.141	18.58	20.00	0.490	With Non-metallic protective case	/
Main	Right cheek	/	21100/2535.0	20M QPSK 50%RB@25	0.427	0.175	18.58	20.00	0.592	With Non-metallic protective case	/
Main	Right tilt	/	21100/2535.0	20M QPSK 50%RB@25	0.411	0.179	18.58	20.00	0.570	With Non-metallic protective case	/
Main	Right cheek	/	21100/2535.0	20M QPSK 50%RB@25	0.413	0.171	18.58	20.00	0.573	Battery2 With Non-metallic protective case	/
Main	Right cheek	/	21100/2535.0	20M QPSK 50%RB@25	0.545	0.213	18.58	20.00	0.756	Battery3 With Non-metallic protective case	Plot
Main	Right cheek	/	21100/2535.0	20M QPSK 50%RB@25	0.423	0.173	18.58	20.00	0.587	With SIM2 Non-metallic protective case	/

Table 42: Head SAR test results of LTE Band 7

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	21100/2535.0	20M QPSK 1RB@0	0.112	0.060	20.62	22.00	0.154	Battery 1#	/
Main	Back side	15mm	21100/2535.0	20M QPSK 1RB@0	0.390	0.192	20.62	22.00	0.536	Battery 1#	/
Main	Front side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.115	0.063	20.77	22.00	0.153	Battery 1#	/
Main	Back side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.430	0.205	20.77	22.00	0.571	Battery 1#	/
Main	Back side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.408	0.200	20.77	22.00	0.542	Battery 2#	/
Main	Back side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.423	0.206	20.77	22.00	0.561	Battery 3#	/
Main	Back side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.406	0.200	20.77	22.00	0.539	With SIM2	/
Main	Front side	15mm	21100/2535.0	20M QPSK 1RB@0	0.126	0.068	20.62	22.00	0.173	With Non-metallic protective case	/
Main	Back side	15mm	21100/2535.0	20M QPSK 1RB@0	0.523	0.248	20.62	22.00	0.719	With Non-metallic protective case	/
Main	Front side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.123	0.067	20.77	22.00	0.163	With Non-metallic protective case	/
Main	Back side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.570	0.264	20.77	22.00	0.757	With Non-metallic protective case	/
Main	Back side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.581	0.286	20.77	22.00	0.771	Battery2 With Non-metallic protective case	Plot
Main	Back side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.501	0.252	20.77	22.00	0.665	Battery3 With Non-metallic protective case	/
Main	Back side	15mm	21100/2535.0	20M QPSK 50%RB@25	0.556	0.263	20.77	22.00	0.738	With SIM2 Non-metallic protective case	/

Table 43: Body Worn SAR test results of LTE Band 7

Antenna	Test Position	Dist.	Test Channel/Freq. (MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	10mm	21350/2560.0	20M QPSK 1RB@0	0.097	0.050	17.63	19.00	0.133	Battery 1#	/
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.439	0.194	17.63	19.00	0.602	Battery 1#	/
Main	Left side	10mm	21350/2560.0	20M QPSK 1RB@0	0.408	0.182	17.63	19.00	0.559	Battery 1#	/
Main	Top side	10mm	21350/2560.0	20M QPSK 1RB@0	0.071	0.038	17.63	19.00	0.097	Battery 1#	/
Main	Front side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.100	0.052	17.62	19.00	0.137	Battery 1#	/
Main	Back side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.401	0.176	17.62	19.00	0.551	Battery 1#	/
Main	Left side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.377	0.169	17.62	19.00	0.518	Battery 1#	/
Main	Top side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.074	0.040	17.62	19.00	0.102	Battery 1#	/
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.429	0.188	17.63	19.00	0.588	Battery 2#	/
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.437	0.191	17.63	19.00	0.599	Battery 3#	/
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.438	0.191	17.63	19.00	0.600	With SIM2	/
Main	Front side	10mm	21350/2560.0	20M QPSK 1RB@0	0.117	0.058	17.63	19.00	0.160	With Non-metallic protective case	/
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.570	0.242	17.63	19.00	0.781	With Non-metallic protective case	/
Main	Left side	10mm	21350/2560.0	20M QPSK 1RB@0	0.563	0.240	17.63	19.00	0.772	With Non-metallic protective case	/
Main	Top side	10mm	21350/2560.0	20M QPSK 1RB@0	0.051	0.026	17.63	19.00	0.070	With Non-metallic protective case	/
Main	Front side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.104	0.052	17.62	19.00	0.143	With Non-metallic protective case	/
Main	Back side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.505	0.218	17.62	19.00	0.694	With Non-metallic protective case	/
Main	Left side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.494	0.218	17.62	19.00	0.679	With Non-metallic protective case	/
Main	Top side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.055	0.028	17.62	19.00	0.076	With Non-metallic protective case	/
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.547	0.237	17.63	19.00	0.750	Battery2 With Non-metallic protective case	/
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.608	0.267	17.63	19.00	0.833	Battery3 With Non-metallic protective case	Plot
Main	Back side	10mm	20850/2510	20M QPSK 1RB@99	0.448	0.200	17.48	19.00	0.636	Battery3 With Non-metallic protective case	/
Main	Back side	10mm	21100/2535	20M QPSK 1RB@0	0.462	0.207	17.54	19.00	0.647	Battery3 With Non-metallic protective case	/
Main	Back side	10mm	21100/2535	20M QPSK 100%RB@0	0.508	0.225	17.55	19.00	0.709	Battery3 With Non-metallic protective case	/
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.536	0.240	17.63	19.00	0.735	With SIM2 Non-metallic protective case	/

Table 44: Hotspot SAR test results of LTE Band 7

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	21350/2560.0	20M QPSK 1RB@0	0.097	0.050	17.63	22.00	0.265	Yes
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.439	0.194	17.63	22.00	1.201	No
Main	Left side	10mm	21350/2560.0	20M QPSK 1RB@0	0.408	0.182	17.63	22.00	1.116	Yes
Main	Top side	10mm	21350/2560.0	20M QPSK 1RB@0	0.071	0.038	17.63	22.00	0.194	Yes
Main	Front side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.100	0.052	17.62	22.00	0.274	Yes
Main	Back side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.401	0.176	17.62	22.00	1.099	Yes
Main	Left side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.377	0.169	17.62	22.00	1.034	Yes
Main	Top side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.074	0.040	17.62	22.00	0.203	Yes
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.429	0.188	17.63	22.00	1.173	Yes
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.437	0.191	17.63	22.00	1.195	Yes
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.438	0.191	17.63	22.00	1.198	Yes
Main	Front side	10mm	21350/2560.0	20M QPSK 1RB@0	0.117	0.058	17.63	22.00	0.320	Yes
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.570	0.242	17.63	22.00	1.559	No
Main	Left side	10mm	21350/2560.0	20M QPSK 1RB@0	0.563	0.240	17.63	22.00	1.540	No
Main	Top side	10mm	21350/2560.0	20M QPSK 1RB@0	0.051	0.026	17.63	22.00	0.139	Yes
Main	Front side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.104	0.052	17.62	22.00	0.285	Yes
Main	Back side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.505	0.218	17.62	22.00	1.384	No
Main	Left side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.494	0.218	17.62	22.00	1.354	No
Main	Top side	10mm	21100/2535.0	20M QPSK 50%RB@25	0.055	0.028	17.62	22.00	0.151	Yes
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.547	0.237	17.63	22.00	1.496	No
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.608	0.267	17.63	22.00	1.663	No
Main	Back side	10mm	20850/2510	20M QPSK 1RB@99	0.448	0.200	17.48	22.00	1.268	No
Main	Back side	10mm	21100/2535	20M QPSK 1RB@0	0.462	0.207	17.54	22.00	1.290	No
Main	Back side	10mm	21100/2535	20M QPSK 100%RB@0	0.508	0.225	17.55	22.00	1.415	No
Main	Back side	10mm	21350/2560.0	20M QPSK 1RB@0	0.536	0.240	17.63	22.00	1.466	No

Table 45: Product Specific 10-g SAR test reduction evaluation of LTE Band 7

Note: According to the table above, Product Specific 10-g SAR test is required for this frequency band on the back side and left side.

Antenna	Test Position	Dist.	Test Channel/Freq. (MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 10-g SAR (W/kg)	Accessory Information	Note
Main	Back side	0mm	21100/2535	20M QPSK 1RB@0	3.230	1.200	20.62	22.00	1.649	Battery 1#	/
Main	Back side	0mm	21100/2535.0	20M QPSK 50%RB@25	3.130	1.170	20.77	22.00	1.553	Battery 1#	/
Main	Back side	0mm	21100/2535	20M QPSK 1RB@0	2.910	1.040	20.62	22.00	1.429	Battery 2#	/
Main	Back side	0mm	21100/2535	20M QPSK 1RB@0	3.280	1.250	20.62	22.00	1.718	Battery 3#	/
Main	Back side	0mm	21100/2535	20M QPSK 1RB@0	3.430	1.240	20.62	22.00	1.704	With SIM2	/
Main	Back side	0mm	21100/2535	20M QPSK 1RB@0	3.350	1.250	20.62	22.00	1.718	With Non-metallic protective case	/
Main	Left side	0mm	21100/2535	20M QPSK 1RB@0	4.560	1.390	20.62	22.00	1.910	With Non-metallic protective case	/
Main	Back side	0mm	21100/2535.0	20M QPSK 50%RB@25	3.410	1.270	20.77	22.00	1.686	With Non-metallic protective case	/
Main	Left side	0mm	21100/2535.0	20M QPSK 50%RB@25	4.680	1.670	20.77	22.00	2.217	With Non-metallic protective case	/
Main	Left side	0mm	20850/2510	20M QPSK 50%RB@50	4.500	1.610	20.74	22.00	2.152	With Non-metallic protective case	/
Main	Left side	0mm	21350/2560	20M QPSK 50%RB@0	4.320	1.450	20.51	22.00	2.043	With Non-metallic protective case	/
Main	Left side	0mm	21100/2535	20M QPSK 100%RB@0	4.520	1.463	20.63	22.00	2.006	With Non-metallic protective case	/
Main	Left side	0mm	20850/2510	20M QPSK 50%RB@50	4.692	1.700	20.74	22.00	2.272	Battery2 With Non-metallic protective case	/
Main	Left side	0mm	20850/2510	20M QPSK 50%RB@50	5.850	1.980	20.74	22.00	2.646	Battery3 With Non-metallic protective case	Plot
Main	Left side	0mm	20850/2510	20M QPSK 50%RB@50	5.590	1.830	20.74	22.00	2.446	With SIM2 Non-metallic protective case	/

Table 46: Product Specific 10-g SAR test results of LTE Band 7

7.2.9 SAR measurement Results of LTE Band 13

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	23230/782.0	10M QPSK 1RB@0	0.158	0.109	21.35	22.50	0.206	Battery 1#	/
Main	Left tilt	/	23230/782.0	10M QPSK 1RB@0	0.120	0.084	21.35	22.50	0.156	Battery 1#	/
Main	Right cheek	/	23230/782.0	10M QPSK 1RB@0	0.212	0.144	21.35	22.50	0.276	Battery 1#	/
Main	Right tilt	/	23230/782.0	10M QPSK 1RB@0	0.146	0.098	21.35	22.50	0.190	Battery 1#	/
Main	Left cheek	/	23230/782.0	10M QPSK 50%RB@13	0.174	0.120	21.27	22.50	0.231	Battery 1#	/
Main	Left tilt	/	23230/782.0	10M QPSK 50%RB@13	0.129	0.090	21.27	22.50	0.171	Battery 1#	/
Main	Right cheek	/	23230/782.0	10M QPSK 50%RB@13	0.228	0.154	21.27	22.50	0.303	Battery 1#	/
Main	Right tilt	/	23230/782.0	10M QPSK 50%RB@13	0.155	0.104	21.27	22.50	0.206	Battery 1#	/
Main	Right cheek	/	23230/782.0	10M QPSK 50%RB@13	0.255	0.159	21.27	22.50	0.338	Battery 2#	Plot
Main	Right cheek	/	23230/782.0	10M QPSK 50%RB@13	0.253	0.168	21.27	22.50	0.336	Battery 3#	/
Main	Right cheek	/	23230/782.0	10M QPSK 50%RB@13	0.243	0.162	21.27	22.50	0.323	With SIM2	/
Main	Right cheek	/	23230/782.0	10M QPSK 50%RB@13	0.228	0.154	21.27	22.50	0.303	With Non-metallic protective case	/

Table 47: Head SAR test results of LTE Band 13

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	23230/782.0	10M QPSK 1RB@49	0.082	0.059	23.10	24.50	0.113	Battery 1#	/
Main	Back side	15mm	23230/782.0	10M QPSK 1RB@49	0.186	0.131	23.10	24.50	0.257	Battery 1#	/
Main	Front side	15mm	23230/782.0	10M QPSK 50%RB@13	0.070	0.049	22.18	23.50	0.095	Battery 1#	/
Main	Back side	15mm	23230/782.0	10M QPSK 50%RB@13	0.157	0.111	22.18	23.50	0.213	Battery 1#	/
Main	Back side	15mm	23230/782.0	10M QPSK 1RB@49	0.207	0.156	23.10	24.50	0.286	Battery 2#	Plot
Main	Back side	15mm	23230/782.0	10M QPSK 1RB@49	0.182	0.128	23.10	24.50	0.251	Battery 3#	/
Main	Back side	15mm	23230/782.0	10M QPSK 1RB@49	0.178	0.126	23.10	24.50	0.246	With SIM2	/
Main	Back side	15mm	23230/782.0	10M QPSK 1RB@49	0.126	0.089	23.10	24.50	0.174	With Non-metallic protective case	/

Table 48: Body Worn SAR test results of LTE Band 13

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	10mm	23230/782.0	10M QPSK 1RB@49	0.121	0.080	23.10	24.50	0.167	Battery 1#	/
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.264	0.184	23.10	24.50	0.364	Battery 1#	Plot
Main	Left side	10mm	23230/782.0	10M QPSK 1RB@49	0.092	0.062	23.10	24.50	0.127	Battery 1#	/
Main	Top side	10mm	23230/782.0	10M QPSK 1RB@49	0.076	0.043	23.10	24.50	0.105	Battery 1#	/
Main	Front side	10mm	23230/782.0	10M QPSK 50%RB@13	0.102	0.067	22.18	23.50	0.138	Battery 1#	/
Main	Back side	10mm	23230/782.0	10M QPSK 50%RB@13	0.218	0.149	22.18	23.50	0.295	Battery 1#	/
Main	Left side	10mm	23230/782.0	10M QPSK 50%RB@13	0.079	0.053	22.18	23.50	0.107	Battery 1#	/
Main	Top side	10mm	23230/782.0	10M QPSK 50%RB@13	0.075	0.041	22.18	23.50	0.102	Battery 1#	/
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.246	0.169	23.10	24.50	0.340	Battery 2#	/
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.256	0.175	23.10	24.50	0.353	Battery 3#	/
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.251	0.172	23.10	24.50	0.346	With SIM2	/
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.173	0.118	23.10	24.50	0.239	With Non-metallic protective case	/

Table 49: Hotspot SAR test results of LTE Band 13

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	23230/782.0	10M QPSK 1RB@49	0.121	0.080	23.10	24.50	0.167	Yes
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.264	0.184	23.10	24.50	0.364	Yes
Main	Left side	10mm	23230/782.0	10M QPSK 1RB@49	0.092	0.062	23.10	24.50	0.127	Yes
Main	Top side	10mm	23230/782.0	10M QPSK 1RB@49	0.076	0.043	23.10	24.50	0.105	Yes
Main	Front side	10mm	23230/782.0	10M QPSK 50%RB@13	0.102	0.067	22.18	23.50	0.138	Yes
Main	Back side	10mm	23230/782.0	10M QPSK 50%RB@13	0.218	0.149	22.18	23.50	0.295	Yes
Main	Left side	10mm	23230/782.0	10M QPSK 50%RB@13	0.079	0.053	22.18	23.50	0.107	Yes
Main	Top side	10mm	23230/782.0	10M QPSK 50%RB@13	0.075	0.041	22.18	23.50	0.102	Yes
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.246	0.169	23.10	24.50	0.340	Yes
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.256	0.175	23.10	24.50	0.353	Yes
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.251	0.172	23.10	24.50	0.346	Yes
Main	Back side	10mm	23230/782.0	10M QPSK 1RB@49	0.173	0.118	23.10	24.50	0.239	Yes

Table 50: Product Specific 10-g SAR test reduction evaluation of LTE Band 13

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.10 SAR measurement Results of LTE Band 26

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	26765/821.5	15M QPSK 1RB@38	0.286	0.167	20.64	21.00	0.311	Battery 1#	/
Main	Left tilt	/	26765/821.5	15M QPSK 1RB@38	0.219	0.151	20.64	21.00	0.238	Battery 1#	/
Main	Right cheek	/	26765/821.5	15M QPSK 1RB@38	0.318	0.203	20.64	21.00	0.345	Battery 1#	Plot
Main	Right tilt	/	26765/821.5	15M QPSK 1RB@38	0.291	0.197	20.64	21.00	0.316	Battery 1#	/
Main	Left cheek	/	26865/831.5	15M QPSK 50%RB@0	0.279	0.197	20.61	21.00	0.305	Battery 1#	/
Main	Left tilt	/	26865/831.5	15M QPSK 50%RB@0	0.200	0.138	20.61	21.00	0.219	Battery 1#	/
Main	Right cheek	/	26865/831.5	15M QPSK 50%RB@0	0.259	0.157	20.61	21.00	0.283	Battery 1#	/
Main	Right tilt	/	26865/831.5	15M QPSK 50%RB@0	0.269	0.183	20.61	21.00	0.294	Battery 1#	/
Main	Right cheek	/	26765/821.5	15M QPSK 1RB@38	0.247	0.147	20.64	21.00	0.268	Battery 2#	/
Main	Right cheek	/	26765/821.5	15M QPSK 1RB@38	0.270	0.179	20.64	21.00	0.293	Battery 3#	/
Main	Right cheek	/	26765/821.5	15M QPSK 1RB@38	0.259	0.183	20.64	21.00	0.281	With SIM2	/
Main	Right cheek	/	26765/821.5	15M QPSK 1RB@38	0.298	0.187	20.64	21.00	0.324	With Non-metallic protective case	/

Table 51: Head SAR test results of LTE Band 26

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	26865/831.5	15M QPSK 1RB@38	0.143	0.099	24.18	24.50	0.154	Battery 1#	/
Main	Back side	15mm	26865/831.5	15M QPSK 1RB@38	0.292	0.198	24.18	24.50	0.314	Battery 1#	/
Main	Front side	15mm	26865/831.5	15M QPSK 50%RB@0	0.119	0.082	23.21	23.50	0.127	Battery 1#	/
Main	Back side	15mm	26865/831.5	15M QPSK 50%RB@0	0.227	0.154	23.21	23.50	0.243	Battery 1#	/
Main	Back side	15mm	26865/831.5	15M QPSK 1RB@38	0.288	0.193	24.18	24.50	0.310	Battery 2#	/
Main	Back side	15mm	26865/831.5	15M QPSK 1RB@38	0.320	0.226	24.18	24.50	0.344	Battery 3#	Plot
Main	Back side	15mm	26865/831.5	15M QPSK 1RB@38	0.297	0.199	24.18	24.50	0.320	With SIM2	/
Main	Back side	15mm	26865/831.5	15M QPSK 1RB@38	0.282	0.185	24.18	24.50	0.304	With Non-metallic protective case	/

Table 52: Body Worn SAR test results of LTE Band 26

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Notes
Main	Front side	10mm	26865/831.5	15M QPSK 1RB@38	0.248	0.160	24.18	24.50	0.267	Battery 1#	/
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.472	0.313	24.18	24.50	0.508	Battery 1#	/
Main	Left side	10mm	26865/831.5	15M QPSK 1RB@38	0.089	0.051	24.18	24.50	0.096	Battery 1#	/
Main	Top side	10mm	26865/831.5	15M QPSK 1RB@38	0.198	0.108	24.18	24.50	0.213	Battery 1#	/
Main	Front side	10mm	26865/831.5	15M QPSK 50%RB@0	0.198	0.127	23.21	23.50	0.212	Battery 1#	/
Main	Back side	10mm	26865/831.5	15M QPSK 50%RB@0	0.363	0.242	23.21	23.50	0.388	Battery 1#	/
Main	Left side	10mm	26865/831.5	15M QPSK 50%RB@0	0.075	0.044	23.21	23.50	0.080	Battery 1#	/
Main	Top side	10mm	26865/831.5	15M QPSK 50%RB@0	0.153	0.084	23.21	23.50	0.164	Battery 1#	/
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.506	0.331	24.18	24.50	0.545	Battery 2#	/
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.510	0.359	24.18	24.50	0.549	Battery 3#	Plot
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.488	0.318	24.18	24.50	0.525	With SIM2	/
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.414	0.272	24.18	24.50	0.446	With Non-metallic protective case	/

Table 53: Hotspot SAR test results of LTE Band 26

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	26865/831.5	15M QPSK 1RB@38	0.248	0.160	24.18	24.50	0.267	Yes
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.472	0.313	24.18	24.50	0.508	Yes
Main	Left side	10mm	26865/831.5	15M QPSK 1RB@38	0.089	0.051	24.18	24.50	0.096	Yes
Main	Top side	10mm	26865/831.5	15M QPSK 1RB@38	0.198	0.108	24.18	24.50	0.213	Yes
Main	Front side	10mm	26865/831.5	15M QPSK 50%RB@0	0.198	0.127	23.21	23.50	0.212	Yes
Main	Back side	10mm	26865/831.5	15M QPSK 50%RB@0	0.363	0.242	23.21	23.50	0.388	Yes
Main	Left side	10mm	26865/831.5	15M QPSK 50%RB@0	0.075	0.044	23.21	23.50	0.080	Yes
Main	Top side	10mm	26865/831.5	15M QPSK 50%RB@0	0.153	0.084	23.21	23.50	0.164	Yes
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.506	0.331	24.18	24.50	0.545	Yes
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.510	0.359	24.18	24.50	0.549	Yes
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.488	0.318	24.18	24.50	0.525	Yes
Main	Back side	10mm	26865/831.5	15M QPSK 1RB@38	0.414	0.272	24.18	24.50	0.446	Yes

Table 54: Product Specific 10-g SAR test reduction evaluation of LTE Band 26

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.11 SAR measurement Results of LTE Band 38

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	38000/2595.0	20M QPSK 1RB@0	0.324	0.146	21.22	22.50	0.435	Battery 1#	/
Main	Left tilt	/	38000/2595.0	20M QPSK 1RB@0	0.276	0.117	21.22	22.50	0.371	Battery 1#	/
Main	Right cheek	/	38000/2595.0	20M QPSK 1RB@0	0.396	0.162	21.22	22.50	0.532	Battery 1#	/
Main	Right tilt	/	38000/2595.0	20M QPSK 1RB@0	0.309	0.148	21.22	22.50	0.415	Battery 1#	/
Main	Left cheek	/	38150/2610.0	20M QPSK 50%RB@0	0.366	0.156	21.30	22.50	0.482	Battery 1#	/
Main	Left tilt	/	38150/2610.0	20M QPSK 50%RB@0	0.316	0.128	21.30	22.50	0.417	Battery 1#	/
Main	Right cheek	/	38150/2610.0	20M QPSK 50%RB@0	0.389	0.178	21.30	22.50	0.513	Battery 1#	/
Main	Right tilt	/	38150/2610.0	20M QPSK 50%RB@0	0.325	0.157	21.30	22.50	0.428	Battery 1#	/
Main	Right cheek	/	38150/2610.0	20M QPSK 50%RB@0	0.425	0.186	21.30	22.50	0.560	Battery 2#	/
Main	Right cheek	/	38150/2610.0	20M QPSK 50%RB@0	0.507	0.225	21.30	22.50	0.668	Battery 3#	/
Main	Right cheek	/	38150/2610.0	20M QPSK 50%RB@0	0.431	0.189	21.30	22.50	0.568	With SIM2	/
Main	Left cheek	/	38000/2595.0	20M QPSK 1RB@0	0.387	0.172	21.22	22.50	0.520	With Non-metallic protective case	/
Main	Left tilt	/	38000/2595.0	20M QPSK 1RB@0	0.423	0.184	21.22	22.50	0.568	With Non-metallic protective case	/
Main	Right cheek	/	38000/2595.0	20M QPSK 1RB@0	0.521	0.221	21.22	22.50	0.700	With Non-metallic protective case	/
Main	Right tilt	/	38000/2595.0	20M QPSK 1RB@0	0.506	0.199	21.22	22.50	0.679	With Non-metallic protective case	/
Main	Left cheek	/	38150/2610.0	20M QPSK 50%RB@0	0.390	0.158	21.30	22.50	0.514	With Non-metallic protective case	/
Main	Left tilt	/	38150/2610.0	20M QPSK 50%RB@0	0.389	0.174	21.30	22.50	0.513	With Non-metallic protective case	/
Main	Right cheek	/	38150/2610.0	20M QPSK 50%RB@0	0.511	0.217	21.30	22.50	0.674	With Non-metallic protective case	/
Main	Right tilt	/	38150/2610.0	20M QPSK 50%RB@0	0.436	0.205	21.30	22.50	0.575	With Non-metallic protective case	/
Main	Right cheek	/	38000/2595.0	20M QPSK 1RB@0	0.566	0.232	21.22	22.50	0.760	Battery2 With Non-metallic protective case	/
Main	Right cheek	/	38000/2595.0	20M QPSK 1RB@0	0.608	0.246	21.22	22.50	0.816	Battery3 With Non-metallic protective case	/
Main	Right cheek	/	37850/2580	20M QPSK 1RB@0	0.777	0.308	21.20	22.50	1.048	Battery3 With Non-metallic protective case	Plot
Main	Right cheek	/	38150/2610	20M QPSK 1RB@0	0.690	0.243	21.17	22.50	0.937	Battery3 With Non-metallic protective case	/
Main	Right cheek	/	38150/2610	20M QPSK 100%RB@0	0.646	0.229	21.21	22.50	0.869	Battery3 With Non-metallic protective case	/
Main	Right cheek	/	37850/2580	20M QPSK 100%RB@0	0.632	0.215	21.16	22.50	0.860	Battery3 With Non-metallic protective case	/
Main	Right cheek	/	38000/2595	20M QPSK 100%RB@0	0.628	0.212	21.20	22.50	0.847	Battery3 With Non-metallic protective case	/
Main	Right cheek	/	38000/2595.0	20M QPSK 1RB@0	0.587	0.235	21.22	22.50	0.788	With SIM2 Non-metallic protective case	/

Table 55: Head SAR test results of LTE Band 38

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
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Main	Front side	15mm	38000/2595.0	20M QPSK 1RB@0	0.077	0.042	21.22	22.50	0.103	Battery 1#	/
Main	Back side	15mm	38000/2595.0	20M QPSK 1RB@0	0.301	0.142	21.22	22.50	0.404	Battery 1#	/
Main	Front side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.078	0.042	21.30	22.50	0.103	Battery 1#	/
Main	Back side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.362	0.168	21.30	22.50	0.477	Battery 1#	/
Main	Back side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.387	0.183	21.30	22.50	0.510	Battery 2#	/
Main	Back side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.443	0.212	21.30	22.50	0.584	Battery 3#	/
Main	Back side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.395	0.184	21.30	22.50	0.521	With SIM2	/
Main	Front side	15mm	38000/2595.0	20M QPSK 1RB@0	0.084	0.039	21.22	22.50	0.113	With Non-metallic protective case	/
Main	Back side	15mm	38000/2595.0	20M QPSK 1RB@0	0.471	0.220	21.22	22.50	0.632	With Non-metallic protective case	/
Main	Front side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.088	0.040	21.30	22.50	0.116	With Non-metallic protective case	/
Main	Back side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.512	0.236	21.30	22.50	0.675	With Non-metallic protective case	/
Main	Back side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.527	0.242	21.30	22.50	0.695	Battery2 With Non-metallic protective case	/
Main	Back side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.597	0.281	21.30	22.50	0.787	Battery3 With Non-metallic protective case	Plot
Main	Back side	15mm	38150/2610.0	20M QPSK 50%RB@0	0.525	0.244	21.30	22.50	0.692	With SIM2 Non-metallic protective case	/

Table 56: Body Worn SAR test results of LTE Band 38



Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	10mm	38000/2595.0	20M QPSK 1RB@0	0.095	0.050	19.80	21.00	0.125	Battery 1#	/
Main	Back side	10mm	38000/2595.0	20M QPSK 1RB@0	0.548	0.237	19.80	21.00	0.722	Battery 1#	/
Main	Left side	10mm	38000/2595.0	20M QPSK 1RB@0	0.417	0.180	19.80	21.00	0.550	Battery 1#	/
Main	Top side	10mm	38000/2595.0	20M QPSK 1RB@0	0.068	0.037	19.80	21.00	0.090	Battery 1#	/
Main	Front side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.099	0.051	19.89	21.00	0.128	Battery 1#	/
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.567	0.254	19.89	21.00	0.732	Battery 1#	/
Main	Left side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.506	0.214	19.89	21.00	0.653	Battery 1#	/
Main	Top side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.069	0.037	19.89	21.00	0.089	Battery 1#	/
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.649	0.273	19.89	21.00	0.838	Battery 2#	/
Main	Back side	10mm	37850/2580	20M QPSK 50%RB@0	0.552	0.243	19.79	21.00	0.729	Battery 2#	/
Main	Back side	10mm	38000/2595	20M QPSK 50%RB@0	0.608	0.265	19.76	21.00	0.809	Battery 2#	/
Main	Back side	10mm	38150/2610	20M QPSK 100%RB@0	0.563	0.252	19.71	21.00	0.758	Battery 2#	/
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.543	0.234	19.89	21.00	0.701	Battery 3#	/
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.597	0.251	19.89	21.00	0.771	With SIM2	/
Main	Front side	10mm	38000/2595.0	20M QPSK 1RB@0	0.126	0.057	19.80	21.00	0.166	With Non-metallic protective case	/
Main	Back side	10mm	38000/2595.0	20M QPSK 1RB@0	0.670	0.287	19.80	21.00	0.883	With Non-metallic protective case	/
Main	Back side	10mm	37850/2580	20M QPSK 1RB@0	0.621	0.264	19.79	21.00	0.821	With Non-metallic protective case	/
Main	Back side	10mm	38150/2610	20M QPSK 1RB@0	0.704	0.304	19.77	21.00	0.934	With Non-metallic protective case	/
Main	Back side	10mm	38150/2610	20M QPSK 1RB@0	0.806	0.344	19.77	21.00	1.070	With Non-metallic protective case	Plot
Main	Back side	10mm	38150/2610	20M QPSK 1RB@0	0.805	0.337	19.77	21.00	1.069	Repeated With Non-metallic protective case	/
Main	Left side	10mm	38000/2595.0	20M QPSK 1RB@0	0.663	0.281	19.80	21.00	0.874	With Non-metallic protective case	/
Main	Left side	10mm	37850/2580	20M QPSK 1RB@0	0.666	0.279	19.79	21.00	0.880	With Non-metallic protective case	/
Main	Left side	10mm	38150/2610	20M QPSK 1RB@0	0.630	0.268	19.77	21.00	0.836	With Non-metallic protective case	/
Main	Top side	10mm	38000/2595.0	20M QPSK 1RB@0	0.044	0.022	19.80	21.00	0.058	With Non-metallic protective case	/
Main	Front side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.117	0.058	19.89	21.00	0.151	With Non-metallic protective case	/
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.733	0.313	19.89	21.00	0.946	With Non-metallic protective case	/
Main	Back side	10mm	37850/2580	20M QPSK 50%RB@0	0.633	0.277	19.79	21.00	0.836	With Non-metallic protective case	/
Main	Back side	10mm	38000/2595	20M QPSK 50%RB@0	0.697	0.303	19.76	21.00	0.927	With Non-metallic protective case	/
Main	Left side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.520	0.221	19.89	21.00	0.671	With Non-metallic protective case	/
Main	Top side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.041	0.020	19.89	21.00	0.053	With Non-metallic protective case	/
Main	Back side	10mm	38150/2610.0	20M QPSK 100%RB@0	0.770	0.317	19.71	21.00	1.036	With Non-metallic protective case	/
Main	Back side	10mm	37850/2580	20M QPSK 100%RB@0	0.752	0.306	19.70	21.00	1.014	With Non-metallic protective case	/



Main	Back side	10mm	38000/2595	20M QPSK 100%RB@0	0.745	0.298	19.69	21.00	1.007	With Non-metallic protective case	/
Main	Back side	10mm	38150/2610.0	20M QPSK 100%RB@0	0.758	0.315	19.71	21.00	1.020	Battery2 With Non-metallic protective case	/
Main	Back side	10mm	38150/2610.0	20M QPSK 100%RB@0	0.761	0.324	19.71	21.00	1.024	Battery3 With Non-metallic protective case	/
Main	Back side	10mm	38150/2610.0	20M QPSK 100%RB@0	0.763	0.322	19.71	21.00	1.027	With SIM2 Non-metallic protective case	/

Table 57: Hotspot SAR test results of LTE Band 38



Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	38000/2595.0	20M QPSK 1RB@0	0.095	0.050	19.80	22.50	0.177	Yes
Main	Back side	10mm	38000/2595.0	20M QPSK 1RB@0	0.548	0.237	19.80	22.50	1.020	Yes
Main	Left side	10mm	38000/2595.0	20M QPSK 1RB@0	0.417	0.180	19.80	22.50	0.776	Yes
Main	Top side	10mm	38000/2595.0	20M QPSK 1RB@0	0.068	0.037	19.80	22.50	0.127	Yes
Main	Front side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.099	0.051	19.89	22.50	0.181	Yes
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.567	0.254	19.89	22.50	1.034	Yes
Main	Left side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.506	0.214	19.89	22.50	0.923	Yes
Main	Top side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.069	0.037	19.89	22.50	0.126	Yes
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.649	0.273	19.89	22.50	1.184	Yes
Main	Back side	10mm	37850/2580	20M QPSK 50%RB@0	0.552	0.243	19.79	22.50	1.030	Yes
Main	Back side	10mm	38000/2595	20M QPSK 50%RB@0	0.608	0.265	19.76	22.50	1.143	Yes
Main	Back side	10mm	38150/2610	20M QPSK 100%RB@0	0.563	0.252	19.71	22.50	1.070	Yes
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.543	0.234	19.89	22.50	0.990	Yes
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.597	0.251	19.89	22.50	1.089	Yes
Main	Front side	10mm	38000/2595.0	20M QPSK 1RB@0	0.126	0.057	19.80	22.50	0.235	Yes
Main	Back side	10mm	38000/2595.0	20M QPSK 1RB@0	0.670	0.287	19.80	22.50	1.248	No
Main	Back side	10mm	37850/2580	20M QPSK 1RB@0	0.621	0.264	19.79	22.50	1.159	Yes
Main	Back side	10mm	38150/2610	20M QPSK 1RB@0	0.704	0.304	19.77	22.50	1.320	No
Main	Back side	10mm	38150/2610	20M QPSK 1RB@0	0.806	0.344	19.77	22.50	1.511	No
Main	Back side	10mm	38150/2610	20M QPSK 1RB@0	0.805	0.337	19.77	22.50	1.509	No
Main	Left side	10mm	38000/2595.0	20M QPSK 1RB@0	0.663	0.281	19.80	22.50	1.235	No
Main	Left side	10mm	37850/2580	20M QPSK 1RB@0	0.666	0.279	19.79	22.50	1.243	No
Main	Left side	10mm	38150/2610	20M QPSK 1RB@0	0.630	0.268	19.77	22.50	1.181	Yes
Main	Top side	10mm	38000/2595.0	20M QPSK 1RB@0	0.044	0.022	19.80	22.50	0.082	Yes
Main	Front side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.117	0.058	19.89	22.50	0.213	Yes
Main	Back side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.733	0.313	19.89	22.50	1.337	No
Main	Back side	10mm	37850/2580	20M QPSK 50%RB@0	0.633	0.277	19.79	22.50	1.181	Yes
Main	Back side	10mm	38000/2595	20M QPSK 50%RB@0	0.697	0.303	19.76	22.50	1.310	No
Main	Left side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.520	0.221	19.89	22.50	0.948	Yes
Main	Top side	10mm	38150/2610.0	20M QPSK 50%RB@0	0.041	0.020	19.89	22.50	0.075	Yes
Main	Back side	10mm	38150/2610.0	20M QPSK 100%RB@0	0.770	0.317	19.71	22.50	1.464	No
Main	Back side	10mm	37850/2580	20M QPSK 100%RB@0	0.752	0.306	19.70	22.50	1.433	No
Main	Back side	10mm	38000/2595	20M QPSK 100%RB@0	0.745	0.298	19.69	22.50	1.423	No
Main	Back side	10mm	38150/2610.0	20M QPSK 100%RB@0	0.758	0.315	19.71	22.50	1.441	No
Main	Back side	10mm	38150/2610.0	20M QPSK 100%RB@0	0.761	0.324	19.71	22.50	1.447	No
Main	Back side	10mm	38150/2610.0	20M QPSK 100%RB@0	0.763	0.322	19.71	22.50	1.451	No

Table 58: Product Specific 10-g SAR test reduction evaluation of LTE Band 38

Note: According to the table above, Product Specific 10-g SAR test is required for this frequency band on the back and left side..

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 10-g SAR (W/kg)	Accessory Information	No
Main	Back side	0mm	38000/2595.0	20M QPSK 1RB@0	2.990	0.843	21.22	22.50	1.132	With Non-metallic protective case	/
Main	Left side	0mm	38000/2595.0	20M QPSK 1RB@0	1.680	0.592	21.22	22.50	0.795	With Non-metallic protective case	/
Main	Back side	0mm	38150/2610.0	20M QPSK 50%RB@0	2.940	0.834	21.30	22.50	1.099	With Non-metallic protective case	/
Main	Left side	0mm	38150/2610.0	20M QPSK 50%RB@0	1.300	0.485	21.30	22.50	0.639	With Non-metallic protective case	/
Main	Back side	0mm	38000/2595.0	20M QPSK 1RB@0	2.660	0.926	21.22	22.50	1.243	Battery2 With Non-metallic protective case	/
Main	Back side	0mm	38000/2595.0	20M QPSK 1RB@0	3.650	1.120	21.22	22.50	1.504	Battery3 With Non-metallic protective case	PI
Main	Back side	0mm	38000/2595.0	20M QPSK 1RB@0	2.780	0.928	21.22	22.50	1.246	With SIM2 Non-metallic protective case	/

Table 59: Product Specific 10-g SAR test results of LTE Band 38

7.2.12 SAR measurement Results of LTE Band 66

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Left cheek	/	132072/1720.0	20M QPSK 1RB@99	0.419	0.223	16.98	18.50	0.595	Battery 1#	/
Main	Left tilt	/	132072/1720.0	20M QPSK 1RB@99	0.485	0.253	16.98	18.50	0.688	Battery 1#	/
Main	Right cheek	/	132072/1720.0	20M QPSK 1RB@99	0.589	0.297	16.98	18.50	0.836	Battery 1#	/
Main	Right cheek	/	132322/1745	20M QPSK 1RB@0	0.549	0.282	16.95	18.50	0.784	Battery 1#	/
Main	Right cheek	/	132572/1770	20M QPSK 1RB@0	0.587	0.300	16.92	18.50	0.845	Battery 1#	/
Main	Right tilt	/	132072/1720.0	20M QPSK 1RB@99	0.603	0.320	16.98	18.50	0.856	Battery 1#	/
Main	Right tilt	/	132322/1745	20M QPSK 1RB@0	0.653	0.326	16.95	18.50	0.933	Battery 1#	/
Main	Right tilt	/	132572/1770	20M QPSK 1RB@0	0.697	0.350	16.92	18.50	1.003	Battery 1#	/
Main	Left cheek	/	132322/1745.0	20M QPSK 50%RB@0	0.430	0.229	17.11	18.50	0.592	Battery 1#	/
Main	Left tilt	/	132322/1745.0	20M QPSK 50%RB@0	0.511	0.263	17.11	18.50	0.704	Battery 1#	/
Main	Right cheek	/	132322/1745.0	20M QPSK 50%RB@0	0.611	0.307	17.11	18.50	0.841	Battery 1#	/
Main	Right cheek	/	132072/1720	20M QPSK 50%RB@25	0.559	0.290	17.07	18.50	0.777	Battery 1#	/
Main	Right cheek	/	132572/1770	20M QPSK 50%RB@0	0.613	0.314	17.03	18.50	0.860	Battery 1#	/
Main	Right tilt	/	132322/1745.0	20M QPSK 50%RB@0	0.625	0.330	17.11	18.50	0.861	Battery 1#	/
Main	Right tilt	/	132072/1720	20M QPSK 50%RB@25	0.665	0.332	17.07	18.50	0.924	Battery 1#	/
Main	Right tilt	/	132572/1770	20M QPSK 50%RB@0	0.723	0.340	17.03	18.50	1.014	Battery 1#	Plot
Main	Right tilt	/	132072/1720	20M QPSK 100%RB@0	0.645	0.339	17.08	18.50	0.894	Battery 1#	/
Main	Right tilt	/	132572/1770	20M QPSK 50%RB@0	0.677	0.335	17.03	18.50	0.950	Battery 2#	/
Main	Right tilt	/	132572/1770	20M QPSK 50%RB@0	0.718	0.369	17.03	18.50	1.007	Battery 3#	/
Main	Right tilt	/	132572/1770	20M QPSK 50%RB@0	0.716	0.356	17.03	18.50	1.004	With SIM2	/
Main	Right tilt	/	132572/1770	20M QPSK 50%RB@0	0.665	0.335	17.03	18.50	0.933	With Non-metallic protective case	/

Table 60: Head SAR test results of LTE Band 66

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Main	Front side	15mm	132322/1745.0	20M QPSK 1RB@0	0.152	0.087	20.58	22.00	0.211	Battery 1#	/
Main	Back side	15mm	132322/1745.0	20M QPSK 1RB@0	0.443	0.247	20.58	22.00	0.614	Battery 1#	Plot
Main	Front side	15mm	132072/1720.0	20M QPSK 50%RB@25	0.164	0.092	20.64	22.00	0.224	Battery 1#	/
Main	Back side	15mm	132072/1720.0	20M QPSK 50%RB@25	0.363	0.199	20.64	22.00	0.496	Battery 1#	/
Main	Back side	15mm	132322/1745.0	20M QPSK 1RB@0	0.357	0.195	20.58	22.00	0.495	Battery 2#	/
Main	Back side	15mm	132322/1745.0	20M QPSK 1RB@0	0.360	0.197	20.58	22.00	0.499	Battery 3#	/
Main	Back side	15mm	132322/1745.0	20M QPSK 1RB@0	0.358	0.196	20.58	22.00	0.496	With SIM2	/
Main	Back side	15mm	132322/1745.0	20M QPSK 1RB@0	0.295	0.163	20.58	22.00	0.409	With Non-metallic protective case	/

Table 61: Body Worn SAR test results of LTE Band 66

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
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Main	Front side	10mm	132072/1720.0	20M QPSK 1RB@99	0.327	0.168	19.58	21.00	0.453	Battery 1#	/
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.598	0.309	19.58	21.00	0.829	Battery 1#	Plot
Main	Back side	10mm	132322/1745	20M QPSK 1RB@0	0.553	0.282	19.57	21.00	0.769	Battery 1#	/
Main	Back side	10mm	132572/1770	20M QPSK 1RB@0	0.571	0.291	19.44	21.00	0.818	Battery 1#	/
Main	Back side	10mm	132072/1720.0	20M QPSK 100%RB@0	0.529	0.269	19.56	21.00	0.737	Battery 1#	/
Main	Left side	10mm	132072/1720.0	20M QPSK 1RB@99	0.142	0.080	19.58	21.00	0.197	Battery 1#	/
Main	Top side	10mm	132072/1720.0	20M QPSK 1RB@99	0.528	0.266	19.58	21.00	0.732	Battery 1#	/
Main	Front side	10mm	132072/1720.0	20M QPSK 50%RB@0	0.338	0.174	19.63	21.00	0.463	Battery 1#	/
Main	Back side	10mm	132072/1720.0	20M QPSK 50%RB@0	0.581	0.307	19.63	21.00	0.796	Battery 1#	/
Main	Left side	10mm	132072/1720.0	20M QPSK 50%RB@0	0.147	0.082	19.63	21.00	0.202	Battery 1#	/
Main	Top side	10mm	132072/1720.0	20M QPSK 50%RB@0	0.515	0.259	19.63	21.00	0.706	Battery 1#	/
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.584	0.296	19.58	21.00	0.810	Battery 2#	/
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.533	0.273	19.58	21.00	0.739	Battery 3#	/
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.529	0.276	19.58	21.00	0.734	With SIM2	/
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.442	0.231	19.58	21.00	0.613	With Non-metallic protective case	/

Table 62: Hotspot SAR test results of LTE Band 66

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Main	Front side	10mm	132072/1720.0	20M QPSK 1RB@99	0.327	0.168	19.58	22.00	0.571	Yes
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.598	0.309	19.58	22.00	1.044	Yes
Main	Back side	10mm	132322/1745	20M QPSK 1RB@0	0.553	0.282	19.57	22.00	0.968	Yes
Main	Back side	10mm	132572/1770	20M QPSK 1RB@0	0.571	0.291	19.44	22.00	1.030	Yes
Main	Back side	10mm	132072/1720.0	20M QPSK 100%RB@0	0.529	0.269	19.56	22.00	0.928	Yes
Main	Left side	10mm	132072/1720.0	20M QPSK 1RB@99	0.142	0.080	19.58	22.00	0.248	Yes
Main	Top side	10mm	132072/1720.0	20M QPSK 1RB@99	0.528	0.266	19.58	22.00	0.922	Yes
Main	Front side	10mm	132072/1720.0	20M QPSK 50%RB@0	0.338	0.174	19.63	22.00	0.583	Yes
Main	Back side	10mm	132072/1720.0	20M QPSK 50%RB@0	0.581	0.307	19.63	22.00	1.003	Yes
Main	Left side	10mm	132072/1720.0	20M QPSK 50%RB@0	0.147	0.082	19.63	22.00	0.254	Yes
Main	Top side	10mm	132072/1720.0	20M QPSK 50%RB@0	0.515	0.259	19.63	22.00	0.889	Yes
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.584	0.296	19.58	22.00	1.020	Yes
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.533	0.273	19.58	22.00	0.931	Yes
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.529	0.276	19.58	22.00	0.924	Yes
Main	Back side	10mm	132072/1720.0	20M QPSK 1RB@99	0.442	0.231	19.58	22.00	0.772	Yes

Table 63: Product Specific 10-g SAR test reduction evaluation of LTE Band 66

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.13 SAR measurement Results of 2.4G Wi-Fi

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Duty Cycle	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Core0	Left cheek	/	6/2437	802.11n(40M)	0.110	0.062	99%	10.17	11.50	0.151	Battery 1#	Plot
Core0	Left tilt	/	6/2437	802.11n(40M)	0.046	0.025	99%	10.17	11.50	0.063	Battery 1#	/
Core0	Right cheek	/	6/2437	802.11n(40M)	0.041	0.024	99%	10.17	11.50	0.056	Battery 1#	/
Core0	Right tilt	/	6/2437	802.11n(40M)	0.001	0.001	99%	10.17	11.50	0.001	Battery 1#	/
Core0	Left cheek	/	6/2437	802.11n(40M)	0.109	0.055	99%	10.17	11.50	0.150	Battery 2#	/
Core0	Left cheek	/	6/2437	802.11n(40M)	0.108	0.059	99%	10.17	11.50	0.148	Battery 3#	/
Core0	Left cheek	/	6/2437	802.11n(40M)	0.076	0.041	99%	10.17	11.50	0.104	With Non-metallic protective case	/

Table 64: Head SAR test results of 2.4G Wi-Fi

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Duty Cycle	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Core0	Front side	15mm	6/2437	802.11b	0.071	0.040	99%	18.13	18.50	0.078	Battery 1#	/
Core0	Back side	15mm	6/2437	802.11b	0.164	0.087	99%	18.13	18.50	0.180	Battery 1#	/
Core0	Back side	15mm	6/2437	802.11b	0.182	0.105	99%	18.13	18.50	0.200	Battery 2#	Plot
Core0	Back side	15mm	6/2437	802.11b	0.158	0.081	99%	18.13	18.50	0.174	Battery 3#	/
Core0	Back side	15mm	6/2437	802.11b	0.164	0.086	99%	18.13	18.50	0.180	With Non-metallic protective case	/

Table 65: Body Worn SAR test results of 2.4G Wi-Fi

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Duty Cycle	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Core0	Front side	10mm	6/2437	802.11b	0.124	0.067	99%	18.13	18.50	0.136	Battery 1#	/
Core0	Back side	10mm	6/2437	802.11b	0.373	0.186	99%	18.13	18.50	0.410	Battery 1#	/
Core0	Right side	10mm	6/2437	802.11b	0.202	0.099	99%	18.13	18.50	0.222	Battery 1#	/
Core0	Back side	10mm	6/2437	802.11b	0.378	0.205	99%	18.13	18.50	0.416	Battery 2#	Plot
Core0	Back side	10mm	6/2437	802.11b	0.346	0.166	99%	18.13	18.50	0.381	Battery 3#	/
Core0	Back side	10mm	6/2437	802.11b	0.334	0.167	99%	18.13	18.50	0.367	With Non-metallic protective case	/

Table 66: Hotspot SAR test results of 2.4G Wi-Fi

Per KDB648474 D04, when hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; However, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold:

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Duty Cycle	Conducted Power (dBm)	Max Power Without Reduction	Scaled-up 1-g SAR (W/kg)	Product Specific 10-g SAR Exclusion
Core0	Front side	10mm	6/2437	802.11b	0.124	0.067	99%	18.13	18.50	0.135	Yes
Core0	Back side	10mm	6/2437	802.11b	0.373	0.186	99%	18.13	18.50	0.406	Yes
Core0	Right side	10mm	6/2437	802.11b	0.202	0.099	99%	18.13	18.50	0.220	Yes
Core0	Back side	10mm	6/2437	802.11b	0.378	0.205	99%	18.13	18.50	0.412	Yes
Core0	Back side	10mm	6/2437	802.11b	0.346	0.166	99%	18.13	18.50	0.377	Yes
Core0	Back side	10mm	6/2437	802.11b	0.334	0.167	99%	18.13	18.50	0.364	Yes

Table 67: Product Specific 10-g SAR test reduction evaluation of 2.4G Wi-Fi

Note: According to the table above, Product Specific 10-g SAR test is not required for this frequency band.

7.2.14 SAR measurement Results of BT

Antenna	Test Position	Dist.	Test Channel/Freq.(MHz)	Test Mode	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Duty Cycle	Conducted Power (dBm)	Tune-up Power (dBm)	Reported 1-g SAR (W/kg)	Accessory Information	Note
Ant1	Left cheek	/	39/2441	DH5	0.062	0.032	76.72%	9.30	11.00	0.120	Battery 1#	Plot
Ant1	Left tilt	/	39/2441	DH5	0.001	0.001	76.62%	9.30	11.00	0.002	Battery 1#	/
Ant1	Right cheek	/	39/2441	DH5	0.001	0.001	76.62%	9.30	11.00	0.002	Battery 1#	/
Ant1	Right tilt	/	39/2441	DH5	0.001	0.001	76.62%	9.30	11.00	0.002	Battery 1#	/
Ant1	Left cheek	/	39/2441	DH5	0.060	0.031	76.62%	9.30	11.00	0.116	Battery 2#	/
Ant1	Left cheek	/	39/2441	DH5	0.058	0.028	76.62%	9.30	11.00	0.112	Battery 3#	/
Ant1	Left cheek	/	39/2441	DH5	0.055	0.031	76.62%	9.30	11.00	0.106	With Non-metallic protective case	/

Table 68: Head SAR test results of BT

7.3 Multiple Transmitter Evaluation

The detailed location of the Tx antennas inside the device refers to Appendix.

The list information of following tables which is relevant for the decision if a simultaneous transmit evaluation is necessary according to FCC KDB 447498 D01 General RF Exposure Guidance.

Antenna	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
Ant1: Second ant-LMHB	YES	YES	YES	YES	NO	YES
Ant2: Main ant-LMHB	YES	YES	YES	NO	YES	NO
Ant4: 2.4G Wi-Fi Core0, BT Ant1	YES	YES	NO	YES	NO	NO

Table 69: Sides for Hotspot/ Product specific 10g SAR testing

Note:

- 1) Per KDB 648474 D04, because the diagonal distance of this device is $\geq 160\text{mm}$, so it is a phablet.
- 2) Per KDB 941225 D06 and KDB 648474 D04, particular DUT edges were not required to be evaluated for Hotspot SAR if the antenna-to-edge distance is greater than 2.5cm.
- 3) Ant1 only supports receiving signal.

7.3.1 Stand-alone SAR test exclusion

Per FCC KDB 447498 D01, the 1-g SAR 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 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

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Mode	Position	P_{max} (dBm)*	P_{max} (mW)	Distance (mm)	f (GHz)	Calculation Result	SAR Exclusion threshold	SAR test exclusion
BT	Body-worn	11.00	12.59	15	2.480	1.32	3.00	Yes
BT	Hotspot	11.00	12.59	10	2.480	1.98	3.00	Yes
BT	Product Specific 10-g SAR	11.00	12.59	5	2.480	3.97	7.50	Yes

Table 70: Standalone SAR test exclusion for BT

Note:

1)* - maximum possible output power declared by manufacturer

When standalone SAR test exclusion applies 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:

$(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm}) \cdot$

$[\sqrt{f(\text{GHz})}/x]$ W/kg for test separation distances ≤ 50 mm, where $x = 7.5$ for 1-g SAR and $x = 18.75$ for 10-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Per KDB 447498 D01, the approximate SAR values were estimated at selected frequencies, test separation distances and power levels for determining simultaneous transmission SAR test exclusion when standalone SAR is not required.

Mode	Position	P_{max} (dBm)*	P_{max} (mW)	Distance (mm)	f (GHz)	X	Estimated SAR (W/kg)*
BT	Body-worn	11.00	12.59	15	2.480	7.50	0.176
BT	Hotspot	11.00	12.59	10	2.480	7.50	0.264
BT	Product Specific 10-g SAR	11.00	12.59	5	2.480	18.75	0.211

Table 71: Estimated SAR calculation for BT

Note:

1) * - maximum possible output power declared by manufacturer

7.3.2 Simultaneous Transmission Possibilities

The Simultaneous Transmission Possibilities are as below:

NO.	Simultaneous TX Combination	Head	Body	Product Specific 10-g(0mm)
1	GSM/UMTS/LTE + BT	Yes	Yes	Yes
2	GSM/UMTS/LTE + 2.4G Wi-Fi	Yes	Yes	Yes

Table 72: Simultaneous Transmission Possibilities

Note:

- 1) 2.4G Wi-Fi can't transmit simultaneously with Bluetooth.
- 2) The device does not support DTM function.
- 3) VoLTE or pre-installed VOIP applications are considered.
- 4) The device supports Vo-Wi-Fi function.

7.3.3 SAR Summation Scenario

The Max Σ SAR is calculated as below table. The color grounding SAR test data in the following summed SAR tables represent that the additional SAR test results in simultaneous transmission fixed power reduction scenario are used to ensure simultaneous transmission SAR test exclusion. For the other SAR test data in the summed SAR tables, the more conservative stand-alone SAR test results are used.

Band	Head				Body-worn		Hotspot						Product Specific 10-g					
	Left cheek	Left tilt	Right cheek	Right tilt	Front side	Back side	Front side	Back side	Left side	Right side	Top side	Bottom side	Front side	Back side	Left side	Right side	Top side	Bottom side
GSM 850	0.308	0.232	0.386	0.275	0.165	0.359	0.268	0.570	0.086	/	0.211	/	/	/	/	/	/	/
PCS 1900	0.588	0.628	0.714	0.545	0.159	0.323	0.356	0.549	0.158	/	0.790	/	/	/	/	/	/	/
UMTS Band II	0.592	0.621	0.672	0.834	0.158	0.356	0.273	0.434	0.138	/	0.641	/	/	/	/	/	/	/
UMTS Band IV	0.692	0.731	0.816	1.036	0.245	0.581	0.373	1.002	0.208	/	0.634	/	/	1.877	/	/	/	/
UMTS Band V	0.275	0.212	0.338	0.243	0.207	0.464	0.339	0.596	0.131	/	0.313	/	/	/	/	/	/	/
LTE Band 2	0.530	0.634	0.771	0.879	0.192	0.358	0.448	0.558	0.147	/	0.590	/	/	/	/	/	/	/
LTE Band 4	0.595	0.704	0.860	1.014	0.224	0.614	0.463	0.829	0.202	/	0.732	/	/	/	/	/	/	/
LTE Band 5	0.324	0.247	0.406	0.286	0.186	0.436	0.197	0.371	0.074	/	0.210	/	/	/	/	/	/	/
LTE Band 7	0.517	0.490	0.756	0.570	0.173	0.771	0.160	0.833	0.772	/	0.102	/	/	1.737	2.646	/	/	/
LTE Band 13	0.231	0.171	0.338	0.206	0.113	0.286	0.167	0.364	0.127	/	0.105	/	/	/	/	/	/	/
LTE Band 26	0.311	0.238	0.345	0.316	0.154	0.344	0.267	0.549	0.096	/	0.213	/	/	/	/	/	/	/
LTE Band 38	0.520	0.568	1.048	0.679	0.116	0.787	0.166	1.070	0.880	/	0.090	/	/	1.504	0.795	/	/	/
LTE Band 66	0.595	0.704	0.860	1.014	0.224	0.614	0.463	0.829	0.202	/	0.732	/	/	/	/	/	/	/
Max SAR	0.692	0.731	1.048	1.036	0.245	0.787	0.463	1.070	0.880	/	0.790	/	/	1.877	2.646	/	/	/

Table 73: Maximum SAR of 2/3/4G Main antenna

Band/Ant	Case	Head				Body-worn		Hotspot						Product Specific 10-g					
		Left cheek	Left tilt	Right cheek	Right tilt	Front side	Back side	Front side	Back side	Left side	Right side	Top side	Bottom side	Front side	Back side	Left side	Right side	Top side	Bottom side
2.4 G Wi-Fi	1	0.151	0.063	0.056	0.001	0.078	0.200	0.136	0.416	/	0.222	/	/	/	/	/	/	/	/
BT	2	0.120	0.002	0.002	0.002	0.176	0.176	0.264	0.264	/	0.264	/	/	0.211	0.211	/	0.211	/	/
2/3/4G	3	0.692	0.731	1.048	1.036	0.245	0.787	0.463	1.070	0.880	/	0.790	/	/	1.877	2.646	/	/	/
Simultaneous Transmission SAR	3+max(1,2)	0.843	0.794	1.104	1.038	0.421	0.987	0.727	1.486	0.880	0.264	0.790	/	0.211	2.088	2.646	0.211	/	/

Table 74: Maximum SAR of 2/3/4G Simultaneous Transmission with Wi-Fi/BT.

Note:

- 1) The SAR test data of some frequency bands in the summed SAR tables, the more conservative SAR test results at the maximum output power level without any simultaneous transmission power reduction are used.

7.3.4 Simultaneous Transmission Conclusion

The above numeral summed SAR results is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore simultaneous transmission SAR with Volume Scans is not required per KDB 447498 D01.

**Appendix A. System Check Plots****(Please See Appendix No.: SYBH(Z-SAR)20221017002001-A, total: 15 pages)****Appendix B. SAR Measurement Plots****(Please See Appendix No.: SYBH(Z-SAR)20221017002001-B, total: 44 pages)****Appendix C. Conducted Power Test Results****(Please See Appendix No.: SYBH(Z-SAR)20221017002001-C, total: 63 pages)****Appendix D. Conducted power test results for certain power reduction mechanisms validation****(Please See Appendix No.: SYBH(Z-SAR)2022101700200 -D, total: 2 pages)****Appendix E. Calibration Certificate****(Please See Appendix No.: SYBH(Z-SAR)20221017002001-E, total: 119 pages)****Appendix F. Photo Documentation****(Please See Appendix No.: SYBH(Z-SAR)20221017002001-F, total: 4 pages)****Appendix G. Antenna Location****(Please See Appendix No.: SYBH(Z-SAR)20221017002001-G, total: 1 page)**

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