FCC SAR Test Report

Product	:	4G LTE smartphone
Trade mark	:	iTree
Model/Type reference	:	S988
Serial Number	:	N/A
Report Number	:	EED32N80998109
FCC ID	:	2A3BAITREES988
Date of Issue:	:	Dec. 21, 2021
Test Standards	:	Refer to Section 1.5
Test result	:	PASS

Prepared for:

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Check No.: 1731111021

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Modified History

REV.	Modification Description	Issued Date	Remark
REV.1.0	Initial Test Report Release	Dec. 21, 2021	

1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in this test report.

Centre Testing International Group Co., Ltd. does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report is not to be reproduced or published in full without the prior written permission.

1.2 Application details

Date of receipt of test item:	2021-11-02
Start of test:	2021-11-04
End of test:	2021-12-20

1.3 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for 4G LTE smartphone. Model Name: S988 are as below:

Frequency Band	MAX Reported SAR (W/kg)		
	1-g SAR Head	1-g SAR Body-worn (15mm)	1-g SAR Hotspot (10mm)
GSM850	0.256	**0.417**	0.460
GSM1900	0.161	0.178	0.578
UMTS Band II	0.258	0.301	0.612
UMTS Band V	0.172	0.275	0.309
LTE Band 2	0.196	0.252	0.661
LTE Band 4	0.327	0.357	**0.715**
LTE Band 5	0.200	0.287	0.266
LTE Band 7	**0.366**	0.221	0.591
LTE Band 12	0.154	0.330	0.314
LTE Band 41	0.187	0.138	0.343
WiFi 2.4G	0.356	0.052	0.117
WiFi 5.2G	0.561	0.150	0.224
WiFi 5.8G	**0.865**	0.077	0.197
The highest simultaneous SAR is 1.231W/kg per KDB 690783 D01			

Note:

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

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/IEEE C95.1:1992, the NCRP Report Number 86 for uncontrolled environment, according to the Industry Canada Radio Standards Specification RSS-102 for General Population/Uncontrolled exposure, and had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013.

1.4 EUT Information

Device Information：			
Product Name:	4G LTE smartphone		
Model:	S988		
Trade mark:	iTree		
FCC ID:	2A3BAITREES988		
SN:	N/A		
Device Type:	Portable device		
Exposure Category:	uncontrolled environment / general population		
Firmware version:	N/A (manufacturer declare)		
Hardware version:	N/A (manufacturer declare)		
Antenna Type :	PIFA Antenna		
Antenna Gain:	850MHz: -0.51dBi; 1900MHz: 0.81dBi; WCDMA Band 2: 0.81dBi; WCDMA Band 5:-0.51dBi; LTE B2: 0.81dBi, LTE B4: 0.76dBi, LTE B5: -0.51dBi, LTE B7: 1.02dBi, LTE B12 :-0.49dBi, LTE B41:1.01dBi; BT/2.4G WiFi:0.99dBi; 5G WiFi: 1.09dBi;		
Device Operating Configurations:			
Supporting Modes :	GSM850/1900; WCDMA Band II/V; LTE Band 2/4/5/7/12/41; WiFi 2.4G; WiFi 5G; BT;		
Duty Cycle used for SAR testing	Max duty cycle: 2.4G WiFi:99.49%;5G WiFi: 96.74%		
Modulation:	GSM(GMSK/8PSK); WCDMA(QPSK); LTE(QPSK/16QAM); WiFi(DSSS/OFDM); BT(GFSK/ π /4DQPSK/8DPSK)		
Operating Frequency Range(s)	Band	TX(MHz)	RX(MHz)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	UMTS Band V	824~849	869~894
	UMTS Band II	1850~1910	1930~1990
	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 12	699-716	729-746
	LTE Band 41	2555-2655	2555 -2655
	WiFi 2.4G	2412~2462	

	WiFi 5G	5150-5250; 5725-5850
	BT	2402~2480
GPRS class level:	GPRS class 12	
EGPRS class level:	EGPRS class 12	
Test Channels (low-mid-high):	128-190-251 (GSM850)	
	512-661-810 (GSM1900)	
	9262-9400-9538 (UMTS Band II)	
	4132-4182-4233 (UMTS Band V)	
	18700-18900-19100(LTE Band 2)	
	20050-20175-20300(LTE Band 4)	
	20450-20525-20600(LTE Band 5)	
	20850-21100-21350(LTE Band 7)	
	23095-23060-23130(LTE Band 12)	
	40340-40620-40880-41140(LTE Band 41)	
	1/3-6-11/9 (WiFi 2.4G)	
	WiFi 5G 802.11a/n/ac(20M): 36-40-44-48-149-153-157-161-165 WiFi 5G 802.11 n/ac (40M): 38-46-151-159 WiFi 5G 802.11ac 80M: 42-155	
	0-39-78 (BT 2450) 0-19-39 (BLE 2450)	
Power Source:	AC/DC ADAPTER	Model: TPA-23A050200UU01 Input: 100-240V~ 50/60Hz, 0.3A OUTPUT: 5.0V⎓2000mA
	Battery:	Model:B35 DC 3.8V, 3500mAh, 13.3Wh

Remark: Company Name and Address shown on Report, the sample(s) and sample Information were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

1.5 Test standard/s

ANSI Std C95.1-1992	Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 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
RSS-102	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands (Issue 5 of March 2021)
KDB 248227 D01	SAR guidance for IEEE 802.11(Wi-Fi) transmitters v02r02
KDB 447498 D01	General RF Exposure Guidance v06
KDB 648474 D04	Handsets SAR v01r03
KDB 690783 D01	SAR Listings on Grants v01r03
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 941225 D01	3G SAR Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D06	Hotspot SAR v02r01

1.6 RF exposure limits

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

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.

1.7 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dW) absorbed by(dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ).

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

SAR is expressed in units of watts per kilogram (W/kg). SAR can be related to the electric field at a point by

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

where:

σ = conductivity of the tissue (S/m)
ρ = mass density of the tissue (kg/m^3)
E = rms electric field strength (V/m)

1.8 Testing laboratory

Test Site	Centre Testing International Group Co., Ltd.
Test Location	Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China
Telephone	+86 (0) 755 3368 3668
Fax	+86 (0) 755 3368 3385

1.9 Test Environment

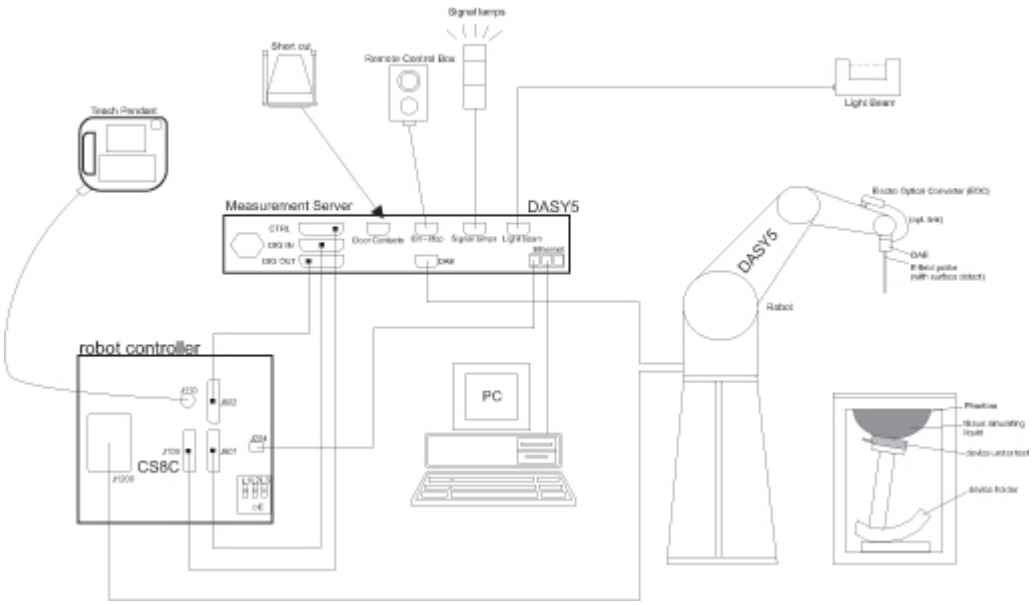
	Required	Actual
Ambient temperature:	18 – 25 °C	21.5 ± 2.0 °C
Tissue Simulating liquid:	18 – 25 °C	21.5 ± 2.0 °C
Relative humidity content:	30 – 70 %	30 – 70 %

1.10 Applicant and Manufacturer

Applicant/Client :	FAR WIDE Telecommunications CO.,LTD.
Applicant Address:	10F, No.127,Anxing Rd, Xindian Dist., New Taipei City 231 Taiwan
Manufacturer Name:	SHENZHEN TOPWELL TECHNOLOGY CO., LTD.
Manufacturer Address:	15/F, Building A1, Qiaode Science & Technology Park, No.7 Road, Hi-Tech Industry Park, Guangming new district, Shenzhen, China.
Factory:	SHENZHEN TOPWELL TECHNOLOGY CO., LTD.
Address of Factory:	15/F, Building A1, Qiaode Science & Technology Park, No.7 Road, Hi-Tech Industry Park, Guangming new district, Shenzhen, China.

2 SAR Measurement System Description and Setup

2.1 The Measurement System Description



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

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

2.2 Probe description

Dosimetric Probes: 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.

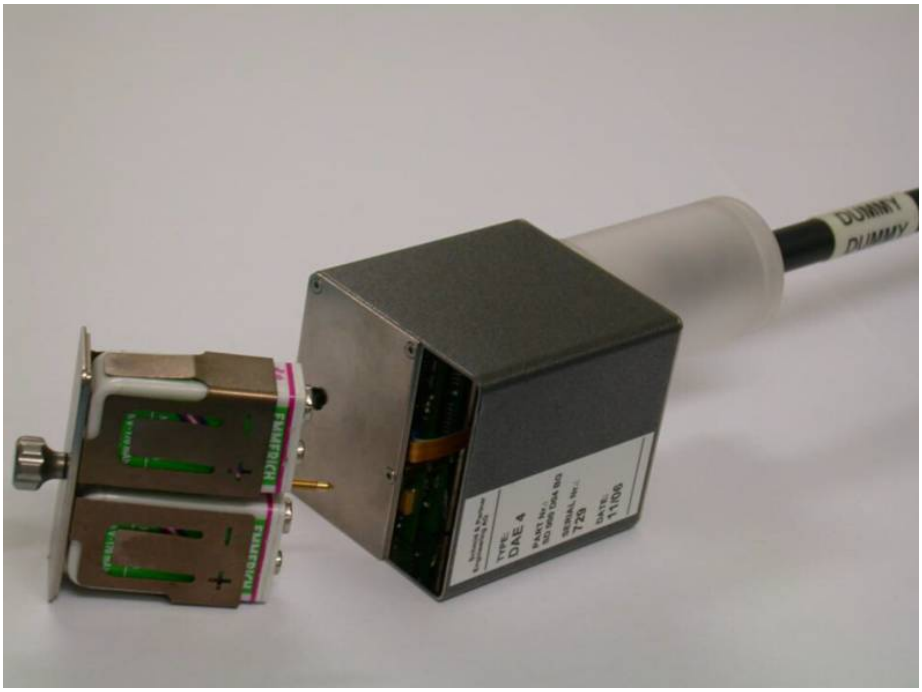
Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Dynamic range	5 μW/g to 100 mW/g; Linearity: ± 0.2 dB

2.3 Data Acquisition Electronics description

The data acquisition electronics (DAE4) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder 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. The input impedance of the DAE4 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Batteries: The DAE works with either two standard 9V batteries or two 9V (actually 8.4V or 9.6 V) rechargeable batteries. Because the electronics automatically power-down unused components during braking or between measurements, the battery lifetime depends on system usage. Typical lifetimes are >20 hours for batteries and >10 hours for accus. Remove the batteries if you do not plan to use the DAE for a long period of time.



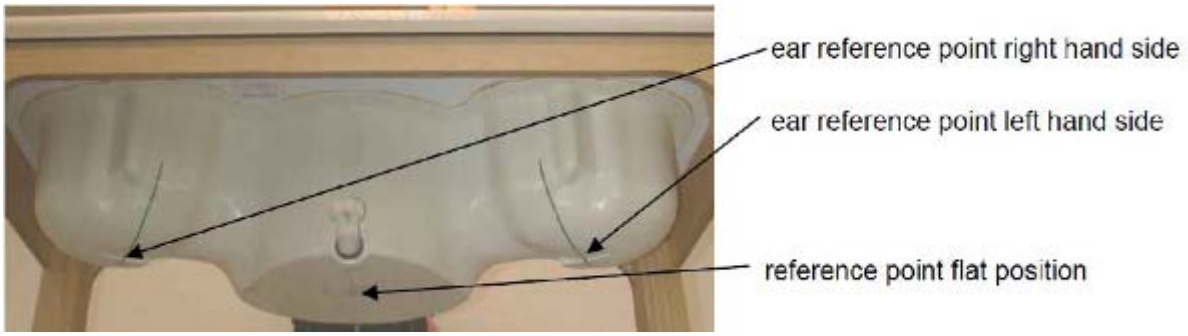
2.4 SAM Twin Phantom description

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region, where shell thickness increases to 6 mm). The phantom has three measurement areas:

♦ Left hand

♦ Right hand

♦ Flat phantom



The phantom table for the DASY systems have the size of 100 x 50 x 85 cm (L xWx H). these tables are reinforced for mounting of the robot onto the table. For easy dislocation these tables have fork lift cut outs at the bottom.

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.

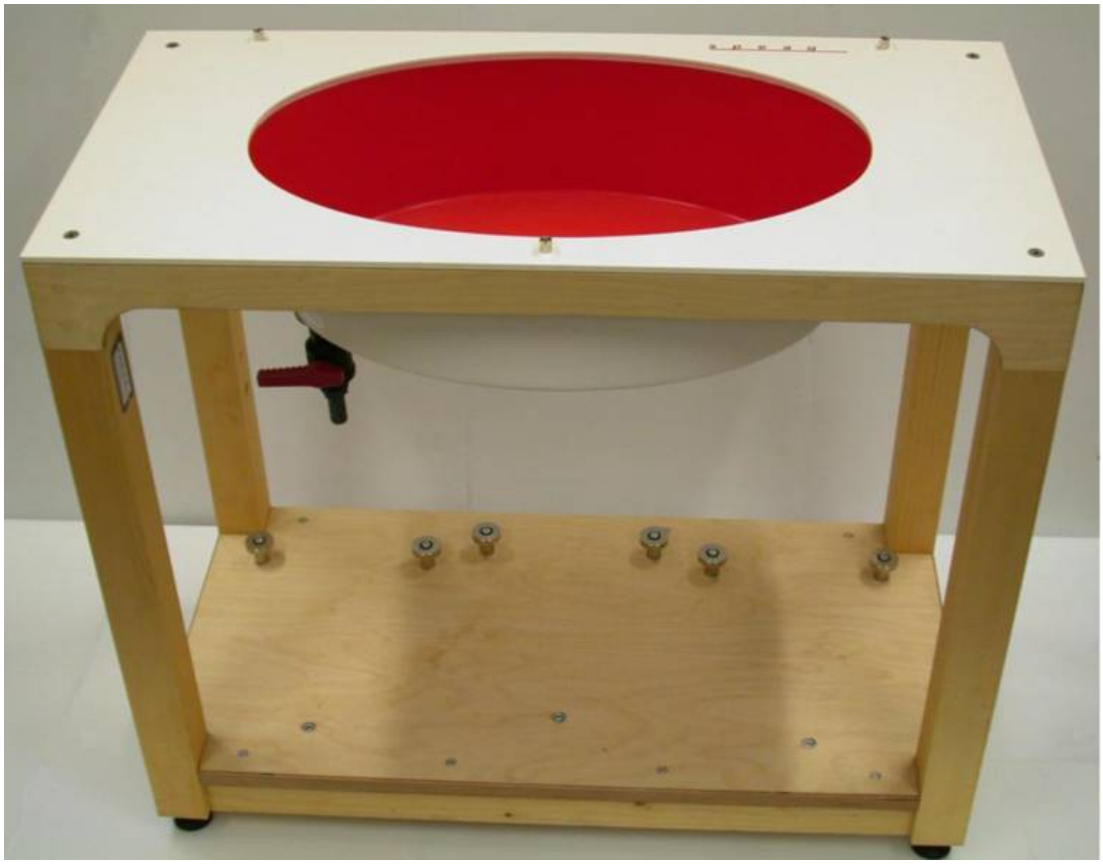
A white cover is provided to cover the phantom during off-periods to prevent water evaporation and changes in the liquid parameters.

Three reference marks are provided on the phantom counter. These reference marks are used to teach the absolute phantom position relative to the robot.

2.5 ELI4 Phantom description

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

ELI4 has been optimized regarding its performance and can be integrated into a SPEAG standard phantom table. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points



2.6 Device Holder description

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ±20%. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP).Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ =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.

3 SAR Test Equipment List

To simplify the identification of the test equipment and/or ancillaries which were used, the reporting of the relevant test cases only refer to the test item number as specified in the table below.

	Manufacturer	Device Type	Type(Model)	Serial number	Date of last calibration	Valid period
☒	SPEAG	E-Field Probe	EX3DV4	7328	2021-02-03	One year
☒	SPEAG	E-Field Probe	EX3DV4	7591	2021-08-12	One year
☒	SPEAG	750 MHz Dipole	D750V3	1088	2020-04-09	Three years
☒	SPEAG	835 MHz Dipole	D835V2	4d193	2021-01-12	Three years
☒	SPEAG	1750 MHz Dipole	D1750V2	1134	2021-01-12	Three years
☒	SPEAG	1900 MHz Dipole	D1900V2	5d198	2021-01-12	Three years
☐	SPEAG	2000 MHz Dipole	D2000V2	1078	2021-01-12	Three years
☐	SPEAG	2300 MHz Dipole	D2300V2	1082	2020-01-06	Three years
☒	SPEAG	2450 MHz Dipole	D2450V2	959	2021-01-12	Three years
☒	SPEAG	2600 MHz Dipole	D2600V2	1101	2021-01-12	Three years
☒	SPEAG	5 GHz Dipole	D5GHzV2	1208	2021-01-12	Three years
☒	SPEAG	DAKS probe	DAKS-3.5	1052	2021-01-27	Three years
☒	SPEAG	Planar R140 Vector Reflectometer	DAKS-VNA R140	0200514	2021-01-27	Three years
☒	SPEAG	Data acquisition electronics	DAE4	1458	2021-01-12	One year
☒	SPEAG	Software	DASY 5	NA	NCR	NCR
☒	SPEAG	Twin Phantom	SAM V5.0	1875	NCR	NCR
☐	SPEAG	Flat Phantom	ELI V6.0	2024	NCR	NCR
☒	R & S	Universal Radio Communication Tester	CMU200	101553	2020-12-28	One year
☒	R & S	Universal Radio Communication Tester	CMW500	102898	2020-12-28	One year
☒	Agilent	Signal Generator	N5181A	MY50142334	2020-12-28	One year
☒	BONN	Power Amplifier and directional coupler	SU319W	BL-SZ1550140	2020-12-28	One year
☒	KEITHLEY	RF Power Meter	3500	1128079	2021-06-27	One year
☒	KEITHLEY	RF Power Meter	3500	1128081	2021-06-27	One year
☒	JINGCHUANG	Temperature/ Humidity Indicator	GSP-8	EMK197F00095	2021-06-27	One year

Note:

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.

4 SAR Measurement Procedures

4.1 Spatial Peak SAR Evaluation

The DASY5 software includes all numerical procedures necessary to evaluate the spatial peak SAR values.The base for the evaluation is a "cube" measurement in a volume of 30mm^3 (7x7x7 points). The measured volume must include the 1 g and 10 g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan. If the 10g cube or both cubes are not entirely inside the measured volumes,the system issues a warning regarding the evaluated spatial peak values within the Postprocessing engine (SEMCAD X). This means that if the measured volume is shifted, higher values might be possible. To get the correct values you can use a finer measurement grid for the area scan. In complicated field distributions, a large grid spacing for the area scan might miss some details and give an incorrectly interpolated peak location. The entire evaluation of the spatial peak values is performed within the Postprocessing engine (SEMCAD X). The system always gives the maximum values for the 1 g and 10 g cubes.

The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. extraction of the measured data (grid and values) from the Zoom Scan
2. calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. generation of a high-resolution mesh within the measured volume
4. interpolation of all measured values from the measurement grid to the high-resolution grid
5. extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface

6. calculation of the averaged SAR within masses of 1 g and 10 g

4.2 Data Storage and Evaluation

Data Storage

The DASY5 software stores the measured voltage acquired by the Data Acquisition Electronics (DAE) as raw data together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and communication system parameters) in measurement files with the extension .da5x. The postprocessing software evaluates the data every time the data is visualized or exported. This allows the verification and modification of the setup after completion of the measurement. For example, if a measurement has been performed with an incorrect crest factor, the parameter can be corrected afterwards and the data can be reevaluated.

To avoid unintentional parameter changes or data manipulations, the parameters in measured files are locked. In the administrator access mode of the software, the parameters can be unlocked. After changing the parameters, the measured scans can be reevaluated in the postprocessing engine.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., E-field, H-field, SAR). Some of these units are not available in certain situations or give 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

The fields and SAR are calculated from the measured voltage (probe voltage acquired by the DAE) and the following parameters:

Probe parameters:	- Sensitivity	$norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion Factor	$convF_i$
	- Diode Compression Point	dcp_i
	- Probe Modulation Response Factors	a_i, b_i,c_i, d
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	σ

- Relative Permittivity ρ

This parameters are stored in the DASY5 V52 measurement file.

These parameters must be correctly set in the DASY5 V52 software setup. They are available as configuration file and can be imported into the measurement file. The values displayed in the multimeter window are assessed using the parameters of the actual system setup. In the scan visualization and export modes, the parameters stored in the measurement file are used.

The measured voltage is not proportional to the exciting. It must be first linearized.

Approximated Probe Response Linearization using Crest Factor.

This linearization method is enabled when a custom defined communication system is measured. The compensation applied is a function of the measured voltage, the detector diode compression point and the crest factor of the measured signal.

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

with V_i = linearized voltage of channel i (uV) (i = x,y,z)

U_i = measured voltage of channel i (uV) (i = x,y,z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point of channel i (uV) (Probe parameter, i = x,y,z)

Field and SAR Calculation

The primary field data for each channel are calculated using the linearized voltage:

E - fieldprobes : $$E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

H - fieldprobes : $$H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1} f + a_{i2} f^2}{f}$$

with V_i = linearized voltage of channel i (i = x,y,z)

$Norm_i$ = sensor sensitivity of channel i (i = x,y,z)

uV/(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 RMS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

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

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1'000}$$

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/cm^3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

Spatial Peak SAR for 1 g and 10 g

The DASY5 software includes all numerical procedures necessary to evaluate the spatial peak SAR values.The base for the evaluation is a "cube" measurement 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 entire evaluation of the spatial peak values is performed within the Postprocessing engine (SEMCAD X).The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. extraction of the measured data (grid and values) from the Zoom Scan.
2. calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters).
3. generation of a high-resolution mesh within the measured volume.
4. interpolation of all measured values from the measurement grid to the high-resolution grid
5. extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface.
6. calculation of the averaged SAR within masses of 1 g and 10 g.

4.3 Data Storage and Evaluation

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. 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.

Step 1: Power reference measurement

The Power Reference Measurement and Power Drift Measurement are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. By default, the Minimum distance of probe sensors to surface is 4 mm. This distance can be modified by the user, but cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties. The SAR measurement was taken at a selected spatial reference point to monitor power variations during testing. This fixed location point was measured and used as a reference value.

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a finer measurement around the hotspot. The sophisticated interpolation routines implemented in DASY5 software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maxima found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE 1528-2003 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Step 3: Zoom Scan

The Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The default Zoom Scan is defined in the following table. DASY5 is also able to perform repeated zoom scans if more than 1 peak is found during area scan. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Area scan and Zoom scan resolutions per FCC KDB Publication 865664 D01:

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

Step 4: Power Drift Monitoring

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. If the value changed by more than 5%, the evaluation should be retested.

5 SAR Verification Procedure

5.1 Tissue Verification

The following materials are used for producing the tissue-equivalent materials.
(Liquids used for tests are marked with☒):

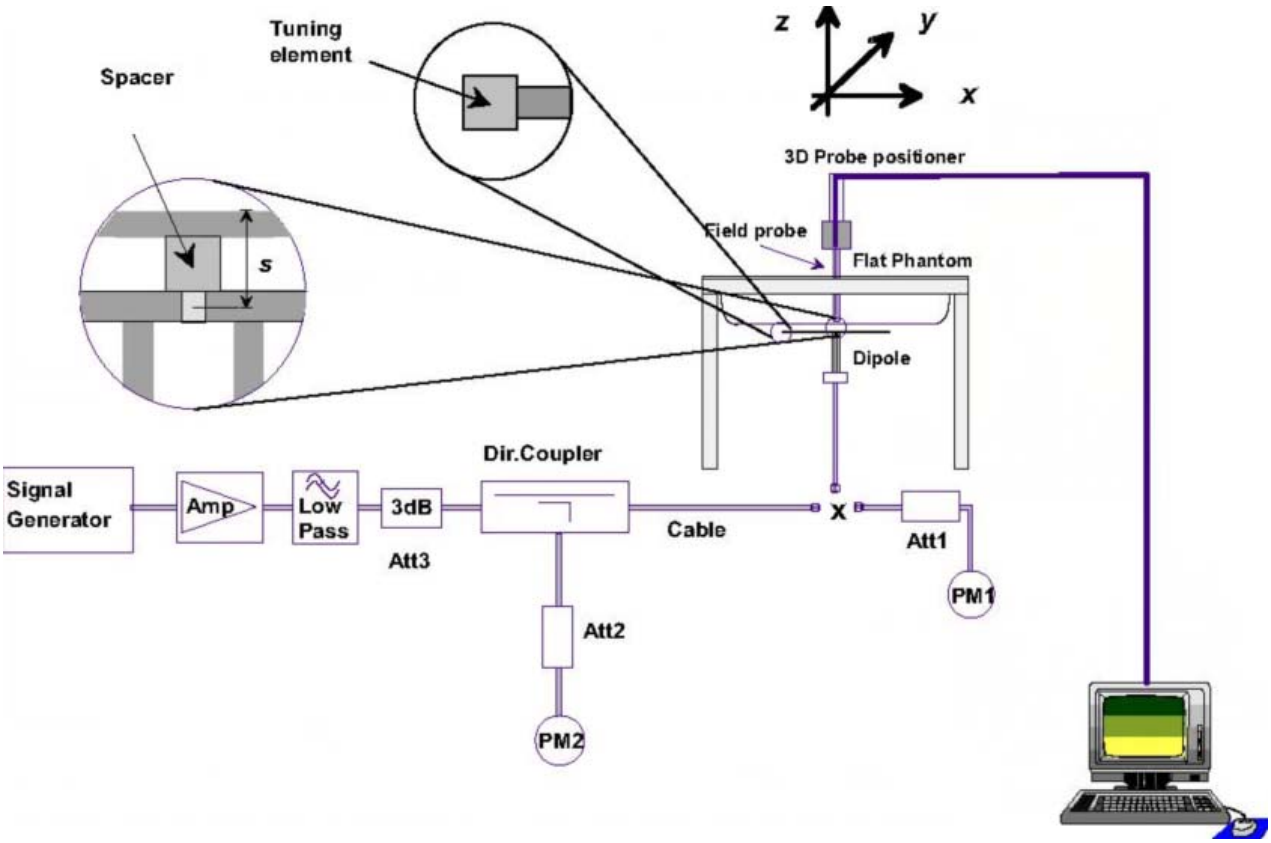
Ingredients (% of weight)	**Frequency (MHz)**							
Tissue Type	**Head Tissue**							
frequency band	☒750	☒835	☒ 1750	☒ 1900	☐ 2300	☒ 2450	☒ 2600	☒ 5200-5800
Water	41.45	41.45	52.64	55.242	62.82	62.7	55.242	65.52
Salt (NaCl)	1.45	1.45	0.36	0.306	0.51	0.5	0.306	0.0
Sugar	56.0	56.0	0.0	0.0	0.0	0.0	0.0	0.0
HEC	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Bactericide	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	36.8	0.0	17.24
DGBE	0.0	0.0	47.0	44.542	36.67	0.0	44.452	0.0
Diethylenglycol monohexylether	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.24

Salt: 99+% Pure Sodium Chloride Sugar: 98+% Pure Sucrose
Water: De-ionized, 16MΩ+ resistivity HEC: Hydroxyethyl Cellulose
DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]
Triton X-100(ultra pure): Polyethylene glycol mono [4-(1,1,3,3-tetramethylbutyl)phenyl]ether
Tissue simulating liquids: parameters:

Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		ε_r (+/-5%)	σ (S/m) (+/-5%)	ε_r	σ (S/m)		
750 Head	**750**	41.90 (39.81~44.00)	0.89 (0.85~0.93)	43.05	0.854	20.88°C	11/9/2021
	750	41.90 (39.81~44.00)	0.89 (0.85~0.93)	43.05	0.854	20.75°C	11/10/2021
835 Head	**835**	41.50 (39.43~43.58)	0.90 (0.86~0.95)	40.65	0.918	20.16°C	11/4/2021
	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	40.65	0.918	20.14°C	11/5/2021
	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	41.53	0.927	20.04°C	11/8/2021
	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	41.54	0.924	20.98°C	11/9/2021
1800 Head	**1750**	40.10 (38.10~42.10)	1.37 (1.31~1.43)	40.13	1.345	20.32°C	11/17/2021
1900 Head	**1900**	40.00 (38.00~42.00)	1.40 (1.33~1.47)	39.34	1.423	20.25°C	11/10/2021
	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	39.32	1.429	20.55°C	11/12/2021
	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	39.31	1.426	20.08°C	11/14/2021
2450 Head	**2450**	39.20 (37.24~41.16)	1.80 (1.71~1.89)	40.03	1.784	20.13°C	11/19/2021
2600 Head	**2600**	39.00 (37.05~40.95)	1.96 (1.86~2.06)	37.72	2.046	20.18°C	11/15/2021
	2600	39.00 (37.05~40.95)	1.96 (1.86~2.06)	38.37	2.050	20.37°C	11/16/2021
	2600	39.00 (37.05~40.95)	1.96 (1.86~2.06)	38.39	2.043	20.31°C	11/17/2021
	2600	39.00 (37.05~40.95)	1.96 (1.86~2.06)	38.46	2.055	20.11°C	12/17/2021
5000 Head	**5200**	35.82 (34.20~37.61)	4.80 (4.56~5.04)	35.73	4.664	20.19°C	11/22/2021
	5200	35.82 (34.20~37.61)	4.80 (4.56~5.04)	35.75	4.591	20.13°C	11/23/2021
5000 Head	**5800**	35.30 (33.54~37.07)	5.27 (5.01~5.53)	34.10	5.174	20.22°C	11/24/2021
	5800	35.30 (33.54~37.07)	5.27 (5.01~5.53)	34.87	5.149	20.08°C	11/25/2021
ε_r= Relative permittivity, σ= Conductivity							

5.2 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 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 SMA. It is fed with a power of 250mW. 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 validation 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.



5.3 System check results

The system Check is performed for verifying the accuracy of the complete measurement system and performance of the software. The following table shows System check results for all frequency bands and tissue liquids used during the tests (plot(s) see annex A).

System Check (MHz)	Target SAR (1W) (+/-10%)		Measured SAR (Normalized to 1W)		Liquid Temp.	Test Date
	1-g (mW/g)	10-g (mW/g)	1-g (mW/g)	10-g (mW/g)		
D750V2 Head	8.51 (7.659~9.361)	5.53 (4.977~6.083)	8.40	5.56	20.88°C	11/9/2021
D750V2 Head	8.51 (7.659~9.361)	5.53 (4.977~6.083)	8.40	5.56	20.75°C	11/10/2021
D835V2 Head	9.51 (8.559~10.461)	6.19 (5.571~6.809)	9.60	6.32	20.16°C	11/4/2021
D835V2 Head	9.51 (8.559~10.461)	6.19 (5.571~6.809)	9.24	6.08	20.14°C	11/5/2021
D835V2 Head	9.51 (8.559~10.461)	6.19 (5.571~6.809)	9.20	6.12	20.04°C	11/8/2021
D835V2 Head	9.51 (8.559~10.461)	6.19 (5.571~6.809)	10.04	6.60	20.98°C	11/9/2021
D1750V2 Head	36.50 (32.85~40.15)	19.30 (17.37~21.23)	37.12	20.08	20.32°C	11/17/2021
D1900V2 Head	40.3 (36.27~44.33)	21.1 (18.99~23.21)	42.80	22.72	20.25°C	10/10/2021
D1900V2 Head	40.3 (36.27~44.33)	21.1 (18.99~23.21)	42.80	22.76	20.55°C	10/12/2021
D1900V2 Head	40.3 (36.27~44.33)	21.1 (18.99~23.21)	39.20	20.72	20.08°C	11/14/2021
D2450V2 Head	53.70 (48.33~59.07)	25.00 (22.50~27.50)	50.00	23.76	20.13°C	11/19/2021
D2600V2 Head	56.4 (50.76~62.04)	25.4 (22.86~27.94)	59.20	26.80	20.18°C	11/15/2021
D2600V2 Head	56.4 (50.76~62.04)	25.4 (22.86~27.94)	56.40	25.48	20.37°C	11/16/2021
D2600V2 Head	56.4 (50.76~62.04)	25.4 (22.86~27.94)	54.00	24.36	20.31°C	11/17/2021
D2600V2 Head	56.4 (50.76~62.04)	25.4 (22.86~27.94)	56.00	25.20	20.11°C	12/17/2021
D5200V2 Head	83.50 (75.15~91.85)	23.90 (21.51~26.29)	85.70	25.80	20.19°C	11/22/2021

D5200V2 Head	83.50 (75.15~91.85)	23.90 (21.51~26.29)	84.40	25.30	20.13°C	11/23/2021
D5800 Head	79.20 (71.28~87.12)	22.50 (20.25~24.75)	73.30	21.70	20.22°C	11/24/2021
D5800 Head	79.20 (71.28~87.12)	22.50 (20.25~24.75)	81.60	24.50	20.08°C	11/25/2021
Note: All SAR values are normalized to 1W forward power.						

6 SAR Measurement variability and uncertainty

6.1 SAR measurement variability

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.The same procedures should be adapted for measurements according to extremity exposure limits by applying a factor of 2.5 for extremity exposure.

1) Repeated measurement is not required when the original highest measured SAR is < 2.0 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 2.0 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 > 3.0 or when the original or repeated measurement is ≥ 3.6 W/kg (~ 10% from the 10-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥3.75 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

6.2 SAR measurement uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04,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.

7 SAR Test Configuration

7.1 GSM Test Configurations

SAR tests for GSM850 and GSM1900, a communication link is set up with a base station by air link. Using CMU200 the power lever is set to “5”and “0” in SAR of GSM850 and GSM1900. The tests in the band of GSM850 and GSM1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS/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.

7.2 UMTS Test Configurations

1) RMC

As the SAR body tests for WCDMA Band II/V, we established the radio link through call processing. The maximum output power were verified on high, middle and low channels for each test band according to 3GPP TS 34.121 with the following configuration:

1) 12.2kbps RMC, 64,144,384 kbps RMC with TPC set to ‘all 1’.
2) Test loop Mode 1.

For the output power, the configurations for the DPCCH and $DPDCH_1$ are as followed (EUT do not support the $DPDCH_{2-n}$)

	Channel Bit Rate (kbps)	Channel Symbol Rate (ksps)	Spreading Factor	Spreading Code Number	Bits/Slot
DPCCH	15	15	256	0	10
DPDCH1	15	15	256	64	10
	30	30	128	32	20
	60	60	64	16	40
	120	120	32	8	80
	240	240	16	4	160
	480	480	8	2	320

	960	960	4	1	640
DPDCH$_n$	960	960	4	1, 2, 3	640

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits configured to all “1s”. SAR for other spreading codes and multiple DPDCHn, when supported by the EUT, are not required when the maximum average outputs of each RF channel, for each spreading code and DPDCHn configuration, are less than ¼ dB higher than those measured in 12.2 kbps RMC.

2) HSDPA

SAR for body exposure configurations is measured according to the ‘’Body SAR Measurements’’ procedures of 3G device. In addition, body SAR is also measured for HSDPA when the maximum average outputs of each RF channel with HSDPA active is at ¼ dB higher than that measured without HSDPA using 12.2kbps RMC or the maximum SAR 12.2kbps RMC is above 75% of the SAR limit. Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.

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 ΔACK, ΔNACK, ΔCQI = 8. The variation of the β_c /β_d ratio causes a power reduction at sub-tests 2 - 4.

Sub-test	bβ_c	bβ_d	bβ_d (SF)	bβ_c /β_d	bβ_{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: Δ ACK, Δ NACK and Δ CQI = 8Þ $A_{hs} = \beta_{hs}/\beta_c = 30/15$Þ $\beta_{hs} = 30/15 * \beta_c$

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

Note 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 β_c = 11/15 and β_d = 15/15

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

Note: 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

3) HSUPA

Body SAR is also measured for HSDPA when the maximum average outputs of each RF channel with HSDPA active is at ¼ dB higher than that measured without HSDPA using 12.2kbps RMC or the maximum SAR 12.2kbps RMC is above 75% of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-set 1 and QPSK for FRC and 12.2kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.2 kbps RMC without HSPA.

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 b values indicated below as well as other applicable procedures described in the 'UMTS Handset' and 'Release 5 HSDPA Data Device' sections of 3G device.

Sub-test	$b\beta_c$	$b\beta_d$	β_d (SF)	$b\beta_c/\beta_d$	$b\beta_{hs}$(1)	$b\beta_{ec}$	$b\beta_{ed}$	β_{ec} (SF)	β_{ed} (code)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{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: ΔACK, ΔNACK and ΔCQI = 8Þ $A_{hs} = \beta_{hs}/\beta_c = 30/15$Þ $\beta_{hs} = 30/15 * \beta_c$

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.

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Speading 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&2SF4	11484	5.76
	4	4	2		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF4	22996	?
	4	4	10		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)

7.3 LTE Test Configuration

SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices. The CMW500 WideBand 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.

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

Modulation	Channel bandwidth / Transmission bandwidth (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

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

4.1) Largest channel bandwidth standalone SAR test requirements

4.1.1)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.

4.1.2)QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 4.1.1) are applied to measure the SAR for QPSK with 50% RB allocation.

4.1.3)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 4.1.1) and 4.1.2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4.1.4)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 > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

4.2) 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 4.1) 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 > ½ 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.

7.4 WIFI 5G Test Configurations

1) U-NII-1 and U-NII-2A Bands

For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following：

1.1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.

1.2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.

1.3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

2) U-NII-2C and U-NII-3 Bands

The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

3) OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements

The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

3.1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.

3.2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.

3.3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.

3.4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n.

After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.

3.4.1) The channel closest to mid-band frequency is selected for SAR measurement.

3.4.2) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

4) SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the same transmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction applies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 band are supported, the highest maximum output power transmission mode configuration and maximum output power channel across the bands must be used to determine SAR test reduction, according to the initial test configuration and subsequent test configuration requirements. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

7.5 WIFI 2.4G Test Configurations

For WiFi SAR testing, a communication link is set up with the testing software for WiFi mode test. During the test,at the each test frequency channel, the EUT is operated at the RF continuous emission mode. The RF signal utilized in SAR measurement has 100% duty cycle and its crest factor is 1. The test procedures in KDB 248227D01 v02r02 are applied.

Per KDB 248227 D01 802.11 Wi-Fi SAR v02r02,SAR Test Reduction criteria are as follows:

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

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the *initial test position(s)* by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The relative SAR levels of multiple exposure test positions can be established by area scan measurements on the highest measured output power channel to determine the initial test position. The area scans must be measured using the same SAR measurement configurations, including test channel, maximum output power, probe tip to phantom distance, scan resolution etc.

When the *reported* SAR for the *initial test position* is:

1) ≤0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.

2) > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions are tested.

3) For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required test channels are considered.

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.

8 SAR Test Results

8.1 Conducted Power Measurements

1.For the measurements a Rohde & Schwarz Radio Communication Tester CMU200 was used.
2.Establish communication link between emulator and EUT and set EUT to operate at maximum output power all the time.
3.Source-based Time Averaged Burst Power Calculation:
For TDMA,the following duty cycle factor was used to calculate the Source-based Time Averaged power.

Number of Time slot	1	2	3	4
Duty cycle	1:8.3	1:4.1	1:2.77	1:2.08
Duty cycle factor	-9.19	-6.13	-4.42	-3.18

8.1.1 Conducted Power of GSM850

GSM850		Burst-Averaged output Power (dBm)			Division Factors	Source Based time Average Power(dBm)		
		128CH	190CH	251CH		128CH	190CH	251CH
GSM(CS)		32.63	32.94	32.70	-9.19	23.44	23.75	23.51
GPRS/ EDGE (GMSK)	1 Tx Slot	32.62	32.85	32.60	-9.19	23.43	23.66	23.41
	2 Tx Slots	31.74	31.82	31.79	-6.13	25.61	25.69	25.66
	3 Tx Slots	29.80	30.13	29.87	-4.42	25.38	25.71	25.45
	4 Tx Slots	28.51	28.90	28.60	-3.18	25.33	**25.72**	25.42
EDGE (8PSK)	1 Tx Slot	27.60	27.55	27.62	-9.19	18.41	18.36	18.43
	2 Tx Slots	26.28	26.29	26.38	-6.13	20.15	20.16	20.25
	3 Tx Slots	23.98	24.02	24.12	-4.42	19.56	19.60	19.70
	4 Tx Slots	22.82	22.83	22.91	-3.18	19.64	19.65	19.73

Note: 1) The conducted power of GSM850 is measured with RMS detector.
2) Source Based time Average Power was calculated from the measured burst-averaged output power by converting the slot powers into linear units and calculating the energy over 8 timeslots.
3) The bolded GPRS 4Tx slots mode was selected for SAR testing according the highest Source Based time Average Power table.
4) channel/Frequency: 128/824.2,190/836.6,251/848.8

8.1.2 Conducted Power of GSM1900

GSM1900		Burst-Averaged output Power (dBm)			Division Factors	Source Based time Average Power(dBm)		
		512CH	661CH	810CH		512CH	661CH	810CH
GSM(CS)		29.57	29.70	29.81	-9.19	20.38	20.51	20.62
GPRS/ EDGE (GMSK)	1 Tx Slot	29.58	29.64	29.73	-9.19	20.39	20.45	20.54
	2 Tx Slots	28.76	28.78	28.81	-6.13	22.63	22.65	22.68
	3 Tx Slots	26.99	27.05	27.04	-4.42	22.57	22.63	22.62
	4 Tx Slots	25.78	25.84	25.89	-3.18	22.60	22.66	**22.71**
EDGE (8PSK)	1 Tx Slot	26.45	26.54	26.55	-9.19	17.26	17.35	17.36
	2 Tx Slots	25.06	25.22	25.29	-6.13	18.93	19.09	19.16
	3 Tx Slots	22.89	22.97	23.04	-4.42	18.47	18.55	18.62
	4 Tx Slots	21.68	21.86	21.79	-3.18	18.50	18.68	18.61

Note: 1) The conducted power of GSM1900 is measured with RMS detector.

2) Source Based time Average Power was calculated from the measured burst-averaged output power by converting the slot powers into linear units and calculating the energy over 8 timeslots.

3) The bolded GPRS 4Tx slots mode was selected for SAR testing according the highest Source Based time Average Power table.

4) channel/Frequency: 512/1850.2,661/1880,810/1909.8

8.1.3 Conducted Power of UMTS Band II

UMTS Band II		Conducted Power (dBm)		
		9262CH	9400CH	9538CH
WCDMA	12.2kbps RMC	22.65	22.71	22.78
HSDPA	Subtest 1	21.72	21.75	21.84
	Subtest 2	19.26	19.29	19.22
	Subtest 3	18.08	19.97	18.19
	Subtest 4	19.88	19.87	18.06
HSUPA	Subtest 1	19.72	19.75	19.83
	Subtest 2	19.22	19.24	19.35
	Subtest 3	20.23	20.23	20.28
	Subtest 4	19.74	19.77	19.84
	Subtest 5	21.75	21.78	21.84

Note: channel /Frequency: 9262/1852.4,9400/1880,9538/1907.6

8.1.4 Conducted Power of UMTS Band V

UMTS Band V		Conducted Power (dBm)		
		4132CH	4182CH	4233CH
WCDMA	12.2kbps RMC	22.82	22.81	22.80
HSDPA	Subtest 1	20.84	21.89	21.90
	Subtest 2	19.02	19.32	20.53
	Subtest 3	19.18	20.03	18.39
	Subtest 4	21.17	18.42	19.88
HSUPA	Subtest 1	19.85	19.88	19.87
	Subtest 2	19.29	19.38	19.35
	Subtest 3	20.35	20.37	20.34
	Subtest 4	19.88	19.90	19.88
	Subtest 5	21.89	21.91	21.88

Note: channel /Frequency: 4132/826.4,4182/836.4,4233/846.6

8.1.5 Conducted Power of LTE Band 2

Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193
1.4MHz	QPSK	1	0	22.74	22.80	22.89
		1	3	22.88	22.80	22.97
		1	5	22.74	22.73	22.87
		3	0	22.79	22.86	22.93
		3	2	22.78	22.85	22.93
		3	3	22.80	22.86	22.92
		6	0	21.83	21.91	21.96
	16QAM	1	0	21.55	21.67	21.67
		1	3	21.66	21.84	21.91
		1	5	21.50	21.67	21.74
		3	0	21.59	21.59	21.75
		3	2	21.58	21.63	21.72
		3	3	21.56	21.62	21.72
		6	0	20.80	20.86	20.73
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185
3MHz	QPSK	1	0	22.73	22.87	22.91
		1	7	22.79	22.89	22.89
		1	14	22.76	22.88	22.88
		8	0	21.79	21.82	21.88
		8	4	21.77	21.82	21.90
		8	7	21.79	21.85	21.88
		15	0	21.73	21.82	21.83
	16QAM	1	0	21.66	21.59	21.88
		1	7	21.62	21.62	21.88
		1	14	21.65	21.65	21.86
		8	0	20.77	20.88	20.86
		8	4	20.78	20.86	20.88
		8	7	20.78	20.85	20.89
		15	0	20.67	20.76	20.87

Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175
5MHz	QPSK	1	0	22.72	22.71	22.83
		1	13	22.88	22.87	22.97
		1	24	22.75	22.75	22.84
		12	0	21.74	21.79	21.93
		12	6	21.71	21.82	21.89
		12	13	21.68	21.78	21.77
		25	0	21.76	21.84	21.85
	16QAM	1	0	21.72	21.71	21.84
		1	13	21.83	21.87	21.96
		1	24	21.78	21.67	21.87
		12	0	20.76	20.76	20.87
		12	6	20.76	20.78	20.87
		12	13	20.74	20.72	20.81
		25	0	20.69	20.80	20.83
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150
10MHz	QPSK	1	0	22.82	22.85	22.92
		1	24	22.94	23.06	23.05
		1	49	22.82	22.83	22.90
		25	0	21.76	21.88	21.91
		25	12	21.79	21.88	21.92
		25	25	21.81	21.88	21.82
		50	0	21.74	21.87	21.84
	16QAM	1	0	21.77	21.74	21.62
		1	24	21.93	21.81	21.77
		1	49	21.73	21.70	21.66
		25	0	20.74	20.87	20.96
		25	12	20.76	20.87	20.98
		25	25	20.79	20.87	20.85
		50	0	20.78	20.84	20.87

Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125
15MHz	QPSK	1	0	22.74	22.79	22.76
		1	37	22.84	22.90	22.85
		1	74	22.73	22.76	22.71
		36	0	22.75	22.80	22.78
		36	18	22.88	22.82	22.87
		36	38	22.70	22.74	22.74
		75	0	21.87	21.91	21.95
	16QAM	1	0	21.79	21.83	21.70
		1	37	21.62	20.92	21.33
		1	74	21.99	21.68	21.69
		37	0	21.51	21.55	21.71
		37	18	21.93	21.83	21.73
		37	38	21.47	21.81	21.70
		75	0	20.83	20.89	20.87
Bandwidth	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100
20MHz	QPSK	1	0	22.67	22.65	22.69
		1	50	22.94	23.00	23.15
		1	99	22.54	22.64	22.71
		50	0	21.82	21.86	21.97
		50	25	21.79	21.86	21.93
		50	50	21.77	21.87	21.79
		100	0	21.79	21.87	21.85
	16QAM	1	0	22.57	22.61	21.49
		1	50	22.84	23.00	21.82
		1	99	22.53	22.60	21.64
		50	0	21.81	21.80	20.86
		50	25	21.75	21.81	21.55
		50	50	21.70	21.80	21.65
		100	0	21.73	21.77	21.73

8.1.6 Conducted Power of LTE Band 4

Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393
1.4MHz	QPSK	1	0	22.76	22.73	22.64
		1	3	22.85	22.88	22.94
		1	5	22.73	22.71	22.63
		3	0	22.80	22.78	22.75
		3	2	22.77	22.79	22.76
		3	3	22.80	22.82	22.74
		6	0	21.79	21.78	21.75
	16QAM	1	0	21.59	21.54	21.50
		1	3	21.78	21.63	21.56
		1	5	21.57	21.57	21.44
		3	0	21.63	21.58	21.52
		3	2	21.62	21.61	21.52
		3	3	21.63	21.50	21.49
		6	0	20.66	20.62	20.76
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385
3MHz	QPSK	1	0	22.71	22.72	22.77
		1	7	22.68	22.78	22.79
		1	14	22.73	22.78	22.74
		8	0	21.69	21.77	21.75
		8	4	21.73	21.68	21.73
		8	7	21.69	21.75	21.75
		15	0	21.67	21.67	21.73
	16QAM	1	0	21.59	21.68	21.69
		1	7	21.52	21.43	21.50
		1	14	21.61	21.59	21.55
		8	0	20.70	20.80	20.44
		8	4	20.69	20.30	20.48
		8	7	20.74	20.73	20.71
		15	0	20.69	20.39	20.59

Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375
5MHz	QPSK	1	0	22.75	22.64	22.69
		1	13	22.83	22.76	22.79
		1	24	22.61	22.64	22.65
		12	0	21.70	21.72	21.74
		12	6	21.65	21.66	21.73
		12	13	21.67	21.65	21.67
		25	0	21.69	21.72	21.72
	16QAM	1	0	21.66	21.71	21.56
		1	13	21.77	21.84	21.69
		1	24	21.57	21.72	21.45
		12	0	20.64	20.73	20.73
		12	6	20.66	20.74	20.74
		12	13	20.66	20.70	20.67
		25	0	20.69	20.67	20.75
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350
10MHz	QPSK	1	0	22.73	22.73	22.75
		1	25	22.90	22.95	22.91
		1	49	22.70	22.68	22.76
		25	0	21.77	21.70	21.84
		25	13	21.74	21.72	21.86
		25	25	21.75	21.71	21.75
		50	0	21.70	21.71	21.76
	16QAM	1	0	21.75	21.64	21.55
		1	25	22.08	21.78	21.77
		1	49	21.69	21.58	21.51
		25	0	20.78	20.78	20.92
		25	13	20.75	20.77	20.87
		25	25	20.77	20.76	20.79
		50	0	20.77	20.77	20.81

Bandwidth	Modulation	RB size	RB offset	Channel 20025	Channel 20175	Channel 20325
15MHz	QPSK	1	0	22.69	22.67	22.59
		1	37	22.67	22.71	22.72
		1	74	22.39	22.60	22.60
		36	0	21.98	22.64	22.56
		36	18	22.72	22.73	22.72
		36	38	22.57	22.62	22.54
		75	0	21.71	21.70	21.75
	16QAM	1	0	21.62	21.69	21.72
		1	37	21.86	21.77	21.95
		1	74	21.70	21.31	21.69
		37	0	21.66	21.42	21.40
		37	18	21.83	21.39	21.83
		37	38	21.71	21.83	21.56
		75	0	20.69	20.71	20.82
Bandwidth	Modulation	RB size	RB offset	Channel 20050	Channel 20175	Channel 20300
20MHz	QPSK	1	0	22.55	22.54	22.43
		1	50	22.89	22.75	22.83
		1	99	22.50	22.48	22.44
		50	0	21.66	21.66	21.75
		50	25	21.67	21.66	21.77
		50	50	21.72	21.68	21.66
		100	0	21.71	21.67	21.70
	16QAM	1	0	21.44	21.68	21.44
		1	50	21.98	21.48	22.07
		1	99	21.34	21.27	21.36
		50	0	20.74	20.72	20.80
		50	25	20.73	20.74	20.83
		50	50	20.75	20.72	20.79
		100	0	20.73	20.76	20.80

8.1.7 Conducted Power of LTE Band 5

Bandwidth	Modulation	RB size	RB offset	Channel 20407	Channel 20525	Channel 20643
1.4MHz	QPSK	1	0	23.05	22.99	22.96
		1	3	23.15	23.11	23.06
		1	5	23.07	22.93	22.91
		3	0	23.05	23.08	23.05
		3	2	23.07	23.09	23.06
		3	3	23.12	23.11	23.03
		6	0	22.03	22.00	21.99
	16QAM	1	0	21.79	21.85	21.75
		1	3	21.96	22.00	21.91
		1	5	21.85	21.85	21.75
		3	0	21.84	21.88	21.83
		3	2	21.86	21.90	21.83
		3	3	21.87	21.89	21.81
		6	0	20.91	20.90	21.04
Bandwidth	Modulation	RB size	RB offset	Channel 20415	Channel 20525	Channel 20635
3MHz	QPSK	1	0	23.11	22.99	23.04
		1	7	23.06	23.05	23.00
		1	14	23.16	23.02	22.97
		8	0	22.08	21.98	22.05
		8	4	22.10	22.01	22.03
		8	7	22.10	22.01	22.02
		15	0	22.06	22.00	21.97
	16QAM	1	0	21.86	21.76	22.04
		1	7	21.88	21.79	21.96
		1	14	21.81	21.76	21.94
		7	0	21.03	21.05	21.10
		7	4	21.00	21.05	21.06
		7	7	21.02	21.03	21.05
		15	0	20.91	20.96	21.03

Bandwidth	Modulation	RB size	RB offset	Channel 20425	Channel 20525	Channel 20625
5MHz	QPSK	1	0	23.02	22.95	23.00
		1	13	23.10	23.09	23.12
		1	24	23.00	22.93	22.97
		12	0	22.10	21.98	22.03
		12	6	22.04	21.99	21.97
		12	13	22.08	21.95	21.97
		25	0	22.09	21.99	22.00
	16QAM	1	0	21.93	21.97	21.89
		1	13	22.04	22.11	22.01
		1	24	21.98	21.96	21.83
		12	0	21.07	21.05	21.04
		12	6	20.99	21.08	21.05
		12	13	21.06	21.08	21.00
		25	0	21.14	21.11	21.10
Bandwidth	Modulation	RB size	RB offset	Channel 20450	Channel 20525	Channel 20600
10MHz	QPSK	1	0	23.15	23.11	23.01
		1	25	23.25	23.13	23.16
		1	49	23.13	22.97	22.96
		25	0	22.12	22.09	22.06
		25	12	22.10	22.07	22.09
		25	25	22.10	22.08	22.11
		50	0	22.07	22.11	22.01
	16QAM	1	0	22.06	21.96	21.77
		1	25	22.26	21.98	21.97
		1	49	22.09	21.85	21.77
		25	0	21.11	21.17	21.15
		25	12	21.07	21.12	21.14
		25	25	21.09	21.14	21.14
		50	0	21.10	21.17	21.09

8.1.8 Conducted Power of LTE Band 7

Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425
5MHz	QPSK	1	0	22.20	22.07	22.12
		1	13	22.30	22.21	22.31
		1	24	22.10	22.11	22.17
		12	0	21.11	21.15	21.17
		12	6	21.09	21.14	21.16
		12	13	21.16	21.19	21.11
		25	0	21.02	21.12	21.18
	16QAM	1	0	21.21	21.10	21.12
		1	13	21.34	21.17	21.23
		1	24	21.18	21.04	21.18
		12	0	20.23	20.21	20.26
		12	6	20.21	20.17	20.24
		12	13	20.42	20.18	20.19
		25	0	20.20	20.30	20.29
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400
10MHz	QPSK	1	0	22.30	22.17	22.19
		1	25	22.19	22.29	22.24
		1	49	22.16	22.19	22.22
		25	0	21.20	21.17	21.12
		25	13	21.18	21.15	21.12
		25	25	21.14	21.18	21.19
		50	0	21.10	21.16	21.16
	16QAM	1	0	21.22	21.07	20.99
		1	25	21.30	21.19	20.98
		1	49	21.17	21.00	20.99
		25	0	20.22	20.22	20.32
		25	13	20.21	20.20	20.36
		25	25	20.32	20.27	20.19
		50	0	20.20	20.23	20.31

Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375
15MHz	QPSK	1	0	21.14	22.04	22.13
		1	37	22.18	22.12	22.19
		1	74	22.08	22.04	22.19
		36	0	22.18	22.04	22.17
		36	18	22.10	22.06	22.19
		36	38	22.09	22.02	22.15
		75	0	21.30	21.20	21.17
	16QAM	1	0	21.16	21.16	21.22
		1	37	21.23	21.98	21.46
		1	74	21.10	21.32	21.17
		37	0	21.25	21.16	21.13
		37	18	20.91	21.18	21.22
		37	38	21.10	20.87	20.98
		75	0	20.88	21.87	20.46
Bandwidth	Modulation	RB size	RB offset	Channel 20850	Channel 21100	Channel 21350
20MHz	QPSK	1	0	22.07	21.98	22.07
		1	50	22.24	22.21	22.29
		1	99	21.97	21.95	22.04
		50	0	21.16	21.16	21.18
		50	25	21.10	21.16	21.15
		50	50	21.19	21.19	21.14
		100	0	21.21	21.19	21.23
	16QAM	1	0	20.96	21.08	21.15
		1	50	21.32	21.14	21.12
		1	99	20.48	21.05	21.04
		50	0	20.23	20.14	20.27
		50	25	20.34	20.33	20.19
		50	50	21.92	21.66	21.93
		100	0	20.20	20.26	21.46

8.1.9 Conducted Power of LTE Band 12

Bandwidth	Modulation	RB size	RB offset	Channel 23017	Channel 23095	Channel 23173
1.4MHz	QPSK	1	0	23.16	23.11	23.09
		1	3	23.40	23.24	23.17
		1	5	23.15	23.16	23.02
		3	0	23.16	23.20	23.14
		3	2	23.15	23.20	23.15
		3	3	23.21	23.23	23.08
		6	0	22.11	22.21	22.11
	16QAM	1	0	21.98	21.94	21.93
		1	3	22.14	22.19	22.10
		1	5	21.99	21.94	21.90
		3	0	22.02	21.95	21.97
		3	2	22.00	21.94	22.00
		3	3	22.04	21.93	21.96
		6	0	20.97	21.16	20.94
Bandwidth	Modulation	RB size	RB offset	Channel 23025	Channel 23095	Channel 23165
3MHz	QPSK	1	0	23.10	23.18	23.10
		1	7	23.18	23.15	23.12
		1	14	23.27	23.15	23.04
		8	0	22.10	22.13	22.16
		8	4	22.06	22.15	22.12
		8	7	22.08	22.20	22.12
		15	0	22.08	22.14	22.08
	16QAM	1	0	21.97	21.88	22.09
		1	7	22.01	21.90	22.08
		1	14	22.01	21.96	22.08
		8	0	21.08	21.11	21.17
		8	4	21.12	21.13	21.15
		8	7	21.11	21.17	21.13
		15	0	21.04	21.06	21.10

Bandwidth	Modulation	RB size	RB offset	Channel 23035	Channel 23095	Channel 23155
5MHz	QPSK	1	0	23.03	23.09	23.10
		1	13	23.15	23.20	23.22
		1	24	23.08	23.08	23.00
		12	0	22.13	22.05	22.14
		12	6	22.08	22.11	22.14
		12	13	22.10	22.10	22.05
		25	0	22.09	22.11	22.09
	16QAM	1	0	22.01	22.14	21.98
		1	13	22.13	22.26	22.05
		1	24	22.03	22.09	21.91
		12	0	21.14	21.12	21.16
		12	6	21.11	21.12	21.17
		12	13	21.04	21.16	21.10
		25	0	21.07	21.11	21.14
Bandwidth	Modulation	RB size	RB offset	Channel 23060	Channel 23095	Channel 23130
10MHz	QPSK	1	0	23.16	23.17	23.10
		1	25	23.39	23.24	23.16
		1	49	23.17	23.10	23.05
		25	0	22.20	22.11	22.17
		25	13	22.16	22.11	22.20
		25	25	22.27	22.15	21.99
		50	0	22.20	22.11	22.09
	16QAM	1	0	22.10	22.01	21.90
		1	25	22.14	22.14	21.94
		1	49	22.13	21.96	21.86
		25	0	21.17	21.06	21.21
		25	13	21.15	21.09	21.21
		25	25	21.25	21.16	21.04
		50	0	21.24	21.12	21.06

8.1.10 Conducted Power of LTE Band 41

Bandwidth	Modulation	RB size	RB offset	Channel 40265	Channel 40620	Channel 40880	Channel 41215
5MHz	QPSK	1	0	22.15	22.03	22.08	22.25
		1	13	22.24	22.12	22.22	22.37
		1	24	22.14	22.02	22.08	22.26
		12	0	21.07	21.06	22.06	21.31
		12	6	21.15	21.04	22.18	21.33
		12	13	21.00	21.05	22.07	21.32
		25	0	21.18	21.04	21.11	21.31
	16QAM	1	0	21.05	21.09	21.09	21.30
		1	13	21.14	21.18	21.26	21.45
		1	24	21.02	21.11	21.07	21.34
		12	0	20.15	20.13	21.10	20.37
		12	6	19.94	20.12	21.32	20.39
		12	13	20.26	20.15	21.09	20.35
		25	0	20.19	20.04	20.22	20.33
Bandwidth	Modulation	RB size	RB offset	Channel 40290	Channel 40620	Channel 40880	Channel 41190
10MHz	QPSK	1	0	22.18	22.08	22.24	22.32
		1	25	22.43	22.37	22.56	22.64
		1	49	22.10	22.09	22.20	22.36
		25	0	21.24	21.10	21.25	21.36
		25	13	21.21	21.11	21.20	21.36
		25	25	21.33	21.12	21.20	21.34
		50	0	21.24	21.15	21.23	21.34
	16QAM	1	0	21.22	21.15	21.27	21.20
		1	25	21.43	21.41	21.56	21.46
		1	49	21.16	21.16	21.22	21.24
		25	0	20.27	20.12	21.26	20.43
		25	13	20.27	20.29	21.22	20.43
		25	25	20.27	20.30	21.22	20.40
		50	0	20.34	20.17	20.28	20.41

Bandwidth	Modulation	RB size	RB offset	Channel 40315	Channel 40620	Channel 40880	Channel 41165
15MHz	QPSK	1	0	22.13	21.95	22.49	22.15
		1	37	22.09	22.03	22.75	22.27
		1	74	21.92	21.96	22.48	22.23
		36	0	21.21	21.08	21.54	21.34
		36	18	21.23	21.20	21.72	21.42
		36	38	21.07	21.14	21.48	21.36
		75	0	21.19	21.17	21.72	21.35
	16QAM	1	0	21.36	21.33	21.40	21.32
		1	37	21.51	21.45	21.56	21.42
		1	74	21.41	21.39	21.33	21.36
		37	0	21.34	21.31	21.40	21.34
		37	18	21.46	21.48	21.57	21.42
		37	38	21.33	21.37	21.34	21.36
		75	0	20.25	20.12	20.71	20.37
Bandwidth	Modulation	RB size	RB offset	Channel 40340	Channel 40620	Channel 40880	Channel 41140
20MHz	QPSK	1	0	22.02	21.89	22.00	22.12
		1	50	22.43	22.37	22.53	22.61
		1	99	21.83	21.95	22.04	22.13
		50	0	21.13	21.10	21.27	21.29
		50	25	21.13	21.10	21.27	21.31
		50	50	21.13	21.12	21.19	21.31
		100	0	21.20	21.12	21.27	21.32
	16QAM	1	0	21.22	20.78	20.92	21.27
		1	50	21.55	21.31	21.42	21.70
		1	99	21.36	20.84	20.90	21.28
		50	0	20.18	20.17	20.29	20.37
		50	25	20.24	20.17	20.30	20.37
		50	50	20.29	20.25	20.25	20.36
		100	0	20.24	20.18	20.29	20.34

8.1.11 Conducted Power of WiFi 5G

The output power of Wi-Fi 5G is as following:

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Tune-up	Average Power (dBm)	SAR Test (Yes/No)
5.2G	802.11a	36	5180	6	14.00	**13.62**	Yes
		40	5200		14.00	13.53	Yes
		48	5240		14.00	13.49	Yes
	802.11n HT20	36	5180	6.5	13.50	13.00	NO
		40	5200		13.50	13.48	NO
		48	5240		13.50	13.30	NO
	802.11n HT40	38	5190	13.5	13.50	13.05	NO
		46	5230		13.50	13.47	NO
	802.11ac HT20	36	5180	6.5	13.50	13.07	NO
		40	5200		13.50	13.48	NO
		48	5240		13.50	13.40	NO
	802.11ac HT40	38	5190	13.5	13.50	13.14	NO
		46	5230		13.50	13.00	NO
	802.11ac VH80	42	5210	29.3	13.00	12.98	NO

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Tune-up	Average Power (dBm)	SAR Test (Yes/No)
5.8G	802.11a	149	5745	6	13.00	**12.59**	Yes
		157	5785		13.00	12.25	Yes
		165	5825		13.00	12.10	Yes
	802.11n HT20	149	5745	6.5	12.60	12.51	NO
		157	5785		12.60	12.00	NO
		165	5825		12.60	12.06	NO
	802.11n HT40	151	5755	13.5	12.50	12.11	NO
		159	5795		12.50	12.44	NO
	802.11ac HT20	149	5745	6.5	12.50	12.39	NO
		157	5785		12.50	12.10	NO
		165	5825		12.50	12.35	NO
	802.11ac HT40	151	5755	13.5	12.50	12.08	NO
		159	5795		12.50	12.50	NO
	802.11ac VH80	155	5775	29.3	12.50	12.27	NO

8.1.12 Conducted Power of WiFi 2.4G

The output power of WiFi 2.4G is as following:

Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Tune-up	Average Power(dBm)	SAR Test (Yes/No)
802.11b	1	2412	1	15.50	14.77	Yes
	6	2437		15.50	14.72	Yes
	11	2462		15.50	**15.02**	Yes
802.11g	1	2412	6	14.00	13.81	No
	6	2437		14.00	13.76	No
	11	2462		14.00	13.95	No
802.11n (HT20)	1	2412	6.5	14.00	13.53	No
	6	2437		14.00	13.77	No
	11	2462		14.00	13.68	No
802.11n (HT40)	3	2422	13.5	12.00	10.91	No
	6	2437		12.00	11.25	No
	9	2452		12.00	11.59	No

Note: 1) channel /Frequency: 1/2412, 3/2422, 6/2437, 9/2452, 11/2462.

8.1.13 Conducted Power of BT

The output power of BT antenna is as following:

For BT 3.0:

Average Conducted Power(dBm)			
Channel	0CH	39CH	78CH
GFSK	**2.09**	2.08	0.56
π/4DQPSK	1.19	1.33	-0.2
8DPSK	1.33	1.31	-0.19

Note: channel /Frequency: 0/2402, 39/2441, 78/2480

For BT 4.0:

Average Conducted Power(dBm)			
Channel	0CH	19CH	39CH
BT	-5.25	-5.31	-6.84

Note: channel /Frequency: 0/2402, 19/2440, 39/2480.

8.2 SAR test results

Notes:

1) Per KDB447498 D01v06, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is: ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

2) Per KDB447498 D01v06, All measurement SAR result is scaled-up to account for tune-up tolerance is compliant.

3) Per KDB865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/Kg; if the deviation among the repeated measurement is ≤ 20%, and the measured SAR <1.45W/Kg, only one repeated measurement is required.

4) Per KDB865664 D02v01r02, 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 W/kg, or > 7.0 W/kg for occupational exposure. The same procedures should be adapted for measurements according to extremity exposure limits by applying a factor of 2.5 for extremity 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).

5) Per KDB941225 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.

6) Per KDB648474 D04, SAR is evaluated without a headset connected to the device. When the standalone reported body-worn SAR is ≤1.2 W/kg, no additional SAR evaluations using a headset are required.

8.2.1 Results overview of GSM850

Test position of Head	Test channel /Freq.(MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	190/836.6	GSM	0.175	0.139	-0.030	32.940	33.000	0.177	20.16°C
Left Hand Tilted 15°	190/836.6	GSM	0.117	0.093	-0.040	32.940	33.000	0.119	20.16°C
Right Hand Touched	190/836.6	GSM	0.232	0.178	0.060	32.940	33.000	0.235	20.16°C
Right Hand Tilted 15°	190/836.6	GSM	0.117	0.093	-0.040	32.940	33.000	0.119	20.16°C
Right Hand Touched	251/848.8	GSM	0.239	0.182	0.280	32.700	33.000	**0.256**	20.16°C
Right Hand Touched	128/824.2	GSM	0.217	0.166	0.220	32.630	33.000	0.236	20.16°C
Test position of Body-Worn with 15mm	**Test channel /Frequency**	**Test Mode**	**SAR Value (W/kg)**		**Power Drift (dB)**	**Conducted Power (dBm)**	**Tune-up power (dBm)**	**Scaled SAR1-g(W/kg)**	**Liquid Temp.**
			1-g	**10-g**					
Front Side	190/836.6	GSM	0.227	0.174	-0.010	32.940	33.000	0.230	20.16°C
Back Side	190/836.6	GSM	0.309	0.236	-0.070	32.940	33.000	0.313	20.16°C
Back Side	251/848.8	GSM	0.262	0.200	-0.100	32.700	33.000	0.281	20.16°C
Back Side	128/824.2	GSM	0.383	0.255	-1.240	32.630	33.000	**0.417**	20.16°C

Test position of Hotspot with 10mm	Test channel /Frequency	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	190/836.6	GPRS 4TS	0.251	0.193	-0.150	28.900	29.000	0.257	20.16°C
Back Side	190/836.6	GPRS 4TS	0.450	0.252	-0.050	28.900	29.000	**0.460**	20.16°C
Left Side	190/836.6	GPRS 4TS	0.245	0.167	-0.010	28.900	29.000	0.251	20.16°C
Right Side	190/836.6	GPRS 4TS	0.405	0.279	-0.020	28.900	29.000	0.414	20.16°C
Bottom Side	190/836.6	GPRS 4TS	0.124	0.065	-0.310	28.900	29.000	0.127	20.16°C
Back Side	251/848.8	GPRS 4TS	0.414	0.229	-0.140	28.600	29.000	0.454	20.16°C
Back Side	128/824.2	GPRS 4TS	0.391	0.304	-0.110	28.510	29.000	0.438	20.16°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.2 Results overview of GSM1900

Test position of Head	Test channel /Freq.(MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	661/1880	GSM	0.083	0.057	-1.560	29.700	30.000	0.089	20.08°C
Left Hand Tilted 15°	661/1880	GSM	0.042	0.025	-0.460	29.700	30.000	0.044	20.08°C
Right Hand Touched	661/1880	GSM	0.063	0.040	-0.280	29.700	30.000	0.067	20.08°C
Right Hand Tilted 15°	661/1880	GSM	0.048	0.030	-0.070	29.700	30.000	0.051	20.08°C
Left Hand Touched	512/1850.2	GSM	0.146	0.097	-0.370	29.570	30.000	**0.161**	20.08°C
Left Hand Touched	810/1909.8	GSM	0.118	0.078	0.280	29.810	30.000	0.123	20.08°C
Test position of Body-Worn with 15mm	**Test channel /Frequency**	**Test Mode**	**SAR Value (W/kg)**		**Power Drift (dB)**	**Conducted Power (dBm)**	**Tune-up power (dBm)**	**Scaled SAR1-g(W/kg)**	**Liquid Temp.**
			1-g	**10-g**					
Front Side	661/1880	GSM	0.111	0.065	-0.130	29.700	30.000	0.119	20.08°C
Back Side	661/1880	GSM	0.160	0.092	0.230	29.700	30.000	0.171	20.08°C
Back Side	512/1850.2	GSM	0.157	0.091	-0.240	29.570	30.000	0.173	20.08°C
Back Side	810/1909.8	GSM	0.170	0.098	-0.200	29.810	30.000	**0.178**	20.08°C

Test position of Hotspot with 10mm	Test channel /Frequency	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	661/1880	GPRS 4TS	0.342	0.192	-0.160	25.840	26.000	0.355	20.08°C
Back Side	661/1880	GPRS 4TS	0.557	0.303	-0.100	25.840	26.000	**0.578**	20.08°C
Left Side	661/1880	GPRS 4TS	0.266	0.158	-0.180	25.840	26.000	0.276	20.08°C
Right Side	661/1880	GPRS 4TS	0.137	0.083	-0.030	25.840	26.000	0.142	20.08°C
Bottom Side	661/1880	GPRS 4TS	0.372	0.201	-0.160	25.840	26.000	0.386	20.08°C
Back Side	512/1850.2	GPRS 4TS	0.464	0.256	-0.270	25.780	26.000	0.488	20.08°C
Back Side	810/1909.8	GPRS 4TS	0.433	0.237	-0.210	25.890	26.000	0.444	20.08°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.3 Results overview of UMTS Band V

Test position of Head	Test channel /Freq.(MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	4182/836.4	RMC	0.134	0.105	-0.530	22.810	23.000	0.140	20.14°C
Left Hand Tilted 15°	4182/836.4	RMC	0.092	0.073	-0.190	22.810	23.000	0.096	20.14°C
Right Hand Touched	4182/836.4	RMC	0.161	0.125	0.070	22.810	23.000	0.168	20.14°C
Right Hand Tilted 15°	4182/836.4	RMC	0.094	0.073	0.020	22.810	23.000	0.098	20.14°C
Right Hand Touched	4132/826.4	RMC	0.165	0.129	0.200	22.820	23.000	**0.172**	20.14°C
Right Hand Touched	4233/846.6	RMC	0.146	0.114	0.230	22.800	23.000	0.153	20.14°C
Test position of Body-Worn with 15mm	**Test channel /Frequency**	**Test Mode**	**SAR Value (W/kg)**		**Power Drift (dB)**	**Conducted Power (dBm)**	**Tune-up power (dBm)**	**Scaled SAR1-g(W/kg)**	**Liquid Temp.**
			1-g	**10-g**					
Front Side	4182/836.4	RMC	0.173	0.133	-0.020	22.810	23.000	0.181	20.14°C
Back Side	4182/836.4	RMC	0.235	0.181	-0.090	22.810	23.000	0.246	20.14°C
Back Side	4132/826.4	RMC	0.264	0.203	-0.100	22.820	23.000	**0.275**	20.14°C
Back Side	4233/846.6	RMC	0.209	0.161	-0.130	22.800	23.000	0.219	20.14°C

Test position of Hotspot with 10mm	Test channel /Frequency	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	4182/836.4	RMC	0.160	0.123	-0.120	22.810	23.000	0.167	20.14°C
Back Side	4182/836.4	RMC	0.267	0.152	-0.130	22.810	23.000	0.279	20.14°C
Left Side	4182/836.4	RMC	0.160	0.109	0.150	22.810	23.000	0.167	20.14°C
Right Side	4182/836.4	RMC	0.263	0.180	-0.030	22.810	23.000	0.275	20.14°C
Bottom Side	4182/836.4	RMC	0.073	0.038	-0.030	22.810	23.000	0.076	20.14°C
Back Side	4132/826.4	RMC	0.296	0.229	-0.010	22.820	23.000	**0.309**	20.14°C
Back Side	4233/846.6	RMC	0.205	0.117	-0.170	22.800	23.000	0.215	20.14°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.4 Results overview of UMTS Band II

Test position of Head	Test channel /Freq.(MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	9400/1880	RMC	0.146	0.099	-1.850	22.710	23.000	0.156	20.55°C
Left Hand Tilted 15°	9400/1880	RMC	0.062	0.382	-0.260	22.710	23.000	0.066	20.55°C
Right Hand Touched	9400/1880	RMC	0.099	0.063	-0.170	22.710	23.000	0.106	20.55°C
Right Hand Tilted 15°	9400/1880	RMC	0.076	0.047	-0.140	22.710	23.000	0.081	20.55°C
Left Hand Touched	9262/1852.4	RMC	0.228	0.150	-0.250	22.650	23.000	0.247	20.55°C
Left Hand Touched	9538/1907.6	RMC	0.245	0.158	0.340	22.780	23.000	**0.258**	20.55°C
Test position of Body-Worn with 15mm	**Test channel /Frequency**	**Test Mode**	**SAR Value (W/kg)**		**Power Drift (dB)**	**Conducted Power (dBm)**	**Tune-up power (dBm)**	**Scaled SAR1-g(W/kg)**	**Liquid Temp.**
			1-g	**10-g**					
Front Side	9400/1880	RMC	0.194	0.115	-0.210	22.710	23.000	0.207	20.55°C
Back Side	9400/1880	RMC	0.280	0.161	-0.240	22.710	23.000	0.299	20.55°C
Back Side	9262/1852.4	RMC	0.207	0.121	-0.220	22.650	23.000	0.224	20.55°C
Back Side	9538/1907.6	RMC	0.286	0.165	-0.260	22.780	23.000	**0.301**	20.55°C

Test position of Hotspot with 10mm	Test channel /Frequency	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	9400/1880	RMC	0.309	0.174	-0.170	22.710	23.000	0.330	20.55°C
Back Side	9400/1880	RMC	0.489	0.270	-0.110	22.710	23.000	0.523	20.55°C
Left Side	9400/1880	RMC	0.234	0.139	-0.110	22.710	23.000	0.250	20.55°C
Right Side	9400/1880	RMC	0.116	0.071	-0.210	22.710	23.000	0.124	20.55°C
Bottom Side	9400/1880	RMC	0.370	0.199	-0.180	22.710	23.000	0.396	20.55°C
Back Side	9262/1852.4	RMC	0.461	0.253	-0.230	22.650	23.000	0.500	20.55°C
Back Side	9538/1907.6	RMC	0.582	0.316	-0.230	22.780	23.000	**0.612**	20.55°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.5 Results overview of LTE Band 2

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	18900/1880	20M QPSK 1RB#50	0.143	0.096	0.390	23.000	23.500	0.160	20.25°C
Left Hand Tilted 15°	18900/1880	20M QPSK 1RB#50	0.056	0.033	-0.610	23.000	23.500	0.062	20.25°C
Right Hand Touched	18900/1880	20M QPSK 1RB#50	0.077	0.051	-0.430	23.000	23.500	0.086	20.25°C
Right Hand Tilted 15°	18900/1880	20M QPSK 1RB#50	0.058	0.036	-0.020	23.000	23.500	0.065	20.25°C
Left Hand Touched	18900/1880	20M QPSK 50%RB#50	0.135	0.090	-0.470	21.870	23.500	**0.196**	20.25°C
Left Hand Tilted 15°	18900/1880	20M QPSK 50%RB#50	0.050	0.030	0.050	21.870	23.500	0.072	20.25°C
Right Hand Touched	18900/1880	20M QPSK 50%RB#50	0.070	0.047	-0.040	21.870	23.500	0.101	20.25°C
Right Hand Tilted 15°	18900/1880	20M QPSK 50%RB#50	0.056	0.035	-0.150	21.870	23.500	0.081	20.25°C
Left Hand Touched	18700/1860	20M QPSK 1RB#50	0.139	0.093	0.090	22.940	23.500	0.158	20.25°C
Left Hand Touched	19100/1900	20M QPSK 1RB#50	0.140	0.094	0.000	23.150	23.500	0.152	20.25°C

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	18900/1880	20M QPSK 1RB#50	0.141	0.083	0.020	23.000	23.500	0.158	20.25°C
Back Side	18900/1880	20M QPSK 1RB#50	0.180	0.104	-0.230	23.000	23.500	0.202	20.25°C
Front Side	18900/1880	20M QPSK 50%RB#50	0.110	0.065	-0.150	21.870	23.500	0.160	20.25°C
Back Side	18900/1880	20M QPSK 50%RB#50	0.173	0.100	-0.330	21.870	23.500	**0.252**	20.25°C
Back Side	18700/1860	20M QPSK 1RB#50	0.147	0.086	-0.150	22.940	23.500	0.167	20.25°C
Back Side	19100/1900	20M QPSK 1RB#50	0.178	0.103	-0.140	23.150	23.500	0.193	20.25°C

Test position of Hotspot with 10mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	18900/1880	20M QPSK 1RB#50	0.260	0.147	-0.130	23.000	23.500	0.292	20.25°C
Back Side	18900/1880	20M QPSK 1RB#50	0.387	0.209	-0.080	23.000	23.500	0.434	20.25°C
Left Side	18900/1880	20M QPSK 1RB#50	0.207	0.123	0.010	23.000	23.500	0.232	20.25°C
Right Side	18900/1880	20M QPSK 1RB#50	0.097	0.059	-0.060	23.000	23.500	0.108	20.25°C
Bottom Side	18900/1880	20M QPSK 1RB#50	0.295	0.016	-0.160	23.000	23.500	0.331	20.25°C
Front Side	18900/1880	20M QPSK 50%RB#50	0.277	0.154	-0.080	21.870	23.500	0.403	20.25°C
Back Side	18900/1880	20M QPSK 50%RB#50	0.454	0.245	0.060	21.870	23.500	**0.661**	20.25°C
Left Side	18900/1880	20M QPSK 50%RB#50	0.182	0.109	-0.160	21.870	23.500	0.265	20.25°C
Right Side	18900/1880	20M QPSK 50%RB#50	0.088	0.054	-0.130	21.870	23.500	0.128	20.25°C
Bottom Side	18900/1880	20M QPSK 50%RB#50	0.285	0.153	-0.240	21.870	23.500	0.415	20.25°C
Back Side	18700/1860	20M QPSK 50%RB#50	0.316	0.174	-0.150	22.940	23.500	0.359	20.25°C
Back Side	19100/1900	20M QPSK 50%RB#50	0.370	0.203	-0.270	23.150	23.500	0.401	20.25°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.6 Results overview of LTE Band 4

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	20175/1732.5	20M QPSK 1RB#50	0.231	0.155	0.280	22.750	23.000	0.245	20.32°C
Left Hand Tilted 15°	20175/1732.5	20M QPSK 1RB#50	0.147	0.097	0.920	22.750	23.000	0.156	20.32°C
Right Hand Touched	20175/1732.5	20M QPSK 1RB#50	0.179	0.118	-0.460	22.750	23.000	0.190	20.32°C
Right Hand Tilted 15°	20175/1732.5	20M QPSK 1RB#50	0.114	0.073	-0.070	22.750	23.000	0.121	20.32°C
Left Hand Touched	20175/1732.5	20M QPSK 50%RB#25	0.240	0.161	0.560	21.660	23.000	**0.327**	20.32°C
Left Hand Tilted 15°	20175/1732.5	20M QPSK 50%RB#25	0.091	0.061	-0.040	21.660	23.000	0.124	20.32°C
Right Hand Touched	20175/1732.5	20M QPSK 50%RB#25	0.152	0.099	-0.060	21.660	23.000	0.207	20.32°C
Right Hand Tilted 15°	20175/1732.5	20M QPSK 50%RB#25	0.088	0.057	-0.120	21.660	23.000	0.120	20.32°C
Left Hand Touched	20050/1720	20M QPSK 50%RB#25	0.238	0.160	0.440	21.670	23.000	0.323	20.32°C
Left Hand Touched	20300/1745	20M QPSK 50%RB#25	0.221	0.148	0.040	21.770	23.000	0.293	20.32°C

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	20175/1732.5	20M QPSK 1RB#50	0.285	0.189	-0.140	22.750	23.000	0.302	20.32°C
Back Side	20175/1732.5	20M QPSK 1RB#50	0.337	0.215	-0.120	22.750	23.000	**0.357**	20.32°C
Front Side	20175/1732.5	20M QPSK 50%RB#25	0.212	0.140	-0.320	21.660	23.000	0.289	20.32°C
Back Side	20175/1732.5	20M QPSK 50%RB#25	0.259	0.166	-0.130	21.660	23.000	0.353	20.32°C
Back Side	20050/1720	20M QPSK 1RB#50	0.282	0.167	-1.360	22.890	23.000	0.289	20.32°C
Back Side	20300/1745	20M QPSK 1RB#50	0.300	0.192	-0.230	22.830	23.000	0.312	20.32°C

Test position of Hotspot with 10mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	20175/1732.5	20M QPSK 1RB#50	0.522	0.316	-0.110	22.750	23.000	0.553	20.32°C
Back Side	20175/1732.5	20M QPSK 1RB#50	0.675	0.400	0.070	22.750	23.000	**0.715**	20.32°C
Left Side	20175/1732.5	20M QPSK 1RB#50	0.364	0.178	-0.050	22.750	23.000	0.386	20.32°C
Right Side	20175/1732.5	20M QPSK 1RB#50	0.117	0.059	-0.070	22.750	23.000	0.124	20.32°C
Bottom Side	20175/1732.5	20M QPSK 1RB#50	0.400	0.222	-0.500	22.750	23.000	0.424	20.32°C
Front Side	20175/1732.5	20M QPSK 50%RB#25	0.340	0.194	-0.200	21.660	23.000	0.463	20.32°C
Back Side	20175/1732.5	20M QPSK 50%RB#25	0.484	0.273	-0.220	21.660	23.000	0.659	20.32°C
Left Side	20175/1732.5	20M QPSK 50%RB#25	0.287	0.169	-0.290	21.660	23.000	0.391	20.32°C
Right Side	20175/1732.5	20M QPSK 50%RB#25	0.105	0.065	-0.340	21.660	23.000	0.143	20.32°C
Bottom Side	20175/1732.5	20M QPSK 50%RB#25	0.318	0.177	-0.150	21.660	23.000	0.433	20.32°C
Back Side	20050/1720	20M QPSK 1RB#50	0.647	0.369	-0.090	22.890	23.000	0.664	20.32°C
Back Side	20300/1745	20M QPSK 1RB#50	0.598	0.336	-0.140	22.830	23.000	0.622	20.32°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.7 Results overview of LTE Band 5

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	20525/836.5	10M QPSK 1RB#25	0.125	0.098	0.040	23.130	23.500	0.136	20.04°C
Left Hand Tilted 15°	20525/836.5	10M QPSK 1RB#25	0.092	0.073	-0.150	23.130	23.500	0.100	20.04°C
Right Hand Touched	20525/836.5	10M QPSK 1RB#25	0.145	0.113	-0.140	23.130	23.500	0.158	20.04°C
Right Hand Tilted 15°	20525/836.5	10M QPSK 1RB#25	0.086	0.068	-0.060	23.130	23.500	0.094	20.04°C
Left Hand Touched	20525/836.5	10M QPSK 25RB#25	0.116	0.092	-0.400	22.080	23.500	0.161	20.04°C
Left Hand Tilted 15°	20525/836.5	10M QPSK 25RB#25	0.093	0.073	-0.420	22.080	23.500	0.129	20.04°C
Right Hand Touched	20525/836.5	10M QPSK 25RB#25	0.144	0.112	-0.160	22.080	23.500	**0.200**	20.04°C
Right Hand Tilted 15°	20525/836.5	10M QPSK 25RB#25	0.090	0.070	-0.040	22.080	23.500	0.125	20.04°C
Right Hand Touched	20450/829	10M QPSK 1RB#25	0.162	0.125	-0.020	23.250	23.500	0.172	20.04°C
Right Hand Touched	20600/844	10M QPSK 1RB#25	0.142	0.109	-0.270	23.160	23.500	0.154	20.04°C

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	20525/836.5	10M QPSK 1RB#25	0.152	0.117	0.000	23.130	23.500	0.166	20.04°C
Back Side	20525/836.5	10M QPSK 1RB#25	0.213	0.164	-0.110	23.130	23.500	0.232	20.04°C
Front Side	20525/836.5	10M QPSK 25RB#25	0.147	0.113	-0.170	22.080	23.500	0.204	20.04°C
Back Side	20525/836.5	10M QPSK 25RB#25	0.207	0.158	-0.120	22.080	23.500	**0.287**	20.04°C
Back Side	20450/829	10M QPSK 1RB#25	0.232	0.178	-0.090	23.250	23.500	0.246	20.04°C
Back Side	20600/844	10M QPSK 1RB#25	0.194	0.149	-0.150	23.160	23.500	0.210	20.04°C

Test position of Hotspot with 10mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	20525/836.5	10M QPSK 1RB#25	0.133	0.103	-0.030	23.130	23.500	0.145	20.04°C
Back Side	20525/836.5	10M QPSK 1RB#25	0.202	0.156	-0.150	23.130	23.500	0.220	20.04°C
Left Side	20525/836.5	10M QPSK 1RB#25	0.122	0.084	-0.130	23.130	23.500	0.133	20.04°C
Right Side	20525/836.5	10M QPSK 1RB#25	0.212	0.145	-0.100	23.130	23.500	0.231	20.04°C
Bottom Side	20525/836.5	10M QPSK 1RB#25	0.067	0.035	-0.400	23.130	23.500	0.073	20.04°C
Front Side	20525/836.5	10M QPSK 25RB#25	0.127	0.097	-0.160	22.080	23.500	0.176	20.98°C
Back Side	20525/836.5	10M QPSK 25RB#25	0.187	0.106	-0.100	22.080	23.500	0.259	20.98°C
Left Side	20525/836.5	10M QPSK 25RB#25	0.102	0.071	-0.130	22.080	23.500	0.141	20.98°C
Right Side	20525/836.5	10M QPSK 25RB#25	0.192	0.131	-0.100	22.080	23.500	**0.266**	20.98°C
Bottom Side	20525/836.5	10M QPSK 25RB#25	0.064	0.034	-0.040	22.080	23.500	0.089	20.98°C
Right Side	20450/829	10M QPSK 1RB#25	0.205	0.142	-0.170	23.250	23.500	0.217	20.98°C
Right Side	20600/844	10M QPSK 1RB#25	0.179	0.124	0.000	23.160	23.500	0.194	20.98°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.8 Results overview of LTE Band 7

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	21100/2535	20M QPSK 1RB#50	0.230	0.134	-0.450	22.210	22.500	0.246	20.18°C
Left Hand Tilted 15°	21100/2535	20M QPSK 1RB#50	0.076	0.040	-0.430	22.210	22.500	0.081	20.18°C
Right Hand Touched	21100/2535	20M QPSK 1RB#50	0.118	0.069	-0.550	22.210	22.500	0.126	20.18°C
Right Hand Tilted 15°	21100/2535	20M QPSK 1RB#50	0.122	0.061	-0.180	22.210	22.500	0.130	20.18°C
Left Hand Touched	21100/2535	20M QPSK 50%RB#25	0.231	0.131	1.250	21.160	22.500	0.314	20.18°C
Left Hand Tilted 15°	21100/2535	20M QPSK 50%RB#25	0.066	0.034	0.130	21.160	22.500	0.090	20.18°C
Right Hand Touched	21100/2535	20M QPSK 50%RB#25	0.116	0.067	-0.420	21.160	22.500	0.158	20.18°C
Right Hand Tilted 15°	21100/2535	20M QPSK 50%RB#25	0.119	0.059	0.280	21.160	22.500	0.162	20.18°C
Left Hand Touched	20850/2510	20M QPSK 50%RB#25	0.219	0.127	1.280	21.100	22.500	0.302	20.18°C
Left Hand Touched	21350/2560	20M QPSK 50%RB#25	0.268	0.152	1.170	21.150	22.500	**0.366**	20.18°C

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	21100/2535	20M QPSK 1RB#50	0.135	0.077	-0.240	22.210	22.500	0.144	20.18°C
Back Side	21100/2535	20M QPSK 1RB#50	0.167	0.086	-0.510	22.210	22.500	0.179	20.18°C
Front Side	21100/2535	20M QPSK 50%RB#25	0.129	0.074	-0.030	21.160	22.500	0.176	20.18°C
Back Side	21100/2535	20M QPSK 50%RB#25	0.162	0.084	-0.620	21.160	22.500	**0.221**	20.18°C
Back Side	20850/2510	20M QPSK 1RB#50	0.150	0.086	-0.460	21.100	22.500	0.207	20.18°C
Back Side	21350/2560	20M QPSK 1RB#50	0.160	0.091	-0.850	21.150	22.500	0.218	20.18°C

Test position of Hotspot with 10mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	21100/2535	20M QPSK 1RB#50	0.215	0.121	-0.150	22.210	22.500	0.230	20.18°C
Back Side	21100/2535	20M QPSK 1RB#50	0.334	0.162	-0.330	22.210	22.500	0.357	20.18°C
Left Side	21100/2535	20M QPSK 1RB#50	0.336	0.181	-0.190	22.210	22.500	0.359	20.18°C
Right Side	21100/2535	20M QPSK 1RB#50	0.013	0.007	-0.500	22.210	22.500	0.014	20.18°C
Bottom Side	21100/2535	20M QPSK 1RB#50	0.204	0.092	-0.210	22.210	22.500	0.218	20.18°C
Front Side	21100/2535	20M QPSK 50%RB#25	0.256	0.144	-0.380	21.160	22.500	0.349	20.18°C
Back Side	21100/2535	20M QPSK 50%RB#25	0.412	0.199	-0.210	21.160	22.500	0.561	20.18°C
Left Side	21100/2535	20M QPSK 50%RB#25	0.367	0.195	-0.140	21.160	22.500	0.500	20.18°C
Right Side	21100/2535	20M QPSK 50%RB#25	0.013	0.006	-1.370	21.160	22.500	0.017	20.18°C
Bottom Side	21100/2535	20M QPSK 50%RB#25	0.199	0.089	-0.420	21.160	22.500	0.271	20.18°C
Back Side	20850/2510	20M QPSK 50%RB#25	0.392	0.188	-0.490	21.100	22.500	0.541	20.18°C
Back Side	21350/2560	20M QPSK 50%RB#25	0.433	0.208	-0.260	21.150	22.500	**0.591**	20.18°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.9 Results overview of LTE Band 12

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	23095/707.5	10M QPSK 1RB#25	0.114	0.090	-0.180	23.240	23.500	0.121	20.88°C
Left Hand Tilted 15°	23095/707.5	10M QPSK 1RB#25	0.079	0.064	-0.100	23.240	23.500	0.084	20.88°C
Right Hand Touched	23095/707.5	10M QPSK 1RB#25	0.117	0.092	-0.290	23.240	23.500	0.124	20.88°C
Right Hand Tilted 15°	23095/707.5	10M QPSK 1RB#25	0.071	0.057	0.040	23.240	23.500	0.076	20.88°C
Left Hand Touched	23095/707.5	10M QPSK 25RB#25	0.107	0.085	-0.250	22.150	23.500	0.146	20.88°C
Left Hand Tilted 15°	23095/707.5	10M QPSK 25RB#25	0.076	0.061	0.020	22.150	23.500	0.104	20.88°C
Right Hand Touched	23095/707.5	10M QPSK 25RB#25	0.113	0.090	0.400	22.150	23.500	**0.154**	20.88°C
Right Hand Tilted 15°	23095/707.5	10M QPSK 25RB#25	0.065	0.053	0.010	22.150	23.500	0.089	20.88°C
Right Hand Touched	23060/704	10M QPSK 1RB#25	0.108	0.087	-0.150	23.390	23.500	0.111	20.88°C
Right Hand Touched	23130/711	10M QPSK 1RB#25	0.103	0.082	-1.220	23.160	23.500	0.111	20.88°C

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	23095/707.5	10M QPSK 1RB#25	0.149	0.116	-0.030	23.240	23.500	0.158	20.88°C
Back Side	23095/707.5	10M QPSK 1RB#25	0.245	0.187	0.030	23.240	23.500	0.260	20.88°C
Front Side	23095/707.5	10M QPSK 25RB#25	0.138	0.107	0.010	22.150	23.500	0.188	20.88°C
Back Side	23095/707.5	10M QPSK 25RB#25	0.242	0.185	0.070	22.150	23.500	**0.330**	20.88°C
Back Side	23060/704	10M QPSK 1RB#25	0.192	0.149	0.040	23.390	23.500	0.197	20.88°C
Back Side	23130/711	10M QPSK 1RB#25	0.178	0.138	0.040	23.160	23.500	0.192	20.88°C

Test position of Hotspot with 10mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	23095/707.5	10M QPSK 1RB#25	0.136	0.107	0.020	23.240	23.500	0.144	20.75°C
Back Side	23095/707.5	10M QPSK 1RB#25	0.220	0.173	0.040	23.240	23.500	0.234	20.75°C
Left Side	23095/707.5	10M QPSK 1RB#25	0.168	0.117	0.070	23.240	23.500	0.178	20.75°C
Right Side	23095/707.5	10M QPSK 1RB#25	0.181	0.127	0.000	23.240	23.500	0.192	20.75°C
Bottom Side	23095/707.5	10M QPSK 1RB#25	0.031	0.016	0.090	23.240	23.500	0.033	20.75°C
Front Side	23095/707.5	10M QPSK 25RB#25	0.146	0.114	0.070	22.150	23.500	0.199	20.75°C
Back Side	23095/707.5	10M QPSK 25RB#25	0.230	0.180	-0.100	22.150	23.500	**0.314**	20.75°C
Left Side	23095/707.5	10M QPSK 25RB#25	0.186	0.129	0.070	22.150	23.500	0.254	20.75°C
Right Side	23095/707.5	10M QPSK 25RB#25	0.195	0.136	-0.040	22.150	23.500	0.266	20.75°C
Bottom Side	23095/707.5	10M QPSK 25RB#25	0.064	0.034	-0.040	22.150	23.500	0.088	20.75°C
Back Side	23060/704	10M QPSK 25RB#25	0.227	0.179	-0.010	23.390	23.500	0.233	20.75°C
Back Side	23130/711	10M QPSK 25RB#25	0.213	0.168	-0.030	23.160	23.500	0.230	20.75°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.10 Results overview of LTE Band 41

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Left Hand Touched	40620/2593	20M QPSK 1RB#50	0.162	0.092	-0.070	22.370	23.000	**0.187**	20.37°C
Left Hand Tilted 15°	40620/2593	20M QPSK 1RB#50	0.054	0.027	-0.220	22.370	23.000	0.062	20.37°C
Right Hand Touched	40620/2593	20M QPSK 1RB#50	0.065	0.036	0.140	22.370	23.000	0.075	20.37°C
Right Hand Tilted 15°	40620/2593	20M QPSK 1RB#50	0.091	0.044	0.020	22.370	23.000	0.106	20.37°C
Left Hand Touched	40620/2593	20M QPSK 50%RB#25	0.115	0.064	0.730	21.100	23.000	0.178	20.37°C
Left Hand Tilted 15°	40620/2593	20M QPSK 50%RB#25	0.030	0.015	-1.180	21.100	23.000	0.047	20.37°C
Right Hand Touched	40620/2593	20M QPSK 50%RB#25	0.060	0.034	1.580	21.100	23.000	0.092	20.37°C
Right Hand Tilted 15°	40620/2593	20M QPSK 50%RB#25	0.052	0.018	0.000	21.100	23.000	0.081	20.37°C
Left Hand Touched	40340/2565	20M QPSK 1RB#50	0.136	0.077	0.680	22.430	23.000	0.155	20.37°C
Left Hand Touched	40880/2619	20M QPSK 1RB#50	0.137	0.078	-0.770	22.530	23.000	0.153	20.11°C
Left Hand Touched	41140/2645	20M QPSK 1RB#50	0.134	0.075	0.630	22.610	23.000	0.147	20.37°C

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	40620/2593	20M QPSK 1RB#50	0.100	0.058	-1.180	22.370	23.000	0.116	20.37°C
Back Side	40620/2593	20M QPSK 1RB#50	0.088	0.045	-0.410	22.370	23.000	0.102	20.37°C
Front Side	40620/2593	20M QPSK 50%RB#25	0.075	0.043	-0.510	21.100	23.000	0.117	20.37°C
Back Side	40620/2593	20M QPSK 50%RB#25	0.089	0.045	-0.460	21.100	23.000	**0.138**	20.37°C
Front Side	40340/2565	20M QPSK 1RB#50	0.117	0.060	1.020	22.430	23.000	0.133	20.37°C
Front Side	40880/2619	20M QPSK 1RB#50	0.081	0.046	-0.480	22.530	23.000	0.090	20.11°C
Front Side	41140/2645	20M QPSK 1RB#50	0.065	0.037	0.080	22.610	23.000	0.071	20.37°C

Test position of Hotspot with 10mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR1-g(W/kg)	Liquid Temp.
			1-g	10-g					
Front Side	40620/2593	20M QPSK 1RB#50	0.182	0.102	0.460	22.370	23.000	0.210	20.37°C
Back Side	40620/2593	20M QPSK 1RB#50	0.297	0.141	-0.200	22.370	23.000	**0.343**	20.37°C
Left Side	40620/2593	20M QPSK 1RB#50	0.217	0.118	-0.350	22.370	23.000	0.251	20.37°C
Right Side	40620/2593	20M QPSK 1RB#50	0.011	0.005	-1.290	22.370	23.000	0.013	20.37°C
Bottom Side	40620/2593	20M QPSK 1RB#50	0.168	0.076	-0.160	22.370	23.000	0.194	20.31°C
Front Side	40620/2593	20M QPSK 50%RB#25	0.115	0.064	-0.330	21.100	23.000	0.178	20.31°C
Back Side	40620/2593	20M QPSK 50%RB#25	0.201	0.097	-0.510	21.100	23.000	0.311	20.31°C
Left Side	40620/2593	20M QPSK 50%RB#25	0.159	0.086	-0.120	21.100	23.000	0.246	20.31°C
Right Side	40620/2593	20M QPSK 50%RB#25	0.007	0.004	-0.180	21.100	23.000	0.011	20.31°C
Bottom Side	40620/2593	20M QPSK 50%RB#25	0.127	0.058	-0.400	21.100	23.000	0.197	20.31°C
Back Side	40340/2565	20M QPSK 1RB#50	0.249	0.122	-0.280	22.430	23.000	0.284	20.31°C
Back Side	40880/2619	20M QPSK 1RB#50	0.193	0.093	-0.390	22.530	23.000	0.215	20.11°C
Back Side	41140/2645	20M QPSK 1RB#50	0.219	0.104	0.160	22.610	23.000	0.240	20.31°C

Note: Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

8.2.11 Results overview of WiFi 2.4G

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR_{1-g} (W/kg)	Actual Duty Cycle	Reported SAR 1-g (W/kg)
			1-g	10-g						
Left Hand Touched	11/2462	802.11b	0.317	0.161	1.580	15.020	15.500	0.354	99.49%	**0.356**
Left Hand Tilted 15°	11/2462	802.11b	0.290	0.132	-0.220	15.020	15.500	0.324	99.49%	0.326
Right Hand Touched	11/2462	802.11b	0.083	0.044	-1.620	15.020	15.500	0.093	99.49%	0.094
Right Hand Tilted 15°	11/2462	802.11b	0.129	0.065	0.360	15.020	15.500	0.144	99.49%	0.145
Left Hand Touched	1/2412	802.11b	0.188	0.089	0.160	14.770	15.500	0.222	99.49%	0.224
Left Hand Touched	6/2437	802.11b	0.229	0.116	-0.560	14.720	15.500	0.274	99.49%	0.275

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR_{1-g} (W/kg)	Actual Duty Cycle	Reported SAR 1-g (W/kg)
			1-g	10-g						
Front Side	11/2462	802.11b	0.030	0.017	-0.160	15.020	15.500	0.033	99.49%	0.033
Back Side	11/2462	802.11b	0.047	0.027	-0.520	15.020	15.500	0.052	99.49%	**0.052**
Back Side	1/2412	802.11b	0.034	0.019	-0.470	14.770	15.500	0.040	99.49%	0.040
Back Side	6/2437	802.11b	0.024	0.014	-0.750	14.720	15.500	0.028	99.49%	0.029
Test position of Hotspot with 10mm	**Test channel /Freq. (MHz)**	**Test Mode**	**SAR Value (W/kg)**		**Power Drift (dB)**	**Conducted Power (dBm)**	**Tune-up power (dBm)**	**Scaled SAR_{1-g} (W/kg)**	**Actual Duty Cycle**	**Reported SAR 1-g (W/kg)**
			1-g	**10-g**						
Front Side	11/2462	802.11b	0.065	0.037	-0.390	15.020	15.500	0.072	99.49%	0.073
Back Side	11/2462	802.11b	0.104	0.057	-0.440	15.020	15.500	0.116	99.49%	**0.117**
Left Side	11/2462	802.11b	0.004	0.001	-1.770	15.020	15.500	0.004	99.49%	0.004
Right Side	11/2462	802.11b	0.057	0.030	-0.520	15.020	15.500	0.064	99.49%	0.064
Top Side	11/2462	802.11b	0.046	0.022	-0.530	15.020	15.500	0.052	99.49%	0.052
Back Side	1/2412	802.11b	0.066	0.036	0.250	14.770	15.500	0.078	99.49%	0.078
Back Side	6/2437	802.11b	0.074	0.041	0.010	14.720	15.500	0.088	99.49%	0.089

Note: Per KDB248227D01:

1) SAR is measured for 2.4 GHz 802.11b DSSS using initial test position procedure.

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, 802.11g/n OFDM SAR Test is not required.

3) Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

4) Scaled SAR = SAR Value * $10^{(0.1*(\text{Tune up Power-Conducted Power}))}$

Reported SAR = SAR Value * $10^{(0.1*(\text{Tune up Power-Conducted Power}))}$/ Duty factor * 100

8.2.12 Results overview of WiFi 5.2G

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR_{1-g} (W/kg)	Actual Duty Cycle	Reported SAR 1-g (W/kg)
			1-g	10-g						
Left Hand Touched	36/5180	802.11a	0.263	0.074	-1.560	13.62	14.00	0.287	96.74%	0.297
Left Hand Tilted 15°	36/5180	802.11a	0.334	0.092	0.430	13.62	14.00	0.365	96.74%	0.377
Right Hand Touched	36/5180	802.11a	0.284	0.103	-0.550	13.62	14.00	0.310	96.74%	0.320
Right Hand Tilted 15°	36/5180	802.11a	0.325	0.119	-0.330	13.62	14.00	0.355	96.74%	0.367
Left Hand Tilted 15°	40/5200	802.11a	0.433	0.124	-0.230	13.53	14.00	0.482	96.74%	0.499
Left Hand Tilted 15°	48/5240	802.11a	0.483	0.144	-0.750	13.49	14.00	0.543	96.74%	**0.561**

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR_{1-g} (W/kg)	Actual Duty Cycle	Reported SAR 1-g (W/kg)
			1-g	10-g						
Front Side	36/5180	802.11a	0.049	0.025	-0.700	13.62	14.00	0.054	96.74%	0.055
Back Side	36/5180	802.11a	0.096	0.042	1.480	13.62	14.00	0.105	96.74%	0.109
Back Side	40/5200	802.11a	0.121	0.052	-0.970	13.53	14.00	0.135	96.74%	0.139
Back Side	48/5240	802.11a	0.129	0.054	2.000	13.49	14.00	0.145	96.74%	**0.150**
Test position of Hotspot with 10mm	**Test channel /Freq. (MHz)**	**Test Mode**	**SAR Value (W/kg)**		**Power Drift (dB)**	**Conducted Power (dBm)**	**Tune-up power (dBm)**	**Scaled SAR_{1-g} (W/kg)**	**Actual Duty Cycle**	**Reported SAR 1-g (W/kg)**
			1-g	**10-g**						
Front Side	36/5180	802.11a	0.099	0.040	-0.980	13.62	14.00	0.108	96.74%	0.112
Back Side	36/5180	802.11a	0.155	0.059	-1.600	13.62	14.00	0.169	96.74%	0.175
Left Side	36/5180	802.11a	0.012	0.009	-0.360	13.62	14.00	0.013	96.74%	0.013
Right Side	36/5180	802.11a	0.073	0.036	0.500	13.62	14.00	0.080	96.74%	0.082
Top Side	36/5180	802.11a	0.177	0.063	1.200	13.62	14.00	0.193	96.74%	0.200
Back Side	40/5200	802.11a	0.168	0.066	0.120	13.53	14.00	0.187	96.74%	0.194
Back Side	48/5240	802.11a	0.193	0.076	-0.300	13.49	14.00	0.217	96.74%	**0.224**

Note:

1) Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

2) Scaled SAR = SAR Value * $10^{(0.1*(\text{Tune up Power-Conducted Power}))}$

Reported SAR = SAR Value * $10^{(0.1*(\text{Tune up Power-Conducted Power}))}$/ Duty factor * 100

8.2.13 Results overview of WiFi 5.8G

Test position of Head	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR_{1-g} (W/kg)	Actual Duty Cycle	Reported SAR 1-g (W/kg)
			1-g	10-g						
Left Hand Touched	149/5745	802.11a	0.596	0.162	0.320	12.59	12.60	0.597	96.74%	0.618
Left Hand Tilted 15°	149/5745	802.11a	0.748	0.187	1.190	12.59	12.60	0.750	96.74%	0.775
Right Hand Touched	149/5745	802.11a	0.283	0.112	-0.580	12.59	12.60	0.284	96.74%	0.293
Right Hand Tilted 15°	149/5745	802.11a	0.302	0.118	0.300	12.59	12.60	0.303	96.74%	0.313
Left Hand Tilted 15°	157/5785	802.11a	0.772	0.179	0.440	12.25	12.60	0.837	96.74%	**0.865**
Left Hand Tilted 15°	165/5825	802.11a	0.653	0.154	0.410	12.10	12.60	0.733	96.74%	0.757

Test position of Body-Worn with 15mm	Test channel /Freq. (MHz)	Test Mode	SAR Value (W/kg)		Power Drift (dB)	Conducted Power (dBm)	Tune-up power (dBm)	Scaled SAR_{1-g} (W/kg)	Actual Duty Cycle	Reported SAR 1-g (W/kg)
			1-g	10-g						
Front Side	149/5745	802.11a	0.065	0.039	1.370	12.59	12.60	0.065	96.74%	0.067
Back Side	149/5745	802.11a	0.078	0.036	1.220	12.59	12.60	0.078	96.74%	0.081
Back Side	157/5785	802.11a	0.069	0.032	-1.840	12.25	12.60	0.074	96.74%	0.077
Back Side	165/5825	802.11a	0.078	0.039	-1.700	12.10	12.60	0.088	96.74%	**0.091**
Test position of Hotspot with 10mm	**Test channel /Freq. (MHz)**	**Test Mode**	**SAR Value (W/kg)**		**Power Drift (dB)**	**Conducted Power (dBm)**	**Tune-up power (dBm)**	**Scaled SAR_{1-g} (W/kg)**	**Actual Duty Cycle**	**Reported SAR 1-g (W/kg)**
			1-g	**10-g**						
Front Side	149/5745	802.11a	0.158	0.064	-1.280	12.59	12.60	0.158	96.74%	0.164
Back Side	149/5745	802.11a	0.097	0.032	1.390	12.59	12.60	0.097	96.74%	0.100
Left Side	149/5745	802.11a	0.014	0.008	0.330	12.59	12.60	0.014	96.74%	0.015
Right Side	149/5745	802.11a	0.044	0.022	0.470	12.59	12.60	0.044	96.74%	0.046
Top Side	149/5745	802.11a	0.170	0.062	-0.400	12.59	12.60	0.170	96.74%	0.176
Top Side	157/5785	802.11a	0.176	0.061	-0.430	12.25	12.60	0.191	96.74%	**0.197**
Top Side	165/5825	802.11a	0.130	0.043	-0.510	12.10	12.60	0.146	96.74%	0.151

Note:

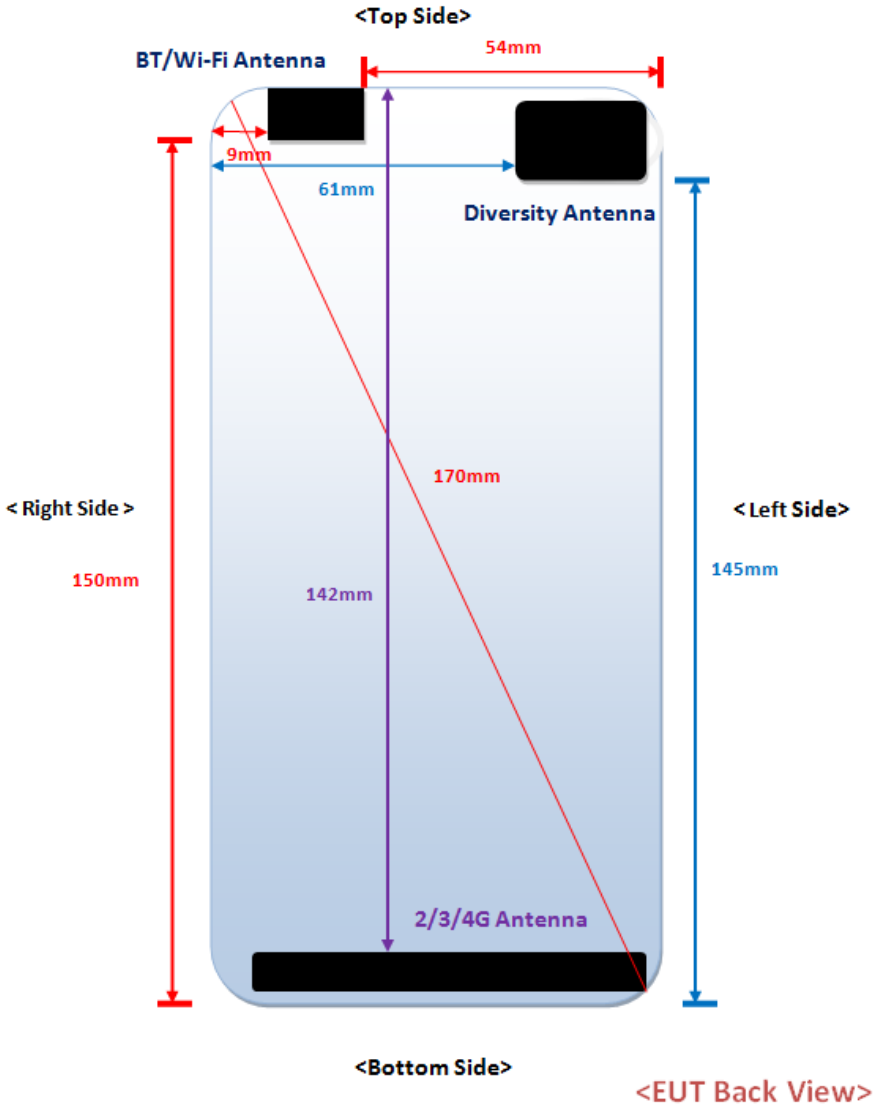
1) Per KDB 648474 D04, product specific 10-g SAR test is not required for this frequency band since hotspot mode 1-g reported SAR < 1.2W/kg.

2) Scaled SAR = SAR Value * $10^{(0.1*(\text{Tune up Power-Conducted Power}))}$

Reported SAR = SAR Value * $10^{(0.1*(\text{Tune up Power-Conducted Power}))}$/ Duty factor * 100

8.3 Multiple Transmitter Information

The location of the antennas inside S988 is shown as below picture:



<EUT Back View>

Note:

1) Per KDB 941225 D06, particular DUT edges were not required to be evaluated for Hotspot SAR if the antenna-to-edge distance is greater than 2.5cm.
2) Per KDB 648474 D04, because the overall diagonal dimension of this device is > 160mm, it is considered a “phablet” device.When hotspot mode applies, product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2W/kg.

8.4 Stand-alone SAR

Per FCC KDB 447498D01:

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

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

• f(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 5mm is applied to determine SAR test exclusion.

Mode	Position	P_{max} (dBm)	P_{max} (mW)	Distance (mm)	F (GHz)	Calculation Result	SAR test exclusion Threshold	SAR test exclusion
BT	Body-Worn	6.00	3.98	5.00	2.450	1.25	3.00	Yes

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

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(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.

Mode	Position	Pmax(dBm)	Pmax(mW)	Distance(mm)	f(GHz)	X	Estimated SAR(W/Kg)
BT	Body-Worn	6	3.98	5.00	2.45	7.50	0.166

Note: 1) maximum possible output power (including tune-up tolerance) declared by manufacturer

2) Held to ear configurations are not applicable to Bluetooth for this device

8.5 Simultaneous Transmission Possibilities

The Simultaneous Transmission Possibilities of this device are as below:

Simultaneous Tx Combination	Configuration	Head	Body-worn	Hotspot	product specific 10-g SAR
1	GSM + WiFi 2.4G	Yes	Yes	Yes	Yes
2	UMTS + WiFi 2.4G	Yes	Yes	Yes	Yes
3	LTE + WiFi 2.4G	Yes	Yes	Yes	Yes
4	GSM + WiFi 5G	Yes	Yes	Yes	Yes
5	UMTS + WiFi 5G	Yes	Yes	Yes	Yes
6	LTE + WiFi 5G	Yes	Yes	Yes	Yes
7	GSM + BT	N/A	Yes	N/A	Yes
8	UMTS + BT	N/A	Yes	N/A	Yes
9	LTE + BT	N/A	Yes	N/A	Yes

Note:

1) The device does not support simultaneous Wi-Fi 5G and Wi-Fi 2.4G and BT, because the Wi-Fi 5G and Wi-Fi 2.4G and BT share the same antenna and can't transmit simultaneously.
2) Held to ear configurations are not applicable to Bluetooth and therefore were not considered for simultaneous transmission.

8.6 SAR Summation Scenario

Test Position		2G/3G/4G Antenna SARmax										WiFi/BT Antenna SARmax	∑1-g SAR1-g	SPLSP
		GSM 850	GSM 1900	UMTS Band II	UMTS Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 41	BT-WiFi 2.4G-WiFi 5G		
Head	Left touch	0.177	0.161	0.258	0.140	0.196	0.327	0.161	0.366	0.146	0.187	0.618	0.984	NO
	Left tilt	0.119	0.044	0.066	0.096	0.072	0.156	0.129	0.090	0.104	0.062	0.865	**1.021**	NO
	Right touch	0.256	0.067	0.106	0.172	0.101	0.207	0.200	0.158	0.154	0.092	0.320	0.576	NO
	Right tilt	0.119	0.051	0.081	0.098	0.081	0.121	0.125	0.162	0.089	0.106	0.367	0.529	NO
Body 15mm	Front Side	0.230	0.119	0.207	0.181	0.160	0.302	0.204	0.176	0.188	0.133	0.067	0.369	NO
	Back Side	0.417	0.178	0.301	0.275	0.252	0.357	0.287	0.221	0.330	0.138	0.150	0.567	NO
Hotspot 10mm	Front Side	0.257	0.355	0.330	0.167	0.403	0.553	0.176	0.349	0.199	0.210	0.164	0.717	NO
	Back Side	0.460	0.578	0.612	0.309	0.661	0.715	0.259	0.591	0.314	0.343	0.224	0.939	NO
	Left Side	0.251	0.276	0.250	0.167	0.265	0.391	0.141	0.500	0.254	0.251	0.015	0.515	NO
	Right Side	0.414	0.142	0.124	0.275	0.128	0.143	0.266	0.017	0.266	0.013	0.082	0.496	NO
	Top Side	\	\	\	\	\	\	\	\	\	\	0.200	0.200	NO
	Bottom Side	0.127	0.386	0.396	0.076	0.415	0.433	0.089	0.271	0.088	0.197	\	0.433	NO

Note: Simultaneous Tx Combination of 2G/3G/4G antenna and WiFi 2.4G /WiFi 5G /BT.

8.7 Simultaneous Transmission ConIcusion

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 D01v06

Annex A: Appendix A: SAR System performance Check Plots

(Please See Appendix A)

Annex B: Appendix B: SAR Measurement results Plots

(Please See Appendix B)

Annex C: Appendix C: Calibration reports

(Please See Appendix C)

Annex D: Appendix D: Photo documentation

(Please See Appendix D)

——END OF REPORT——