




TEST REPORT

Report No. : **CHTEW20060029** Report verification: 

Project No..... : **SHT2003046802EW**

FCC ID..... : **2ASWWCORNR40**

Applicant's name..... : **XINCHUANGXIN INTERNATIONAL CO. , LTD**

Address..... : **ROOM 605 6/F, FA YUEN COMMERCIAL BUILDING, 75-77 FA YUEN STREET MONGKOK KL**

Test item description : **Smart Phone**

Trade Mark : **CORN**

Model/Type reference..... : **R40**

Listed Model(s) : **R40+, R40 Pro,R40 Lite**

Standard : **FCC 47 CFR Part2.1093
IEEE Std C95.1, 1999 Edition
IEEE 1528: 2013**

Date of receipt of test sample..... : **May 14, 2020**


Date of testing..... : **May 15, 2020- Jun.03, 2020**

Date of issue..... : **Jun.04, 2020**

Result..... : **PASS**

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The test report merely correspond to the test sample.

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1. Statement of Compliance

Maximum Reported SAR (W/kg @1g)			
RF Exposure Conditions	PCE	DTS	Simultaneous TX
Head	0.250	0.179	0.409
Body-worn(Dist.= 10mm)	1.461	0.084	1.545
Hotspot(Dist.= 10mm)	1.461	0.084	1.545

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

2 . Test Standards and Report version

2.1. Test Standards

The tests were performed according to following standards:

[FCC 47 Part 2.1093](#): Radiofrequency radiation exposure evaluation: portable devices.

[IEEE Std C95.1, 1999 Edition](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz

[IEEE Std 1528™-2013](#): IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

FCC published RF exposure KDB procedures:

[865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04](#): SAR Measurement Requirements for 100 MHz to 6 GHz

[865664 D02 RF Exposure Reporting v01r02](#): RF Exposure Compliance Reporting and Documentation Considerations

[447498 D01 General RF Exposure Guidance v06](#): Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies

[248227 D01 802.11 Wi-Fi SAR v02r02](#): SAR Measurement Procedures for 802.11 a/b/g Transmitters

[648474 D04 Handset SAR v01r03](#): SAR Evaluation Considerations for Wireless Handsets

[941225 D01 3G SAR Procedures v03r01](#): SAR Measurement Procedures for 3G Devices

[941225 D05 SAR for LTE Devices v02r05](#): SAR Evaluation Considerations for LTE Devices

[941225 D06 Hotspot Mode v02r01](#): SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

[TCB workshop](#) April, 2019; Page 19, Tissue Simulating Liquids (TSL)

2.2. Report version

Revision No.	Date of issue	Description
N/A	2020-06-04	Original

3. Summary

3.1. Client Information

Applicant:	XINCHUANGXIN INTERNATIONAL CO. , LTD
Address:	ROOM 605 6/F, FA YUEN COMMERCIAL BUILDING, 75-77 FA YUEN STREET MONGKOK KL
Manufacturer:	Shenzhen Chiteng Technology Co.,LTD
Address:	Second Floor,Area A, Building 4, Huiye Technology Workshop, Guanguang Road, Tangjia Community, Gongming Street, Guangming New District, Shenzhen, Guangdong

3.2. Product Description

Main unit	
Name of EUT:	Smart Phone
Trade Mark:	CORN
Model No.:	R40
Listed Model(s):	R40+, R40 Pro,R40 Lite
Power supply:	DC 3.8V
Device Category:	Portable
Product stage:	Production unit
RF Exposure Environment:	General Population/Uncontrolled
HTW test sample No.:	YPHT20030468001
Hardware version:	D3907D3_MB_V1.0
Software version:	D3907_CT_S57401C_CORN_R40_B01
Device Dimension:	Overall (Length x Width x Thickness): 149x72x11mm

3.3. RF Specification Description

GSM	
Operation Band:	GSM850 PCS1900
Support Network:	GSM GPRS EGPRS
Operating Mode:	GSM:GMSK GPRS:GMSK EGPRS:8PSK
Device Class:	B
GPRS Multi-Slot Class:	12
GPRS Multi-Slot Class:	12
Antenna Type:	PIFA
Does this device support DTM (Dual Transfer Mode)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
WCDMA	
Operation Band:	FDD Band II FDD Band V
Power Class:	Class 3
Operating Mode:	UMTS Rel. 99 (Voice & Data) HSDPA HSUPA
Antenna Type:	PIFA
LTE	
Operation Band:	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 7 FDD Band 12 FDD Band 17
Power Class:	Class 3
Operating Mode:	QPSK 16QAM
Antenna Type:	PIFA
Does this device support Carrier Aggregation (CA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wi-Fi 2.4G	
Operating Mode:	802.11b 802.11g 802.11n(HT20) 802.11n(HT40)
Antenna Type:	PIFA
Does this device 2.4GHz Wi-Fi support hotspot operation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Bluetooth	
Bluetooth version:	V4.0
Support function:	EDR
Operating Mode:	GFSK π/4DQPSK 8DPSK
Antenna Type:	PIFA
Does this device support Bluetooth Tethering? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Bluetooth	
Bluetooth version:	V4.0
Support function:	BLE
Operating Mode:	GFSK
Antenna Type:	PIFA
Does this device support Bluetooth Tethering? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<i>Remark:</i> 1. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power. 2. The Test EUT support two SIM card(SIM1,SIM2),so all the tests are performed at each SIM card (SIM1,SIM2) mode, the datum recorded is the worst case for all the mode at SIM1 Card mode.	

3.4. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China	
Qualifications	Type	Accreditation Number
	CNAS	L1225
	A2LA	3902.01
	FCC	762235
	Canada	5377A

3.5. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Ambient temperature	18 °C to 25 °C
Ambient humidity	30%RH to 70%RH
Air Pressure	950-1050mbar

4. Equipments Used during the Test

Used	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date (YY-MM-DD)	Due date (YY-MM-DD)
●	Data Acquisition Electronics DAEx	SPEAG	DAE4	1549	2020/04/04	2021/04/03
●	E-field Probe	SPEAG	EX3DV4	7494	2020/04/01	2021/03/31
●	Universal Radio Communication Tester	R&S	CMW500	137681	2019/06/27	2020/06/26
● Tissue-equivalent liquids Validation						
●	Dielectric Assessment Kit	SPEAG	DAK-3.5	1267	N/A	N/A
○	Dielectric Assessment Kit	SPEAG	DAK-12	1130	N/A	N/A
●	Network analyzer	Keysight	E5071C	MY46733048	2019/10/19	2020/10/18
● System Validation						
○	System Validation Antenna	SPEAG	CLA-150	4024	2018/02/21	2021/02/20
○	System Validation Dipole	SPEAG	D450V3	1102	2018/02/23	2021/02/22
●	System Validation Dipole	SPEAG	D750V3	1180	2018/02/07	2021/02/06
●	System Validation Dipole	SPEAG	D835V2	4d238	2018/02/19	2021/02/18
●	System Validation Dipole	SPEAG	D1750V2	1164	2018/02/06	2021/02/05
●	System Validation Dipole	SPEAG	D1900V2	5d226	2018/02/22	2021/02/21
●	System Validation Dipole	SPEAG	D2450V2	1009	2018/02/05	2021/02/04
●	System Validation Dipole	SPEAG	D2600V2	1150	2018/02/05	2021/02/04
○	System Validation Dipole	SPEAG	D5GHzV2	1273	2018/02/21	2021/02/20
●	Signal Generator	R&S	SMB100A	114360	2019/08/15	2020/08/14
●	Power Viewer for Windows	R&S	N/A	N/A	N/A	N/A
●	Power sensor	R&S	NRP18A	101010	2019/08/15	2020/08/14
●	Power sensor	R&S	NRP18A	101011	2019/08/15	2020/08/14
●	Power Amplifier	BONN	BLWA 0160-2M	1811887	2019/11/14	2020/11/13
●	Dual Directional Coupler	Mini-Circuits	ZHDC-10-62-S+	F975001814	2019/11/14	2020/11/13
●	Attenuator	Mini-Circuits	VAT-3W2+	1819	2019/11/14	2020/11/13
●	Attenuator	Mini-Circuits	VAT-10W2+	1741	2019/11/14	2020/11/13

Note:

1. The Probe, Dipole and DAE calibration reference to the Appendix B and C.
2. Referring to KDB865664 D01, the dipole calibration interval can be extended to 3 years with justification. The dipole are also not physically damaged or repaired during the interval.

5. Measurement Uncertainty

Measurement uncertainty evaluation for DUT SAR test IEEE 1528-2013 (0.3-3GHz)									
No.	Error Description	Uncertainty Value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement System									
1	Probe calibration	6.05%	N	1	1	1	6.05%	6.05%	∞
2	Axial isotropy	0.60%	R	$\sqrt{3}$	0.7	0.7	0.24%	0.24%	∞
3	Hemispherical isotropy	1.60%	R	$\sqrt{3}$	0.7	0.7	0.65%	0.65%	∞
4	Boundary Effects	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
5	Probe Linearity	0.45%	R	$\sqrt{3}$	1	1	0.26%	0.26%	∞
6	System Detection Limits	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
7	Modulation response	2.40%	R	$\sqrt{3}$	1	1	1.39%	1.39%	∞
8	Readout electronics	0.30%	N	1	1	1	0.30%	0.30%	∞
9	Response time	0.80%	R	$\sqrt{3}$	1	1	0.46%	0.46%	∞
10	Integration time	2.60%	R	$\sqrt{3}$	1	1	1.50%	1.50%	∞
11	RF Ambient Noise	3.00%	R	$\sqrt{3}$	1	1	1.73%	1.73%	∞
12	RF Ambient Reactions	3.00%	R	$\sqrt{3}$	1	1	1.73%	1.73%	∞
13	Probe Positioner	0.02%	R	$\sqrt{3}$	1	1	0.01%	0.01%	∞
14	Probe Positioning	0.40%	R	$\sqrt{3}$	1	1	0.23%	0.23%	∞
15	Max. SAR Eval.	2.00%	R	$\sqrt{3}$	1	1	1.15%	1.15%	∞
Test Sample Related									
16	Test sample positioning	2.90%	N	1	1	1	2.90%	2.90%	145
17	Device holder uncertainty	3.60%	N	1	1	1	3.60%	3.60%	11
18	Power Drift	5.00%	R	$\sqrt{3}$	1	1	2.89%	2.89%	∞
19	Power Scaling	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
Phantom and Setup									
20	Phantom uncertainty	6.10%	R	$\sqrt{3}$	1	1	3.52%	3.52%	∞
21	SAR correction	0.00%	N	1	1	0.84	0.00%	0.00%	∞
22	Liquid conductivity (meas.)	2.50%	N	1	0.78	0.71	1.95%	1.78%	∞
23	Liquid permittivity (meas.)	2.50%	N	1	0.23	0.26	0.58%	0.65%	∞
24	Temp. unc. - Conductivity	3.60%	R	$\sqrt{3}$	0.78	0.71	1.62%	1.48%	∞
25	Temp. unc. - Permittivity	0.50%	R	$\sqrt{3}$	0.23	0.26	0.07%	0.08%	∞
Combined standard uncertainty			RSS				10.29%	10.22%	
Expanded uncertainty (confidence interval of 95%)			K=2				20.57%	20.44%	

Measurement uncertainty evaluation for System Check (0.3-3GHz)									
No.	Error Description	Uncertainty Value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement System									
1	Probe calibration	6.05%	N	1	1	1	6.05%	6.05%	∞
2	Axial isotropy	0.00%	R	$\sqrt{3}$	0.7	0.7	0.00%	0.00%	∞
3	Hemispherical isotropy	0.00%	R	$\sqrt{3}$	0.7	0.7	0.00%	0.00%	∞
4	Boundary Effects	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
5	Probe Linearity	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
6	System Detection Limits	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
7	Modulation response	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
8	Readout electronics	0.00%	N	1	1	1	0.00%	0.00%	∞
9	Response time	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
10	Integration time	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
11	RF Ambient Noise	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
12	RF Ambient Reactions	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
13	Probe Positioner	0.02%	R	$\sqrt{3}$	1	1	0.01%	0.01%	∞
14	Probe Positioning	0.40%	R	$\sqrt{3}$	1	1	0.23%	0.23%	∞
15	Max. SAR Eval.	0.00%	R	$\sqrt{3}$	1	1	0.00%	0.00%	∞
System check source (dipole)									
16	Dev. of experimental dipole	0.00%	N	1	1	1	0.00%	0.00%	∞
17	Dipole Axis to Liquid Dist.	2.00%	R	$\sqrt{3}$	1	1	1.15%	1.15%	∞
18	Input power & SAR drift	5.00%	R	$\sqrt{3}$	1	1	2.89%	2.89%	∞
Phantom and Setup									
19	Phantom uncertainty	7.20%	R	$\sqrt{3}$	1	1	4.16%	4.16%	∞
20	SAR correction	0.00%	N	1	1	0.84	0.00%	0.00%	∞
21	Liquid conductivity (meas.)	2.50%	N	1	0.78	0.71	1.95%	1.78%	∞
22	Liquid permittivity (meas.)	2.50%	N	1	0.23	0.26	0.58%	0.65%	∞
23	Temp. unc. - Conductivity	3.60%	R	$\sqrt{3}$	0.78	0.71	1.62%	1.48%	∞
24	Temp. unc. - Permittivity	0.50%	R	$\sqrt{3}$	0.23	0.26	0.07%	0.08%	∞
Combined standard uncertainty			RSS				8.65%	8.57%	
Expanded uncertainty (confidence interval of 95%)			K=2				17.30%	17.14%	

6. SAR Measurements System Configuration

6.1. SAR Measurement Set-up

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

A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).

A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

A unit to operate the optical surface detector which is connected to the EOC.

The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.

The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003.

DASY5 software and SEMCAD data evaluation software.

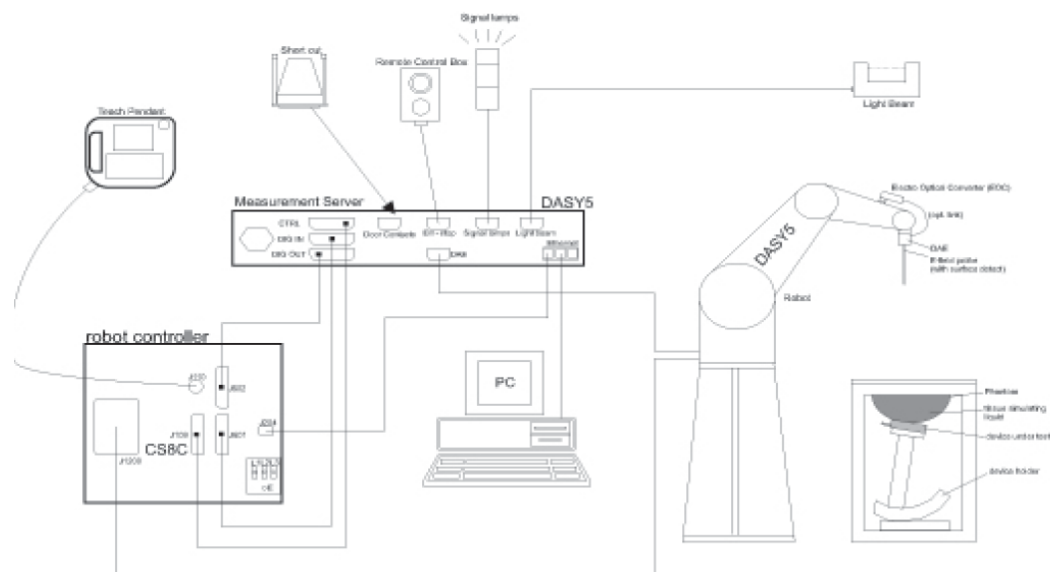
Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.

The generic twin phantom enabling the testing of left-hand and right-hand usage.

The device holder for handheld Mobile Phones.

Tissue simulating liquid mixed according to the given recipes.

System validation dipoles allowing to validate the proper functioning of the system.



6.2. DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

● Probe Specification

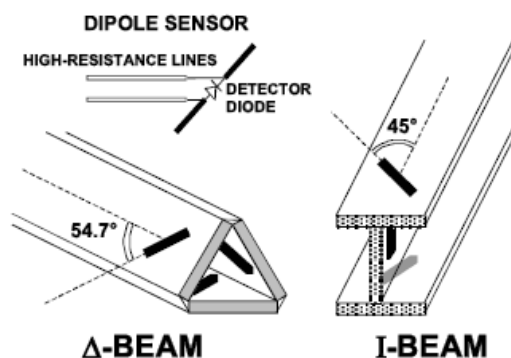
Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	4 MHz to 10 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 W/kg; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 6 GHz Dosimetry in strong gradient fields Compliance tests of Mobile Phones
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI



◆ Isotropic E-Field Probe

The isotropic E-Field probe has been fully calibrated and assessed for isotropicity, and boundary effect within a controlled environment. Depending on the frequency for which the probe is calibrated the method utilized for calibration will change.

The E-Field probe utilizes a triangular sensor arrangement as detailed in the diagram below:



6.3. Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin-headed "SAM Phantom", manufactured by SPEAG. The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region, where shell thickness increases to 6mm).

System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.



SAM-Twin Phantom

6.4. Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the DASY system.

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.



Device holder supplied by SPEAG

7. SAR Test Procedure

7.1. Scanning Procedure

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. Measure the local SAR at a test point within 8 mm of the phantom inner surface that is closest to the DUT. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan

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

Area Scan Resolutions per FCC KDB Publication 865664 D01v04

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

Step 3: Zoom Scan

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

Zoom Scan Resolutions per FCC KDB Publication 865664 D01v04

Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1. The SAR drift shall be kept within ± 5 %.

7.2. Data Storage and Evaluation

Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors),s together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “.DA4”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

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

Data Evaluation

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

Probe parameters:	Sensitivity:	Normi, ai0, ai1, ai2
	Conversion factor:	ConvFi
	Diode compression point:	Dcpi
Device parameters:	Frequency:	f
	Crest factor:	cf
Media parameters:	Conductivity:	σ
	Density:	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

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

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

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

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

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

Vi:	compensated signal of channel (i = x, y, z)
Norm _i :	sensor sensitivity of channel (i = x, y, z), [mV/(V/m)²] for E-field Probes
ConvF:	sensitivity enhancement in solution
a _{ij} :	sensor sensitivity factors for H-field probes
f:	carrier frequency [GHz]
E _i :	electric field strength of channel i in V/m
H _i :	magnetic field strength of channel i in A/m

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

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

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

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

SAR: local specific absorption rate in W/kg
Etot: total field strength in V/m
 σ : conductivity in [mho/m] or [Siemens/m]
 ρ : equivalent tissue density in g/cm³

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid.

8. Position of the wireless device in relation to the phantom

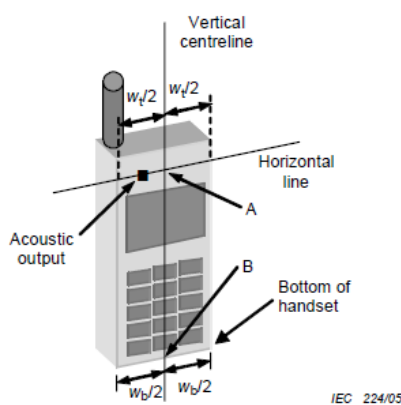
8.1. Head Position

The wireless device define two imaginary lines on the handset, the vertical centreline and the horizontal line, for the handset in vertical orientation as shown in Figures 5a and 5b.

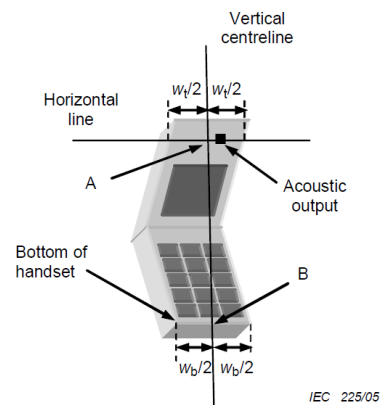
The vertical centreline passes through two points on the front side of the handset: the midpoint of the width W_t of the handset at the level of the acoustic output (point A in Figures 5a and 5b), and the midpoint of the width W_b of the bottom of the handset (point B).

The horizontal line is perpendicular to the vertical centreline and passes through the centre of the acoustic output (see Figures 5a and 5b). The two lines intersect at point A.

Note that for many handsets, point A coincides with the centre of the acoustic output. However, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centreline is not necessarily parallel to the front face of the handset (see Figure 5b), especially for clam-shell handsets, handsets with flip cover pieces, and other irregularly shaped handsets.



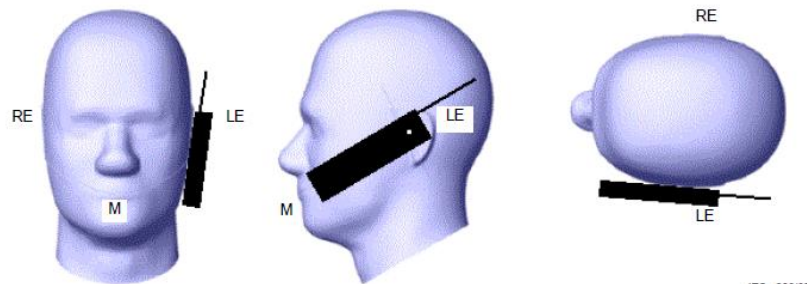
Figures 5a



Figures 5b

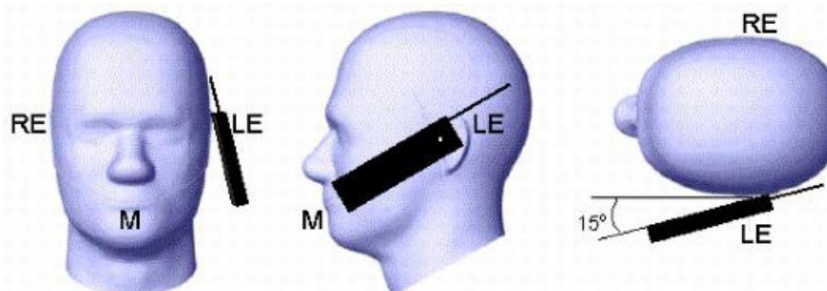
- W_t Width of the handset at the level of the acoustic
- W_b Width of the bottom of the handset
- A Midpoint of the width w_t of the handset at the level of the acoustic output
- B Midpoint of the width w_b of the bottom of the handset

Cheek position



Picture 2 Cheek position of the wireless device on the left side of SAM

Tilt position

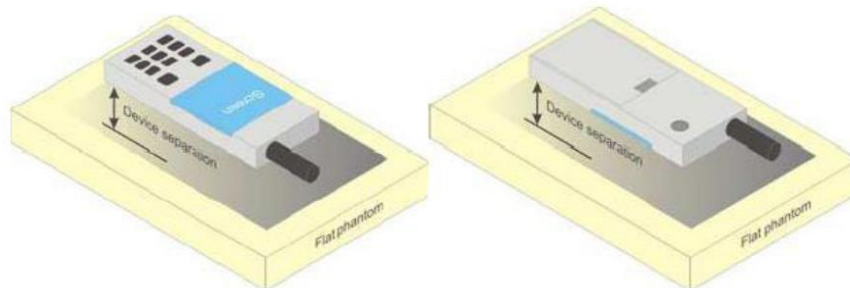


Picture 3 Tilt position of the wireless device on the left side of SAM

8.2. Body Position

Devices that support transmission while used with body-worn accessories must be tested for body-worn accessory SAR compliance, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics.

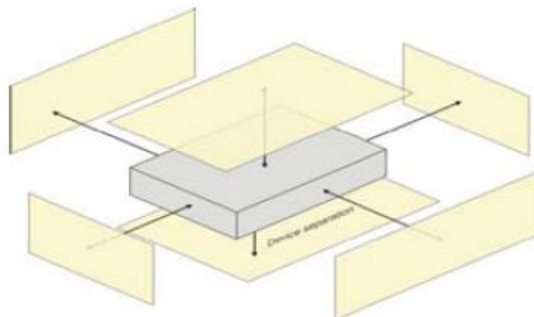
Devices that are designed to operate on the body of users using lanyards and straps or without requiring additional body-worn accessories must be tested for SAR compliance using a conservative minimum test separation distance $\leq 5\text{mm}$ to support compliance.



Picture 4 Test positions for body-worn devices

8.3. Hotspot Mode Exposure conditions

The hotspot mode and body-worn accessory SAR test configurations may overlap for handsets. When the same wireless mode transmission configurations for voice and data are required for SAR measurements, the more conservative configuration with a smaller separation distance should be tested for the overlapping SAR configurations. This typically applies to the back and front surfaces of a handset when SAR is required for both hotspot mode and body-worn accessory exposure conditions. Depending on the form factor and dimensions of a device, the test separation distance used for hotspot mode SAR measurement is either 10 mm or that used in the body-worn accessory configuration, whichever is less for devices with dimension $> 9\text{ cm} \times 5\text{ cm}$. For smaller devices with dimensions $\leq 9\text{ cm} \times 5\text{ cm}$ because of a greater potential for next to body use a test separation of $\leq 5\text{ mm}$ must be used.



Picture 5 Test positions for Hotspot Mode

9. Dielectric Property Measurements & System Check

9.1. Tissue Dielectric Parameters

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized.

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

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

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Tissue dielectric parameters for Head and Body				
Target Frequency (MHz)	Head		Body	
	ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$
750	41.9	0.89	55.5	0.96
835	41.5	0.90	55.2	0.97
1750	40.1	1.37	53.4	1.49
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
2600	39.0	1.96	52.5	2.16

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013

Dielectric Property Measurements Results:

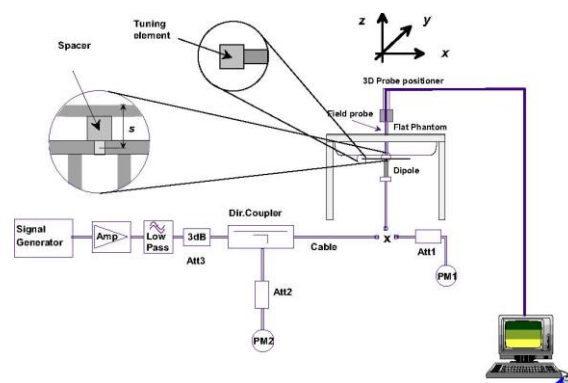
Dielectric performance of Head tissue simulating liquid									
Frequency (MHz)	ϵ_r		σ (S/m)		Delta (ϵ_r)	Delta (σ)	Limit	Temp (°C)	Date
	Target	Measured	Target	Measured					
750	41.90	42.99	0.890	0.915	2.60%	2.80%	±5%	22.5	2020/5/21
835	41.50	42.70	0.900	0.944	2.89%	4.89%	±5%	22.5	2020/5/18
1750	40.10	40.73	1.370	1.395	1.57%	1.82%	±5%	22.5	2020/5/21
1900	40.00	40.48	1.400	1.458	1.20%	4.14%	±5%	22.5	2020/5/19
2450	39.20	39.65	1.800	1.870	1.15%	3.89%	±5%	22.5	2020/5/22
2600	39.00	39.39	1.960	1.990	1.00%	1.53%	±5%	22.5	2020/5/22

9.2. System Check

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

System Performance Check Measurement Conditions:

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



System Performance Check Setup

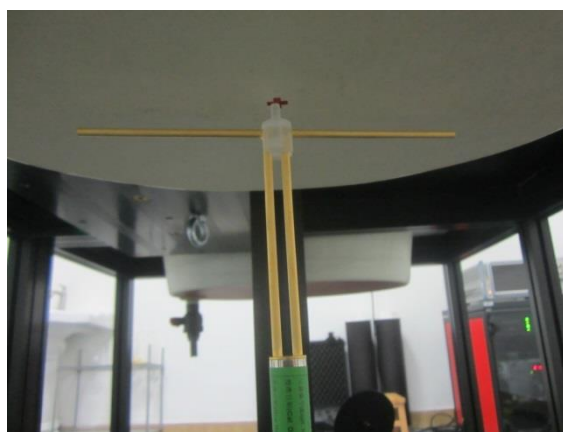


Photo of Dipole Setup

System Check Result:

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within $\pm 10\%$ of the manufacturer calibrated dipole SAR target.

Head											
Frequency (MHz)	1g SAR			10g SAR			Delta (1g)	Delta (10g)	Limit	Temp (°C)	Date
	Target	Normalized	Measured	Target	Normalized	Measured					
750	8	8	2	5	5	1	7	6	±	2	2020/5
835	9	1	2	6	6	1	6	6	±	2	2020/5
1750	3	3	9	1	2	5	4	4	±	2	2020/5
1900	4	4	1	2	2	5	5	2	±	2	2020/5
2450	5	5	1	2	2	6	1	0	±	2	2020/5
2600	5	5	1	2	2	6	5	3	±	2	2020/5
	8	.80	.20	5	.76	.44	.06				
	9	0.1	.54	6	.56	.64	.83				
	3	8.3	.58	9	0.2	.05	.70				
	4	2.4	0.6	1	1.6	.40	.21				
	5	2.4	3.1	4	4.1	.04	.75				
	5	8.4	4.6	5	5.8	.47	.04				

Plots of System Performance Check

System Performance Check-Head 750MHz

DUT: D750V3; Type: D750V3; Serial: 1180

Date: 2020-05-21

Communication System: UID 0, A-CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 750$ MHz; $\sigma = 0.915$ S/m; $\epsilon_r = 42.986$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.6°C; Liquid Temperature: 22.4°C;

DASY5 Configuration:

- Probe: EX3DV4 - SN7494; ConvF(10.76, 10.76, 10.76) @ 750 MHz; Calibrated: 4/1/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1549; Calibrated: 4/4/2020
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Head/d=15mm, Pin=250mW, dist=1.4mm/Area Scan (51x121x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 2.98 W/kg

Head/d=15mm, Pin=250mW, dist=1.4mm/Zoom Scan (7x7x7)/Cube 0:

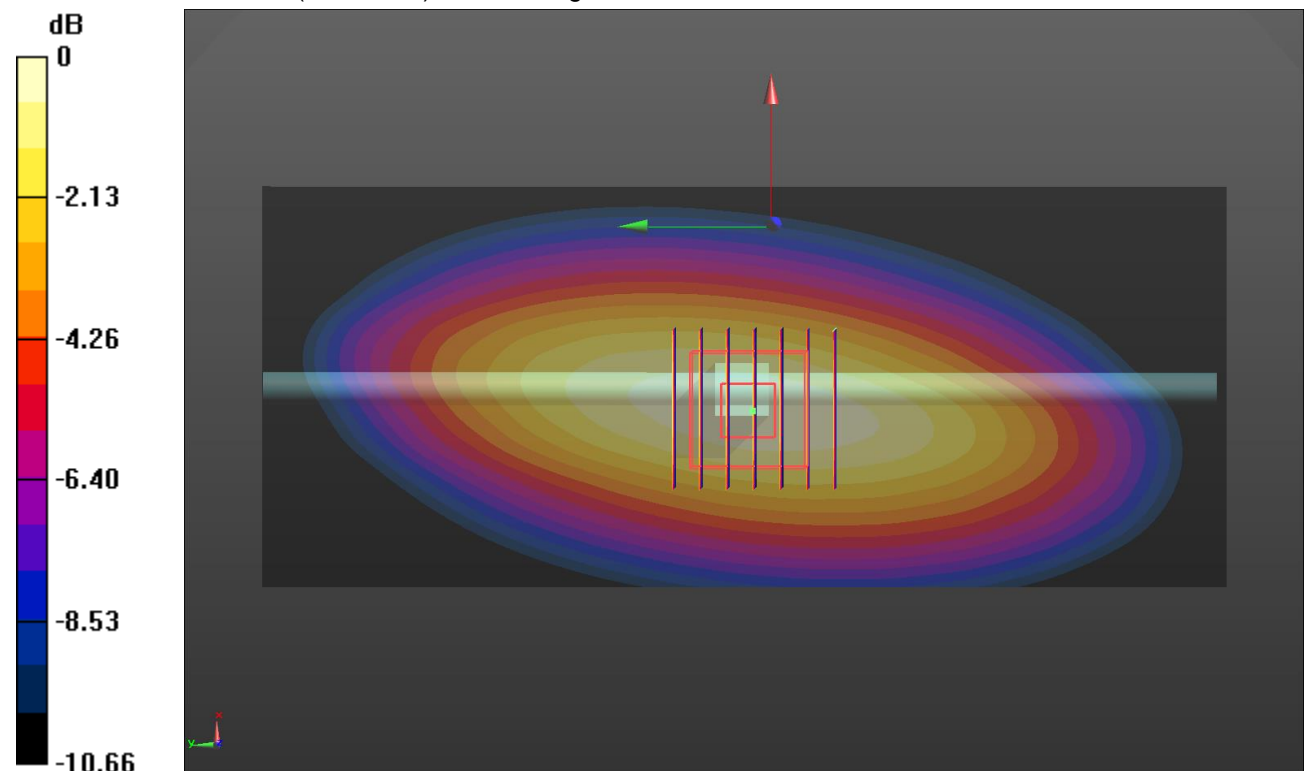
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 58.19 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.48 W/kg

SAR(1 g) = 2.2 W/kg; SAR(10 g) = 1.44 W/kg

Maximum value of SAR (measured) = 3.02 W/kg



0 dB = 3.02 W/kg = 4.80 dBW/kg

System Performance Check-Head 835MHz

DUT: D835V2; Type: D835V2; Serial: 4d238

Date: 2020-05-18

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.944$ S/m; $\epsilon_r = 42.698$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C; Liquid Temperature: 22.3°C;

DASY5 Configuration:

- Probe: EX3DV4 - SN7494; ConvF(10.46, 10.46, 10.46) @ 835 MHz; Calibrated: 4/1/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1549; Calibrated: 4/4/2020
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Head/d=15mm, Pin=250mW/Area Scan (41x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.47 W/kg

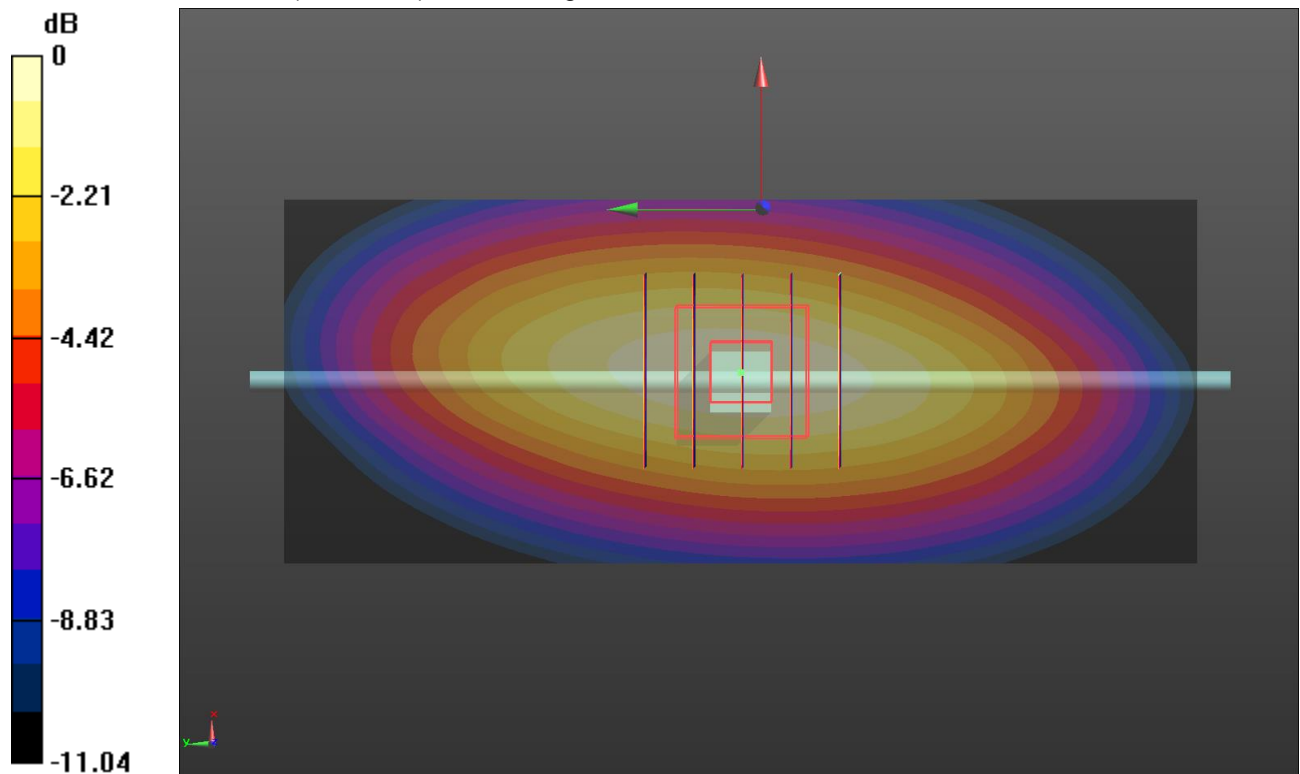
Head/d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 62.16 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 4.01 W/kg

SAR(1 g) = 2.54 W/kg; SAR(10 g) = 1.64 W/kg

Maximum value of SAR (measured) = 3.48 W/kg



System Performance Check-Head 1750MHz

DUT: D1750V2; Type: D1750V2; Serial: 1164

Date: 2020-05-21

Communication System: UID 0, CW (0); Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.395$ S/m; $\epsilon_r = 40.734$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.4°C; Liquid Temperature: 22.2°C;

DASY5 Configuration:

- Probe: EX3DV4 - SN7494; ConvF(8.92, 8.92, 8.92) @ 1750 MHz; Calibrated: 4/1/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1549; Calibrated: 4/4/2020
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Head/d=10mm, Pin=250mW/Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 15.0 W/kg

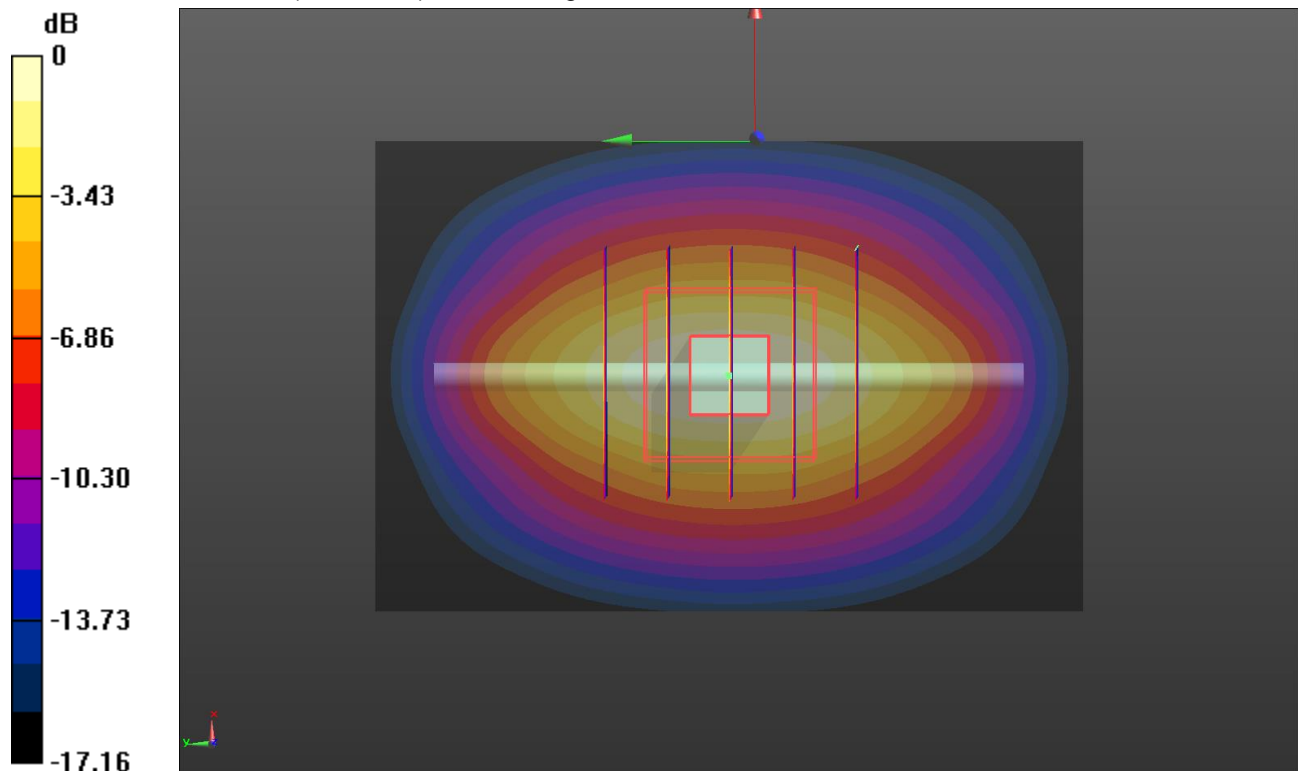
Head/d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 106.4 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 18.0 W/kg

SAR(1 g) = 9.58 W/kg; SAR(10 g) = 5.05 W/kg

Maximum value of SAR (measured) = 15.0 W/kg



0 dB = 15.0 W/kg = 11.76 dBW/kg

System Performance Check-Head 1900MHz

DUT: D1900V2; Type: D1900V2; Serial: 5d226

Date: 2020-05-19

Communication System: UID 0, CW (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.458$ S/m; $\epsilon_r = 40.478$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.3°C; Liquid Temperature: 22.1°C;

DASY5 Configuration:

- Probe: EX3DV4 - SN7494; ConvF(8.6, 8.6, 8.6) @ 1900 MHz; Calibrated: 4/1/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1549; Calibrated: 4/4/2020
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Head/d=10mm, Pin=250mW/Area Scan (41x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 16.9 W/kg

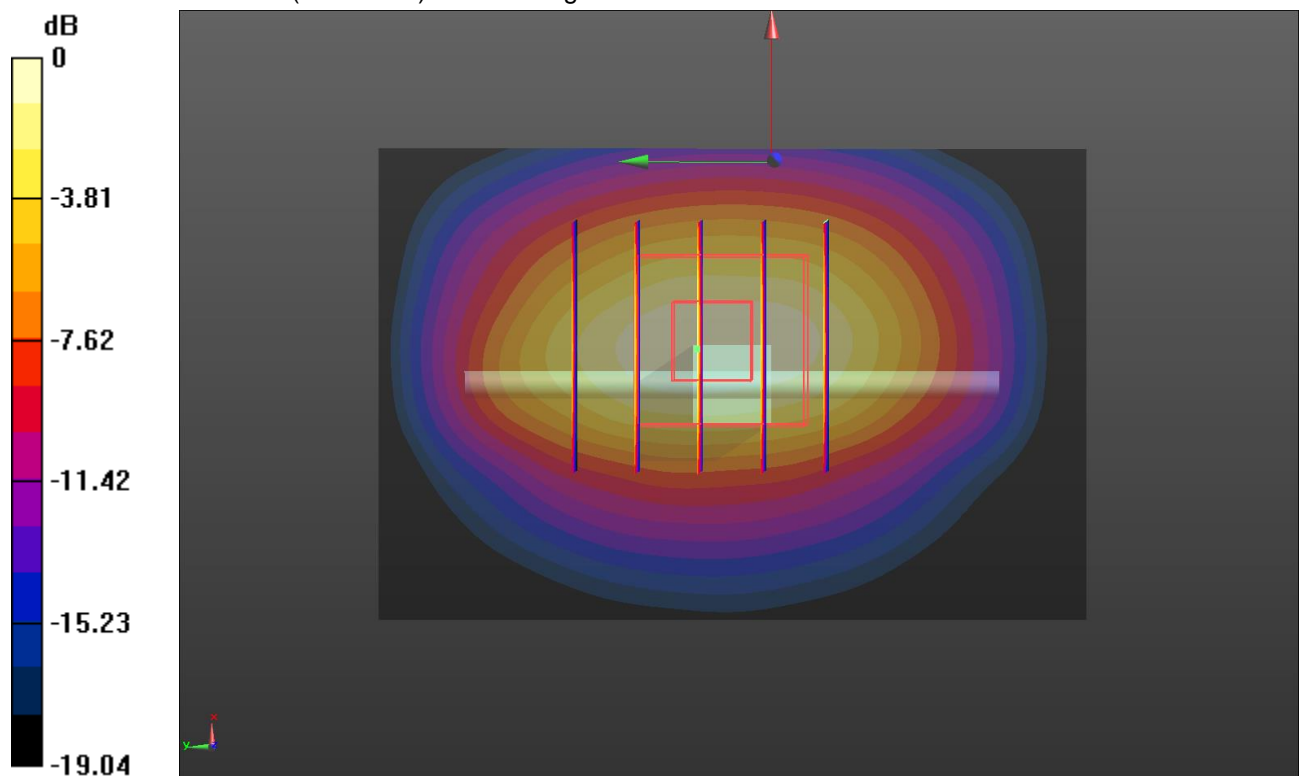
Head/d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 99.26 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 20.6 W/kg

SAR(1 g) = 10.6 W/kg; SAR(10 g) = 5.4 W/kg

Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 16.8 W/kg = 12.25 dBW/kg

SystemPerformanceCheck-Head 2450MHz

DUT: D2450V2; Type: D2450V2; Serial: 1009

Date: 2020-05-22

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.87$ S/m; $\epsilon_r = 39.649$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature:22.2°C;Liquid Temperature:22.0°C;

DASY5 Configuration:

- Probe: EX3DV4 - SN7494; ConvF(7.91, 7.91, 7.91) @ 2450 MHz; Calibrated: 4/1/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1549; Calibrated: 4/4/2020
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Head/d=10mm,Pin=250mW/Area Scan (41x61x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 22.9 W/kg

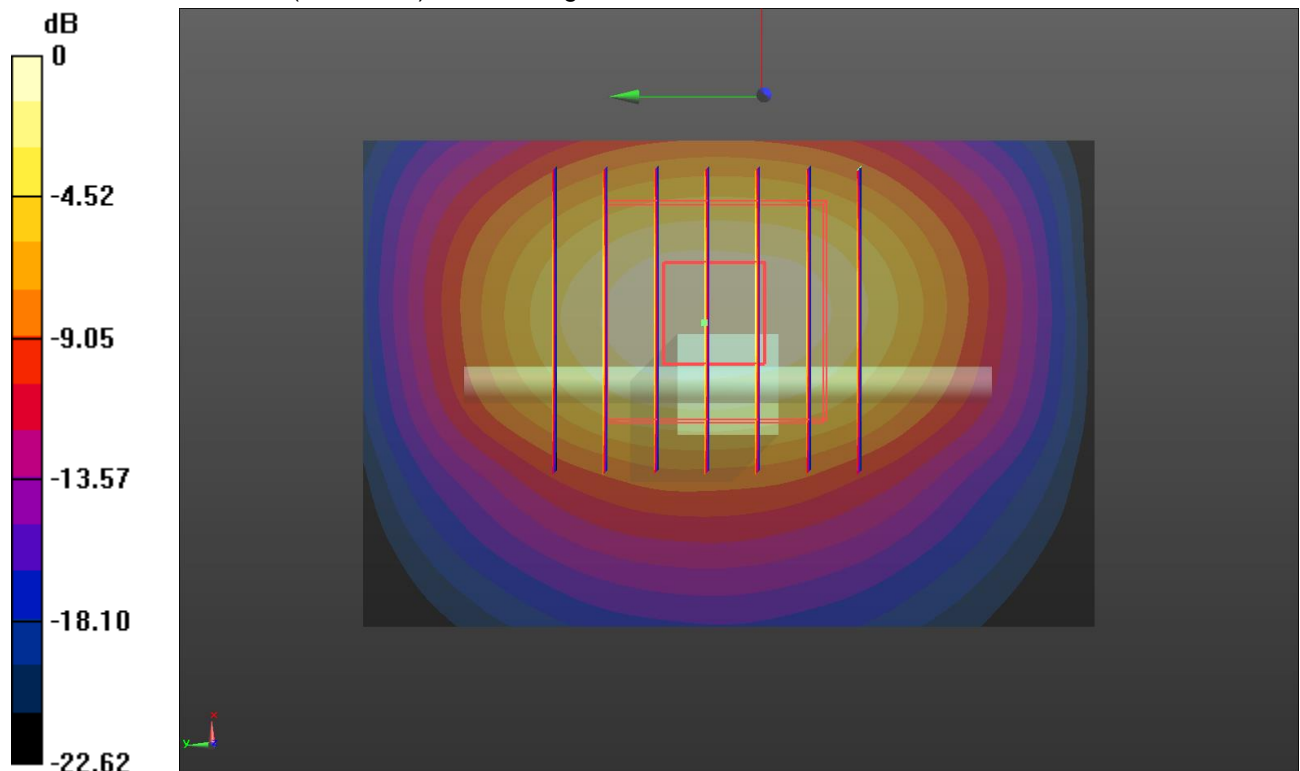
Head/d=10mm,Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.24 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 27.4 W/kg

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.04 W/kg

Maximum value of SAR (measured) = 22.0 W/kg



0 dB = 22.0 W/kg = 13.42 dBW/kg

SystemPerformanceCheck-Head 2600MHz

DUT: D2600V2; Type: D2600V2; Serial: 1150

Date: 2020-05-22

Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.99$ S/m; $\epsilon_r = 39.388$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.1°C; Liquid Temperature: 21.9°C;

DASY5 Configuration:

- Probe: EX3DV4 - SN7494; ConvF(7.72, 7.72, 7.72) @ 2600 MHz; Calibrated: 4/1/2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1549; Calibrated: 4/4/2020
- Phantom: Twin-SAM V8.0 ; Type: QD 000 P41 AA; Serial: 1974
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Head/d=10mm, Pin=250mW/Area Scan (41x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 26.8 W/kg

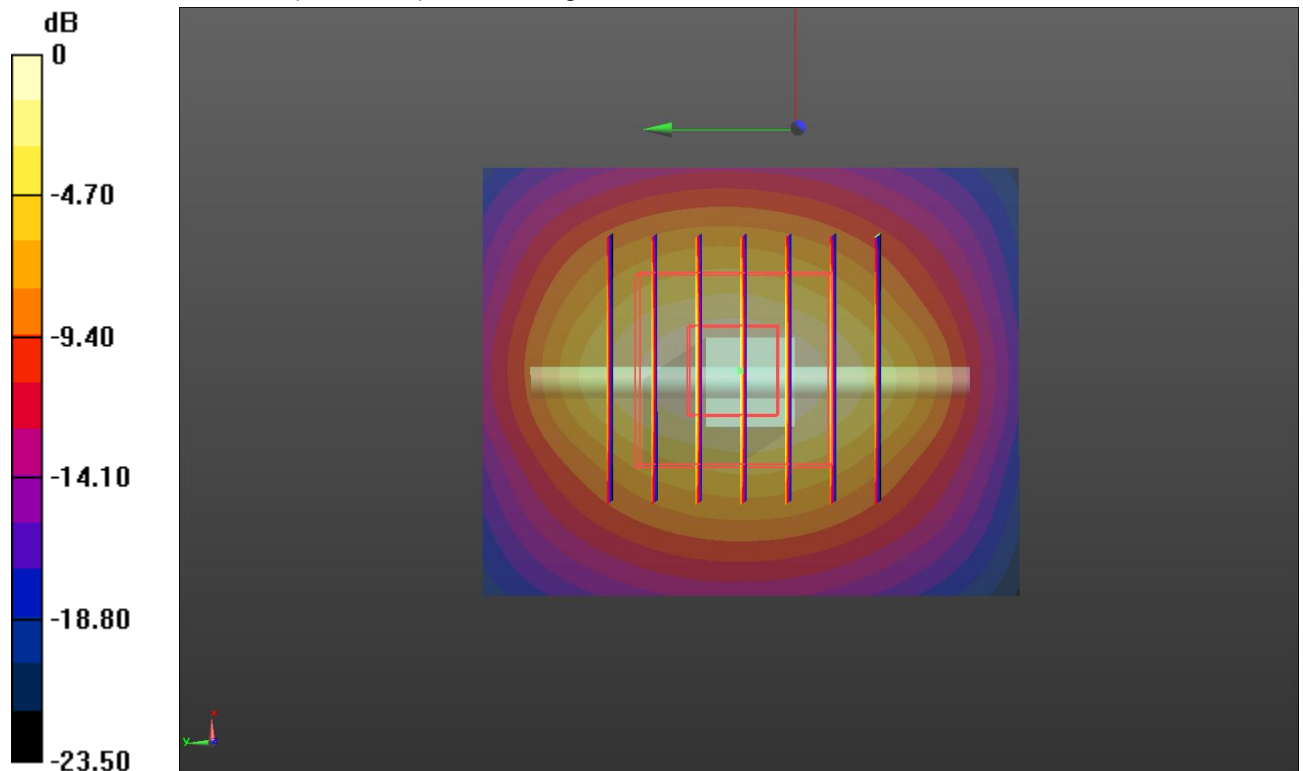
Head/d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 115.7 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 31.8 W/kg

SAR(1 g) = 14.6 W/kg; SAR(10 g) = 6.47 W/kg

Maximum value of SAR (measured) = 25.3 W/kg



0 dB = 25.3 W/kg = 14.03 dBW/kg

10. SAR Exposure Limits

SAR assessments have been made in line with the requirements of FCC 47 CFR § 2.1093.

Type Exposure	Limit (W/kg)	
	General Population/ Uncontrolled Exposure Environment	Occupational/ Controlled Exposure Environment
Spatial Average SAR (whole body)	0.08	0.4
Spatial Peak SAR (1g cube tissue for head and trunk)	1.6	8.0
Spatial Peak SAR (10g for limb)	4.0	20.0

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

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

11. Conducted Power Measurement Results

11.1. GSM

1. Per KDB 447498 D01, the maximum output power channel is used for SAR testing and further SAR test reduction.
2. Per KDB 941225 D01, considering the possibility of e.g. 3rd party VoIP operation for Head and Body-worn SAR test reduction for GSM and GPRS modes is determined by the source-base time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
3. Per KDB941225 D01, for hotspot SAR test reduction for GPRS modes is determined by the source-based time-averaged output power including tune-up tolerance, For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

Mode: GSM850		Burst Average Power (dBm)			Division Factors	Frame-Average Power (dBm)		
		CH128	CH190	CH251		CH128	CH190	CH251
		824.2MHz	836.6MHz	848.8MHz		824.2MHz	836.6MHz	848.8MHz
GSM Voice		33.29	33.37	33.44	-9.03	24.26	24.34	24.41
GPRS (GMSK)	1TXslot	33.19	33.28	33.35	-9.03	24.16	24.25	24.32
	2TXslots	32.58	32.69	32.77	-6.02	26.56	26.67	26.75
	3TXslots	30.46	31.00	31.09	-4.26	26.20	26.74	26.83
	4TXslots	29.29	29.41	29.52	-3.01	26.28	26.40	26.51
EGPRS (8PSK)	1TXslot	27.37	27.41	27.49	-9.03	18.34	18.38	18.46
	2TXslots	27.43	27.51	27.60	-6.02	21.41	21.49	21.58
	3TXslots	27.38	27.45	27.55	-4.26	23.12	23.19	23.29
	4TXslots	27.28	27.34	27.45	-3.01	24.27	24.33	24.44
Mode: PCS1900		Burst Average Power (dBm)			Division Factors	Frame-Average Power (dBm)		
		CH512	CH661	CH810		CH512	CH661	CH810
		1850.2MHz	1880MHz	1909.8MHz		1850.2MHz	1880MHz	1909.8MHz
GSM Voice		29.39	29.42	29.36	-9.03	20.36	20.39	20.33
GPRS (GMSK)	1TXslot	29.34	29.34	29.25	-9.03	20.31	20.31	20.22
	2TXslots	28.91	28.92	28.85	-6.02	22.89	22.90	22.83
	3TXslots	27.60	27.60	27.34	-4.26	23.34	23.34	23.08
	4TXslots	26.25	26.21	26.13	-3.01	23.24	23.20	23.12
EGPRS (8PSK)	1TXslot	26.09	26.16	26.03	-9.03	17.06	17.13	17.00
	2TXslots	26.15	26.14	26.08	-6.02	20.13	20.12	20.06
	3TXslots	26.15	26.14	26.07	-4.26	21.89	21.88	21.81
	4TXslots	26.18	26.15	26.07	-3.01	23.17	23.14	23.06

Note:

1) Division Factors

To Frame-Average Power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> Burst Average Power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> Burst Average Power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> Burst Average Power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> Burst Average Power divided by (8/4) => -3.01dB

11.2. WCDMA

1. The following tests were conducted according to the test requirements outlines in 3GPP TS34.121 specification.
2. The procedures in KDB 941225 D01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode to determine SAR test exclusion

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a) The EUT was connected to base station RS CMU200 referred to the setup configuration
- b) The RF path losses were compensated into the measurements
- c) A call was established between EUT and base station with following setting:
 - i. Set Gain Factors (β_c and β_d) and parameters were set according to each specific sub-test in the following table, C10.1.4, Quoted from the TS 34.121
 - ii. Set RMC 12.2Kbps + HSDPA mode
 - iii. Set Cell Power=-86dBm
 - iv. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
 - v. Select HSDPA uplink parameters
 - vi. Set Delta ACK, Delta NACK and Delta CQI=8
 - vii. Set Ack-Nack repetition Factor to 3
 - viii. Set CQI Feedback Cycle (K) to 4ms
 - ix. Set CQI repetition factor to 2
 - x. Power ctrl mode= all up bits
- d) The transmitter maximum output power was recorded.

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

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

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

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

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPCCH, DPCCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

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

Setup Configuration

HSUPA Setup Configuration:

- a) The EUT was connected to base station RS CMU200 referred to the setup configuration
- b) The RF path losses were compensated into the measurements
- c) A call was established between EUT and base station with following setting:
 - i. Call configs = 5.2b, 5.9b, 5.10b, and 5.13.2B with QPSK
 - ii. Set Gain Factors (β_c and β_d) and parameters (AG index) were set according to each specific sub-test in the following table, C11.1.3, Quoted from the TS 34.121
 - iii. Set Cell Power=-86dBm
 - iv. Set channel type= 12.2Kbps + HSPA mode
 - v. Set UE Target power
 - vi. Set Ctrl mode=Alternating bits
 - vii. Set and observe the E-TFCI
 - viii. Confirm that E-TFCI is equal the target E-TFCI of 75 for Sub-test 1, and other subtest's E-TFCI
- d) The transmitter maximum output power was recorded.

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{EC}	β_{ED} (Note 5) (Note 6)	β_{ED} (SF)	β_{ED} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ED1} : 47/15 β_{ED2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

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

Note 6: β_{ED} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration

General Note:

- Per KDB 941225 D01, SAR for Head / Hotspot / Body-worn Exposure is measured using a 12.2Kbps RMC with TPC bit configured to all 1s
- Per KDB 941225 D01 RMC 12.2Kbps setting is used to evaluate SAR. If the maximum output power and Tune-up tolerance specified for production units in HSDPA/HSUPA is $\leq 1/4$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC 12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA to RMC 12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA.

Mode		WCDMA Band II			WCDMA Band V		
		Conducted Power (dBm)			Conducted Power (dBm)		
		CH9262 1852.4MHz	CH9400 1880MHz	CH9538 1907.6MHz	CH4132 826.4MHz	CH4183 836.6MHz	CH4233 846.6MHz
AMR 12.2K		20.40	20.36	20.68	22.75	22.91	22.77
RMC 12.2K		20.43	20.39	20.71	22.78	22.94	22.80
HSDPA	Subtest-1	20.36	20.56	19.97	21.73	21.82	21.73
	Subtest-2	20.24	20.20	19.93	21.18	21.26	21.25
	Subtest-3	20.26	20.20	19.92	21.20	21.32	21.23
	Subtest-4	20.28	20.21	19.94	21.18	21.28	21.23
HSUPA	Subtest-1	18.71	18.70	18.73	19.97	19.99	20.00
	Subtest-2	19.22	19.19	19.25	20.37	20.39	20.43
	Subtest-3	19.81	19.75	19.80	20.85	20.94	20.87
	Subtest-4	18.74	18.75	18.78	20.00	20.07	19.99
	Subtest-5	20.73	20.73	20.54	21.94	21.98	20.03

11.3. LTE

General Note:

1. CMW500 base station simulator was used to setup the connection with EUT; the frequency band, channel, bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r03, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r03, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r03, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r03, smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, smaller bandwidth SAR testing is not required.

LTE-FDD Band 2				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	18607	18900	19193
				1850.7MHz	1880MHz	1909.3MHz
1.4MHz	QPSK	1	0	22.62	22.77	22.79
			2	22.78	22.89	22.93
			5	22.64	22.76	22.79
		3	0	22.67	22.81	22.89
			1	22.66	22.78	22.87
			3	22.67	22.80	22.95
	6	0	21.77	21.85	21.92	
	16QAM	1	0	21.64	21.88	21.88
			2	21.83	22.00	22.01
			5	21.67	21.86	21.84
		3	0	21.58	21.74	21.76
			1	21.58	21.76	21.78
			3	21.58	21.74	21.79
	6	0	20.73	20.86	20.82	
Band-width	Modulation	RB allocation	RB offset	18615	18900	19185
				1851.5MHz	1880MHz	1908.5MHz
3MHz	QPSK	1	0	22.73	22.87	22.84
			8	22.74	22.89	22.84
			14	22.76	22.83	22.86
		8	0	21.83	21.96	21.91
			4	21.83	21.94	21.94
			7	21.81	21.92	21.92
	15	0	21.79	21.88	21.88	
	16QAM	1	0	21.84	21.78	22.02
			8	21.83	21.77	22.00
			14	21.83	21.79	21.99
		8	0	20.79	20.92	20.96
			4	20.80	20.93	20.96
			7	20.76	20.88	20.92
	15	0	20.69	20.77	20.92	

LTE-FDD Band 2				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	18625	18900	19175
				1852.5MHz	1880MHz	1907.5MHz
5MHz	QPSK	1	0	22.71	22.87	22.84
			12	22.83	22.98	22.98
			24	22.74	22.83	22.85
		12	0	21.79	21.85	21.95
			7	21.84	21.87	21.93
			13	21.74	21.89	21.81
	25	0	21.81	21.91	21.86	
	16QAM	1	0	21.86	21.83	21.89
			12	22.00	21.97	21.92
			24	21.92	21.86	21.83
		12	0	20.83	20.89	20.97
			7	20.83	20.90	20.97
			13	20.78	20.92	20.84
		25	0	20.77	20.94	20.90
Band-width		Modulation	RB allocation	RB offset	18650	18900
	1855MHz				1880MHz	1905MHz
10MHz	QPSK	1	0	22.69	22.88	22.85
			24	22.88	22.96	22.94
			49	22.76	22.80	22.84
		25	0	21.92	21.93	21.93
			24	21.88	21.90	21.94
			49	21.83	21.92	21.83
	50	0	21.87	21.88	21.87	
	16QAM	1	0	21.85	21.79	22.03
			24	21.97	21.86	22.14
			49	21.94	21.76	21.99
		25	0	20.91	20.90	20.87
			24	20.91	20.89	20.87
			49	20.84	20.93	20.85
		50	0	20.84	20.86	20.84

LTE-FDD Band 2				Conducted Power(dBm)			
Band-width	Modulation	RB allocation	RB offset	18675	18900	19125	
				1857.5MHz	1880MHz	1902.5MHz	
15MHz	QPSK	1	0	22.74	22.85	22.83	
			38	22.83	22.96	22.95	
			74	22.71	22.76	22.73	
		38	0	21.90	21.75	22.04	
			18	22.09	21.86	22.15	
			37	22.01	21.69	21.92	
		75	0	22.03	21.98	22.06	
		16QAM	1	0	21.91	21.75	22.01
				38	22.09	21.86	22.13
	74			22.02	21.70	21.93	
	38		0	21.93	21.75	22.05	
			18	22.10	21.89	22.14	
			37	22.03	21.71	21.94	
	75	0	20.92	20.92	20.96		
	Band-width	Modulation	RB allocation	RB offset	18700	18900	19100
1860MHz					1880MHz	1900MHz	
20MHz	QPSK	1	0	22.62	22.63	22.74	
			49	23.08	23.01	23.22	
			99	22.69	22.54	22.76	
		50	0	22.02	21.84	22.08	
			25	21.99	21.88	22.09	
			50	22.03	21.90	22.06	
		100	0	22.02	21.85	22.07	
		16QAM	1	0	21.69	21.76	21.78
				49	22.19	22.12	22.25
	99			21.88	21.69	21.75	
	50		0	20.98	20.90	21.02	
			25	21.01	20.87	21.07	
			50	21.01	20.88	21.00	
	100	0	20.97	20.84	21.05		

LTE-FDD Band 4				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	19957	20175	20393
				1710.7MHz	1732.5MHz	1754.3MHz
1.4MHz	QPSK	1	0	22.72	22.82	22.90
			2	22.80	22.93	23.04
			5	22.70	22.83	22.91
		3	0	22.79	22.81	22.96
			1	22.78	22.79	22.94
			3	22.77	22.85	22.99
	6	0	21.81	21.98	22.00	
	16QAM	1	0	21.79	21.77	22.02
			2	22.01	22.02	22.19
			5	21.82	21.79	22.01
		3	0	21.74	21.69	21.90
			1	21.74	21.67	21.90
			3	21.69	21.73	21.92
	6	0	20.81	20.74	20.82	
	Band-width	Modulation	RB allocation	RB offset	19965	20175
1711.5MHz					1732.5MHz	1753.5MHz
3MHz	QPSK	1	0	22.79	22.93	22.92
			8	22.75	22.93	22.91
			14	22.80	22.92	22.93
		8	0	21.85	22.04	22.01
			4	21.85	22.03	21.96
			7	21.85	21.99	22.02
	15	0	21.83	21.88	21.98	
	16QAM	1	0	21.97	21.76	22.12
			8	21.95	21.78	22.12
			14	21.91	21.78	22.08
		8	0	20.83	20.88	21.03
			4	20.83	20.89	21.02
			7	20.85	20.90	21.01
	15	0	20.74	20.71	20.96	

LTE-FDD Band 4				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	19975	20175	20375
				1712.5MHz	1732.5MHz	1752.5MHz
5MHz	QPSK	1	0	22.76	22.89	22.90
			12	22.86	23.03	23.05
			24	22.78	22.95	22.92
		12	0	21.76	21.88	21.94
			7	21.78	21.89	21.93
			13	21.91	21.86	21.98
	25	0	21.89	21.89	22.03	
	16QAM	1	0	21.94	21.74	21.89
			12	22.09	21.87	22.06
			24	21.97	21.83	21.93
		12	0	20.82	20.88	20.94
			7	20.86	20.85	20.96
			13	20.96	20.86	20.96
		25	0	20.85	20.84	21.01
Band-width	Modulation	RB allocation	RB offset	20000	20175	20350
				1715MHz	1732.5MHz	1750MHz
10MHz	QPSK	1	0	22.77	22.89	22.87
			24	22.95	23.06	23.01
			49	22.84	22.96	22.94
		25	0	21.86	22.03	22.06
			24	21.84	22.00	22.04
			49	22.01	21.93	22.12
	50	0	21.90	21.90	22.06	
	16QAM	1	0	21.94	21.72	22.07
			24	22.07	21.88	22.24
			49	21.96	21.83	22.13
		25	0	20.86	20.96	21.04
			24	20.86	20.95	21.01
			49	21.02	20.91	21.11
		50	0	20.89	20.88	21.02

LTE-FDD Band 4				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	20025	20175	20325
				1717.5MHz	1732.5MHz	1747.5MHz
15MHz	QPSK	1	0	22.68	22.80	22.78
			38	22.83	22.97	22.93
			74	22.84	22.87	22.63
		38	0	21.96	21.69	21.94
			18	22.08	21.81	22.14
			37	21.98	21.75	22.05
	75	0	21.96	22.13	22.16	
	16QAM	1	0	21.95	21.66	21.95
			38	22.05	21.81	22.11
			74	21.95	21.70	22.05
		38	0	22.00	21.66	21.91
			18	22.08	21.81	22.13
			37	21.98	21.74	22.03
	75	0	20.90	20.95	21.04	
Band-width	Modulation	RB allocation	RB offset	20050	20175	20300
				1720MHz	1732.5MHz	1745MHz
20MHz	QPSK	1	0	22.37	22.69	22.57
			49	22.90	22.99	22.88
			99	22.53	22.49	22.34
		50	0	21.66	21.84	21.70
			25	21.69	21.82	21.70
			50	21.59	21.73	21.75
	100	0	21.63	21.79	21.72	
	16QAM	1	0	21.50	21.50	21.53
			49	21.77	21.80	21.92
			99	21.42	21.55	21.40
		50	0	20.67	20.70	20.66
			25	20.70	20.72	20.68
			50	20.53	20.66	20.70
	100	0	20.58	20.70	20.66	

LTE-FDD Band 5				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	20407	20525	20643
				8.4.7MHz	836.5MHz	848.3MHz
1.4MHz	QPSK	1	0	22.74	22.67	22.65
			2	22.86	22.82	22.84
			5	22.74	22.71	22.69
		3	0	22.87	22.77	22.77
			1	22.84	22.78	22.77
			3	22.81	22.77	22.77
	6	0	21.80	21.77	21.79	
	16QAM	1	0	21.85	21.81	21.75
			2	22.05	21.98	21.97
			5	21.85	21.85	21.77
		3	0	21.76	21.69	21.67
			1	21.75	21.69	21.66
			3	21.74	21.70	21.64
	6	0	20.87	20.69	20.82	
Band-width	Modulation	RB allocation	RB offset	20415	20525	20635
				825.5MHz	836.5MHz	847.5MHz
3MHz	QPSK	1	0	22.82	22.80	22.79
			8	22.85	22.80	22.84
			14	22.81	22.83	22.79
		8	0	21.84	21.84	21.81
			4	21.85	21.82	21.84
			7	21.80	21.81	21.85
	15	0	21.84	21.81	21.80	
	16QAM	1	0	22.01	21.64	22.03
			8	21.91	21.72	21.93
			14	21.90	21.70	21.92
		8	0	20.88	20.82	20.91
			4	20.88	20.82	20.90
			7	20.87	20.82	20.90
	15	0	20.79	20.75	20.84	

LTE-FDD Band 5				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	20425	20525	20625
				826.5MHz	836.5MHz	846.5MHz
5MHz	QPSK	1	0	22.81	22.77	22.85
			12	22.93	22.93	22.97
			24	22.75	22.79	22.77
		12	0	21.69	21.84	21.80
			7	21.75	21.84	21.81
			13	21.85	21.73	21.87
	25	0	21.84	21.84	21.86	
	16QAM	1	0	22.00	21.74	21.80
			12	22.05	21.90	21.93
			24	21.91	21.79	21.74
		12	0	20.82	20.93	20.85
			7	20.85	20.93	20.84
			13	20.94	20.83	20.94
		25	0	20.81	20.94	20.93
Band-width		Modulation	RB allocation	RB offset	20450	20525
	829MHz				836.5MHz	844MHz
10MHz	QPSK	1	0	22.86	22.82	22.84
			24	22.94	22.99	22.97
			49	22.78	22.86	22.80
		25	0	21.74	22.07	21.96
			24	21.75	22.06	21.95
			49	21.76	21.88	22.04
	50	0	21.71	21.97	22.02	
	16QAM	1	0	22.00	21.66	22.04
			24	22.06	21.87	22.18
			49	21.90	21.75	21.93
		25	0	20.77	21.10	20.98
			24	20.77	21.11	20.96
			49	20.79	20.95	21.07
		50	0	20.76	20.96	21.02

LTE-FDD Band 7				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	20775	21100	21425
				2502.5MHz	2535MHz	2567.5MHz
5MHz	QPSK	1	0	22.06	22.14	22.13
			12	22.17	22.26	22.29
			24	22.09	22.12	22.20
		12	0	21.06	21.09	21.16
			7	21.04	21.05	21.17
			13	21.01	21.07	21.17
	25	0	21.10	21.12	21.19	
	16QAM	1	0	21.23	21.10	21.09
			12	21.30	21.18	21.19
			24	21.19	21.08	21.15
		12	0	20.99	20.60	21.16
			7	20.87	20.97	21.17
			13	20.95	20.53	21.16
		25	0	20.93	20.92	21.13
Band-width		Modulation	RB allocation	RB offset	20800	21100
	2505MHz				2535MHz	2565MHz
10MHz	QPSK	1	0	22.02	22.11	22.07
			24	22.16	22.24	22.29
			49	22.08	22.10	22.01
		25	0	21.08	21.14	21.17
			24	21.09	21.14	21.19
			49	21.09	21.18	21.21
	50	0	21.08	21.12	21.15	
	16QAM	1	0	21.11	20.96	21.19
			24	21.26	21.12	21.37
			49	21.13	21.00	20.95
		25	0	21.07	21.11	21.15
			24	21.08	21.12	21.17
			49	21.10	21.15	21.15
		50	0	21.05	21.07	21.13

LTE-FDD Band 7				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	20825	21100	21375
				2507.5MHz	2535MHz	2562.5MHz
15MHz	QPSK	1	0	22.00	22.05	22.01
			38	22.09	22.17	21.99
			74	21.97	22.06	21.65
		38	0	21.21	20.92	20.63
			18	21.34	21.03	20.91
			37	21.25	20.88	20.82
	75	0	21.10	21.18	20.96	
	16QAM	1	0	21.17	20.91	21.15
			38	21.30	21.03	20.96
			74	21.23	20.88	20.70
		38	0	21.20	20.92	20.69
			18	21.31	21.04	20.88
			37	21.25	20.92	20.75
	75	0	20.98	21.20	21.14	
Band-width	Modulation	RB allocation	RB offset	20850	21100	21350
				2510MHz	2535MHz	2560MHz
20MHz	QPSK	1	0	21.90	21.82	21.81
			49	22.31	22.21	22.22
			99	21.89	21.86	21.94
		50	0	21.08	21.10	21.03
			25	21.06	21.07	21.07
			50	21.14	21.09	21.09
	100	0	21.08	21.11	21.10	
	16QAM	1	0	20.98	20.87	20.88
			49	21.29	21.24	21.27
			99	21.03	20.89	21.00
		50	0	21.05	21.06	21.00
			25	21.04	21.07	21.07
			50	21.12	21.04	21.07
	100	0	21.06	21.94	21.05	

LTE-FDD Band 12				Conducted Power(dBm)				
Band-width	Modulation	RB allocation	RB offset	23017	23095	23173		
				699.7MHz	707.5MHz	715.3MHz		
1.4MHz	QPSK	1	0	22.66	22.65	22.64		
			2	22.80	22.71	22.70		
			5	22.66	22.65	22.63		
		3	0	22.76	22.74	22.68		
			1	22.70	22.73	22.71		
			3	22.79	22.76	22.78		
		6	0	21.71	21.74	21.78		
		16QAM	1	0	21.75	21.80	21.78	
				2	22.00	21.96	21.93	
	5			21.79	21.79	21.79		
	3		0	21.67	21.67	21.65		
			1	21.64	21.65	21.65		
			3	21.68	21.67	21.67		
	6		0	20.74	20.65	20.62		
	Band-width		Modulation	RB allocation	RB offset	23025	23095	23165
						700.5MHz	707.5MHz	714.5MHz
	3MHz	QPSK	1	0	22.71	22.73	22.63	
				8	22.78	22.77	22.60	
14				22.69	22.73	22.61		
8			0	21.68	21.74	21.73		
			4	21.70	21.75	21.71		
			7	21.74	21.71	21.71		
15			0	21.69	21.69	21.66		
16QAM			1	0	21.92	21.58	21.85	
				8	21.90	21.62	21.77	
		14		21.77	21.62	21.80		
		8	0	20.70	20.73	20.73		
			4	20.69	20.73	20.73		
			7	20.72	20.67	20.71		
		15	0	20.62	20.60	20.65		

LTE-FDD Band 12				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	23035	23095	23155
				701.5MHz	707.5MHz	713.5MHz
5MHz	QPSK	1	0	22.69	22.66	22.56
			12	22.77	22.77	22.70
			24	22.66	22.65	22.59
		12	0	21.55	21.77	21.57
			7	21.55	21.77	21.59
			13	21.76	21.66	21.63
	25	0	21.70	21.77	21.67	
	16QAM	1	0	21.85	21.61	21.59
			12	21.98	21.74	21.78
			24	21.82	21.63	21.63
		12	0	20.57	20.84	20.57
			7	20.57	20.86	20.59
			13	20.77	20.66	20.60
		25	0	20.65	20.77	20.68
Band-width		Modulation	RB allocation	RB offset	23060	23095
	704MHz				707.5MHz	711MHz
10MHz	QPSK	1	0	22.60	22.57	22.66
			24	22.73	22.67	22.72
			49	22.60	22.60	22.61
		25	0	21.51	21.83	21.75
			24	21.46	21.82	21.71
			49	21.45	21.73	21.80
	50	0	21.49	21.78	21.74	
	16QAM	1	0	21.80	21.72	21.53
			24	21.84	21.87	21.61
			49	21.77	21.83	21.61
		25	0	20.46	20.83	20.76
			24	20.44	20.79	20.77
			49	20.44	20.73	20.80
		50	0	20.41	20.79	20.76

LTE-FDD Band 17				Conducted Power(dBm)		
Band-width	Modulation	RB allocation	RB offset	23755	23790	23825
				706.5MHz	710MHz	713.5MHz
5MHz	QPSK	1	0	22.57	22.60	22.64
			12	22.64	22.77	22.80
			24	22.56	22.64	22.69
		12	0	21.68	21.68	21.63
			7	21.69	21.69	21.36
			13	21.63	21.74	21.63
	25	0	21.69	21.78	21.33	
	16QAM	1	0	21.61	21.85	21.66
			12	21.68	22.00	21.82
			24	21.66	21.90	21.70
		12	0	20.71	20.72	20.65
			7	20.66	20.74	20.33
			13	20.61	20.76	20.63
		25	0	20.69	20.72	20.69
Band-width		Modulation	RB allocation	RB offset	23780	23790
	709MHz				710MHz	711MHz
10MHz	QPSK	1	0	22.66	22.59	22.59
			24	22.93	22.64	22.82
			49	22.74	22.67	22.71
		25	0	21.96	21.91	21.84
			24	21.99	21.94	21.83
			49	21.88	21.93	21.90
	50	0	21.91	21.92	21.88	
	16QAM	1	0	21.55	21.79	21.78
			24	21.74	22.02	21.96
			49	21.67	21.91	21.88
		25	0	21.04	20.94	20.84
			24	21.00	20.93	20.84
			49	20.92	20.87	20.92
		50	0	20.93	20.87	20.90

11.4. Wi-Fi

For 2.4GHz Wi-Fi SAR testing, highest average RF output power channel for the lowest data rate for 802.11b were for SAR evaluation.

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

SAR testing is not required for OFDM mode(s) when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Wi-Fi 2.4G				
Mode	Channel	Frequency (MHz)	Conducted Peak Power (dBm)	Conducted Average Power (dBm)
802.11b	1	2412	16.18	13.72
	6	2437	13.84	11.40
	11	2462	16.63	14.19
802.11g	1	2412	20.76	17.85
	6	2437	18.11	15.31
	11	2462	21.42	18.75
802.11n (HT20)	1	2412	20.41	17.42
	6	2437	17.80	14.96
	11	2462	21.09	18.78
802.11n (HT40)	3	2422	19.61	16.57
	6	2437	19.47	16.61
	9	2452	19.9	17.02

11.5. Bluetooth

Bluetooth				
Mode	Channel	Frequency (MHz)	Conducted Peak Power (dBm)	Conducted Average Power (dBm)
GFSK	0	2402	3.06	3.05
	39	2441	2.01	2.00
	78	2480	2.73	2.70
$\pi/4$ QPSK	0	2402	2.37	1.86
	39	2441	1.39	0.81
	78	2480	2.05	1.47
8DPSK	0	2402	2.48	1.92
	39	2441	1.47	0.95
	78	2480	2.19	1.71
BLE	0	2402	3.03	3.01
	19	2440	1.93	1.90
	39	2480	2.77	2.76

12. Maximum Tune-up Limit

GSM		
Mode	Maximum Tune-up (dBm)	
	GSM850	PCS1900
GSM (GMSK, 1Tx Slot)	33.50	29.50
GPRS (GMSK, 1Tx Slot)	33.50	29.50
GPRS (GMSK, 2Tx Slots)	33.00	29.00
GPRS (GMSK, 3Tx Slots)	31.50	28.00
GPRS (GMSK, 4Tx Slots)	30.00	26.50
EGPRS (8PSK, 1Tx Slot)	27.50	26.50
EGPRS (8PSK, 2Tx Slots)	28.00	26.50
EGPRS (8PSK, 3Tx Slots)	28.00	26.50
EGPRS (8PSK, 4Tx Slots)	27.50	26.50

WCDMA		
Mode	Maximum Tune-up (dBm)	
	FDD Band II	FDD Band V
AMR 12.2Kbps	21.00	23.00
RMC 12.2Kbps	21.00	23.00
HSDPA Subtest-1	21.00	22.00
HSDPA Subtest-2	20.50	21.50
HSDPA Subtest-3	20.50	21.50
HSDPA Subtest-4	20.50	21.50
HSUPA Subtest-1	19.00	20.50
HSUPA Subtest-2	19.50	20.50
HSUPA Subtest-3	20.00	21.00
HSUPA Subtest-4	19.00	20.50
HSUPA Subtest-5	21.00	22.00

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
FDD Band 2	1.4	QPSK	1	23.00
			3	23.00
			6	22.00
		16QAM	1	22.50
			3	22.00
			6	21.00
	3	QPSK	1	23.00
			8	22.00
			15	22.00
		16QAM	1	22.50
			8	21.00
			15	21.00
	5	QPSK	1	23.00
			12	22.00
			25	22.00
		16QAM	1	22.00
			12	21.00
			25	21.00
	10	QPSK	1	23.00
			25	22.00
			50	22.00
		16QAM	1	22.50
			25	21.00
			50	21.00
15	QPSK	1	23.00	
		38	22.50	
		75	22.50	
	16QAM	1	22.50	
		38	22.50	
		75	21.00	
20	QPSK	1	23.50	
		50	22.50	
		100	22.50	
	16QAM	1	22.50	
		50	21.50	
		100	21.50	

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
FDD Band 4	1.4	QPSK	1	23.50
			3	23.00
			6	22.00
		16QAM	1	22.50
			3	22.00
			6	21.00
	3	QPSK	1	23.00
			8	22.50
			15	22.00
		16QAM	1	22.50
			8	21.50
			15	21.00
	5	QPSK	1	23.50
			12	22.00
			25	22.50
		16QAM	1	22.50
			12	21.00
			25	21.50
	10	QPSK	1	23.50
			25	22.50
			50	22.50
		16QAM	1	22.50
			25	21.50
			50	21.50
	15	QPSK	1	23.00
			38	22.50
			75	22.50
		16QAM	1	22.50
			38	22.50
			75	21.50
20	QPSK	1	23.00	
		50	22.00	
		100	22.00	
	16QAM	1	22.00	
		50	21.00	
		100	21.00	

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
FDD Band 5	1.4	QPSK	1	23.00
			3	23.00
			6	22.00
		16QAM	1	22.50
			3	22.00
			6	21.00
	3	QPSK	1	23.00
			8	22.00
			15	22.00
		16QAM	1	22.50
			8	21.00
			15	21.00
	5	QPSK	1	23.00
			12	22.00
			25	22.00
		16QAM	1	22.50
			12	21.00
			25	21.00
	10	QPSK	1	23.00
			25	22.50
			50	22.50
16QAM		1	22.50	
		25	21.50	
		50	21.50	

LTE				
Fequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
FDD Band 7	5	QPSK	1	22.50
			12	21.50
			25	21.50
		16QAM	1	21.50
			12	21.50
			25	21.50
	10	QPSK	1	22.50
			25	21.50
			50	21.50
		16QAM	1	21.50
			25	21.50
			50	21.50
	15	QPSK	1	22.50
			38	21.50
			75	21.50
		16QAM	1	21.50
			38	21.50
			75	21.50
	20	QPSK	1	22.50
			50	21.50
			100	21.50
16QAM		1	21.50	
		50	21.50	
		100	22.00	

LTE				
Frequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
FDD Band 12	1.4	QPSK	1	23.00
			3	23.00
			6	22.00
		16QAM	1	22.00
			3	22.00
			6	21.00
	3	QPSK	1	23.00
			8	22.00
			15	22.00
		16QAM	1	22.00
			8	21.00
			15	21.00
	5	QPSK	1	23.00
			12	22.00
			25	22.00
		16QAM	1	22.00
			12	21.00
			25	21.00
	10	QPSK	1	23.00
			25	22.00
			50	22.00
16QAM		1	22.00	
		25	21.00	
		50	21.00	

LTE				
Frequency Band	Band-width(MHz)	Modulation	RB allocation	Maximum Tune-up (dBm)
FDD Band 17	5	QPSK	1	23.00
			12	22.00
			25	22.00
		16QAM	1	22.00
			12	21.00
			25	21.00
	10	QPSK	1	23.00
			25	22.00
			50	22.00
		16QAM	1	22.50
			25	21.50
			50	21.00

The allowed Maximum Power Reduction (MPR) for the maximum output power in Table 6.2.2-1 due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1.

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

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

Wi-Fi 2.4G		
Mode	Channel	Maximum Tune-up (dBm) Conducted Average Power
802.11b	1	14.00
	6	11.50
	11	14.50
802.11g	1	18.00
	6	15.50
	11	19.00
802.11n(HT20)	1	17.50
	6	15.00
	11	19.00
802.11n(HT40)	3	17.00
	6	17.00
	9	17.50

Bluetooth		
Mode	Channel	Maximum Tune-up (dBm) Conducted Average Power
GFSK	0	3.50
	39	2.00
	78	3.00
$\pi/4$ QPSK	0	2.00
	39	1.00
	78	1.50
8DPSK	0	2.00
	39	1.00
	78	2.00
BLE	0	3.50
	19	2.00
	39	3.00

Per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100MHz to 6GHz at test separation distances \cong 50mm are determined by:

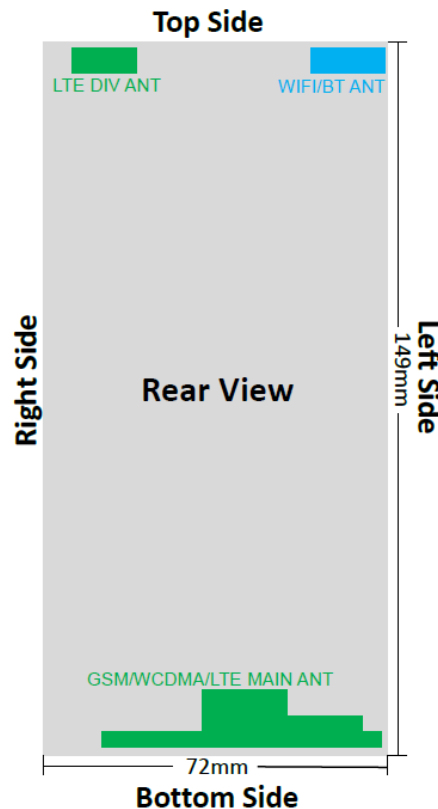
$$[(\text{max. Power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] \cong 3.0 \text{ for 1-g SAR}$$

Band/Mode	F(GHz)	Position	Separation Distance (mm)	Exclusion Thresholds	SAR test exclusion
Bluetooth	2.45	Head	0	0.7	Yes
		Body	10	0.4	Yes

Per KDB 447498 D01, when the minimum test separation distance is <5mm, a distance of 5mm is applied to determine SAR test exclusion.

The test exclusion threshold is \cong 3, SAR testing is not required.

13. Antenna Location



Distance of the Antenna to the EUT surface/edge(mm)						
Antenna	Rear	Front	Top side	Bottom side	Right side	Left side
WWAN	2	5	130	2	12	2
Wi-Fi/BT	2	8	3	138	48	2

Positions for SAR tests; Hotspot mode						
Antenna	Rear	Front	Top side	Bottom side	Right side	Left side
WWAN	Yes	Yes	No	Yes	Yes	Yes
Wi-Fi/BT	Yes	Yes	Yes	No	No	Yes

General note:

Referring to KDB941225 D06, when the overall device length and width are >9cm*5cm, the test distance is 10mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.

14. Measured and Reported SAR Results

SAR Test Reduction criteria are as follows:

- Reported SAR(W/kg) for WWAN = Measured SAR *Tune-up Scaling Factor
- Reported SAR(W/kg) for Wi-Fi and Bluetooth = Measured SAR * Tune-up scaling factor * Duty Cycle scaling factor
- Duty Cycle scaling factor = 1 / Duty cycle (%)

KDB 447498 D01 General RF Exposure Guidance:

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

KDB 648474 D04 Handset SAR:

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset. Additional 1-g SAR testing at 5 mm is not required when hotspot mode 10-g extremity SAR is not required for the surfaces and edges; since all 1-g reported SAR < 1.2 W/kg.

KDB 941225 D01 SAR test for 3G SAR Test Reduction Procedure:

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

GSM Guidance

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Please refer to section 9. for GSM power verification.

SAR is not required for EDGE (8PSK) mode because the maximum output power and tune-up limit is $\leq 1/4$ dB higher than GPRS/EDGE (GMSK) or the adjusted SAR of the highest reported SAR of GPRS/EDGE (GMSK) is ≤ 1.2 W/kg.

W-CDMA Guidance

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC (Head) and other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC (Body-Worn Accessory) as the primary mode.

SAR measurement is not required for the HSDPA, HSUPA, DC-HSDPA and HSPA+. When primary mode and the adjusted SAR is ≤ 1.2 W/kg and secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
- Testing for 16-QAM and 64-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.

- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.

KDB 248227 D01 SAR meas for 802.11:

When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

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

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

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

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

14.1. Head SAR

GSM850										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
GPRS (3Tx slots)	Left Cheek	128	824.2	30.46	31.50	1.271	-	-	-	-
		190	836.6	31.00	31.50	1.122	-	-	-	-
		251	848.8	31.09	31.50	1.099	0.08	0.196	0.216	-
	Left Tilt	128	824.2	30.46	31.50	1.271	-	-	-	-
		190	836.6	31.00	31.50	1.122	-	-	-	-
		251	848.8	31.09	31.50	1.099	-0.18	0.118	0.130	-
	Right Cheek	128	824.2	30.46	31.50	1.271	-	-	-	-
		190	836.6	31.00	31.50	1.122	-	-	-	-
		251	848.8	31.09	31.50	1.099	-0.10	0.209	0.230	1
	Right Tilt	128	824.2	30.46	31.50	1.271	-	-	-	-
		190	836.6	31.00	31.50	1.122	-	-	-	-
		251	848.8	31.09	31.50	1.099	0.11	0.125	0.138	-

PCS1900										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
GPRS (3Tx slots)	Left Cheek	512	1850.2	28.91	29.00	1.021	-	-	-	-
		661	1880	28.92	29.00	1.019	-0.13	0.119	0.121	2
		810	1909.8	28.85	29.00	1.035	-	-	-	-
	Left Tilt	512	1850.2	28.91	29.00	1.021	-	-	-	-
		661	1880	28.92	29.00	1.019	-0.06	0.035	0.036	-
		810	1909.8	28.85	29.00	1.035	-	-	-	-
	Right Cheek	512	1850.2	28.91	29.00	1.021	-	-	-	-
		661	1880	28.92	29.00	1.019	0.14	0.072	0.074	-
		810	1909.8	28.85	29.00	1.035	-	-	-	-
	Right Tilt	512	1850.2	28.91	29.00	1.021	-	-	-	-
		661	1880	28.92	29.00	1.019	0.02	0.021	0.022	-
		810	1909.8	28.85	29.00	1.035	-	-	-	-

WCDMA Band II										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
RMC 12.2K	Left Cheek	9262	1852.4	20.43	21.00	1.140	-	-	-	-
		9400	1880	20.39	21.00	1.151	-	-	-	-
		9538	1907.6	20.71	21.00	1.069	-0.10	0.097	0.104	3
	Left Tilt	9262	1852.4	20.43	21.00	1.140	-	-	-	-
		9400	1880	20.39	21.00	1.151	-	-	-	-
		9538	1907.6	20.71	21.00	1.069	-0.12	0.029	0.031	-
	Right Cheek	9262	1852.4	20.43	21.00	1.140	-	-	-	-
		9400	1880	20.39	21.00	1.151	-	-	-	-
		9538	1907.6	20.71	21.00	1.069	0.15	0.059	0.063	-
	Right Tilt	9262	1852.4	20.43	21.00	1.140	-	-	-	-
		9400	1880	20.39	21.00	1.151	-	-	-	-
		9538	1907.6	20.71	21.00	1.069	0.03	0.018	0.019	-

WCDMA Band V										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
RMC 12.2K	Left Cheek	4132	826.4	22.78	23.00	1.052	-	-	-	-
		4183	836.6	22.94	23.00	1.014	-0.05	0.053	0.054	-
		4233	846.6	22.80	23.00	1.047	-	-	-	-
	Left Tilt	4132	826.4	22.78	23.00	1.052	-	-	-	-
		4183	836.6	22.94	23.00	1.014	0.00	0.032	0.032	-
		4233	846.6	22.80	23.00	1.047	-	-	-	-
	Right Cheek	4132	826.4	22.78	23.00	1.052	-	-	-	-
		4183	836.6	22.94	23.00	1.014	-0.13	0.057	0.057	4
		4233	846.6	22.80	23.00	1.047	-	-	-	-
	Right Tilt	4132	826.4	22.78	23.00	1.052	-	-	-	-
		4183	836.6	22.94	23.00	1.014	0.16	0.034	0.034	-
		4233	846.6	22.80	23.00	1.047	-	-	-	-

LTE Band 2										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Left Cheek	18700	1860	23.08	23.50	1.102	-	-	-	-
		18900	1880	23.01	23.50	1.119	-	-	-	-
		19100	1900	23.22	23.50	1.067	-0.16	0.033	0.035	5
	Left Tilt	18700	1860	23.08	23.50	1.102	-	-	-	-
		18900	1880	23.01	23.50	1.119	-	-	-	-
		19100	1900	23.22	23.50	1.067	0.05	0.010	0.010	-
	Right Cheek	18700	1860	23.08	23.50	1.102	-	-	-	-
		18900	1880	23.01	23.50	1.119	-	-	-	-
		19100	1900	23.22	23.50	1.067	-0.11	0.020	0.021	-
	Right Tilt	18700	1860	23.08	23.50	1.102	-	-	-	-
		18900	1880	23.01	23.50	1.119	-	-	-	-
		19100	1900	23.22	23.50	1.067	0.19	0.006	0.006	-
20M QPSK 50RB	Left Cheek	18700	1860	21.99	22.50	1.125	-	-	-	-
		18900	1880	21.88	22.50	1.153	-	-	-	-
		19100	1900	22.09	22.50	1.099	-0.09	0.030	0.033	-
	Left Tilt	18700	1860	21.99	22.50	1.125	-	-	-	-
		18900	1880	21.88	22.50	1.153	-	-	-	-
		19100	1900	22.09	22.50	1.099	0.18	0.007	0.008	-
	Right Cheek	18700	1860	21.99	22.50	1.125	-	-	-	-
		18900	1880	21.88	22.50	1.153	-	-	-	-
		19100	1900	22.09	22.50	1.099	0.06	0.017	0.019	-
	Right Tilt	18700	1860	21.99	22.50	1.125	-	-	-	-
		18900	1880	21.88	22.50	1.153	-	-	-	-
		19100	1900	22.09	22.50	1.099	-0.13	0.003	0.003	-

LTE Band 4										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Left Cheek	20050	1720	22.90	23.00	1.023	-	-	-	-
		20175	1732.5	22.99	23.00	1.002	-0.01	0.044	0.044	6
		20300	1745	22.88	23.00	1.028	-	-	-	-
	Left Tilt	20050	1720	22.90	23.00	1.023	-	-	-	-
		20175	1732.5	22.99	23.00	1.002	0.18	0.013	0.013	-
		20300	1745	22.88	23.00	1.028	-	-	-	-
	Right Cheek	20050	1720	22.90	23.00	1.023	-	-	-	-
		20175	1732.5	22.99	23.00	1.002	-0.06	0.027	0.027	-
		20300	1745	22.88	23.00	1.028	-	-	-	-
	Right Tilt	20050	1720	22.90	23.00	1.023	-	-	-	-
		20175	1732.5	22.99	23.00	1.002	0.07	0.008	0.008	-
		20300	1745	22.88	23.00	1.028	-	-	-	-
20M QPSK 50RB	Left Cheek	20050	1720	21.66	22.00	1.081	-	-	-	-
		20175	1732.5	21.84	22.00	1.038	-0.13	0.040	0.042	-
		20300	1745	21.70	22.00	1.072	-	-	-	-
	Left Tilt	20050	1720	21.66	22.00	1.081	-	-	-	-
		20175	1732.5	21.84	22.00	1.038	0.11	0.011	0.011	-
		20300	1745	21.70	22.00	1.072	-	-	-	-
	Right Cheek	20050	1720	21.66	22.00	1.081	-	-	-	-
		20175	1732.5	21.84	22.00	1.038	-0.05	0.024	0.025	-
		20300	1745	21.70	22.00	1.072	-	-	-	-
	Right Tilt	20050	1720	21.66	22.00	1.081	-	-	-	-
		20175	1732.5	21.84	22.00	1.038	-0.08	0.005	0.005	-
		20300	1745	21.70	22.00	1.072	-	-	-	-

LTE Band 5										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Left Cheek	20450	829	22.94	23.00	1.014	-	-	-	-
		20525	836.5	22.99	23.00	1.002	-0.05	0.020	0.020	-
		20600	844	22.97	23.00	1.007	-	-	-	-
	Left Tilt	20450	829	22.94	23.00	1.014	-	-	-	-
		20525	836.5	22.99	23.00	1.002	-0.15	0.012	0.012	-
		20600	844	22.97	23.00	1.007	-	-	-	-
	Right Cheek	20450	829	22.94	23.00	1.014	-	-	-	-
		20525	836.5	22.99	23.00	1.002	-0.11	0.021	0.021	7
		20600	844	22.97	23.00	1.007	-	-	-	-
	Right Tilt	20450	829	22.94	23.00	1.014	-	-	-	-
		20525	836.5	22.99	23.00	1.002	0.13	0.013	0.013	-
		20600	844	22.97	23.00	1.007	-	-	-	-
10M QPSK 25RB	Left Cheek	20450	829	21.74	22.50	1.191	-	-	-	-
		20525	836.5	22.07	22.50	1.104	-0.06	0.015	0.017	-
		20600	844	21.96	22.50	1.132	-	-	-	-
	Left Tilt	20450	829	21.74	22.50	1.191	-	-	-	-
		20525	836.5	22.07	22.50	1.104	-0.08	0.009	0.010	-
		20600	844	21.96	22.50	1.132	-	-	-	-
	Right Cheek	20450	829	21.74	22.50	1.191	-	-	-	-
		20525	836.5	22.07	22.50	1.104	-0.17	0.016	0.018	-
		20600	844	21.96	22.50	1.132	-	-	-	-
	Right Tilt	20450	829	21.74	22.50	1.191	-	-	-	-
		20525	836.5	22.07	22.50	1.104	-0.11	0.010	0.011	-
		20600	844	21.96	22.50	1.132	-	-	-	-

LTE Band 7										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Left Cheek	20850	2510	22.31	22.50	1.045	-0.19	0.239	0.250	8
		21100	2535	22.21	22.50	1.069	-	-	-	-
		21350	2560	22.22	22.50	1.067	-	-	-	-
	Left Tilt	20850	2510	22.31	22.50	1.045	0.03	0.071	0.074	-
		21100	2535	22.21	22.50	1.069	-	-	-	-
		21350	2560	22.22	22.50	1.067	-	-	-	-
	Right Cheek	20850	2510	22.31	22.50	1.045	-0.16	0.145	0.152	-
		21100	2535	22.21	22.50	1.069	-	-	-	-
		21350	2560	22.22	22.50	1.067	-	-	-	-
	Right Tilt	20850	2510	22.31	22.50	1.045	0.02	0.043	0.045	-
		21100	2535	22.21	22.50	1.069	-	-	-	-
		21350	2560	22.22	22.50	1.067	-	-	-	-
20M QPSK 50RB	Left Cheek	20850	2510	21.14	21.50	1.086	0.11	0.228	0.248	-
		21100	2535	21.09	21.50	1.099	-	-	-	-
		21350	2560	21.09	21.50	1.099	-	-	-	-
	Left Tilt	20850	2510	21.14	21.50	1.086	-0.08	0.066	0.072	-
		21100	2535	21.09	21.50	1.099	-	-	-	-
		21350	2560	21.09	21.50	1.099	-	-	-	-
	Right Cheek	20850	2510	21.14	21.50	1.086	-0.15	0.138	0.150	-
		21100	2535	21.09	21.50	1.099	-	-	-	-
		21350	2560	21.09	21.50	1.099	-	-	-	-
	Right Tilt	20850	2510	21.14	21.50	1.086	0.04	0.038	0.041	-
		21100	2535	21.09	21.50	1.099	-	-	-	-
		21350	2560	21.09	21.50	1.099	-	-	-	-

LTE Band 12										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Left Cheek	23060	704	22.73	23.00	1.064	0.16	0.025	0.027	-
		23095	707.5	22.67	23.00	1.079	-	-	-	-
		23130	711	22.72	23.00	1.067	-	-	-	-
	Left Tilt	23060	704	22.73	23.00	1.064	0.07	0.015	0.016	-
		23095	707.5	22.67	23.00	1.079	-	-	-	-
		23130	711	22.72	23.00	1.067	-	-	-	-
	Right Cheek	23060	704	22.73	23.00	1.064	-0.19	0.027	0.028	9
		23095	707.5	22.67	23.00	1.079	-	-	-	-
		23130	711	22.72	23.00	1.067	-	-	-	-
	Right Tilt	23060	704	22.73	23.00	1.064	-0.08	0.016	0.017	-
		23095	707.5	22.67	23.00	1.079	-	-	-	-
		23130	711	22.72	23.00	1.067	-	-	-	-
10M QPSK 25RB	Left Cheek	23060	704	21.51	22.00	1.119	-	-	-	-
		23095	707.5	21.83	22.00	1.040	-0.03	0.022	0.023	-
		23130	711	21.75	22.00	1.059	-	-	-	-
	Left Tilt	23060	704	21.51	22.00	1.119	-	-	-	-
		23095	707.5	21.83	22.00	1.040	-0.14	0.012	0.012	-
		23130	711	21.75	22.00	1.059	-	-	-	-
	Right Cheek	23060	704	21.51	22.00	1.119	-	-	-	-
		23095	707.5	21.83	22.00	1.040	-0.02	0.024	0.025	-
		23130	711	21.75	22.00	1.059	-	-	-	-
	Right Tilt	23060	704	21.51	22.00	1.119	-	-	-	-
		23095	707.5	21.83	22.00	1.040	0.11	0.013	0.014	-
		23130	711	21.75	22.00	1.059	-	-	-	-

LTE Band 17										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Left Cheek	23780	709	22.93	23.00	1.016	-0.09	0.025	0.025	-
		23790	710	22.64	23.00	1.086	-	-	-	-
		23800	711	22.82	23.00	1.042	-	-	-	-
	Left Tilt	23780	709	22.93	23.00	1.016	0.15	0.015	0.015	-
		23790	710	22.64	23.00	1.086	-	-	-	-
		23800	711	22.82	23.00	1.042	-	-	-	-
	Right Cheek	23780	709	22.93	23.00	1.016	-0.15	0.026	0.027	10
		23790	710	22.64	23.00	1.086	-	-	-	-
		23800	711	22.82	23.00	1.042	-	-	-	-
	Right Tilt	23780	709	22.93	23.00	1.016	0.04	0.016	0.016	-
		23790	710	22.64	23.00	1.086	-	-	-	-
		23800	711	22.82	23.00	1.042	-	-	-	-
10M QPSK 25RB	Left Cheek	23780	709	21.99	22.00	1.002	-0.13	0.022	0.022	-
		23790	710	21.94	22.00	1.014	-	-	-	-
		23800	711	21.83	22.00	1.040	-	-	-	-
	Left Tilt	23780	709	21.99	22.00	1.002	-0.01	0.012	0.012	-
		23790	710	21.94	22.00	1.014	-	-	-	-
		23800	711	21.83	22.00	1.040	-	-	-	-
	Right Cheek	23780	709	21.99	22.00	1.002	-0.18	0.023	0.023	-
		23790	710	21.94	22.00	1.014	-	-	-	-
		23800	711	21.83	22.00	1.040	-	-	-	-
	Right Tilt	23780	709	21.99	22.00	1.002	-0.08	0.013	0.013	-
		23790	710	21.94	22.00	1.014	-	-	-	-
		23800	711	21.83	22.00	1.040	-	-	-	-

Wi-Fi 2.4G												
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune-up limit (dBm)	Tune-up scaling factor	Duty Cycle	Duty Cycle Scaling Factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz									
802.11b	Left Cheek	1	2412	13.72	14.00	1.067	100%	1.00	-	-	-	-
		6	2437	11.40	11.50	1.023	100%	1.00	-	-	-	-
		11	2462	14.19	14.50	1.074	100%	1.00	-0.07	0.109	0.117	-
	Left Tilt	1	2412	13.72	14.00	1.067	100%	1.00	-	-	-	-
		6	2437	11.40	11.50	1.023	100%	1.00	-	-	-	-
		11	2462	14.19	14.50	1.074	100%	1.00	-0.18	0.085	0.092	-
	Right Cheek	1	2412	13.72	14.00	1.067	100%	1.00	-	-	-	-
		6	2437	11.40	11.50	1.023	100%	1.00	-	-	-	-
		11	2462	14.19	14.50	1.074	100%	1.00	-0.15	0.167	0.179	11
	Right Tilt	1	2412	13.72	14.00	1.067	100%	1.00	-	-	-	-
		6	2437	11.40	11.50	1.023	100%	1.00	-	-	-	-
		11	2462	14.19	14.50	1.074	100%	1.00	-0.02	0.124	0.133	-

14.2. Body SAR

GSM850										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
GPRS (3Tx slots)	Front	128	824.2	30.46	31.50	1.271	-	-	-	-
		190	836.6	31.00	31.50	1.122	-	-	-	-
		251	848.8	31.09	31.50	1.099	0.07	0.225	0.248	-
	Rear	128	824.2	30.46	31.50	1.271	-	-	-	-
		190	836.6	31.00	31.50	1.122	-	-	-	-
		251	848.8	31.09	31.50	1.099	0.03	0.446	0.490	12

PCS1900										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
GPRS (3Tx slots)	Front	512	1850.2	28.91	29.00	1.021	-	-	-	-
		661	1880	28.92	29.00	1.019	-0.09	0.612	0.623	-
		810	1909.8	28.85	29.00	1.035	-	-	-	-
	Rear	512	1850.2	28.91	29.00	1.021	0.05	1.430	1.460	13
		661	1880	28.92	29.00	1.019	-0.03	1.350	1.375	-
		810	1909.8	28.85	29.00	1.035	0.11	1.190	1.232	-

WCDMA Band II										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
RMC 12.2Kbps	Front	9262	1852.4	20.43	21.00	1.140	-	-	-	-
		9400	1880	20.39	21.00	1.151	-	-	-	-
		9538	1907.6	20.71	21.00	1.069	-0.04	0.422	0.451	-
	Rear	9262	1852.4	20.43	21.00	1.140	-0.05	0.874	0.997	-
		9400	1880	20.39	21.00	1.151	-0.01	1.040	1.197	14
		9538	1907.6	20.71	21.00	1.069	-0.11	0.932	0.996	-

WCDMA Band V										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
RMC 12.2Kbps	Front	4132	826.4	22.78	23.00	1.052	-	-	-	-
		4183	836.6	22.94	23.00	1.014	0.02	0.067	0.068	-
		4233	846.6	22.80	23.00	1.047	-	-	-	-
	Rear	4132	826.4	22.78	23.00	1.052	-	-	-	-
		4183	836.6	22.94	23.00	1.014	-0.01	0.132	0.134	15
		4233	846.6	22.80	23.00	1.047	-	-	-	-

LTE Band 2										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Front	18700	1860	23.08	23.50	1.102	-	-	-	-
		18900	1880	23.01	23.50	1.119	-	-	-	-
		19100	1900	23.22	23.50	1.067	-0.06	0.621	0.662	-
	Rear	18700	1860	23.08	23.50	1.102	-0.16	1.260	1.388	-
		18900	1880	23.01	23.50	1.119	0.13	1.300	1.455	-
		19100	1900	23.22	23.50	1.067	-0.04	1.370	1.461	16
20M QPSK 50RB	Front	18700	1860	21.99	22.50	1.125	-	-	-	-
		18900	1880	21.88	22.50	1.153	-	-	-	-
		19100	1900	22.09	22.50	1.099	0.03	0.598	0.657	-
	Rear	18700	1860	21.99	22.50	1.125	-0.16	0.974	1.095	-
		18900	1880	21.88	22.50	1.153	-0.05	0.991	1.143	-
		19100	1900	22.09	22.50	1.099	0.17	1.020	1.121	-
20M QPSK 100RB	Rear	18700	1860	22.02	22.50	1.117	-0.03	0.956	1.068	-
		18900	1880	21.85	22.50	1.161	-0.11	0.944	1.096	-
		19100	1900	22.07	22.50	1.104	-0.09	0.993	1.096	-

LTE Band 4										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Front	20050	1720	22.90	23.00	1.023	-	-	-	-
		20175	1732.5	22.99	23.00	1.002	0.08	0.291	0.292	-
		20300	1745	22.88	23.00	1.028	-	-	-	-
	Rear	20050	1720	22.90	23.00	1.023	-	-	-	-
		20175	1732.5	22.99	23.00	1.002	-0.07	0.643	0.644	17
		20300	1745	22.88	23.00	1.028	-	-	-	-
20M QPSK 50RB	Front	20050	1720	21.66	22.00	1.081	-	-	-	-
		20175	1732.5	21.84	22.00	1.038	-0.03	0.148	0.154	-
		20300	1745	21.70	22.00	1.072	-	-	-	-
	Rear	20050	1720	21.66	22.00	1.081	-	-	-	-
		20175	1732.5	21.84	22.00	1.038	-0.11	0.479	0.497	-
		20300	1745	21.70	22.00	1.072	-	-	-	-

LTE Band 5										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Front	20450	829	22.94	23.00	1.014	-	-	-	-
		20525	836.5	22.99	23.00	1.002	-0.09	0.027	0.027	-
		20600	844	22.97	23.00	1.007	-	-	-	-
	Rear	20450	829	22.94	23.00	1.014	-	-	-	-
		20525	836.5	22.99	23.00	1.002	-0.03	0.054	0.054	18
		20600	844	22.97	23.00	1.007	-	-	-	-
10M QPSK 25RB	Front	20450	829	21.74	22.50	1.191	-	-	-	-
		20525	836.5	22.07	22.50	1.104	0.19	0.020	0.022	-
		20600	844	21.96	22.50	1.132	-	-	-	-
	Rear	20450	829	21.74	22.50	1.191	-	-	-	-
		20525	836.5	22.07	22.50	1.104	0.01	0.047	0.052	-
		20600	844	21.96	22.50	1.132	-	-	-	-

LTE Band 7										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Front	20850	2510	22.31	22.50	1.045	-0.14	0.255	0.266	-
		21100	2535	22.21	22.50	1.069	-	-	-	-
		21350	2560	22.22	22.50	1.067	-	-	-	-
	Rear	20850	2510	22.31	22.50	1.045	-0.06	0.563	0.588	19
		21100	2535	22.21	22.50	1.069	-	-	-	-
		21350	2560	22.22	22.50	1.067	-	-	-	-
20M QPSK 50RB	Front	20850	2510	21.14	21.50	1.086	-0.09	0.240	0.261	-
		21100	2535	21.09	21.50	1.099	-	-	-	-
		21350	2560	21.09	21.50	1.099	-	-	-	-
	Rear	20850	2510	21.14	21.50	1.086	-0.10	0.537	0.583	-
		21100	2535	21.09	21.50	1.099	-	-	-	-
		21350	2560	21.09	21.50	1.099	-	-	-	-

LTE Band 12										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Front	23060	704	22.73	23.00	1.064	0.16	0.014	0.015	-
		23095	707.5	22.67	23.00	1.079	-	-	-	-
		23130	711	22.72	23.00	1.067	-	-	-	-
	Rear	23060	704	22.73	23.00	1.064	0.02	0.028	0.030	20
		23095	707.5	22.67	23.00	1.079	-	-	-	-
		23130	711	22.72	23.00	1.067	-	-	-	-
10M QPSK 25RB	Front	23060	704	21.51	22.00	1.119	-	-	-	-
		23095	707.5	21.83	22.00	1.040	-0.08	0.011	0.011	-
		23130	711	21.75	22.00	1.059	-	-	-	-
	Rear	23060	704	21.51	22.00	1.119	-	-	-	-
		23095	707.5	21.83	22.00	1.040	0.19	0.025	0.026	-
		23130	711	21.75	22.00	1.059	-	-	-	-

LTE Band 17										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Front	23780	709	22.93	23.00	1.016	-0.07	0.015	0.015	-
		23790	710	22.64	23.00	1.086	-	-	-	-
		23800	711	22.82	23.00	1.042	-	-	-	-
	Rear	23780	709	22.93	23.00	1.016	-0.05	0.029	0.029	21
		23790	710	22.64	23.00	1.086	-	-	-	-
		23800	711	22.82	23.00	1.042	-	-	-	-
10M QPSK 25RB	Front	23780	709	21.99	22.00	1.002	-0.11	0.012	0.012	-
		23790	710	21.94	22.00	1.014	-	-	-	-
		23800	711	21.83	22.00	1.040	-	-	-	-
	Rear	23780	709	21.99	22.00	1.002	0.07	0.026	0.026	-
		23790	710	21.94	22.00	1.014	-	-	-	-
		23800	711	21.83	22.00	1.040	-	-	-	-

Wi-Fi 2.4G												
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune-up limit (dBm)	Tune-up scaling factor	Duty Cycle	Duty Cycle Scaling Factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz									
802.11b	Front	1	2412	13.72	14.00	1.067	100%	1.00	-	-	-	-
		6	2437	11.40	11.50	1.023	100%	1.00	-	-	-	-
		11	2462	14.19	14.50	1.074	100%	1.00	-0.18	0.059	0.063	-
	Rear	1	2412	13.72	14.00	1.067	100%	1.00	-	-	-	-
		6	2437	11.40	11.50	1.023	100%	1.00	-	-	-	-
		11	2462	14.19	14.50	1.074	100%	1.00	-0.14	0.078	0.084	22

14.3. Hotspot SAR

GSM850										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
GPRS (3Tx slots)	Front	128	824.2	30.46	31.50	1.271	-	-	-	-
		190	836.6	31.00	31.50	1.122	-	-	-	-
		251	848.8	31.09	31.50	1.099	0.07	0.225	0.248	-
	Rear	128	824.2	30.46	31.50	1.271	-	-	-	-
		190	836.6	31.00	31.50	1.122	-	-	-	-
		251	848.8	31.09	31.50	1.099	0.03	0.446	0.490	12
	Left	251	848.8	31.09	31.50	1.099	-0.12	0.202	0.222	-
	Right	251	848.8	31.09	31.50	1.099	-0.05	0.268	0.295	-
	Top	251	848.8	31.09	31.50	1.099	-	-	-	-
Bottom	251	848.8	31.09	31.50	1.099	0.01	0.054	0.060	-	

PCS1900										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
GPRS (3Tx slots)	Front	512	1850.2	28.91	29.00	1.021	-	-	-	-
		661	1880	28.92	29.00	1.019	-0.09	0.612	0.623	-
		810	1909.8	28.85	29.00	1.035	-	-	-	-
	Rear	512	1850.2	28.91	29.00	1.021	0.05	1.430	1.460	13
		661	1880	28.92	29.00	1.019	-0.03	1.350	1.375	-
		810	1909.8	28.85	29.00	1.035	0.11	1.190	1.232	-
	Left	661	1880	28.92	29.00	1.019	0.13	0.135	0.138	-
	Right	661	1880	28.92	29.00	1.019	0.11	0.092	0.094	-
	Top	661	1880	28.92	29.00	1.019	-	-	-	-
	Bottom	512	1850.2	28.91	29.00	1.021	-0.08	1.117	1.140	-
		661	1880	28.92	29.00	1.019	-0.10	1.054	1.074	-
		810	1909.8	28.85	29.00	1.035	0.11	0.929	0.962	-

WCDMA Band II										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
RMC 12.2K	Front	9262	1852.4	20.43	21.00	1.140	-	-	-	-
		9400	1880	20.39	21.00	1.151	-	-	-	-
		9538	1907.6	20.71	21.00	1.069	-0.04	0.422	0.451	-
	Rear	9262	1852.4	20.43	21.00	1.140	-0.05	0.874	0.997	-
		9400	1880	20.39	21.00	1.151	-0.01	1.040	1.197	14
		9538	1907.6	20.71	21.00	1.069	-0.11	0.932	0.996	-
	Left	9538	1907.6	20.71	21.00	1.069	-0.14	0.096	0.102	-
	Right	9538	1907.6	20.71	21.00	1.069	-0.10	0.064	0.068	-
	Top	9538	1907.6	20.71	21.00	1.069	-	-	-	-
Bottom	9538	1907.6	20.71	21.00	1.069	-0.09	0.728	0.778	-	

WCDMA Band V										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
RMC 12.2K	Front	4132	826.4	22.78	23.00	1.052	-	-	-	-
		4183	836.6	22.94	23.00	1.014	0.02	0.067	0.068	-
		4233	846.6	22.80	23.00	1.047	-	-	-	-
	Rear	4132	826.4	22.78	23.00	1.052	-	-	-	-
		4183	836.6	22.94	23.00	1.014	-0.01	0.132	0.134	15
		4233	846.6	22.80	23.00	1.047	-	-	-	-
	Left	4183	836.6	22.94	23.00	1.014	-0.07	0.060	0.061	-
	Right	4183	836.6	22.94	23.00	1.014	-0.01	0.079	0.080	-
	Top	4183	836.6	22.94	23.00	1.014	-	-	-	-
Bottom	4183	836.6	22.94	23.00	1.014	-0.10	0.016	0.016	-	

LTE Band 2										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Front	18700	1860	23.08	23.50	1.102	-	-	-	-
		18900	1880	23.01	23.50	1.119	-	-	-	-
		19100	1900	23.22	23.50	1.067	-0.06	0.621	0.662	-
	Rear	18700	1860	23.08	23.50	1.102	-0.16	1.260	1.388	-
		18900	1880	23.01	23.50	1.119	0.13	1.300	1.455	-
		19100	1900	23.22	23.50	1.067	-0.04	1.370	1.461	16
	Left	19100	1900	23.22	23.50	1.067	0.02	0.137	0.146	-
	Right	19100	1900	23.22	23.50	1.067	0.10	0.093	0.099	-
	Top	19100	1900	23.22	23.50	1.067	-	-	-	-
	Bottom	18700	1860	23.08	23.50	1.102	0.02	0.984	1.084	-
		18900	1880	23.01	23.50	1.119	-0.11	1.015	1.137	-
		19100	1900	23.22	23.50	1.067	-0.05	1.070	1.141	-
20M QPSK 50RB	Front	18700	1860	21.99	22.50	1.125	-	-	-	-
		18900	1880	21.88	22.50	1.153	-	-	-	-
		19100	1900	22.09	22.50	1.099	0.03	0.598	0.657	-
	Rear	18700	1860	21.99	22.50	1.125	-0.16	0.974	1.095	-
		18900	1880	21.88	22.50	1.153	-0.05	0.991	1.143	-
		19100	1900	22.09	22.50	1.099	0.17	1.020	1.121	-
	Left	19100	1900	22.09	22.50	1.099	0.11	0.102	0.112	-
	Right	19100	1900	22.09	22.50	1.099	0.10	0.069	0.076	-
	Top	19100	1900	22.09	22.50	1.099	-	-	-	-
	Bottom	18700	1860	21.99	22.50	1.125	-0.04	0.761	0.855	-
		18900	1880	21.88	22.50	1.153	0.01	0.774	0.893	-
		19100	1900	22.09	22.50	1.099	-0.07	0.797	0.875	-
20M QPSK 100RB	Rear	18700	1860	22.02	22.50	1.117	-0.03	0.956	1.068	-
		18900	1880	21.85	22.50	1.161	-0.11	0.944	1.096	-
		19100	1900	22.07	22.50	1.104	-0.09	0.993	1.096	-
	Bottom	18700	1860	22.02	22.50	1.117	-0.17	0.747	0.834	-
		18900	1880	21.85	22.50	1.161	-0.06	0.737	0.856	-
		19100	1900	22.07	22.50	1.104	-0.09	0.776	0.856	-

LTE Band 4										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Front	20050	1720	22.90	23.00	1.023	-	-	-	-
		20175	1732.5	22.99	23.00	1.002	0.08	0.291	0.292	-
		20300	1745	22.88	23.00	1.028	-	-	-	-
	Rear	20050	1720	22.90	23.00	1.023	-	-	-	-
		20175	1732.5	22.99	23.00	1.002	-0.07	0.643	0.644	17
		20300	1745	22.88	23.00	1.028	-	-	-	-
	Left	20175	1732.5	22.99	23.00	1.002	-0.15	0.064	0.064	-
	Right	20175	1732.5	22.99	23.00	1.002	-0.11	0.044	0.044	-
	Top	20175	1732.5	22.99	23.00	1.002	-	-	-	-
Bottom	20175	1732.5	22.99	23.00	1.002	-0.02	0.502	0.503	-	
20M QPSK 50RB	Front	20050	1720	21.66	22.00	1.081	-	-	-	-
		20175	1732.5	21.84	22.00	1.038	-0.03	0.148	0.154	-
		20300	1745	21.70	22.00	1.072	-	-	-	-
	Rear	20050	1720	21.66	22.00	1.081	-	-	-	-
		20175	1732.5	21.84	22.00	1.038	-0.11	0.479	0.497	-
		20300	1745	21.70	22.00	1.072	-	-	-	-
	Left	20175	1732.5	21.84	22.00	1.038	0.05	0.060	0.062	-
	Right	20175	1732.5	21.84	22.00	1.038	0.17	0.040	0.042	-
	Top	20175	1732.5	21.84	22.00	1.038	-	-	-	-
Bottom	20175	1732.5	21.84	22.00	1.038	0.06	0.482	0.500	-	

LTE Band 5										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Front	20450	829	22.94	23.00	1.014	-	-	-	-
		20525	836.5	22.99	23.00	1.002	-0.09	0.027	0.027	-
		20600	844	22.97	23.00	1.007	-	-	-	-
	Rear	20450	829	22.94	23.00	1.014	-	-	-	-
		20525	836.5	22.99	23.00	1.002	-0.03	0.054	0.054	18
		20600	844	22.97	23.00	1.007	-	-	-	-
	Left	20525	836.5	22.99	23.00	1.002	-0.08	0.024	0.024	-
	Right	20525	836.5	22.99	23.00	1.002	0.06	0.032	0.032	-
	Top	20525	836.5	22.99	23.00	1.002	-	-	-	-
Bottom	20525	836.5	22.99	23.00	1.002	0.12	0.007	0.007	-	
10M QPSK 25RB	Front	20450	829	21.74	22.50	1.191	-	-	-	-
		20525	836.5	22.07	22.50	1.104	0.19	0.020	0.022	-
		20600	844	21.96	22.50	1.132	-	-	-	-
	Rear	20450	829	21.74	22.50	1.191	-	-	-	-
		20525	836.5	22.07	22.50	1.104	0.01	0.047	0.052	-
		20600	844	21.96	22.50	1.132	-	-	-	-
	Left	20525	836.5	22.07	22.50	1.104	-0.05	0.017	0.019	-
	Right	20525	836.5	22.07	22.50	1.104	-0.13	0.025	0.028	-
	Top	20525	836.5	22.07	22.50	1.104	-	-	-	-
Bottom	20525	836.5	22.07	22.50	1.104	-0.02	0.003	0.003	-	

LTE Band 7										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
20M QPSK 1RB	Front	20850	2510	22.31	22.50	1.045	-0.14	0.255	0.266	-
		21100	2535	22.21	22.50	1.069	-	-	-	-
		21350	2560	22.22	22.50	1.067	-	-	-	-
	Rear	20850	2510	22.31	22.50	1.045	-0.06	0.563	0.588	19
		21100	2535	22.21	22.50	1.069	-	-	-	-
		21350	2560	22.22	22.50	1.067	-	-	-	-
	Left	20850	2510	22.31	22.50	1.045	0.04	0.056	0.059	-
	Right	20850	2510	22.31	22.50	1.045	0.06	0.038	0.040	-
	Top	20850	2510	22.31	22.50	1.045	-	-	-	-
Bottom	20850	2510	22.31	22.50	1.045	-0.13	0.440	0.459	-	
20M QPSK 50RB	Front	20850	2510	21.14	21.50	1.086	-0.09	0.240	0.261	-
		21100	2535	21.09	21.50	1.099	-	-	-	-
		21350	2560	21.09	21.50	1.099	-	-	-	-
	Rear	20850	2510	21.14	21.50	1.086	-0.10	0.537	0.583	-
		21100	2535	21.09	21.50	1.099	-	-	-	-
		21350	2560	21.09	21.50	1.099	-	-	-	-
	Left	20850	2510	21.14	21.50	1.086	-0.08	0.052	0.056	-
	Right	20850	2510	21.14	21.50	1.086	-0.19	0.034	0.037	-
	Top	20850	2510	21.14	21.50	1.086	-	-	-	-
Bottom	20850	2510	21.14	21.50	1.086	0.17	0.420	0.456	-	

LTE Band 12										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Front	23060	704	22.73	23.00	1.064	0.16	0.014	0.015	-
		23095	707.5	22.67	23.00	1.079	-	-	-	-
		23130	711	22.72	23.00	1.067	-	-	-	-
	Rear	23060	704	22.73	23.00	1.064	0.02	0.028	0.030	20
		23095	707.5	22.67	23.00	1.079	-	-	-	-
		23130	711	22.72	23.00	1.067	-	-	-	-
	Left	23060	704.0	22.73	23.00	1.064	0.06	0.013	0.014	-
	Right	23060	704.0	22.73	23.00	1.064	-0.11	0.017	0.018	-
	Top	23060	704.0	22.73	23.00	1.064	-	-	-	-
Bottom	23060	704.0	22.73	23.00	1.064	0.07	0.003	0.004	-	
10M QPSK 25RB	Front	23060	704	21.51	22.00	1.119	-	-	-	-
		23095	707.5	21.83	22.00	1.040	-0.08	0.011	0.011	-
		23130	711	21.75	22.00	1.059	-	-	-	-
	Rear	23060	704	21.51	22.00	1.119	-	-	-	-
		23095	707.5	21.83	22.00	1.040	0.19	0.025	0.026	-
		23130	711	21.75	22.00	1.059	-	-	-	-
	Left	23095	707.5	21.83	22.00	1.040	-0.17	0.010	0.010	-
	Right	23095	707.5	21.83	22.00	1.040	-0.01	0.014	0.015	-
	Top	23095	707.5	21.83	22.00	1.040	-	-	-	-
Bottom	23095	707.5	21.83	22.00	1.040	0.13	0.001	0.001	-	

LTE Band 17										
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune up limit (dBm)	Tune up scaling factor	Power Drift(dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz							
10M QPSK 1RB	Front	23780	709	22.93	23.00	1.016	-0.07	0.015	0.015	-
		23790	710	22.64	23.00	1.086	-	-	-	-
		23800	711	22.82	23.00	1.042	-	-	-	-
	Rear	23780	709	22.93	23.00	1.016	-0.05	0.029	0.029	21
		23790	710	22.64	23.00	1.086	-	-	-	-
		23800	711	22.82	23.00	1.042	-	-	-	-
	Left	23780	709	22.93	23.00	1.016	0.14	0.013	0.013	-
	Right	23780	709	22.93	23.00	1.016	-0.09	0.017	0.018	-
	Top	23780	709	22.93	23.00	1.016	-	-	-	-
Bottom	23780	709	22.93	23.00	1.016	-0.02	0.004	0.004	-	
10M QPSK 25RB	Front	23780	709	21.99	22.00	1.002	-0.11	0.012	0.012	-
		23790	710	21.94	22.00	1.014	-	-	-	-
		23800	711	21.83	22.00	1.040	-	-	-	-
	Rear	23780	709	21.99	22.00	1.002	0.07	0.026	0.026	-
		23790	710	21.94	22.00	1.014	-	-	-	-
		23800	711	21.83	22.00	1.040	-	-	-	-
	Left	23780	709	21.99	22.00	1.002	0.14	0.010	0.010	-
	Right	23780	709	21.99	22.00	1.002	-0.17	0.014	0.014	-
	Top	23780	709	21.99	22.00	1.002	-	-	-	-
Bottom	23780	709	21.99	22.00	1.002	-0.09	0.001	0.001	-	

Wi-Fi 2.4G												
Mode	Test Position	Frequency		Conducted Power (dBm)	Tune-up limit (dBm)	Tune-up scaling factor	Duty Cycle	Duty Cycle Scaling Factor	Power Drift (dB)	Measured SAR(1g) (W/kg)	Report SAR(1g) (W/kg)	Plot No.
		CH	MHz									
802.11b	Front	1	2412	13.72	14.00	1.067	100%	1.00	-	-	-	-
		6	2437	11.40	11.50	1.023	100%	1.00	-	-	-	-
		11	2462	14.19	14.50	1.074	100%	1.00	-0.18	0.059	0.063	-
	Rear	1	2412	13.72	14.00	1.067	100%	1.00	-	-	-	-
		6	2437	11.40	11.50	1.023	100%	1.00	-	-	-	-
		11	2462	14.19	14.50	1.074	100%	1.00	-0.14	0.078	0.084	22
	Left	11	2462	14.19	14.50	1.074	100%	1.00	-0.16	0.052	0.056	-
	Right	11	2462	14.19	14.50	1.074	100%	1.00	-	-	-	-
Top	11	2462	14.19	14.50	1.074	100%	1.00	-0.11	0.051	0.055	-	
Bottom	11	2462	14.19	14.50	1.074	100%	1.00	-	-	-	-	

SAR Test Data Plots to the Appendix A.

15. SAR Measurement Variability

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

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

Band	Test Position	Frequency		Highest Measured SAR (W/kg)	First Repeated		Second Repeated	
		CH	MHz		Measured SAR(W/kg)	Largest to Smallest SAR Ratio	Measured SAR(W/kg)	Largest to Smallest SAR Ratio
GPRS1900 3Tx slots	Rear	512	1850.2	1.43	1.39	1.029	N/A	N/A
WCDMA Band II	Rear	9400	1880	1.04	0.991	1.049	N/A	N/A
LTE Band 2	Rear	19100	1900	1.34	1.26	1.063	N/A	N/A

16. Simultaneous Transmission analysis

No.	Simultaneous Transmission Configurations	Head	Body-worn	Hotspot	Note
1	GSM(voice) + Bluetooth (data)	Yes	Yes		
2	GSM(voice) + WLAN (data)	Yes	Yes		
3	WCDMA(voice) + Bluetooth (data)	Yes	Yes		
4	WCDMA(voice) + WLAN (data)	Yes	Yes		
5	GPRS (data) + Bluetooth (data)	Yes	Yes	Yes	
6	GPRS (data) + WLAN (data)	Yes	Yes	Yes	
7	WCDMA (data) + Bluetooth (data)	Yes	Yes	Yes	
8	WCDMA (data) + WLAN (data)	Yes	Yes	Yes	
9	LTE + Bluetooth (data)	Yes	Yes	Yes	
10	LTE + WLAN (data)	Yes	Yes	Yes	

General note:

1. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
2. EUT will choose either GSM or WCDMA LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
3. The reported SAR summation is calculated based on the same configuration and test position
4. For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01 based on the formula below
 - a) $[(\text{max. Power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})/x}] \text{W/kg}$ for test separation distances $\leq 50\text{mm}$; when $x=7.5$ for 1-g SAR, and $x=18.75$ for 10-g SAR.
 - b) When the minimum separation distance is $<5\text{mm}$, the distance is used 5mm to determine SAR test exclusion
 - c) 0.4 W/kg for 1-g SAR and 1.0W/kg for 10-g SAR, when the test separation distances is $>50\text{mm}$.

Bluetooth Max power	Exposure position	Head	Body-worn
	Test separation	0mm	10mm
3.50 dBm	Estimated SAR (W/kg)	0.093	0.047

16.1. Head

PCE+ WLAN DTS					
WWAN Band		Exposure Position	Standalone SAR (W/kg)		Σ 1-g SAR (W/kg)
			PCE	WLAN DTS	
GSM	GSM850	Left Cheek	0.216	0.117	0.333
		Left Tilted	0.130	0.092	0.222
		Right Cheek	0.230	0.179	0.409
		Right Tilted	0.138	0.133	0.271
	PCS1900	Left Cheek	0.121	0.117	0.238
		Left Tilted	0.036	0.092	0.128
		Right Cheek	0.074	0.179	0.253
		Right Tilted	0.022	0.133	0.155
WCDMA	Band II	Left Cheek	0.104	0.117	0.221
		Left Tilted	0.031	0.092	0.123
		Right Cheek	0.063	0.179	0.242
		Right Tilted	0.019	0.133	0.152
	Band V	Left Cheek	0.054	0.117	0.171
		Left Tilted	0.032	0.092	0.124
		Right Cheek	0.057	0.179	0.236
		Right Tilted	0.034	0.133	0.167
LTE	B2 1RB	Left Cheek	0.035	0.117	0.152
		Left Tilted	0.010	0.092	0.102
		Right Cheek	0.021	0.179	0.200
		Right Tilted	0.006	0.133	0.139
	B2 50RB	Left Cheek	0.033	0.117	0.150
		Left Tilted	0.008	0.092	0.100
		Right Cheek	0.019	0.179	0.198
		Right Tilted	0.003	0.133	0.136
	B4 1RB	Left Cheek	0.044	0.117	0.161
		Left Tilted	0.013	0.092	0.105
		Right Cheek	0.027	0.179	0.206
		Right Tilted	0.008	0.133	0.141
	B4 50RB	Left Cheek	0.042	0.117	0.159
		Left Tilted	0.011	0.092	0.103
		Right Cheek	0.025	0.179	0.204
		Right Tilted	0.005	0.133	0.138

LTE	B5 1RB	Left Cheek	0.020	0.117	0.137
		Left Tilted	0.012	0.092	0.104
		Right Cheek	0.021	0.179	0.200
		Right Tilted	0.013	0.133	0.146
	B5 25RB	Left Cheek	0.017	0.117	0.134
		Left Tilted	0.010	0.092	0.102
		Right Cheek	0.018	0.179	0.197
		Right Tilted	0.011	0.133	0.144
	B7 1RB	Left Cheek	0.250	0.117	0.367
		Left Tilted	0.074	0.092	0.166
		Right Cheek	0.152	0.179	0.331
		Right Tilted	0.045	0.133	0.178
	B7 50RB	Left Cheek	0.248	0.117	0.365
		Left Tilted	0.072	0.092	0.164
		Right Cheek	0.150	0.179	0.329
		Right Tilted	0.041	0.133	0.174
	B12 1RB	Left Cheek	0.027	0.117	0.144
		Left Tilted	0.016	0.092	0.108
		Right Cheek	0.028	0.179	0.207
		Right Tilted	0.017	0.133	0.150
	B12 25RB	Left Cheek	0.023	0.117	0.140
		Left Tilted	0.012	0.092	0.104
		Right Cheek	0.025	0.179	0.204
		Right Tilted	0.014	0.133	0.147
	B17 1RB	Left Cheek	0.025	0.117	0.142
		Left Tilted	0.015	0.092	0.107
		Right Cheek	0.027	0.179	0.206
		Right Tilted	0.016	0.133	0.149
B17 25RB	Left Cheek	0.022	0.117	0.139	
	Left Tilted	0.012	0.092	0.104	
	Right Cheek	0.023	0.179	0.202	
	Right Tilted	0.013	0.133	0.146	

PCE+ BT					
WWAN Band		Exposure Position	Standalone SAR (W/kg)		Σ 1-g SAR (W/kg)
			WWAN	BT	
GSM	GSM850	Left Cheek	0.216	0.093	0.309
		Left Tilted	0.130	0.093	0.223
		Right Cheek	0.230	0.093	0.323
		Right Tilted	0.138	0.093	0.231
	PCS1900	Left Cheek	0.121	0.093	0.214
		Left Tilted	0.036	0.093	0.129
		Right Cheek	0.074	0.093	0.167
		Right Tilted	0.022	0.093	0.115
WCDMA	Band II	Left Cheek	0.104	0.093	0.197
		Left Tilted	0.031	0.093	0.124
		Right Cheek	0.063	0.093	0.156
		Right Tilted	0.019	0.093	0.112
	Band V	Left Cheek	0.054	0.093	0.147
		Left Tilted	0.032	0.093	0.125
		Right Cheek	0.057	0.093	0.150
		Right Tilted	0.034	0.093	0.127
LTE	B2 1RB	Left Cheek	0.035	0.093	0.128
		Left Tilted	0.010	0.093	0.103
		Right Cheek	0.021	0.093	0.114
		Right Tilted	0.006	0.093	0.099
	B2 50RB	Left Cheek	0.033	0.093	0.126
		Left Tilted	0.008	0.093	0.101
		Right Cheek	0.019	0.093	0.112
		Right Tilted	0.003	0.093	0.096
	B4 1RB	Left Cheek	0.044	0.093	0.137
		Left Tilted	0.013	0.093	0.106
		Right Cheek	0.027	0.093	0.120
		Right Tilted	0.008	0.093	0.101
	B4 50RB	Left Cheek	0.042	0.093	0.135
		Left Tilted	0.011	0.093	0.104
		Right Cheek	0.025	0.093	0.118
		Right Tilted	0.005	0.093	0.098

LTE	B5 1RB	Left Cheek	0.020	0.093	0.113
		Left Tilted	0.012	0.093	0.105
		Right Cheek	0.021	0.093	0.114
		Right Tilted	0.013	0.093	0.106
	B5 25RB	Left Cheek	0.017	0.093	0.110
		Left Tilted	0.010	0.093	0.103
		Right Cheek	0.018	0.093	0.111
		Right Tilted	0.011	0.093	0.104
	B7 1RB	Left Cheek	0.250	0.093	0.343
		Left Tilted	0.074	0.093	0.167
		Right Cheek	0.152	0.093	0.245
		Right Tilted	0.045	0.093	0.138
	B7 50RB	Left Cheek	0.248	0.093	0.341
		Left Tilted	0.072	0.093	0.165
		Right Cheek	0.150	0.093	0.243
		Right Tilted	0.041	0.093	0.134
	B12 1RB	Left Cheek	0.027	0.093	0.120
		Left Tilted	0.016	0.093	0.109
		Right Cheek	0.028	0.093	0.121
		Right Tilted	0.017	0.093	0.110
	B12 25RB	Left Cheek	0.023	0.093	0.116
		Left Tilted	0.012	0.093	0.105
		Right Cheek	0.025	0.093	0.118
		Right Tilted	0.014	0.093	0.107
	B17 1RB	Left Cheek	0.025	0.093	0.118
		Left Tilted	0.015	0.093	0.108
		Right Cheek	0.027	0.093	0.120
		Right Tilted	0.016	0.093	0.109
	B17 25RB	Left Cheek	0.022	0.093	0.115
		Left Tilted	0.012	0.093	0.105
		Right Cheek	0.023	0.093	0.116
		Right Tilted	0.013	0.093	0.106

16.2. Body-worn

PCE + WLAN DTS					
WWAN Band		Exposure Position	Standalone SAR (W/kg)		Σ 1-g SAR (W/kg)
			PCE	WLAN DTS	
GSM	GSM850	Front	0.248	0.063	0.311
		Rear	0.490	0.084	0.574
	PCS1900	Front	0.623	0.063	0.686
		Rear	1.460	0.084	1.544
WCDMA	Band II	Front	0.451	0.063	0.514
		Rear	1.197	0.084	1.281
	Band V	Front	0.068	0.063	0.131
		Rear	0.134	0.084	0.218
LTE	B2 1RB	Front	0.662	0.063	0.725
		Rear	1.461	0.084	1.545
	B2 50RB	Front	0.657	0.063	0.720
		Rear	1.121	0.084	1.205
	B4 1RB	Front	0.292	0.063	0.355
		Rear	0.644	0.084	0.728
	B4 50RB	Front	0.154	0.063	0.217
		Rear	0.497	0.084	0.581
	B5 1RB	Front	0.027	0.063	0.090
		Rear	0.054	0.084	0.138
	B5 25RB	Front	0.022	0.063	0.085
		Rear	0.052	0.084	0.136
	B7 1RB	Front	0.266	0.063	0.329
		Rear	0.588	0.084	0.672
	B7 50RB	Front	0.261	0.063	0.324
		Rear	0.583	0.084	0.667
	B12 1RB	Front	0.015	0.063	0.078
		Rear	0.030	0.084	0.114
	B12 25RB	Front	0.011	0.063	0.074
		Rear	0.026	0.084	0.110
B17 1RB	Front	0.015	0.063	0.078	
	Rear	0.029	0.084	0.113	
B17 25RB	Front	0.012	0.063	0.075	
	Rear	0.026	0.084	0.110	

PCE + Bluetooth					
WWAN Band		Exposure Position	Standalone SAR (W/kg)		Σ 1-g SAR (W/kg)
			PCE	Bluetooth	
GSM	GSM850	Front	0.248	0.047	0.295
		Rear	0.490	0.047	0.537
	PCS1900	Front	0.623	0.047	0.670
		Rear	1.460	0.047	1.507
WCDMA	Band II	Front	0.451	0.047	0.498
		Rear	1.197	0.047	1.244
	Band V	Front	0.068	0.047	0.115
		Rear	0.134	0.047	0.181
LTE	B2 1RB	Front	0.662	0.047	0.709
		Rear	1.461	0.047	1.508
	B2 50RB	Front	0.657	0.047	0.704
		Rear	1.121	0.047	1.168
	B4 1RB	Front	0.292	0.047	0.339
		Rear	0.644	0.047	0.691
	B4 50RB	Front	0.154	0.047	0.201
		Rear	0.497	0.047	0.544
	B5 1RB	Front	0.027	0.047	0.074
		Rear	0.054	0.047	0.101
	B5 25RB	Front	0.022	0.047	0.069
		Rear	0.052	0.047	0.099
	B7 1RB	Front	0.266	0.047	0.313
		Rear	0.588	0.047	0.635
	B7 50RB	Front	0.261	0.047	0.308
		Rear	0.583	0.047	0.630
	B12 1RB	Front	0.015	0.047	0.062
		Rear	0.030	0.047	0.077
	B12 25RB	Front	0.011	0.047	0.058
		Rear	0.026	0.047	0.073
	B17 1RB	Front	0.015	0.047	0.062
		Rear	0.029	0.047	0.076
	B17 25RB	Front	0.012	0.047	0.059
		Rear	0.026	0.047	0.073

16.3. Hotspot

PCE + WLAN DTS					
WWAN Band		Exposure Position	Standalone SAR (W/kg)		Σ 1-g SAR (W/kg)
			PCE	WLAN DTS	
GSM	GSM850	Front	0.248	0.063	0.311
		Rear	0.490	0.084	0.574
		Left side	0.222	0.056	0.278
		Right side	0.295	-	0.295
		Top side	-	0.055	0.055
		Bottom side	0.060	-	0.060
	PCS1900	Front	0.623	0.063	0.686
		Rear	1.460	0.084	1.544
		Left side	0.138	0.056	0.194
		Right side	0.094	-	0.094
		Top side	-	0.055	0.055
		Bottom side	1.140	-	1.140
WCDMA	Band II	Front	0.451	0.063	0.514
		Rear	1.197	0.084	1.281
		Left side	0.102	0.056	0.158
		Right side	0.068	-	0.068
		Top side	-	0.055	0.055
		Bottom side	0.778	-	0.778
	Band V	Front	0.068	0.063	0.131
		Rear	0.134	0.084	0.218
		Left side	0.061	0.056	0.117
		Right side	0.080	-	0.080
		Top side	-	0.055	0.055
		Bottom side	0.016	-	0.016

LTE	B2 1RB	Front	0.662	0.063	0.725
		Rear	1.461	0.084	1.545
		Left side	0.146	0.056	0.202
		Right side	0.099	-	0.099
		Top side	-	0.055	0.055
		Bottom side	1.084	-	1.084
	B2 50RB	Front	0.657	0.063	0.720
		Rear	1.121	0.084	1.205
		Left side	0.112	0.056	0.168
		Right side	0.076	-	0.076
		Top side	-	0.055	0.055
		Bottom side	0.855	-	0.855
	B4 1RB	Front	0.292	0.063	0.355
		Rear	0.644	0.084	0.728
		Left side	0.064	0.056	0.120
		Right side	0.044	-	0.044
		Top side	-	0.055	0.055
		Bottom side	0.503	-	0.503
	B4 50RB	Front	0.154	0.063	0.217
		Rear	0.497	0.084	0.581
		Left side	0.062	0.056	0.118
		Right side	0.042	-	0.042
		Top side	-	0.055	0.055
		Bottom side	0.500	-	0.500
	B5 1RB	Front	0.027	0.063	0.090
		Rear	0.054	0.084	0.138
		Left side	0.024	0.056	0.080
		Right side	0.032	-	0.032
		Top side	-	0.055	0.055
		Bottom side	0.007	-	0.007
B5 25RB	Front	0.022	0.063	0.085	
	Rear	0.052	0.084	0.136	
	Left side	0.019	0.056	0.075	
	Right side	0.028	-	0.028	
	Top side	-	0.055	0.055	
	Bottom side	0.003	-	0.003	

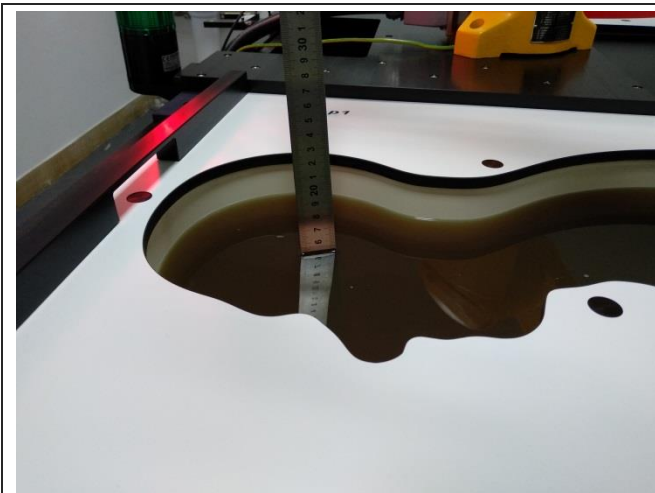
LTE	B7 1RB	Front	0.266	0.063	0.329
		Rear	0.588	0.084	0.672
		Left side	0.059	0.056	0.115
		Right side	0.040	-	0.040
		Top side	-	0.055	0.055
		Bottom side	0.459	-	0.459
	B7 50RB	Front	0.261	0.063	0.324
		Rear	0.583	0.084	0.667
		Left side	0.056	0.056	0.112
		Right side	0.037	-	0.037
		Top side	-	0.055	0.055
		Bottom side	0.456	-	0.456
	B12 1RB	Front	0.015	0.063	0.078
		Rear	0.030	0.084	0.114
		Left side	0.014	0.056	0.070
		Right side	0.018	-	0.018
		Top side	-	0.055	0.055
		Bottom side	0.004	-	0.004
	B12 25RB	Front	0.011	0.063	0.074
		Rear	0.026	0.084	0.110
		Left side	0.010	0.056	0.066
		Right side	0.015	-	0.015
		Top side	-	0.055	0.055
		Bottom side	0.001	-	0.001
	B17 1RB	Front	0.015	0.063	0.078
		Rear	0.029	0.084	0.113
		Left side	0.013	0.056	0.069
		Right side	0.018	-	0.018
		Top side	-	0.055	0.055
		Bottom side	0.004	-	0.004
B17 25RB	Front	0.012	0.063	0.075	
	Rear	0.026	0.084	0.110	
	Left side	0.010	0.056	0.066	
	Right side	0.014	-	0.014	
	Top side	-	0.055	0.055	
	Bottom side	0.001	-	0.001	

PCE + BT					
WWAN Band		Exposure Position	Max SAR (W/kg)		Summed SAR
			PCE	BT	(W/kg)
GSM	GSM850	Front	0.248	0.047	0.295
		Rear	0.490	0.047	0.537
		Left side	0.222	0.047	0.269
		Right side	0.295	-	0.295
		Top side	-	0.047	0.047
		Bottom side	0.060	-	0.060
	PCS1900	Front	0.623	0.047	0.670
		Rear	1.460	0.047	1.507
		Left side	0.138	0.047	0.185
		Right side	0.094	-	0.094
		Top side	-	0.047	0.047
		Bottom side	1.140	-	1.140
WCDMA	Band II	Front	0.451	0.047	0.498
		Rear	1.197	0.047	1.244
		Left side	0.102	0.047	0.149
		Right side	0.068	-	0.068
		Top side	-	0.047	0.047
		Bottom side	0.778	-	0.778
	Band V	Front	0.068	0.047	0.115
		Rear	0.134	0.047	0.181
		Left side	0.061	0.047	0.108
		Right side	0.080	-	0.080
		Top side	-	0.047	0.047
		Bottom side	0.016	-	0.016
LTE	B2 1RB	Front	0.662	0.047	0.709
		Rear	1.461	0.047	1.508
		Left side	0.146	0.047	0.193
		Right side	0.099	-	0.099
		Top side	-	0.047	0.047
		Bottom side	1.084	-	1.084
	B2 50RB	Front	0.657	0.047	0.704
		Rear	1.121	0.047	1.168
		Left side	0.112	0.047	0.159
		Right side	0.076	-	0.076
		Top side	-	0.047	0.047
		Bottom side	0.855	-	0.855

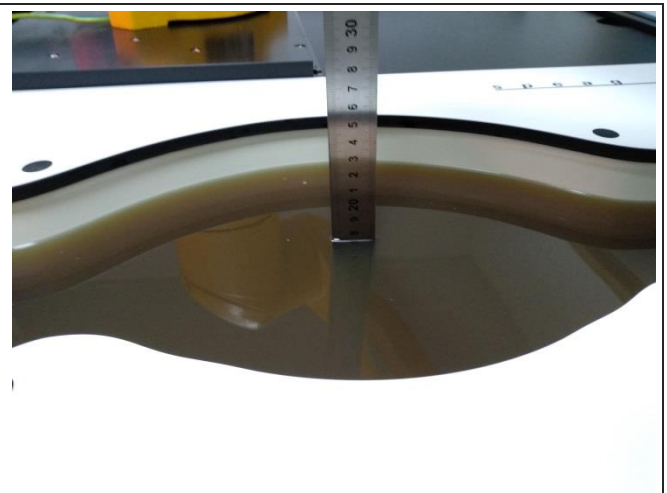
LTE	B4 1RB	Front	0.292	0.047	0.339
		Rear	0.644	0.047	0.691
		Left side	0.064	0.047	0.111
		Right side	0.044	-	0.044
		Top side	-	0.047	0.047
		Bottom side	0.503	-	0.503
	B4 50RB	Front	0.154	0.047	0.201
		Rear	0.497	0.047	0.544
		Left side	0.062	0.047	0.109
		Right side	0.042	-	0.042
		Top side	-	0.047	0.047
		Bottom side	0.500	-	0.500
	B5 1RB	Front	0.027	0.047	0.074
		Rear	0.054	0.047	0.101
		Left side	0.024	0.047	0.071
		Right side	0.032	-	0.032
		Top side	-	0.047	0.047
		Bottom side	0.007	-	0.007
	B5 25RB	Front	0.022	0.047	0.069
		Rear	0.052	0.047	0.099
		Left side	0.019	0.047	0.066
		Right side	0.028	-	0.028
		Top side	-	0.047	0.047
		Bottom side	0.003	-	0.003
B7 1RB	Front	0.266	0.047	0.313	
	Rear	0.588	0.047	0.635	
	Left side	0.059	0.047	0.106	
	Right side	0.040	-	0.040	
	Top side	-	0.047	0.047	
	Bottom side	0.459	-	0.459	
B7 50RB	Front	0.261	0.047	0.308	
	Rear	0.583	0.047	0.630	
	Left side	0.056	0.047	0.103	
	Right side	0.037	-	0.037	
	Top side	-	0.047	0.047	
	Bottom side	0.456	-	0.456	

LTE	B12 1RB	Front	0.015	0.047	0.062
		Rear	0.030	0.047	0.077
		Left side	0.014	0.047	0.061
		Right side	0.018	-	0.018
		Top side	-	0.047	0.047
		Bottom side	0.004	-	0.004
	B12 25RB	Front	0.011	0.047	0.058
		Rear	0.026	0.047	0.073
		Left side	0.010	0.047	0.057
		Right side	0.015	-	0.015
		Top side	-	0.047	0.047
		Bottom side	0.001	-	0.001
	B17 1RB	Front	0.015	0.047	0.062
		Rear	0.029	0.047	0.076
		Left side	0.013	0.047	0.060
		Right side	0.018	-	0.018
		Top side	-	0.047	0.047
		Bottom side	0.004	-	0.004
	B17 25RB	Front	0.012	0.047	0.059
		Rear	0.026	0.047	0.073
		Left side	0.010	0.047	0.057
		Right side	0.014	-	0.014
		Top side	-	0.047	0.047
		Bottom side	0.001	-	0.001

17. TestSetup Photos



Liquid depth in the Head phantom



Liquid depth in the Body phantom



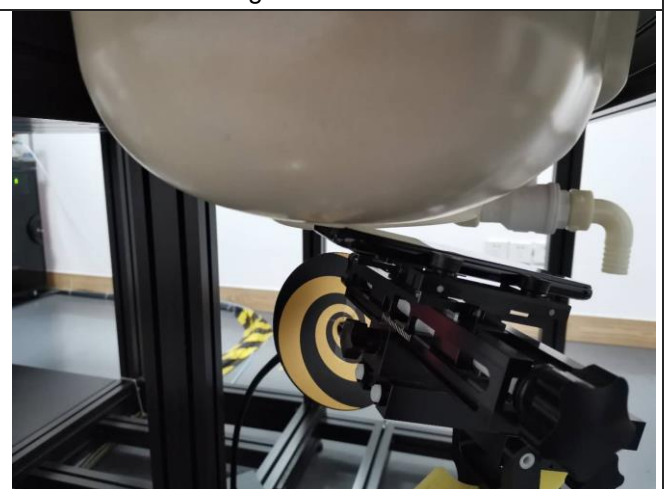
Left Head Touch



Right Head Touch



Left Head Tilt (15°)



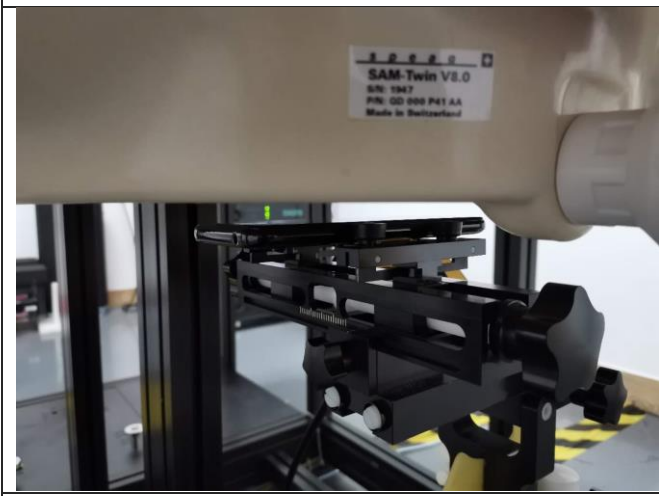
Right Head Tilt (15°)



Body-worn Front (10mm)



Body-worn Rear(10mm)



Front (10mm)



Rear (10mm)



Left Side (10mm)



Right Side (10mm)



Top Side (10mm)



Bottom Side (10mm)

18. External and Internal Photos of the EUT

Please reference to the report No.: CHTEW20060030

-----End of Report-----