FCC SAR TEST REPORT

Application No.:	CKSEM1909000542CR
Applicant:	Dspread Technology(Beijing) Inc
Address of Applicant:	Rm.407,812C,#10(Universal Business Park), Jiuxianqiao Road Chaoyang District Beijing, China
Manufacturer:	Dspread Technology(Beijing) Inc
Address of Manufacturer:	Rm.407,812C,#10(Universal Business Park), Jiuxianqiao Road Chaoyang District Beijing, China
Factory:	SHENZHEN WINSTAR PRECISION ELECTRONICS CO., LTD.
Address of Factory:	The East Side of the Floor 6,Floor 5,Building 28,Shancheng Industrial Park,Shixin Connmunity, Langxin Community,shiyan Street,Bao'an District,shenzhen City,Guangdong Province,P.R.China
Product Name:	Mobile POS
Model No.(EUT):	GD004
Trade mark:	N/A
FCC ID/IC ID:	2AGQ6-GD004-4G
Standard(s) :	FCC 47CFR §2.1093
Date of Receipt:	2019-09-26
Date of Test:	2019-09-27 to 2019-10-16 and 2020-07-02 to 2020-07-06
Date of Issue:	2020-07-11
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Eric Lin

Laboratory Manager

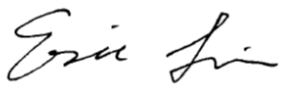
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300 t(86-512)57355888 f(86-512)57370818 www.sgsgroup.com.cn
中国・江苏・昆山市留学生创业园伟业路10号 邮编 215300 t(86-512)57355888 f(86-512)57370818 sgs.china@sgs.com

REVISION HISTORY

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2020-07-11	Original

Authorized for issue by:				
				
		Richard.Kong/ Project Engineer		
				
		Eric.Lin/Reviewer		

TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)	
	Body	Extremity
GSM850	0.41	0.54
GSM1900	0.77	0.82
WCDMA Band II	1.12	0.99
WCDMA Band V	0.21	0.43
LTE Band 2	0.63	0.63
LTE Band 4	1.02	1.04
LTE Band 5	0.49	0.52
LTE Band 7	0.47	0.63
LTE Band 40	0.48	0.58
WI-FI (2.4GHz)	0.04	0.07
SAR Limited(W/kg)	1.6	4
Maximum Simultaneous Transmission SAR (W/kg)		
Scenario	Body	Extremity
Sum SAR	1.12	1.00
SPLSR	N/A	N/A
SPLSR Limited	0.04	0.1

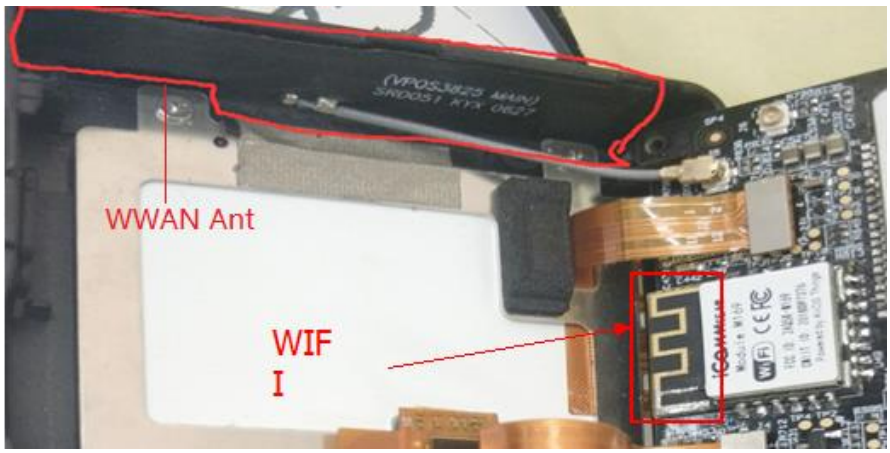
CONTENTS

1 General Information

1.1 General Description of EUT

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Phase:	production unit		
SN:	04500300319122500062/ 04500100319122500045		
Hardware Version:	1.3.1		
Software Version:	V05		
Antenna Type:	Integral Antenna		
Device Operating Configurations :			
Modulation Mode:	**GSM**: GMSK, 8PSK; **WCDMA**: QPSK; **LTE**: QPSK,16QAM; **WIFI**: CCK, DSSS, OFDM;		
Antenna Gain:	(Provided by the manufacturer)		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	14	HSUPA UE Category	6
Power Class	4,tested with power level 5(GSM850)		
	1,tested with power level 0(GSM1900)		
	3,tested with power control “all 1”(WCDMA Band II/V)		
	3, tested with power control Max Power(LTE Band 2/4/5/7/40)		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	WCDMA Band V	824~849	869~894
	WCDMA Band II	1850~1910	1930~1990
	LTE Band 2	1850~1910	1930~1990
	LTE Band 4	1710~1755	2110~2155
	LTE Band 5	824~849	869~894
	LTE Band 7	2500~2570	2620~2690
	LTE Band 40	2305~2315 2350~2360	2305~2315 2350~2360
	WIFI 2.4G	2412~2462	2412~2462
Battery1 Information:	Model: JY503450		
	Rated capacity: 1000mAh, 3.7V, 3.7Wh		
	Manufacturer: Zhongshan Jingyu Electronic Technology Co., Ltd.		

1.1.1 DUT Antenna Locations(Back View)



The test device is a Mobile POS. The display diagonal dimension is 127mm and the overall diagonal dimension of this device is 158mm.

According to the distance between WWAN/Wi-Fi antennas and the sides of the EUT we can draw the conclusion that:

EUT Sides for SAR Testing						
Mode	Front	Back	Left	Right	Top	Bottom
Main Antenna	Yes	Yes	Yes	Yes	Yes	Yes
2.4G WIFI	Yes	Yes	Yes	Yes	Yes	Yes

Table 1: EUT Sides for SAR Testing

Note:

1) Details please see Section 8.2 and 8.3

1.2 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radio frequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE Std C95.1 – 1992	Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 941225 D01 3G SAR Procedures v03r01	3G SAR Measurement Procedures
KDB 248227 D01 802.11 Wi-Fi SAR v02r02	SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS
KDB 941225 D05 SAR for LTE Devices v02r05	SAR EVALUATION CONSIDERATIONS FOR LTE DEVICES
KDB447498 D01 General RF Exposure Guidance v06	Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04	SAR Measurement Requirements for 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting v01r02	RF Exposure Compliance Reporting and Documentation Considerations

1.3 RF exposure limits

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

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

** The Spatial Average value of the SAR averaged over the whole body.

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

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

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

1.4 Test Location

Company:	Compliance Certification Services Inc. Kun shan Laboratory
Address:	No.10 Weiye Rd., Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China
Post code:	215300
Telephone:	86-512-57355888
Fax:	86-512-57370818
E-mail:	sgs.china@sgs.com

1.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC –Designation Number: CN1172**

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory.

Designation Number: CN1172.

- **ISED (CAB identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory

CAB Identifier: CN0072.

- **VCCI (Member No.: 1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1600, C-1707, T-1499, G-10216 respectively.

2 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

Table 2: The Ambient Conditions

3 SAR Measurements System Configuration

3.1 The SAR Measurement System

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

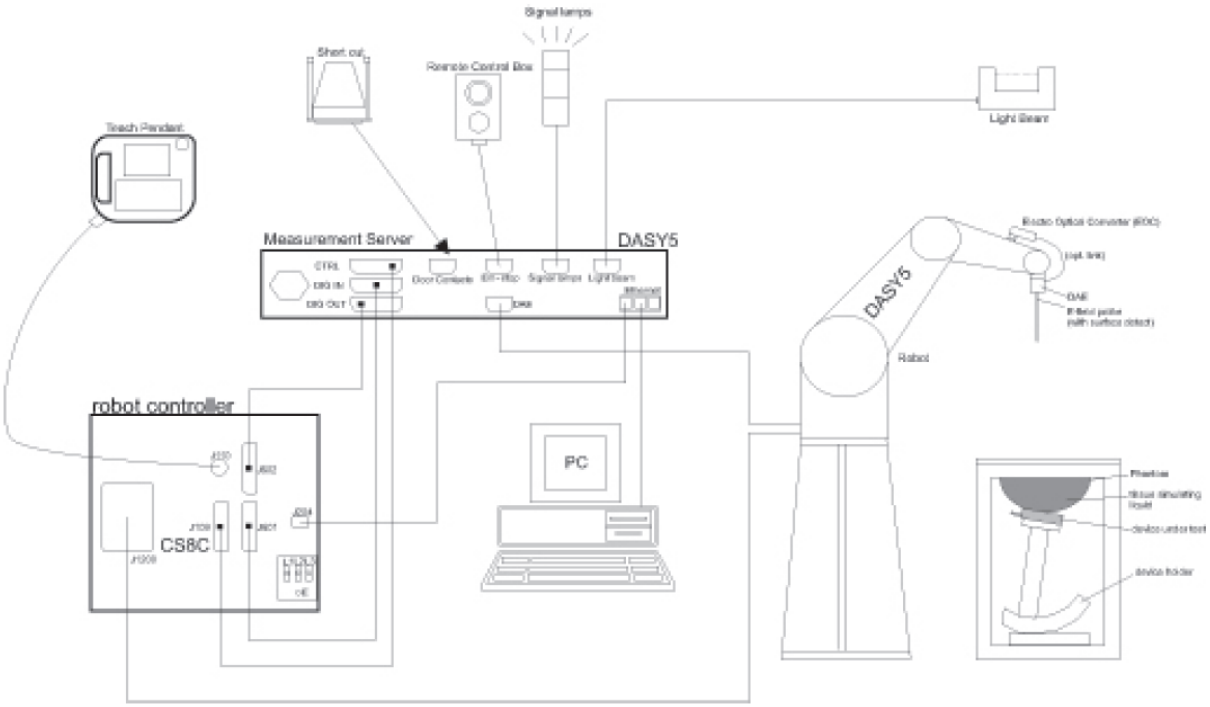
The DASY5 system for performing compliance tests consists of the following items:

A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software .An arm extension for accommodation 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 electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.



F-1. SAR Measurement System Configuration

- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.

- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validat the proper functioning of the system.

3.2 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

3.3 Data Acquisition Electronics (DAE)

Model	DAE4
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)
Input Offset Voltage	< 5µV (with auto zero)
Input Bias Current	< 50 f A
Dimensions	60 x 60 x 68 mm

3.4 SAM Twin Phantom

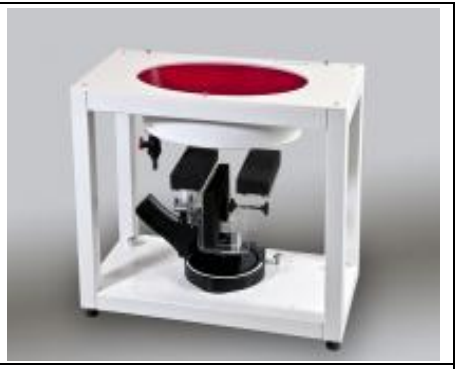
Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions **(incl. Wooden Support)**	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx. 25 liters
Wooden Support	SPEAG standard phantom table

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

3.5 ELI Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2.0 ± 0.2 mm (bottom plate)
Dimensions	Major axis: 600 mm Minor axis: 400 mm
Filling Volume	approx. 30 liters
Wooden Support	SPEAG standard phantom table



Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

3.6 Device Holder for Transmitters

F-2. **Device Holder for Transmitters**

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

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

3.7 Measurement procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure.

Step 2: *Area scan*

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 12mm*12mm or 10mm*10mm.Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: *Zoom scan*

Around this point, a volume of 30mm*30mm*30mm (fine resolution volume scan, zoom scan) was assessed by measuring 5x5x7 points (≤2GHz)and 7x7x7 points (≥2GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification).The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std. 1528-2003.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 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.	
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 1st 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	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power reference measurement (drift)

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The indicated drift is mainly the variation of the DUT's output power and should vary max. ± 5 %

3.7.2 Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DAE3". 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], [m W/g], [m W/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.

3.7.3 Data Evaluation by SEMCAD

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

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

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

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

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

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

With Vi = compensated signal of channel i (i = x, y, z)

Ui = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp i = diode compression point (DASY parameter)

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

E-field probes:

$$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

H-field probes:

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

With Vi = compensated signal of channel i (i = x, y, z)
Normi = sensor sensitivity of channel I (i = x, y, z)
[mV/(V/m)2] for E-field Probes
ConvF = sensitivity enhancement in solution
aij = sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
Ei = electric field strength of channel i in V/m
Hi = magnetic field strength of channel i in A/m

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

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

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

$$SAR = (Etot^2 \cdot \sigma) / (\varepsilon \cdot 1000)$$

With SAR = local specific absorption rate in mW/g
Etot = total field strength in V/m
σ= conductivity in [mho/m] or [Siemens/m]
ε= equivalent tissue density in g/cm3

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

$$P_{pwe} = E_{tot}{}^2{}_2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with Ppwe = equivalent power density of a plane wave in mW/cm2
Etot = total electric field strength in V/m
Htot = total magnetic field strength in A/m

4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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

4.2 SAR measurement uncertainty

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

5 Description of Test Position

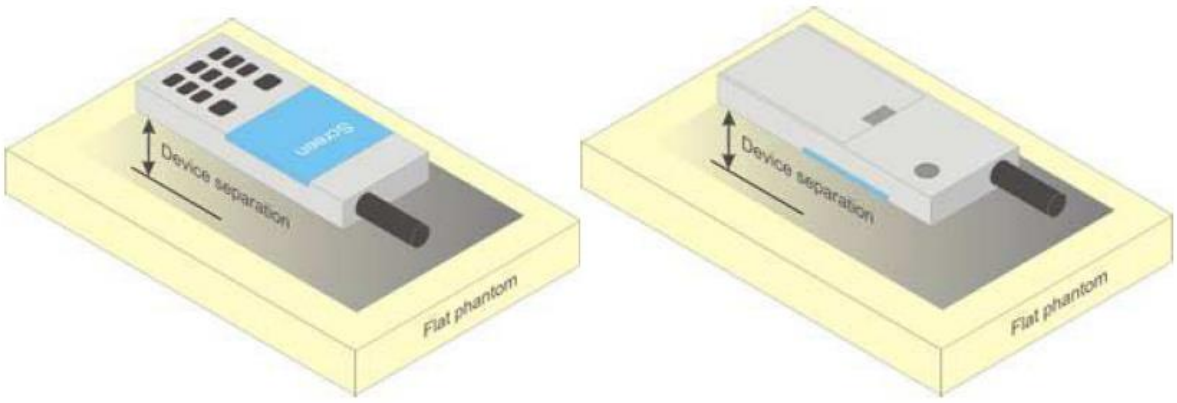
5.1 The Body Test Position

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB 447498 are used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required.

A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. According to KDB447498 D01, Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance <= 5 mm to support compliance.



F-3. **Test positions for body-worn devices**

5.1.1 Extremity exposure conditions

Devices that are designed or intended for use on extremities, or mainly operated in extremity only exposure conditions, i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1-g body and 10-g extremity SAR Test Exclusion Thresholds in 8.2 should be applied to determine SAR test requirements. When extremity SAR testing is required, a flat phantom must be used if the exposure condition is more conservative than the actual use conditions; otherwise, a KDB inquiry is required to determine the phantom and test requirements. Body SAR compliance is also tested with a flat phantom. For devices with irregular shapes or form factors that do not conform to a flat phantom, and/or unusual operating configurations and exposure conditions, a KDB inquiry is also required to determine the appropriate SAR measurement procedures. Unless it is specified differently in the published RF exposure KDB procedures, when simultaneous transmission applies to extremity exposure, the simultaneous transmission SAR test exclusion provisions should be applied. When simultaneous transmission SAR measurement is required, the enlarged zoom scan and volume scan post-processing procedures in KDB Publication 865664 D01 should be applied.

Test Distance for SAR Evaluation

For 10g Extremity SAR the EUT is set directly against the phantom and the test distance is 0mm.

For 1g Body SAR the EUT is set 5mm away from the phantom and the test distance is 5mm.

6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands：

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78
HSL5GHz is composed of the following ingredients： Water：50-65% Mineral oil：10-30% Emulsifiers：8-25% Sodium salt：0-1.5%										
MSL5GHz is composed of the following ingredients： Water：64-78% Mineral oil：11-18% Emulsifiers：9-15% Sodium salt：2-3%										

Table 3：Recipe of Tissue Simulate Liquid

6.1.2 Test Liquids Confirmation

Simulated tissue liquid parameter confirmation

The dielectric parameters were checked prior to assessment using the SPEAG DAK3.5 dielectric probe kit. The dielectric parameters measured are reported in each correspondent section.

IEEE SCC-34/SC-2 P1528 recommended tissue dielectric parameters

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in P1528

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

6.1.3 Measurement for Tissue Simulate Liquid

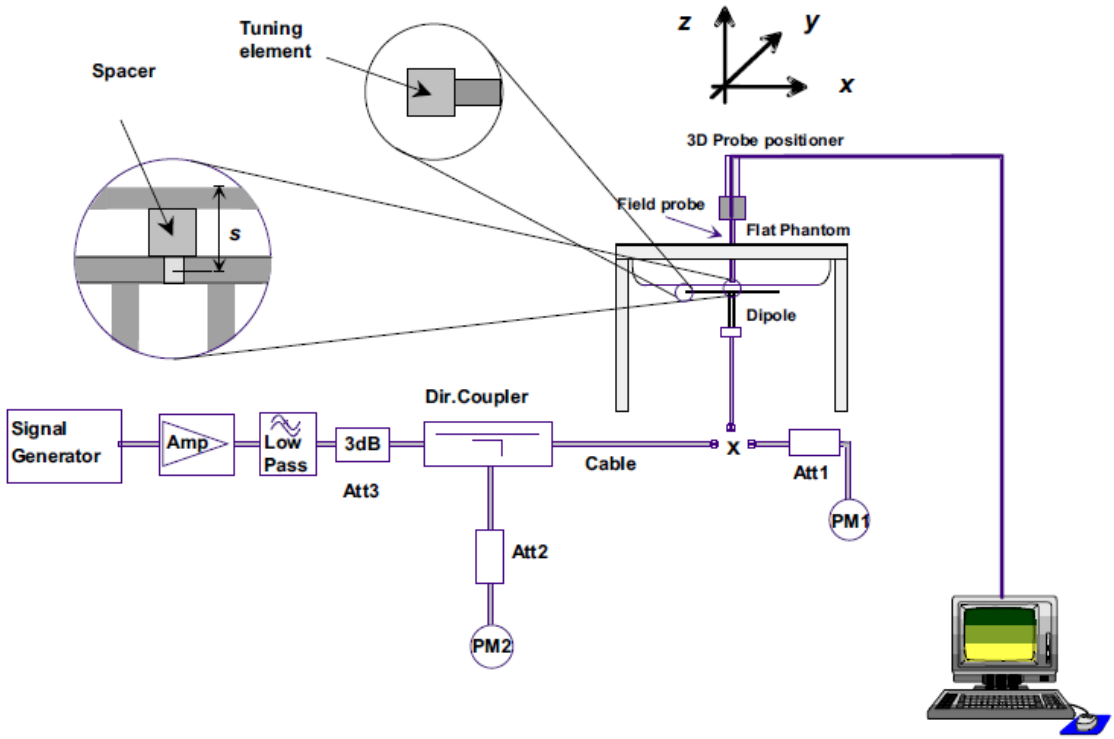
The dielectric properties for this Tissue Simulate Liquids were measured by using the Agilent Model 85070E Dielectric Probe in conjunction with Agilent E5071C Network Analyzer (300 KHz-8500 MHz). The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Tissue Type	Measured Frequency（MHz）	Target Tissue (±5%)		Measured Tissue		Liquid Temp.	Measured Date
		ε_r	σ(S/m)	ε_r	σ(S/m)	(℃)	
835 Body	835	55.2 (52.44~57.96)	0.97 (0.92~1.02)	55.378	0.985	22.1	2019/9/30
1900 Body	1900	53.3 (50.64~55.97)	1.52 (1.44~1.60)	53.017	1.523	22.3	2019/9/27
2450 Body	2450	52.70 (50.07~55.34)	1.95 (1.85~2.05)	52.697	2.012	22	2019/10/16
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	40.798	0.886	22.1	2020/7/3
1800 Head	1800	40.0 (38.00~42.00)	1.40 (1.33~1.47)	40.258	1.384	22.2	2020/7/2
1900 Head	1900	40.0 (38.00~42.00)	1.40 (1.33~1.47)	40.627	0.373	22.3	2020/7/2
2300 Head	2300	39.5 (37.53~41.48)	1.67 (1.53~1.69)	40.496	1.639	22.1	2020/7/6
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	39.429	1.994	22.1	2020/7/6

Table 4：Measurement result of Tissue electric parameters

6.2 SAR System Check

The microwave circuit arrangement for system check is sketched in bellow figure. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table. During the tests, the ambient temperature of the laboratory was in the range 22±2°C, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



F-4. the microwave circuit arrangement used for SAR system verification

6.2.1 Justification for Extended SAR Dipole Calibrations

1) Referring to KDB865664 D01 requirements for dipole calibration, instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.

a) There is no physical damage on the dipole;

b) System check with specific dipole is within 10% of calibrated value;

c) Return-loss is within 10% of calibrated measurement;

d) Impedance is within 5Ω from the previous measurement.

2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

6.2.2 Summary System Check Result(s)

Validation Kit		Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W) (±10%)	Target SAR (normalized to 1W) (±10%)	Liquid Temp. (℃)	Measured Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D835V2	Body	2.42	1.58	9.68	6.32	9.49 (8.54~10.44)	6.27 (5.64~6.90)	22.1	2019/9/30
D1900V2	Body	9.95	5.19	39.8	20.76	40.1 (36.09~44.11)	20.9 (18.81~22.99)	22.3	2019/9/27
D2450V2	Body	12.2	5.66	48.8	22.64	50.9 (45.81~55.99)	23.6 (21.24~25.96)	22	2019/10/16
D835V2	Head	2.15	1.42	8.6	5.68	9.41 (8.47~10.35)	6.25 (5.63~6.88)	22.1	2020/7/3
D1800V2	Head	9.51	4.75	38.04	19	38.4 (34.56~42.24)	20.2 (18.18~22.22)	22.2	2020/7/2
D1900V2	Head	10.4	5.39	41.6	21.56	39.7 (35.73~43.67)	20.5 (18.45~22.55)	22.3	2020/7/2
D2300V2	Head	10.9	5.4	43.6	21.6	47.4 (42.66~52.14)	22.8 (20.52~25.08)	22	2020/7/6
D2600V2	Head	13.4	6.01	53.6	24.04	56.2 (50.58~61.82)	25 (22.50~27.50)	22.1	2020/7/6

Table 5: SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A

7 Test Configuration

7.1 3G SAR Test Reduction Procedure

According to KDB 941225D01, in the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

7.2 Operation Configurations

7.2.1 GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a base station by air link. Using CMW500 the power lever is set to “5”and “0” in SAR of GSM 850 and GSM 1900. The tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

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.

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

The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode.

7.2.2 CDMA Test Configuration

1）. 1x RTT Handsets

The following procedures apply to CDMA 2000 Release 0 and Release A single carrier (1x RTT) handsets operating with Mobile Protocol Revision 6 or 7 (MOB_P_REV 6 or 7). The default test configuration is to measure SAR in RC3 with an established radio link between the handset and a communication test set. SAR in RC1 is selectively confirmed according to the 3G SAR test reduction procedure with RC3 as the primary mode. The forward and reverse links are configured with the same RC for SAR measurement. Maximum output power is verified by applying the procedures defined in 3GPP2 C. S0011 and TIA-98-E. SAR must be measured according to these maximum output conditions and requirements in KDB Publication 447498 D01.

2）. Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. Results for at least steps 3, 4 and 10 of the power measurement procedures are required in the SAR report. Steps 3 and 4 are measured using Loopback Service Option SO55 with power control bits in “All Up” condition. TDSO/SO32 may be used instead of SO55 for step 4. Step 10 is measured using TDSO/SO32 with power control bits in the “Bits Hold” condition (i.e. alternative Up/Down Bits). All power measurements defined in C.S0011/TIA-98-E that are inapplicable to the handset or cannot be measured due to technical or equipment limitations must be clearly identified in the test report.

3）. Head SAR

SAR for next to the ear head exposure is measured in RC3 with the handset configured to transmit at full rate in SO55. The 3G SAR test reduction procedure is applied to RC1 with RC3 as the primary mode; otherwise, SAR is required for the channel with maximum measured output in RC1 using the head exposure configuration that results in the highest reported SAR in RC3.

4）. Body-Worn Accessory SAR

Body-worn accessory SAR is measured in RC3 with the handset configured in TDSO/SO32 to transmit at full rate on FCH only with all other code channels disabled. The body-worn accessory procedures in KDB Publication 447498 D01 are applied. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCHn), with FCH only as the primary mode. Otherwise, SAR is required for multiple code channel configuration (FCH + SCHn), with FCH at full rate and SCH0 enabled at 9600 bps, using the highest reported SAR configuration for FCH only. When multiple code channels are enabled, the transmitter output can shift by more than 0.5 dB and may lead to higher SAR drifts and SCH dropouts.

The 3G SAR test reduction procedure is applied to body-worn accessory SAR in RC1 with RC3 as the primary mode. Otherwise, SAR is required for RC1, with SO55 and full rate, using the highest reported SAR configuration for body-worn accessory exposure in RC3.

5）. Handsets with built-in Ev-Do

For handsets with Ev-Do capabilities, the 3G SAR test reduction procedure is applied to Ev-Do Rev. 0 with 1x RTT RC3 as the primary mode to determine body-worn accessory test requirements. Otherwise, body-worn accessory SAR is required for Rev. 0, at 153.6 kbps, using the highest reported SAR configuration for body-worn accessory exposure in RC3.

The 3G SAR test reduction procedure is applied separately to Rev. A and Rev. B, with Rev. 0 as the primary mode to determine body-worn accessory SAR test requirements. When SAR is not required for Rev. 0, the 3G SAR test reduction is applied with 1x RTT RC3 as the primary mode. Otherwise, SAR is required for Rev. A or Rev. B, with a Reverse Data Channel payload size of 4096 bits and a Termination Target of 16 slots defined for Subtype 2 and 3 Physical Layer configurations, using the highest reported SAR configuration for body-worn accessory exposure in Rev. 0 or RC3, as appropriate.

A Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with ACK Channel transmitting in all slots is configured in the downlink for Rev. 0, Rev. A and Rev. B.

7.2.3 WCDMA Test Configuration

1）. Output Power Verification

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

2）. Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure

3）. Body SAR

SAR for body configurations is measured using a 12.2 kbps RMC with ……/..////.TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreaing code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the handset, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

4）. HSDPA / HSUPA / DC-HSDPA

According to KDB 941225 D01v03, 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 / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA

a) HSDPA

HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(βc, βd), and HS-DPCCH power offset parameters (ΔACK, ΔNACK, ΔCQI) are set according to values indicated in the following table The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Sub-test	βc	Bd	βd(SF)	βc/βd	βhs	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note1: △ACK, △NACK and △CQI= 8 Ahs = βhs/βc=30/15 βhs=30/15*βc

Note2: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 5.13.1.A,and HSDPA EVM with phase discontinuity in clause 5.13.1AA, △ACK and △NACK= 8 (Ahs=30/15) with βhs=30/15*βc,and △CQI=
7 (Ahs=24/15) with βhs=24/15*βc.

Note3: CM=1 forβc/βd =12/15, βhs/βc=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

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

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

Table 6：settings of required H-Set 1 QPSK acc. to 3GPP 34.121

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

Table 7：HSDPA UE category

b) HSUPA

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ec} (SF)	β_{ed} (code)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{ed2}:47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH theMPR 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 measurementperiod (TF1, TF0) is achieved by setting the signalled gain factorsfor 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 measurementperiod (TF1, TF0) is achieved by setting the signalled gain factorsfor the reference TFC (TF1,TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$

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

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

Table 8：Subtests for WCDMA Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Speading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF4	11484	5.76
	4	4	2		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF4	22996	?
	4	4	10		20000	?
NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM.(TS25.306-7.3.0).						

Table 9：HSUPA UE category

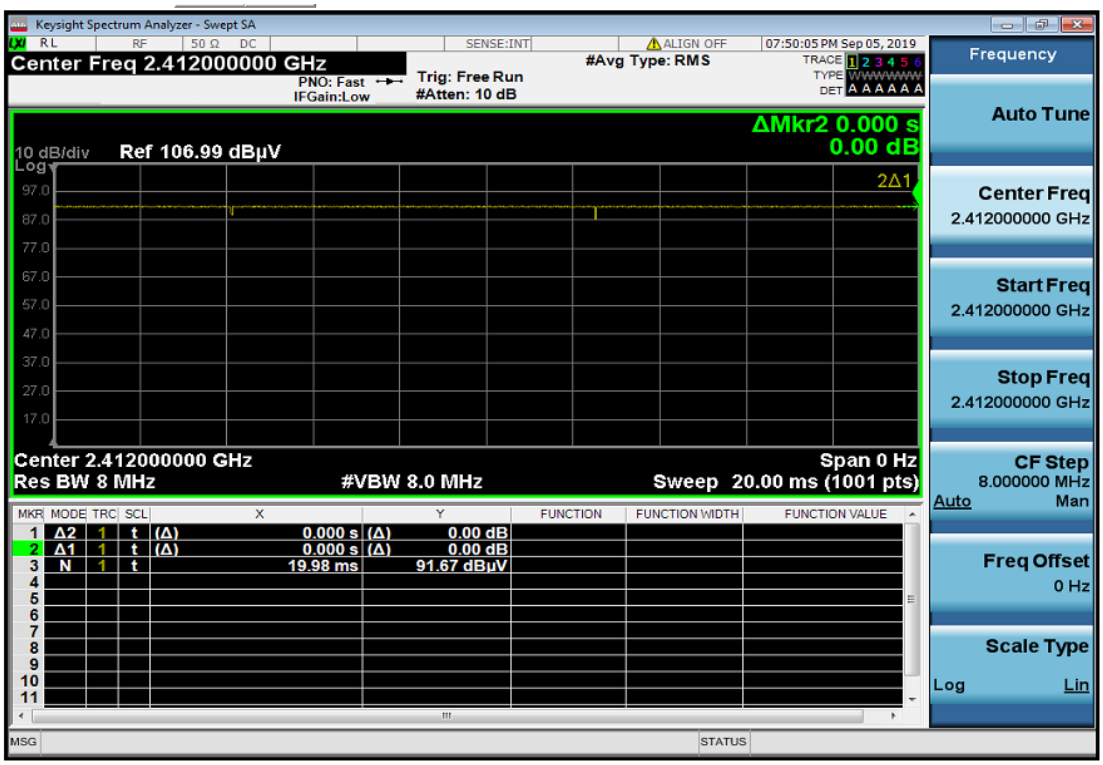
7.2.4 WiFi Test Configuration

A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

7.2.4.1 Duty cycle

1) 2.4GHz Wi-Fi 802.11b:

Wi-Fi 802.11b 1M: Duty cycle=100%



7.2.4.2 Initial Test Position SAR Test Reduction Procedure

DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. The initial test position procedure is described in the following:

1）. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).

2）. When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.

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

until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

7.2.4.3 Initial Test Configuration Procedures

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

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

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

7.2.4.4 Subsequent Test Configuration Procedures

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.

1）. When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.

2）. When the highest *reported* SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

3）. The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.

   a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.

   b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the *reported* SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.

4）. SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining

configurations according to the following:

a) replace “subsequent test configuration” with “next subsequent test configuration” (i.e., subsequent next highest specified maximum output power configuration)
b) replace “initial test configuration” with “all tested higher output power configurations”

7.2.4.5 2.4 GHz WiFi SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions. When SAR measurement is required for an OFDM configuration, the initial test configuration, subsequent test configuration and initial test position procedures are applied. The SAR test exclusion requirements for 802.11g/n OFDM configurations are described in following.

- **802.11b DSSS SAR Test Requirements**

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

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

- **2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements**

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

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

7.2.5 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

TDD LTE test consideration

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

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

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

Frame structure type 2:

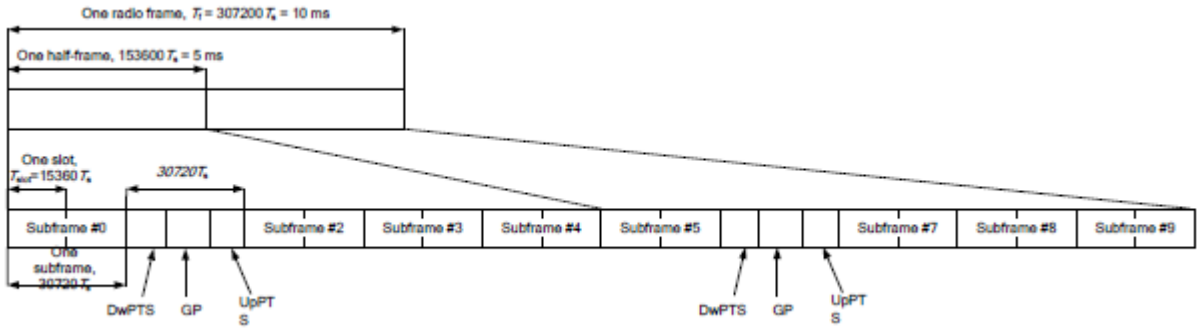


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

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

Table 4.2-2: Uplink-downlink configurations.

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

Calculated Duty Cycle=[Extended cyclic prefix in uplink x (Ts) x # of S + # of U]/10ms

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

A) Spectrum Plots for RB Configurations

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

B) MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 V13.5.0 (201609) Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

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

C) A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

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

output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

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

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

E) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg..

8 Test Result

8.1 Measurement of RF Conducted Power

8.1.1 Conducted Power Of GSM

GSM 850										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GPRS /EGPRS (GMSK)	1 TX Slot	32.45	32.56	32.46	33.0	-9.19	23.26	23.37	23.27	23.81
	2 TX Slots	30.60	30.74	30.61	31.0	-6.18	24.42	24.56	24.43	24.82
	3 TX Slots	28.75	28.90	28.75	29.0	-4.42	24.33	24.48	24.33	24.58
	4 TX Slots	27.66	27.76	27.62	28.0	-3.17	24.49	**24.59**	24.45	**24.83**
EGPRS (8PSK)	1 TX Slot	24.65	24.46	25.7	26.0	-9.19	15.46	15.27	16.51	16.81
	2 TX Slots	22.79	22.62	23.80	24.0	-6.18	16.61	16.44	17.62	17.82
	3 TX Slots	20.92	20.73	21.95	22.0	-4.42	16.5	16.31	17.53	17.58
	4 TX Slots	19.03	18.89	20.11	20.5	-3.17	15.86	15.72	16.94	17.33
GSM 1900										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GPRS /EGPRS (GMSK)	1 TX Slot	29.85	29.86	29.87	30.0	-9.19	20.66	20.67	20.68	20.81
	2 TX Slots	27.39	27.70	27.78	28.0	-6.18	21.21	21.52	21.6	21.82
	3 TX Slots	25.86	25.82	25.73	26.0	-4.42	21.44	21.4	21.31	21.58
	4 TX Slots	24.34	24.34	24.27	25.0	-3.17	21.17	21.17	21.1	**21.83**
EGPRS (8PSK)	1 TX Slot	24.54	24.63	25.41	25.5	-9.19	15.35	15.44	16.22	16.31
	2 TX Slots	22.67	22.73	23.53	24.0	-6.18	16.49	16.55	17.35	17.82
	3 TX Slots	20.82	20.84	21.64	22.0	-4.42	16.4	16.42	17.22	17.58
	4 TX Slots	18.96	19.02	19.81	20.0	-3.17	15.79	15.85	16.64	16.83

Table 10： Conducted Power Of GSM

Note：

1) CMW500 measures GSM peak and average output power for active timeslots. For SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

No. of timeslots	1	2	3	4
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.075
Time based avg. power compared to slotted avg. power	-9.19	-6.18	-4.42	-3.17

2) The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots.

8.1.2 Conducted Power Of WCDMA

WCDMA Band II					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	**22.73**	22.7	22.62	23.0
HSDPA	Subtest 1	22.28	22.22	22.19	22.5
	Subtest 2	22.20	22.15	22.15	22.5
	Subtest 3	21.71	21.70	21.68	22.0
	Subtest 4	21.66	21.69	21.60	22.0
HSUPA	Subtest 1	21.89	21.87	21.81	22.0
	Subtest 2	21.80	21.86	21.77	22.0
	Subtest 3	21.76	21.84	21.67	22.0
	Subtest 4	21.71	21.82	21.57	22.0
	Subtest 5	21.62	21.74	21.56	22.0
WCDMA Band V					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	22.56	22.65	**22.75**	23.0
HSDPA	Subtest 1	21.94	22.01	22.07	22.5
	Subtest 2	21.84	21.92	22.02	22.5
	Subtest 3	21.44	21.62	21.67	22.0
	Subtest 4	21.41	21.54	21.57	22.0
HSUPA	Subtest 1	21.62	21.65	21.81	22.0
	Subtest 2	21.60	21.60	21.80	22.0
	Subtest 3	21.55	21.51	21.72	22.0
	Subtest 4	21.51	21.47	21.67	22.0
	Subtest 5	21.43	21.39	21.67	22.0

Table 11： Conducted Power Of WCDMA

8.1.3 Conducted Power Of LTE

LTE Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	22.23	22.09	21.94	23
		1	2	22.26	22.17	21.99	23
		1	5	22.26	22.14	21.98	23
		3	0	22.35	22.26	22.1	23
		3	2	22.34	22.28	22.11	23
		3	3	22.33	22.21	22.1	23
		6	0	21.44	21.34	21.19	22
	16QAM	1	0	21.35	21.39	21.18	22
		1	2	21.43	21.49	21.28	22
		1	5	21.39	21.4	21.22	22
		3	0	21.3	21.21	21.06	22
		3	2	21.3	21.22	21.07	22
		3	3	21.24	21.31	21.11	22
		6	0	20.47	20.25	20.09	21
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	22.22	22.23	22.1	23
		1	7	22.19	22.18	22.02	23
		1	14	22.24	22.22	22.09	23
		8	0	21.52	21.43	21.3	22
		8	4	21.53	21.43	21.31	22
		8	7	21.53	21.42	21.31	22
		15	0	21.51	21.42	21.29	22
	16QAM	1	0	21.47	21.44	21.02	22
		1	7	21.39	21.34	20.97	22
		1	14	21.43	21.37	20.98	22
		8	0	20.54	20.41	20.3	21
		8	4	20.54	20.41	20.29	21
		8	7	20.53	20.42	20.31	21
		15	0	20.52	20.34	20.2	21
Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175	Tune up
5MHz	QPSK	1	0	22.3	22.2	22.05	23
		1	13	22.28	22.16	22.01	23
		1	24	22.25	22.14	22	23
		12	0	21.33	21.26	21.11	22
		12	6	21.33	21.25	21.09	22
		12	13	21.34	21.24	21.12	22
		25	0	21.34	21.26	21.1	22
	16QAM	1	0	21.31	21.24	21.25	22
		1	13	21.3	21.19	21.22	22
		1	24	21.28	21.2	21.19	22
		12	0	20.33	20.22	20.11	21
		12	6	20.33	20.22	20.11	21
		12	13	20.34	20.22	20.15	21
		25	0	20.37	20.25	20.08	21
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up

				18650	18900	19150	
10MHz	QPSK	1	0	22.37	22.25	22.16	23
		1	25	22.32	22.2	22.1	23
		1	49	22.35	22.21	22.11	23
		25	0	21.32	21.28	21.22	22
		25	13	21.31	21.29	21.22	22
		25	25	21.39	21.29	21.16	22
		50	0	21.34	21.29	21.19	22
	16QAM	1	0	21.31	21.49	21.38	22
		1	25	21.28	21.46	21.33	22
		1	49	21.28	21.42	21.29	22
		25	0	20.34	20.26	20.27	21
		25	13	20.35	20.26	20.27	21
		25	25	20.39	20.25	20.18	21
		50	0	20.34	20.26	20.22	21
Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125	Tune up
15MHz	QPSK	1	0	22.4	22.41	22.32	23
		1	38	22.21	22.2	22.14	23
		1	74	22.27	22.28	22.16	23
		36	0	21.6	21.71	21.25	22
		36	18	21.44	21.53	21.08	22
		36	39	21.49	21.55	21.08	22
		75	0	21.38	21.36	21.32	22
	16QAM	1	0	21.59	21.69	21.24	22
		1	38	21.43	21.53	21.09	22
		1	74	21.48	21.55	21.08	22
		36	0	21.61	21.7	21.24	22
		36	18	21.45	21.53	21.09	22
		36	39	21.5	21.56	21.08	22
		75	0	20.31	20.34	20.27	21
Bandwidth	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100	Tune up
20MHz	QPSK	1	0	22.41	22.25	22.03	23
		1	50	**22.57**	**22.46**	**22.27**	23
		1	99	22.37	22.02	21.95	23
		50	0	**21.48**	21.39	20.97	22
		50	25	21.35	21.48	21.02	22
		50	50	21.41	21.4	21.14	22
		100	0	**21.35**	21.27	21.09	22
	16QAM	1	0	21.53	21.32	21.28	22
		1	50	21.31	21.1	21.07	22
		1	99	21.43	21.19	21.12	22
		50	0	20.12	20.33	20.22	21
		50	25	20.12	20.34	20.21	21
		50	50	20.11	20.2	19.97	21
		100	0	20.1	20.22	20.11	21

LTE Band 4				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up

1.4MHz	QPSK	1	0	22.65	22.81	22.67	23.5
		1	2	22.73	22.79	22.68	23.5
		1	5	22.66	22.74	22.71	23.5
		3	0	22.96	22.98	22.81	23.5
		3	2	22.88	22.98	22.83	23.5
		3	3	22.89	22.98	22.86	23.5
		6	0	21.92	21.96	21.88	22.5
	16QAM	1	0	22.04	22.36	21.9	22.5
		1	2	22.2	21.96	21.82	22.5
		1	5	21.63	21.91	22.04	22.5
		3	0	21.73	21.97	21.89	22.5
		3	2	21.87	21.97	21.83	22.5
		3	3	21.76	21.95	21.92	22.5
		6	0	21.05	21.02	21.05	21.5
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	22.78	22.98	22.84	23.5
		1	7	22.98	23.01	22.89	23.5
		1	14	22.98	22.95	22.84	23.5
		8	0	21.94	22.07	21.9	22.5
		8	4	21.9	22.02	21.89	22.5
		8	7	21.96	21.98	21.87	22.5
		15	0	21.99	22.04	21.92	22.5
	16QAM	1	0	22	22.42	21.76	22.5
		1	7	22.06	22.14	22.02	22.5
		1	14	22.01	22.09	21.98	22.5
		8	0	21.02	20.95	20.97	21.5
		8	4	21.1	21.04	20.81	21.5
		8	7	21	21.05	20.93	21.5
		15	0	20.92	21.05	20.82	21.5
Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	22.86	22.95	22.85	23.5
		1	13	22.82	22.9	22.91	23.5
		1	24	22.92	23.02	22.94	23.5
		12	0	21.83	21.93	21.88	22.5
		12	6	21.89	21.98	21.87	22.5
		12	13	21.9	22	21.86	22.5
		25	0	21.88	21.99	21.88	22.5
	16QAM	1	0	21.94	22.42	21.97	22.5
		1	13	21.68	22.19	21.86	22.5
		1	24	22.15	22.1	21.69	22.5
		12	0	20.89	21	20.86	21.5
		12	6	20.9	20.96	20.81	21.5
		12	13	20.83	20.94	20.87	21.5
		25	0	20.89	21.02	20.84	21.5
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	22.86	22.99	22.98	23.5
		1	25	23.01	22.96	23	23.5
		1	49	22.88	22.91	22.83	23.5
		25	0	22.02	22.04	22.03	22.5
		25	13	21.97	22.07	21.96	22.5

		25	25	21.96	22.04	21.87	22.5
		50	0	22.02	22.06	21.97	22.5
	16QAM	1	0	22.44	22.23	22.2	22.5
		1	25	21.92	22.13	22.1	22.5
		1	49	22.08	22.48	22.36	22.5
		25	0	20.94	20.95	20.91	21.5
		25	13	20.92	20.99	20.89	21.5
		25	25	20.92	21	20.8	21.5
		50	0	20.96	21.05	20.94	21.5
Bandwidth	Modulation	RB size	RB offset	Channel 20025	Channel 20175	Channel 20325	Tune up
15MHz	QPSK	1	0	23.05	23.12	23.14	23.5
		1	38	22.88	22.97	22.91	23.5
		1	74	23.04	23	23	23.5
		36	0	22.07	22.09	22.1	22.5
		36	18	22	22.09	21.99	22.5
		36	39	22.05	22.06	21.95	22.5
		75	0	22.09	22.09	22	22.5
	16QAM	1	0	22.49	22.25	22.28	22.5
		1	38	22.32	22.16	21.81	22.5
		1	74	22.47	21.93	22.13	22.5
		36	0	21.01	21.06	21.08	21.5
		36	18	20.99	21.04	20.99	21.5
		36	39	21.1	21.04	20.91	21.5
		75	0	21.06	21.06	21.03	21.5
Bandwidth	Modulation	RB size	RB offset	Channel 20050	Channel 20175	Channel 20300	Tune up
20MHz	QPSK	1	0	22.87	23.01	23.25	23.5
		1	50	23.08	22.97	23.24	23.5
		1	99	**23.21**	**23.11**	**23.35**	23.5
		50	0	22.34	22.32	**22.38**	22.5
		50	25	22.33	22.13	22.23	22.5
		50	50	22.15	22.13	22.29	22.5
		100	0	22.27	22.24	**22.31**	22.5
	16QAM	1	0	22.59	22.66	22.15	23.0
		1	50	22.11	21.93	22	22.5
		1	99	22.31	22.31	22.15	22.5
		50	0	21.24	21.14	21.17	21.5
		50	25	21.1	21.11	20.99	21.5
		50	50	21.14	21.09	20.96	21.5
		100	0	21.14	21.13	21.07	21.5

LTE Band 5				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel 20407	Channel 20525	Channel 20643	Tune up
1.4MHz	QPSK	1	0	22.8	22.81	22.77	23.5
		1	2	22.87	22.85	22.82	23.5
		1	5	22.85	22.85	22.83	23.5
		3	0	22.99	22.95	22.95	23.5
		3	2	22.99	22.96	22.94	23.5
		3	3	22.99	22.95	22.95	23.5

		6	0	22	21.98	21.97	22.5
	16QAM	1	0	21.76	22.04	21.88	22.5
		1	2	21.85	22.12	21.98	22.5
		1	5	21.77	22.07	21.91	22.5
		3	0	21.86	21.91	21.89	22.5
		3	2	21.86	21.91	21.89	22.5
		3	3	21.81	21.96	21.83	22.5
		6	0	21.07	20.93	21.01	21.5
Bandwidth	Modulation	RB size	RB offset	Channel 20415	Channel 20525	Channel 20635	Tune up
3MHz	QPSK	1	0	22.96	22.88	22.87	23.5
		1	7	22.91	22.83	22.8	23.5
		1	14	22.98	22.86	22.88	23.5
		8	0	22.16	22.11	22.08	22.5
		8	4	22.16	22.12	22.07	22.5
		8	7	22.15	22.11	22.06	22.5
		15	0	22.15	22.09	22.05	22.5
	16QAM	1	0	21.85	22.08	22.02	22.5
		1	7	21.81	22.01	21.95	22.5
		1	14	21.86	22.02	22.02	22.5
		8	0	21.23	21.18	21.06	21.5
		8	4	21.23	21.19	21.06	21.5
		8	7	21.23	21.17	21.07	21.5
		15	0	21.15	21.18	21	21.5
Bandwidth	Modulation	RB size	RB offset	Channel 20425	Channel 20525	Channel 20625	Tune up
5MHz	QPSK	1	0	22.98	22.98	22.94	23.5
		1	13	22.97	22.96	22.93	23.5
		1	24	22.96	22.93	22.93	23.5
		12	0	22.04	22.02	22.04	22.5
		12	6	22.05	22.02	22.03	22.5
		12	13	22.05	21.96	21.93	22.5
		25	0	22.07	21.99	21.98	22.5
	16QAM	1	0	21.99	22.16	21.94	22.5
		1	13	21.99	22.13	21.94	22.5
		1	24	21.99	22.09	21.96	22.5
		12	0	21.1	21.12	21.04	21.5
		12	6	21.11	21.11	21.05	21.5
		12	13	21.12	21.06	20.95	21.5
		25	0	21.16	21.04	20.99	21.5
Bandwidth	Modulation	RB size	RB offset	Channel 20450	Channel 20525	Channel 20600	Tune up
10MHz	QPSK	1	0	22.99	23.09	23.15	23.5
		1	25	**23.14**	**23.11**	**23.27**	23.5
		1	49	23.21	23.15	23.13	23.5
		25	0	22.23	22.24	**22.28**	22.5
		25	13	22.14	22.09	22.16	22.5
		25	25	22.14	21.94	22.23	22.5
		50	0	22.07	22.11	**22.24**	22.5
	16QAM	1	0	22.33	22.02	22.23	22.5
		1	25	22.27	21.96	22.13	22.5
		1	49	22.23	21.93	22.15	22.5
		25	0	21.19	21.18	21.1	21.5

		25	13	21.19	21.17	21.11	21.5
		25	25	21.17	21	20.88	21.5
		50	0	21.19	21.11	21.02	21.5

LTE Band 7				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425	Tune up
5MHz	QPSK	1	0	20.22	20.3	20.16	21
		1	13	20.19	20.36	20.3	21
		1	24	20.39	20.23	20.22	21
		12	0	19.27	19.41	19.35	20
		12	6	19.27	19.35	19.36	20
		12	13	19.34	19.43	19.3	20
		25	0	19.38	19.38	19.33	20
	16QAM	1	0	19.16	18.84	19.46	20
		1	13	19.12	19.17	19.54	20
		1	24	18.91	19.31	19.26	20
		12	0	18	18.13	18.42	19
		12	6	18.24	18.39	18.57	19
		12	13	18.33	18.24	18.35	19
		25	0	18.35	18.34	18.48	19
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400	Tune up
10MHz	QPSK	1	0	19.94	20.07	19.96	21
		1	25	20.55	20.42	20.57	21
		1	49	20.32	20.2	20.37	21
		25	0	19.25	19.34	19.31	20
		25	13	19.36	19.34	19.33	20
		25	25	19.34	19.32	19.26	20
		50	0	19.27	19.36	19.24	20
	16QAM	1	0	19.34	19.46	19.06	20
		1	25	19.16	19.22	19.2	20
		1	49	19.09	19.03	19.2	20
		25	0	18.28	18.46	18.76	19
		25	13	18.25	18.62	18.6	19
		25	25	18.4	18.52	18.41	19
		50	0	18.47	18.68	18.53	19
Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375	Tune up
15MHz	QPSK	1	0	20.31	20.36	20.14	21
		1	38	20.35	20.49	20.49	21
		1	74	20.31	20.5	20.28	21
		36	0	19.27	19.41	19.3	20
		36	18	19.36	19.43	19.37	20
		36	39	19.36	19.45	19.33	20
		75	0	19.38	19.41	19.34	20
	16QAM	1	0	19.39	18.98	19.46	20
		1	38	19.32	19.18	19.74	20
		1	74	19.49	19.23	19.29	20
		36	0	18.71	18.7	18.68	19
		36	18	18.62	18.69	18.44	19

		36	39	18.46	18.71	18.55	19
		75	0	18.59	18.55	18.56	19
Bandwidth	Modulation	RB size	RB offset	Channel 20850	Channel 21100	Channel 21350	Tune up
20MHz	QPSK	1	0	20.25	20.24	20.35	21
		1	50	20.35	20.27	20.38	21
		1	99	**20.44**	**20.4**	**20.7**	21
		50	0	19.24	19.47	19.51	20
		50	25	19.19	19.39	19.44	20
		50	50	19.33	19.29	**19.78**	20
		100	0	19.3	19.51	**19.63**	20
	16QAM	1	0	19.11	18.77	18.83	20
		1	50	19.48	19.21	19.24	20
		1	99	19.49	19.17	19.46	20
		50	0	18.5	18.32	18.53	19
		50	25	18.45	18.63	18.48	19
		50	50	18.4	18.6	18.5	19
		100	0	18.54	18.63	18.44	19

LTE Band 40				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel 38725	Channel 38750	Channel 38775	Tune up
5MHz	QPSK	1	0	21.34	21.35	21	22
		1	13	21.69	21.23	21.6	22
		1	24	21.3	21.08	20.82	22
		12	0	20.36	20.32	20.2	21
		12	6	20.33	20.28	20.18	21
		12	13	20.26	20.29	20.23	21
		25	0	20.34	20.33	20.14	21
	16QAM	1	0	20.25	20.4	19.89	21
		1	13	20.1	20.2	20.27	21
		1	24	20.13	20.27	20.25	21
		12	0	19.41	19.38	19.26	20
		12	6	19.37	19.35	19.25	20
		12	13	19.32	19.26	19.09	20
		25	0	19.31	19.31	19.22	20
Bandwidth	Modulation	RB size	RB offset	Channel	Channel 38750	Channel	Tune up
10MHz	QPSK	1	0	NA	21.87	NA	22
		1	25	NA	**21.89**	NA	22
		1	49	NA	21.77	NA	22
		25	0	NA	**20.89**	NA	21
		25	13	NA	20.83	NA	21
		25	25	NA	20.73	NA	21
		50	0	NA	**20.82**	NA	21
	16QAM	1	0	NA	20.58	NA	21
		1	25	NA	20.32	NA	21
		1	49	NA	20.73	NA	21
		25	0	NA	19.5	NA	20
		25	13	NA	19.56	NA	20
		25	25	NA	19.58	NA	20

		50	0	NA	19.47	NA	20

LTE Band 40				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 39175	Channel 39200	Channel 39225	Tune up
5MHz	QPSK	1	0	21.25	21.35	21.13	22
		1	13	21.46	21.38	21.39	22
		1	24	21.19	21.37	21.25	22
		12	0	20.19	20.32	20.39	21
		12	6	20.29	20.32	20.16	21
		12	13	20.28	20.29	20.18	21
		25	0	20.27	20.37	20.19	21
	16QAM	1	0	20.28	19.77	19.88	21
		1	13	20.22	20.58	19.92	21
		1	24	20.25	20.26	20.13	21
		12	0	19.21	19.38	19.47	20
		12	6	19.38	19.58	19.25	20
		12	13	19.35	19.35	19.29	20
		25	0	19.4	19.33	19.14	20
Bandwidth	Modulation	RB size	RB offset	Channel	Channel 39200	Channel	Tune up
10MHz	QPSK	1	0	NA	21.28	NA	22
		1	25	NA	**21.52**	NA	22
		1	49	NA	21.11	NA	22
		25	0	NA	**20.29**	NA	21
		25	13	NA	20.22	NA	21
		25	25	NA	20.18	NA	21
		50	0	NA	**20.28**	NA	21
	16QAM	1	0	NA	20.34	NA	21
		1	25	NA	20.17	NA	21
		1	49	NA	20.14	NA	21
		25	0	NA	19.44	NA	20
		25	13	NA	19.35	NA	20
		25	25	NA	19.12	NA	20
		50	0	NA	19.2	NA	20

Table 12： Conducted Power Of LTE

8.1.4 Conducted Power Of WIFI

Mode	Antenna	Channel	Frequency (MHz)	Data Rate (Mbps)	Average Power (dBm)	Tune up
802.11b	Ant0	1	2412	1	**18.45**	19.0
		6	2437		18.03	19.0
		11	2462		18.02	19.0
802.11g	Ant0	1	2412	6	18.39	18.5
		6	2437		18.19	18.5
		11	2462		18.19	18.5
802.11n HT20 SISO	Ant0	1	2412	6.5	18.08	18.5
		6	2437		17.51	18.5
		11	2462		17.7	18.5
802.11n HT40 SISO	Ant0	3	2422	13.5	18.4	18.5
		6	2437		17.95	18.5
		9	2452		17.93	18.5

Table 13： Conducted Power Of WIFI

Note:

a) Power must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band.

b) Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.

1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.

2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.

c) For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured.

8.2 Stand-alone SAR test evaluation

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

Freq. Band	Frequency (GHz)	Position	Average Power		Test Separation (mm)	Calculate Value	Exclusion Threshold	Exclusion (Y/N)
			dBm	mW				
Wi-Fi	2.45	Body	19.00	79.4	5	24.9	3	N
		Extremity	19.00	79.4	0	24.9	7.5	N

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

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

• f(GHz) is the RF channel transmit frequency in GHz

• Power and distance are rounded to the nearest mW and mm before calculation

• The result is rounded to one decimal place for comparison

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

8.3 Body Test Exclusion Thresholds

The following SAR test exclusion Thresholds based on KDB 447498 D01 General RF Exposure Guidance v06) 4.3.1)

Exposure Position	Wireless Interface	GPRS 850	GPRS 1900	WCDMA Band V	WCDMA Band II	LTE Band 5	LTE Band 4	LTE Band 2	LTE Band 7	LTE Band 40	2.4GHz WLAN
	Calculated Frequency (MHz)	848	1909	846	1907	848	1754	1909	2570	2360	2462
	Maximum power (dBm)	33	30	23.00	23	23.5	23.5	23	21	22	19
	Maximum rated power(mW)	1995.0	1000.0	200.0	200.0	224.0	224.0	200.0	126.0	158.0	79.0
Front	Separation distance(mm)	0.0									0.0
	exclusion threshold	367.4	276.3	36.8	55.2	41.3	59.3	55.3	40.4	51.8	24.8
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Back	Separation distance(mm)	0.0									0.0
	exclusion threshold	367.4	276.3	36.8	55.2	41.3	59.3	55.3	40.4	51.8	24.8
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Left	Separation distance(mm)	1.0									35.0
	exclusion threshold	367.4	276.3	36.8	55.2	41.3	59.3	55.3	40.4	51.8	3.5
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Right	Separation distance(mm)	6.0									9.0
	exclusion threshold	306.2	230.3	30.7	46.0	34.4	49.4	46.1	33.7	43.2	13.8
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Top	Separation distance(mm)	0.0									17.0
	exclusion threshold	367.4	276.3	36.8	55.2	41.3	59.3	55.3	40.4	51.8	7.3
	Testing required?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Bottom	Separation distance(mm)	102.0									74.0
	exclusion threshold	457mW	629mW	456mW	629mW	457mW	633mW	629mW	614mW	611mW	336mW
	Testing required?	**Yes**	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Note:

1. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
2. Per KDB 447498 D01, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D01, standalone SAR test exclusion threshold is applied; If the distance of the antenna to the user is < 5mm, 5mm is used to determine SAR exclusion threshold
4. Per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for

1-g SAR and ≤ 7.5 for 10-g extremity SAR

f(GHz) is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

The result is rounded to one decimal place for comparison

For < 50 mm distance, we just calculate mW of the exclusion threshold value (3.0) to do compare.

This formula is [3.0] / [√f(GHz)] ·[(min. test separation distance, mm)] = exclusion threshold of mW.

5. Per KDB 447498 D01, at 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following

a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz

b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

6. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

7. The customer requires testing all surfaces..

8.4 Measurement of SAR Data

8.4.1 SAR Result Of GSM850

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp	SAR limit (W/kg)
Body Test data (Separate 5mm)													
Front side	GPRS 4TS	190/836.6	1:2.075	0.143	0.103	0.03	27.76	28.0	1.057	0.151	0.109	22.1	1.6
Back side	GPRS 4TS	190/836.6	1:2.075	0.275	0.19	0.15	27.76	28.0	1.057	0.291	0.201	22.1	1.6
Left side	GPRS 4TS	190/836.6	1:2.075	0.076	0.045	0.07	27.76	28.0	1.057	0.080	0.048	22.1	1.6
Right side	GPRS 4TS	190/836.6	1:2.075	0.138	0.093	0.13	27.76	28.0	1.057	0.146	0.098	22.1	1.6
Top side	GPRS 4TS	190/836.6	1:2.075	0.391	0.206	0.12	27.76	28.0	1.057	**0.413**	0.218	22.1	1.6
Bottom side	GPRS 4TS	190/836.6	1:2.075	0.024	0.017	0.05	27.76	28.0	1.057	0.025	0.018	22.1	1.6
Extremity Test data (Separate 0mm)													
Front side	GPRS 4TS	190/836.6	1:2.075	0.201	0.145	-0.05	27.76	28.0	1.057	0.212	0.153	22.1	4.0
Back side	GPRS 4TS	190/836.6	1:2.075	0.637	0.425	-0.04	27.76	28.0	1.057	0.673	0.449	22.1	4.0
Left side	GPRS 4TS	190/836.6	1:2.075	0.134	0.073	-0.07	27.76	28.0	1.057	0.142	0.077	22.1	4.0
Right side	GPRS 4TS	190/836.6	1:2.075	0.285	0.182	-0.03	27.76	28.0	1.057	0.301	0.192	22.1	4.0
Top side	GPRS 4TS	190/836.6	1:2.075	1.31	0.513	0.02	27.76	28.0	1.057	1.384	**0.542**	22.1	4.0
Bottom side	GPRS 4TS	190/836.6	1:2.075	0.079	0.044	0.09	27.76	28.0	1.057	0.083	0.046	22.1	4.0

Table 14： SAR Result Of GSM850
Note:

1) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B

2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

8.4.2 SAR Result Of GSM1900

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp	SAR limit (W/kg)
Body Test data (Separate 5mm)													
Front side	GPRS 4TS	661/1880	1:2.075	0.112	0.062	0.06	24.34	25.0	1.164	0.130	0.072	22.3	1.6
Back side	GPRS 4TS	661/1880	1:2.075	0.061	0.037	-0.07	24.34	25.0	1.164	0.071	0.043	22.3	1.6
Left side	GPRS 4TS	661/1880	1:2.075	0.18	0.093	-0.03	24.34	25.0	1.164	0.210	0.108	22.3	1.6
Right side	GPRS 4TS	661/1880	1:2.075	0.045	0.024	-0.07	24.34	25.0	1.164	0.052	0.028	22.3	1.6
Top side	GPRS 4TS	661/1880	1:2.075	0.665	0.305	-0.09	24.34	25.0	1.164	**0.774**	0.355	22.3	1.6
Bottom side	GPRS 4TS	661/1880	1:2.075	0.018	0.011	0.05	24.34	25.0	1.164	0.021	0.013	22.3	1.6
Extremity Test data (Separate 0mm)													
Front side	GPRS 4TS	661/1880	1:2.075	0.148	0.081	0.12	24.34	25.0	1.164	0.172	0.094	22.3	4.0
Back side	GPRS 4TS	661/1880	1:2.075	0.158	0.085	-0.03	24.34	25.0	1.164	0.184	0.099	22.3	4.0
Left side	GPRS 4TS	661/1880	1:2.075	0.419	0.196	0.09	24.34	25.0	1.164	0.488	0.228	22.3	4.0
Right side	GPRS 4TS	661/1880	1:2.075	0.094	0.048	-0.06	24.34	25.0	1.164	0.109	0.056	22.3	4.0
Top side	GPRS 4TS	661/1880	1:2.075	1.52	0.705	-0.09	24.34	25.0	1.164	1.769	**0.821**	22.3	4.0
Bottom side	GPRS 4TS	661/1880	1:2.075	0.038	0.022	-0.07	24.34	25.0	1.164	0.044	0.026	22.3	4.0

Table 15： SAR Result Of GSM1900

Note:

3) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B

4) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

8.4.3 SAR Result Of WCDMA Band II

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp	SAR limit (W/kg)
Body Test data (Separate 5mm)													
Front side	RMC	9400/1880	1:1	0.29	0.173	0.06	22.7	23.0	1.072	0.311	0.185	22.3	1.6
Back side	RMC	9400/1880	1:1	0.337	0.202	0.1	22.7	23.0	1.072	0.361	0.216	22.3	1.6
Left side	RMC	9400/1880	1:1	0.299	0.162	0.06	22.7	23.0	1.072	0.320	0.174	22.3	1.6
Right side	RMC	9400/1880	1:1	0.049	0.029	0.07	22.7	23.0	1.072	0.053	0.031	22.3	1.6
Top side	RMC	9400/1880	1:1	0.911	0.42	-0.12	22.7	23.0	1.072	0.976	0.450	22.3	1.6
Top side	RMC	9262/1852.4	1:1	1.05	0.496	-0.1	22.73	23.0	1.064	**1.117**	0.528	22.3	1.6
Top side-Repeat	RMC	9262/1852.4	1:1	1.01	0.468	-0.19	22.73	23.0	1.064	1.075	0.498	22.3	1.6
Top side	RMC	9538/1907.6	1:1	1.02	0.47	-0.18	22.62	23.0	1.091	1.113	0.513	22.3	1.6
Bottom side	RMC	9400/1880	1:1	0.025	0.017	-0.12	22.7	23.0	1.072	0.027	0.018	22.3	1.6
Extremity Test data (Separate 0mm)													
Front side	RMC	9400/1880	1:1	0.447	0.251	-0.05	22.7	23.0	1.072	0.479	0.269	22.3	4.0
Back side	RMC	9400/1880	1:1	0.764	0.399	-0.01	22.7	23.0	1.072	0.819	0.428	22.3	4.0
Left side	RMC	9400/1880	1:1	0.772	0.366	-0.09	22.7	23.0	1.072	0.827	0.392	22.3	4.0
Right side	RMC	9400/1880	1:1	0.125	0.071	-0.04	22.7	23.0	1.072	0.134	0.076	22.3	4.0
Top side	RMC	9400/1880	1:1	1.88	0.924	-0.07	22.7	23.0	1.072	2.014	**0.990**	22.3	4.0
Bottom side	RMC	9400/1880	1:1	0.049	0.03	0.02	22.7	23.0	1.072	0.053	0.032	22.3	4.0

Table 16： SAR Result Of WCDMA Band II
Note:

5) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B

6) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

8.4.4 SAR Result Of WCDMA Band V

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp	SAR limit (W/kg)
Body Test data (Separate 5mm)													
Front side	RMC	4182/836.4	1:1	0.129	0.068	-0.07	22.65	23.0	1.084	0.140	0.074	22.1	1.6
Back side	RMC	4182/836.4	1:1	0.156	0.109	0.02	22.65	23.0	1.084	0.169	0.118	22.1	1.6
Left side	RMC	4182/836.4	1:1	0.039	0.025	-0.09	22.65	23.0	1.084	0.042	0.027	22.1	1.6
Right side	RMC	4182/836.4	1:1	0.07	0.046	0.03	22.65	23.0	1.084	0.076	0.050	22.1	1.6
Top side	RMC	4182/836.4	1:1	0.197	0.104	0.15	22.65	23.0	1.084	**0.214**	0.113	22.1	1.6
Bottom side	RMC	4182/836.4	1:1	0.007	0.005	0.09	22.65	23.0	1.084	0.008	0.005	22.1	1.6
Extremity Test data (Separate 0mm)													
Front side	RMC	4182/836.4	1:1	0.178	0.088	-0.07	22.65	23.0	1.084	0.193	0.095	22.1	4.0
Back side	RMC	4182/836.4	1:1	0.378	0.253	-0.09	22.65	23.0	1.084	0.410	0.274	22.1	4.0
Left side	RMC	4182/836.4	1:1	0.078	0.049	0.08	22.65	23.0	1.084	0.085	0.053	22.1	4.0
Right side	RMC	4182/836.4	1:1	0.146	0.093	-0.02	22.65	23.0	1.084	0.158	0.101	22.1	4.0
Top side	RMC	4182/836.4	1:1	0.835	0.392	-0.01	22.65	23.0	1.084	0.905	**0.425**	22.1	4.0
Bottom side	RMC	4182/836.4	1:1	0.021	0.011	-0.12	22.65	23.0	1.084	0.023	0.012	22.1	4.0

Table 17： SAR Result Of WCDMA Band V

Note:

7) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B

8) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

8.4.5 SAR Result Of 2.4GHz WIFI

Test position	Test mode	Test Ch./Freq.	Duty Cycle %	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Scaled SAR 10-g (W/kg)	Liquid Temp.
Body Test data (Separate 5mm)													
Front side	802.11b	1/2412	100	1.00	0.026	0.021	0.02	18.45	19.00	1.135	0.030	0.024	22.0
Back side	802.11b	1/2412	100	1.00	0.031	0.022	0.06	18.45	19.00	1.135	0.035	0.025	22.0
Left side	802.11b	1/2412	100	1.00	0.004	0.002	0.11	18.45	19.00	1.135	0.005	0.002	22.0
Right side	802.11b	1/2412	100	1.00	0.034	0.023	0.01	18.45	19.00	1.135	**0.039**	0.026	22.0
Top side	802.11b	1/2412	100	1.00	0.005	0.002	-0.01	18.45	19.00	1.135	0.006	0.002	22.0
Bottom side	802.11b	1/2412	100	1.00	0.015	0.011	0.06	18.45	19.00	1.135	0.017	0.012	22.0
Extremity Test data (Separate 0mm)													
Front side	802.11b	1/2412	100	1.00	0.039	0.029	-0.09	18.45	19.00	1.135	0.044	0.033	22.0
Back side	802.11b	1/2412	100	1.00	0.122	0.055	0.12	18.45	19.00	1.135	0.138	0.062	22.0
Left side	802.11b	1/2412	100	1.00	0.017	0.005	-0.05	18.45	19.00	1.135	0.019	0.006	22.0
Right side	802.11b	1/2412	100	1.00	0.149	0.059	-0.05	18.45	19.00	1.135	0.169	**0.067**	22.0
Top side	802.11b	1/2412	100	1.00	0.018	0.007	-0.01	18.45	19.00	1.135	0.020	0.008	22.0
Bottom side	802.11b	1/2412	100	1.00	0.021	0.015	-0.01	18.45	19.00	1.135	0.024	0.017	22.0

Table 18： SAR Result Of 2.4GHz WIFI

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B
2) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). Per Kdb248227 D01, When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel.
3) Each channel was tested at the lowest data rate.
4) Per KDB248227 D01, for Body SAR test of WiFi2.4G, SAR is measured for 2.4 GHz 802.11b DSSS using the initial test position procedure. The highest reported SAR for DSSS is adjusted by the ratio of OFDM 802.11g/n to DSSS specified maximum output power and the adjusted SAR is < 1.2 W/kg, so SAR for 802.11g/n is not required.

Mode	Tune-up (dBm)	Tune-up (mw)	Max Reported SAR1-g(W/kg)	Adjusted SAR1-g(W/kg)	SAR test
Body Test data 5mm					
802.11b	19.0	79.4	0.039	/	Yes
802.11g	18.5	70.8	/	0.035	No
802.11n HT20	18.5	70.8	/	0.035	No
802.11n HT40	18.5	70.8	/	0.035	No
Mode	Tune-up (dBm)	Tune-up (mw)	Max Reported SAR10-g(W/kg)	Adjusted SAR10-g(W/kg)	SAR test
Body Test data 0mm					
802.11b	19.0	79.4	0.067	/	Yes
802.11g	18.5	70.8	/	0.060	No
802.11n HT20	18.5	70.8	/	0.060	No
802.11n HT40	18.5	70.8	/	0.060	No

8.4.6 SAR Result Of LTE Band 2

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp
Body Test data (Separate 5mm)												
Front side	20M QPSK 1RB_50	18700/1860	1:1	0.32	0.192	0.02	22.57	23	1.104	0.353	0.212	22.1
Front side	20M QPSK 50RB_0	18700/1860	1:1	0.254	0.153	0.13	21.48	22	1.127	0.286	0.172	22.1
Back side	20M QPSK 1RB_50	18700/1860	1:1	0.339	0.205	-0.17	22.57	23	1.104	0.374	0.226	22.1
Back side	20M QPSK 50RB_0	18700/1860	1:1	0.28	0.168	-0.06	21.48	22	1.127	0.316	0.189	22.1
Left side	20M QPSK 1RB_50	18700/1860	1:1	0.311	0.172	-0.09	22.57	23	1.104	0.343	0.190	22.1
Left side	20M QPSK 50RB_0	18700/1860	1:1	0.251	0.139	0.04	21.48	22	1.127	0.283	0.157	22.1
Right side	20M QPSK 1RB_50	18700/1860	1:1	0.029	0.017	0.06	22.57	23	1.104	0.032	0.019	22.1
Right side	20M QPSK 50RB_0	18700/1860	1:1	0.022	0.013	0.11	21.48	22	1.127	0.025	0.015	22.1
Top side	20M QPSK 1RB_50	18700/1860	1:1	0.566	0.278	-0.03	22.57	23	1.104	**0.625**	0.307	22.1
Top side	20M QPSK 50RB_0	18700/1860	1:1	0.441	0.216	0.06	21.48	22	1.127	0.497	0.243	22.1
Bottom side	20M QPSK 1RB_50	18700/1860	1:1	0.019	0.011	0.1	22.57	23	1.104	0.021	0.012	22.1
Bottom side	20M QPSK 50RB_0	18700/1860	1:1	0.016	0.007	0.03	21.48	22	1.127	0.018	0.008	22.1
Extremity Test data (Separate 0mm)												
Front side	20M QPSK 1RB_50	18700/1860	1:1	0.437	0.243	0.06	22.57	23	1.104	0.482	0.268	22.1
Front side	20M QPSK 50RB_0	18700/1860	1:1	0.359	0.199	-0.05	21.48	22	1.127	0.405	0.224	22.1
Back side	20M QPSK 1RB_50	18700/1860	1:1	0.564	0.316	0.04	22.57	23	1.104	0.623	0.349	22.1
Back side	20M QPSK 50RB_0	18700/1860	1:1	0.471	0.262	-0.06	21.48	22	1.127	0.531	0.295	22.1
Left side	20M QPSK 1RB_50	18700/1860	1:1	0.818	0.415	0.03	22.57	23	1.104	0.903	0.458	22.1
Left side	20M QPSK 50RB_0	18700/1860	1:1	0.672	0.341	0.12	21.48	22	1.127	0.757	0.384	22.1
Right side	20M QPSK 1RB_50	18700/1860	1:1	0.055	0.032	0.02	22.57	23	1.104	0.061	0.035	22.1
Right side	20M QPSK 50RB_0	18700/1860	1:1	0.041	0.024	0.07	21.48	22	1.127	0.046	0.027	22.1
Top side	20M QPSK 1RB_50	18700/1860	1:1	1.13	0.572	0.05	22.57	23	1.104	1.248	**0.632**	22.1
Top side	20M QPSK 50RB_0	18700/1860	1:1	0.923	0.482	0.13	21.48	22	1.127	1.040	0.543	22.1
Bottom side	20M QPSK 1RB_50	18700/1860	1:1	0.029	0.018	-0.11	22.57	23	1.104	0.032	0.020	22.1
Bottom side	20M QPSK 50RB_0	18700/1860	1:1	0.024	0.014	-0.07	21.48	22	1.127	0.027	0.016	22.1

Table 19： SAR Result Of LTE Band 2

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B

2) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

8.4.7 SAR Result Of LTE Band 4

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp
Body Test data (Separate 5mm)												
Front side	20M QPSK 1RB_99	20300/1745	1:1	0.36	0.226	0.07	23.35	23.5	1.035	0.373	0.234	22.1
Front side	20M QPSK 50RB_0	20300/1745	1:1	0.305	0.192	-0.05	22.38	22.5	1.028	0.314	0.197	22.1
Back side	20M QPSK 1RB_99	20300/1745	1:1	0.419	0.257	-0.09	23.35	23.5	1.035	0.434	0.266	22.1
Back side	20M QPSK 50RB_0	20300/1745	1:1	0.346	0.215	0.08	22.38	22.5	1.028	0.356	0.221	22.1
Left side	20M QPSK 1RB_99	20300/1745	1:1	0.409	0.231	-0.08	23.35	23.5	1.035	0.423	0.239	22.1
Left side	20M QPSK 50RB_0	20300/1745	1:1	0.364	0.207	-0.06	22.38	22.5	1.028	0.374	0.213	22.1
Right side	20M QPSK 1RB_99	20300/1745	1:1	0.051	0.031	-0.09	23.35	23.5	1.035	0.053	0.032	22.1
Right side	20M QPSK 50RB_0	20300/1745	1:1	0.037	0.021	-0.04	22.38	22.5	1.028	0.038	0.022	22.1
Top side	20M QPSK 1RB_99	20300/1745	1:1	0.874	0.456	-0.16	23.35	23.5	1.035	0.905	0.472	22.1
Top side	20M QPSK 1RB_99	20050/1720	1:1	0.95	0.497	0.05	23.21	23.5	1.069	**1.016**	0.531	22.1
Top side-repeat SAR	20M QPSK 1RB_99	20050/1720	1:1	0.944	0.489	0.11	23.21	23.5	1.069	1.009	0.523	22.1
Top side	20M QPSK 1RB_99	20175/1732.5	1:1	0.917	0.475	0.1	23.11	23.5	1.094	1.003	0.520	22.1
Top side	20M QPSK 50RB_0	20300/1745	1:1	0.779	0.405	-0.03	22.38	22.5	1.028	0.801	0.416	22.1
Top side	20M QPSK 50RB_0	20050/1720	1:1	0.794	0.415	-0.17	22.34	22.5	1.038	0.824	0.431	22.1
Top side	20M QPSK 50RB_0	20175/1732.5	1:1	0.77	0.402	-0.14	22.32	22.5	1.042	0.803	0.419	22.1
Top side	20M QPSK 100RB_0	20300/1745	1:1	0.764	0.397	-0.03	22.31	22.5	1.045	0.798	0.415	22.1
Bottom side	20M QPSK 1RB_99	20300/1745	1:1	0.062	0.035	-0.11	23.35	23.5	1.035	0.064	0.036	22.1
Bottom side	20M QPSK 50RB_0	20300/1745	1:1	0.055	0.029	0.07	22.38	22.5	1.028	0.057	0.030	22.1
Extremity Test data (Separate 0mm)												
Front side	20M QPSK 1RB_99	20300/1745	1:1	0.573	0.341	-0.03	23.35	23.5	1.035	0.593	0.353	22.1
Front side	20M QPSK 50RB_0	20300/1745	1:1	0.487	0.293	0.05	22.38	22.5	1.028	0.501	0.301	22.1
Back side	20M QPSK 1RB_99	20300/1745	1:1	0.716	0.418	-0.03	23.35	23.5	1.035	0.741	0.433	22.1
Back side	20M QPSK 50RB_0	20300/1745	1:1	0.617	0.362	0.03	22.38	22.5	1.028	0.634	0.372	22.1
Left side	20M QPSK 1RB_99	20300/1745	1:1	1.03	0.532	-0.07	23.35	23.5	1.035	1.066	0.551	22.1
Left side	20M QPSK 50RB_0	20300/1745	1:1	0.931	0.442	0.15	22.38	22.5	1.028	0.957	0.454	22.1
Right side	20M QPSK 1RB_99	20300/1745	1:1	0.072	0.042	-0.03	23.35	23.5	1.035	0.075	0.043	22.1
Right side	20M QPSK 50RB_0	20300/1745	1:1	0.055	0.033	0.05	22.38	22.5	1.028	0.057	0.034	22.1
Top side	20M QPSK 1RB_99	20300/1745	1:1	2.01	1	0.05	23.35	23.5	1.035	2.081	**1.035**	22.1
Top side	20M QPSK 50RB_0	20300/1745	1:1	1.81	0.894	-0.04	22.38	22.5	1.028	1.861	0.919	22.1
Bottom side	20M QPSK 1RB_99	20300/1745	1:1	0.069	0.038	0.12	23.35	23.5	1.035	0.071	0.039	22.1
Bottom side	20M QPSK 50RB_0	20300/1745	1:1	0.051	0.031	-0.03	22.38	22.5	1.028	0.052	0.032	22.1

Table 20： SAR Result Of LTE Band 4

Note:

3) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B

4) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

8.4.8 SAR Result Of LTE Band 5

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp
Body Test data(Separate 5mm)												
Front side	10M QPSK 1RB_25	20600/844	1:1	0.283	0.195	-0.07	23.27	23.5	1.054	0.298	0.206	22.1
Front side	10M QPSK 25RB_0	20600/844	1:1	0.235	0.149	0.13	22.28	23.5	1.324	0.311	0.197	22.1
Back side	10M QPSK 1RB_25	20600/844	1:1	0.405	0.308	0.05	23.27	23.5	1.054	0.427	0.325	22.1
Back side	10M QPSK 25RB_0	20600/844	1:1	0.296	0.224	0.01	22.28	22.5	1.052	0.311	0.236	22.1
Left side	10M QPSK 1RB_25	20600/844	1:1	0.46	0.264	0.09	23.27	23.5	1.054	**0.485**	0.278	22.1
Left side	10M QPSK 25RB_0	20600/844	1:1	0.423	0.249	0.12	22.28	22.5	1.052	0.445	0.262	22.1
Right side	10M QPSK 1RB_25	20600/844	1:1	0.392	0.274	-0.02	23.27	23.5	1.054	0.413	0.289	22.1
Right side	10M QPSK 25RB_0	20600/844	1:1	0.355	0.229	0.13	22.28	22.5	1.052	0.373	0.241	22.1
Top side	10M QPSK 1RB_25	20600/844	1:1	0.198	0.118	-0.04	23.27	23.5	1.054	0.209	0.124	22.1
Top side	10M QPSK 25RB_0	20600/844	1:1	0.138	0.082	0.05	22.28	22.5	1.052	0.145	0.086	22.1
Bottom side	10M QPSK 1RB_25	20600/844	1:1	0.079	0.061	0.05	23.27	23.5	1.054	0.083	0.064	22.1
Bottom side	10M QPSK 25RB_0	20600/844	1:1	0.061	0.048	0.03	22.28	22.5	1.052	0.064	0.050	22.1
Extremity Test data(Separate 0mm)												
Front side	10M QPSK 1RB_25	20600/844	1:1	0.28	0.192	0.06	23.27	23.5	1.054	0.295	0.202	22.1
Front side	10M QPSK 25RB_0	20600/844	1:1	0.224	0.153	-0.09	22.28	22.5	1.052	0.236	0.161	22.1
Back side	10M QPSK 1RB_25	20600/844	1:1	0.186	0.121	0.06	23.27	23.5	1.054	0.196	0.128	22.1
Back side	10M QPSK 25RB_0	20600/844	1:1	0.153	0.1	0.19	22.28	22.5	1.052	0.161	0.105	22.1
Left side	10M QPSK 1RB_25	20600/844	1:1	0.772	0.489	0.06	23.27	23.5	1.054	0.814	**0.516**	22.1
Left side	10M QPSK 25RB_0	20600/844	1:1	0.583	0.369	-0.08	22.28	22.5	1.052	0.613	0.388	22.1
Right side	10M QPSK 1RB_25	20600/844	1:1	0.568	0.367	0.07	23.27	23.5	1.054	0.599	0.387	22.1
Right side	10M QPSK 25RB_0	20600/844	1:1	0.459	0.227	0.13	22.28	22.5	1.052	0.483	0.239	22.1
Top side	10M QPSK 1RB_25	20600/844	1:1	0.923	0.497	-0.06	23.27	23.5	1.054	**0.973**	**0.524**	22.1
Top side	10M QPSK 25RB_0	20600/844	1:1	0.716	0.391	0.05	22.28	22.5	1.052	0.753	0.411	22.1
Bottom side	10M QPSK 1RB_25	20600/844	1:1	0.092	0.073	0.03	23.27	23.5	1.054	0.097	0.077	22.1
Bottom side	10M QPSK 25RB_0	20600/844	1:1	0.073	0.052	0.19	22.28	22.5	1.052	0.077	0.055	22.1

Table 21： SAR Result Of LTE Band 5
Note:

5) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B

6) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

8.4.9 SAR Result Of LTE Band 7

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp
Body Test data(Separate 5mm)												
Front side	20M QPSK 1RB_99	21350/2560	1:1	0.076	0.037	0.05	20.7	21	1.072	0.081	0.040	22.1
Front side	20M QPSK 50RB_50	21350/2560	1:1	0.062	0.03	0.04	19.78	20	1.052	0.065	0.032	22.1
Back side	20M QPSK 1RB_99	21350/2560	1:1	0.242	0.131	-0.09	20.7	21	1.072	0.259	0.140	22.1
Back side	20M QPSK 50RB_50	21350/2560	1:1	0.166	0.09	-0.01	19.78	20	1.052	0.175	0.095	22.1
Left side	20M QPSK 1RB_99	21350/2560	1:1	0.441	0.217	0.03	20.7	21	1.072	**0.473**	0.233	22.1
Left side	20M QPSK 50RB_50	21350/2560	1:1	0.331	0.162	0.02	19.78	20	1.052	0.348	0.170	22.1
Right side	20M QPSK 1RB_99	21350/2560	1:1	0.045	0.021	-0.04	20.7	21	1.072	0.048	0.023	22.1
Right side	20M QPSK 50RB_50	21350/2560	1:1	0.035	0.017	0.09	19.78	20	1.052	0.037	0.018	22.1
Top side	20M QPSK 1RB_99	21350/2560	1:1	0.434	0.177	0.19	20.7	21	1.072	0.465	0.190	22.1
Top side	20M QPSK 50RB_50	21350/2560	1:1	0.329	0.135	-0.01	19.78	20	1.052	0.346	0.142	22.1
Bottom side	20M QPSK 1RB_99	21350/2560	1:1	0.031	0.014	0.03	20.7	21	1.072	0.033	0.015	22.1
Bottom side	20M QPSK 50RB_50	21350/2560	1:1	0.024	0.013	-0.03	19.78	20	1.052	0.025	0.014	22.1
Extremity Test data(Separate 0mm)												
Front side	20M QPSK 1RB_99	21350/2560	1:1	0.149	0.067	0.05	20.7	21	1.072	0.160	0.072	22.1
Front side	20M QPSK 50RB_50	21350/2560	1:1	0.143	0.066	0	19.78	20	1.052	0.150	0.069	22.1
Back side	20M QPSK 1RB_99	21350/2560	1:1	0.44	0.225	0.08	20.7	21	1.072	0.471	0.241	22.1
Back side	20M QPSK 50RB_50	21350/2560	1:1	0.359	0.183	0.06	19.78	20	1.052	0.378	0.193	22.1
Left side	20M QPSK 1RB_99	21350/2560	1:1	0.937	0.432	0.06	20.7	21	1.072	1.004	0.463	22.1
Left side	20M QPSK 50RB_50	21350/2560	1:1	0.874	0.392	-0.04	19.78	20	1.052	0.919	0.412	22.1
Right side	20M QPSK 1RB_99	21350/2560	1:1	0.093	0.041	0.03	20.7	21	1.072	0.100	0.044	22.1
Right side	20M QPSK 50RB_50	21350/2560	1:1	0.067	0.03	-0.06	19.78	20	1.052	0.070	0.032	22.1
Top side	20M QPSK 1RB_99	21350/2560	1:1	1.78	0.587	-0.03	20.7	21	1.072	1.907	**0.629**	22.1
Top side	20M QPSK 50RB_50	21350/2560	1:1	1.43	0.466	-0.19	19.78	20	1.052	1.504	0.490	22.1
Bottom side	20M QPSK 1RB_99	21350/2560	1:1	0.069	0.034	0.02	20.7	21	1.072	0.074	0.036	22.1
Bottom side	20M QPSK 50RB_50	21350/2560	1:1	0.044	0.025	0.18	19.78	20	1.052	0.046	0.026	22.1

Table 22： SAR Result Of LTE Band 7

Note:

7) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B

8) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

8.4.10SAR Result Of LTE Band 40

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 1-g	Scaled SAR (W/kg) 10-g	Liquid Temp
Body Test data(Separate 5mm)												
Front side	10M QPSK 1RB_25	38750/2310	1:1	0.107	0.054	0.03	21.89	22	1.026	0.110	0.055	22.1
Front side	10M QPSK 25RB_0	38750/2310	1:1	0.08	0.04	0.08	20.89	21	1.026	0.082	0.041	22.1
Back side	10M QPSK 1RB_25	38750/2310	1:1	0.275	0.148	0.08	21.89	22	1.026	0.282	0.152	22.1
Back side	10M QPSK 25RB_0	38750/2310	1:1	0.204	0.11	0	20.89	21	1.026	0.209	0.113	22.1
Left side	10M QPSK 1RB_25	38750/2310	1:1	0.465	0.238	0.15	21.89	22	1.026	**0.477**	0.244	22.1
Left side	10M QPSK 25RB_0	38750/2310	1:1	0.412	0.194	0.06	20.89	21	1.026	0.423	0.199	22.1
Right side	10M QPSK 1RB_25	38750/2310	1:1	0.037	0.02	-0.04	21.89	22	1.026	0.038	0.021	22.1
Right side	10M QPSK 25RB_0	38750/2310	1:1	0.028	0.015	0.2	20.89	21	1.026	0.029	0.015	22.1
Top side	10M QPSK 1RB_25	38750/2310	1:1	0.443	0.196	-0.09	21.89	22	1.026	0.454	0.201	22.1
Top side	10M QPSK 25RB_0	38750/2310	1:1	0.333	0.147	0.05	20.89	21	1.026	0.342	0.151	22.1
Bottom side	10M QPSK 1RB_25	38750/2310	1:1	0.029	0.013	0.03	21.89	22	1.026	0.030	0.013	22.1
Bottom side	10M QPSK 25RB_0	38750/2310	1:1	0.022	0.011	0.04	20.89	21	1.026	0.023	0.011	22.1
Extremity Test data(Separate 0mm)												
Front side	10M QPSK 1RB_25	38750/2310	1:1	0.205	0.106	-0.02	21.89	22	1.026	0.210	0.109	22.1
Front side	10M QPSK 25RB_0	38750/2310	1:1	0.154	0.08	0.1	20.89	21	1.026	0.158	0.082	22.1
Back side	10M QPSK 1RB_25	38750/2310	1:1	0.697	0.346	0.13	21.89	22	1.026	0.715	0.355	22.1
Back side	10M QPSK 25RB_0	38750/2310	1:1	0.542	0.266	0.05	20.89	21	1.026	0.556	0.273	22.1
Left side	10M QPSK 1RB_25	38750/2310	1:1	0.986	0.482	-0.19	21.89	22	1.026	1.011	0.494	22.1
Left side	10M QPSK 25RB_0	38750/2310	1:1	0.917	0.424	0.08	20.89	21	1.026	0.941	0.435	22.1
Right side	10M QPSK 1RB_25	38750/2310	1:1	0.078	0.038	0.03	21.89	22	1.026	0.080	0.039	22.1
Right side	10M QPSK 25RB_0	38750/2310	1:1	0.059	0.028	0.01	20.89	21	1.026	0.061	0.029	22.1
Top side	10M QPSK 1RB_25	38750/2310	1:1	1.49	0.565	-0.04	21.89	22	1.026	1.528	**0.579**	22.1
Top side	10M QPSK 25RB_0	38750/2310	1:1	1.15	0.436	-0.06	20.89	21	1.026	1.179	0.447	22.1
Bottom side	10M QPSK 1RB_25	38750/2310	1:1	0.062	0.034	-0.07	21.89	22	1.026	0.064	0.035	22.1
Bottom side	10M QPSK 25RB_0	38750/2310	1:1	0.043	0.024	-0.1	20.89	21	1.026	0.044	0.025	22.1

Table 23： SAR Result Of LTE Band 40

Note:

9) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B

10) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0 for 10g) then testing at the other channels is not required for such test configuration(s).

1) performed for the Power Class 3 configuration with the highest SAR for each exposure condition.

8.4.11 Repeat SAR Measurement

Band	Mode	Test Position	Test Ch./Freq.	Original Measured SAR1g (mW/g)	1st Repeated SAR1g (mW/g)	Ratio	Original Measured SAR1g (mW/g)	2nd Repeated SAR1g (mW/g)	Ratio
WCDMA II	RMC	Top side	9262/1852.4	1.05	1.01	-3.81	1.05	NA	NA
LTE Band 4	20M QPSK 1RB_99	Top side	20050/1720	0.95	0.944	-0.63	0.95	NA	NA

Note：

1) Per KDB 865664 D01v01, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8W/Kg
2) Per KDB 865664 D01v01, if the ratio of largest to smallest SAR for the original and first repeated measurement is ≤1.2 and the measured SAR ＜1.45W/Kg, only one repeated measurement is required
3) The ratio is the difference in percentage between original and repeated measured SAR.

8.5 Multiple Transmitter Evaluation

8.5.1 Simultaneous SAR SAR test evaluation

Simultaneous Transmission

NO.	**Simultaneous Transmission Configuration**	Body	Extremity
1	GPRS / EDGE(Data) + WiFi	Yes	Yes
2	WCDMA(Data) + WiFi	Yes	Yes
3	LTE(Data) + WiFi	Yes	Yes

1) Simultaneous Transmission SAR Summation Scenario for body

WWAN Band	Exposure position	①MAX. WWAN SAR(W/kg)	②MAX. WLAN2.4GHz SAR(W/kg)	Summed SAR ①+②
GSM850	Front	0.151	0.030	0.181
	Back	0.291	0.035	0.326
	Left	0.080	0.005	0.085
	Right	0.146	0.039	0.185
	Top	0.413	0.006	0.419
	Bottom	0.025	0.017	0.042
GSM1900	Front	0.130	0.030	0.160
	Back	0.071	0.035	0.106
	Left	0.210	0.005	0.215
	Right	0.052	0.039	0.091
	Top	0.774	0.006	0.780
	Bottom	0.021	0.017	0.038
WCDMA Band II	Front	0.311	0.030	0.341
	Back	0.361	0.035	0.396
	Left	0.320	0.005	0.325
	Right	0.053	0.039	0.092
	Top	1.117	0.006	**1.123**
	Bottom	0.027	0.017	0.044
WCDMA Band V	Front	0.140	0.030	0.170
	Back	0.169	0.035	0.204
	Left	0.042	0.005	0.047
	Right	0.076	0.039	0.115
	Top	0.214	0.006	0.220
	Bottom	0.008	0.017	0.025
LTE Band 2	Front	0.353	0.030	0.383
	Back	0.374	0.035	0.409
	Left	0.343	0.005	0.348
	Right	0.032	0.039	0.071
	Top	0.625	0.006	0.631
	Bottom	0.021	0.017	0.038
LTE Band 4	Front	0.373	0.030	0.403
	Back	0.434	0.035	0.469
	Left	0.423	0.005	0.428
	Right	0.053	0.039	0.092
	Top	1.016	0.006	1.022
	Bottom	0.064	0.017	0.081
LTE Band 5	Front	0.311	0.030	0.341
	Back	0.427	0.035	0.462
	Left	0.485	0.005	0.490
	Right	0.413	0.039	0.452
	Top	0.209	0.006	0.215

	Bottom	0.083	0.017	0.100
LTE Band 7	Front	0.081	0.030	0.111
	Back	0.259	0.035	0.294
	Left	0.473	0.005	0.478
	Right	0.048	0.039	0.087
	Top	0.465	0.006	0.471
	Bottom	0.033	0.017	0.050
LTE Band 40	Front	0.110	0.030	0.140
	Back	0.282	0.035	0.317
	Left	0.477	0.005	0.482
	Right	0.038	0.039	0.077
	Top	0.454	0.006	0.460
	Bottom	0.030	0.017	0.047

2) Simultaneous Transmission SAR Summation Scenario for Extremity

WWAN Band	Exposure position	①MAX. WWAN SAR(W/kg)	②MAX. WLAN2.4GHz SAR(W/kg)	Summed SAR ①+②
GSM850	Front	0.153	0.033	0.186
	Back	0.449	0.062	0.511
	Left	0.077	0.006	0.083
	Right	0.192	0.067	0.259
	Top	0.542	0.008	0.550
	Bottom	0.046	0.017	0.063
GSM1900	Front	0.094	0.033	0.127
	Back	0.099	0.062	0.161
	Left	0.228	0.006	0.234
	Right	0.056	0.067	0.123
	Top	0.821	0.008	0.829
	Bottom	0.026	0.017	0.043
WCDMA Band II	Front	0.269	0.033	0.302
	Back	0.428	0.062	0.490
	Left	0.392	0.006	0.398
	Right	0.076	0.067	0.143
	Top	0.990	0.008	0.998
	Bottom	0.032	0.017	0.049
WCDMA Band V	Front	0.095	0.033	0.128
	Back	0.274	0.062	0.336
	Left	0.053	0.006	0.059
	Right	0.101	0.067	0.168
	Top	0.425	0.008	0.433
	Bottom	0.012	0.017	0.029
LTE Band 2	Front	0.268	0.033	0.301
	Back	0.349	0.062	0.411
	Left	0.458	0.006	0.464
	Right	0.035	0.067	0.102
	Top	0.632	0.008	0.640
	Bottom	0.020	0.017	0.037
LTE Band 4	Front	0.353	0.033	0.386
	Back	0.433	0.062	0.495
	Left	0.551	0.006	0.557
	Right	0.043	0.067	0.110
	Top	1.035	0.008	**1.043**
	Bottom	0.039	0.017	0.056
LTE Band 5	Front	0.202	0.033	0.235
	Back	0.128	0.062	0.190
	Left	0.516	0.006	0.522
	Right	0.387	0.067	0.454
	Top	0.524	0.008	0.532

	Bottom	0.077	0.017	0.094
LTE Band 7	Front	0.072	0.033	0.105
	Back	0.241	0.062	0.303
	Left	0.463	0.006	0.469
	Right	0.044	0.067	0.111
	Top	0.629	0.008	0.637
	Bottom	0.036	0.017	0.053
LTE Band 40	Front	0.109	0.033	0.142
	Back	0.355	0.062	0.417
	Left	0.494	0.006	0.500
	Right	0.039	0.067	0.106
	Top	0.579	0.008	0.587
	Bottom	0.035	0.017	0.052

9 Equipment list

Test Platform	SPEAG DASY5 Professional
Location	SGS-CCS Standards Technical Services Co., Ltd. Kunshan Branch
Description	SAR Test System (Frequency range 300MHz-6GHz)
Software Reference	DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Hardware Reference

	Equipment	Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	P C	HP	Core(rm)3.16G	CZCO48171H	N/A	N/A
☒	Signal Generator	Agilent	E8257C	US37101915	2019/02/25	2020/02/24
☒	S-Parameter Network Analyzer	Agilent	E5071B	MY42301382	2019/02/25	2020/02/24
☒	Power sensor	Anritsu	E9327A	Us40441788	2019/02/25	2020/02/24
☒	Power meter	Anritsu	E4416A	GB41292714	2019/02/25	2020/02/24
☒	Wireless Communications Test Set	Agilent	8960 E5515C	GB44051695	2019/7/3	2020/7/2
☒	DAE	SPEAG	DAE4	1245	2019/05/21	2020/05/20
☒	E-field PROBE	SPEAG	EX3DV4	3798	2019/05/24	2020/05/23
☒	Electro Thermometer	DTM	DTM3000	3030	2018/12/8	2019/12/7
☒	Signal Generator	Agilent	E8257C	MY43321570	2019/10/24	2020/10/23
☒	S-Parameter Network Analyzer	Agilent	E5071B	MY42301382	2020/02/24	2021/02/23
☒	Power meter	Anritsu	ML2495A	1445010	2020/04/21	2021/04/20
☒	Power sensor	Anritsu	MA2411B	1339220	2020/04/21	2021/04/20
☒	universal Radio communication tester	R&S	CMW500	159275	2019/12/19	2020/12/18
☒	DAK-3.5 probe	SPEAG	DAK-3.5	1102	N/A	N/A
☒	DAE	SPEAG	DAE4	1245	2020/05/27	2020/05/26
☒	E-field PROBE	SPEAG	EX3DV4	3798	2020/05/29	2021/05/28
☒	Dipole	SPEAG	D835V2	4d114	2019/06/11	2022/06/10
☒	Dipole	SPEAG	D1800V2	2d170	2019/06/11	2021/06/10
☒	Dipole	SPEAG	D1900V2	5d136	2019/06/11	2021/06/10
☒	Dipole	SPEAG	D2300V2	1096	2019/03/08	2022/03/07
☒	Dipole	SPEAG	D2450V2	817	2019/06/10	2022/06/09
☒	Dipole	SPEAG	D2600V2	1158	2019/03/08	2022/03/07
☒	Electro Thermometer	DTM	DTM3000	3030	2019/12/20	2020/12/19
☒	Amplifier	Mini-circuits	ZVE-8G	110405	N/A	N/A
☒	Amplifier	Mini-circuits	ZHL-42	QA1331003	N/A	N/A
☒	3db ATTENUATOR	MINI	MCL BW-S3W5	0533	N/A	N/A

☒	DUMMY PROBE	SPEAG	DP_2	SPDP2001AA	N/A	N/A
☒	Dual Directional Coupler	Woken	20W couple	DOM2BHW1A1	N/A	N/A
☒	SAM PHANTOM (ELI4 v4.0)	SPEAG	QDOVA001BB	1102	N/A	N/A
☒	Twin SAM Phantom	SPEAG	QD000P40CD	1609	N/A	N/A
☒	ROBOT	SPEAG	TX60	F10/5E6AA1/A101	N/A	N/A
☒	ROBOT KRC	SPEAG	CS8C	F10/5E6AA1/C101	N/A	N/A
☒	LIQUID CALIBRATION KIT	ANTENNESSA	41/05 OCP9	00425167	N/A	N/A

Note: All the equipments are within the valid period when the tests are performed.

All measurement facilities used to collect the measurement data are located at

☒ No.10, Weiye Rd., Innovation Park, Eco & Tec. Development Part, Kunshan City, Jiangsu Province, China.

10 Calibration certificate

Please see the Appendix C

11 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

The plots are showing as followings.

Date: 2019/09/30

Test Laboratory: Compliance Certification Services Inc.

System Performance Check-Body 835MHz_9.30

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d114

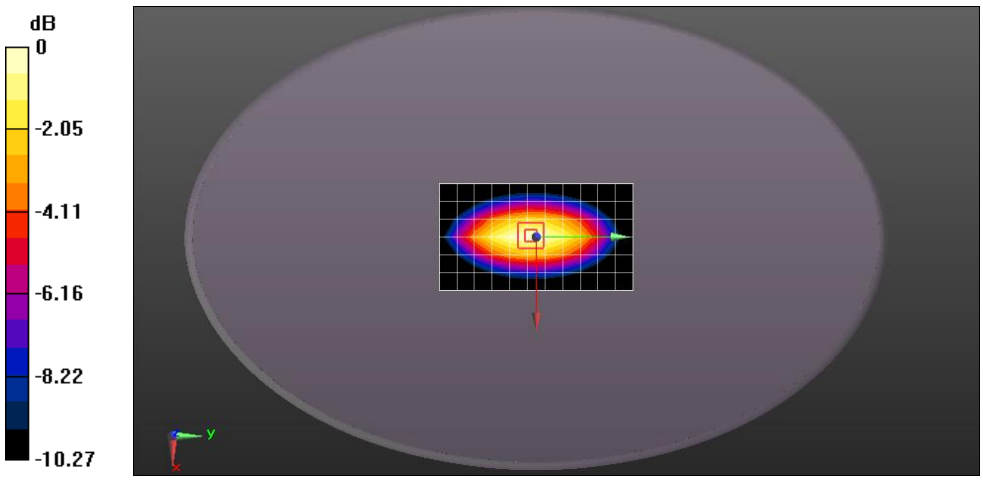
Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.985 S/m; ε_r = 55.378; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.33, 9.33, 9.33); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Body/dist=15mm, Pin=250 mW(EX-Probe)/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.44 W/kg

Body/dist=15mm, Pin=250 mW(EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.91 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 4.09 W/kg
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.58 W/kg
Maximum value of SAR (measured) = 3.46 W/kg



0 dB = 3.46 W/kg = 5.39 dBW/kg

Date: 2019/09/27

Test Laboratory: Compliance Certification Services Inc.

System Performance Check-Body 1900MHz_9.27

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d136

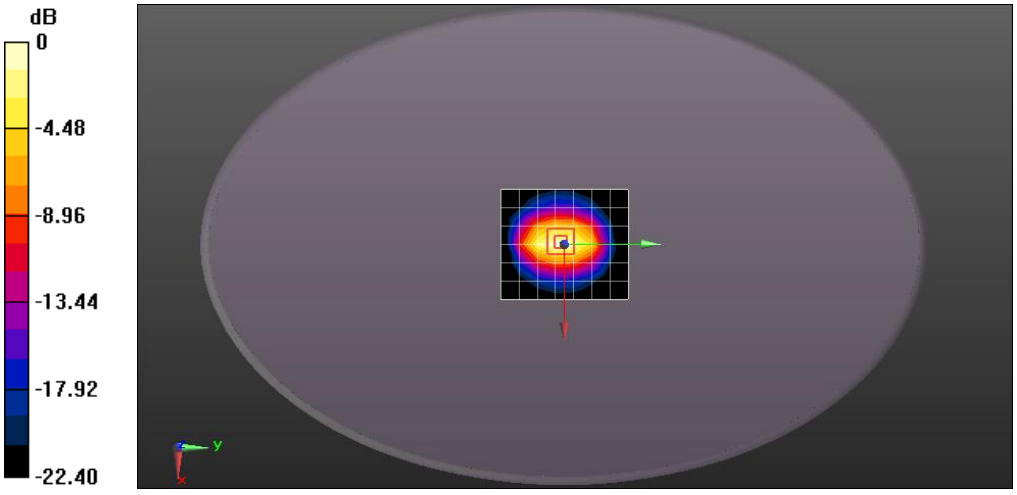
Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.523 S/m; ε_r = 53.017; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.66, 7.66, 7.66); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Body/Pin=250 mW, dist=10mm (EX-Probe)/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 12.9 W/kg

Body/Pin=250 mW, dist=10mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.53 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 19.1 W/kg
SAR(1 g) = 9.95 W/kg; SAR(10 g) = 5.19 W/kg
Maximum value of SAR (measured) = 13.6 W/kg



0 dB = 13.6 W/kg = 11.34 dBW/kg

Date: 2019/10/16

Test Laboratory: Compliance Certification Services Inc.

SystemPerformanceCheck-Body 2450MHz_10.16

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 817

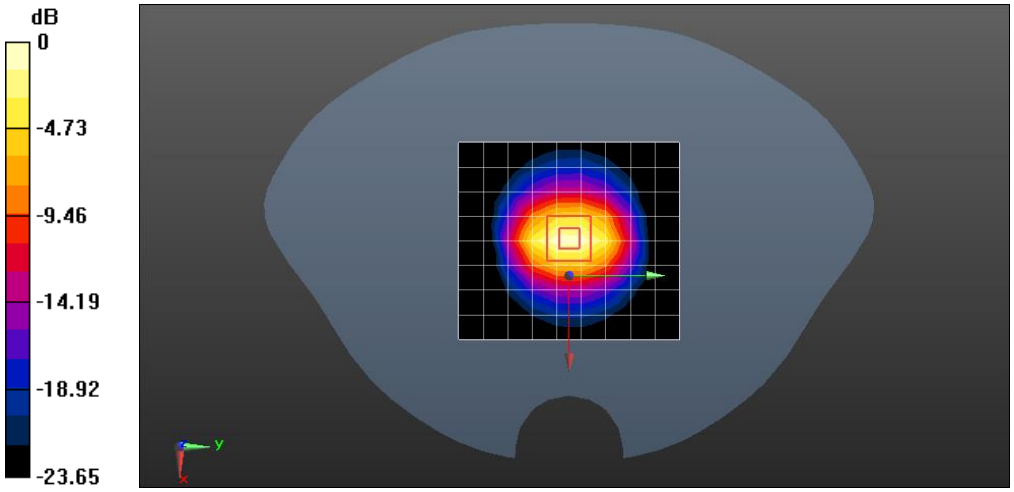
Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 2.012 S/m; ε_r = 52.697; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.37, 7.37, 7.37); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Body/Pin=250 mW, dist=10mm (EX-Probe)/Area Scan (9x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 17.5 W/kg

Body/Pin=250 mW, dist=10mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.41 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 26.6 W/kg
SAR(1 g) = 12.2 W/kg; SAR(10 g) = 5.66 W/kg
Maximum value of SAR (measured) = 19.2 W/kg



0 dB = 19.2 W/kg = 12.83 dBW/kg

Date: 2020/07/03

Test Laboratory: Compliance Certification Services Inc.

System Performance Check-Head 835MHz

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: 4d114

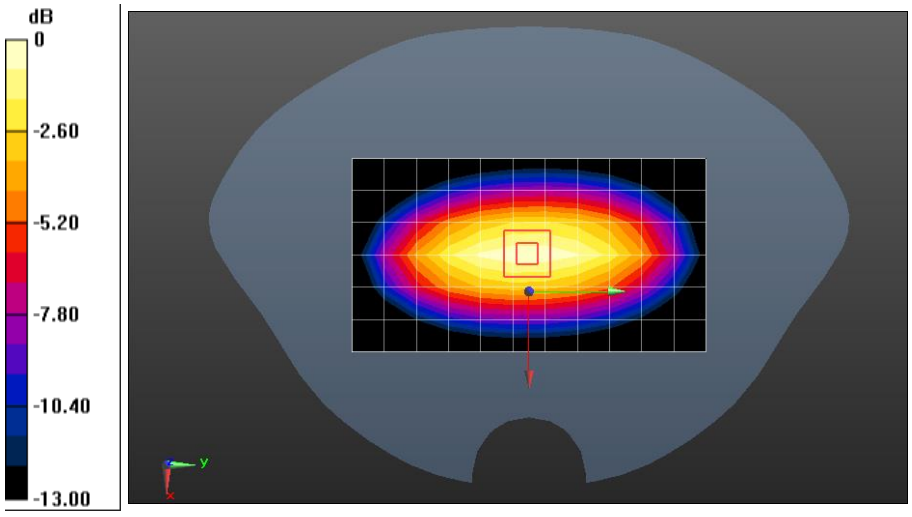
Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.886 S/m; ε_r = 40.798; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.41, 9.41, 9.41); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Body/Pin=250 mW, dist=15 mm (EX-Probe)/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.62 W/kg

Body/Pin=250 mW, dist=15 mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.87 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 3.20 W/kg
SAR(1 g) = 2.15 W/kg; SAR(10 g) = 1.42 W/kg
Maximum value of SAR (measured) = 2.72 W/kg



0 dB = 2.72 W/kg = 4.35 dBW/kg

Date: 2020/07/02

Test Laboratory: Compliance Certification Services Inc.

System Performance Check-Head 1800MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial:2d170

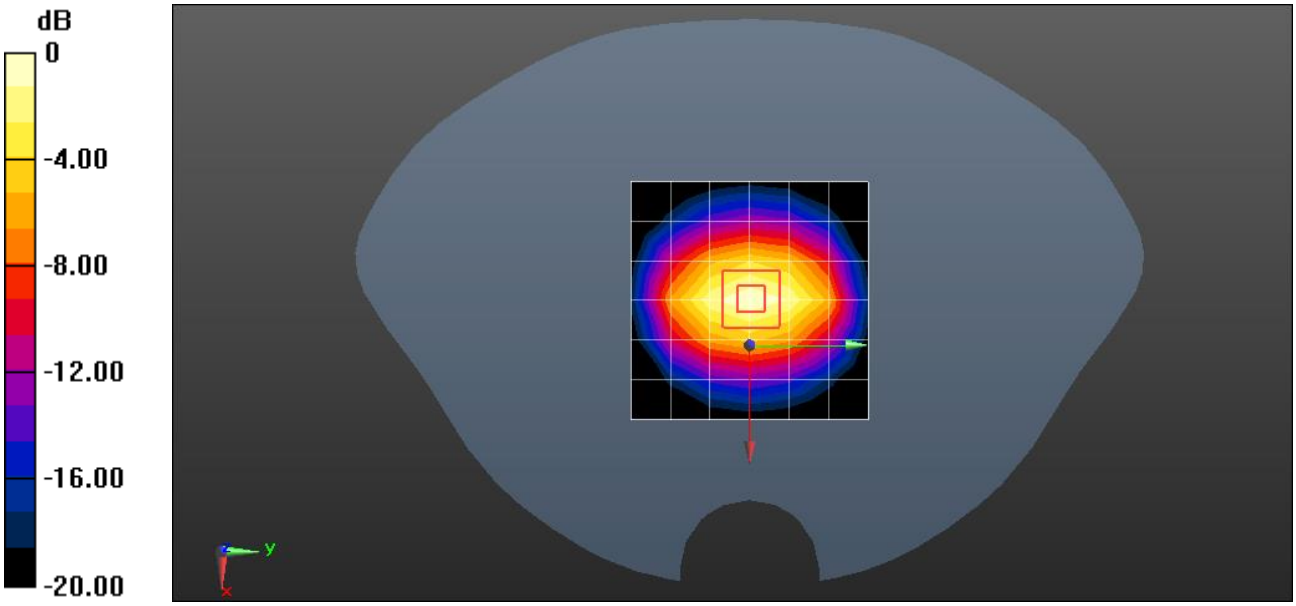
Communication System: UID 10000, CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.384 S/m; ε_r = 40.258; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(8.13, 8.13, 8.13); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Body/d=10mm, Pin=250 mW,(EX-Probe)/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 12.2 W/kg

Body/d=10mm, Pin=250 mW,(EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.04 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 19.5 W/kg
SAR(1 g) = 9.51 W/kg; SAR(10 g) = 4.75 W/kg
Maximum value of SAR (measured) = 12.3 W/kg



0 dB = 12.3 W/kg = 10.90 dBW/kg

Date: 2020/07/02

Test Laboratory: Compliance Certification Services Inc.

System Performance Check-Head 1900MHz

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d136

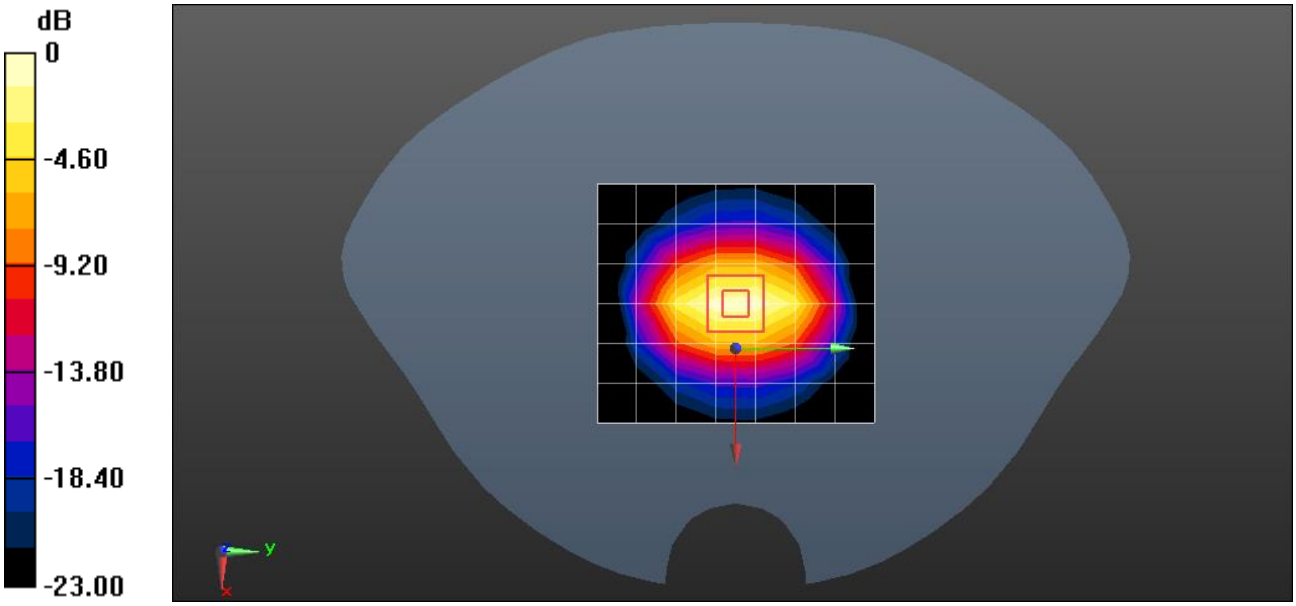
Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.373 S/m; ε_r = 40.627; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.9, 7.9, 7.9); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Body/Pin=250 mW, dist=10mm (EX-Probe)/Area Scan (7x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 14.0 W/kg

Body/Pin=250 mW, dist=10mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.9 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 19.5 W/kg
SAR(1 g) = 10.4 W/kg; SAR(10 g) = 5.39 W/kg
Maximum value of SAR (measured) = 15.1 W/kg



0 dB = 15.1 W/kg = 11.79 dBW/kg

Date: 2020/07/06

Test Laboratory: Compliance Certification Services Inc.

System Performance Check-Head 2300MHz

DUT: Dipole 2300 MHz D2450V2; Type: D2300V2; Serial: 1096

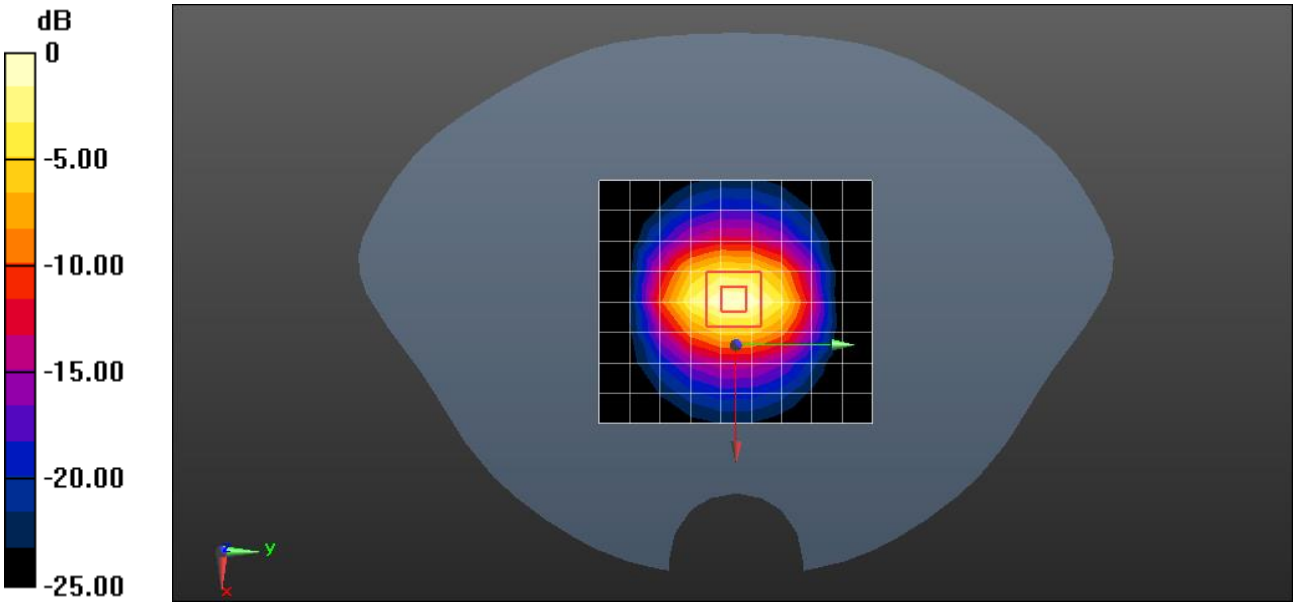
Communication System: UID 0, CW (0); Frequency: 2300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.639 S/m; ε_r = 40.496; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.57, 7.57, 7.57); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Body/Pin=250 mW, dist=10mm (EX-Probe)/Area Scan (9x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 15.1 W/kg

Body/Pin=250 mW, dist=10mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.2 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 21.6 W/kg
SAR(1 g) = 10.9 W/kg; SAR(10 g) = 5.4 W/kg
Maximum value of SAR (measured) = 16.2 W/kg



0 dB = 16.2 W/kg = 12.10 dBW/kg

Date: 2020/07/06

Test Laboratory: Compliance Certification Services Inc.

System Performance Check-Head 2600MHz

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1096

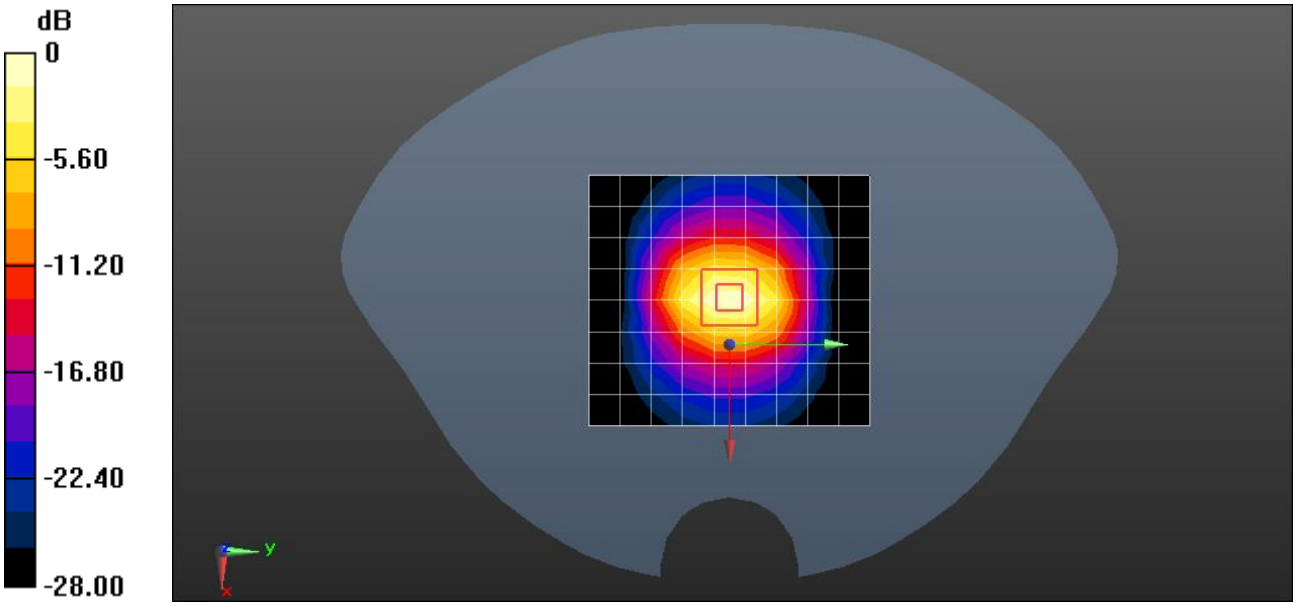
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.994 S/m; ε_r = 39.429; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.06, 7.06, 7.06); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Body/Pin=250 mW, dist=10mm (EX-Probe)/Area Scan (9x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 19.4 W/kg

Body/Pin=250 mW, dist=10mm (EX-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 105.4 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 29.8 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.01 W/kg
Maximum value of SAR (measured) = 21.6 W/kg



0 dB = 21.6 W/kg = 13.34 dBW/kg

Appendix B: Detailed Test Results

The plots of worse case are showing as followings.

Date: 2019/09/30

Test Laboratory: Compliance Certification Services Inc.

GSM850 GPRS 4TS Top side 5mm Ch190

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

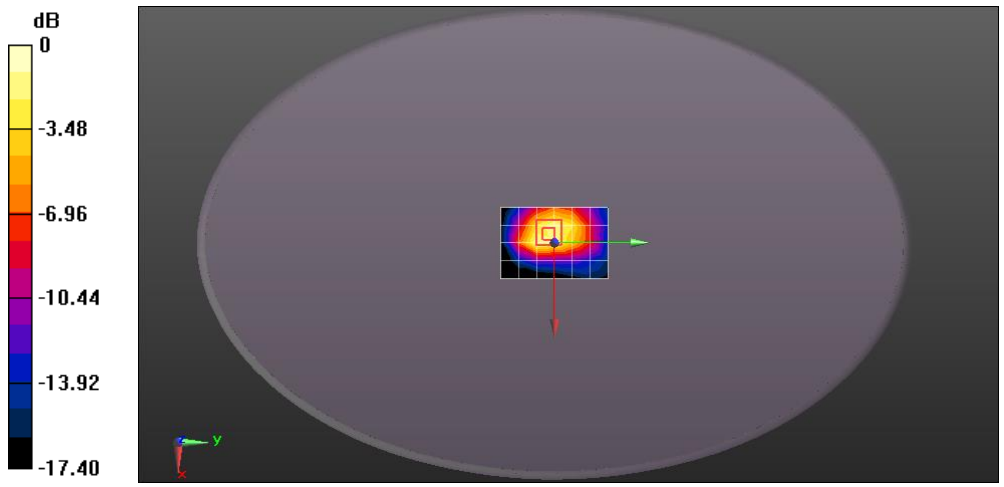
Communication System: UID 0, GPRS/EGPRS 4TX Slots (0); Frequency: 836.6 MHz;Duty Cycle: 1:2.0797
Medium parameters used: f = 837 MHz; σ = 0.989 S/m; ε_r = 55.307; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.33, 9.33, 9.33); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.444 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.60 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.751 W/kg
SAR(1 g) = 0.391 W/kg; SAR(10 g) = 0.206 W/kg
Maximum value of SAR (measured) = 0.573 W/kg



0 dB = 0.573 W/kg = -2.42 dBW/kg

Date: 2019/09/30

Test Laboratory: Compliance Certification Services Inc.

GSM850 GPRS 4TS Top side 0mm Ch190

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

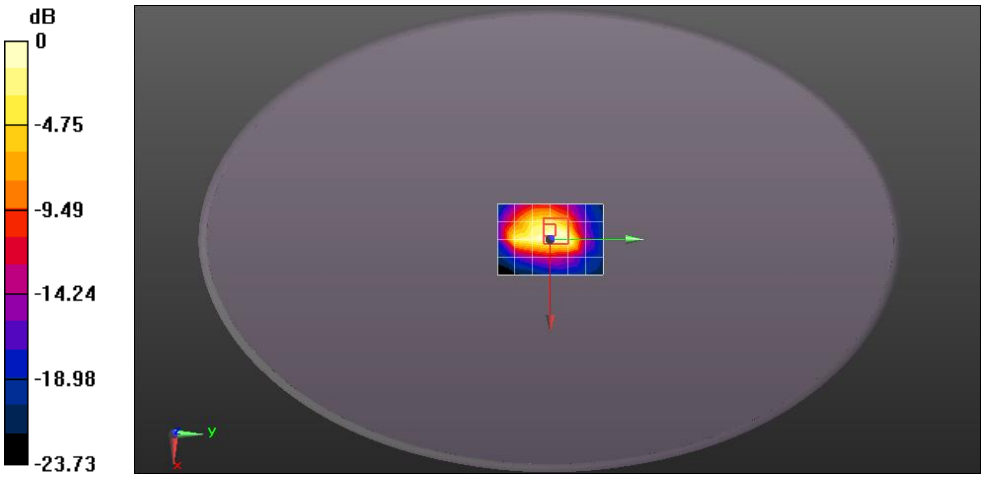
Communication System: UID 0, GPRS/EGPRS 4TX Slots (0); Frequency: 836.6 MHz;Duty Cycle: 1:2.0797
Medium parameters used: f = 837 MHz; σ = 0.989 S/m; ε_r = 55.307; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.33, 9.33, 9.33); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.15 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.22 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.96 W/kg
SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.513 W/kg
Maximum value of SAR (measured) = 2.36 W/kg



0 dB = 2.36 W/kg = 3.73 dBW/kg

Date: 2019/09/27

Test Laboratory: Compliance Certification Services Inc.

GSM1900 GPRS 4TS Top side 5mm Ch661

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

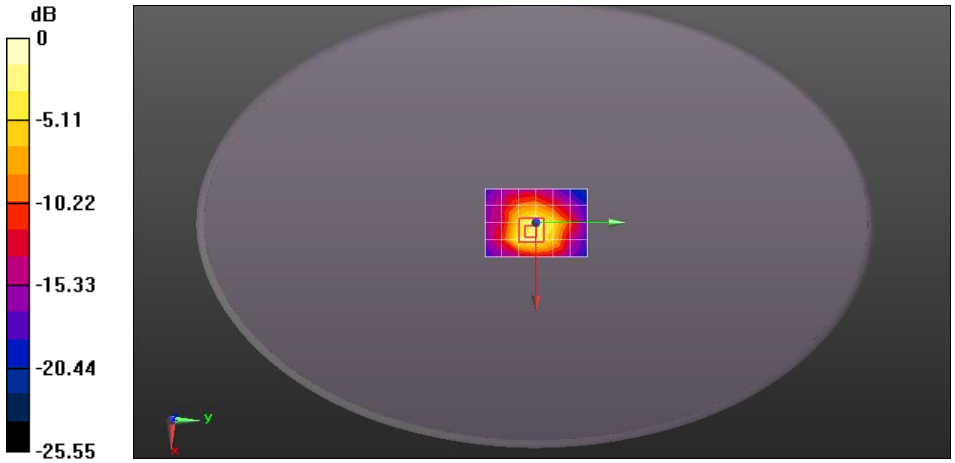
Communication System: UID 0, GPRS/EGPRS 4TX Slots (0); Frequency: 1880 MHz;Duty Cycle: 1:2.0797
Medium parameters used: f = 1880 MHz; σ = 1.521 S/m; ε_r = 53.091; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.66, 7.66, 7.66); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.652 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.65 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.665 W/kg; SAR(10 g) = 0.305 W/kg
Maximum value of SAR (measured) = 1.04 W/kg



0 dB = 1.04 W/kg = 0.17 dBW/kg

Date: 2019/09/27

Test Laboratory: Compliance Certification Services Inc.

GSM1900 GPRS 4TS Top side 0mm Ch661

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

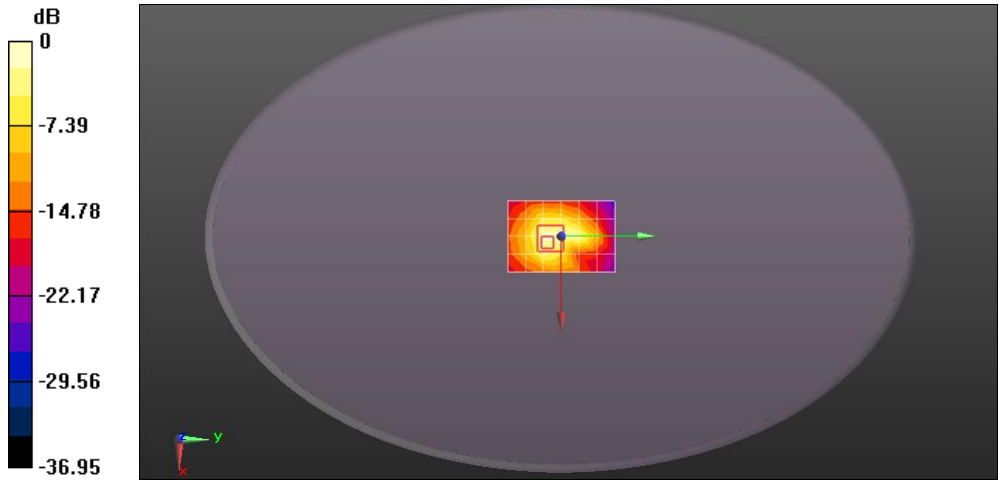
Communication System: UID 0, GPRS/EGPRS 4TX Slots (0); Frequency: 1880 MHz;Duty Cycle: 1:2.0797
Medium parameters used: f = 1880 MHz; σ = 1.521 S/m; ε_r = 53.091; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.66, 7.66, 7.66); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.80 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.60 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 3.84 W/kg
SAR(1 g) = 1.52 W/kg; SAR(10 g) = 0.705 W/kg
Maximum value of SAR (measured) = 2.21 W/kg



0 dB = 2.21 W/kg = 3.44 dBW/kg

Date: 2019/09/30

Test Laboratory: Compliance Certification Services Inc.

WCDMA V RMC12.2Kbps Top side 5mm Ch4182

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

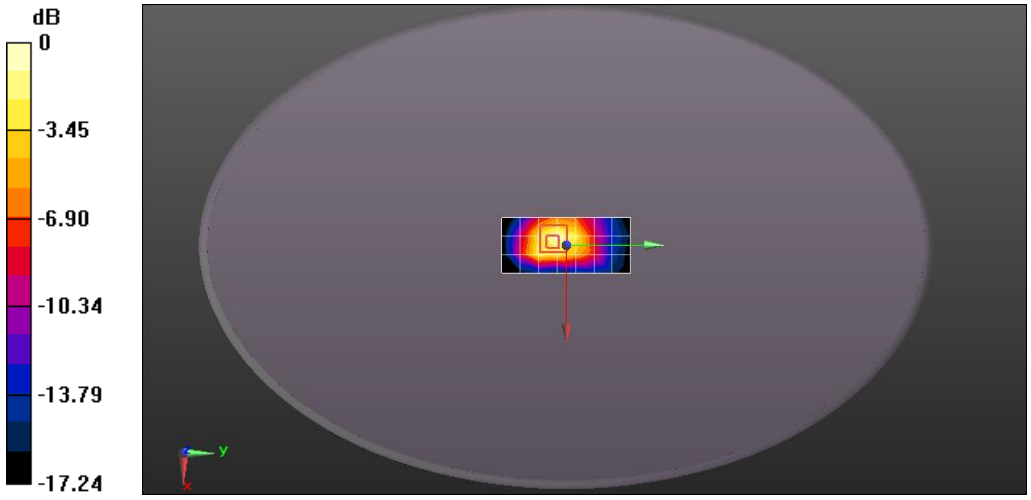
Communication System: UID 0, WCDMA / UMTS (0); Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.4 MHz; σ = 0.986 S/m; ε_r = 55.299; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.33, 9.33, 9.33); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (4x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.271 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.42 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.382 W/kg
SAR(1 g) = 0.197 W/kg; SAR(10 g) = 0.104 W/kg
Maximum value of SAR (measured) = 0.290 W/kg



0 dB = 0.290 W/kg = -5.38 dBW/kg

Date: 2019/09/30

Test Laboratory: Compliance Certification Services Inc.

WCDMA V RMC12.2Kbps Top side 0mm Ch4182

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

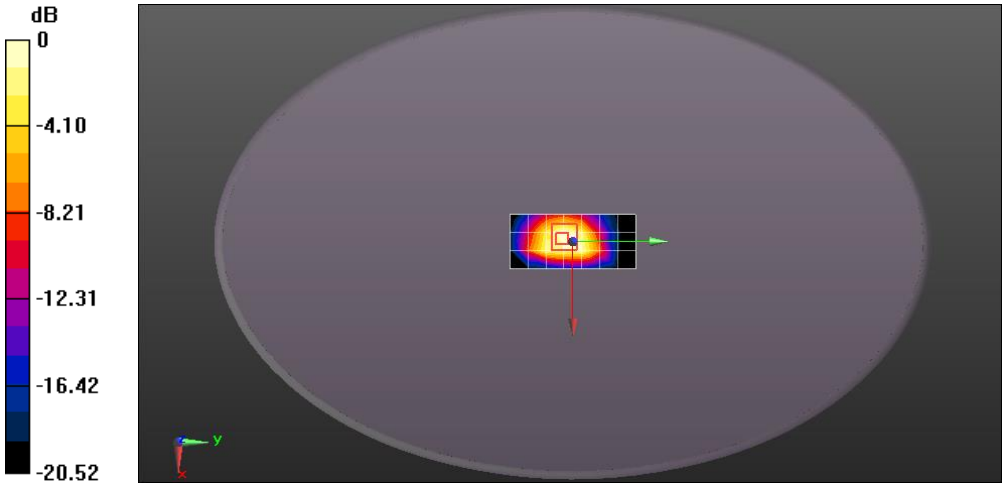
Communication System: UID 0, WCDMA / UMTS (0); Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.4 MHz; σ = 0.986 S/m; ε_r = 55.299; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.33, 9.33, 9.33); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (4x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.28 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8m, dz=5mm
Reference Value = 39.36 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 2.30 W/kg
SAR(1 g) = 0.835 W/kg; SAR(10 g) = 0.392 W/kg
Maximum value of SAR (measured) = 1.23 W/kg



0 dB = 1.23 W/kg = 0.90 dBW/kg

Date: 2019/09/27

Test Laboratory: Compliance Certification Services Inc.

WCDMA II RMC12.2Kbps Top side 5mm Ch9262

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

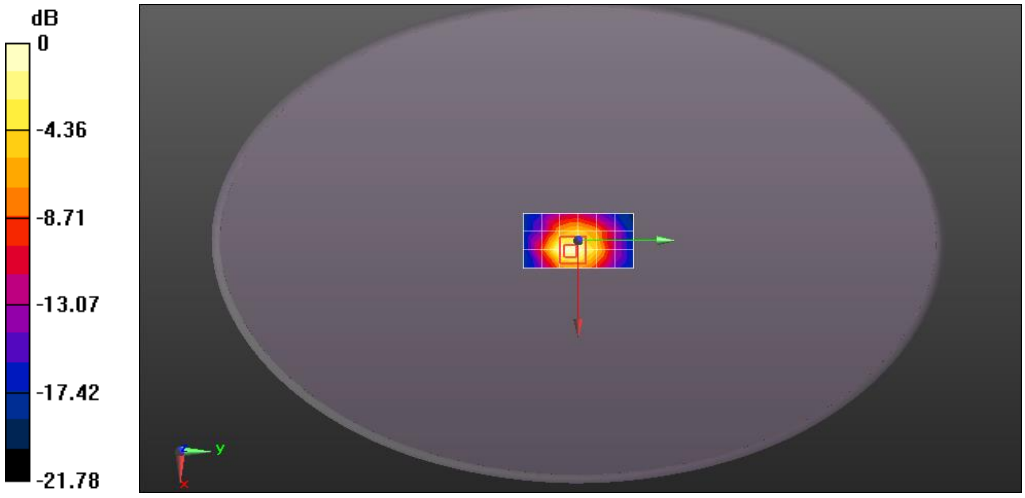
Communication System: UID 0, WCDMA / UMTS (0); Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1852.4 MHz; σ = 1.533 S/m; ε_r = 53.144; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.66, 7.66, 7.66); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.55 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.36 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 2.17 W/kg
SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.496 W/kg
Maximum value of SAR (measured) = 1.62 W/kg



0 dB = 1.62 W/kg = 2.10 dBW/kg

Date: 2019/09/27

Test Laboratory: Compliance Certification Services Inc.

WCDMA II RMC12.2Kbps Top side 0mm Ch9400

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

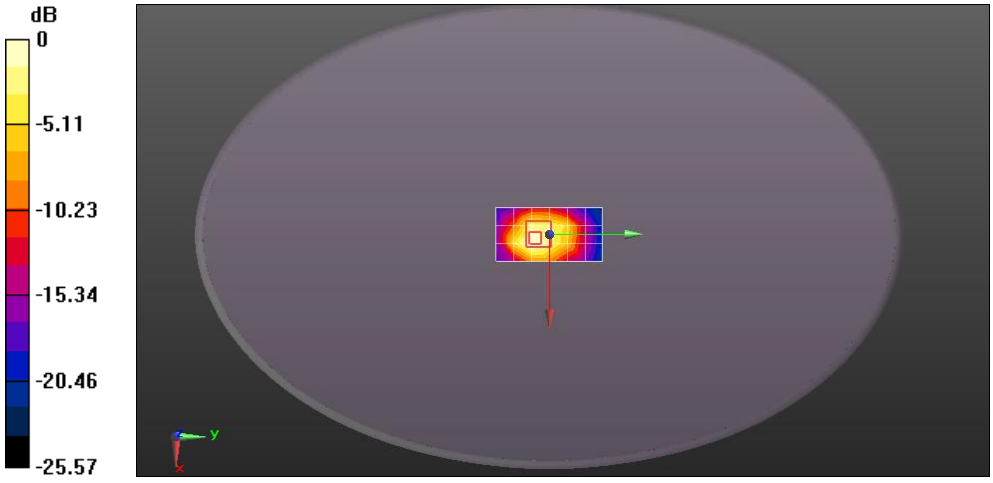
Communication System: UID 0, FDD WCDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.521 S/m; ε_r = 53.091; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.66, 7.66, 7.66); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.75 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 41.31 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 4.17 W/kg
SAR(1 g) = 1.88 W/kg; SAR(10 g) = 0.924 W/kg
Maximum value of SAR (measured) = 2.88 W/kg



0 dB = 2.88 W/kg = 4.59 dBW/kg

Date: 2019/10/16

Test Laboratory: Compliance Certification Services Inc.

WLAN2.4GHz 802.11b 1Mbps Right side 5mm Ch1

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

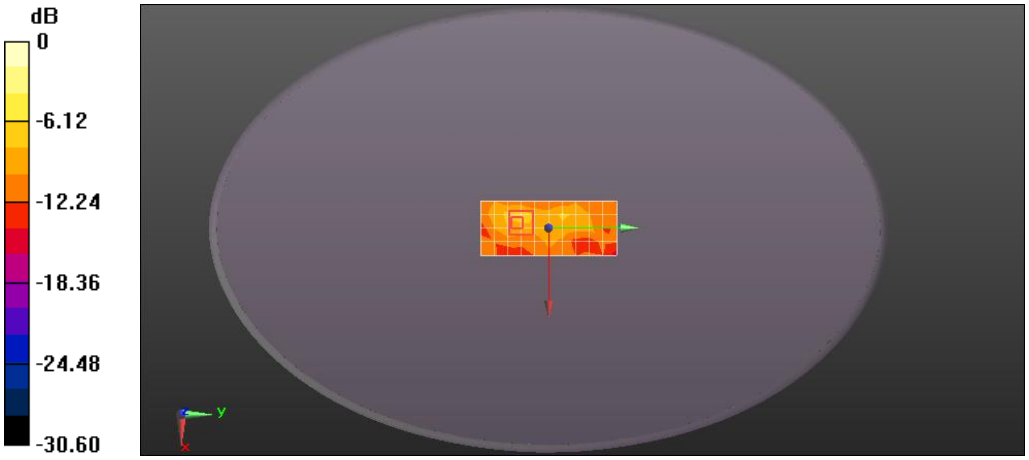
Communication System: UID 0, WiFi (0); Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.965 S/m; ε_r = 52.844; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.37, 7.37, 7.37); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0385 W/kg

configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.627 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.172 W/kg
SAR(1 g) = 0.034 W/kg; SAR(10 g) = 0.023 W/kg
Maximum value of SAR (measured) = 0.172 W/kg



0 dB = 0.172 W/kg = -7.64 dBW/kg

Date: 2019/10/16

Test Laboratory: Compliance Certification Services Inc.

WLAN2.4GHz 802.11b 1Mbps Right side 0mm Ch1

DUT: Mobile POS; Type: GD004; Serial: 04500300319122500062

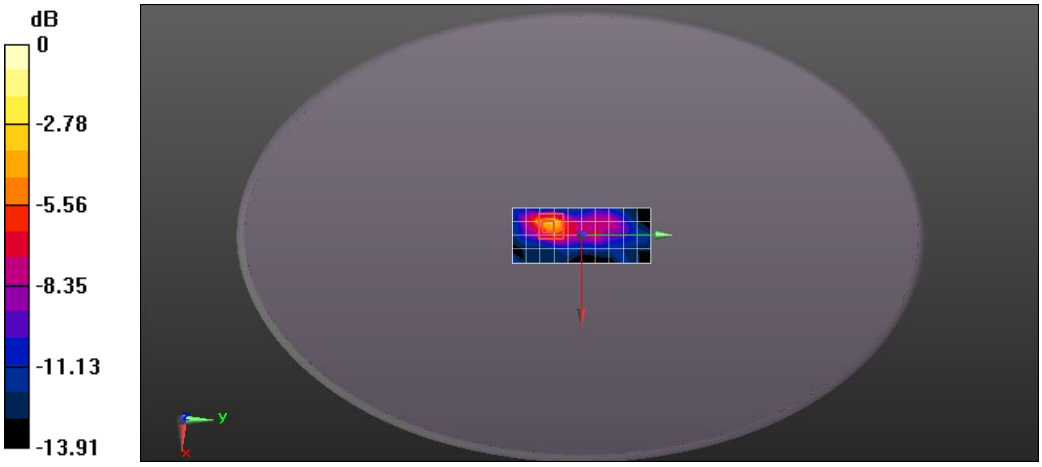
Communication System: UID 0, WiFi (0); Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.965 S/m; ε_r = 52.844; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.37, 7.37, 7.37); Calibrated: 2019/05/24;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2019/05/21
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1102
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.143 W/kg

configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.254 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.269 W/kg



0 dB = 0.269 W/kg = -5.70 dBW/kg

Date: 2020/07/02

Test Laboratory: Compliance Certification Services Inc.

LTE Band 2 20M QPSK 1RB_50 Top side 5mm Ch18700

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

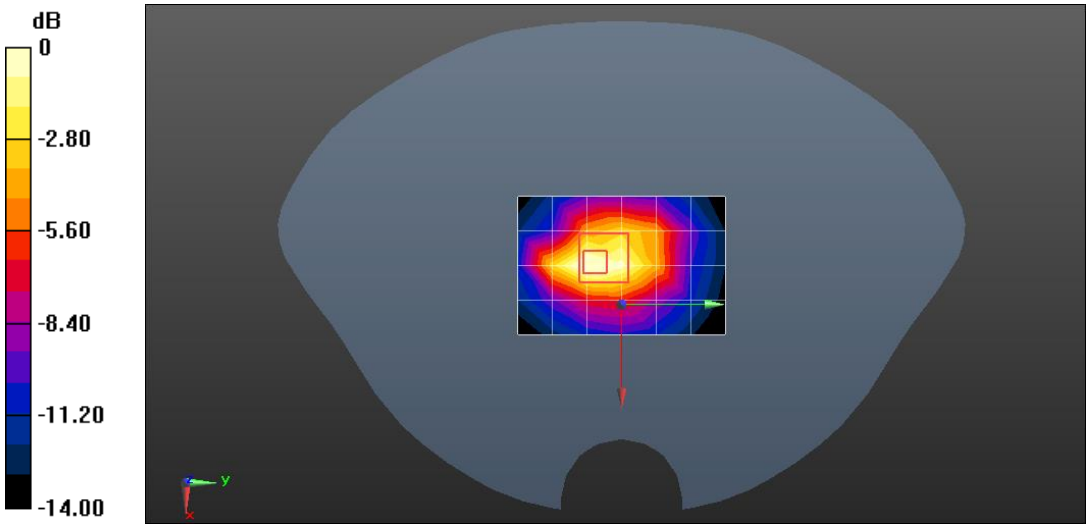
Communication System: UID 0, FDD_LTE (0); Frequency: 1860 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.351 S/m; ε_r = 40.801; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.9, 7.9, 7.9); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.13 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.54 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.566 W/kg; SAR(10 g) = 0.278 W/kg
Maximum value of SAR (measured) = 0.877 W/kg



0 dB = 0.877 W/kg = -0.57 dBW/kg

Date: 2020/07/02

Test Laboratory: Compliance Certification Services Inc.

LTE Band 2 20M QPSK 1RB_50 Top side 0mm Ch18700

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

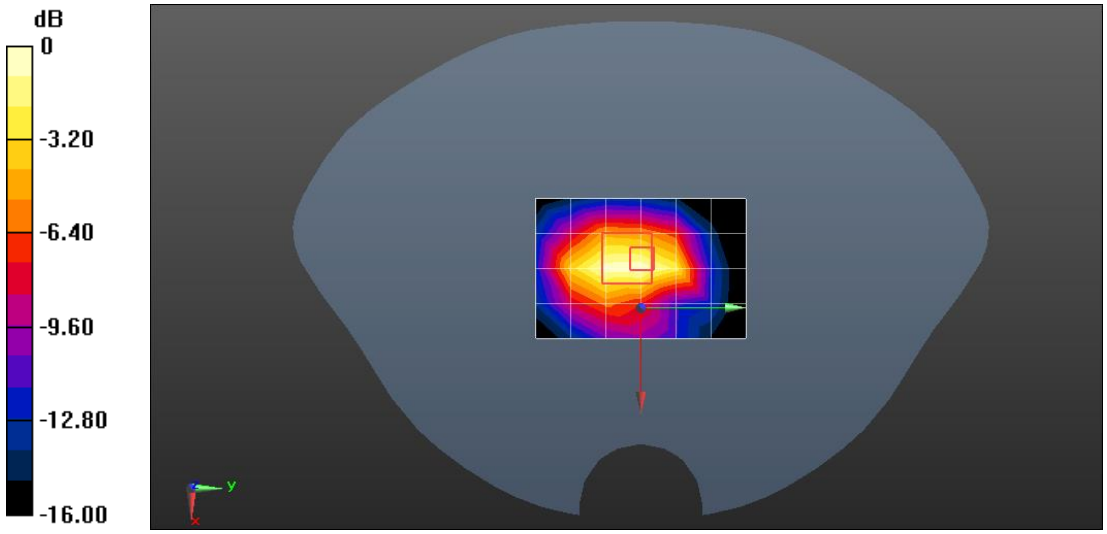
Communication System: UID 0, FDD_LTE (0); Frequency: 1860 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.351 S/m; ε_r = 40.801; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.9, 7.9, 7.9); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.87 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 37.55 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 3.26 W/kg
SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.572 W/kg
Maximum value of SAR (measured) = 1.94 W/kg



0 dB = 1.94 W/kg = 2.88 dBW/kg

Date: 2020/07/02

Test Laboratory: Compliance Certification Services Inc.

LTE Band 4 20M QPSK 1RB_99 Top side 5mm Ch20050

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

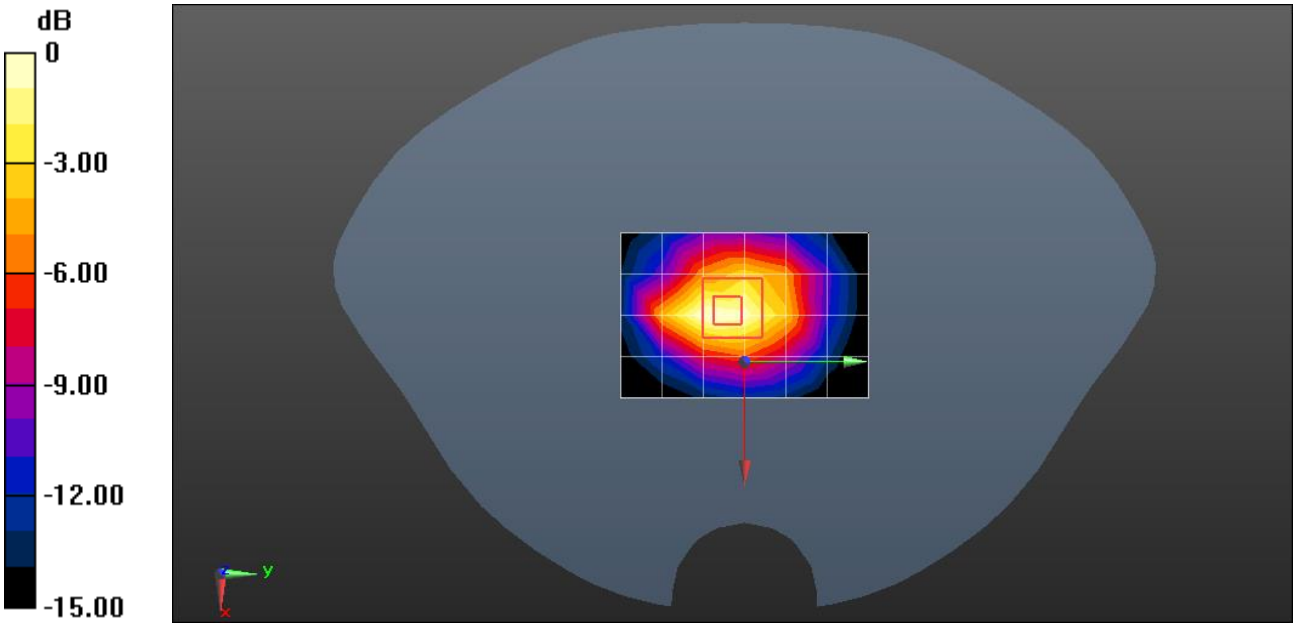
Communication System: UID 0, FDD_LTE (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1720 MHz; σ = 1.316 S/m; ε_r = 40.633; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(8.13, 8.13, 8.13); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.48 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.15 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.88 W/kg
SAR(1 g) = 0.950 W/kg; SAR(10 g) = 0.497 W/kg
Maximum value of SAR (measured) = 1.42 W/kg



0 dB = 1.42 W/kg = 1.52 dBW/kg

Date: 2020/07/02

Test Laboratory: Compliance Certification Services Inc.

LTE Band 4 20M QPSK 1RB_99 Top side 0mm Ch20300

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

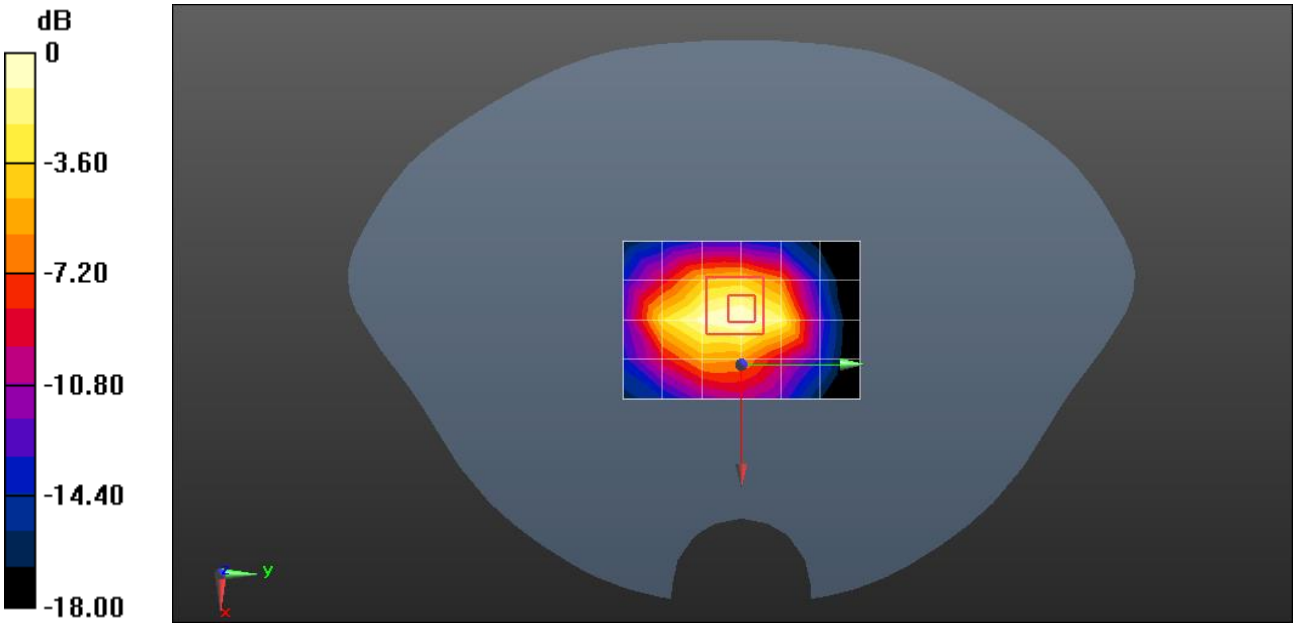
Communication System: UID 0, FDD_LTE (0); Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1745 MHz; σ = 1.336 S/m; ε_r = 40.697; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(8.13, 8.13, 8.13); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.32 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.12 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 4.03 W/kg
SAR(1 g) = 2.01 W/kg; SAR(10 g) = 1 W/kg
Maximum value of SAR (measured) = 2.94 W/kg



0 dB = 2.94 W/kg = 4.68 dBW/kg

Date: 2020/07/03

Test Laboratory: Compliance Certification Services Inc.

LTE Band 5 10M QPSK 1RB_25_Left side 5mm Ch20600

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

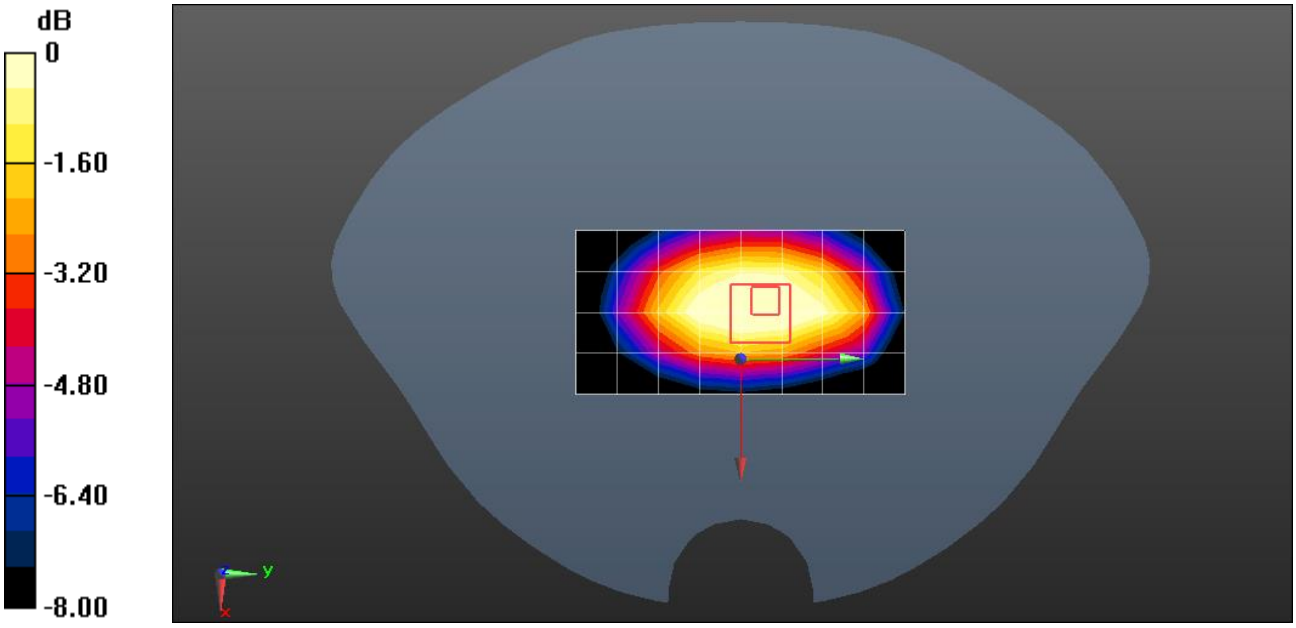
Communication System: UID 0, FDD_LTE (0); Frequency: 844 MHz;Duty Cycle: 1:1
Medium parameters used: f = 844 MHz; σ = 0.892 S/m; ε_r = 40.742; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.41, 9.41, 9.41); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (5x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.611 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.99 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.893 W/kg
SAR(1 g) = 0.460 W/kg; SAR(10 g) = 0.264 W/kg
Maximum value of SAR (measured) = 0.458 W/kg



0 dB = 0.458 W/kg = -3.39 dBW/kg

Date: 2020/07/03

Test Laboratory: Compliance Certification Services Inc.

LTE Band 5 10M QPSK 1RB_25 Top side 0mm Ch20600

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

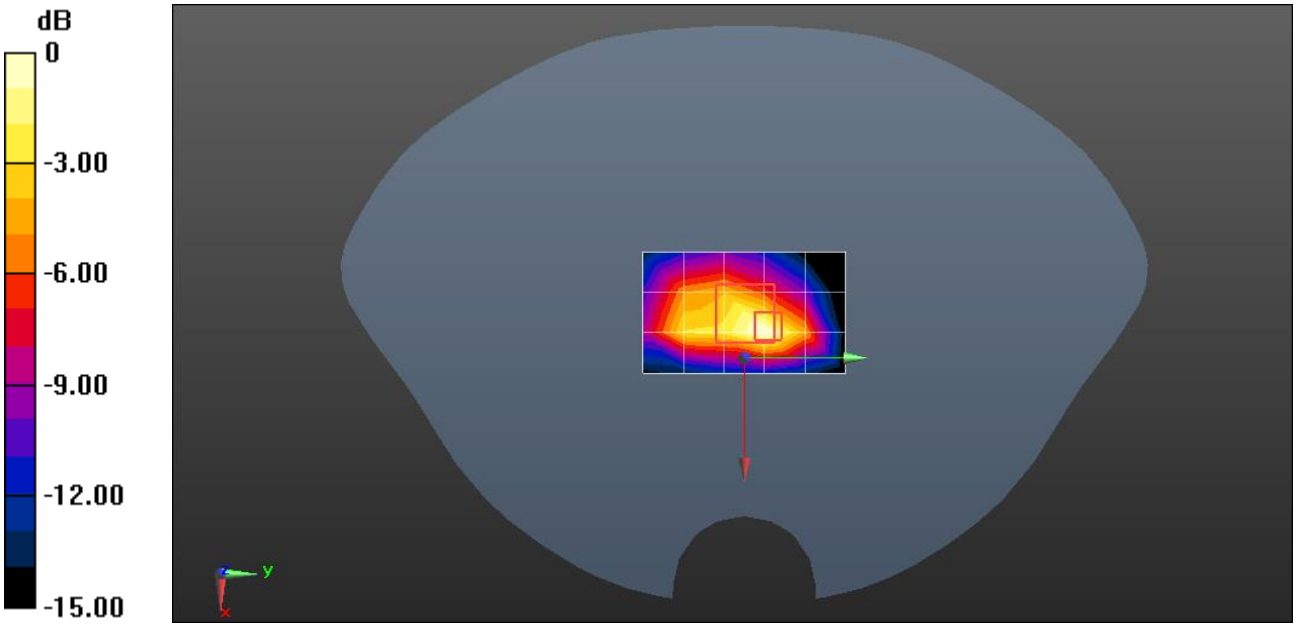
Communication System: UID 0, FDD_LTE (0); Frequency: 844 MHz;Duty Cycle: 1:1
Medium parameters used: f = 844 MHz; σ = 0.892 S/m; ε_r = 40.742; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(9.41, 9.41, 9.41); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (4x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.35 W/kg

configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.28 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.62 W/kg
SAR(1 g) = 0.923 W/kg; SAR(10 g) = 0.497 W/kg
Maximum value of SAR (measured) = 1.21 W/kg



0 dB = 1.21 W/kg = 0.83 dBW/kg

Date: 2020/07/06

Test Laboratory: Compliance Certification Services Inc.

LTE Band 7 20M QPSK 1RB_99_Left side 5mm Ch21350

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

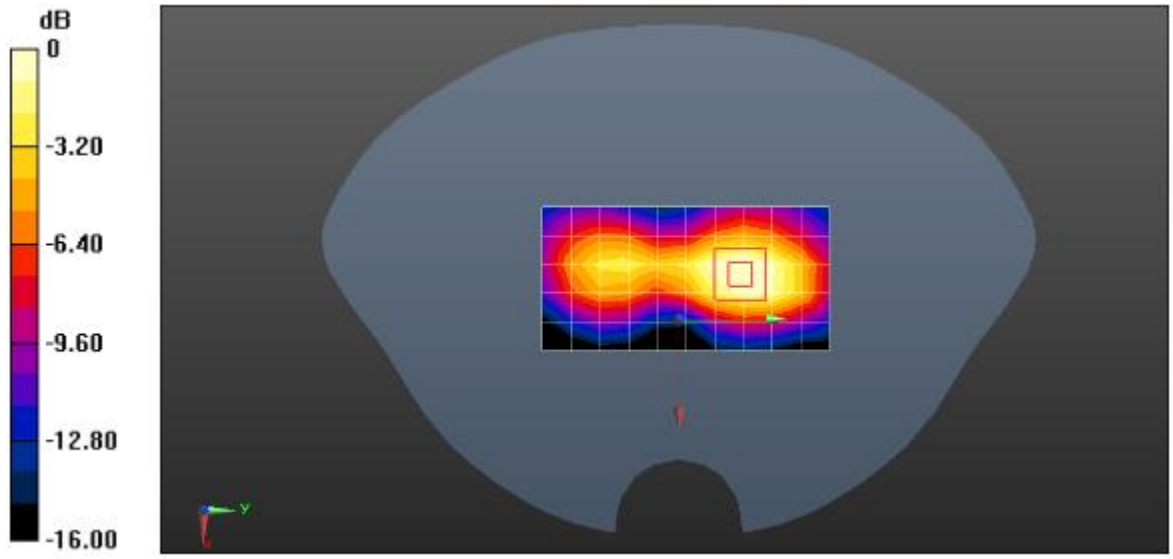
Communication System: UID 0, FDD_LTE (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 1.947 S/m; ε_r = 39.55; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.06, 7.06, 7.06); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.740 W/kg

configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.63 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.863 W/kg
SAR(1 g) = 0.441 W/kg; SAR(10 g) = 0.217 W/kg
Maximum value of SAR (measured) = 0.648 W/kg



0 dB = 0.648 W/kg = -1.88 dBW/kg

Date: 2020/07/06

Test Laboratory: Compliance Certification Services Inc.

LTE Band 7 20M QPSK 1RB_99_Top side 0mm Ch21350

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

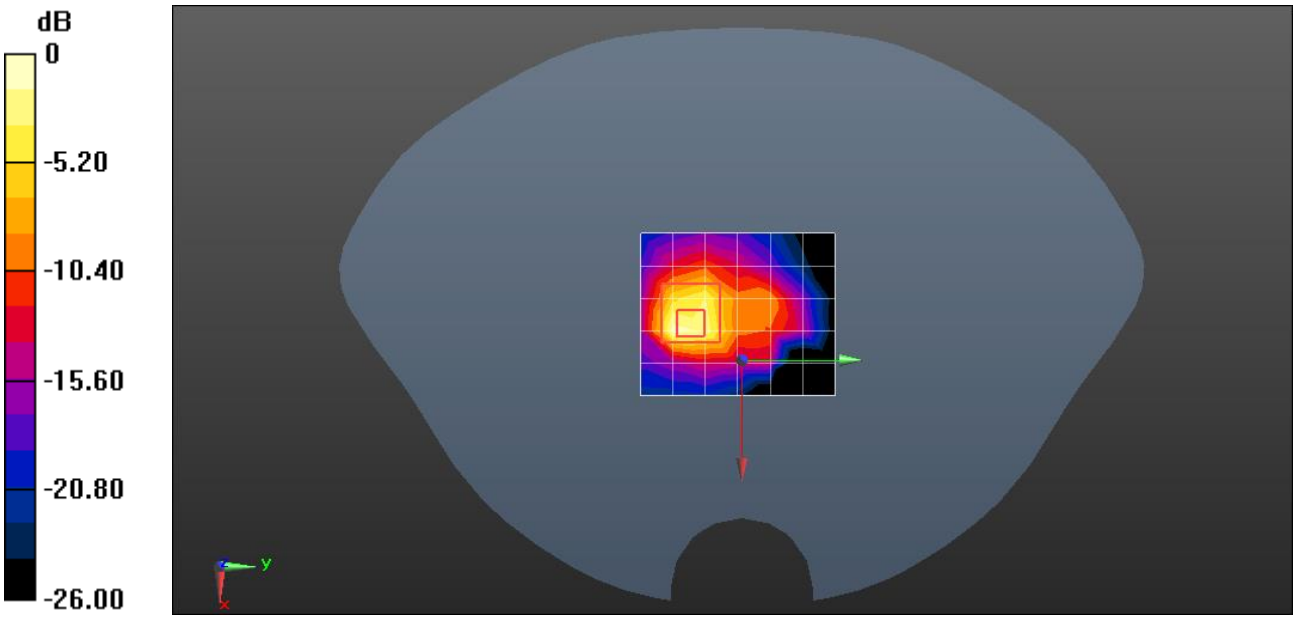
Communication System: UID 0, FDD_LTE (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 1.947 S/m; ε_r = 39.55; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.06, 7.06, 7.06); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (6x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.52 W/kg

configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.49 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 5.44 W/kg
SAR(1 g) = 1.78 W/kg; SAR(10 g) = 0.587 W/kg
Maximum value of SAR (measured) = 3.08 W/kg



0 dB = 3.08 W/kg = 4.89 dBW/kg

Date: 2020/07/06

Test Laboratory: Compliance Certification Services Inc.

LTE Band 40 10M QPSK 1RB_25 Left side 5mm Ch38750

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

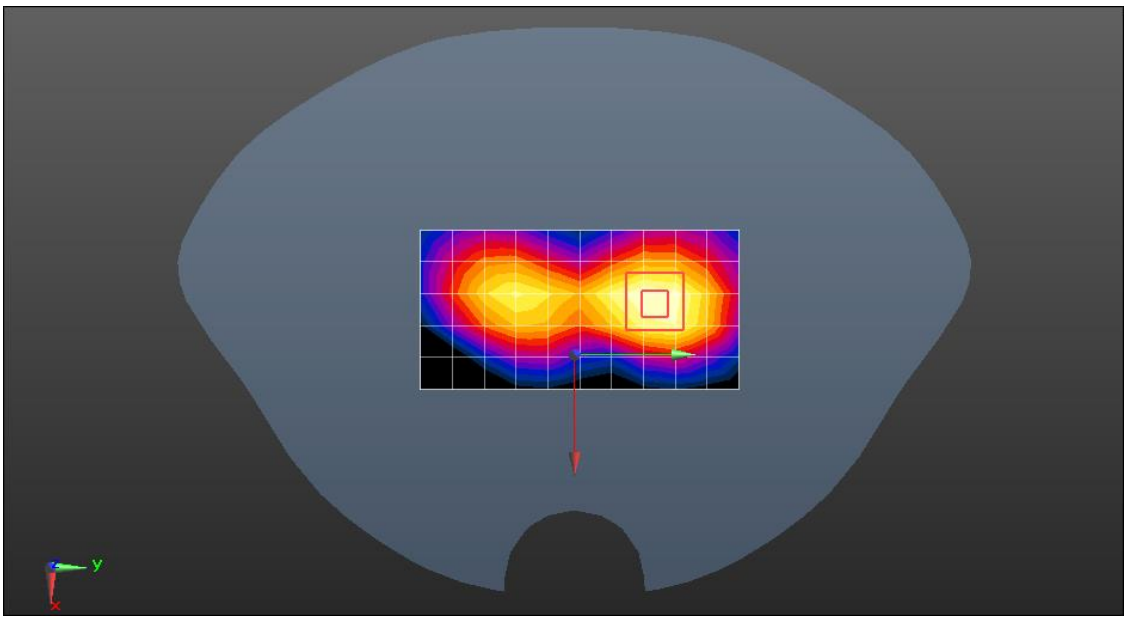
Communication System: UID 0, TDD_LTE (0); Frequency: 2310 MHz;Duty Cycle: 1:1.57943
Medium parameters used: f = 2310 MHz; σ = 1.652 S/m; ε_r = 40.433; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.57, 7.57, 7.57); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (6x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.669 W/kg

configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.29 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.854 W/kg
SAR(1 g) = 0.465 W/kg; SAR(10 g) = 0.238 W/kg
Maximum value of SAR (measured) = 0.663 W/kg



0 dB = 0.663 W/kg = -1.78 dBW/kg

Date: 2020/07/06

Test Laboratory: Compliance Certification Services Inc.

LTE Band 40 10M QPSK 1RB_25 Top side 0mm Ch38750

DUT: Mobile POS; Type: GD004; Serial: 04500100319122500045

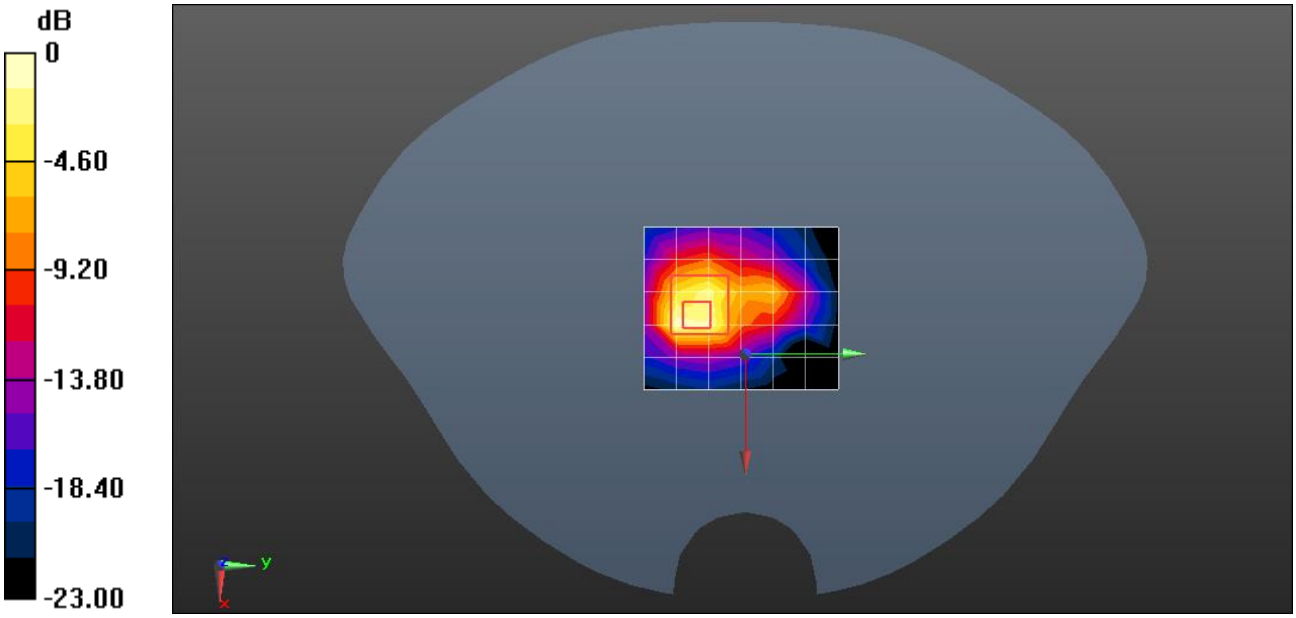
Communication System: UID 0, TDD_LTE (0); Frequency: 2310 MHz;Duty Cycle: 1:1.57943
Medium parameters used: f = 2310 MHz; σ = 1.652 S/m; ε_r = 40.433; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.57, 7.57, 7.57); Calibrated: 2020/05/29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 2020/05/27
- Phantom: Twin SAM Phantom; Type: QD 000 P40 CD; Serial: 1609
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

configuration/Body/Area Scan (6x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 2.29 W/kg

configuration/Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.61 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 4.27 W/kg
SAR(1 g) = 1.49 W/kg; SAR(10 g) = 0.565 W/kg
Maximum value of SAR (measured) = 2.67 W/kg



0 dB = 2.67 W/kg = 4.27 dBW/kg

Appendix C: Calibration certificate

Appendix D: Photographs

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