FCC SAR TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

Smart POS Terminal

ISSUED TO
NEW POS TECHNOLOGY LIMITED

14/A, Financial Technology Building, Financial & Technology Building, No.11, Keyuan Rd, Nanshan District, ShenZhen, China

Tested by: Zong Liyao (Engineer)
Date: Jun. 11, 2018

Approved by: Wei Yanquan (Chief Engineer)
Date: Jun. 11, 2018

Report No.:	BL-SZ1840038-701
EUT Name:	Smart POS Terminal
Model Name:	NEW9210
Brand Name:	NEWPOS
Test Standard:	FCC 47 CFR Part 2.1093
	ANSI C95.1: 1999, IEEE 1528: 2013
FCC ID:	WAL9210
Maximum SAR:	Body (1 g): 1.089 W/kg
Test Conclusion:	Pass
Test Date:	May 17, 2018 ~ Jun. 04, 2018
Date of Issue:	Jun. 11, 2018

Block B, 1st FL,Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong, P. R. China 518055
TEL: +86-755-66850100,FAX: +86-755-61824271
Email: info@baluntek.com
www.baluntek.com

Revision History

Version	Issue Date	Revisions Content
Rev. 01	Jun. 11, 2018	Initial Issue

TABLE OF CONTENTS

1 GENERAL INFORMATION 5

1.1 Identification of the Testing Laboratory 5

1.2 Identification of the Responsible Testing Location 5

1.3 Test Environment Condition 5

1.4 Announce 6

2 PRODUCT INFORMATION 7

2.1 Applicant Information 7

2.2 Manufacturer Information 7

2.3 Factory Information 7

2.4 General Description for Equipment under Test (EUT) 7

2.5 Ancillary Equipment 8

2.6 Technical Information 9

3 SUMMARY OF TEST RESULT 10

3.1 Test Standards 10

3.2 Device Category and SAR Limit 11

3.3 Test Result Summary 12

3.4 Test Uncertainty 13

4 MEASUREMENT SYSTEM 14

4.1 Specific Absorption Rate (SAR) Definition 14

4.2 DASY SAR System 15

5 SYSTEM VERIFICATION 22

5.1 Purpose of System Check 22

5.2 System Check Setup 22

6 TEST POSITION CONFIGURATIONS 23

6.1 Head Exposure Conditions 23

6.2 Body-worn Position Conditions 25

6.3 Hotspot Mode Exposure Position Conditions 26
7 MEASUREMENT PROCEDURE 27
7.1 Measurement Process Diagram 27
7.2 SAR Scan General Requirement 28
7.3 Measurement Procedure 29
7.4 Area & Zoom Scan Procedure 29
8 CONDUCTED RF OUPUT POWER 30
8.1 GSM 30
8.2 WCDMA 31
8.3 LTE 32
8.4 WIFI 34
8.5 Bluetooth 35
9 TEST EXCLUSION CONSIDERATION 36
9.1 SAR Test Exclusion Consideration Table 37
10 TEST RESULT 39
10.1 GSM 850 39
10.2 GSM 1900 39
10.3 WCDMA Band 2 40
10.4 WCDMA Band 4 40
10.5 WCDMA Band 5 40
10.7 LTE Band 5 (10MHz Bandwidth) 41
10.8 LTE Band 7 (20MHz Bandwidth) 41
10.9 WIFI 2.4GHz 42
10.10 WIFI 5GHz 42
11 SAR Measurement Variability 43
12 SIMULTANEOUS TRANSMISSION 44
12.1 Simultaneous Transmission Mode Consider 44
12.2 Estimated SAR Calculation 45
12.3 Sum SAR of Simultaneous Transmission 46
13 TEST EQUIPMENTS LIST 47
ANNEX A SIMULATING LIQUID VERIFICATION RESULT 48
ANNEX B SYSTEM CHECK RESULT 49

ANNEX C TEST DATA.....57
ANNEX D EUT EXTERNAL PHOTOS.....67
ANNEX E SAR TEST SETUP PHOTOS.....67
ANNEX F CALIBRATION REPORT.....67

1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co.,Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province,P. R. China
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co.,Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province,P. R. China
Accreditation Certificate	The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1. The laboratory is a testing organizatin accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The laboratory is a testing organization accredited by American Association for Laboratory Accreditation (A2LA) according to ISO/IEC 17025.The accreditation certificate is 4344.01. The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Test Environment Condition

Ambient Temperature	21℃ to 23℃
Ambient Relative Humidity	36% to 48%
Ambient Pressure	100 to 102KPa

1.4 Announce

(1) The test report reference to the report template version v2.2.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.

(5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.

(6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	NEW POS TECHNOLOGY LIMITED
Address	14/A, Financial Technology Building, Financial & Technology Building, No.11, Keyuan Rd, Nanshan District, ShenZhen, China

2.2 Manufacturer Information

Manufacturer	NEW POS TECHNOLOGY LIMITED
Address	14/A, Financial Technology Building, Financial & Technology Building, No.11, Keyuan Rd, Nanshan District, ShenZhen, China

2.3 Factory Information

Factory	NEW POS TECHNOLOGY LIMITED DONGGUAN BRANCH, China
Address	No.8 Xintoulong Rd, Pingshan 188 Industry District, Tangxia Town, Dongguan, China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Smart POS Terminal
Model Name Under Test	NEW9210
Series Model Name	N/A
Description of Model Name Differentiation	N/A
Hardware Version	N0000H30225E0
Software Version	V1.0.1
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	IES
	Model No.	IS928
	Serial No.	N/A
	Capacity	2600 mAh
	Rated Voltage	7.2 V
	Limit Charge Voltage	8.4 V
Ancillary Equipment 2	Adapter	
	Brand Name	欧陆通 HONOTO
	Model No.	ADS-12AM-06 05010EPCU
	Serial No.	N/A
	Rated Input	100-240 V~, 0.3 A, 50/60 Hz
	Rated Output	5 V⎓ 2 A

2.6 Technical Information

All Network and Wireless connectivity for EUT	2G Network GPRS/EDGE 850/1900 MHz, GPRS/EDGE Class 12 3G Network WCDMA Band 2/4/5 4G Network FDD LTE Band 5/7 Bluetooth 4.1 (BR+EDR+BLE) WIFI 802.11a, 802.11b, 802.11g and 802.11n (HT20/40) GPS, NFC

The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	GSM, WCDMA, LTE, 2.4G WLAN, 5G WLAN, Bluetooth		
Frequency Range	GSM 850	TX: 824 MHz ~ 849 MHz	RX: 869 MHz ~ 894 MHz
	GSM 1900	TX: 1850 MHz ~ 1910 MHz	RX: 1930 MHz ~ 1990 MHz
	WCDMA Band 2	TX: 1850 MHz ~ 1910 MHz	RX: 1930 MHz ~ 1990 MHz
	WCDMA Band 4	TX: 1710 MHz ~ 1755 MHz	RX: 2110 MHz ~ 2155 MHz
	WCDMA Band 5	TX: 824 MHz ~ 849 MHz	RX: 869 MHz ~ 894 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 7	TX: 2500 MHz ~ 2570 MHz	RX: 2620 MHz ~ 2690 MHz
	802.11b/g /n(HT20/40)	2400~2483.5 MHz	
	802.11a/n (HT20/HT40)	5150 MHz~ 5250 MHz	
		5725 MHz~ 5850 MHz	
	Bluetooth	2400~2483.5 MHz	
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna		
Hotspot Function	N/A		
Power Reduction	Not Support		
Exposure Category	General Population/Uncontrolled exposure		
EUT Stage	Portable Device		
Product	Type		
	☒ Production unit	☐ Identical prototype	
Note: This DUT not support GSM and WCDMA voice function.			

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	ANSI/IEEE Std. C95.1-1999	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 D01 v06	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
5	FCC KDB 941225 D01 v03r01	3G SAR MEAUREMENT PROCEDURES
6	FCC KDB 941225 D05 v02r05	SAR Evaluation Considerations for LTE Devices
7	FCC KDB 941225 D06 v02r01	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
8	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
9	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
10	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters
11	identity: PAG document title	OET Inquiry System Inquiry Tracking Number 289194

3.2 Device Category and SAR Limit

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user.

Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

Table of Exposure Limits:

Body Position	SAR Value (W/Kg)	
	General Population/ Uncontrolled Exposure	Occupational/ Controlled Exposure
Whole-Body SAR (averaged over the entire body)	0.08	0.4
Partial-Body SAR (averaged over any 1 gram of tissue)	1.60	8.0
SAR for hands, wrists, feet and ankles (averaged over any 10 grams of tissue)	4.0	20.0

NOTE:

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. General population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 Test Result Summary

3.3.1 Highest SAR (1 g Value)

Band	Maximum Scaled SAR (W/kg)	Maximum Report SAR (W/kg)
	Body (0mm)	Body
GSM 850	**1.089**	1.089
GSM 1900	0.534	
WCDMA Band 2	0.724	
WCDMA Band 4	0.622	
WCDMA Band 5	0.451	
LTE Band 5	0.469	
LTE Band 7	0.835	
2.4G WLAN	0.362	
5.2G WLAN	0.258	
5.8G WLAN	0.364	
Limit (W/kg)	1.60	
Verdict	Pass	

3.3.2 Highest Simultaneous SAR

Position	Simultaneous Configuration	Simultaneous SAR (W/kg)	Limit (W/kg)	Verdict
Body	GSM + 5G WLAN	1.453	1.6	Pass

3.4 Test Uncertainty

According to KDB 865664 D01, when the highest measured 1 g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis is not required in SAR reports submitted for equipment approval.

The maximum 1 g SAR for the EUT in this report is 1.089 W/kg, which is lower than 1.5 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.

4 MEASUREMENT SYSTEM

4.1 Specific Absorption Rate (SAR) Definition

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\mathbf{SAR} = \frac{d}{\mathbf{dt}}\left(\frac{d\mathbf{W}}{\mathbf{dm}}\right) = \frac{d}{\mathbf{dt}}\left(\frac{d\mathbf{W}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

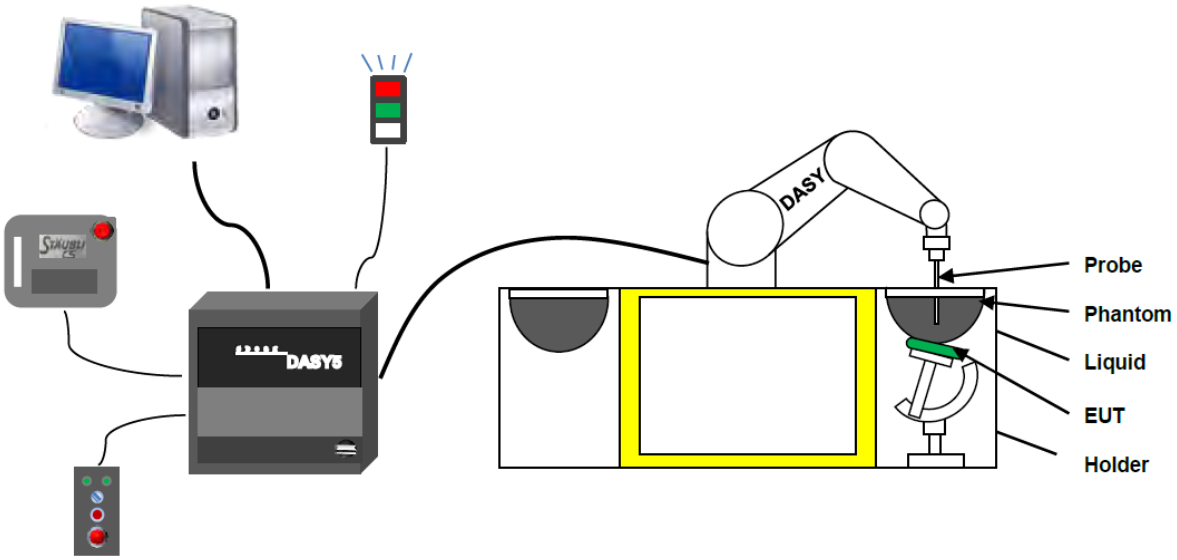
$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}\mathbf{E}^2}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue,

ρ is the mass density of the tissue and E is the RMS electrical field strength.

4.2 DASY SAR System

4.2.1 DASY SAR System Diagram



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

1. A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. 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.
3. A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. A unit to operate the optical surface detector which is connected to the EOC.
5. The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
6. The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation.
7. DASY5 software and SEMCAD data evaluation software.
8. Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
9. The generic twin phantom enabling the testing of left-hand and right-hand usage.
10. The device holder for handheld mobile phones.
11. Tissue simulating liquid mixed according to the given recipes.
12. System validation dipoles allowing to validate the proper functioning of the system.

4.2.2 Robot

The Dasy SAR system uses the high precision robots. Symmetrical design with triangular core Built-in optical fiber for surface detection system For the 6-axis controller system, Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents). The robot series have many features that are important for our application:

- High precision
  (repeatability ±0.02 mm)
- High reliability
  (industrial design)
- Low maintenance costs
  (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements
  (brush less synchron motors; no stepper motors)
- Low ELF interference
  (motor control _elds shielded via the closed metallic construction shields)

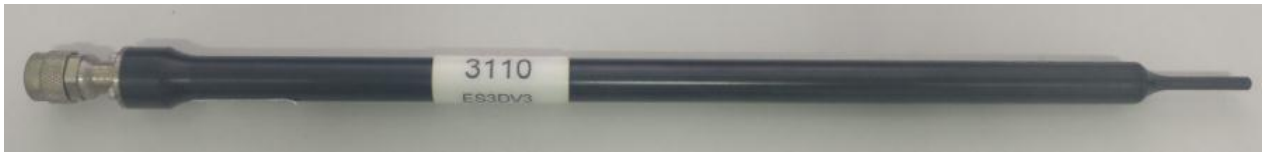
4.2.3 E-Field Probe

The probe is specially designed and calibrated for use in liquids with high permittivities for the measurements the Specific Dosimetric E-Field Probe EX3DV4-SN:7340 with following specifications is used.

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection systemBuilt-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ; ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 10 mm) Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (EX3DV4)

The probe is specially designed and calibrated for use in liquids with high permittivities for the measurements the Specific Dosimetric E-Field Probe ES3DV3-SN:3110 with following specifications is used.

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 3 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ; ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 10 mm) Tip diameter: 4 mm (Body: 10 mm) Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (ES3DV3)

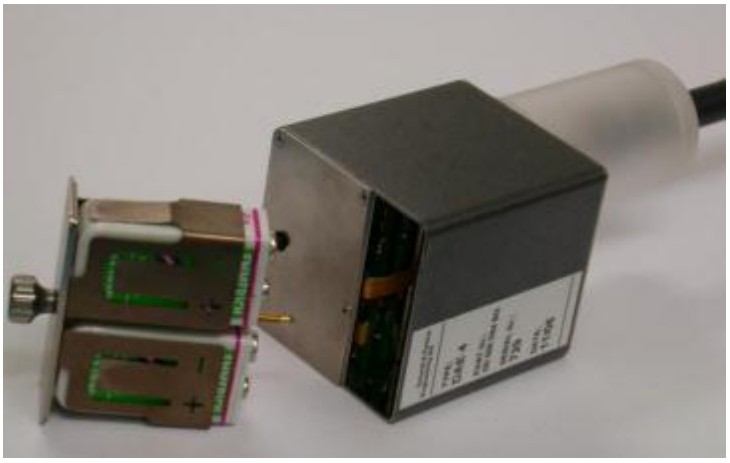


E-Field Probe Calibration Process

Probe calibration is realized, in compliance with CENELEC EN 62209-1/-2 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 62209-1/2 annexe technique using reference guide at the five frequencies.

4.2.4 Data Acquisition Electronics

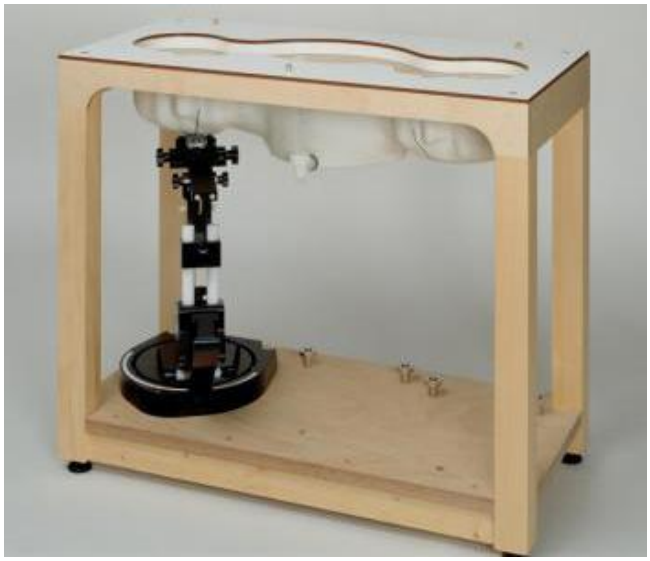
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an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



- Input Impedance: 200MOhm
- The Inputs: Symmetrical and Floating
- Commom Mode Rejection: Above 80dB

4.2.5 Phantoms

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.



- Left hand
- Right hand
- Flat phantom

Photo of Phantom SN1857

Photo of Phantom SN1859

Serial Number	Material	Length	Height
SN 1857 SAM1	Vinylester, glass fiber reinforced	1000	500
SN 1859 SAM2	Vinylester, glass fiber reinforced	1000	500

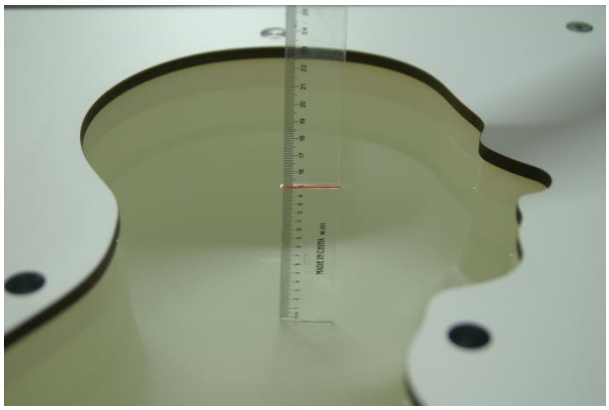
4.2.6 Device Holder

The DASY5 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. This device holder is used for standard mobile phones or PDA‟s only. If necessary an additional support of polystyrene material is used. Larger DUT‟s (e.g. notebooks) cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values. Therefore those devices are normally only tested at the flat part of the SAM.

The positioning system allows obtaining cheek and tilting position with a very good accuracy. Incompliance with CENELEC, the tilt angle uncertainty is lower than 1°.

4.2.7 Simulating Liquid

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5%.

Head Liquid Depth	Body Liquid Depth
	

The following table gives the recipes for tissue simulating liquid and the theoretical Conductivity/Permittivity.

Head (Reference IEEE1528)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.4	40.0
2450	55.0	0	0	0.1	0	44.9	1.80	39.2
2600	54.9	0	0	0.1	0	45.0	1.96	39.0
Frequency (MHz)	Water (%)	Hexyl Carbitol (%)			Triton X-100 (%)		Conductivity σ (S/m)	Permittivity ε
5200	62.52	17.24			17.24		4.66	36.0
5800	62.52	17.24			17.24		5.27	35.3
Body (From instrument manufacturer)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0.1	0	31.3	1.95	52.7
2600	68.2	0	0	0.1	0	31.7	2.16	52.5
Frequency(MHz)	Water	DGBE (%)			Salt (%)		Conductivity σ (S/m)	Permittivity ε
5200	78.60	21.40			/		5.54	47.86
5800	78.50	21.40			0.1		6.0	48.20

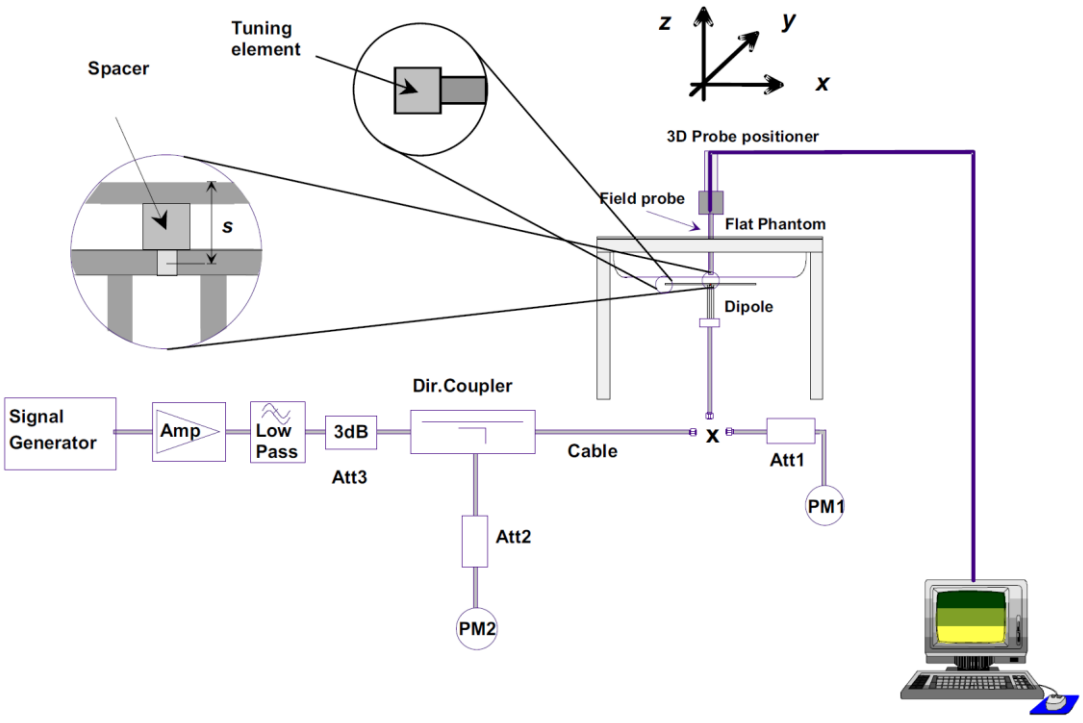
5 SYSTEM VERIFICATION

5.1 Purpose of System Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source.This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

5.2 System Check Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



6 TEST POSITION CONFIGURATIONS

According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

6.1 Head Exposure Conditions

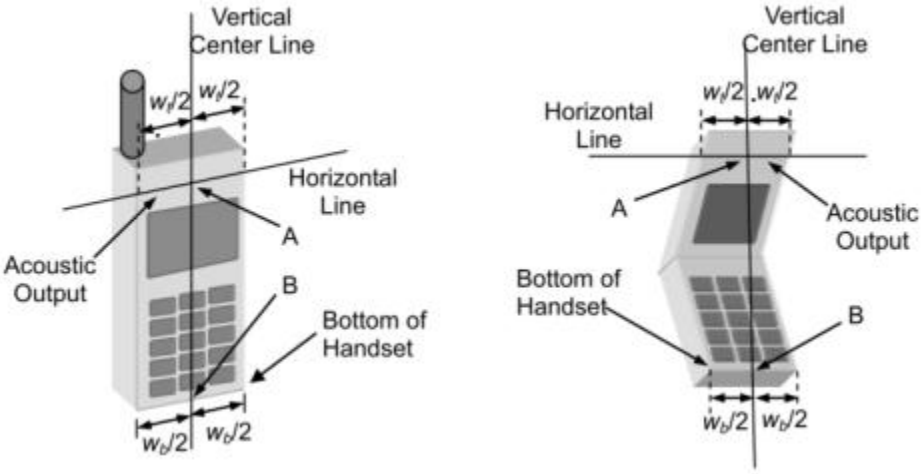
Head exposure is limited to next to the ear voice mode operations. Head SAR compliance is tested according to the test positions defined in IEEE Std 1528-2013 using the SAM phantom illustrated as below.

6.1.1 Two Imaginary Lines on the Handset

(a) The vertical center line passes through two points on the front side of the handset - the midpoint of the width w t of the handset at the level of the acoustic output, and the midpoint of the width w b of the bottom of the handset.

(b) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.

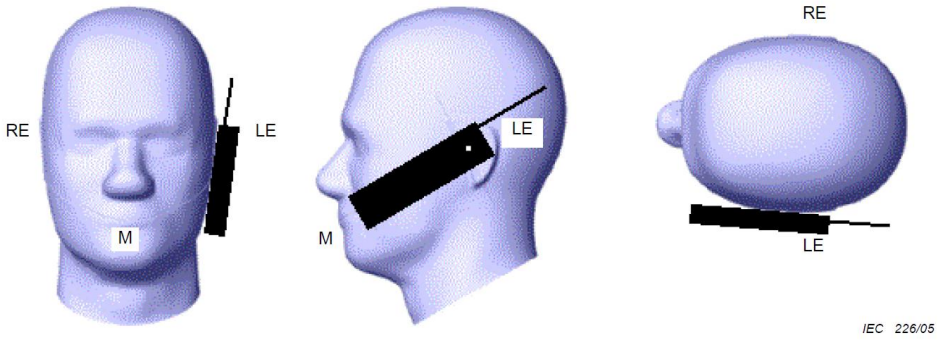
(c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical center line is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



6.1.2 Cheek Position

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.



6.1.3 Tilted Position

(a) To position the device in the “cheek” position described above.

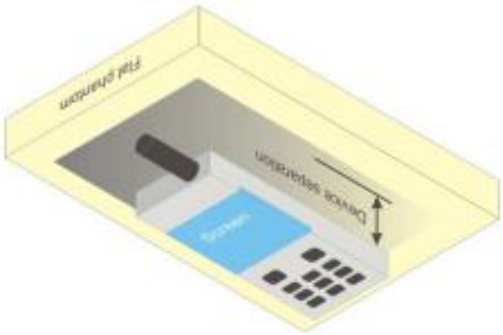
(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.

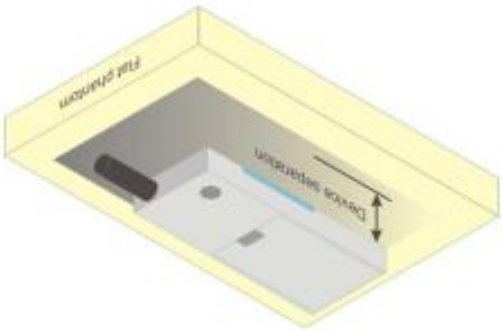
6.2 Body-worn Position Conditions

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.

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.

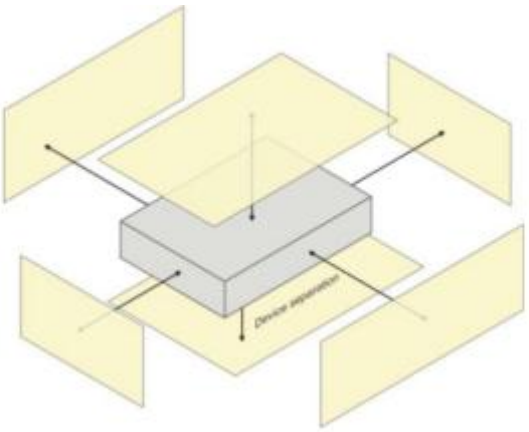
Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice 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. 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.





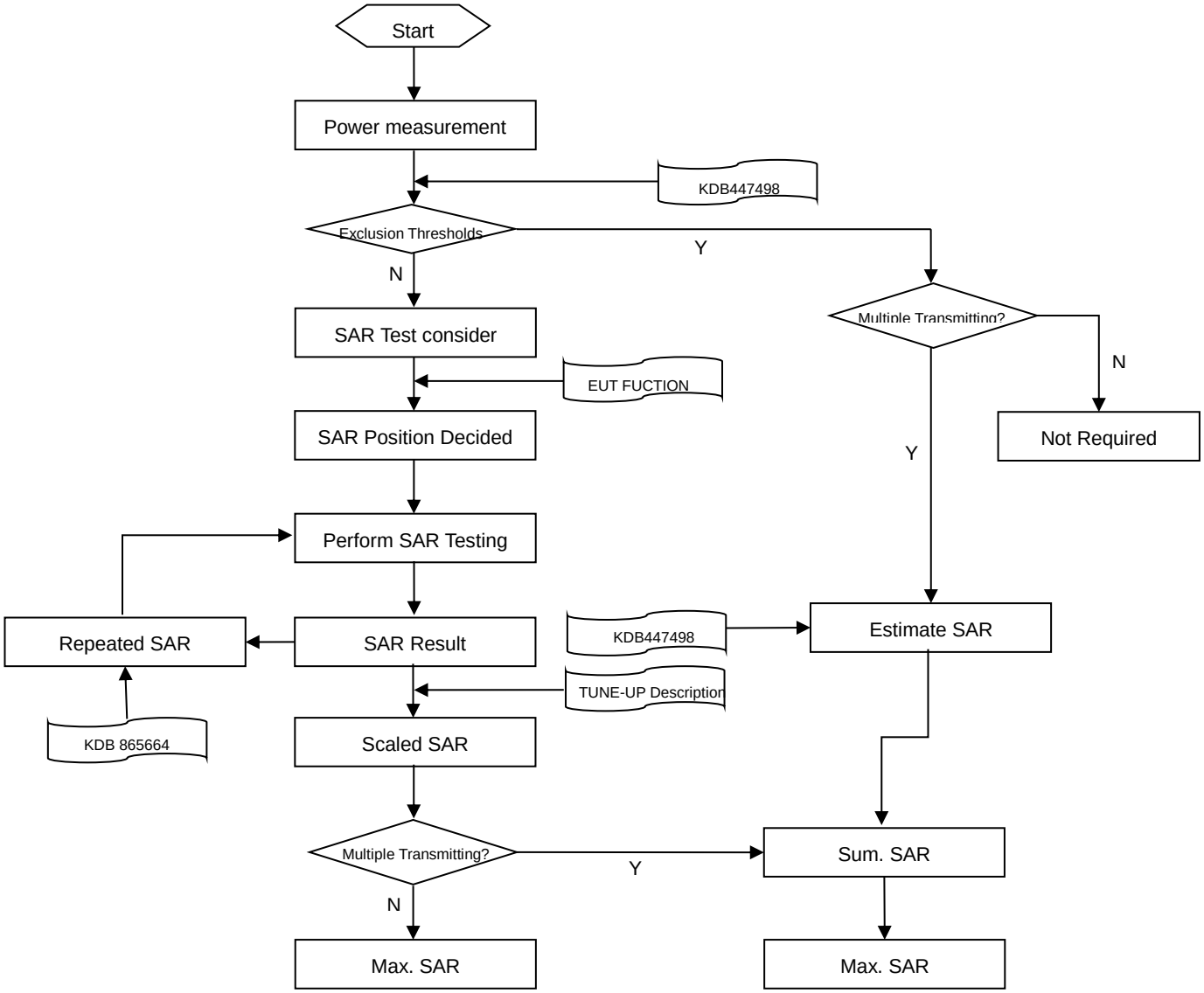
6.3 Hotspot Mode Exposure Position Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).



7 MEASUREMENT PROCEDURE

7.1 Measurement Process Diagram



7.2 SAR Scan General Requirement

Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Boththe 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 1528-2013.

<table>
<tr><th colspan="3"></th><th>≤3GHz</th><th>>3GHz</th></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>½·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx Area , Δy Area</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3–4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">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.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx Zoom , Δy Zoom</td><td>≤ 2 GHz: ≤ 8 mm
2 –3 GHz: ≤ 5 mm*</td><td>3–4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="6">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2" rowspan="3">uniform grid: Δz Zoom (n)</td><td rowspan="3">≤ 5 mm</td><td>3–4 GHz: ≤ 4 mm</td></tr>
<tr><td>4–5 GHz: ≤ 3 mm</td></tr>
<tr><td>5–6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="3">graded grid</td><td rowspan="2">Δz Zoom (1): between 1st two points closest to phantom surface</td><td rowspan="2">≤ 4 mm</td><td>3–4 GHz: ≤ 3 mm</td></tr>
<tr><td>4–5 GHz: ≤ 2.5 mm</td></tr>
<tr><td>Δz Zoom (n>1): between subsequent points</td><td>5–6 GHz: ≤ 2 mm</td><td>≤ 1.5·Δz Zoom (n-1)</td></tr>
<tr><td rowspan="3">Minimum zoom scan volume</td><td colspan="2" rowspan="3">x, y, z</td><td rowspan="3">≥30 mm</td><td>3–4 GHz: ≥ 28 mm</td></tr>
<tr><td>4–5 GHz: ≥ 25 mm</td></tr>
<tr><td>5–6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note:
1. δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
2. * 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 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

7.3 Measurement Procedure

The following steps are used for each test position

a. Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
b. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
c. Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
d. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 *32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

7.4 Area & Zoom Scan Procedure

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r04 quoted below.

When the 1 g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

8 CONDUCTED RF OUPUT POWER

8.1 GSM

GSM 850 Band	Burst Average Power(dBm)			Frame-averaged power(dBm)		
Channel	128	190	251	128	190	251
GPRS (GMSK, 1-Slot)	32.48	32.54	32.56	23.48	23.54	23.56
GPRS (GMSK, 2-Slots)	32.23	32.32	32.40	26.23	26.32	26.40
GPRS (GMSK, 3-Slots)	30.55	30.68	30.38	26.29	**26.42**	26.12
GPRS (GMSK, 4-Slots)	29.12	29.26	29.29	26.12	26.26	26.29
EGPRS (8PSK, 1-Slot)	29.66	29.77	29.78	20.66	20.77	20.78
EGPRS (8PSK, 2-Slots)	29.49	29.60	29.57	23.49	23.60	23.57
EGPRS (8PSK, 3-Slots)	29.32	29.45	29.37	25.06	25.19	25.11
EGPRS (8PSK, 4-Slots)	29.17	29.32	29.39	26.17	26.32	**26.39**
GSM 1900 Band	Burst Average Power(dBm)			Frame-averaged power(dBm)		
Channel	512	661	810	512	661	810
GPRS (GMSK, 1-Slot)	29.70	29.49	29.27	20.70	20.49	20.27
GPRS (GMSK, 2-Slots)	29.46	29.23	29.01	23.46	23.23	23.01
GPRS (GMSK, 3-Slots)	29.27	29.05	28.82	25.01	24.79	24.56
GPRS (GMSK, 4-Slots)	29.13	28.92	28.67	**26.13**	25.92	25.67
EGPRS (8PSK, 1-Slot)	29.36	29.19	28.97	20.36	20.19	19.97
EGPRS (8PSK, 2-Slots)	29.12	28.86	28.78	23.12	22.86	22.78
EGPRS (8PSK, 3-Slots)	28.92	28.72	28.56	24.66	24.46	24.30
EGPRS (8PSK, 4-Slots)	28.86	28.60	28.31	**25.86**	25.60	25.31

Note:

1. SAR testing was performed on the maximum frame-Peaked power mode.
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. The calculated method is shown as below:

   Frame-averaged power = Burst averaged power (1 Tx Slot) - 9 dB

   Frame-averaged power = Burst averaged power (2 Tx Slots) - 6 dB

   Frame-averaged power = Burst averaged power (3 Tx Slots) - 4.26 dB

   Frame-averaged power = Burst averaged power (4 Tx Slots) - 3 dB

8.2 WCDMA

WCDMA Band	Band 2			Band 4		
Channel	9262	9400	9538	1312	1412	1513
RMC 12.2Kbps	22.75	22.91	**23.02**	22.66	**22.96**	22.79
HSDPA Subtest-1	21.79	21.98	22.02	21.84	22.04	21.88
HSDPA Subtest-2	21.94	22.01	22.03	21.83	22.05	21.88
HSDPA Subtest-3	21.50	21.52	21.56	21.43	21.57	21.39
HSDPA Subtest-4	21.49	21.52	21.56	21.42	21.57	21.39
HSUPA Subtest-1	21.61	21.73	21.53	21.07	21.94	21.23
HSUPA Subtest-2	20.30	20.43	20.96	20.47	20.73	20.74
HSUPA Subtest-3	19.88	20.53	20.76	20.69	20.96	20.34
HSUPA Subtest-4	21.30	21.33	21.36	20.77	21.01	20.92
HSUPA Subtest-5	21.64	21.71	21.75	21.65	22.06	21.60
Band	Band 5			-		
Channel	4132	4182	4233	-	-	-
RMC 12.2Kbps	22.79	**22.83**	22.69	-	-	-
HSDPA Subtest-1	21.78	21.90	21.80	-	-	-
HSDPA Subtest-2	21.77	21.97	21.85	-	-	-
HSDPA Subtest-3	21.23	21.46	21.35	-	-	-
HSDPA Subtest-4	21.33	21.46	21.36	-	-	-
HSUPA Subtest-1	21.69	21.85	21.59	-	-	-
HSUPA Subtest-2	20.31	20.52	20.84	-	-	-
HSUPA Subtest-3	20.43	20.08	20.75	-	-	-
HSUPA Subtest-4	20.65	21.54	21.33	-	-	-
HSUPA Subtest-5	21.90	22.15	21.87	-	-	-

8.3 LTE

FDD LTE Band 5							
Bandwidth (MHz)	RB Set	Power (dBm)					
		QPSK			16QAM		
	Channel	20450	20525	20600	20450	20525	20600
10 MHz	1 (RB_Pos:0)	22.77	**23.19**	23.17	21.95	22.55	22.44
	1 (RB_Pos:25)	22.91	23.03	22.99	21.97	22.44	22.14
	1 (RB_Pos:49)	22.97	23.07	23.10	22.04	22.38	22.16
	25 (RB_Pos:0)	21.95	22.23	22.17	20.99	21.19	21.09
	25 (RB_Pos:12)	21.99	22.06	22.21	20.98	21.13	21.15
	25 (RB_Pos:25)	22.09	22.10	22.29	21.04	20.98	21.28
	50 (RB_Pos:0)	21.99	22.13	22.21	21.04	21.10	21.17
Bandwidth (MHz)	RB Set	Power (dBm)					
		QPSK			16QAM		
	Channel	20425	20525	20625	20425	20525	20625
5MHz	1 (RB_Pos:0)	22.88	23.15	23.04	21.78	22.00	22.57
	1 (RB_Pos:13)	22.55	23.00	23.11	21.41	21.97	22.19
	1 (RB_Pos:24)	22.81	23.16	23.07	22.02	22.04	22.49
	12 (RB_Pos:0)	21.82	22.17	22.16	20.74	21.05	21.17
	12 (RB_Pos:6)	21.88	22.11	22.30	20.89	21.00	21.19
	12 (RB_Pos:13)	21.94	22.03	22.22	20.84	21.23	21.19
	25 (RB_Pos:0)	21.91	22.16	22.23	20.98	21.26	21.16
Bandwidth (MHz)	RB Set	Power (dBm)					
		QPSK			16QAM		
	Channel	20415	20525	20635	20415	20525	20635
3.0 MHz	1 (RB_Pos:0)	22.63	23.18	23.22	21.85	22.55	22.44
	1 (RB_Pos:8)	22.73	23.10	23.14	21.98	22.29	22.10
	1 (RB_Pos:14)	22.66	23.22	23.18	22.11	22.40	22.25
	8 (RB_Pos:0)	21.78	22.06	22.29	21.01	21.34	21.38
	8 (RB_Pos:3)	21.92	22.04	22.26	21.04	21.03	21.35
	8 (RB_Pos:7)	21.87	22.05	22.20	21.10	21.15	21.26
	15 (RB_Pos:0)	21.73	22.05	22.32	20.70	21.11	21.13
Bandwidth (MHz)	RB Set	Power (dBm)					
		QPSK			16QAM		
	Channel	20407	20525	20643	20407	20525	20643
1.4MHz	1 (RB_Pos:0)	22.70	22.79	23.28	22.34	22.14	22.37
	1 (RB_Pos:3)	22.73	23.19	23.33	22.48	22.14	22.36
	1 (RB_Pos:5)	22.77	22.86	23.10	22.52	22.13	22.37
	3 (RB_Pos:0)	22.81	22.99	23.24	22.13	21.90	22.18
	3 (RB_Pos:1)	22.80	23.03	23.11	22.13	22.15	22.13
	3 (RB_Pos:3)	22.82	22.99	23.12	22.09	21.91	21.93
	6 (RB_Pos:0)	21.80	22.06	22.26	21.15	20.87	21.32

FDD LTE Band 7							
Bandwidth (MHz)	RB Set	Power (dBm)					
		QPSK			16QAM		
	Channel	20850	21100	21350	20850	21100	21350
20MHz	1 (RB_Pos:0)	**24.22**	23.75	24.32	23.56	23.06	23.27
	1 (RB_Pos:49)	24.05	23.57	24.05	23.10	22.98	23.24
	1 (RB_Pos:99)	23.59	24.29	24.08	22.58	23.81	23.14
	50 (RB_Pos:0)	23.15	22.69	23.23	22.17	21.61	22.20
	50 (RB_Pos:24)	23.07	22.73	23.13	22.03	21.65	22.07
	50 (RB_Pos:49)	22.83	22.86	23.11	21.88	21.97	22.19
	100 (RB_Pos:0)	23.03	22.77	23.11	22.1	21.79	22.22
Bandwidth (MHz)	RB Set	Power (dBm)					
		QPSK			16QAM		
	Channel	20825	21100	21375	20825	21100	21375
15MHz	1 (RB_Pos:0)	23.98	23.87	24.55	22.99	23.24	23.71
	1 (RB_Pos:37)	24.09	23.42	23.95	22.99	22.83	23.72
	1 (RB_Pos:74)	23.94	24.11	23.92	22.94	23.56	23.79
	36 (RB_Pos:0)	23.04	22.67	23.16	22.11	21.63	22.23
	36 (RB_Pos:18)	23.03	22.68	23.07	22.02	21.64	22.15
	36 (RB_Pos:37)	23.05	22.80	23.02	21.99	21.83	22.09
	75 (RB_Pos:0)	23.00	22.72	23.04	22.01	21.49	21.96
Bandwidth (MHz)	RB Set	Power (dBm)					
		QPSK			16QAM		
	Channel	20800	21100	21400	20800	21100	21400
10MHz	1 (RB_Pos:0)	23.93	23.60	24.12	22.87	22.97	23.07
	1 (RB_Pos:24)	23.79	23.67	23.97	23.00	22.89	23.21
	1 (RB_Pos:49)	24.10	23.96	23.91	23.48	23.55	23.12
	25 (RB_Pos:0)	23.06	22.64	23.13	21.97	21.75	22.09
	25 (RB_Pos:12)	22.95	22.57	23.09	21.76	21.69	21.97
	25 (RB_Pos:24)	23.05	22.80	23.02	21.82	21.82	22.07
	50 (RB_Pos:0)	23.02	22.58	23.02	22.02	21.59	21.97
Bandwidth (MHz)	RB Set	Power (dBm)					
		QPSK			16QAM		
	Channel	20775	21100	21425	20775	21100	21425
5MHz	1 (RB_Pos:0)	23.54	23.66	23.83	22.75	23.04	23.04
	1 (RB_Pos:12)	23.51	23.68	23.76	22.36	22.56	22.76
	1 (RB_Pos:24)	23.87	23.73	23.73	22.72	23.12	23.04
	12 (RB_Pos:0)	22.86	22.58	22.91	21.70	21.53	21.78
	12 (RB_Pos:6)	22.89	22.55	22.88	21.77	21.50	22.02
	12 (RB_Pos:11)	22.87	22.72	22.83	21.84	21.78	21.98
	25 (RB_Pos:0)	22.93	22.61	22.98	21.77	21.75	22.05

8.4 WIFI

8.4.1 2.4G WIFI

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Limit(dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	14.26	14.50	No
		6	2437	**14.41**	14.50	Yes
		11	2462	14.29	14.50	No
	802.11g	1	2412	13.63	14.00	No
		6	2437	13.79	14.00	No
		11	2462	13.78	14.00	No
	802.11n(HT20)	1	2412	12.71	13.50	No
		6	2437	13.09	13.50	No
		11	2462	12.74	13.50	No
	802.11n(HT40)	3	2422	12.42	13.50	No
		6	2437	12.79	13.50	No
		9	2452	13.35	13.50	No

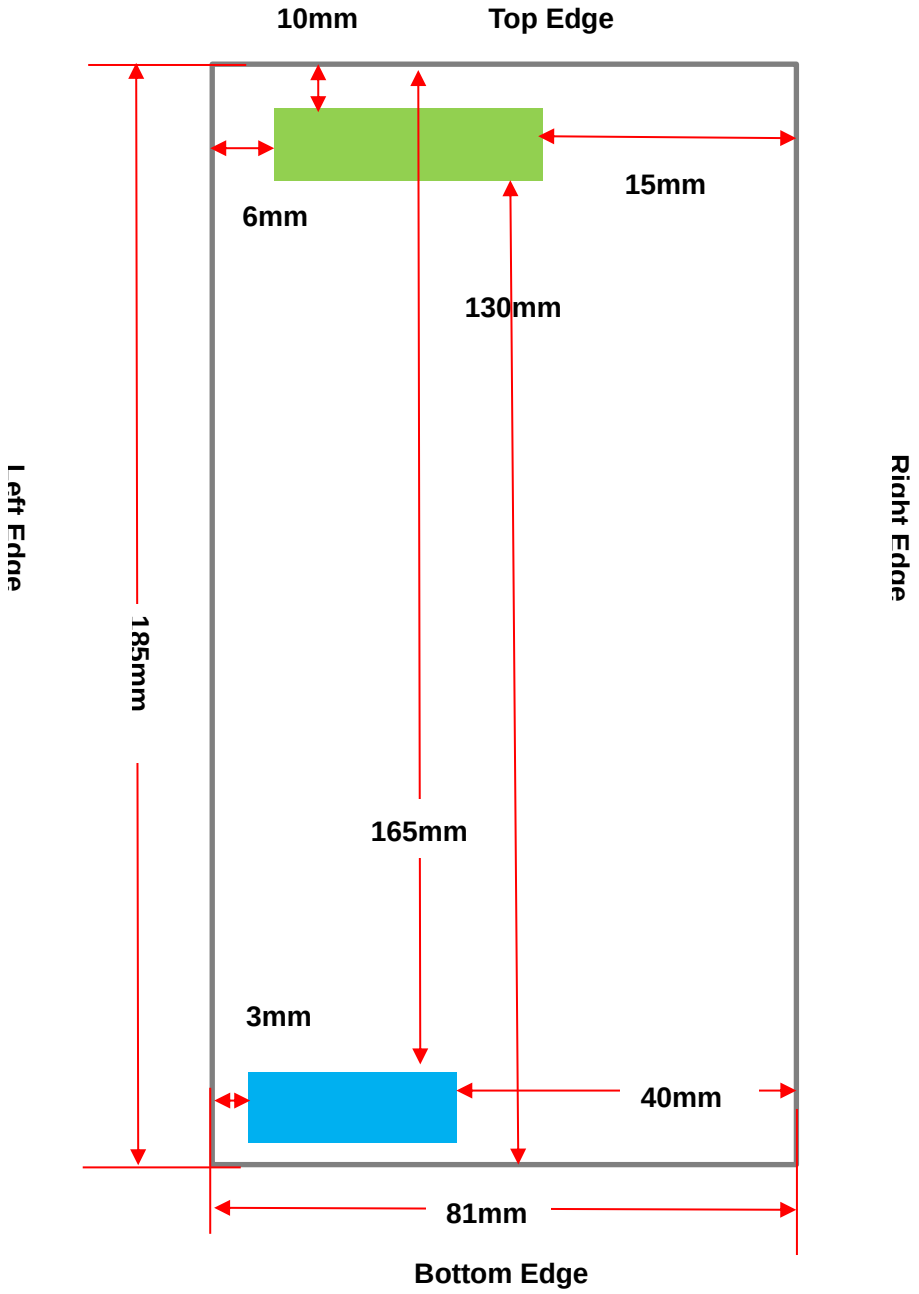
8.4.2 5G WIFI

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-Up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	9.52	11.50	No
		40	5220	9.68	11.50	No
		48	5240	**11.03**	11.50	Yes
	802.11n(HT20)	36	5180	10.15	11.50	No
		40	5220	10.19	11.50	No
		48	5240	11.01	11.50	No
	802.11n(HT40)	38	5190	9.47	10.50	No
		46	5230	10.64	10.50	No
5.8 (5.725~5.850)	802.11a	149	5745	11.25	11.50	No
		157	5785	9.53	11.50	No
		165	5825	10.51	11.50	No
	802.11n(HT20)	149	5745	**11.71**	12.00	Yes
		157	5785	10.33	12.00	No
		165	5825	10.58	12.00	No
	802.11n(HT40)	151	5755	10.67	10.50	No
		159	5795	8.92	10.50	No

8.5 Bluetooth

Mode	GFSK			π/4-DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Conducted Power (dBm)	8.09	7.16	7.25	7.99	7.10	7.22
Tune-Up Limit (dBm)	8.50			8.50		
Mode	8-DPSK			BLE		
Channel	0	39	78	0	19	39
Frequency (MHz)	2402	2441	2480	2402	2440	2480
Conducted Power (dBm)	**8.22**	7.32	7.39	-1.17	-1.43	-1.97
Tune-Up Limit (dBm)	**8.50**			0.00		

9 TEST EXCLUSION CONSIDERATION



9.1 SAR Test Exclusion Consideration Table

According with FCC KDB 447498 D01, Appendix A, <SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm> Table, this Device SAR test configurations consider as following :

Band	Mode	Max. Power		Test Position Configurations					
		dBm	mW	Front	Back	Left Edge	Right Edge	Top Edge	Bottom Edge
GSM 850	Distance to User			15mm	5mm	6mm	15mm	10mm	130mm
	Data	31.00	1258.93	Yes	Yes	Yes	Yes	Yes	No
GSM 1900	Distance to User			15mm	5mm	6mm	15mm	10mm	130mm
	Data	29.50	891.25	Yes	Yes	Yes	Yes	Yes	No
WCDMA Band 2	Distance to User			15mm	5mm	6mm	15mm	10mm	130mm
	RMC	23.50	223.87	Yes	Yes	Yes	Yes	Yes	No
WCDMA Band 4	Distance to User			15mm	5mm	6mm	15mm	10mm	130mm
	RMC	23.00	199.53	Yes	Yes	Yes	Yes	Yes	No
WCDMA Band 5	Distance to User			15mm	5mm	6mm	15mm	10mm	130mm
	RMC	23.00	199.53	Yes	Yes	Yes	Yes	Yes	No
LTE Band 5	Distance to User			15mm	5mm	6mm	15mm	10mm	130mm
	QPSK	24.00	251.19	Yes	Yes	Yes	Yes	Yes	No
LTE Band 7	Distance to User			15mm	5mm	6mm	15mm	10mm	130mm
	QPSK	25.00	316.23	Yes	Yes	Yes	Yes	Yes	No
WLAN 2.4 G	Distance to User			15mm	5mm	<5mm	40mm	165mm	5mm
	802.11b	14.50	28.18	Yes	Yes	Yes	Yes	No	Yes
	802.11g	14.00	25.12	No	No	No	No	No	No
	802.11n(HT20)	13.50	22.39	No	No	No	No	No	No
	802.11n(HT40)	13.50	22.39	No	No	No	No	No	No
WLAN 5.2 G	Distance to User			15mm	5mm	<5mm	40mm	165mm	5mm
	802.11a	11.50	14.13	Yes	Yes	Yes	Yes	No	Yes
	802.11n(HT20)	11.50	14.13	No	No	No	No	No	No
	802.11n(HT40)	10.50	11.22	No	No	No	No	No	No
WLAN 5.8 G	Distance to User			15mm	5mm	<5mm	40mm	165mm	5mm
	802.11a	11.50	14.13	No	No	No	No	No	No
	802.11n(HT20)	12.00	15.85	Yes	Yes	Yes	Yes	No	Yes
	802.11n(HT40)	10.50	11.22	No	No	No	No	No	No
Bluetooth	Distance to User			15mm	5mm	<5mm	40mm	165mm	5mm
	BR/EDR	8.50	7.08	No	No	No	No	No	No
	BLE	0.00	1.00	No	No	No	No	No	No

Note:

1. Maximum power is the source-based time-average power and represents the maximum RF output power including tune-up tolerance 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
   a. f(GHz) is the RF channel transmit frequency in GHz
   b. Power and distance are rounded to the nearest mW and mm before calculation
   c. The result is rounded to one decimal place for comparison
   d. 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. Per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA /HSUPA /DC-HSDPA output power is < 0.25dB higher than RMC12.2Kbps, or reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
7. Per KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions.
   a. 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.
   b. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
8. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
9. Per KDB 248227 D01 5G WLAN 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.
   a. When SAR test exclusion provisions of KDB Publication 447498 D01 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.
   b. 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.

10 TEST RESULT

10.1 GSM 850

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power(dBm)	Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body											
GPRS 3 slots	Front Side	0	190	836.6	-0.02	0.097	30.68	31.00	1.076	0.104	/
	Back Side	0	190	836.6	-0.04	0.808	30.68	31.00	1.076	0.870	/
		0	128	824.2	-0.04	0.570	30.55	31.00	1.109	0.632	/
		0	251	848.8	-0.03	0.944	30.38	31.00	1.153	**1.089**	#1
	Left Edge	0	190	836.6	-0.11	0.183	30.68	31.00	1.076	0.197	/
	Right Edge	0	190	836.6	0.06	0.197	30.68	31.00	1.076	0.212	/
	Top Edge	0	190	836.6	0.01	0.059	30.68	31.00	1.076	0.064	/
Note: SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode.											

10.2 GSM 1900

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power(dBm)	Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body											
GPRS 4 slots	Front Side	0	512	1850.2	0.12	0.022	29.13	29.50	1.089	0.024	/
	Back Side	0	512	1850.2	0.03	0.490	29.13	29.50	1.089	**0.534**	2#
	Left Edge	0	512	1850.2	0.06	0.095	29.13	29.50	1.089	0.103	/
	Right Edge	0	512	1850.2	-0.04	0.038	29.13	29.50	1.089	0.042	/
	Top Edge	0	512	1850.2	-0.01	0.026	29.13	29.50	1.089	0.029	/
Note: SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode.											

10.3WCDMA Band 2

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power(dBm)	Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body											
RMC	Front Side	0	9538	1907.6	0.03	0.029	23.02	23.50	1.117	0.033	/
	Back Side	0	9538	1907.6	0.08	0.648	23.02	23.50	1.117	**0.724**	#3
	Left Edge	0	9538	1907.6	-0.13	0.105	23.02	23.50	1.117	0.117	/
	Right Edge	0	9538	1907.6	0.08	0.044	23.02	23.50	1.117	0.049	/
	Top Edge	0	9538	1907.6	0.11	0.016	23.02	23.50	1.117	0.018	/

10.4WCDMA Band 4

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power(dBm)	Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body											
RMC	Front Side	0	1412	1732.4	0.15	0.024	22.96	23.00	1.009	0.024	/
	Back Side	0	1412	1732.4	-0.04	0.616	22.96	23.00	1.009	**0.622**	#4
	Left Edge	0	1412	1732.4	0.19	0.227	22.96	23.00	1.009	0.229	/
	Right Edge	0	1412	1732.4	-0.05	0.073	22.96	23.00	1.009	0.074	/
	Top Edge	0	1412	1732.4	0.09	0.031	22.96	23.00	1.009	0.031	/

10.5WCDMA Band 5

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power(dBm)	Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body											
RMC	Front Side	0	4182	836.4	-0.16	0.056	22.83	23.00	1.040	0.058	/
	Back Side	0	4182	836.4	0.09	0.434	22.83	23.00	1.040	**0.451**	#5
	Left Edge	0	4182	836.4	0.15	0.100	22.83	23.00	1.040	0.104	/
	Right Edge	0	4182	836.4	0.02	0.103	22.83	23.00	1.040	0.107	/
	Top Edge	0	4182	836.4	0.11	0.035	22.83	23.00	1.040	0.037	/

10.7 LTE Band 5 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Numb.	RB Start	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power (dBm)	Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body													
QPSK	Front Side	0	20525	836.5	1	Low	-0.01	0.060	23.19	24.00	1.205	0.073	/
			20600	844	25	High	0.07	0.052	22.29	23.50	1.321	0.069	/
	Back Side	0	20525	836.5	1	Low	0.01	0.389	23.19	24.00	1.205	**0.469**	#6
			20600	844	25	High	-0.06	0.344	22.29	23.50	1.321	0.455	/
	Left Edge	0	20525	836.5	1	Low	-0.15	0.149	23.19	24.00	1.205	0.180	/
			20600	844	25	High	-0.02	0.133	22.29	23.50	1.321	0.176	/
	Right Edge	0	20525	836.5	1	Low	0.07	0.139	23.19	24.00	1.205	0.167	/
			20600	844	25	High	0.08	0.117	22.29	23.50	1.321	0.155	/
	Top Edge	0	20525	836.5	1	Low	0.09	0.045	23.19	24.00	1.205	0.054	/
			20600	844	25	High	-0.14	0.036	22.29	23.50	1.321	0.048	/

10.8 LTE Band 7 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Numb.	RB Start	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power (dBm)	Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body													
QPSK	Front Side	0	21350	2560	1	Low	0.12	0.138	24.32	25.00	1.169	0.161	/
			21350	2560	50	Low	-0.02	0.106	23.23	24.00	1.194	0.127	/
	Back Side	0	21350	2560	1	Low	-0.04	0.714	24.32	25.00	1.169	**0.835**	7#
			20850	2510	1	Low	0.05	0.647	24.22	25.00	1.197	0.774	/
			21100	2535	1	High	-0.13	0.675	24.29	25.00	1.178	0.795	/
			21350	2560	50	Low	0.03	0.657	23.23	24.00	1.194	0.784	/
			21350	2560	100	Low	0.12	0.602	23.11	23.50	1.094	0.659	/
	Left Edge	0	21350	2560	1	Low	0.01	0.350	24.32	25.00	1.169	0.409	/
			21350	2560	50	Low	0.07	0.277	23.23	24.00	1.194	0.331	/
	Right Edge	0	21350	2560	1	Low	-0.09	0.409	24.32	25.00	1.169	0.478	/
			21350	2560	50	Low	-0.10	0.318	23.23	24.00	1.194	0.380	/
	Top Edge	0	21350	2560	1	Low	-0.04	0.204	24.32	25.00	1.169	0.239	/
			21350	2560	50	Low	0.09	0.153	23.23	24.00	1.194	0.183	/

10.9 WIFI 2.4GHz

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power (dBm)	Scaling Factor	Duty Cycle (%)	Duty Cycle Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body													
802.11 b	Front Side	0	6	2437	-0.15	0.016	14.41	14.50	1.021	96.86	1.032	0.017	/
	Back Side	0	6	2437	0.06	0.343	14.41	14.50	1.021	96.86	1.032	**0.362**	#8
	Left Edge	0	6	2437	-0.06	0.141	14.41	14.50	1.021	96.86	1.032	0.149	/
	Right Edge	0	6	2437	0.15	0.025	14.41	14.50	1.021	96.86	1.032	0.026	/
	Bottom Edge	0	6	2437	0.03	0.128	14.41	14.50	1.021	96.86	1.032	0.135	/

10.10 WIFI 5GHz

Fre. Band	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power (dBm)	Scaling Factor	Duty Cycle (%)	Duty Cycle Scaling Factor	1 g Scaled SAR (W/Kg)	Meas. No.
Body														
5.2G	802.11 a	Front Side	0	48	5240	0.03	0.021	11.03	11.50	1.114	86.85	1.151	0.027	/
		Back Side	0	48	5240	0.00	0.201	11.03	11.50	1.114	86.85	1.151	**0.258**	#9
		Left Edge	0	48	5240	0.08	0.019	11.03	11.50	1.114	86.85	1.151	0.024	/
		Right Edge	0	48	5240	-0.04	0.009	11.03	11.50	1.114	86.85	1.151	0.012	/
		Bottom Edge	0	48	5240	0.06	0.142	11.03	11.50	1.114	86.85	1.151	0.182	/
5.8G	802.11 n (HT20)	Front Side	0	149	5745	0.01	0.033	11.71	12.00	1.069	86.10	1.161	0.041	/
		Back Side	0	149	5745	-0.03	0.293	11.71	12.00	1.069	86.10	1.161	**0.364**	#10
		Left Edge	0	149	5745	-0.13	0.034	11.71	12.00	1.069	86.10	1.161	0.042	/
		Right Edge	0	149	5745	0.09	0.011	11.71	12.00	1.069	86.10	1.161	0.014	/
		Bottom Edge	0	149	5745	-0.10	0.236	11.71	12.00	1.069	86.10	1.161	0.293	/

11 SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10, the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 0.80 W/kg, repeat that measurement once.
3. 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, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20, and the original, first or second repeated measurement is >= 1.5 W/kg, perform a third repeated measurement.

Frequency Band (MHz)	Wireless Band	RF Exposure Conditions	Test Position	Highest Measured SAR (W/kg)	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Largest to Smallest SAR Radio
850	GPRS850	Body	Back Side	0.944	Yes	0.912	1.04
Note: The ratio of largest to smallest SAR for the original and first repeated measurements is < 1.20, the second repeated measurement is not required.							

12 SIMULTANEOUS TRANSMISSION

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR 1g of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR 1g 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR 1g is greater than the SAR limit (SAR 1g 1.6 W/kg), SAR test exclusion is determined by the SAR to Peak Location Ratio (SPLSR).

12.1 Simultaneous Transmission Mode Consider

NO.	Mode	2.4G WLAN & 5G WLAN & 2.4G Bluetooth
		Body
1	GSM	+ 2.4G WLAN
		+ 5G WLAN
		+ Bluetooth
2	WCDMA RMC	+ 2.4G WLAN
		+ 5G WLAN
		+ Bluetooth
3	LTE	+ 2.4G WLAN
		+ 5G WLAN
		+ Bluetooth

Note:

1. 2G&3G&4G share the same antenna and can't transmit simultaneously.
2. The Bluetooth and WLAN share the same antenna, can't transmitting together.
3. The 2.4G WLAN, 5G WLAN or Bluetooth can transmit simultaneously with each WWAN.

12.2 Estimated SAR Calculation

According to KDB 447498 D01, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR was estimated according to following formula to result in substantially conservative SAR values of <= 0.4 W/kg to determine simultaneous transmission SAR test exclusion.

$$\text{Estimated SAR} = \frac{Max.Tune\ Up\ Power(mw)}{Min\ Test\ Separation\ Distance} * \frac{\sqrt{f_{GHz}}}{x}$$ (where x = 7.5 for 1-g SAR)

If the minimum test separation distance is < 5 mm, a distance of 5 mm is used for estimated SAR calculation. When the test separation distance is > 50 mm, the 0.4 W/kg is used for SAR-1g.

Band	Mode	Position	Antenna To user (mm)	SAR Testing	Max. Tune-up Power (dBm)	Max. Tune-up Power (mW)	Frequency (GHz)	Calculation Distance/Gap (mm)	Estimated SAR (W/kg)
Bluetooth	GFSK	Front side	5	NO	8.50	7.08	2.402	5	0.293
		Back Side	5	NO	8.50	7.08	2.402	5	0.293
		Left Edge	5	NO	8.50	7.08	2.402	5	0.293
		Right Edge	5	NO	8.50	7.08	2.402	5	0.293
		Bottom Edge	5	NO	8.50	7.08	2.402	5	0.293

12.3 Sum SAR of Simultaneous Transmission

12.3.1 Sum Body SAR of Simultaneous Transmission

Simultaneous Mode	Mode	Max. 1g SAR (W/kg)	1g Sum SAR (W/kg)	SPLSR (Yes/No)
GSM +Bluetooth	GSM	1.089	1.382	No
	Bluetooth	0.293		
GSM + 2.4G WLAN	GSM	1.089	1.451	No
	2.4G WLAN	0.362		
GSM + 5G WLAN	GSM	1.089	**1.453**	No
	5G WLAN	0.364		
WCDMA RMC +Bluetooth	WCDMA RMC	0.724	1.017	No
	Bluetooth	0.293		
WCDMA RMC +2.4G WLAN	WCDMA RMC	0.724	1.086	No
	2.4G WLAN	0.362		
WCDMA RMC +5G WLAN	WCDMA RMC	0.724	1.088	No
	5G WLAN	0.364		
LTE QPSK + Bluetooth	LTE QPSK	0.835	1.128	No
	Bluetooth	0.293		
LTE QPSK + 2.4G WLAN	LTE QPSK	0.835	1.197	No
	2.4G WLAN	0.362		
LTE QPSK + 5G WLAN	LTE QPSK	0.835	1.199	No
	5G WLAN	0.364		

13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
835MHz Validation Dipole	Speag	D835V2	SN: 4d187	2017/06/26	2020/06/25
1750MHz Validation Dipole	Speag	D1750V2	SN: 1130	2017/07/01	2020/06/30
1900MHz Validation Dipole	Speag	D1900V2	SN: 5d193	2017/06/30	2020/06/29
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2017/03/21	2020/03/20
2600MHz Validation Dipole	Speag	D2600V2	SN: 1095	2017/07/10	2020/07/09
5GHz Validation Dipole	Speag	D5GHzV2	SN: 1200	2017/06/29	2020/06/28
E-Field Probe	Speag	EX3DV4	SN: 7340	2018/01/11	2019/01/10
E-Field Probe	Speag	ES3DV3	SN: 3110	2017/08/02	2018/08/01
Data Acquisition Electronics	Speag	DAE4	SN: 685	2017/08/02	2018/08/01
Signal Generator	R&S	SMBV100A	260592	2017/06/12	2018/06/11
Power Meter	Agilent	E4419B	GB40201833	2017/11/02	2018/11/01
Power Sensor	Agilent	E9300A	MY41498012	2017/11/02	2018/11/01
Power Sensor	Agilent	E9300A	MY41499891	2017/11/02	2018/11/01
Wireless Communication Test Set	Agilent	8960-E5515C	MY50260493	2017/11/02	2018/11/01
Wireless Communication Test Set	R&S	CMW 500	151885	2017/06/12	2018/06/11
Network Analyzer	Agilent	5071B	MY42404001	2017/06/12	2018/06/11
Thermometer	Elitech	RC-4HC	N/A	2017/11/13	2018/11/12
Phantom1	Speag	SAM	SN: 1859	N/A	N/A
Phantom2	Speag	SAM	SN: 1857	N/A	N/A
Attenuator	COM-MW	ZA-S1-31	1305003187	N/A	N/A
Directional coupler	AA-MCS	AAMCS-UDC	000272	N/A	N/A
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Dielectric Probe Kit	SATIMO	SCLMP	SN 25/13 OCPG56	N/A	N/A

Note:

Per KDB 865664 D01, Dipole SAR Validation Verification, BALUN LAB has adopted 3 years calibration intervals. On annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss in within 20% of calibrated measurement.

ANNEX A SIMULATING LIQUID VERIFICATION RESULT

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an SCLMP Dielectric Probe Kit.

Date	Liquid Type	Fre. (MHz)	Temp. (℃)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ε)	Target Conductivity (σ) (S/m)	Target Permittivity (ε)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2018.05.17	Body	835	21.4	0.95	54.63	0.97	55.20	-2.06	-1.03
2018.05.18	Body	1750	21.6	1.48	54.01	1.49	53.40	-0.67	1.14
2018.05.23	Body	1900	21.4	1.55	53.05	1.52	53.30	1.97	-0.47
2018.05.24	Body	2450	21.4	1.90	52.96	1.95	52.70	-2.56	0.49
2018.05.24	Body	2600	21.4	2.15	51.76	2.16	52.50	-0.46	-1.41
2018.06.04	Body	5250	21.5	5.51	49.41	5.36	48.95	2.80	0.94
2018.06.04	Body	5750	21.5	5.98	48.70	5.94	48.27	0.67	0.89
Note: The tolerance limit of Conductivity and Permittivity is± 5%.									

ANNEX B SYSTEM CHECK RESULT

Comparing to the original SAR value provided by SPEAG, the validation data should be within itsspecification of 10 %(for 1 g).

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)	Targeted SAR(W/kg)	Tolerance (%)
2018.05.17	Body	835	100	0.969	9.69	9.53	1.68	9.56	1.36
2018.05.18	Body	1750	100	3.520	35.20	36.70	-4.09	36.40	-3.30
2018.05.23	Body	1900	100	3.770	37.70	39.90	-5.51	39.70	-5.04
2018.05.24	Body	2450	100	5.360	53.60	50.50	6.14	52.40	2.29
2018.05.24	Body	2600	100	5.840	58.40	54.30	7.55	55.30	5.61
2018.06.04	Body	5250	100	7.670	76.70	75.20	1.99	76.50	0.26
2018.06.04	Body	5750	100	7.790	77.90	75.00	3.87	78.00	-0.13
Note: The tolerance limit of System validation ±10%.									

System Performance Check Data (835MHz Body)

System Check: Body 835MHz
Date: 2018.05.17
Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.954 S/m; ε_r = 54.627; ρ = 1000 kg/m^3
Phantom section: Flat Section

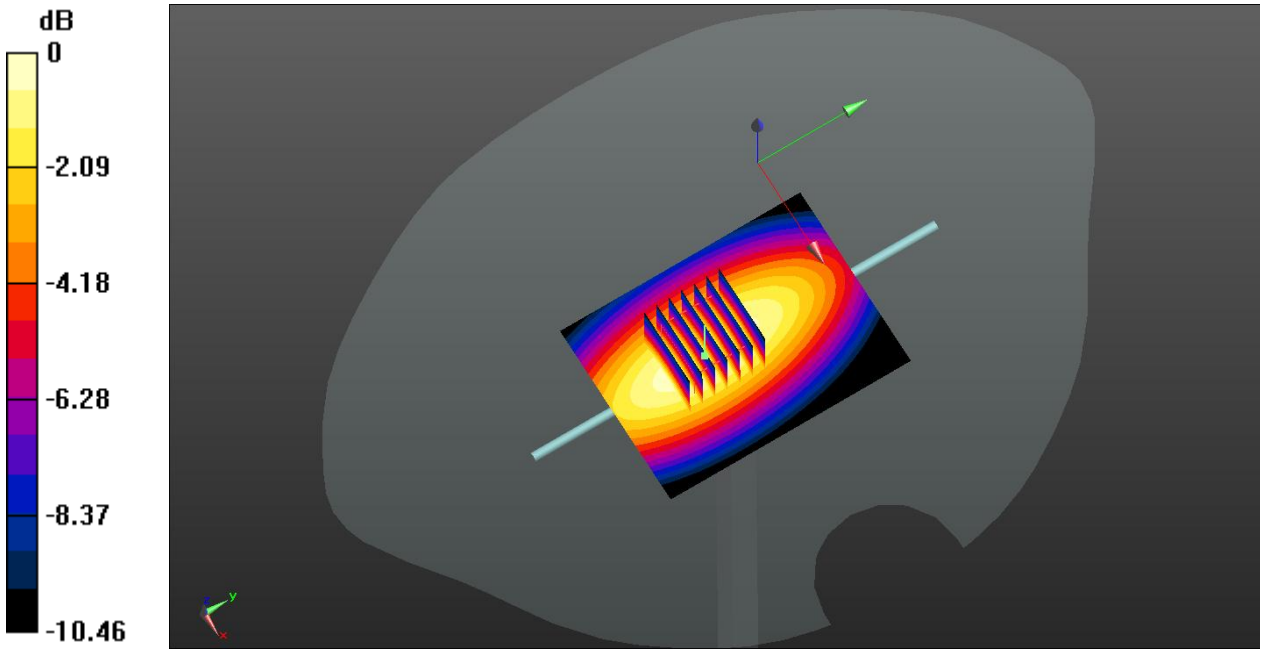
Ambient Temperature:22.3 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(6.01, 6.01, 6.01); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 835 100mW Body/Area Scan (61x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.04 W/kg

CW 835 100mW Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.98 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.969 W/kg; SAR(10 g) = 0.632 W/kg
Maximum value of SAR (measured) = 1.06 W/kg



0 dB = 1.06 W/kg

System Performance Check Data (1750MHz Body)

Date: 2018.05.18
Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1750 MHz; σ = 1.48 S/m; ε_r = 54.01; ρ = 1000 kg/m^3
Phantom section: Flat Section

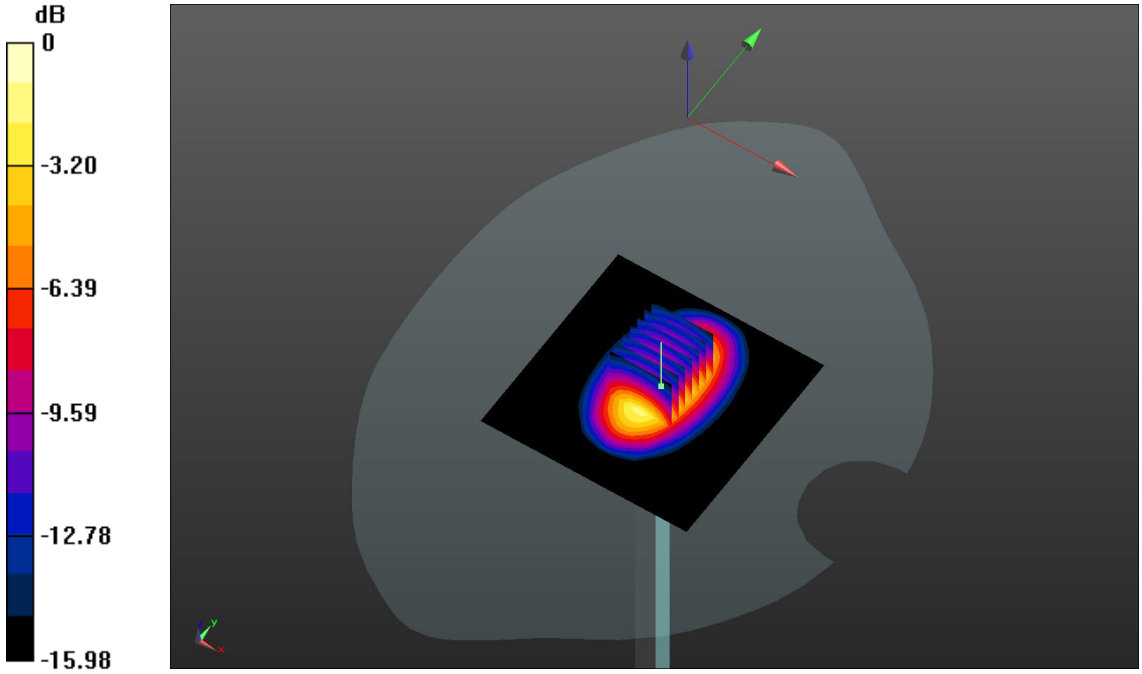
Ambient Temperature:22.5 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.87, 4.87, 4.87); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CD; Serial: TP1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW1750 100mW Body /Area Scan (101x101x1): Interpolated grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 4.00 W/kg

CW1750 100mW Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.42 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 6.25 W/kg
SAR(1 g) = 3.52 W/kg; SAR(10 g) = 1.88 W/kg
Maximum value of SAR (measured) = 3.97 W/kg



0 dB = 3.97 W/kg

System Performance Check Data (1900MHz Body)

Date: 2018.05.23
Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.546 S/m; ε_r = 53.052; ρ = 1000 kg/m^3
Phantom section: Flat Section

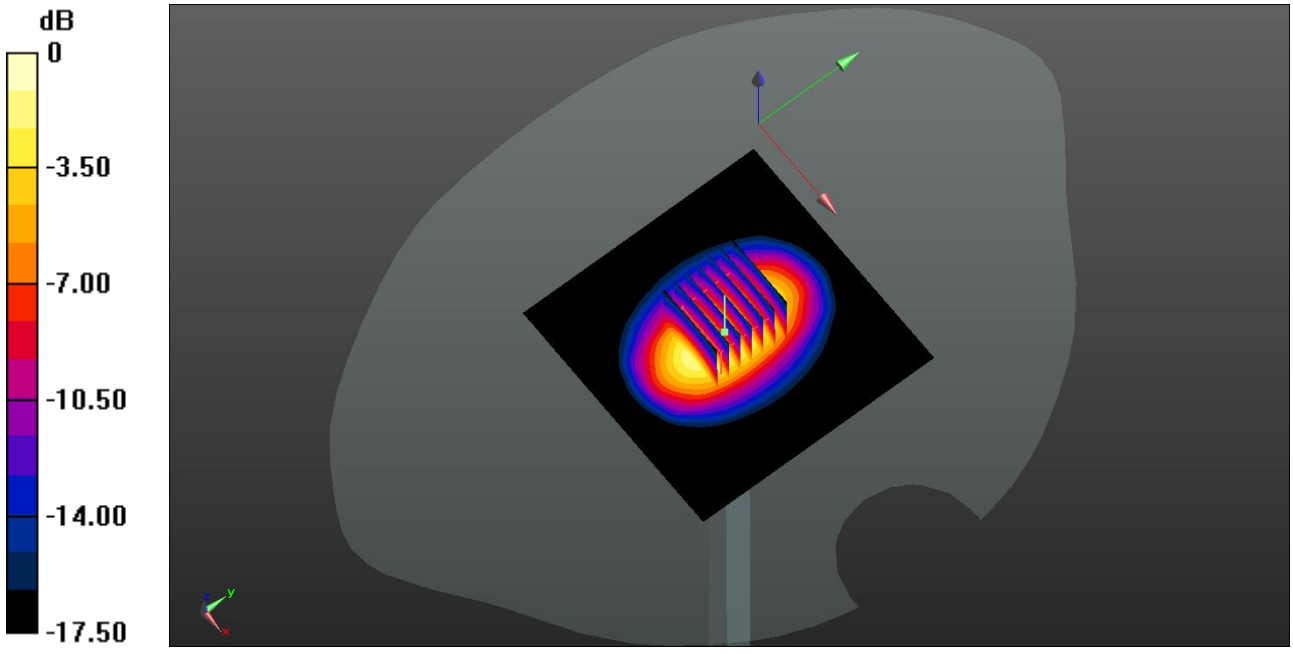
Ambient Temperature:22.5 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.61, 4.61, 4.61); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW1900 100mW Body/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 4.29 W/kg

CW1900 100mW Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.61 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 7.11 W/kg
SAR(1 g) = 3.77 W/kg; SAR(10 g) = 1.93 W/kg
Maximum value of SAR (measured) = 4.24 W/kg



0 dB = 4.24 W/kg

System Performance Check Data (2450MHz Body)

Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.897 S/m; ε_r = 52.964; ρ = 1000 kg/m^3
Phantom section: Flat Section

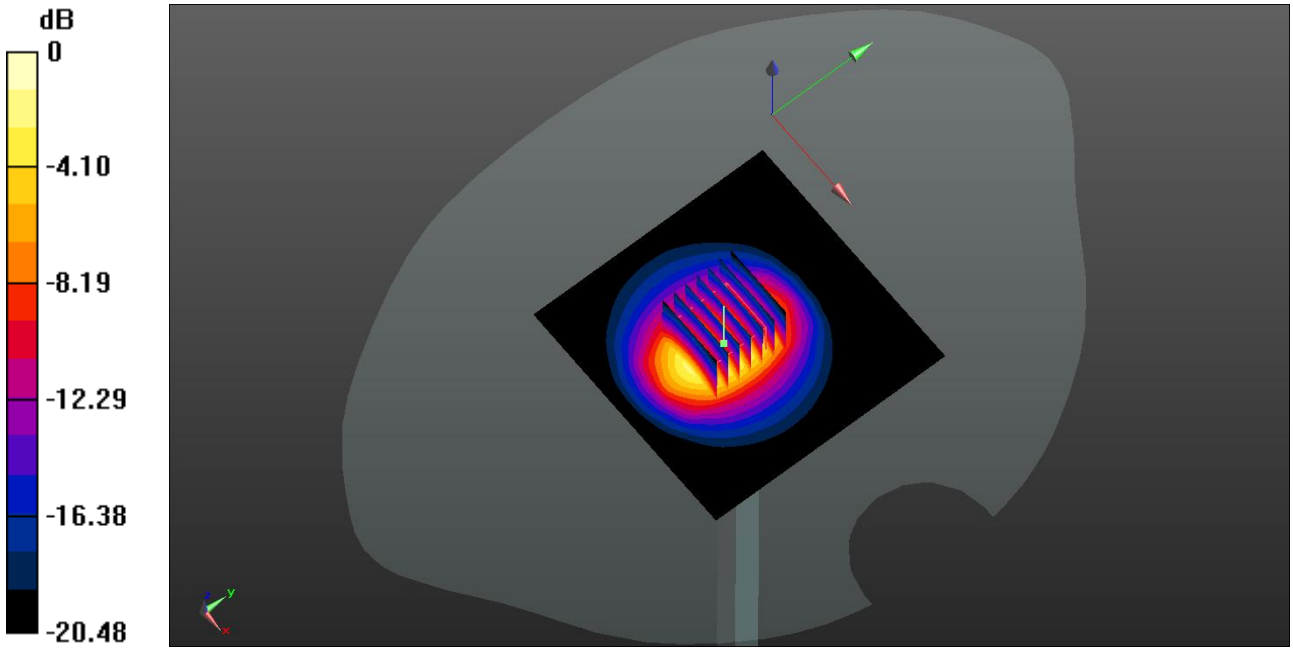
Ambient Temperature:22.2 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.23, 4.23, 4.23); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CD; Serial: TP1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW2450 100mW Body/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 6.38 W/kg

CW2450 100mW Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.08 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 11.7 W/kg
SAR(1 g) = 5.36 W/kg; SAR(10 g) = 2.31 W/kg
Maximum value of SAR (measured) = 6.29 W/kg



0 dB = 6.29 W/kg

System Performance Check Data (2600MHz Body)

Date: 2018.05.24
Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.154 S/m; ε_r = 51.758; ρ = 1000 kg/m^3
Phantom section: Flat Section

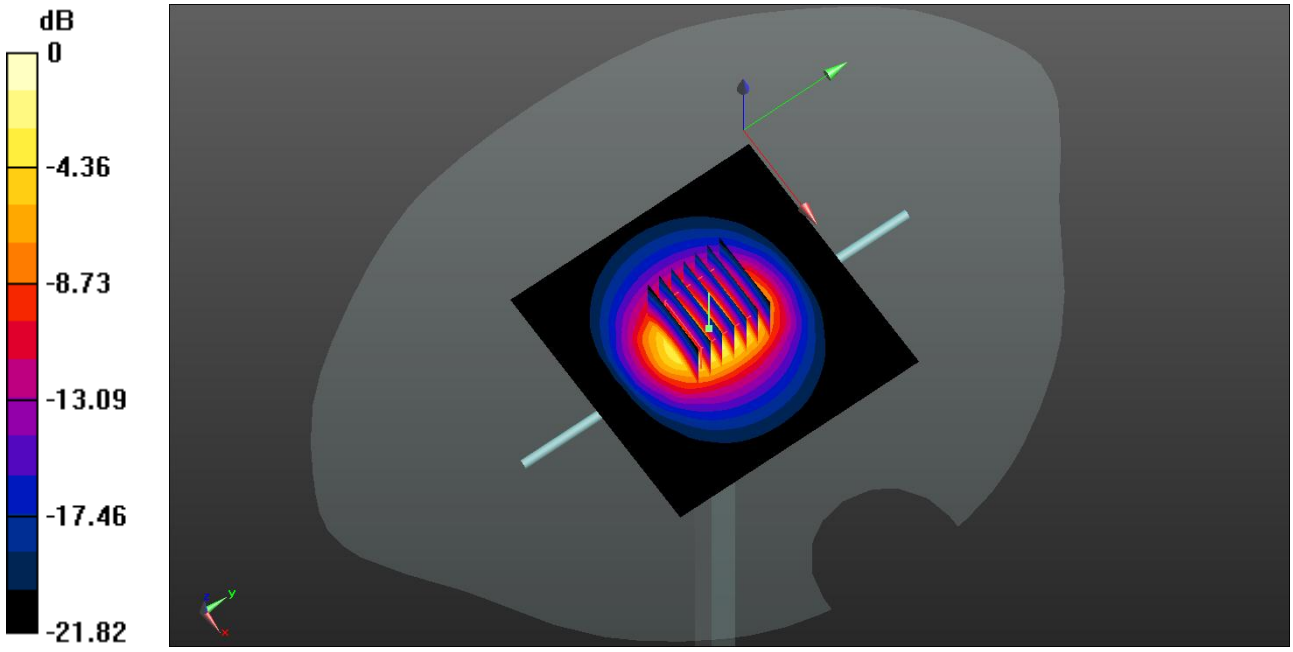
Ambient Temperature:22.2 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.12, 4.12, 4.12); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CD; Serial: TP1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW2600 Body 100mW Body/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 6.82 W/kg

CW2600 Body 100mW Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.90 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 13.7 W/kg
SAR(1 g) = 5.84 W/kg; SAR(10 g) = 2.62 W/kg
Maximum value of SAR (measured) = 6.79 W/kg



0 dB = 6.79 W/kg

System Performance Check Data (5250MHz Body)

Date: 2018.06.04
Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 5.513 S/m; ε_r =49.407; ρ = 1000 kg/m^3
Phantom section: Flat Section

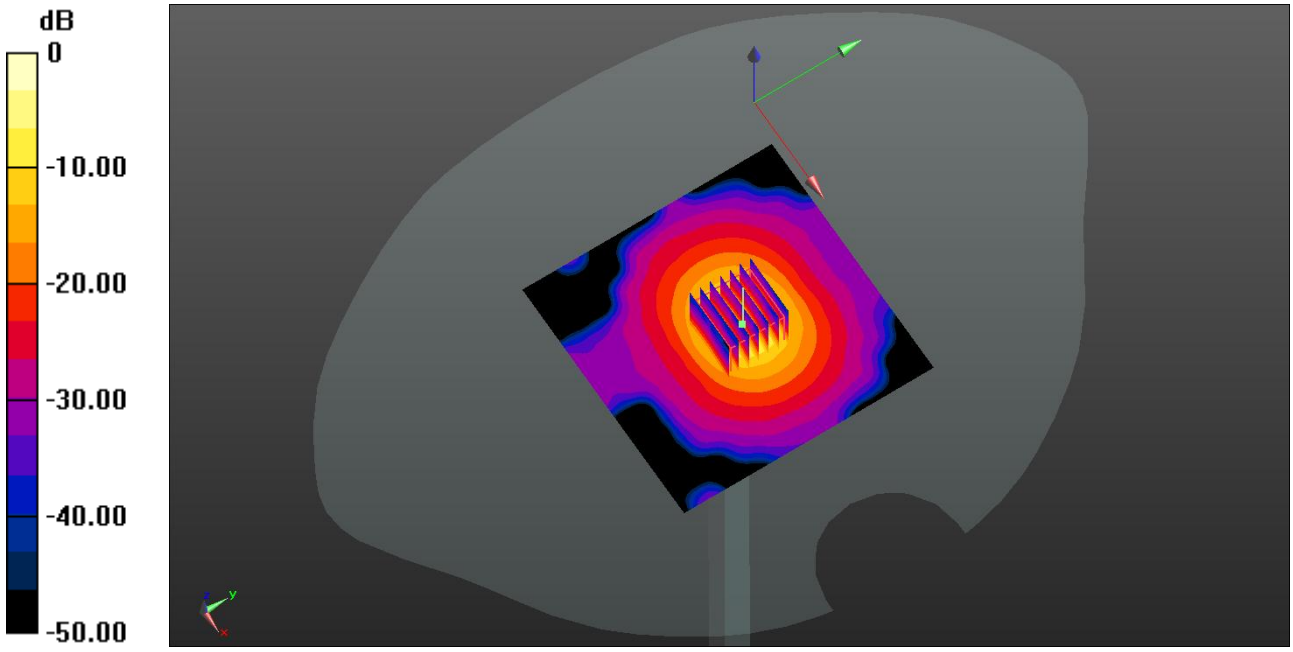
Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(5.16, 5.16, 5.16); Calibrated: 2018.01.11;;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW5250 100mW Body/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.58 W/kg

CW5250 100mW Body/Zoom Scan (7x7x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 37.43 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 33.9 W/kg
SAR(1 g) = 7.67 W/kg; SAR(10 g) = 2.11 W/kg
Maximum value of SAR (measured) = 17.21W/kg



0 dB = 17.21 W/kg

System Performance Check Data (5750MHz Body)

Date: 2018.06.04
Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.978 S/m; ε_r = 48.695; ρ = 1000 kg/m^3
Phantom section: Flat Section

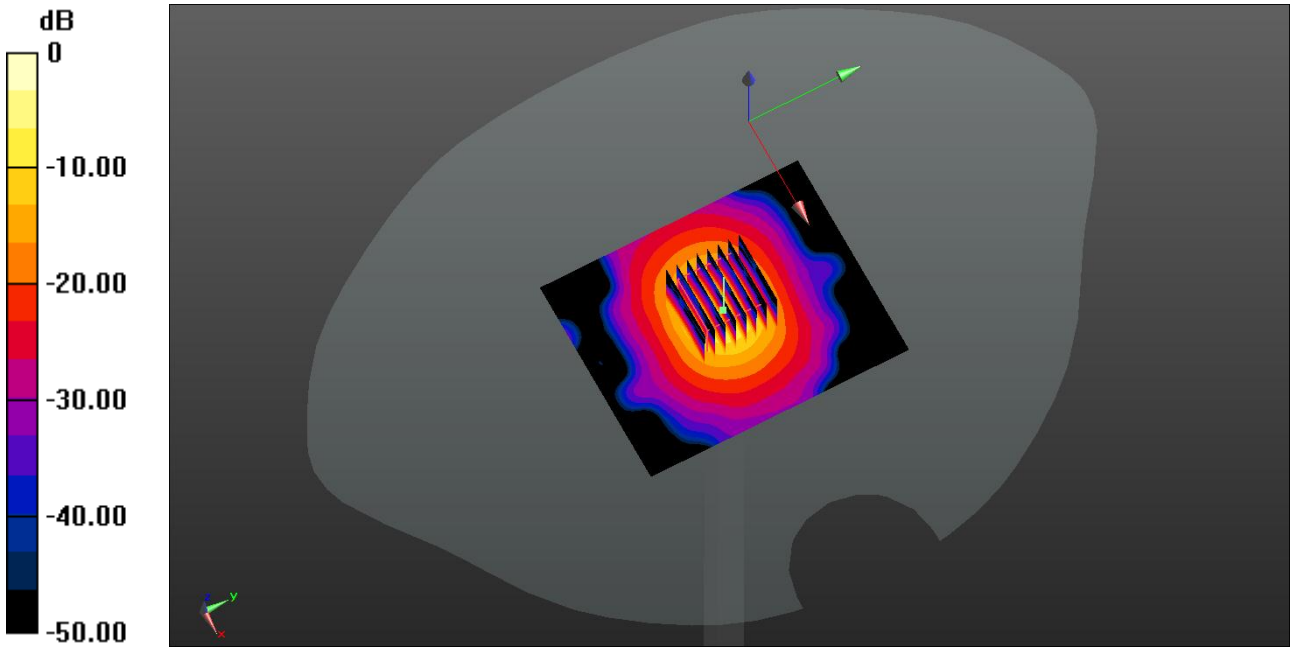
Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.58, 4.58, 4.58); Calibrated: 2018.01.11;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW5750 100mW Body/Area Scan (81x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.63 W/kg

CW5750 100mW Body/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 36.53 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 35.7 W/kg
SAR(1 g) = 7.79 W/kg; SAR(10 g) = 2.16 W/kg
Maximum value of SAR (measured) = 19.4 W/kg



0 dB = 19.4 W/kg

ANNEX C TEST DATA

MEAS.1 Body Plane with Back Side 0mm on High Channel in GPRS850 3Slots mode
Date: 2018.05.17
Communication System Band: GPRS850; Frequency: 848.8 MHz;Duty Cycle: 1:2.77332
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.979 S/m; ε_r = 53.441; ρ = 1000 kg/m^3
Phantom section: Flat Section

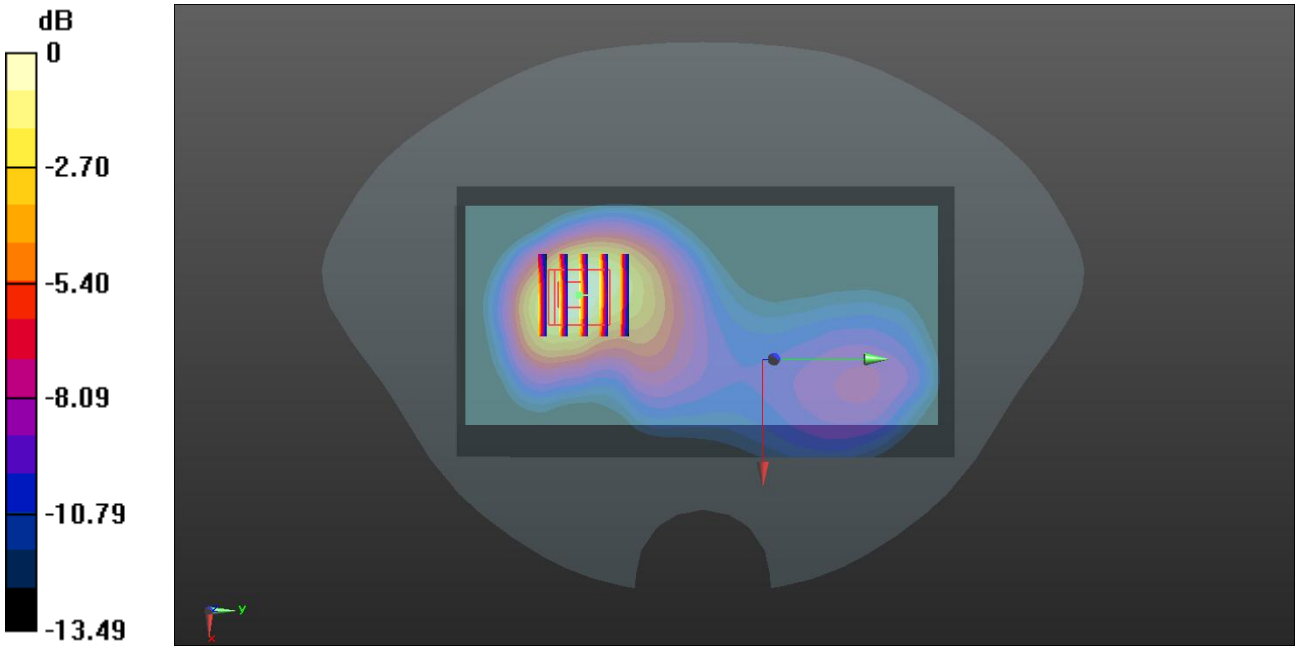
Ambient Temperature:22.3 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(6.01, 6.01, 6.01); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch251/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.05 W/kg

Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.73 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.944 W/kg; SAR(10 g) = 0.557 W/kg
Maximum value of SAR (measured) = 1.03 W/kg



0 dB = 1.03 W/kg

MEAS.2 Body Plane with Back Side 0mm on Low Channel in GPRS1900 4Slots mode
Date: 2018.05.23
Communication System Band: GPRS 1900; Frequency: 1850.2 MHz;Duty Cycle: 1: 2.0797
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.503 S/m; ε_r = 53.683; ρ = 1000 kg/m^3
Phantom section: Flat Section

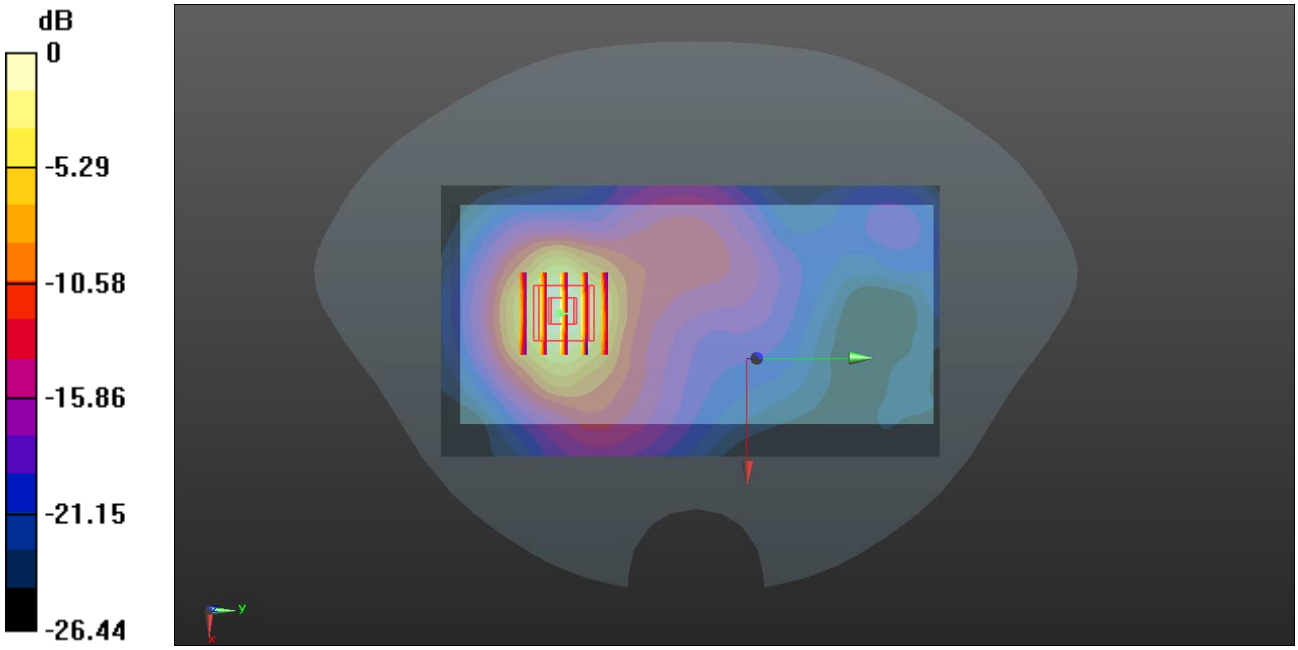
Ambient Temperature:22.5 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.61, 4.61, 4.61); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch512/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.564 W/kg

Ch512/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.688 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.490 W/kg; SAR(10 g) = 0.238 W/kg
Maximum value of SAR (measured) = 0.556 W/kg



0 dB = 0.556 W/kg

MEAS.3 Body Plane with Back Side 0mm on High Channel in WCDMA Band 2 mode
Date: 2018.05.23
Communication System Band: II; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.55 S/m; ε_r = 52.868; ρ = 1000 kg/m^3
Phantom section: Flat Section

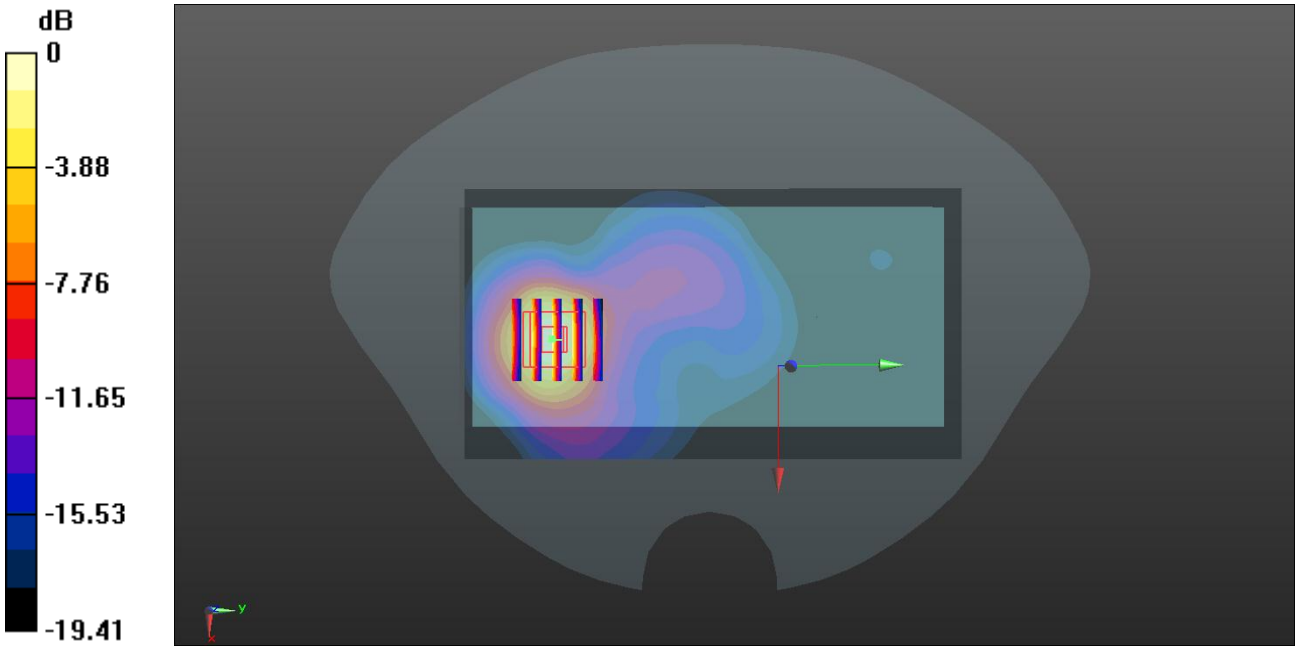
Ambient Temperature:22.5 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.61, 4.61, 4.61); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9538/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.762 W/kg

Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.708 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.648 W/kg; SAR(10 g) = 0.308 W/kg
Maximum value of SAR (measured) = 0.742 W/kg



0 dB = 0.742 W/kg

MEAS.4 Body Plane with Back Side 0mm on Middle Channel in WCDMA Band 4 mode
Date: 2018.05.18
Communication System Band: IV; Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.466 S/m; ε_r = 54.47; ρ = 1000 kg/m^3
Phantom section: Flat Section

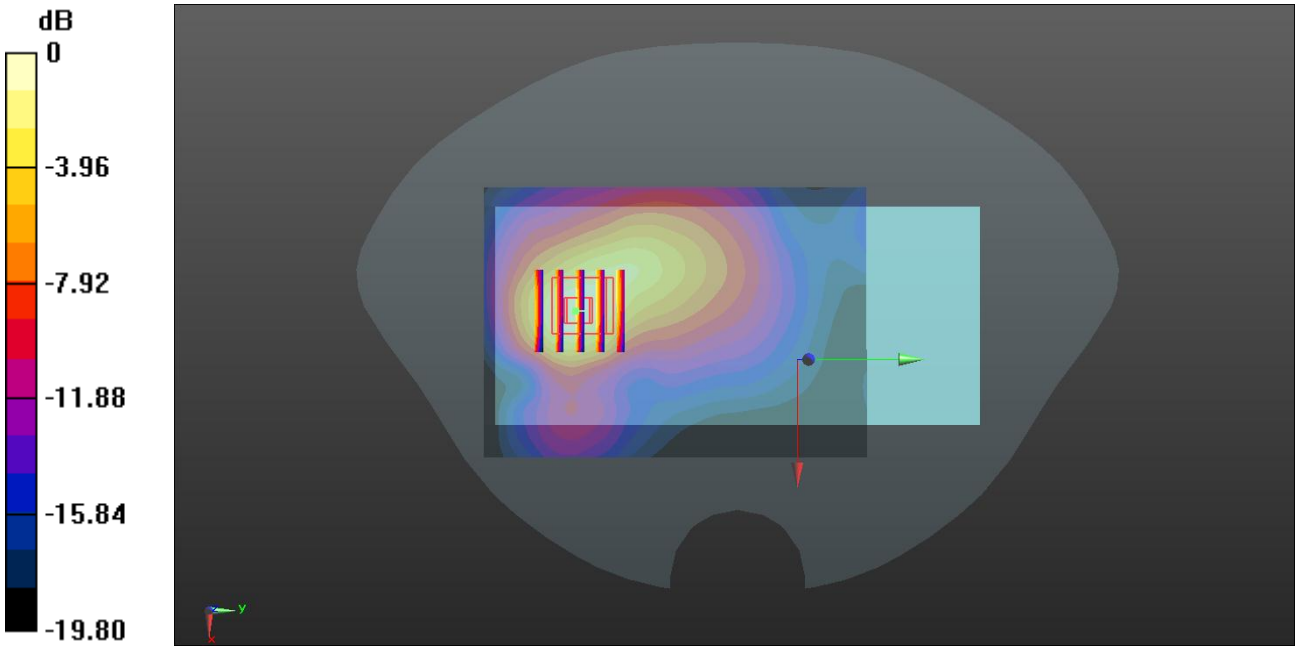
Ambient Temperature:22.5 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.87, 4.87, 4.87); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CD; Serial: TP1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch1412/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.698 W/kg

Ch1412/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.858 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.616 W/kg; SAR(10 g) = 0.316 W/kg
Maximum value of SAR (measured) = 0.698 W/kg



0 dB = 0.698 W/kg

MEAS.5 Body Plane with Back Side 0mm on Middle Channel in WCDMA Band 5 mode
Date: 2018.05.17
Communication System Band: V; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium parameters used: f = 836.4 MHz; σ = 0.956 S/m; ε_r = 54.606; ρ = 1000 kg/m^3
Phantom section: Flat Section

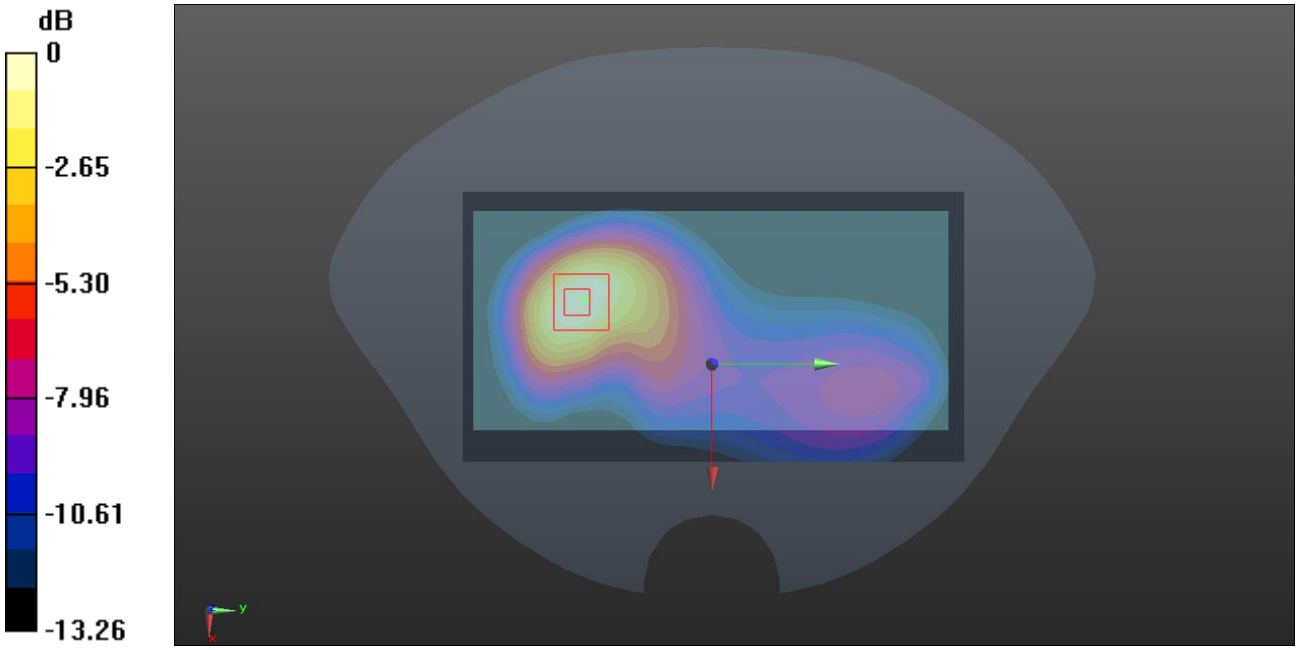
Ambient Temperature:22.3 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(6.01, 6.01, 6.01); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch4182/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.480 W/kg

Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.088 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.705 W/kg
SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.257 W/kg
Maximum value of SAR (measured) = 0.469 W/kg



0 dB = 0.469 W/kg

MEAS.6 Body Plane with Back Side 0mm on Middle Channel in LTE Band 5 mode
Date: 2018.05.17
Communication System Band: Band 5, E-UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.956 S/m; ε_r = 54.606; ρ = 1000 kg/m^3
Phantom section: Flat Section

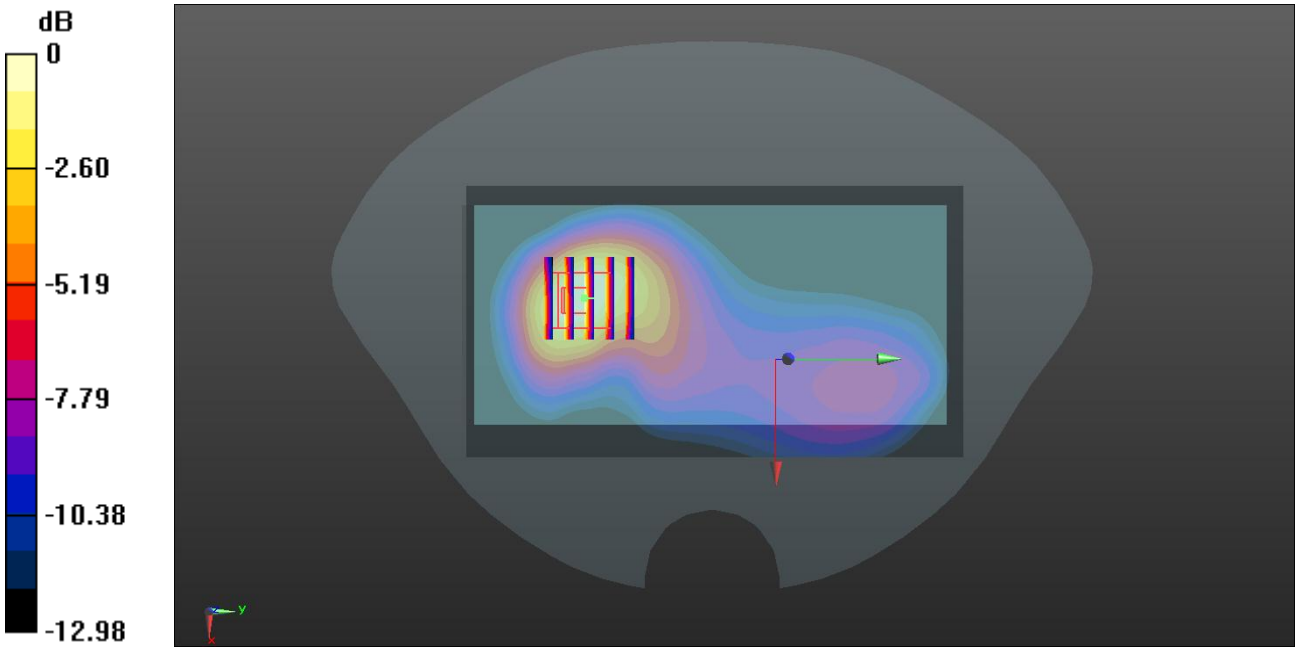
Ambient Temperature:22.3 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(6.01, 6.01, 6.01); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20525/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.435 W/kg

Ch20525/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.696 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.620 W/kg
SAR(1 g) = 0.389 W/kg; SAR(10 g) = 0.232 W/kg
Maximum value of SAR (measured) = 0.417 W/kg



0 dB = 0.417 W/kg

MEAS.7 Body Plane with Back Side 0mm on High Channel in LTE Band 7 mode
Date: 2018.05.24
Communication System Band: Band 7, E-UTRA/FDD (2500.0 - 2570.0 MHz); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2560 MHz; σ = 2.072 S/m; ε_r = 51.983; ρ = 1000 kg/m^3
Phantom section: Flat Section

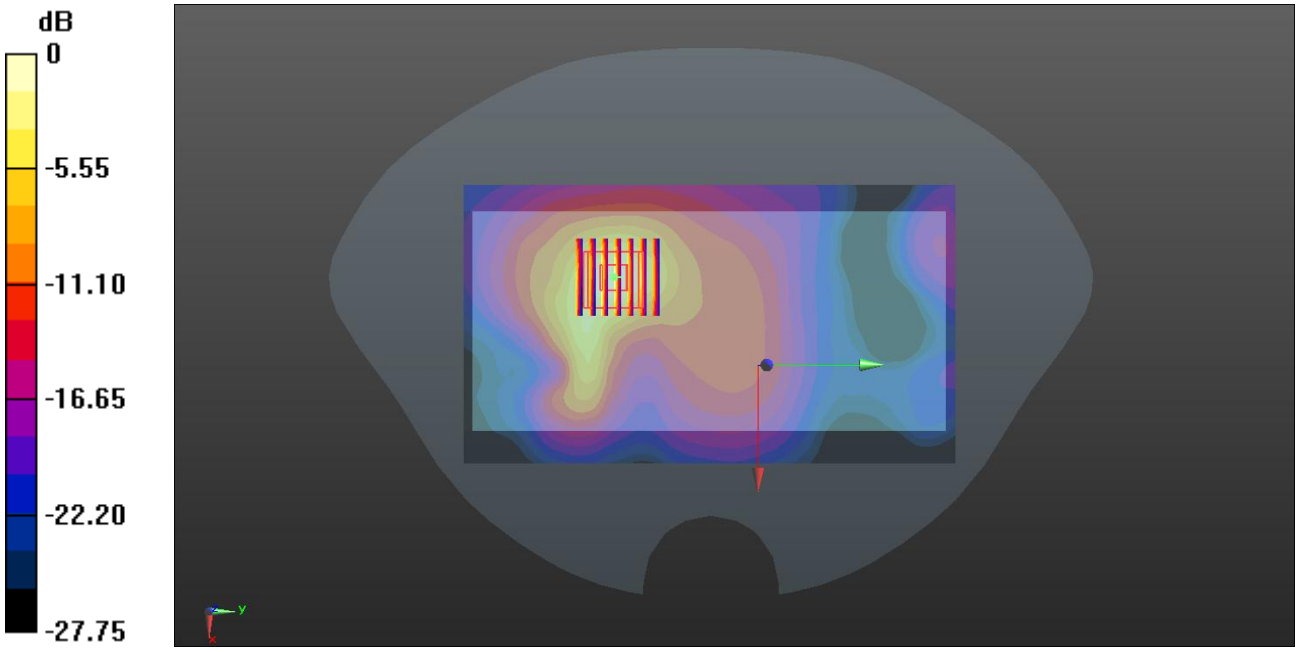
Ambient Temperature:22.2 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.12, 4.12, 4.12); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CD; Serial: TP1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch 21350/Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.847 W/kg

Ch 21350/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.563 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.714 W/kg; SAR(10 g) = 0.300 W/kg
Maximum value of SAR (measured) = 0.842 W/kg



0 dB = 0.842 W/kg

MEAS.8 Body Plane with Back Side 0mm on Middle Channel in IEEE 802.11b mode
Date: 2018.05.24
Communication System Band: WLAN(b); Frequency: 2437 MHz;Duty Cycle: 1:1.032
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.886 S/m; ε_r = 53.168; ρ = 1000 kg/m^3
Phantom section: Flat Section

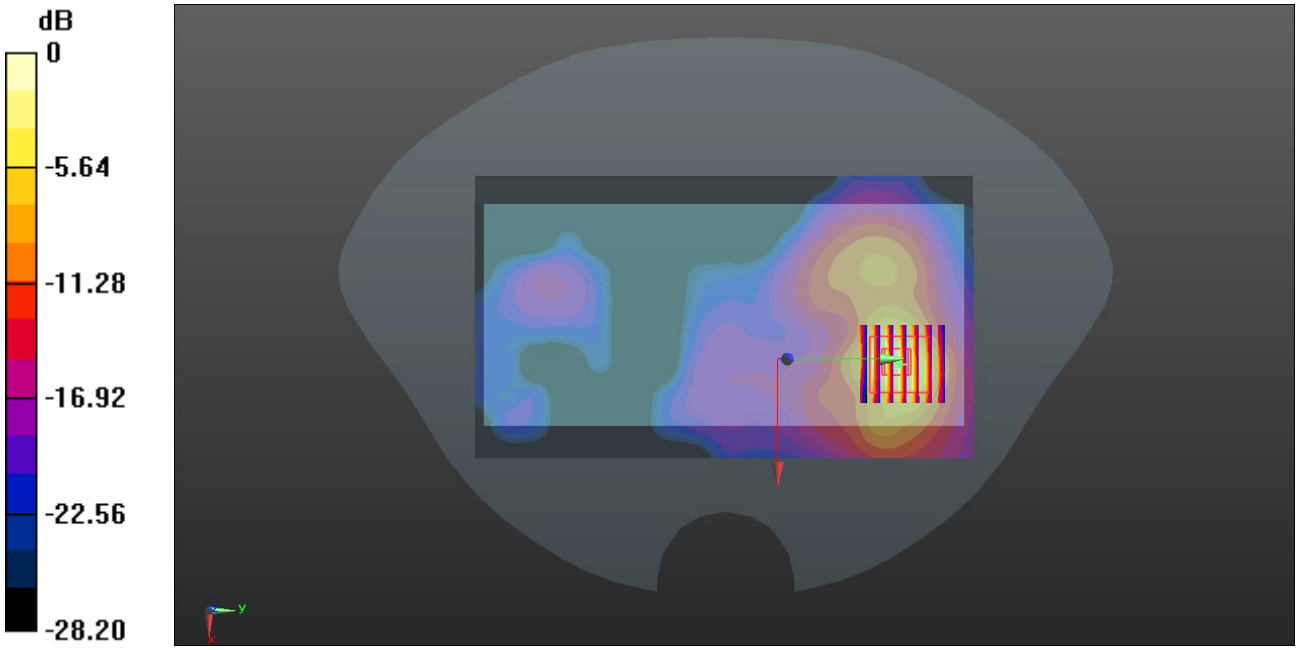
Ambient Temperature:22.2 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.23, 4.23, 4.23); Calibrated: 2017.08.02;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CD; Serial: TP1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch 7/Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.427 W/kg

Ch 7/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.409 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.859 W/kg
SAR(1 g) = 0.343 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (measured) = 0.402 W/kg



0 dB = 0.402 W/kg

MEAS.9 Body Plane with Back Side 0mm on Channel 48 in IEEE 802.11a mode
Date: 2018.06.04
Communication System Band: WLAN(a); Frequency: 5240 MHz;Duty Cycle: 1:1.151
Medium parameters used: f = 5240 MHz; σ = 5.426 S/m; ε_r = 49.419; ρ = 1000 kg/m^3
Phantom section: Flat Section

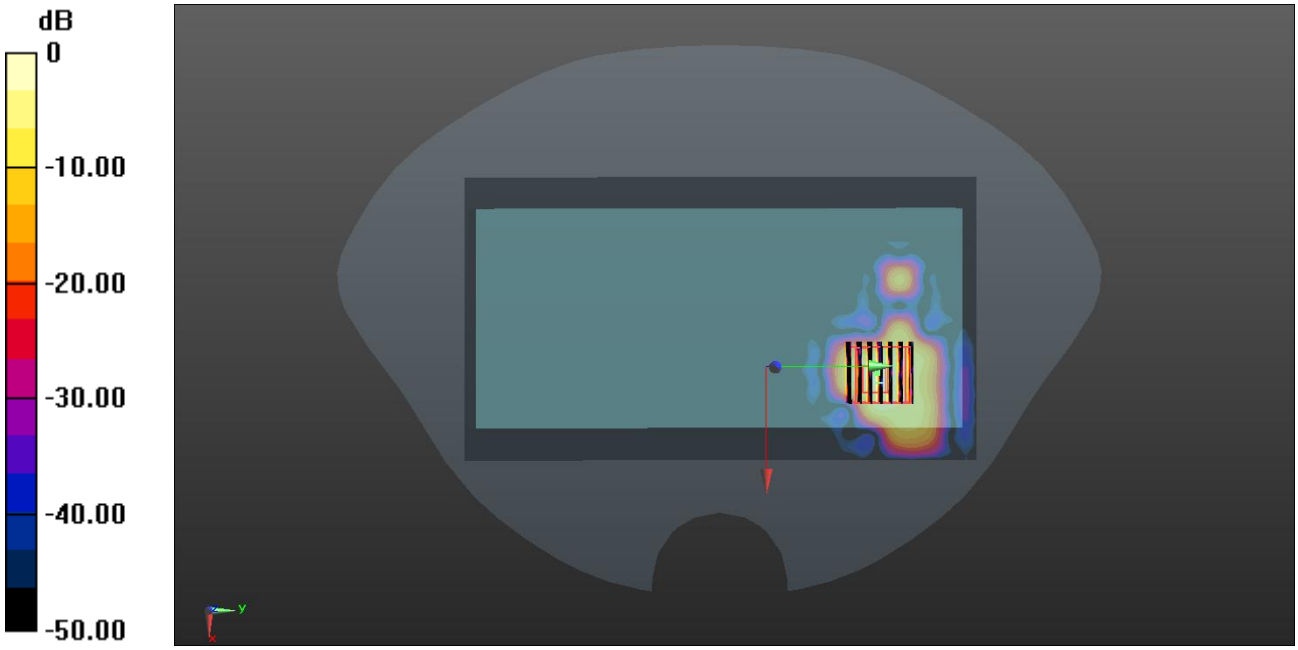
Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(5.16, 5.16, 5.16); Calibrated: 2018.01.11;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch48/Area Scan (111x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.236 W/kg

Ch48/Zoom Scan (7x7x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.847 W/kg
SAR(1 g) = 0.201 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.413 W/kg



0 dB = 0.413 W/kg

MEAS.10 Body Plane with Back Side 0mm on Channel 149 in IEEE 802.11n(HT20) mode
Date: 2018.06.04
Communication System Band: WLAN(n) 20Mhz; Frequency: 5745 MHz;Duty Cycle: 1:1.161
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.923 S/m; ε_r = 48.801; ρ = 1000 kg/m^3
Phantom section: Flat Section

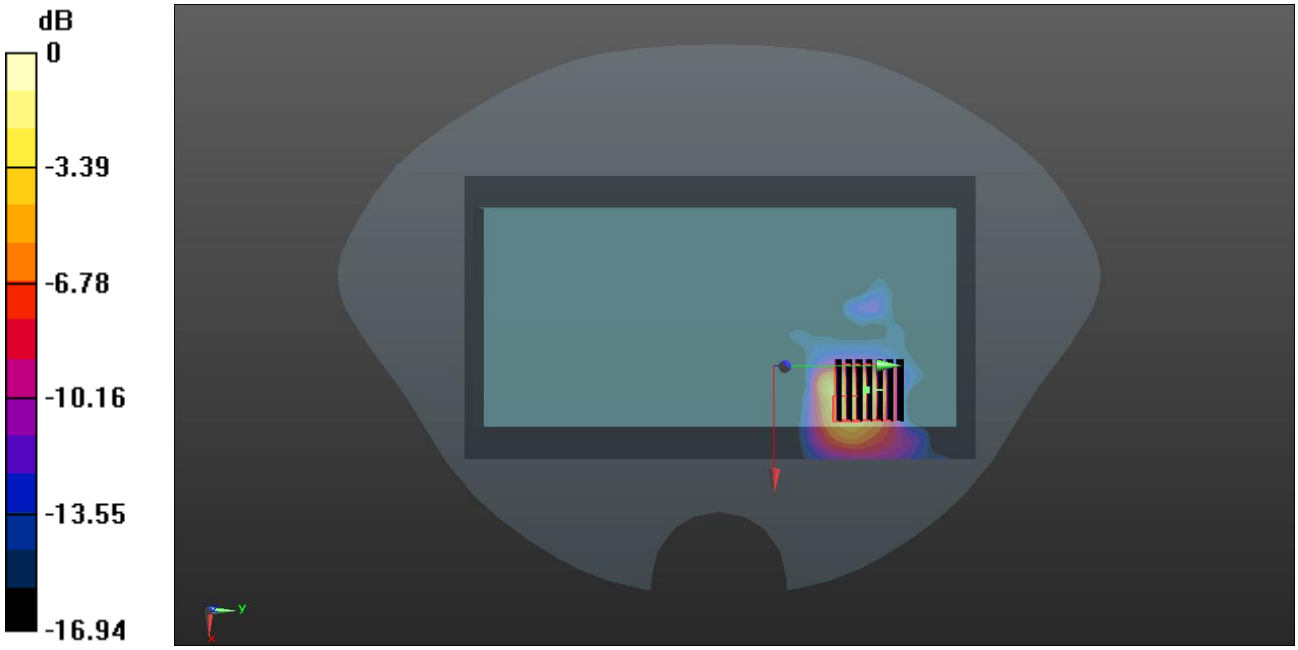
Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.58, 4.58, 4.58); Calibrated: 2018.01.11;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2017.08.02
- Phantom: SAM (30deg probe tilt) with CRP v5.0 on left 1859; Type: QD000P40CD; Serial: TP:1859
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch149/Area Scan (111x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.322 W/kg

Ch149/Zoom Scan (7x7x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.8070 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 0.293 W/kg; SAR(10 g) = 0.109 W/kg
Maximum value of SAR (measured) = 0.583 W/kg



0 dB = 0.583 W/kg

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ1840038-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL- SZ1840038-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “CALIBRATION REPORT.pdf”.

--END OF REPORT--