

FCC

SAR

TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
DOLPHIN CT40

ISSUED TO
Honeywell International Inc
Honeywell Safety and Productivity Solutions

9680 Old Bailes Road, Fort Mill, SC 29707 United States



Tested by: *Zong Liyao*
Zong Liyao
(Engineer)

Date: *Jun. 27, 2018*

Approved by: *Wei Yanquan*
Wei Yanquan
(Chief Engineer)

Date: *Jun. 27, 2018*

Report No.: BL-EC1860037-701

EUT Name: DOLPHIN CT40

Model Name: CT40-L0N

Brand Name: Honeywell

FCC ID: HD5-CT40L0N

Test Standard: FCC 47 CFR Part 2.1093

ANSI C95.1: 2005, IEEE 1528: 2013

Maximum SAR: Head (1 g): 0.644 W/kg

Body-worn (1 g): 0.126 W/kg

Extremity (10 g): 0.386 W/kg

Test Conclusion: Pass

Test Date: Jun. 05, 2018 ~ Jun. 10, 2018

Date of Issue: Jun. 27, 2018

NOTE: This test report of test results only related to testing samples, which can be duplicated completely for the legal use with the approval of the applicant; it shall not be reproduced except in full, without the written approval of Shenzhen BALUN Technology Co., Ltd. BALUN Laboratory. Any objections should be raised within thirty days from the date of issue. To validate the report, please contact us.

Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>Jun. 21, 2018</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Jun. 27, 2018</u>	<u>Updated the section 3.3.2 on page 11 and the section 12 on page 40.</u>

TABLE OF CONTENTS

1	GENERAL INFORMATION.....	4
1.1	Identification of the Testing Laboratory.....	4
1.2	Identification of the Responsible Testing Location.....	4
1.3	Test Environment Condition.....	4
1.4	Announce.....	5
2	PRODUCT INFORMATION.....	6
2.1	Applicant Information.....	6
2.2	Manufacturer Information.....	6
2.3	Factory Information.....	6
2.4	General Description for Equipment under Test (EUT).....	6
2.5	Ancillary Equipment.....	7
2.6	Technical Information.....	8
3	SUMMARY OF TEST RESULT.....	9
3.1	Test Standards.....	9
3.2	Device Category and SAR Limit.....	10
3.3	Test Result Summary.....	11
3.4	Test Uncertainty.....	12
4	MEASUREMENT SYSTEM.....	13
4.1	Specific Absorption Rate (SAR) Definition.....	13
4.2	DASY SAR System.....	14
5	SYSTEM VERIFICATION.....	21
5.1	Purpose of System Check.....	21
5.2	System Check Setup.....	21
6	TEST POSITION CONFIGURATIONS.....	22
6.1	Head Exposure Conditions.....	22

6.2	Body-worn Position Conditions	24
6.3	Hotspot Mode Exposure Position Conditions	25
7	MEASUREMENT PROCEDURE	26
7.1	Measurement Process Diagram	26
7.2	SAR Scan General Requirement	27
7.3	Measurement Procedure	28
7.4	Area & Zoom Scan Procedure	28
8	CONDUCTED RF OUPUT POWER	29
8.1	WIFI.....	29
8.2	Bluetooth	31
9	TEST EXCLUSION CONSIDERATION	32
9.1	SAR Test Exclusion Consideration Table	33
10	TEST RESULT	35
10.1	Bluetooth	35
10.2	WIFI 2.4GHz.....	36
10.3	WIFI 5GHz.....	37
11	SAR Measurement Variability	39
12	SIMULTANEOUS TRANSMISSION.....	40
13	TEST EQUIPMENTS LIST	41
ANNEX A	SIMULATING LIQUID VERIFICATION RESULT	42
ANNEX B	SYSTEM CHECK RESULT	43
ANNEX C	TEST DATA.....	52
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	<p>The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1.</p> <p>The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.</p> <p>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.</p> <p>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.</p>
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	20°C to 23°C
Ambient Relative Humidity	37% to 48%
Ambient Pressure	100 KPa to 102 KPa

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	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address	9680 Old Bailes Road, Fort Mill, SC 29707 United States

2.2 Manufacturer Information

Manufacturer	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address	9680 Old Bailes Road, Fort Mill, SC 29707 United States

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	DOLPHIN CT40
Model Name Under Test	CT40-L0N
Series Model Name	N/A
Description of Model Name Differentiation	N/A
Hardware Version	1.0
Software Version	OS.01.008
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	N/A
	Model No.	CT50-BTSC
	Serial No.	N/A
	Capacitance	4090 mAh
	Rated Voltage	3.8 V
	Limit Charge Voltage	4.36 V
Ancillary Equipment 2	Adapter	
	Brand Name	N/A
	Model No.	ADS-12B-06 05010E
	Serial No.	N/A
	Rated Input	100 - 240 V~, 300 mA, 50/60 Hz
	Rated Output	5 V= 2000 mA
Ancillary Equipment 3	Snap-on Adapter	
	Brand Name	N/A
	Model No.	CT40-SN

2.6 Technical Information

Network and Wireless connectivity	WIFI 802.11a, 802.11 b, 802.11g, 802.11n(HT20/40), 802.11ac(VHT20/40/80) Bluetooth 5.0 dual mode NFC
-----------------------------------	---

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

Operating Mode	2.4G WLAN, 5G WLAN, Bluetooth	
Frequency Range	802.11b/g /n(HT20)	2400 ~ 2483.5 MHz
	802.11a/ /n(HT20/HT40) /ac(VHT20/VHT40/ VHT80)	5150 ~ 5250 MHz
		5250 ~ 5350 MHz
		5470 ~ 5725 MHz
	Bluetooth	5725 ~ 5850 MHz
Antenna Type	WLAN: FPC Antenna Bluetooth: FPC Antenna	
DTM	N/A	
Hotspot Function	N/A	
Power Reduction	Not Support	
Exposure Category	General Population/Uncontrolled exposure	
EUT Stage	Portable Device	
Product	Type	
	<input checked="" type="checkbox"/> Production unit	<input type="checkbox"/> Identical prototype

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. C95.1-2005	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 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
6	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
7	FCC KDB 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets
8	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters

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, it is 4.0 W/kg as averaged over any 10 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 (1/10 g Value)

Band	Maximum Scaled SAR (W/kg)			Maximum Report SAR (W/kg)		
	Head 1g SAR	Body-worn (10mm) 1gSAR	Extremity (0mm) 10g SAR	Head 1g SAR	Body-worn (10mm) 1gSAR	Extremity (0mm) 10g SAR
Bluetooth	0.113	0.017	0.087	0.644	0.126	0.386
2.4G WLAN	0.644	0.078	0.386			
5.3 G WLAN	0.240	0.086	0.316			
5.6 G WLAN	0.281	0.126	0.325			
5.8 G WLAN	0.140	0.098	0.292			
Limit (W/kg)	1.60		4.0	1.6		4.0
Verdict	Pass					

3.3.2 Highest Simultaneous SAR

The product has only one antenna for WLAN and Bluetooth transmitting, and can't transmitting together, so the simultaneous transmission SAR is not required in this report.

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 0.644 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:

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

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

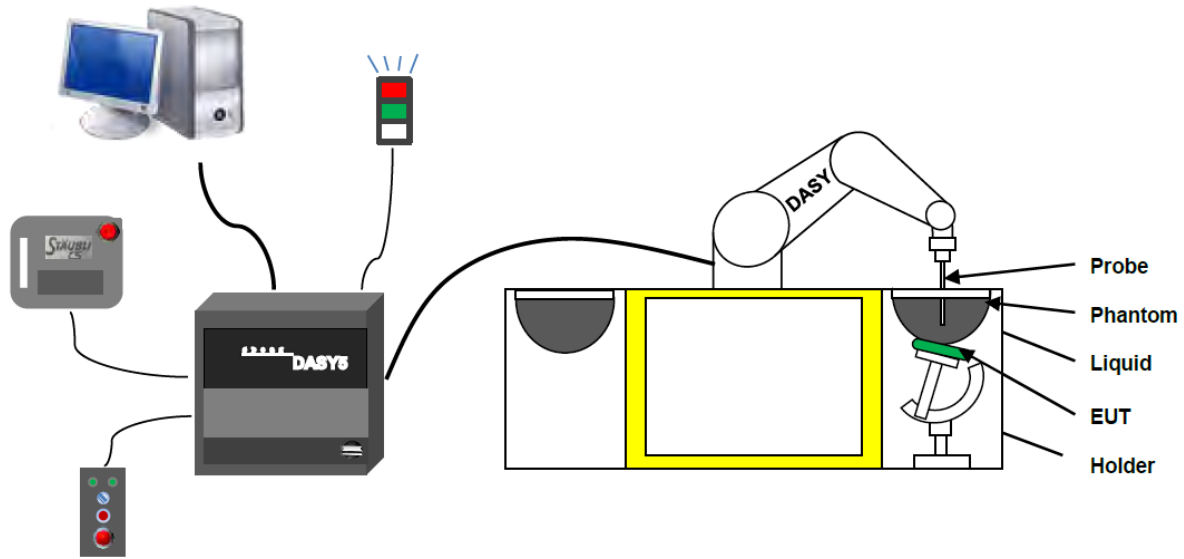
$$\mathbf{SAR} = \frac{\sigma E^2}{\rho}$$

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 fields shielded via the closed metallic construction shields)

4.2.3 E-Field Probe

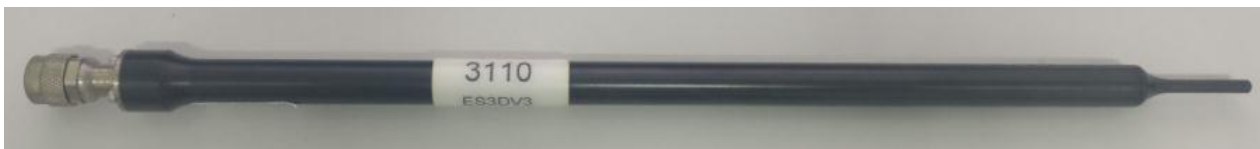
The probe is specially designed and calibrated for use in liquids with high permittivities for the measurements the Specific Dosimetric E-Field Probe EX3DV4-SN:7340 with following specifications is used.

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection 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 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 μ W/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 μ W/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

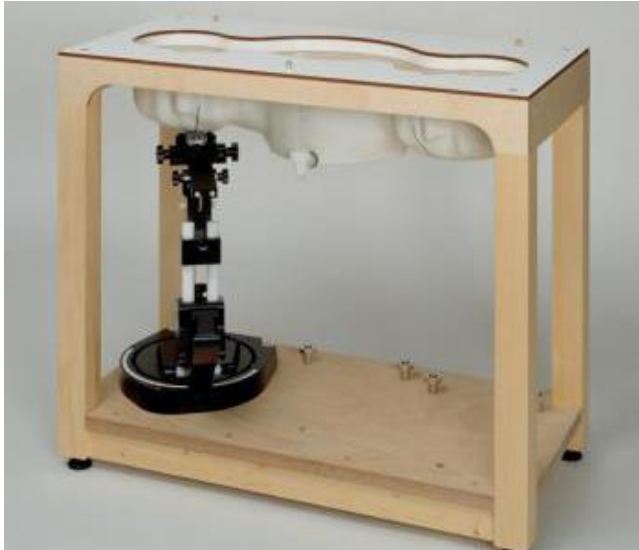
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an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



- Input Impedance: 200M Ω m
- The Inputs: Symmetrical and Floating
- Common 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

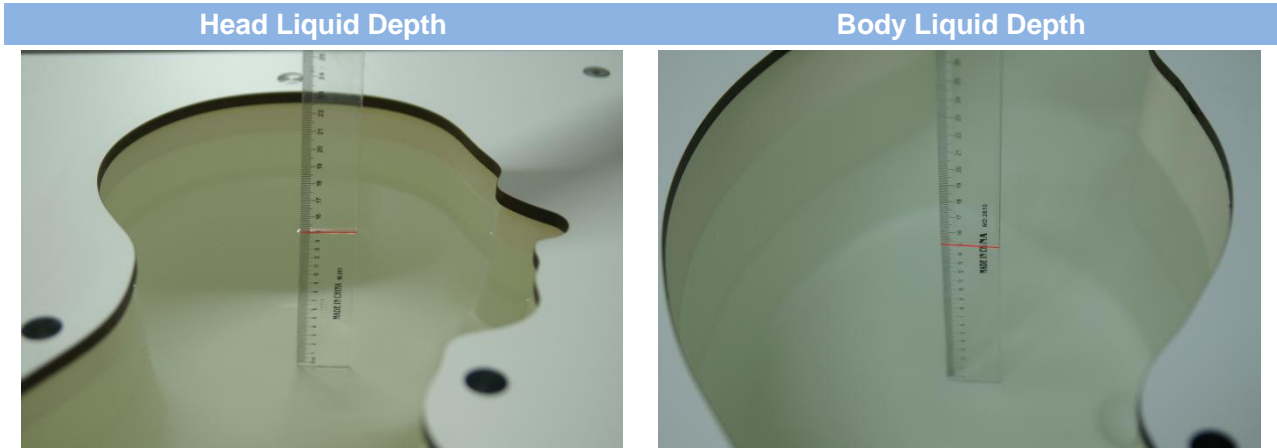
The DASY5 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65° . The bottom plate contains three pair of bolts for 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. In compliance 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%.



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

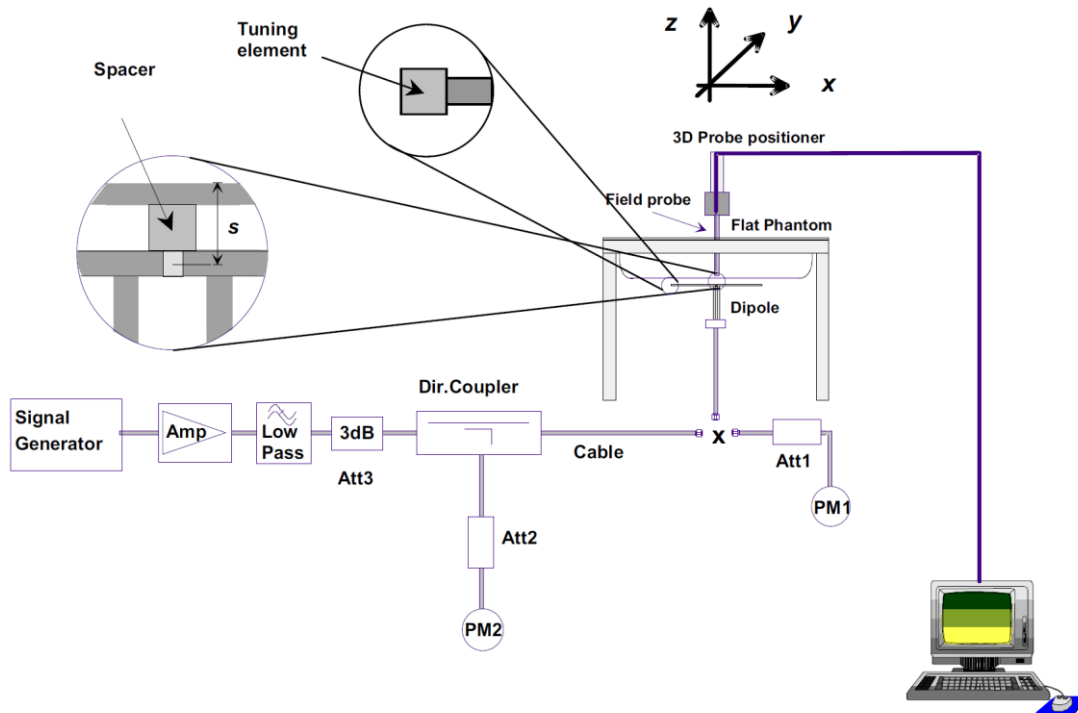
5 SYSTEM VERIFICATION

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

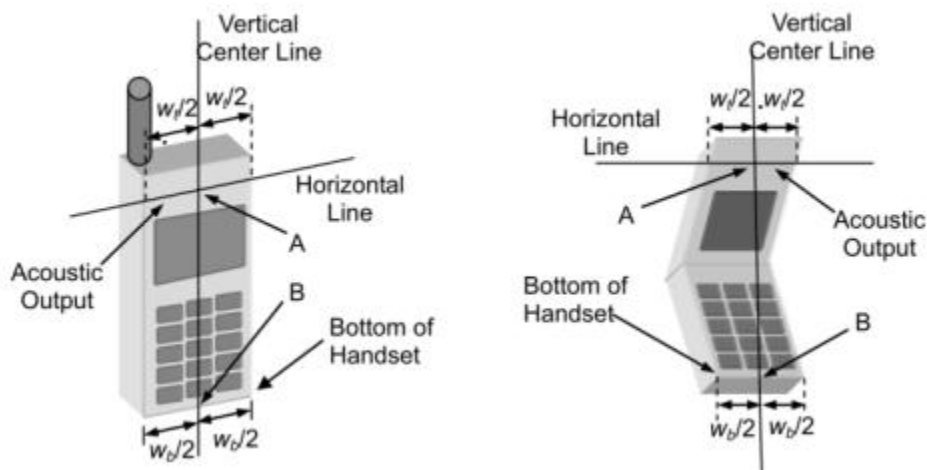
According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

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.

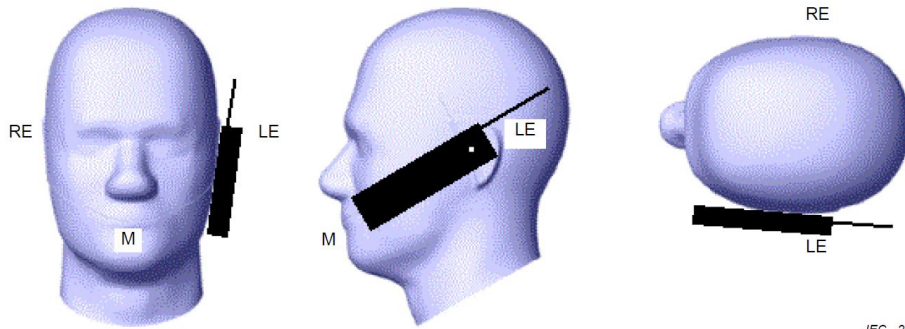
6.1.1 Two Imaginary Lines on the Handset

- 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.
- 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.
- 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

- 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.
- 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.



IEC 226/05

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.

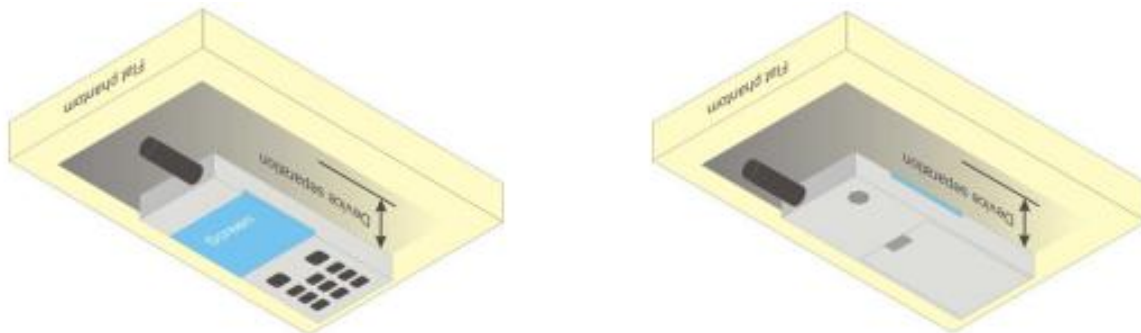


6.2 Body-worn Position Conditions

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.

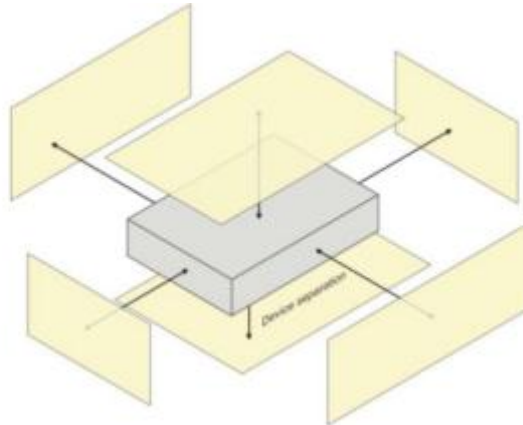
Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics.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



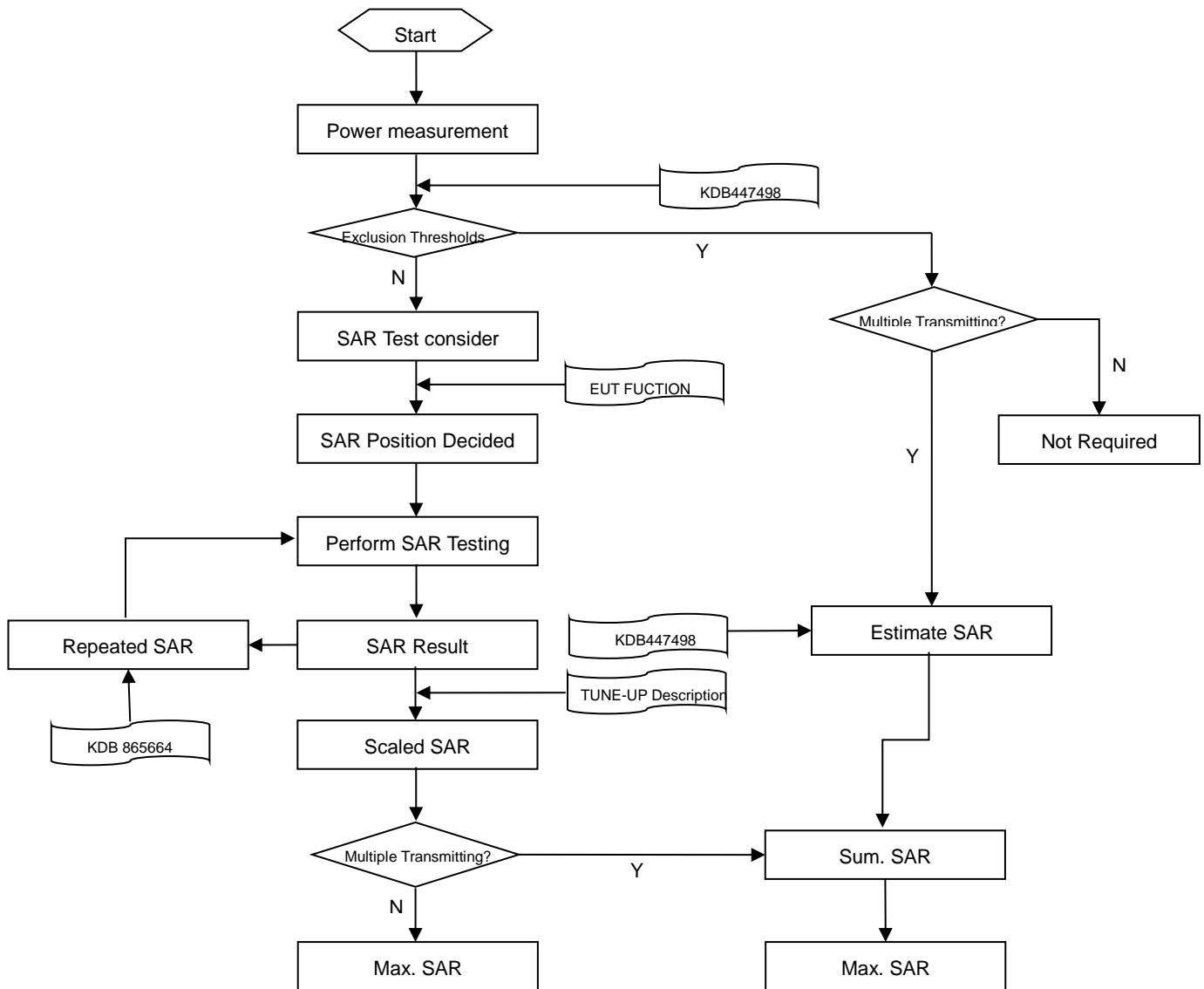
6.3 Hotspot Mode Exposure Position Conditions

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. 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 1528-2013.

		≤3GHz	>3GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		5±1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ 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: Δz Zoom (n)	≤ 5 mm	3–4 GHz: ≤ 4 mm
			4–5 GHz: ≤ 3 mm
			5–6 GHz: ≤ 2 mm
	graded grid	Δz Zoom (1): between 1st two points closest to phantom surface	≤ 4 mm
Δz Zoom (n>1): between subsequent points		≤ 1.5· Δz 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: <ol style="list-style-type: none"> 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 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. 			

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 to 16 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 OUTPUT POWER

8.1 WIFI

8.1.1 2.4G WIFI

Band (GHz)	Mode	Channel	Freq. (MHz)	Avg. Power (dBm)	Tune-Up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	13.53	14.50	Yes
		6	2437	14.22	14.50	Yes
		11	2462	13.16	14.50	Yes
	802.11g	1	2412	13.06	14.00	No
		6	2437	13.15	14.00	No
		11	2462	13.13	14.00	No
	802.11n(HT20)	1	2412	12.15	13.00	No
		6	2437	12.23	13.00	No
		11	2462	12.19	13.00	No

8.1.2 5G WIFI

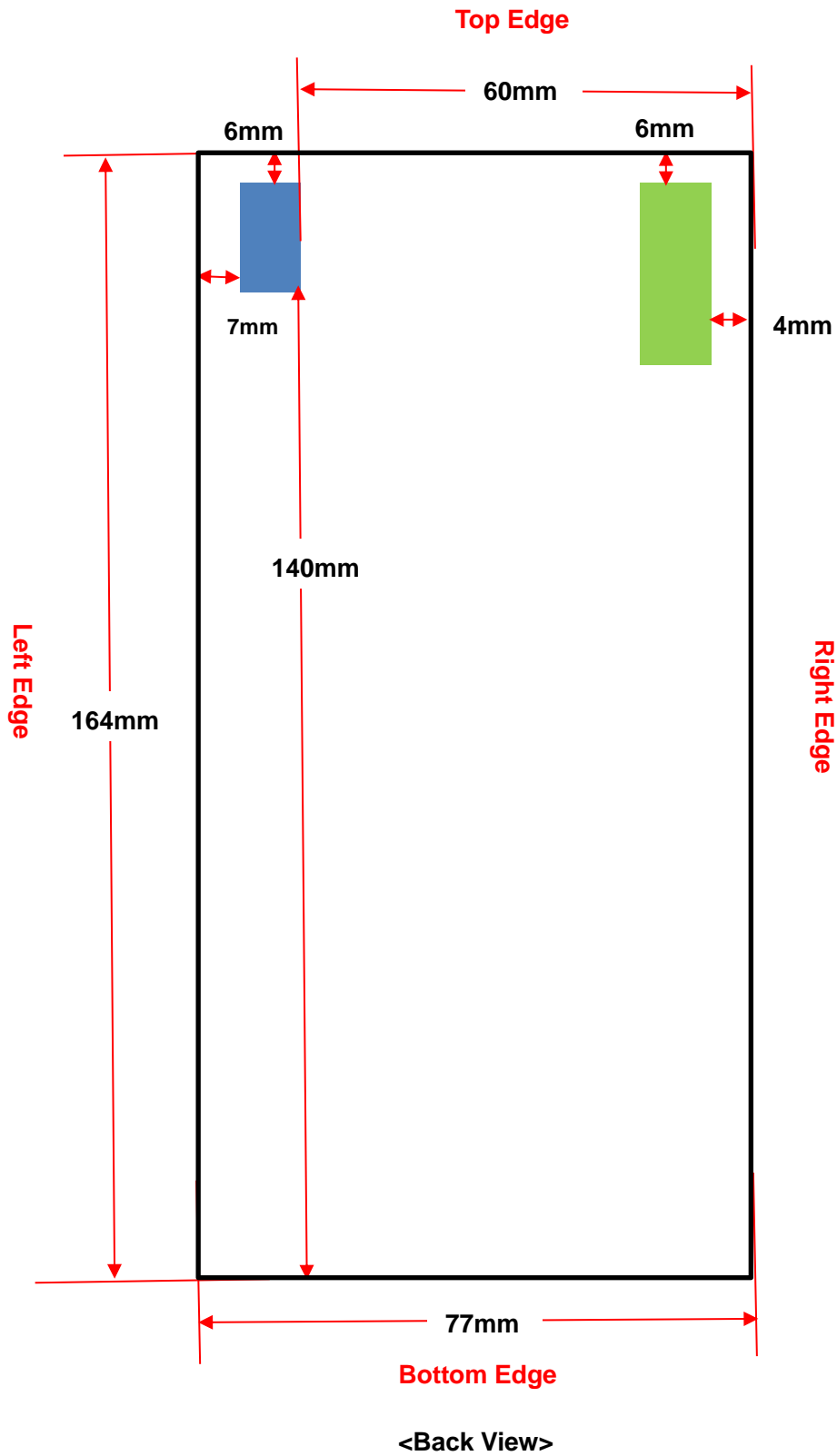
Band (GHz)	Mode	Channel	Freq. (MHz)	Avg. Power (dBm)	Tune-Up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	12.11	13.00	No
		44	5220	12.17	13.00	No
		48	5240	12.09	13.00	No
	802.11n(HT20)	36	5180	11.17	12.00	No
		44	5220	11.01	12.00	No
		48	5240	11.39	12.00	No
	802.11n(HT40)	38	5190	11.41	12.00	No
		46	5230	11.31	12.00	No
	802.11ac(VHT20)	36	5180	11.36	12.00	No
		44	5220	11.45	12.00	No
		48	5240	11.39	12.00	No
	802.11ac(VHT40)	38	5190	11.31	12.00	No
		46	5230	11.39	12.00	No
	802.11ac(VHT80)	42	5210	10.43	11.50	No
	5.3 (5.25~5.35)	802.11a	52	5260	12.16	13.00
60			5300	11.97	13.00	Yes
64			5320	11.99	13.00	Yes
802.11n(HT20)		52	5260	10.93	12.00	No
		60	5300	11.32	12.00	No
		64	5320	11.31	12.00	No
802.11n(HT40)		54	5270	11.35	12.00	No
		62	5310	11.32	12.00	No
802.11ac(VHT20)		52	5260	11.44	12.00	No
		60	5300	11.30	12.00	No
		64	5320	11.33	12.00	No

	802.11ac(VHT40)	54	5270	11.32	12.00	No	
		62	5310	11.33	12.00	No	
	802.11ac(VHT80)	58	5290	10.58	11.50	No	
5.6 (5.47~5.725)	802.11a	100	5500	11.93	13.00	Yes	
		116	5580	12.30	13.00	Yes	
		140	5700	12.09	13.00	Yes	
		144	5720	12.05	13.00	Yes	
	802.11n(HT20)	100	5500	11.13	12.00	No	
		116	5580	11.05	12.00	No	
		140	5700	11.26	12.00	No	
		144	5720	11.21	12.00	No	
	802.11n(HT40)	102	5510	11.02	12.00	No	
		110	5550	11.14	12.00	No	
		134	5670	11.42	12.00	No	
		142	5710	11.33	12.00	No	
	802.11ac(VHT20)	100	5500	11.18	12.00	No	
		116	5580	11.08	12.00	No	
		140	5700	11.32	12.00	No	
		144	5720	11.27	12.00	No	
	802.11ac(VHT40)	102	5510	10.98	12.00	No	
		110	5550	11.17	12.00	No	
		134	5670	11.13	12.00	No	
		142	5710	11.25	12.00	No	
	802.11ac(VHT80)	106	5530	10.56	11.50	No	
		138	5690	10.65	11.50	No	
	5.8 (5.725~5.850)	802.11a	149	5745	12.18	13.00	Yes
			157	5785	12.23	13.00	Yes
			165	5825	12.32	13.00	Yes
		802.11n(HT20)	149	5745	11.45	12.00	No
			157	5785	11.09	12.00	No
			165	5825	11.18	12.00	No
802.11n(HT40)		151	5755	11.43	12.00	No	
		159	5790	11.29	12.00	No	
802.11ac(VHT20)		149	5745	11.45	12.00	No	
		157	5785	11.03	12.00	No	
		165	5825	11.09	12.00	No	
802.11ac(VHT40)		151	5755	11.20	12.00	No	
		159	5790	11.25	12.00	No	
802.11ac(VHT80)		155	5775	10.55	11.50	No	

8.2 Bluetooth

Mode	GFSK			$\pi/4$ -DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Avg. Power (dBm)	9.45	9.27	8.56	6.95	6.36	6.18
Tune-Up Limit (dBm)	10.50			8.00		
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
Avg. Power (dBm)	7.31	6.37	6.60	/	/	/
Tune-Up Limit (dBm)	8.00			/	/	/
Mode	BLE (1M)			BLE (2M)		
Channel	0	19	39	0	19	39
Frequency (MHz)	2402	2440	2480	2402	2440	2480
Avg. Power (dBm)	-1.42	-2.30	-2.35	-1.45	-2.36	-2.39
Tune-Up Limit (dBm)	0.00			0.00		

9 TEST EXCLUSION CONSIDERATION



WLAN/Bluetooth Antenna



DRX Antenna

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. Average Power		Test Position Configurations					
		dBm	mW	Head	Front/Back	Left Edge	Right Edge	Top Edge	Bottom Edge
WLAN 2.4 G	Distance to User			<5mm	<5mm	7mm	60mm	6mm	140mm
	802.11b	14.50	28.18	Yes	Yes	Yes	No	Yes	No
	802.11g	14.00	25.12	No	No	No	No	No	No
	802.11n(HT20)	13.00	19.95	No	No	No	No	No	No
WLAN 5.3 G	Distance to User			<5mm	<5mm	7mm	60mm	6mm	140mm
	802.11a	13.00	19.95	Yes	Yes	Yes	No	Yes	No
	802.11n(HT20)	12.00	15.85	No	No	No	No	No	No
	802.11n(HT40)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT20)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT40)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT80)	11.50	14.13	No	No	No	No	No	No
WLAN 5.6 G	Distance to User			<5mm	<5mm	7mm	60mm	6mm	140mm
	802.11a	13.00	19.95	Yes	Yes	Yes	No	Yes	No
	802.11n(HT20)	12.00	15.85	No	No	No	No	No	No
	802.11n(HT40)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT20)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT40)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT80)	11.50	14.13	No	No	No	No	No	No
WLAN 5.8 G	Distance to User			<5mm	<5mm	7mm	60mm	6mm	140mm
	802.11a	13.00	19.95	Yes	Yes	Yes	No	Yes	No
	802.11n(HT20)	12.00	15.85	No	No	No	No	No	No
	802.11n(HT40)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT20)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT40)	12.00	15.85	No	No	No	No	No	No
	802.11ac(VHT80)	11.50	14.13	No	No	No	No	No	No
Bluetooth	Distance to User			<5mm	<5mm	7mm	60mm	6mm	140mm
	BR/EDR	10.50	11.22	Yes	Yes	Yes	No	Yes	No
	BLE	0.00	1.00	No	No	No	No	No	No

Note:

- Maximum power is the source-based time-average power and represents the maximum RF output power including tune-up tolerance among production units
- 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.
- 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
- 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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

- a. $f(\text{GHz})$ 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 $[3.0] / [\sqrt{f(\text{GHz})}] \cdot [(\text{min. test separation distance, mm})] = \text{exclusion threshold of mW}$.

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. $[\text{Threshold at 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]$ mW, at 100 MHz to 1500 MHz
 - b. $[\text{Threshold at 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10]$ mW at > 1500 MHz and ≤ 6 GHz
6. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine further SAR exclusion.8. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 1/4dB higher than those measured at the lowest data rate
7. Per KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions.
 - a. When KDB Publication 447498 D01 SAR test exclusion applies to the OFDM 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. Per KDB 248227 D01 SAR is not required for the following U-NII-1 and U-NII-2A bands conditions.
 - a. When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.
 - b. When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, each band is tested independently for SAR.

10 TEST RESULT

10.1 Bluetooth (1g SAR)

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.
Head											
DH5	Left Cheek	0	0	2402	0.02	0.089	9.45	10.50	1.274	0.113	1#
		0	39	2441	0.10	0.068	9.27	10.50	1.327	0.091	/
		0	78	2480	0.06	0.056	8.56	10.50	1.563	0.088	/
	Left Tilt	0	0	2402	-0.03	0.050	9.45	10.50	1.274	0.064	/
	Right Cheek	0	0	2402	0.04	0.042	9.45	10.50	1.274	0.054	/
	Right Tilt	0	0	2402	-0.03	0.036	9.45	10.50	1.274	0.046	/
Body-worn Accessory											
DH5	Front Side	10	0	2402	-0.03	0.014	9.45	10.50	1.274	0.017	2#
		10	39	2441	0.80	0.011	9.27	10.50	1.327	0.015	/
		10	78	2480	0.19	0.009	8.56	10.50	1.563	0.014	/
	Back Side	10	0	2402	0.13	0.010	9.45	10.50	1.274	0.013	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.2 Bluetooth (10g SAR)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	10 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power (dBm)	Scaling Factor	10 g Scaled SAR (W/Kg)	Meas. No.
Extremity											
DH5	Front Side	0	0	2402	0.13	0.068	9.45	10.50	1.274	0.087	3#
		0	39	2441	-0.06	0.062	9.27	10.50	1.327	0.082	/
		0	78	2480	0.04	0.055	8.56	10.50	1.563	0.085	/
	Back Side	0	0	2402	0.02	0.062	9.45	10.50	1.274	0.079	/
	Left Edge	0	0	2402	-0.06	0.010	9.45	10.50	1.274	0.012	/
	Top Edge	0	0	2402	0.03	0.018	9.45	10.50	1.274	0.023	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.3 WIFI 2.4GHz (1g SAR)

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.
Head													
802.11 b	Left Cheek	0	6	2437	0.12	0.440	14.22	14.50	1.067	98.96	1.011	0.474	/
		0	1	2412	-0.09	0.510	13.53	14.50	1.250	98.96	1.011	0.644	4#
		0	11	2462	0.18	0.316	13.16	14.50	1.361	98.96	1.011	0.435	/
	Left Tilt	0	6	2437	-0.11	0.296	14.22	14.50	1.067	98.96	1.011	0.319	/
	Right Cheek	0	6	2437	0.13	0.145	14.22	14.50	1.067	98.96	1.011	0.156	/
	Right Tilt	0	6	2437	0.07	0.133	14.22	14.50	1.067	98.96	1.011	0.143	/
Body-worn Accessory													
802.11 b	Front Side	10	6	2437	0.02	0.057	14.22	14.50	1.067	98.96	1.011	0.061	/
		10	1	2412	-0.18	0.062	13.53	14.50	1.250	98.96	1.011	0.078	5#
		10	11	2462	0.12	0.051	13.16	14.50	1.361	98.96	1.011	0.070	/
	Back Side	10	6	2437	0.10	0.038	14.22	16.00	1.507	98.96	1.011	0.058	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.4 WIFI 2.4GHz (10g SAR)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	10 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power (dBm)	Scaling Factor	Duty Cycle (%)	Duty Cycle Scaling Factor	10 g Scaled SAR (W/Kg)	Meas. No.
Extremity													
802.11 b	Front Side	0	6	2437	-0.13	0.273	14.22	14.50	1.067	98.96	1.011	0.294	/
		0	1	2412	0.07	0.302	13.53	14.50	1.250	98.96	1.011	0.382	/
		0	11	2462	0.04	0.280	13.16	14.50	1.361	98.96	1.011	0.386	6#
	Back Side	0	6	2437	-0.16	0.220	14.22	14.50	1.067	98.96	1.011	0.237	/
	Left Edge	0	6	2437	0.20	0.097	14.22	14.50	1.067	98.96	1.011	0.105	/
	Top Edge	0	6	2437	0.09	0.094	14.22	14.50	1.067	98.96	1.011	0.101	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.5 WIFI 5GHz (1g SAR)

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.		
Head																
5.3G	802.11 a	Left Cheek	0	52	5260	0.11	0.189	12.16	13.00	1.213	95.73	1.045	0.240	7#		
			0	60	5300	-0.14	0.171	11.97	13.00	1.268	95.73	1.045	1.045	0.226	/	
			0	64	5320	0.01	0.180	11.99	13.00	1.262	95.73	1.045	1.045	0.237	/	
		Right Cheek	Left Tilt	0	52	5260	0.16	0.160	12.16	13.00	1.213	95.73	1.045	1.045	0.203	/
			Right Tilt	0	52	5260	-0.04	0.151	12.16	13.00	1.213	95.73	1.045	1.045	0.191	/
			Right Tilt	0	52	5260	0.06	0.124	12.16	13.00	1.213	95.73	1.045	1.045	0.157	/
5.6G	802.11 a	Left Cheek	0	116	5580	0.14	0.229	12.30	13.00	1.175	95.73	1.045	1.045	0.281	8#	
			0	100	5500	0.06	0.202	11.93	13.00	1.279	95.73	1.045	1.045	0.270	/	
			0	140	5700	0.10	0.193	12.09	13.00	1.233	95.73	1.045	1.045	0.249	/	
			0	144	5720	0.17	0.187	12.05	13.00	1.245	95.73	1.045	1.045	0.243	/	
		Right Cheek	Left Tilt	0	116	5580	-0.05	0.169	12.30	13.00	1.175	95.73	1.045	1.045	0.207	/
			Right Tilt	0	116	5580	0.04	0.112	12.30	13.00	1.175	95.73	1.045	1.045	0.137	/
			Right Tilt	0	116	5580	-0.20	0.096	12.30	13.00	1.175	95.73	1.045	1.045	0.118	/
			Right Tilt	0	116	5580	-0.20	0.096	12.30	13.00	1.175	95.73	1.045	1.045	0.118	/
5.8G	802.11 a	Left Cheek	0	165	5825	0.14	0.114	12.32	13.00	1.169	95.73	1.045	1.045	0.139	/	
			0	165	5825	0.03	0.115	12.32	13.00	1.169	95.73	1.045	1.045	0.140	9#	
		Left Tilt	0	149	5745	0.05	0.108	12.18	13.00	1.208	95.73	1.045	1.045	0.136	/	
			0	157	5785	0.15	0.102	12.23	13.00	1.194	95.73	1.045	1.045	0.127	/	
		Right Cheek	Right Cheek	0	165	5825	-0.10	0.087	12.32	13.00	1.169	95.73	1.045	1.045	0.106	/
			Right Tilt	0	165	5825	0.01	0.092	12.32	13.00	1.169	95.73	1.045	1.045	0.112	/
Body-worn Accessory																
5.3G	802.11 a	Front Side	10	52	5260	0.08	0.020	12.16	13.00	1.213	95.73	1.045	1.045	0.025	/	
			10	52	5260	-0.07	0.068	12.16	13.00	1.213	95.73	1.045	1.045	0.086	10#	
		Back Side	10	60	5300	-0.19	0.053	11.97	13.00	1.268	95.73	1.045	1.045	0.070	/	
			10	64	5320	-0.01	0.064	11.99	13.00	1.262	95.73	1.045	1.045	0.084	/	
5.6G	802.11 a	Front Side	10	116	5580	-0.08	0.031	12.30	13.00	1.175	95.73	1.045	1.045	0.038	/	
			10	116	5580	0.05	0.103	12.30	13.00	1.175	95.73	1.045	1.045	0.126	11#	
		Back Side	10	100	5500	0.07	0.092	11.93	13.00	1.279	95.73	1.045	1.045	0.123	/	
			10	140	5700	-0.11	0.077	12.09	13.00	1.233	95.73	1.045	1.045	0.099	/	
			10	144	5720	0.09	0.076	12.05	13.00	1.245	95.73	1.045	1.045	0.099	/	
5.8G	802.11 a	Front Side	10	165	5825	0.13	0.016	12.32	13.00	1.169	95.73	1.045	1.045	0.020	/	
			10	165	5825	-0.18	0.080	12.32	13.00	1.169	95.73	1.045	1.045	0.098	12#	
		Back Side	10	149	5745	-0.09	0.073	12.18	13.00	1.208	95.73	1.045	1.045	0.092	/	
			10	157	5785	0.02	0.070	12.23	13.00	1.194	95.73	1.045	1.045	0.087	/	
Note: Refer to ANNEX C for the detailed test data for each test configuration.																

10.6 WIFI 5GHz (10g SAR)

Fre. Band	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	10 g Meas. SAR (W/Kg)	Meas. Power (dBm)	Max. tune-up Power (dBm)	Scaling Factor	Duty Cycle (%)	Duty Cycle Scaling Factor	10 g Scaled SAR (W/Kg)	Meas. No.	
Extremity															
5.3G	802.11 a	Front Side	0	52	5260	0.07	0.071	12.16	13.00	1.213	95.73	1.045	0.090	/	
		Back Side	0	52	5260	-0.06	0.234	12.16	13.00	1.213	95.73	1.045	1.045	0.297	/
			0	60	5300	0.03	0.219	11.97	13.00	1.268	95.73	1.045	1.045	0.290	/
			0	64	5320	0.14	0.240	11.99	13.00	1.262	95.73	1.045	1.045	0.316	13#
		Left Edge	0	52	5260	0.04	0.142	12.16	13.00	1.213	95.73	1.045	1.045	0.180	/
		Top Edge	0	52	5260	0.13	0.064	12.16	13.00	1.213	95.73	1.045	1.045	0.081	/
5.6G	802.11 a	Front Side	0	116	5580	0.02	0.091	12.30	13.00	1.175	95.73	1.045	0.112	/	
		Back Side	0	116	5580	-0.11	0.258	12.30	13.00	1.175	95.73	1.045	1.045	0.317	/
			0	100	5500	-0.06	0.243	11.93	13.00	1.279	95.73	1.045	1.045	0.325	14#
			0	140	5700	-0.18	0.186	12.09	13.00	1.233	95.73	1.045	1.045	0.239	/
			0	144	5720	0.13	0.176	12.05	13.00	1.245	95.73	1.045	1.045	0.229	/
		Left Edge	0	116	5580	0.12	0.214	12.30	13.00	1.175	95.73	1.045	1.045	0.263	/
		Top Edge	0	116	5580	0.07	0.138	12.30	13.00	1.175	95.73	1.045	1.045	0.169	/
5.8G	802.11 a	Front Side	0	165	5825	0.20	0.036	12.32	13.00	1.169	95.73	1.045	0.044	/	
		Back Side	0	165	5825	0.16	0.178	12.32	13.00	1.169	95.73	1.045	1.045	0.217	/
		Left Edge	0	165	5825	-0.14	0.239	12.32	13.00	1.169	95.73	1.045	1.045	0.292	15#
			0	149	5745	0.00	0.229	12.18	13.00	1.208	95.73	1.045	1.045	0.289	/
			0	157	5785	0.06	0.220	12.23	13.00	1.194	95.73	1.045	1.045	0.275	/
		Top Edge	0	165	5825	-0.05	0.116	12.32	13.00	1.169	95.73	1.045	1.045	0.142	/

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.

According KDB 865664 D01, the same procedures should be adapted for measurements according to extremity exposure limits by applying a factor of 2.5 (10g 2.0 W/kg) for extremity exposure SAR threshold.

The highest measured 1g SAR is 0.644 W/kg less than 0.80 W/kg, so the repeated measurement is not required.

The highest measured 10 g SAR is 0.386 W/kg less than 2.0 W/kg, so the repeated measurement is not required.

12 SIMULTANEOUS TRANSMISSION

The product has only one antenna for WLAN and Bluetooth transmitting, and can't transmitting together, so the simultaneous transmission SAR is not required in this report.

13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2017/03/21	2020/03/20
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
Power Amplifier	SATIMO	6552B	22374	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
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.
4. Impedance (real or imaginary parts) in within 5 Ohms 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. (°C)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ϵ)	Target Conductivity (σ) (S/m)	Target Permittivity (ϵ)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2018.06.09	Head	2450	21.2	1.85	39.78	1.80	39.20	2.50	1.48
2018.06.10	Body	2450	21.4	1.98	52.31	1.95	52.70	1.28	-0.74
2018.06.05	Head	5250	21.3	4.57	37.02	4.71	35.93	-2.83	3.03
2018.06.07	Body	5250	21.3	5.35	49.53	5.36	48.95	-0.19	1.18
2018.06.05	Head	5600	21.3	4.92	34.99	5.07	35.53	-2.82	-1.53
2018.06.06	Body	5600	21.5	5.80	47.63	5.77	48.47	0.54	-1.72
2018.06.05	Head	5750	21.3	5.15	34.37	5.22	35.36	-1.28	-2.81
2018.06.06	Body	5750	21.5	6.06	46.82	5.94	48.27	1.94	-3.01

Note: The tolerance limit of Conductivity and Permittivity is $\pm 5\%$.

ANNEX B SYSTEM CHECK RESULT

Comparing to the original SAR value provided by SPEAG, the validation data should be within its specification 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 (%)
2018.06.09	Head	2450	100	5.53	55.30	52.40	5.53	52.40	5.53
2018.06.10	Body	2450	100	5.39	53.90	50.50	6.73	52.40	2.86
2018.06.05	Head	5250	100	7.22	72.20	76.20	-5.25	76.50	-5.62
2018.06.07	Body	5250	100	7.34	73.40	75.20	-2.39	76.50	-4.05
2018.06.05	Head	5600	100	8.23	82.30	82.60	-0.36	83.30	-1.20
2018.06.06	Body	5600	100	7.75	77.50	77.90	-0.51	83.30	-6.96
2018.06.05	Head	5750	100	7.61	76.10	80.80	-5.82	78.00	-2.44
2018.06.06	Body	5750	100	7.26	72.60	75.00	-3.20	78.00	-6.92

Note: The tolerance limit of System validation $\pm 10\%$.

Comparing to the original SAR value provided by SPEAG, the validation data should be within its specification of 10 % (for 10 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 (%)
2018.06.09	Head	2450	100	2.51	25.10	24.30	3.29	24.00	4.58
2018.06.10	Body	2450	100	2.42	24.20	23.30	3.86	24.00	0.83
2018.06.05	Head	5250	100	2.04	20.40	21.80	-6.42	21.60	-5.56
2018.06.07	Body	5250	100	2.06	20.60	21.20	-2.83	21.60	-4.63
2018.06.05	Head	5600	100	2.21	22.10	23.60	-6.36	23.40	-5.56
2018.06.06	Body	5600	100	2.19	21.90	21.90	0.00	23.40	-6.41
2018.06.05	Head	5750	100	2.17	21.70	22.90	-5.24	21.90	-0.91
2018.06.06	Body	5750	100	2.08	20.80	21.10	-1.42	21.90	-5.02

Note: The tolerance limit of System validation $\pm 10\%$.

System Performance Check Data (2450MHz Head)

Date: 2018.06.09

Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.845$ S/m; $\epsilon_r = 39.781$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.7 Liquid Temperature: 21.2

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.4, 4.4, 4.4); 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)

CW2450 HEAD 100mw/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 6.58 W/kg

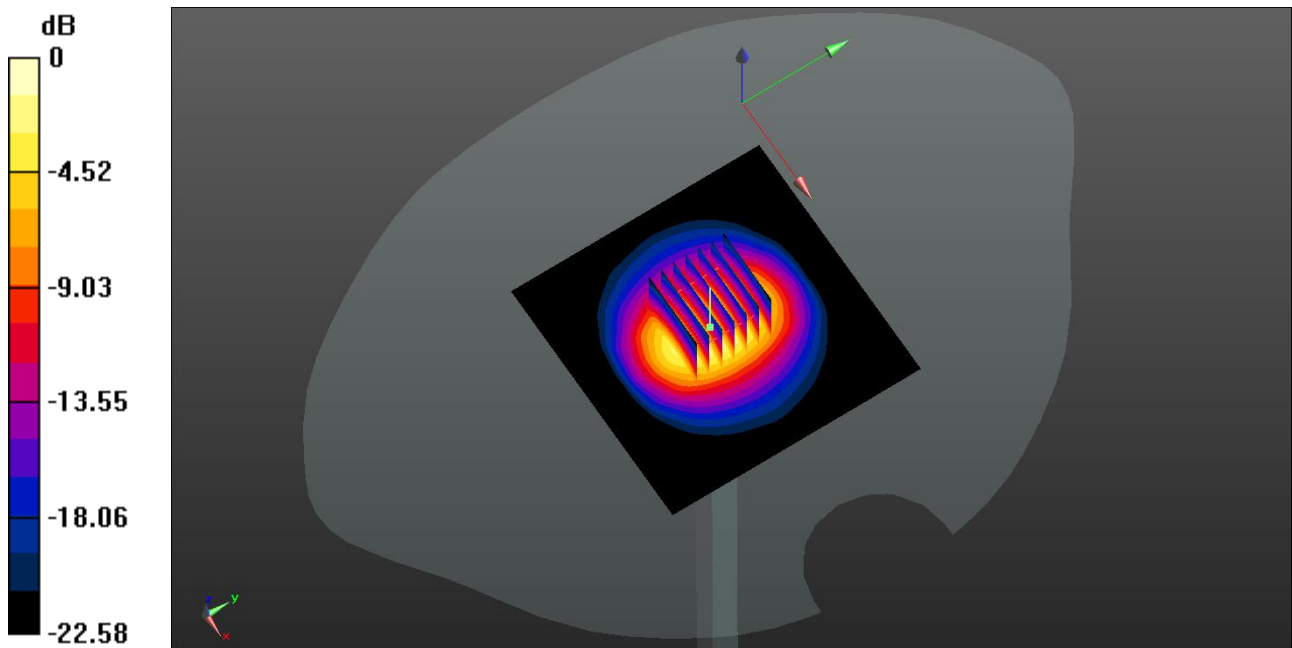
CW2450 HEAD 100mw/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.06 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 12.6 W/kg

SAR(1 g) = 5.53 W/kg; SAR(10 g) = 2.51 W/kg

Maximum value of SAR (measured) = 6.47 W/kg



0 dB = 6.47 W/kg

System Performance Check Data (2450MHz Body)

Date: 2018.06.10

Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.975$ S/m; $\epsilon_r = 52.309$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.4 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 BODY 100mw/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 6.26 W/kg

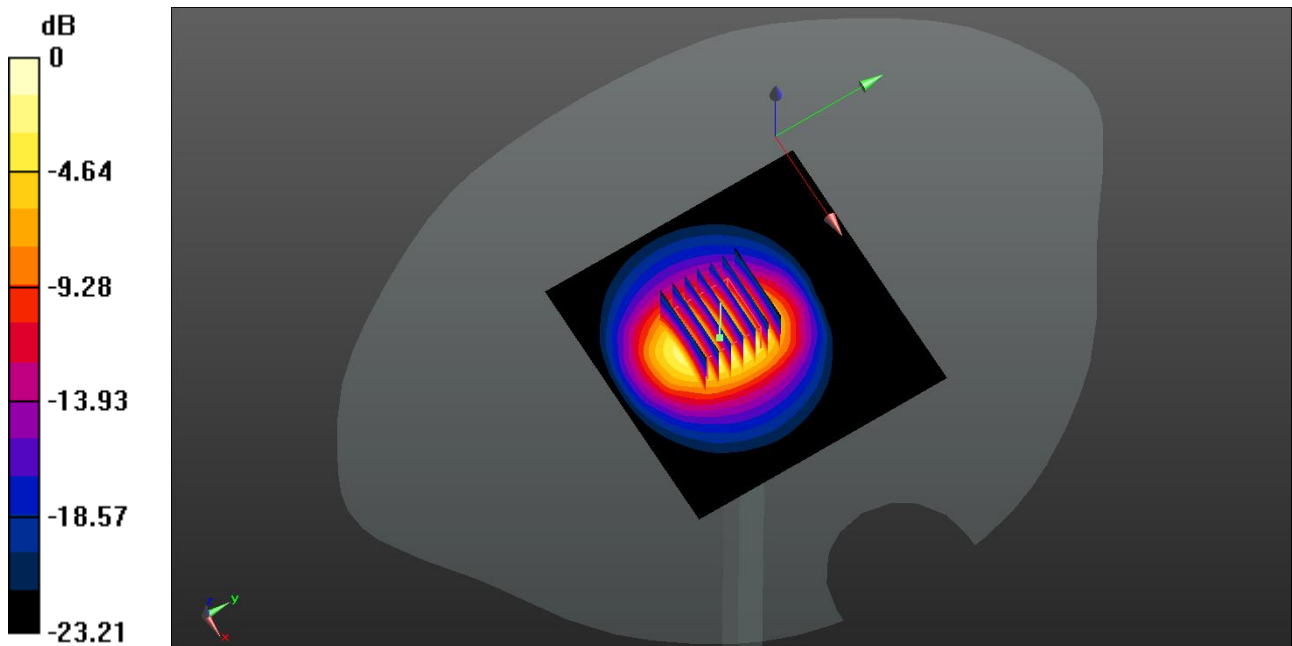
CW2450 BODY 100mw/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 59.19 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 12.2 W/kg

SAR(1 g) = 5.39 W/kg; SAR(10 g) = 2.42 W/kg

Maximum value of SAR (measured) = 6.28 W/kg



0 dB = 6.28 W/kg

System Performance Check Data (5250MHz Head)

Date: 2018.06.05

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.573$ S/m; $\epsilon_r = 37.018$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5 Liquid Temperature: 21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(5.65, 5.65, 5.65); 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 HEAD 100mw/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.10 W/kg

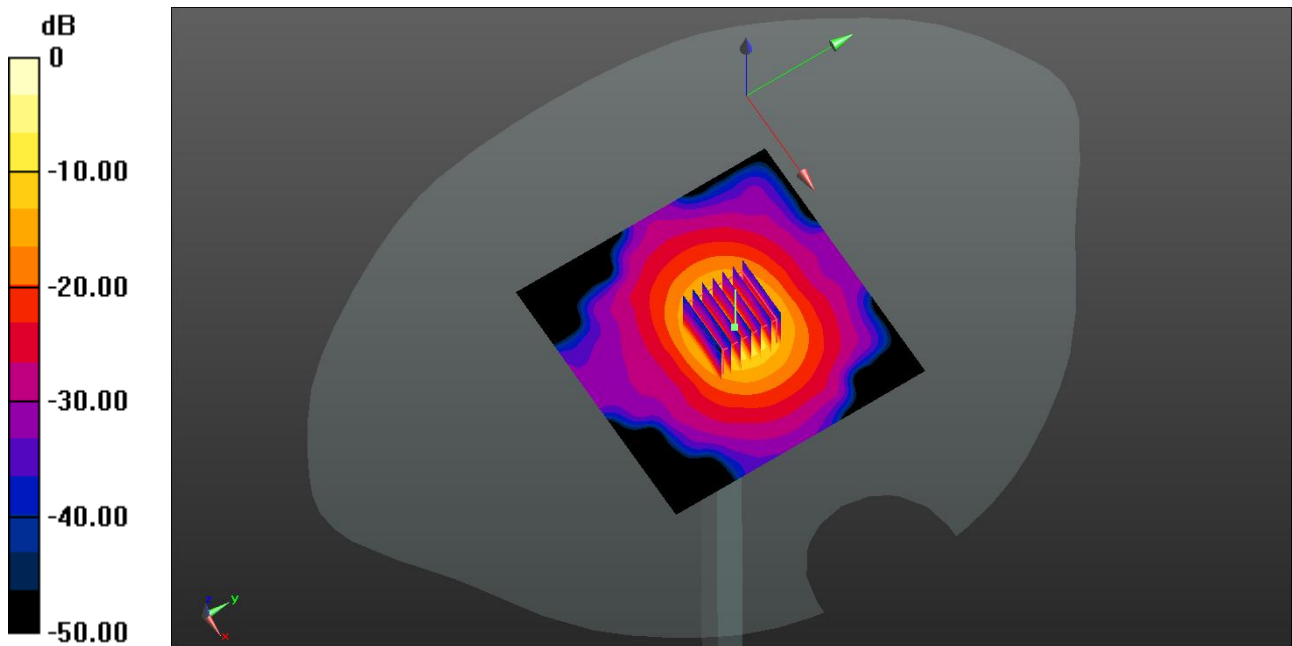
CW5250 HEAD 100mw/Zoom Scan (7x7x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 32.85 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 30.4 W/kg

SAR(1 g) = 7.22 W/kg; SAR(10 g) = 2.04 W/kg

Maximum value of SAR (measured) = 15.2 W/kg



0 dB = 15.2 W/kg

System Performance Check Data (5250MHz Body)

Date: 2018.06.07

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5250$ MHz; $\sigma = 5.348$ S/m; $\epsilon_r = 49.53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.9 Liquid Temperature: 21.3

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 BODY 100mw/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.95 W/kg

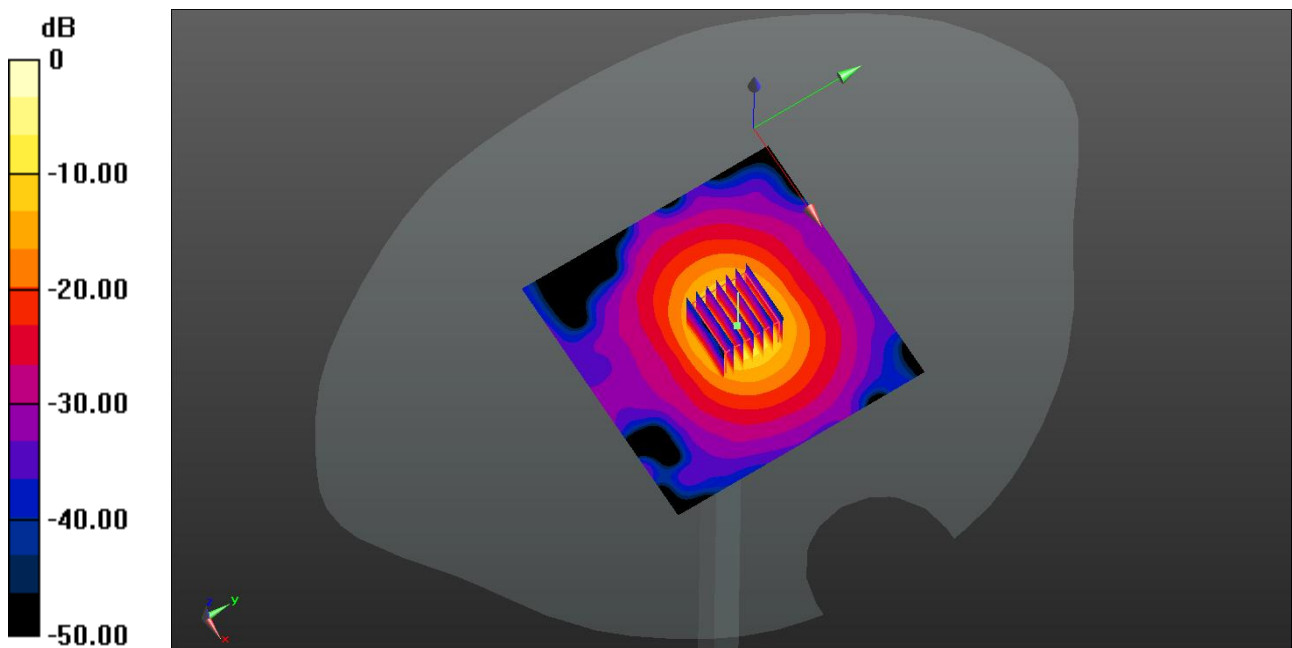
CW5250 BODY 100mw/Zoom Scan (7x7x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 33.06 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 30.7 W/kg

SAR(1 g) = 7.34 W/kg; SAR(10 g) = 2.06 W/kg

Maximum value of SAR (measured) = 15.6 W/kg



0 dB = 15.6 W/kg

System Performance Check Data (5600MHz Head)

Date: 2018.06.05

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5600$ MHz; $\sigma = 4.922$ S/m; $\epsilon_r = 34.986$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5 Liquid Temperature: 21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.87, 4.87, 4.87); 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)

CW5600 HEAD 100mW/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.68 W/kg

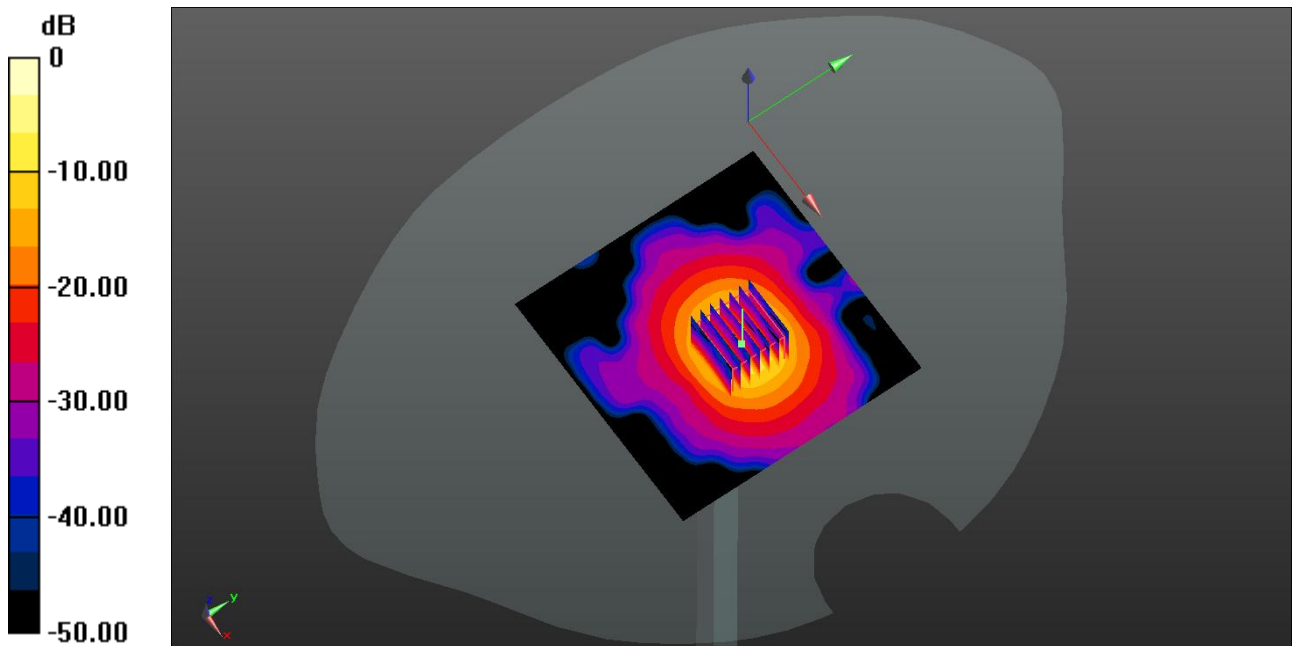
CW5600 HEAD 100mW/Zoom Scan (7x7x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 28.16 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 38.1 W/kg

SAR(1 g) = 8.23 W/kg; SAR(10 g) = 2.21 W/kg

Maximum value of SAR (measured) = 20.7 W/kg



0 dB = 20.7 W/kg

System Performance Check Data (5600MHz Body)

Date: 2018.06.06

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.797$ S/m; $\epsilon_r = 47.634$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.6 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.35, 4.35, 4.35); 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)

CW5600 BODY 100mw/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.36 W/kg

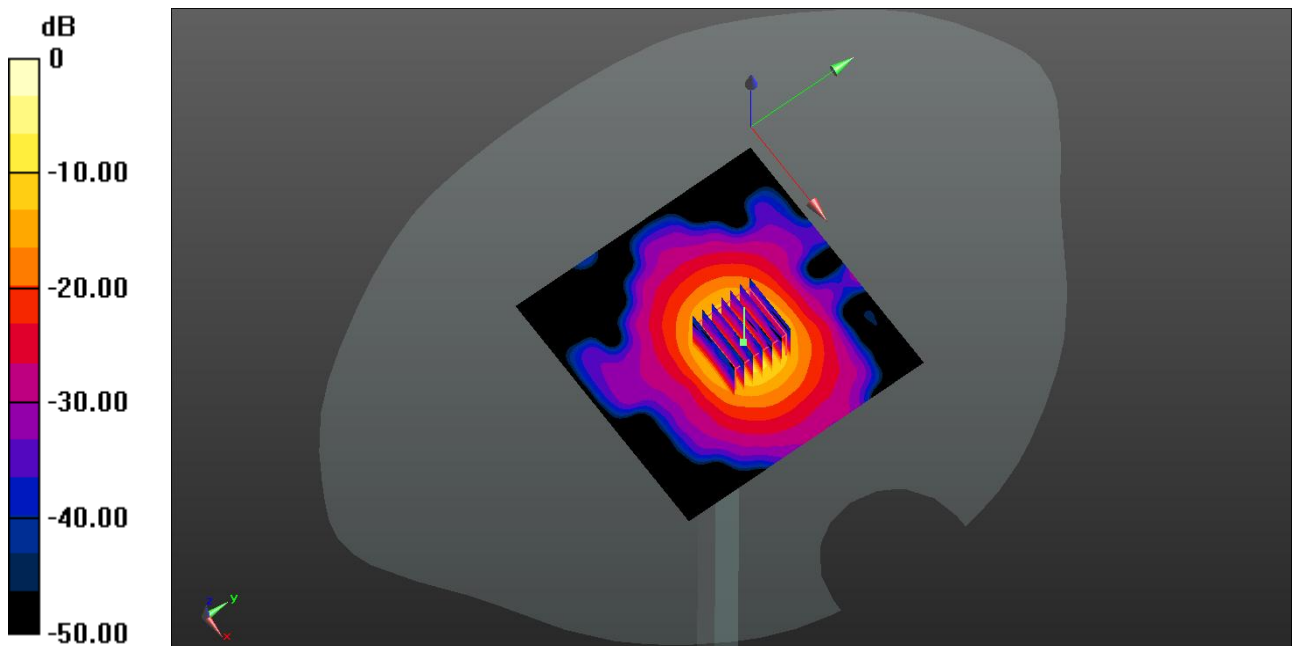
CW5600 BODY 100mw/Zoom Scan (7x7x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 35.70 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 32.6 W/kg

SAR(1 g) = 7.75 W/kg; SAR(10 g) = 2.19 W/kg

Maximum value of SAR (measured) = 16.3 W/kg



0 dB = 16.3 W/kg

System Performance Check Data (5750MHz Head)

Date: 2018.06.05

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5750$ MHz; $\sigma = 5.152$ S/m; $\epsilon_r = 34.368$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5 Liquid Temperature: 21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.95, 4.95, 4.95); 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 HEAD 100mW/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 7.58 W/kg

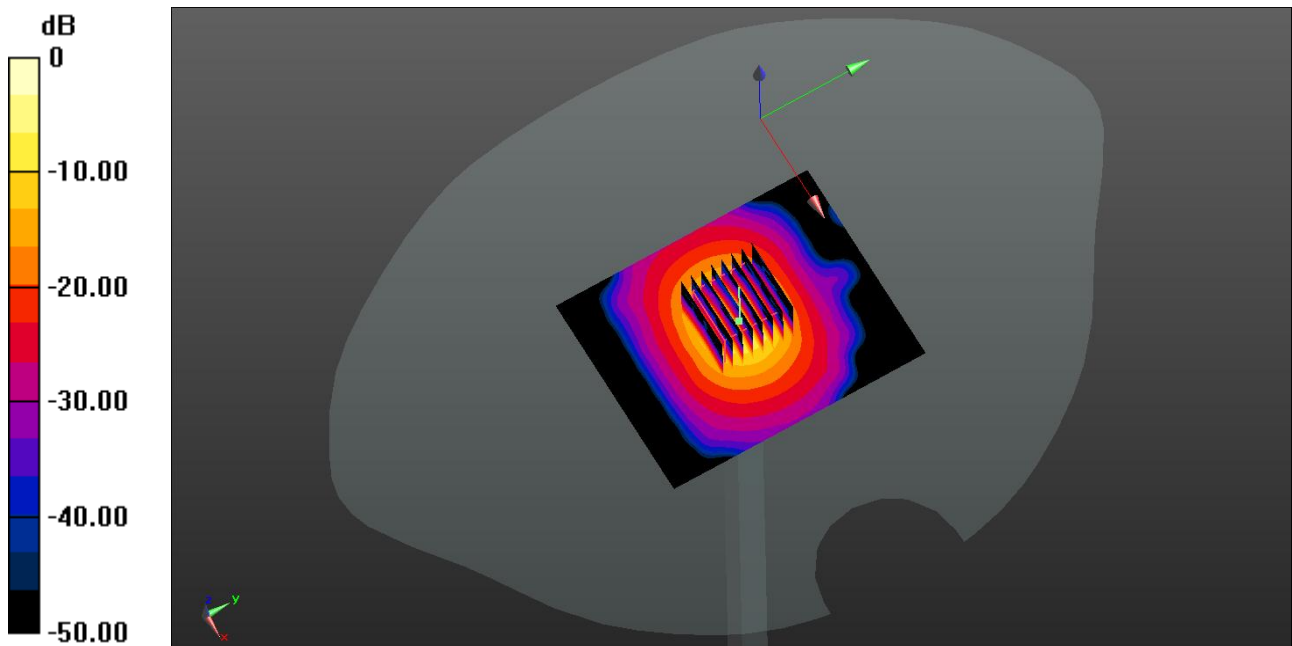
CW5750 100mW/Zoom Scan (7x7x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 40.12 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 36.4 W/kg

SAR(1 g) = 7.61 W/kg; SAR(10 g) = 2.17 W/kg

Maximum value of SAR (measured) = 19.1 W/kg



System Performance Check Data (5750MHz Body)

Date: 2018.06.06

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5750$ MHz; $\sigma = 6.057$ S/m; $\epsilon_r = 46.816$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.6 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)

CW 5750 BODY 100mW/Area Scan (81x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 7.64 W/kg

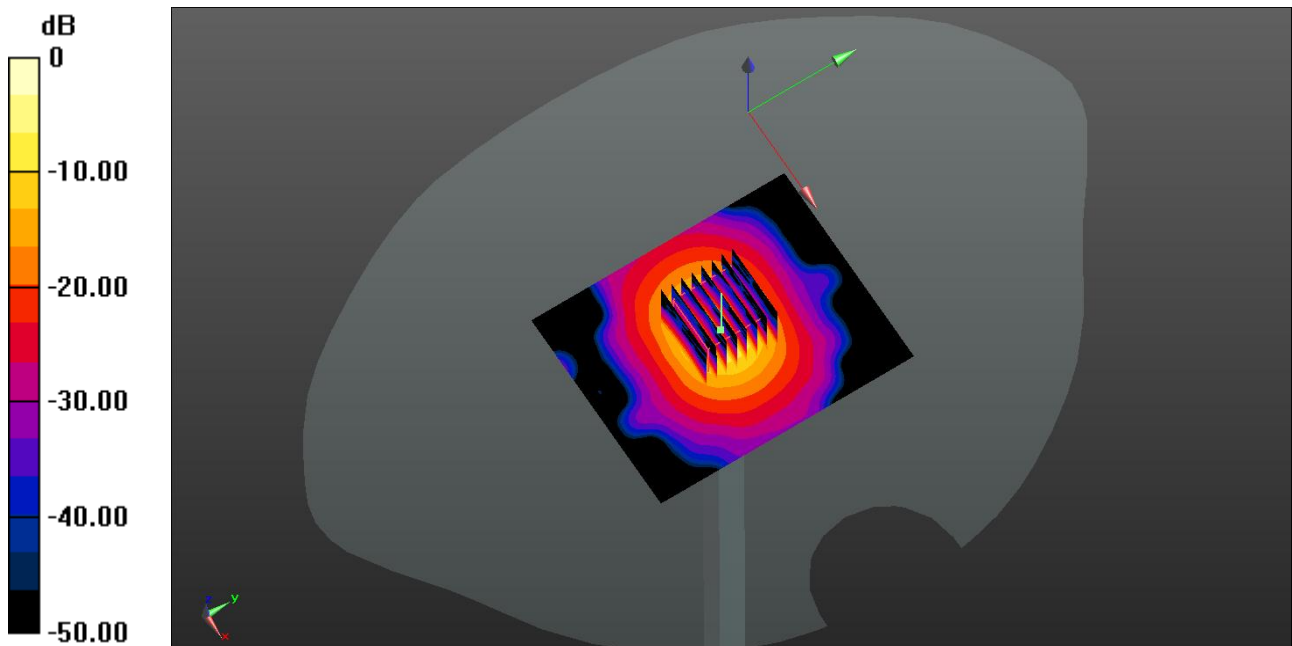
CW 5750 BODY 100mW/Zoom Scan (8x8x21)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 29.96 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 32.8 W/kg

SAR(1 g) = 7.26 W/kg; SAR(10 g) = 2.08 W/kg

Maximum value of SAR (measured) = 15.7 W/kg



ANNEX C TEST DATA

MEAS.1 Left Head with Cheek on Low Channel in Bluetooth mode

Date: 2018.06.09

Communication System Band: BT; Frequency: 2402 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2402$ MHz; $\sigma = 1.727$ S/m; $\epsilon_r = 40.547$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Ambient Temperature: 22.7 Liquid Temperature: 21.2

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.4, 4.4, 4.4); 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)

Ch0/Area Scan (71x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0974 W/kg

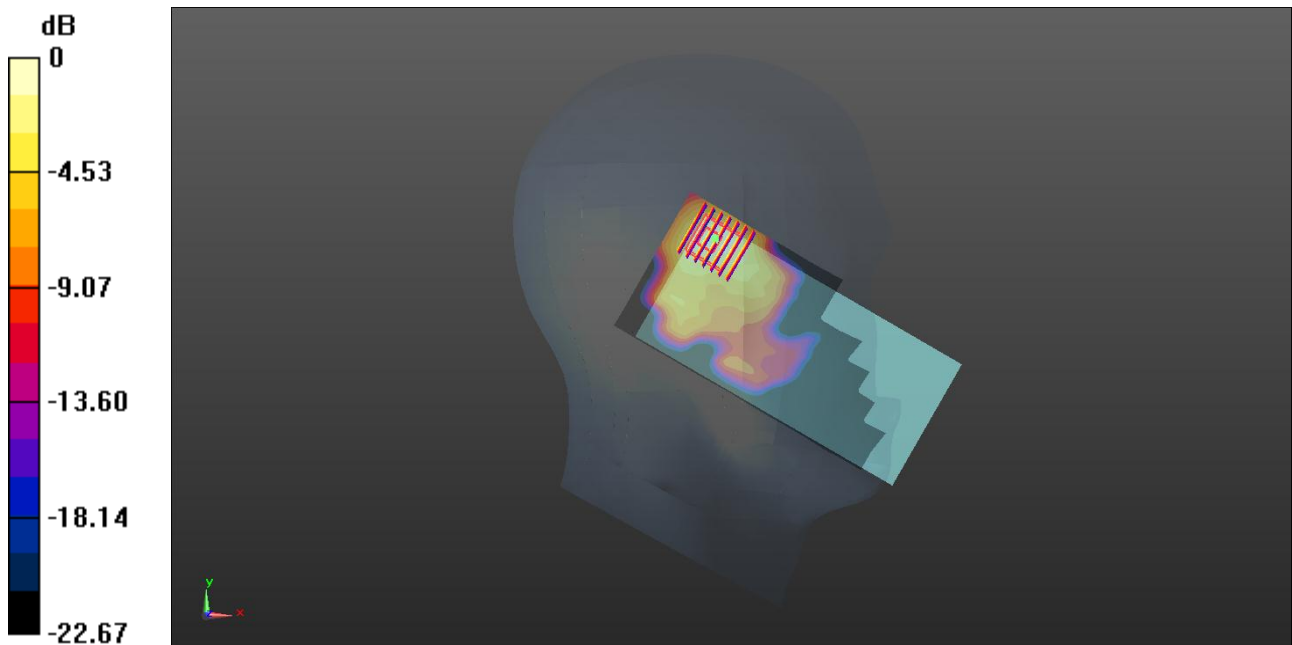
Ch0/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.685 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.236 W/kg

SAR(1 g) = 0.089 W/kg; SAR(10 g) = 0.041 W/kg

Maximum value of SAR (measured) = 0.0946 W/kg



0 dB = 0.0946 W/kg

MEAS.2 Body Plane with Front Side 10 mm on Low Channel in Bluetooth mode

Date: 2018.06.10

Communication System Band: BT; Frequency: 2402 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2402$ MHz; $\sigma = 1.897$ S/m; $\epsilon_r = 53.475$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.4 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 0/Area Scan (81x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0144 W/kg

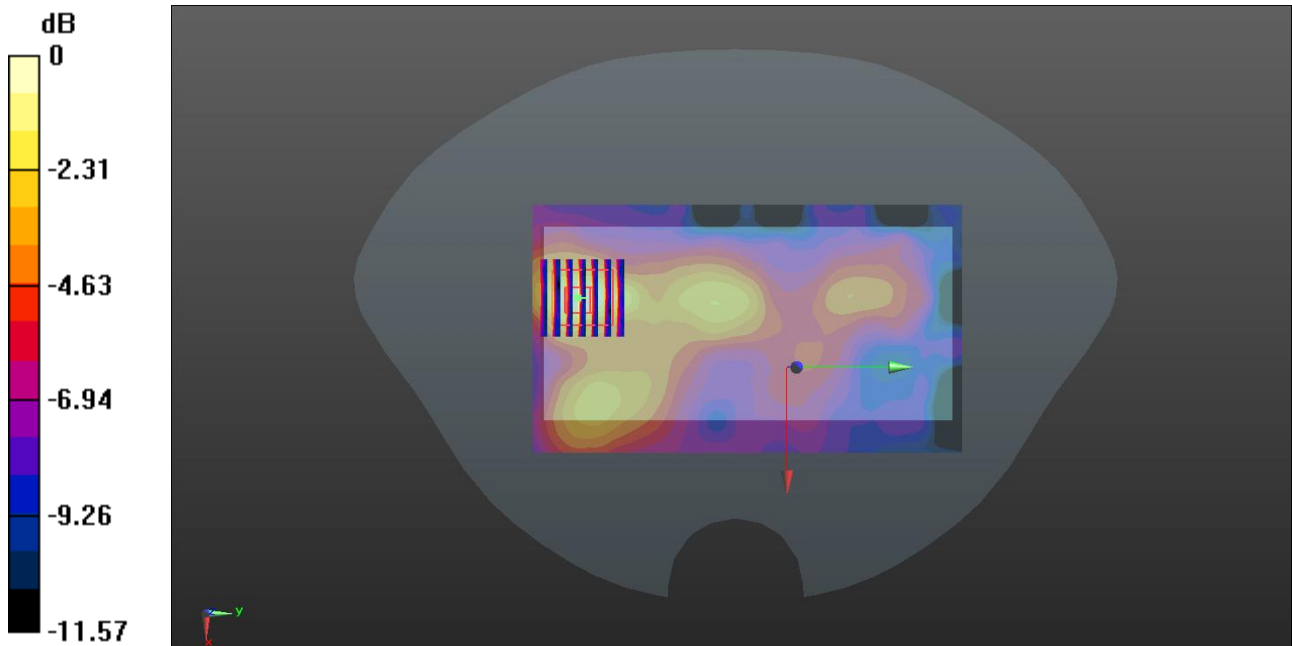
Ch 0/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.433 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.0300 W/kg

SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.00674 W/kg

Maximum value of SAR (measured) = 0.0145 W/kg



0 dB = 0.0145 W/kg

MEAS.3 Body Plane with Front Side 0 mm on Low Channel in Bluetooth mode

Date: 2018.06.10

Communication System Band: BT; Frequency: 2402 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2402$ MHz; $\sigma = 1.897$ S/m; $\epsilon_r = 53.475$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.4 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 0/Area Scan (81x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.175 W/kg

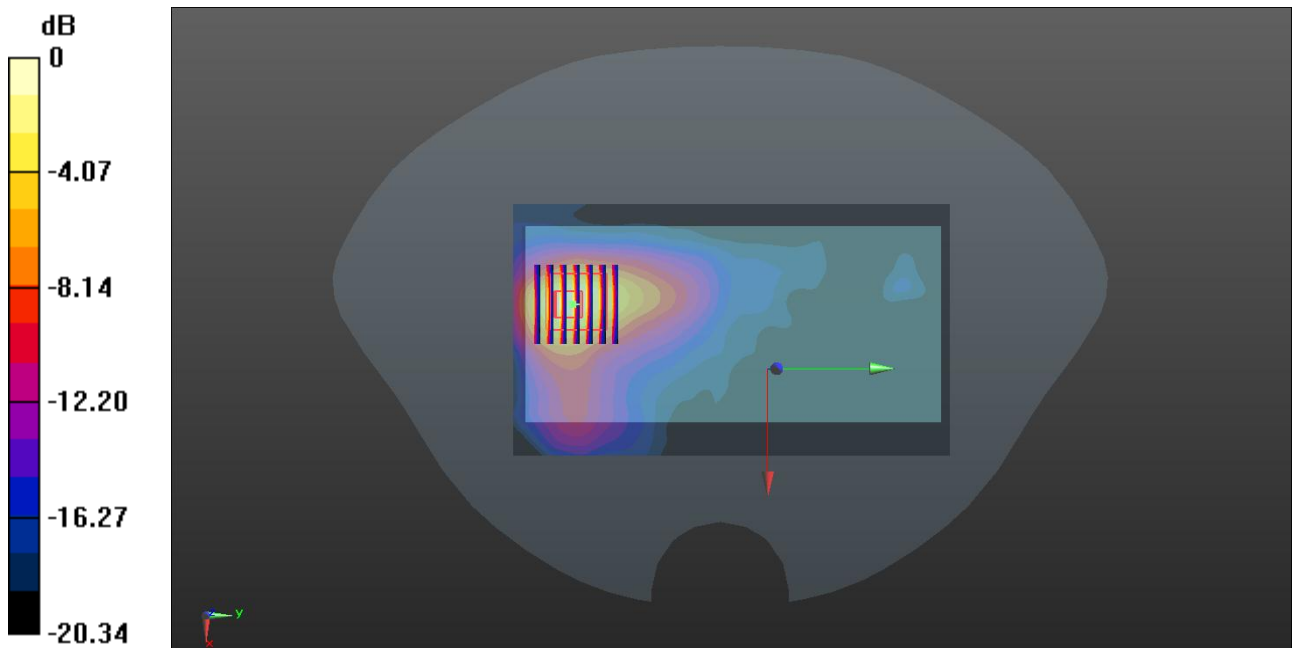
Ch 0/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.113 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.399 W/kg

SAR(1 g) = 0.159 W/kg; SAR(10 g) = 0.068 W/kg

Maximum value of SAR (measured) = 0.183 W/kg



0 dB = 0.183 W/kg

MEAS.4 Left Head with Cheek on Low Channel in IEEE 802.11b mode

Date: 2018.06.09

Communication System Band: WLAN(b); Frequency: 2412 MHz;Duty Cycle: 1:1.011

Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.769$ S/m; $\epsilon_r = 40.314$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Ambient Temperature:22.7 Liquid Temperature:21.2

DASY5 Configuration:

- Probe: ES3DV3 - SN3110; ConvF(4.4, 4.4, 4.4); 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)

Ch 1/Area Scan (81x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.581 W/kg

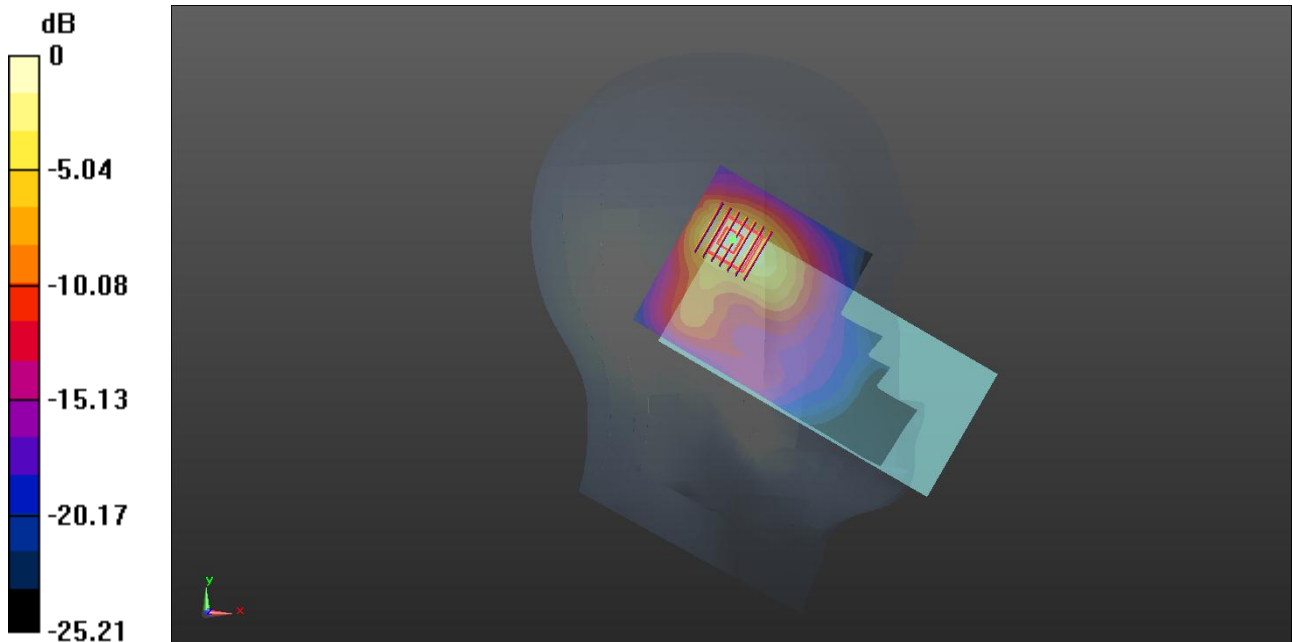
Ch 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.186 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.510 W/kg; SAR(10 g) = 0.216 W/kg

Maximum value of SAR (measured) = 0.568 W/kg



0 dB = 0.568 W/kg

MEAS.5 Body Plane with Front Side 10 mm on Low Channel in IEEE 802.11b mode

Date: 2018.06.10

Communication System Band: WLAN(b); Frequency: 2412 MHz; Duty Cycle: 1:1.011

Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.919$ S/m; $\epsilon_r = 53.242$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.4 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 1/Area Scan (81x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0698 W/kg

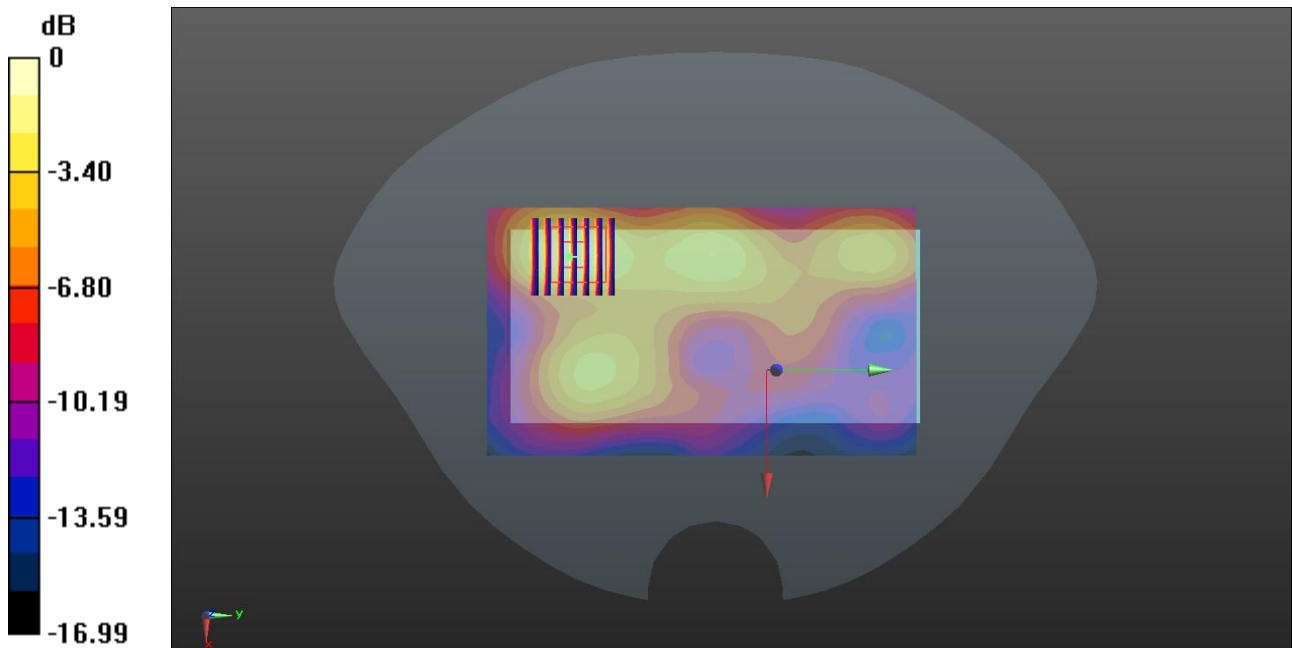
Ch 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.924 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.118 W/kg

SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.031 W/kg.

Maximum value of SAR (measured) = 0.0694 W/kg



0 dB = 0.0694 W/kg

MEAS.6 Body Plane with Front Side 0 mm on High Channel in IEEE 802.11b mode

Date: 2018.06.10

Communication System Band: WLAN(b); Frequency: 2462 MHz; Duty Cycle: 1:1.011

Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 2.019$ S/m; $\epsilon_r = 52.187$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature:22.4 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 11/Area Scan (81x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.818 W/kg

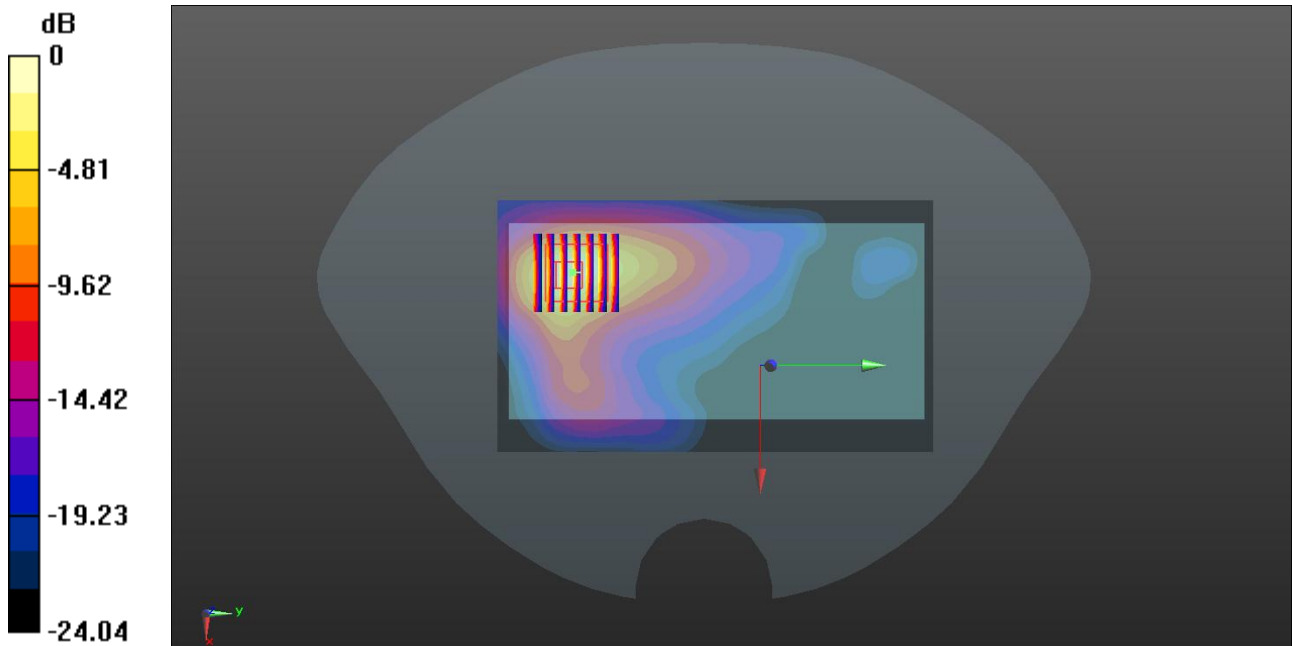
Ch 11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.848 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 0.705 W/kg; SAR(10 g) = 0.280 W/kg

Maximum value of SAR (measured) = 0.805 W/kg



0 dB = 0.805 W/kg

MEAS.7 Left Head with Cheek on Channel 52 in IEEE 802.11a mode

Date: 2018.06.05

Communication System Band: WLAN(a); Frequency: 5260 MHz; Duty Cycle: 1:1.045

Medium parameters used: $f = 5260$ MHz; $\sigma = 4.619$ S/m; $\epsilon_r = 36.842$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Ambient Temperature:22.5 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(5.65, 5.65, 5.65); 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)

Ch 52/Area Scan (101x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.177 W/kg

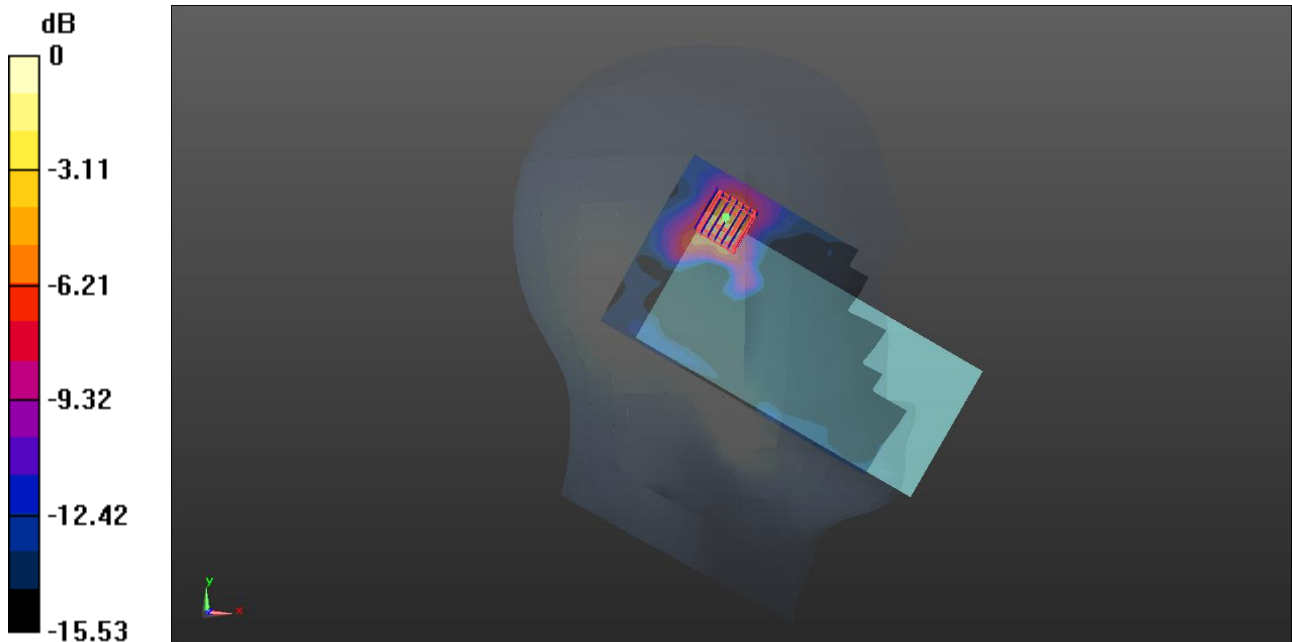
Ch 52/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.360 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.948 W/kg

SAR(1 g) = 0.189 W/kg; SAR(10 g) = 0.073 W/kg

Maximum value of SAR (measured) = 0.341 W/kg



0 dB = 0.341 W/kg

MEAS.8 Left Head with Cheek on Channel 116 in IEEE 802.11a mode

Date: 2018.06.05

Communication System Band: WLAN(a); Frequency: 5580 MHz; Duty Cycle: 1:1.045

Medium parameters used (interpolated): $f = 5580$ MHz; $\sigma = 4.905$ S/m; $\epsilon_r = 35.062$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Ambient Temperature:22.5 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.87, 4.87, 4.87); 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)

Ch 116/Area Scan (101x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.201 W/kg

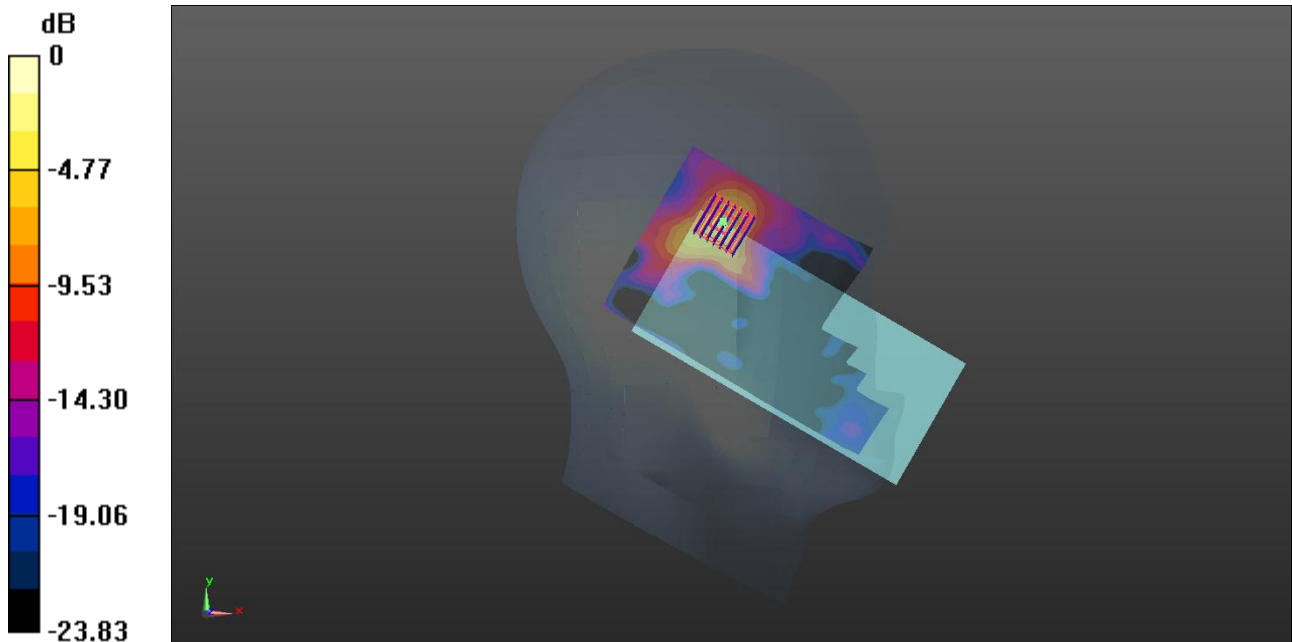
Ch 116/Zoom Scan (7x7x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.4220 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.080 W/kg

Maximum value of SAR (measured) = 0.451 W/kg



0 dB = 0.451 W/kg

MEAS.9 Left Head with Tilt on Channel 165 in IEEE 802.11a mode

Date: 2018.06.05

Communication System Band: WLAN(a); Frequency: 5825 MHz; Duty Cycle: 1:1.045

Medium parameters used: $f = 5825$ MHz; $\sigma = 5.223$ S/m; $\epsilon_r = 34.103$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Ambient Temperature:22.5 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.95, 4.95, 4.95); 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)

Ch 165/Area Scan (101x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.105 W/kg

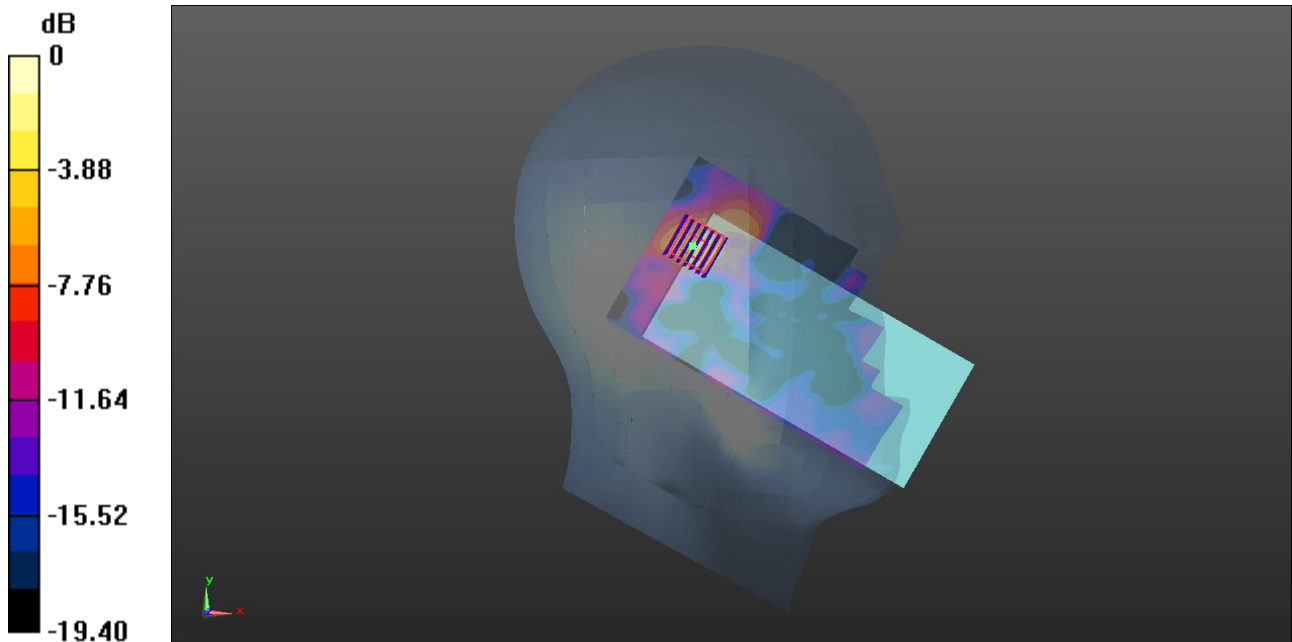
Ch 165/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.3870 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.539 W/kg

SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.041 W/kg

Maximum value of SAR (measured) = 0.228 W/kg



0 dB = 0.228 W/kg

MEAS.10 Body Plane with Back Side 10 mm on Channel 52 in IEEE 802.11a mode

Date: 2018.06.07

Communication System Band: WLAN(a); Frequency: 5260 MHz; Duty Cycle: 1:1.045

Medium parameters used (interpolated): $f = 5260$ MHz; $\sigma = 5.394$ S/m; $\epsilon_r = 49.454$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature:22.9 Liquid Temperature:21.3

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)

Ch 52/Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.135 W/kg

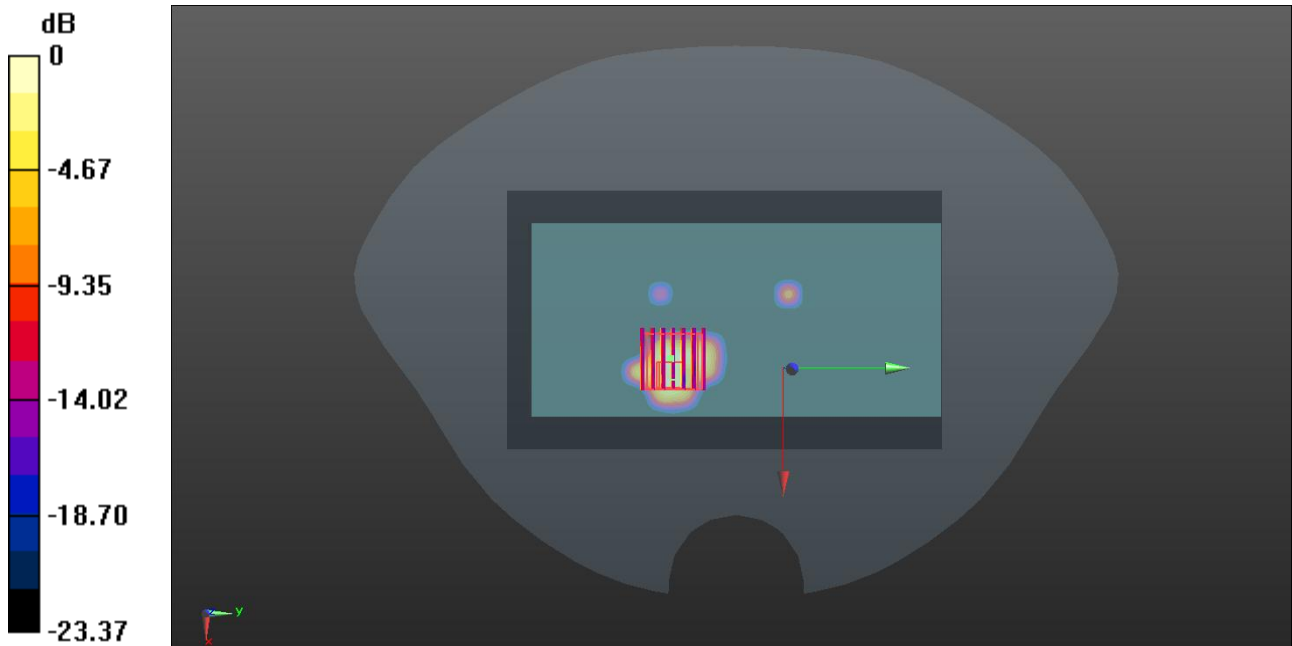
Ch 52/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.457 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.343 W/kg

SAR(1 g) = 0.068 W/kg; SAR(10 g) = 0.023 W/kg

Maximum value of SAR (measured) = 0.140 W/kg



0 dB = 0.140 W/kg

MEAS.11 Body Plane with Back Side 10 mm on Channel 116 in IEEE 802.11a mode

Date: 2018.06.06

Communication System Band: WLAN(a); Frequency: 5580 MHz; Duty Cycle: 1:1.045

Medium parameters used: $f = 5580$ MHz; $\sigma = 5.78$ S/m; $\epsilon_r = 47.756$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.35, 4.35, 4.35); 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)

Ch 116/Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0896 W/kg

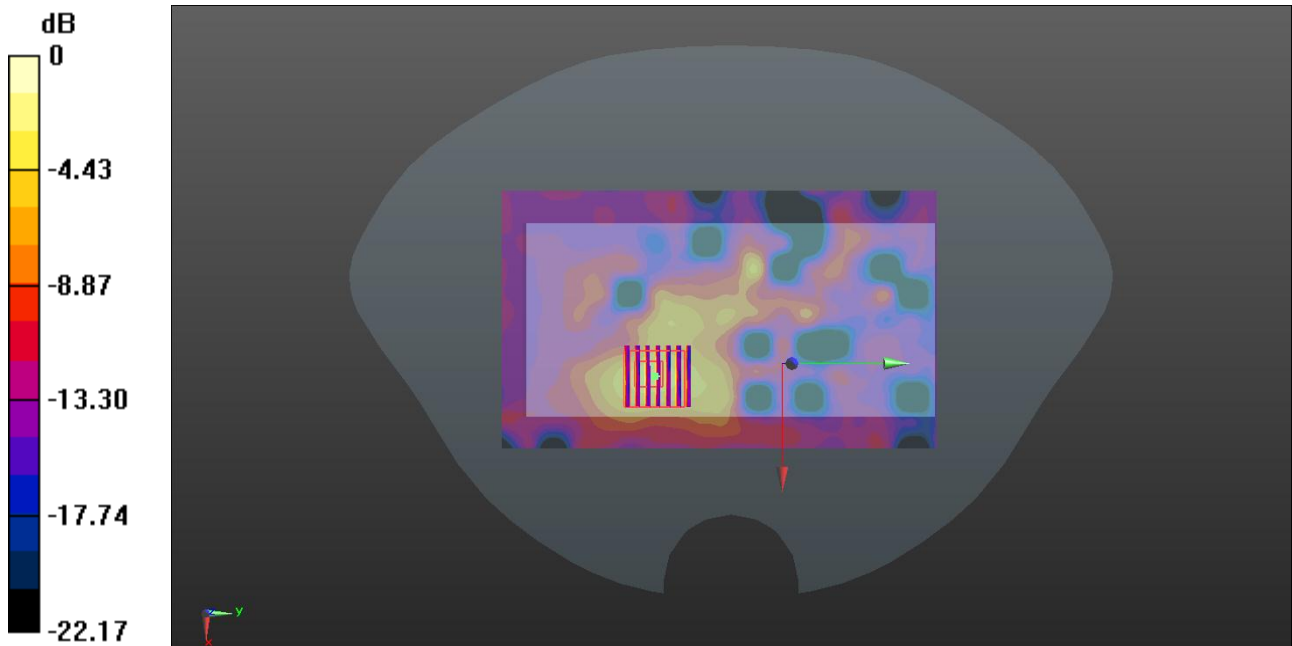
Ch 116/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.089 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.512 W/kg

SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.039 W/kg

Maximum value of SAR (measured) = 0.183 W/kg



0 dB = 0.183 W/kg

MEAS.12 Body Plane with Back Side 10 mm on Channel 165 in IEEE 802.11a mode

Date: 2018.06.06

Communication System Band: WLAN(a); Frequency: 5825 MHz; Duty Cycle: 1:1.045

Medium parameters used (extrapolated): $f = 5825$ MHz; $\sigma = 6.198$ S/m; $\epsilon_r = 46.421$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature:22.6 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)

Ch 165/Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0779 W/kg

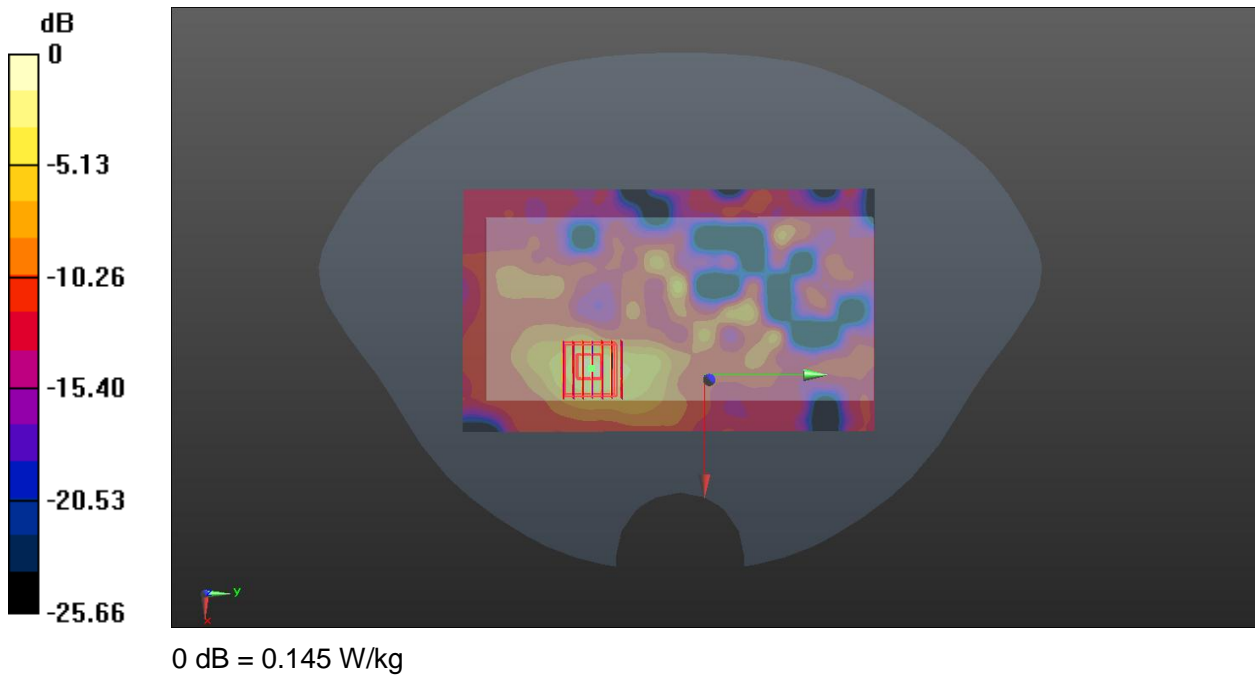
Ch 165/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.409 W/kg

SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.031 W/kg

Maximum value of SAR (measured) = 0.145 W/kg



MEAS.13 Body Plane with Back Side 0 mm on Channel 64 in IEEE 802.11a mode

Date: 2018.06.07

Communication System Band: WLAN(a); Frequency: 5320 MHz; Duty Cycle: 1:1.045

Medium parameters used: $f = 5320$ MHz; $\sigma = 5.468$ S/m; $\epsilon_r = 49.304$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.9 Liquid Temperature: 21.3

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)

Ch 64/Area Scan (101x171x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.981 W/kg

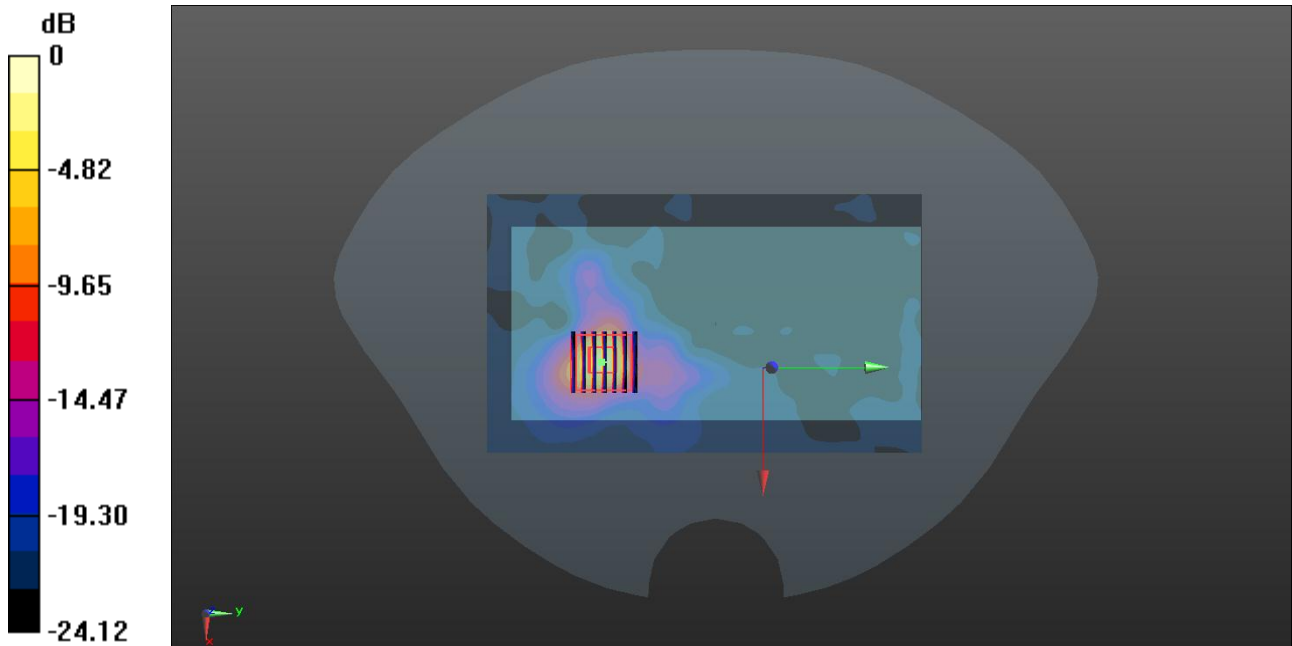
Ch 64/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.234 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 5.01 W/kg

SAR(1 g) = 0.880 W/kg; SAR(10 g) = 0.240 W/kg

Maximum value of SAR (measured) = 1.67 W/kg



0 dB = 1.67 W/kg

MEAS.14 Body Plane with Back Side 0 mm on Channel 100 in IEEE 802.11a mode

Date: 2018.06.06

Communication System Band: WLAN(a); Frequency: 5500 MHz; Duty Cycle: 1:1.045

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.715$ S/m; $\epsilon_r = 48.11$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7340; ConvF(4.35, 4.35, 4.35); 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)

Ch 100/Area Scan (101x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.854 W/kg

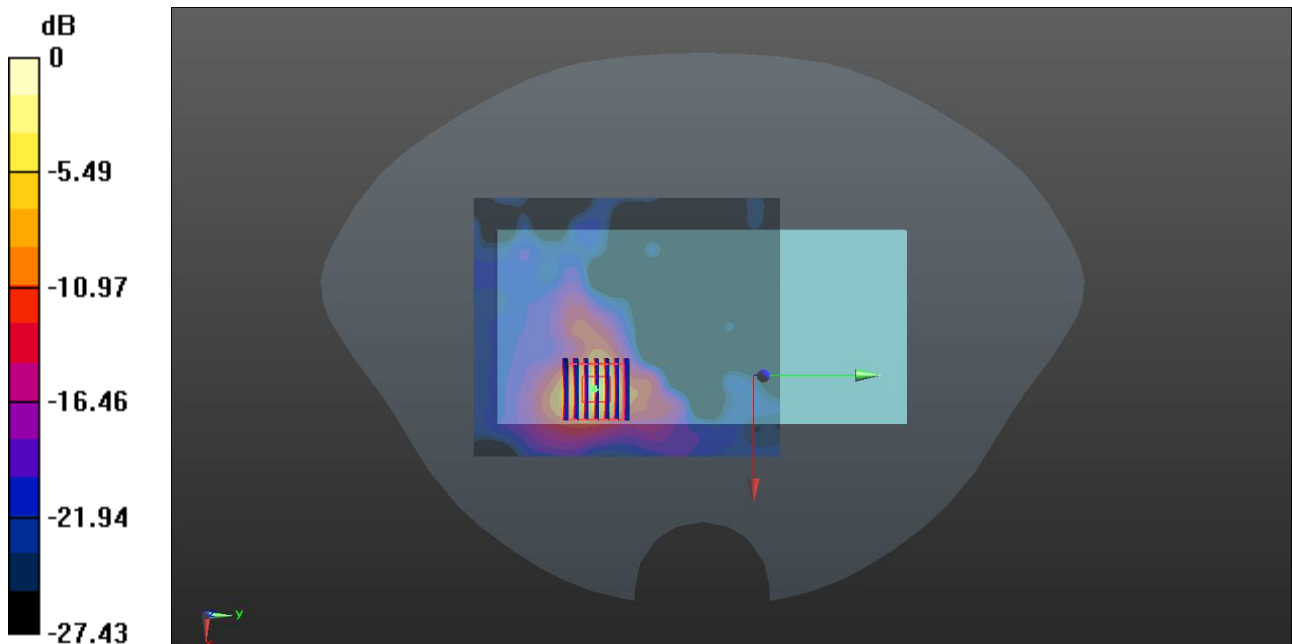
Ch 100/Zoom Scan (7x7x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.6190 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 4.97 W/kg

SAR(1 g) = 0.868 W/kg; SAR(10 g) = 0.243 W/kg

Maximum value of SAR (measured) = 1.70 W/kg



0 dB = 1.70 W/kg

MEAS.15 Body Plane with Left Edge 0 mm on Channel 165 in IEEE 802.11a mode

Date: 2018.06.06

Communication System Band: WLAN(a); Frequency: 5825 MHz; Duty Cycle: 1:1.045

Medium parameters used (extrapolated): $f = 5825$ MHz; $\sigma = 6.198$ S/m; $\epsilon_r = 46.421$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.6 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)

Ch 165/Area Scan (101x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.804 W/kg

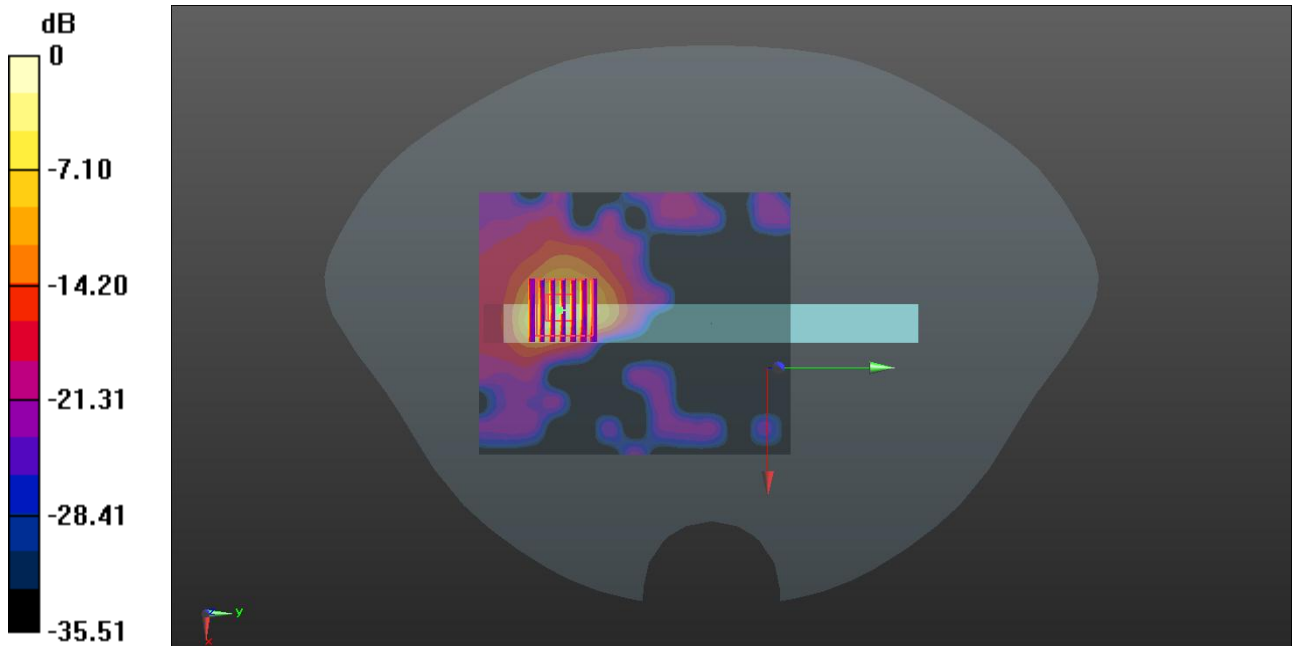
Ch 165/Zoom Scan (7x7x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.7680 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 5.02 W/kg

SAR(1 g) = 0.858 W/kg; SAR(10 g) = 0.239 W/kg

Maximum value of SAR (measured) = 1.79 W/kg



0 dB = 1.79 W/kg

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document "BL-EC1860037-AW.pdf".

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document "BL- EC1860037-AS.pdf".

ANNEX F CALIBRATION REPORT

Please refer the document "CALIBRATION REPORT.pdf".

--END OF REPORT--