

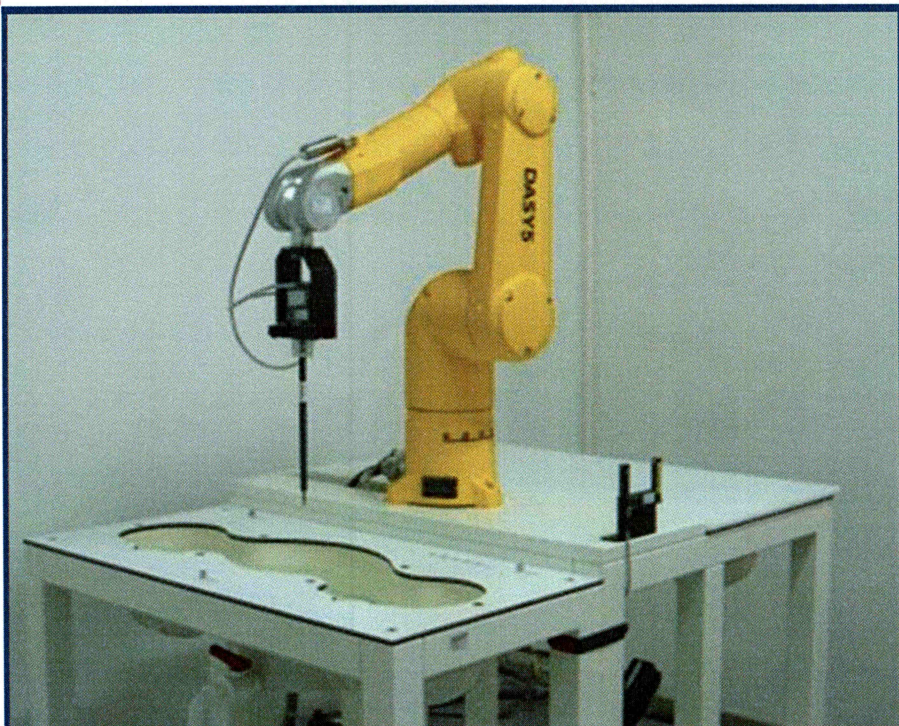
# SAR TEST REPORT

ISSUED BY  
Shenzhen BALUN Technology Co., Ltd.



FOR  
**Mobile Phone**

ISSUED TO  
Realme Chongqing Mobile Telecommunications Corp., Ltd.  
No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China



Tested by:

*Xu Rui*  
Xu Rui

Date

*Sep. 16, 2021*

Approved by:

*Liao Jianming*  
Liao Jianming  
(Technical Director)

Date

*Sep. 16, 2021*

Report No.: BL-SZ2170683-701

EUT Name: Mobile Phone

Model Name: RMX3430

Brand Name: realme

FCC ID: 2AUYFRMX3430

Test Standard: 47 CFR Part 2.1093

ANSI C95.1-1992, IEEE Std. 1528-2013

Maximum SAR: Head (1 g): 1.068 W/kg

Body (1 g): 0.427 W/kg

Hotspot (1 g): 1.035 W/kg

Specific (10 g): 1.718 W/kg

Test Conclusion: Pass

Test Date: Jul. 21, 2021 ~ Aug. 18, 2021

Date of Issue: Sep. 16, 2021

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### Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>Sep. 16, 2021</u>	<u>Initial Issue</u>

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# 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 is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.
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°C to 23°C
Ambient Relative Humidity	45% to 55%
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.
- (7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

Applicant	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China

### 2.2 Manufacturer Information

Manufacturer	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China

### 2.3 Factory Information

Factory	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China

### 2.4 General Description for Equipment under Test (EUT)

EUT Name	Mobile Phone
Model Name Under Test	RMX3430
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	11
Software Version	realme UI V2.0
Dimensions (Approx.)	164.5*75.9*9.6mm
Weight (Approx.)	207g(with battery)

## 2.5 Ancillary Equipment

Ancillary Equipment 1	Li-Polymer Battery 1	
	Brand Name	realme
	Model No.	BLP793
	Serial No.	N/A
	Capacitance	Rated: 5860mAh/22.67Wh Typical: 6000mAh/23.22Wh
	Rated Voltage	3.87 V
	Limited Voltage	4.45 V
	Manufacturer	Sunwoda Electronic Co., Ltd.
Ancillary Equipment 2	Li-Polymer Battery (alternative) 2	
	Brand Name	realme
	Model No.	BLP793
	Serial No.	N/A
	Capacitance	Rated: 5860mAh/22.67Wh Typical: 6000mAh/23.22Wh
	Rated Voltage	3.87 V
	Limited Voltage	4.45 V
	Manufacturer	Dongguan NVT Technology Co., Ltd.
Ancillary Equipment 3	Li-Polymer Battery (alternative) 3	
	Brand Name	realme
	Model No.	BLP793
	Serial No.	N/A
	Capacitance	Rated: 5860mAh/22.67Wh Typical: 6000mAh/23.22Wh
	Rated Voltage	3.87 V
	Limited Voltage	4.45 V
	Manufacturer	TWS Technology (Guangzhou) Limited
Note: The EUT has three Batterys, they are same with electrical parameters, but only differ in Manufacturer and battery cell. By comparing the test data of three Batteries, battery 1 can produce a more conservative SAR values. The battery of the Manufacturer is Sunwoda Electronic Co., Ltd. as the main for test in this report.		

## 2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 5 4G Network LTE FDD Band 5/7 LTE TDD Band 38/41 Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80) U-NII-1/2A/2C/3, GPS, GLONASS, BDS, SBAS, NFC
Note : The EUT is a mobile phone, which supports dual SIM card under the same transceiver. Each SIM supports GSM, WCDMA and LTE, and both SIM share the same transmitting electro circuit, NV parameters, so only SIM1 was tested in this report.	

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 ~ 849 MHz	RX: 869 ~ 894 MHz
	GSM 1900	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 7	TX: 2500 ~ 2570 MHz	RX: 2620 ~ 2690 MHz
	LTE Band 38	TX: 2570 ~ 2620 MHz	RX: 2570 ~ 2620 MHz
	LTE Band 41	TX: 2496 ~ 2690 MHz	RX: 2496 ~ 2690 MHz
	802.11b/g/n(HT20)	2412 ~ 2462 MHz	
	802.11a	5150 ~ 5250 MHz	
		5250 ~ 5350 MHz	
		5470 ~ 5725 MHz	
		5725 ~ 5850 MHz	
	802.11n(HT20/HT40)	5150 ~ 5250 MHz	
		5250 ~ 5350 MHz	
		5470 ~ 5725 MHz	
		5725 ~ 5850 MHz	
802.11ac(VHT20/VHT40/VHT80)	5150 ~ 5250 MHz		
	5250 ~ 5350 MHz		
	5470 ~ 5725 MHz		
	5725 ~ 5850 MHz		
Bluetooth	2402 ~ 2480 MHz		
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna		
DTM	Support		
Hotspot Function	Support		
Power Reduction	Support		
Exposure Category	General Population/Uncontrolled exposure		
EUT Stage	Portable Device		
Product	Type		



	<input checked="" type="checkbox"/> Production unit	<input type="checkbox"/> Identical prototype
<p>Note:</p> <ol style="list-style-type: none"><li>1. The device utilizes independent power reduction mechanisms for SAR compliance for the 2/3/4G transmitter for held-to-ear exposure conditions.</li><li>2. The device utilizes independent power reduction mechanisms for SAR compliance for the 2/3/4G transmitter for near to body exposure conditions.</li><li>3. The reduction power details please refer section 8.6.</li></ol>		

### 3 SUMMARY OF TEST RESULT

#### 3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	ANSI C95.1-1992	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	FCC KDB 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets
11	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.

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)		
	Head	Body-worn Accessory	Hotspot	Head	Body-worn Accessory	Hotspot
GSM 850	0.298	0.166	0.284	<b>1.068</b>	<b>0.427</b>	<b>1.035</b>
GSM 1900	0.115	0.308	<b>1.035</b>			
WCDMA Band 5	0.195	0.172	0.274			
LTE Band 5	0.496	0.170	0.338			
LTE Band 7	0.360	0.380	0.835			
LTE Band 38	0.122	0.197	0.583			
LTE Band 41	0.162	<b>0.427</b>	0.502			
2.4G WLAN	0.445	0.080	0.080			
5.2G WLAN	/	/	0.249			
5.3G WLAN	0.767	0.310	/			
5.6G WLAN	0.837	0.360	/			
5.8G WLAN	<b>1.068</b>	0.413	0.379			
Bluetooth	0.236	0.057	0.100			
Limit (W/kg)	1.6			1.6		
Verdict	PASS					

#### 3.3.2 Highest Specific SAR (10 g Value)

Band	Maximum Scaled SAR (W/kg)	Maximum Report SAR (W/kg)
	Specific 10g	
5.3G WLAN	1.247	<b>1.718</b>
5.6G WLAN	<b>1.718</b>	
Limit (W/kg)	4.0	4.0
Verdict	Pass	

#### 3.3.3 Highest Simultaneous SAR

Position	Simultaneous Configuration	Simultaneous SAR (W/kg)	Limit (W/kg)	Verdict
Head (1g)	LTE B5 + 5G WIFI + Bluetooth	<b>1.441</b>	1.6	Pass
Body-worn Accessory (1g)	LTE B7 + 5G WIFI + Bluetooth	0.828	1.6	Pass
Hotspot (1g)	GSM1900 + 5G WIFI + Bluetooth	1.363	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 1.068 W/kg, which is lower than 1.5 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.

The maximum 10 g SAR for the EUT in this report is 1.718 W/kg, which is lower than 3.75 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 ( $\rho$ ). 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

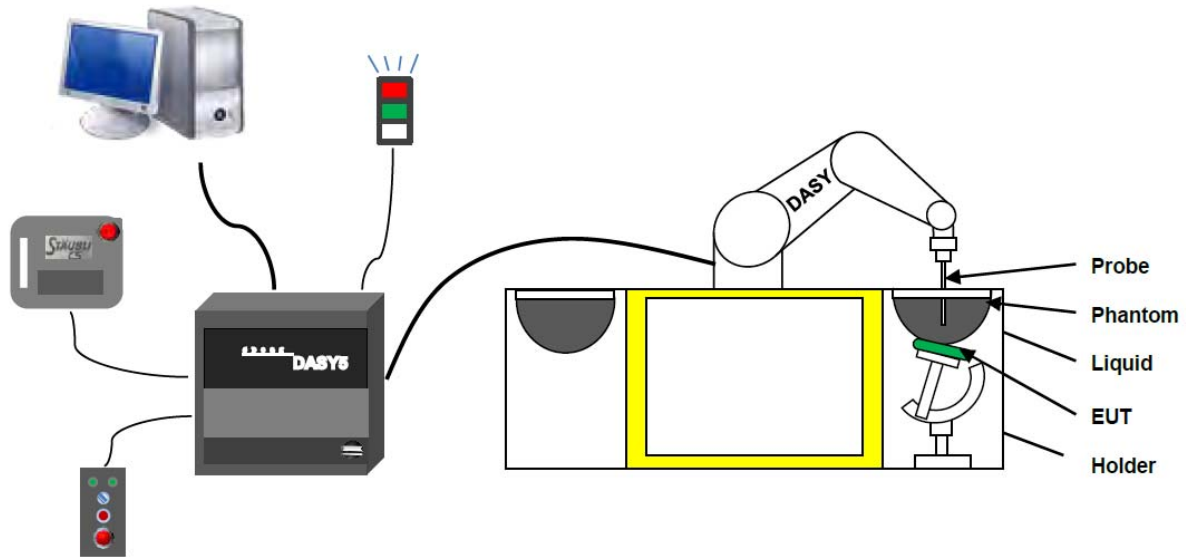
$$\mathbf{SAR} = \frac{\sigma E^2}{\rho}$$

Where:  $\sigma$  is the conductivity of the tissue,

$\rho$  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 DASYS5 measurement server.
6. The DASYS5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation.
7. DASYS5 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  $\pm 0.02$  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: 7607 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., glycoether)
- Calibration ISO/IEC 17025 calibration service available
- Frequency 10 MHz to 6 GHz; Linearity:  $\pm 0.2$  dB (30 MHz to 6 GHz)
- Directivity  $\pm 0.2$  dB in HSL (rotation around probe axis) ;  $\pm 0.4$  dB in HSL (rotation normal to probe axis)
- Dynamic range 5  $\mu$ W/g to > 100 mW/g; Linearity:  $\pm 0.2$  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 EX3DV4-SN:7510 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., glycoether)
- Calibration ISO/IEC 17025 calibration service available
- Frequency 10 MHz to 6 GHz; Linearity:  $\pm 0.2$  dB (30 MHz to 6 GHz)
- Directivity  $\pm 0.2$  dB in HSL (rotation around probe axis) ;  $\pm 0.4$  dB in HSL (rotation normal to probe axis)
- Dynamic range 5  $\mu$ W/g to > 100 mW/g; Linearity:  $\pm 0.2$  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)

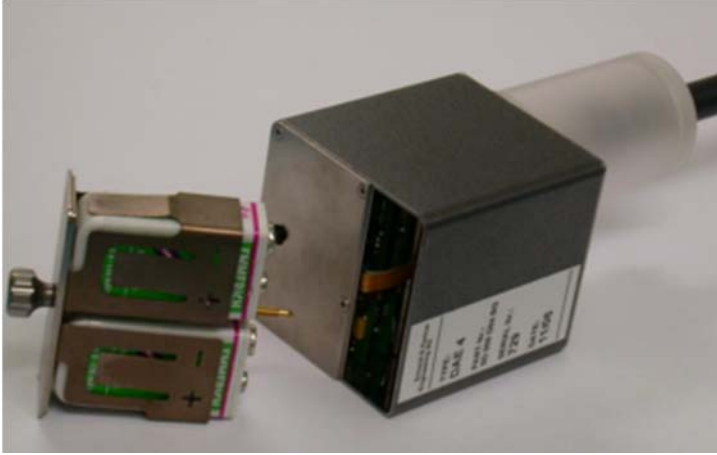


### E-Field Probe Calibration Process

Probe calibration is realized, in compliance with CENELEC EN 62209-1/-2 and IEEE 1528 std, with CALISAR, Antennassa 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

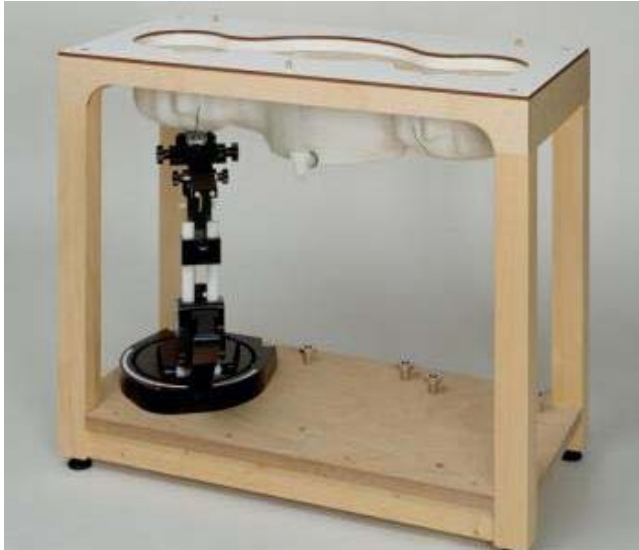
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an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



- Input Impedance: 200M Ohm
- 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  $65^\circ$ . 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.

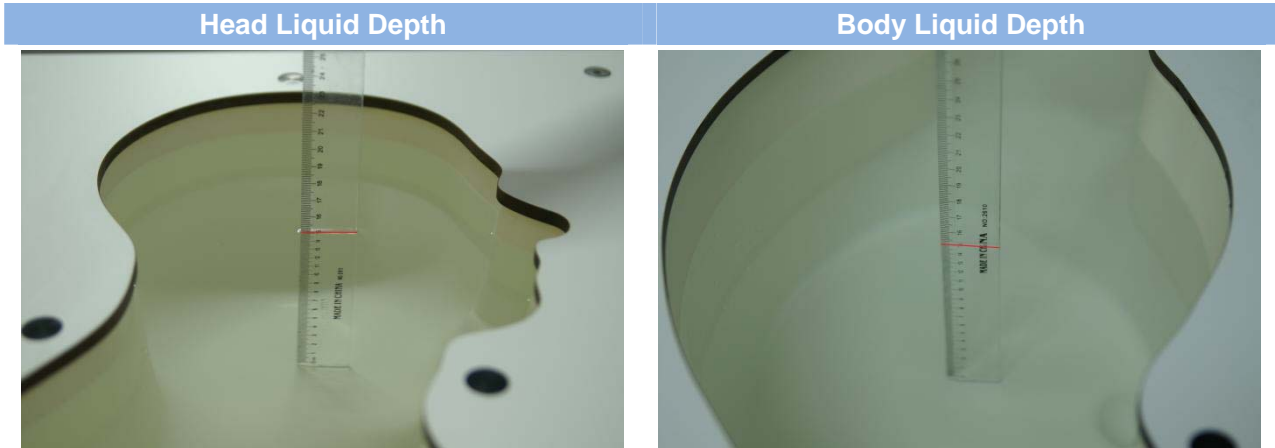


The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than  $1^\circ$ .



### 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 $\sigma$ (S/m)	Permittivity $\epsilon$
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 $\sigma$ (S/m)	Permittivity $\epsilon$
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 $\sigma$ (S/m)	Permittivity $\epsilon$
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 $\sigma$ (S/m)	Permittivity $\epsilon$
5200	78.60	21.40			/		5.54	47.86
5800	78.50	21.40			0.1		6.0	48.20

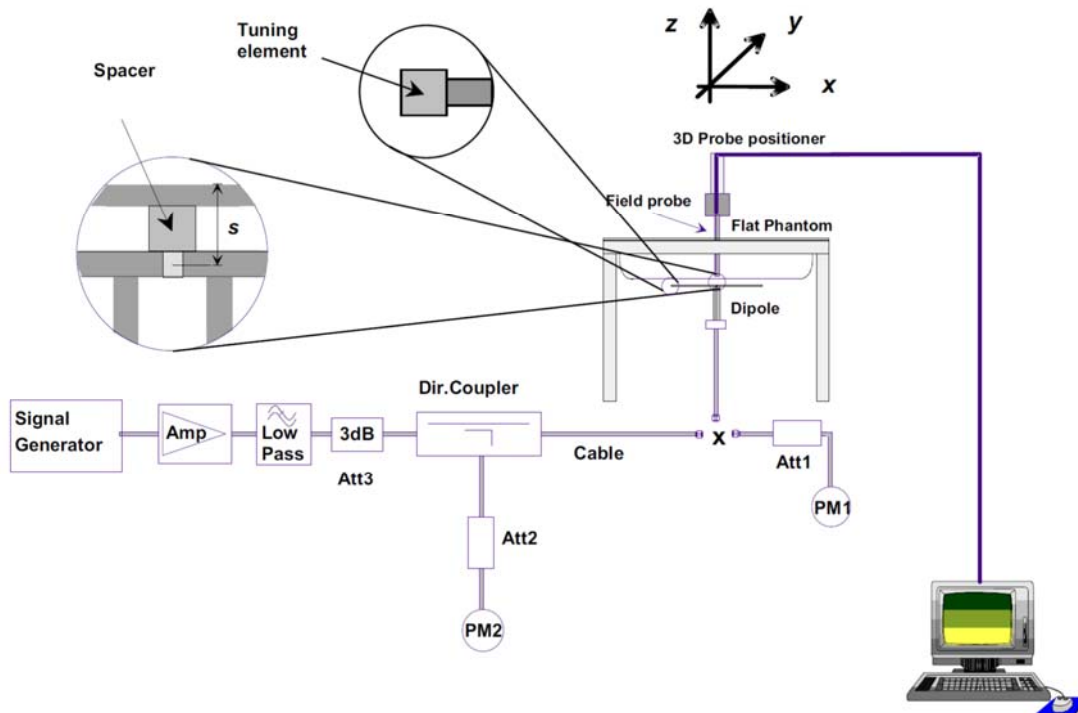
## 5 SYSTEM VERIFICATION

### 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

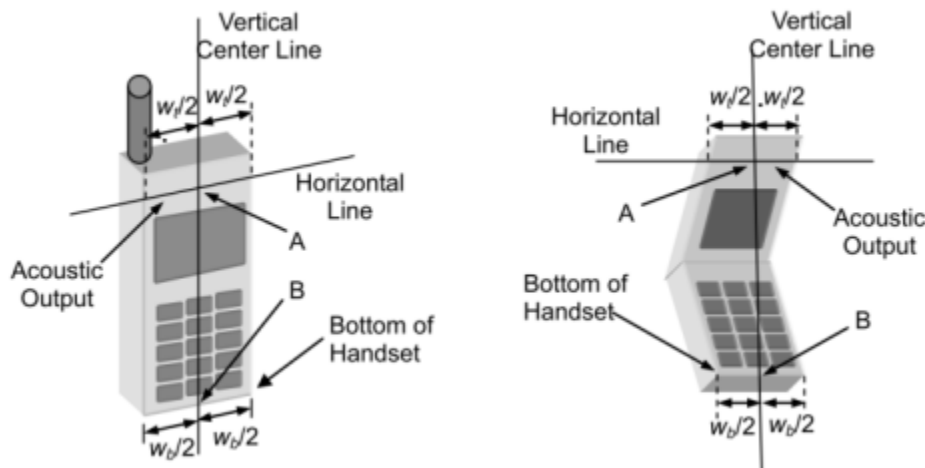
According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

### 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.

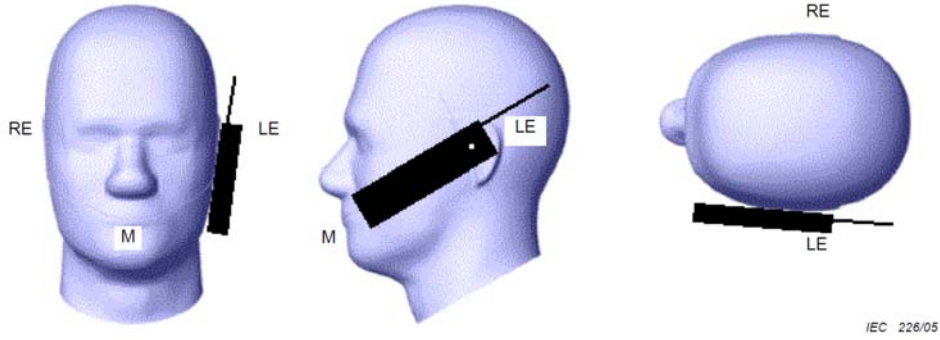
#### 6.1.1 Two Imaginary Lines on the Handset

- 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.



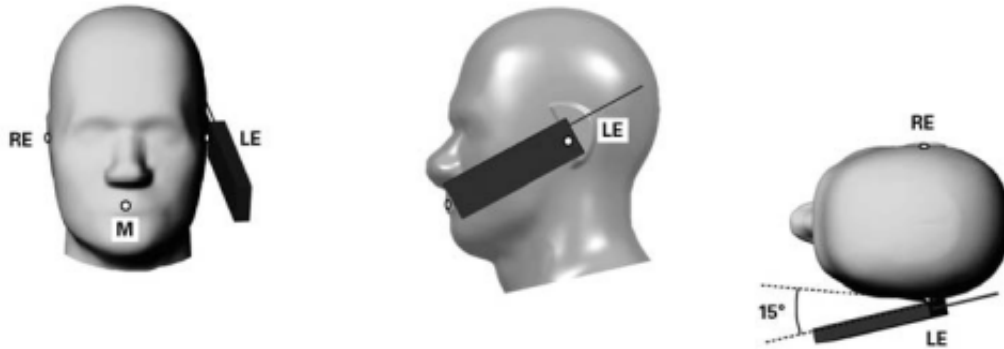
#### 6.1.2 Cheek Position

- 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.



### 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.

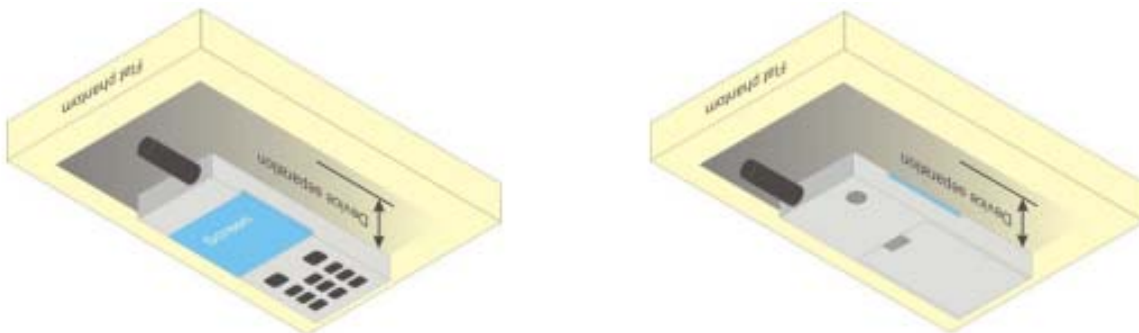


## 6.2 Body-worn Position Conditions

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.

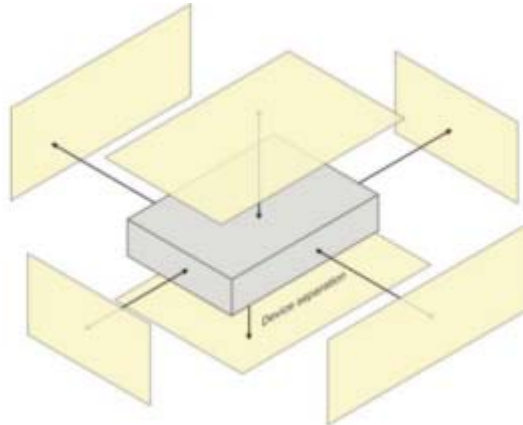
Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. 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  $\leq 5$  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).





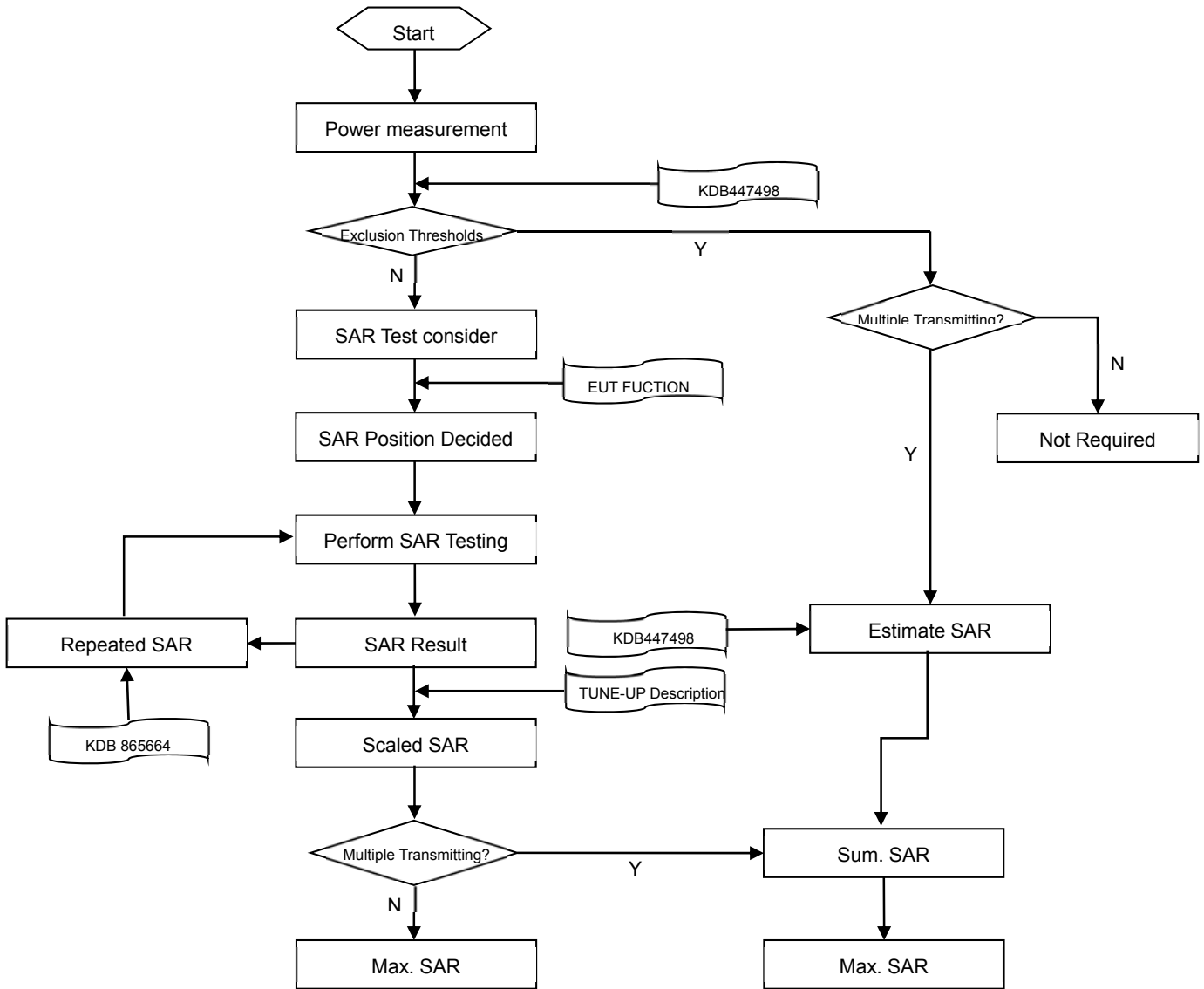
## 6.4 Product Specific 10g Exposure Consideration

According with FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance;

The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at  $\leq 25$  mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

## 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: $\Delta x$ Area , $\Delta y$ 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: $\Delta x$ Zoom , $\Delta y$ Zoom		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3–4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z$ Zoom (n)	≤ 5 mm	3–4 GHz: ≤ 4 mm
			4–5 GHz: ≤ 3 mm
	graded grid	$\Delta z$ Zoom (1): between 1st two points closest to phantom surface  $\Delta z$ Zoom (n>1): between subsequent points	3–4 GHz: ≤ 3 mm
			4–5 GHz: ≤ 2.5 mm
		≤ 4 mm	5–6 GHz: ≤ 2 mm
		≤ 1.5· $\Delta z$ Zoom (n-1)	
Minimum zoom scan volume	x, y, z	≥30 mm	3–4 GHz: ≥ 28 mm
			4–5 GHz: ≥ 25 mm
			5–6 GHz: ≥ 22 mm
<b>Note:</b> <ol style="list-style-type: none"> <li><math>\delta</math> is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.</li> <li>* 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.</li> </ol>			

### 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 OUPUT POWER**

### **8.1 GSM**

Please refer the document "Conducted RF Output Power List.pdf".

### **8.2 WCDMA**

Please refer the document "Conducted RF Output Power List.pdf".

### **8.3 LTE**

Please refer the document "Conducted RF Output Power List.pdf".

## 8.4 WIFI

### 8.4.1 2.4G WIFI (Level1)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	12.49	13.50	No
		2	2417	12.89	14.00	No
		6	2437	<b>13.92</b>	15.00	Yes
		9	2452	13.47	14.50	No
		10	2457	12.39	13.50	No
		11	2462	12.44	13.50	No
	802.11g	1	2412	12.61	14.00	No
		2	2417	15.77	16.50	No
		6	2437	15.68	16.50	No
		10	2457	15.62	16.50	No
		11	2462	11.97	13.50	No
	802.11n(HT20)	1	2412	12.37	14.00	No
		2	2417	15.63	16.50	No
		6	2437	15.84	16.50	No
		10	2457	15.72	16.50	No
11		2462	11.97	13.50	No	

Note: According KDB 247228, 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  $\leq 1.2$  W/kg, OFDM SAR test is not required.  
Adjusted SAR =  $0.445^* (44.67\text{mW}/31.62\text{mW}) = 0.629$  W/Kg, so 2.4G OFDM SAR test is not required.

### 8.4.2 2.4G WIFI (Level2)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	12.49	13.50	No
		2	2417	12.89	14.00	No
		6	2437	<b>12.81</b>	14.00	Yes
		9	2452	12.74	14.00	No
		10	2457	12.39	13.50	No
		11	2462	12.44	13.50	No
	802.11g	1	2412	12.61	14.00	No
		2	2417	14.81	15.50	No
		6	2437	14.76	15.50	No
		10	2457	14.69	15.50	No
		11	2462	11.97	13.50	No
	802.11n(HT20)	1	2412	12.37	14.00	No
		2	2417	14.72	15.50	No
		6	2437	14.81	15.50	No



		10	2457	14.69	15.50	No
		11	2462	11.97	13.50	No

Note: According KDB 247228, 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  $\leq 1.2$  W/kg, OFDM SAR test is not required.  
Adjusted SAR =  $0.358 * (35.48\text{mW}/25.12\text{mW}) = 0.506$  W/Kg, so 2.4G OFDM SAR test is not required.

## 8.4.3 2.4G WIFI (Level3)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	12.49	13.50	No
		2	2417	12.89	14.00	No
		6	2437	<b>15.88</b>	17.00	Yes
		9	2452	13.47	14.50	No
		10	2457	12.39	13.50	No
		11	2462	12.44	13.50	No
	802.11g	1	2412	12.61	14.00	No
		2	2417	17.07	18.50	No
		6	2437	17.51	18.50	No
		10	2457	17.56	18.50	No
		11	2462	11.97	13.50	No
	802.11n(HT20)	1	2412	12.37	14.00	No
		2	2417	17.38	18.50	No
		6	2437	17.75	18.50	No
		10	2457	17.71	18.50	No
11		2462	11.97	13.50	No	

Note: According KDB 247228, 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  $\leq 1.2$  W/kg, OFDM SAR test is not required.

Adjusted SAR =  $0.080 * (35.48\text{mW}/25.12\text{mW}) = 0.113$  W/Kg, so 2.4G OFDM SAR test is not required.

## 8.4.4 2.4G WIFI (Level4)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	12.49	13.50	No
		2	2417	12.89	14.00	No
		6	2437	<b>12.81</b>	14.00	Yes
		9	2452	12.74	14.00	No
		10	2457	12.39	13.50	No
		11	2462	12.44	13.50	No
	802.11g	1	2412	12.61	14.00	No
		2	2417	14.81	15.50	No
		6	2437	14.76	15.50	No
		10	2457	14.69	15.50	No
		11	2462	11.97	13.50	No
	802.11n(HT20)	1	2412	12.37	14.00	No
		2	2417	14.72	15.50	No
		6	2437	14.81	15.50	No
		10	2457	14.69	15.50	No

		11	2462	11.97	13.50	No
<p>Note: According KDB 247228, 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 <math>\leq 1.2</math> W/kg, OFDM SAR test is not required.</p> <p>Adjusted SAR = <math>0.080 * (35.48\text{mW}/25.12\text{mW}) = 0.113</math> W/Kg, so 2.4G OFDM SAR test is not required.</p>						

## 8.4.5 5G WIFI (Level1)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	13.17	14.50	No
		40	5200	15.33	16.50	No
		44	5220	15.39	16.50	No
		48	5240	15.42	16.50	No
	802.11n(HT20)	36	5180	13.28	14.50	No
		40	5200	15.28	16.50	No
		44	5220	14.75	16.50	No
		48	5240	15.31	16.50	No
	802.11n(HT40)	38	5190	12.74	14.00	No
		46	5230	13.09	14.50	No
	802.11ac(VHT20)	36	5180	12.94	14.50	No
		40	5200	15.11	16.50	No
		44	5220	15.32	16.50	No
		48	5240	14.82	16.50	No
	802.11ac(VHT40)	38	5190	12.55	14.00	No
		46	5230	13.38	14.50	No
802.11ac(VHT80)	42	5210	9.24	11.00	No	
5.3 (5.25~5.35)	802.11a	52	5260	<b>15.42</b>	16.50	Yes
		56	5280	15.30	16.50	No
		60	5300	15.41	16.50	No
		64	5320	14.96	16.00	Yes
	802.11n(HT20)	52	5260	14.71	16.50	No
		56	5280	15.20	16.50	No
		60	5300	15.15	16.50	No
		64	5320	14.59	16.00	No
	802.11n(HT40)	54	5270	14.09	15.50	No
		62	5310	12.73	14.00	No
	802.11ac(VHT20)	52	5260	15.03	16.50	No
		56	5280	14.84	16.50	No
		60	5300	15.01	16.50	No
		64	5320	14.77	16.00	No
	802.11ac(VHT40)	54	5270	14.39	15.50	No
		62	5310	12.30	14.00	No
802.11ac(VHT80)	58	5290	10.26	12.00	No	
5.6 (5.47~5.725)	802.11a	100	5500	14.86	16.00	Yes
		104	5520	15.19	16.50	No
		108	5540	15.32	16.50	No
		112	5560	15.28	16.50	No

		116	5580	<b>15.35</b>	16.50	Yes
		120	5600	15.28	16.50	No
		124	5620	15.30	16.50	No
		128	5640	15.14	16.50	No
		132	5660	15.23	16.50	No
		136	5680	15.27	16.50	No
		140	5700	11.40	13.00	Yes
	802.11n(HT20)	100	5500	14.23	16.00	No
		104	5520	15.02	16.50	No
		108	5540	14.71	16.50	No
		112	5560	15.10	16.50	No
		116	5580	15.16	16.50	No
		120	5600	15.02	16.50	No
		124	5620	14.70	16.50	No
		128	5640	15.33	16.50	No
		132	5660	14.89	16.50	No
		136	5680	14.95	16.50	No
	802.11n(HT40)	102	5510	13.33	14.50	No
		110	5550	13.95	15.50	No
		126	5630	13.95	15.50	No
		134	5670	13.06	14.50	No
	802.11ac(VHT20)	100	5500	14.78	16.00	No
		104	5520	15.35	16.50	No
		108	5540	14.91	16.50	No
		112	5560	14.81	16.50	No
		116	5580	15.30	16.50	No
		120	5600	15.02	16.50	No
		124	5620	15.32	16.50	No
		128	5640	14.98	16.50	No
		132	5660	14.83	16.50	No
		136	5680	15.02	16.50	No
	802.11ac(VHT40)	102	5510	12.96	14.50	No
		110	5550	13.79	15.50	No
126		5630	14.11	15.50	No	
134		5670	12.87	14.50	No	
802.11ac(VHT80)	106	5530	9.29	11.00	No	
	122	5610	12.22	13.50	No	
5.8 (5.725~5.850)	802.11a	149	5745	<b>14.98</b>	16.50	Yes
		153	5765	14.92	16.50	No

		157	5785	<b>14.98</b>	16.50	Yes
		161	5805	14.83	16.50	No
		165	5825	14.90	16.50	Yes
	802.11n(HT20)	149	5745	15.28	16.50	No
		153	5765	15.24	16.50	No
		157	5785	15.38	16.50	No
		161	5805	15.07	16.50	No
		165	5825	14.84	16.50	No
	802.11n(HT40)	151	5755	13.82	15.50	No
		159	5795	13.94	15.50	No
	802.11ac(VHT20)	149	5745	14.70	16.50	No
		153	5765	15.32	16.50	No
		157	5785	14.80	16.50	No
		161	5805	14.80	16.50	No
		165	5825	15.27	16.50	No
	802.11ac(VHT40)	151	5755	13.83	15.50	No
		159	5795	14.12	15.50	No
	802.11ac(VHT80)	155	5775	13.84	15.50	No

Note: 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  $\leq 1.2$  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.

#### 8.4.6 5G WIFI (Level2)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	13.26	14.50	No
		40	5200	14.28	16.00	No
		44	5220	14.76	16.00	No
		48	5240	14.85	16.00	No
	802.11n(HT20)	36	5180	13.06	14.50	No
		40	5200	14.64	16.00	No
		44	5220	14.51	16.00	No
		48	5240	14.23	16.00	No
	802.11n(HT40)	38	5190	12.32	14.00	No
		46	5230	12.23	14.00	No
	802.11ac(VHT20)	36	5180	13.22	14.50	No
		40	5200	14.89	16.00	No
		44	5220	14.85	16.00	No
		48	5240	14.88	16.00	No
	802.11ac(VHT40)	38	5190	12.37	14.00	No



		46	5230	12.59	14.00	No
	802.11ac(VHT80)	42	5210	9.53	11.00	No
5.3 (5.25~5.35)	802.11a	52	5260	14.89	16.00	Yes
		56	5280	14.89	16.00	No
		60	5300	14.93	16.00	No
		64	5320	<b>14.95</b>	16.00	Yes
	802.11n(HT20)	52	5260	14.90	16.00	No
		56	5280	14.82	16.00	No
		60	5300	14.73	16.00	No
		64	5320	14.78	16.00	No
	802.11n(HT40)	54	5270	13.48	15.00	No
		62	5310	12.66	14.00	No
	802.11ac(VHT20)	52	5260	14.87	16.00	No
		56	5280	14.20	16.00	No
		60	5300	14.29	16.00	No
		64	5320	14.39	16.00	No
	802.11ac(VHT40)	54	5270	13.77	15.00	No
		62	5310	12.40	14.00	No
	802.11ac(VHT80)	58	5290	10.22	12.00	No
	5.6 (5.47~5.725)	802.11a	100	5500	14.84	16.00
104			5520	14.79	16.00	No
108			5540	14.65	16.00	No
112			5560	14.73	16.00	No
116			5580	<b>14.87</b>	16.00	Yes
120			5600	14.86	16.00	No
124			5620	14.80	16.00	No
128			5640	14.64	16.00	No
132			5660	14.69	16.00	No
136			5680	14.72	16.00	No
140			5700	11.42	13.00	Yes
802.11n(HT20)		100	5500	14.60	16.00	No
		104	5520	14.84	16.00	No
		108	5540	14.20	16.00	No
		112	5560	14.66	16.00	No
		116	5580	14.87	16.00	No
		120	5600	14.89	16.00	No
		124	5620	14.82	16.00	No
		128	5640	14.26	16.00	No
		132	5660	14.33	16.00	No
		136	5680	14.70	16.00	No
		140	5700	11.82	13.00	No

	802.11n(HT40)	102	5510	12.78	14.50	No
		110	5550	13.70	15.00	No
		126	5630	13.45	15.00	No
		134	5670	12.80	14.50	No
	802.11ac(VHT20)	100	5500	14.57	16.00	No
		104	5520	14.65	16.00	No
		108	5540	14.25	16.00	No
		112	5560	14.55	16.00	No
		116	5580	14.90	16.00	No
		120	5600	14.84	16.00	No
		124	5620	14.33	16.00	No
		128	5640	14.78	16.00	No
		132	5660	14.60	16.00	No
		136	5680	14.40	16.00	No
	140	5700	11.66	13.00	No	
	802.11ac(VHT40)	102	5510	12.80	14.50	No
		110	5550	13.72	15.00	No
		126	5630	13.42	15.00	No
		134	5670	12.80	14.50	No
	802.11ac(VHT80)	106	5530	9.24	11.00	No
122		5610	12.04	13.50	No	
5.8 (5.725~5.850)	802.11a	149	5745	14.46	16.00	Yes
		153	5765	14.41	16.00	No
		157	5785	<b>14.47</b>	16.00	Yes
		161	5805	14.39	16.00	No
		165	5825	14.42	16.00	Yes
	802.11n(HT20)	149	5745	14.48	16.00	No
		153	5765	14.56	16.00	No
		157	5785	14.69	16.00	No
		161	5805	14.21	16.00	No
		165	5825	14.26	16.00	No
	802.11n(HT40)	151	5755	13.49	15.00	No
		159	5795	13.54	15.00	No
	802.11ac(VHT20)	149	5745	14.74	16.00	No
		153	5765	14.85	16.00	No
		157	5785	14.57	16.00	No
		161	5805	14.57	16.00	No
		165	5825	14.74	16.00	No
	802.11ac(VHT40)	151	5755	13.84	15.00	No
		159	5795	13.55	15.00	No
	802.11ac(VHT80)	155	5775	13.27	15.00	No

Note: 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  $\leq 1.2$  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.

## 8.4.7 5G WIFI (Level3)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	13.25	14.50	No
		40	5200	18.52	19.50	No
		44	5220	19.17	20.00	No
		48	5240	19.16	20.00	No
	802.11n(HT20)	36	5180	13.19	14.50	No
		40	5200	17.72	19.50	No
		44	5220	18.55	20.00	No
		48	5240	18.69	20.00	No
	802.11n(HT40)	38	5190	12.89	14.00	No
		46	5230	16.49	18.00	No
	802.11ac(VHT20)	36	5180	13.40	14.50	No
		40	5200	17.89	19.50	No
		44	5220	18.67	20.00	No
		48	5240	18.61	20.00	No
	802.11ac(VHT40)	38	5190	12.58	14.00	No
		46	5230	16.25	18.00	No
802.11ac(VHT80)	42	5210	9.85	11.00	No	
5.3 (5.25~5.35)	802.11a	52	5260	19.06	20.00	No
		56	5280	18.82	20.00	No
		60	5300	<b>19.08</b>	20.00	Yes
		64	5320	15.03	16.00	No
	802.11n(HT20)	52	5260	18.57	20.00	No
		56	5280	18.29	20.00	No
		60	5300	18.60	20.00	No
		64	5320	14.87	16.00	No
	802.11n(HT40)	54	5270	17.40	19.00	No
		62	5310	12.50	14.00	No
	802.11ac(VHT20)	52	5260	18.81	20.00	No
		56	5280	18.37	20.00	No
		60	5300	18.76	20.00	No
		64	5320	14.65	16.00	No
	802.11ac(VHT40)	54	5270	17.88	19.00	No
		62	5310	12.35	14.00	No
802.11ac(VHT80)	58	5290	10.75	12.00	No	
5.6 (5.47~5.725)	802.11a	100	5500	14.90	16.00	No
		104	5520	18.73	20.00	No
		108	5540	18.69	20.00	No
		112	5560	18.74	20.00	No

		116	5580	<b>18.88</b>	20.00	Yes
		120	5600	18.82	20.00	No
		124	5620	18.85	20.00	No
		128	5640	18.79	20.00	No
		132	5660	18.72	20.00	No
		136	5680	18.63	20.00	No
		140	5700	11.59	13.00	No
	802.11n(HT20)	100	5500	14.47	16.00	No
		104	5520	18.29	20.00	No
		108	5540	18.46	20.00	No
		112	5560	18.26	20.00	No
		116	5580	18.30	20.00	No
		120	5600	18.83	20.00	No
		124	5620	18.22	20.00	No
		128	5640	18.73	20.00	No
		132	5660	18.20	20.00	No
		136	5680	18.53	20.00	No
	140	5700	11.43	13.00	No	
	802.11n(HT40)	102	5510	13.01	14.50	No
		110	5550	17.64	19.00	No
		126	5630	17.46	19.00	No
		134	5670	13.26	14.50	No
	802.11ac(VHT20)	100	5500	14.72	16.00	No
		104	5520	18.77	20.00	No
		108	5540	18.60	20.00	No
		112	5560	18.71	20.00	No
		116	5580	18.66	20.00	No
		120	5600	18.48	20.00	No
		124	5620	18.78	20.00	No
		128	5640	18.83	20.00	No
		132	5660	18.35	20.00	No
		136	5680	18.89	20.00	No
	140	5700	11.71	13.00	No	
802.11ac(VHT40)	102	5510	13.11	14.50	No	
	110	5550	17.38	19.00	No	
	126	5630	17.23	19.00	No	
	134	5670	13.01	14.50	No	
802.11ac(VHT80)	106	5530	9.88	11.00	No	
	122	5610	15.25	17.00	No	
5.8 (5.725~5.850)	802.11a	149	5745	18.64	20.00	No
		153	5765	18.73	20.00	No

		157	5785	<b>18.78</b>	20.00	Yes
		161	5805	18.60	20.00	No
		165	5825	18.68	20.00	No
	802.11n(HT20)	149	5745	18.45	20.00	No
		153	5765	18.24	20.00	No
		157	5785	18.31	20.00	No
		161	5805	18.57	20.00	No
		165	5825	18.89	20.00	No
	802.11n(HT40)	151	5755	17.60	19.00	No
		159	5795	17.62	19.00	No
	802.11ac(VHT20)	149	5745	18.48	20.00	No
		153	5765	18.40	20.00	No
		157	5785	18.83	20.00	No
		161	5805	18.36	20.00	No
		165	5825	18.31	20.00	No
	802.11ac(VHT40)	151	5755	17.43	19.00	No
		159	5795	17.73	19.00	No
	802.11ac(VHT80)	155	5775	17.33	19.00	No

Note: 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  $\leq 1.2$  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.

#### 8.4.8 5G WIFI (Level4)

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	13.26	14.50	No
		40	5200	14.28	16.00	No
		44	5220	<b>14.86</b>	16.00	Yes
		48	5240	14.85	16.00	No
	802.11n(HT20)	36	5180	13.06	14.50	No
		40	5200	14.64	16.00	No
		44	5220	14.51	16.00	No
		48	5240	14.23	16.00	No
	802.11n(HT40)	38	5190	12.32	14.00	No
		46	5230	12.23	14.00	No
	802.11ac(VHT20)	36	5180	13.22	14.50	No
		40	5200	14.89	16.00	No
		44	5220	14.85	16.00	No
		48	5240	14.88	16.00	No
	802.11ac(VHT40)	38	5190	12.37	14.00	No

		46	5230	12.59	14.00	No
	802.11ac(VHT80)	42	5210	9.53	11.00	No
5.3 (5.25~5.35)	802.11a	52	5260	14.83	16.00	No
		56	5280	14.89	16.00	No
		60	5300	14.93	16.00	No
		64	5320	14.95	16.00	No
	802.11n(HT20)	52	5260	14.90	16.00	No
		56	5280	14.82	16.00	No
		60	5300	14.73	16.00	No
		64	5320	14.78	16.00	No
	802.11n(HT40)	54	5270	13.48	15.00	No
		62	5310	12.66	14.00	No
	802.11ac(VHT20)	52	5260	14.87	16.00	No
		56	5280	14.20	16.00	No
		60	5300	14.29	16.00	No
		64	5320	14.39	16.00	No
	802.11ac(VHT40)	54	5270	13.77	15.00	No
		62	5310	12.40	14.00	No
802.11ac(VHT80)	58	5290	10.22	12.00	No	
5.6 (5.47~5.725)	802.11a	100	5500	14.84	16.00	No
		104	5520	14.79	16.00	No
		108	5540	14.65	16.00	No
		112	5560	14.73	16.00	No
		116	5580	14.87	16.00	No
		120	5600	14.86	16.00	No
		124	5620	14.80	16.00	No
		128	5640	14.64	16.00	No
		132	5660	14.69	16.00	No
		136	5680	14.72	16.00	No
	140	5700	11.42	13.00	No	
	802.11n(HT20)	100	5500	14.60	16.00	No
		104	5520	14.84	16.00	No
		108	5540	14.20	16.00	No
		112	5560	14.66	16.00	No
		116	5580	14.87	16.00	No
		120	5600	14.89	16.00	No
		124	5620	14.82	16.00	No
		128	5640	14.26	16.00	No
		132	5660	14.33	16.00	No
136		5680	14.70	16.00	No	
140	5700	11.82	13.00	No		



	802.11n(HT40)	102	5510	12.78	14.50	No
		110	5550	13.70	15.00	No
		126	5630	13.45	15.00	No
		134	5670	12.80	14.50	No
	802.11ac(VHT20)	100	5500	14.57	16.00	No
		104	5520	14.65	16.00	No
		108	5540	14.25	16.00	No
		112	5560	14.55	16.00	No
		116	5580	14.90	16.00	No
		120	5600	14.84	16.00	No
		124	5620	14.33	16.00	No
		128	5640	14.78	16.00	No
		132	5660	14.60	16.00	No
		136	5680	14.40	16.00	No
	140	5700	11.66	13.00	No	
	802.11ac(VHT40)	102	5510	12.80	14.50	No
		110	5550	13.72	15.00	No
		126	5630	13.42	15.00	No
		134	5670	12.80	14.50	No
	802.11ac(VHT80)	106	5530	9.24	11.00	No
122		5610	12.04	13.50	No	
5.8 (5.725~5.850)	802.11a	149	5745	14.46	16.00	No
		153	5765	14.41	16.00	No
		157	5785	<b>14.47</b>	16.00	Yes
		161	5805	14.39	16.00	No
		165	5825	14.42	16.00	No
	802.11n(HT20)	149	5745	14.48	16.00	No
		153	5765	14.56	16.00	No
		157	5785	14.69	16.00	No
		161	5805	14.21	16.00	No
		165	5825	14.26	16.00	No
	802.11n(HT40)	151	5755	13.49	15.00	No
		159	5795	13.54	15.00	No
	802.11ac(VHT20)	149	5745	14.74	16.00	No
		153	5765	14.85	16.00	No
		157	5785	14.57	16.00	No
		161	5805	14.57	16.00	No
		165	5825	14.74	16.00	No
	802.11ac(VHT40)	151	5755	13.84	15.00	No
		159	5795	13.55	15.00	No
	802.11ac(VHT80)	155	5775	13.27	15.00	No

Note: 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  $\leq 1.2$  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.

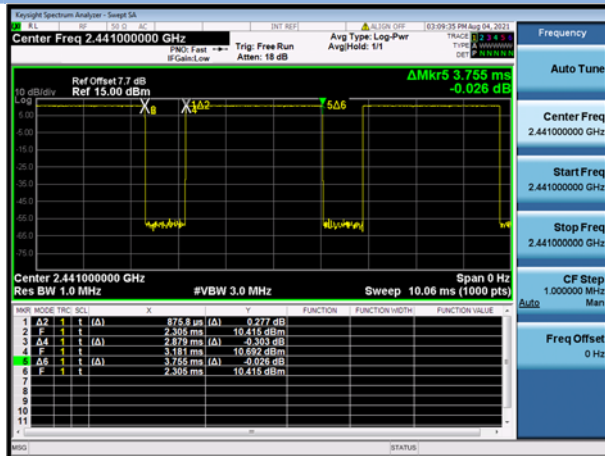
## 8.5 Bluetooth

Mode	GFSK			$\pi/4$ -DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Conducted Power (dBm)	9.53	10.82	11.06	9.14	10.65	10.67
Tune-Up Limit (dBm)	11.00	12.00	13.00	11.00	11.00	11.00
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
Conducted Power (dBm)	10.57	10.66	10.83	/	/	/
Tune-Up Limit (dBm)	11.00	11.00	11.00	/	/	/
Mode	BLE-1Mbps			BLE-2Mbps		
Channel	0	19	39	0	19	39
Frequency (MHz)	2402	2440	2480	2402	2440	2480
Conducted Power (dBm)	-2.16	-2.06	-2.40	-2.77	-2.70	-2.07
Tune-Up Limit (dBm)	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

Note: The Bluetooth duty cycle is 76.68% as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation.

### Duty Cycle

#### Bluetooth-GFSK



## 8.6 Power Reduction List

1. This mobile phone device supports the receiver detection mechanism. This device uses the receiver to indicate whether the user is making a call in head.
2. When device is making call in head, the power reduction will applied for SAR compliance.
3. When device operating under hotspot mode, the power reduction will applied for SAR compliance.
4. This device uses the P-sensor to detect handheld state.

**WWAN Antenna Down Test Level Table**

Reduced level	Receiver state	Transmitting conditions
Level 1	On (head scenario)	WWAN Use Only
Level 2	On (head scenario)	WWAN + WLAN 2.4G
Level 3	On (head scenario)	WWAN + WLAN 5G
Level 4	Off (Body scenario)	WWAN Use Only
Level 5	Off (Body scenario)	WWAN + WLAN 2.4G
Level 6	Off (Body scenario)	WWAN + WLAN 5G

**WLAN Antenna Up Test Level Table**

Reduced level	Receiver state	Transmitting conditions
Level 1	On (head scenario)	WLAN Only
Level 2	On (head scenario)	WWAN + WLAN 2.4G or WLAN 5G
Level 3	Off (Body scenario)	WLAN Only
Level 4	Off (Body scenario)	WWAN + WLAN 2.4G or WLAN 5G

**WWAN Antenna Power Table**

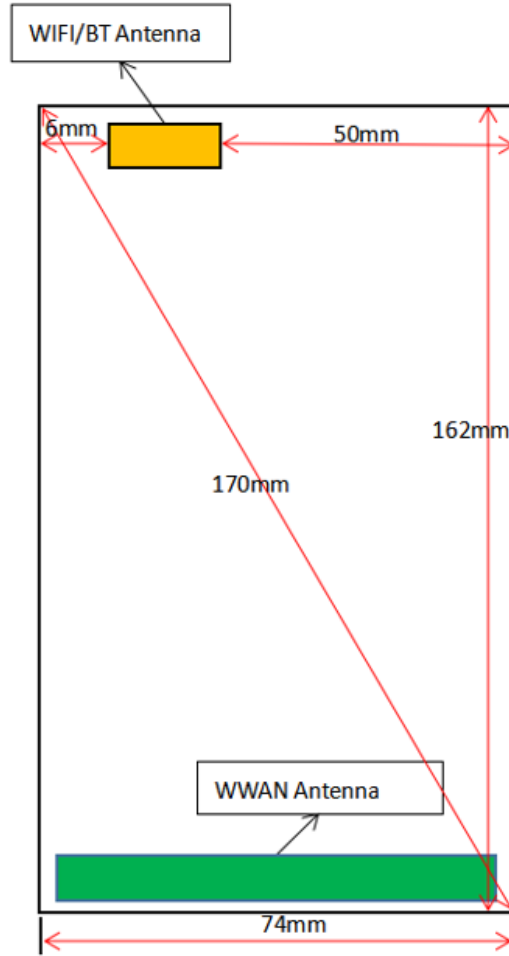
Mode	WWAN												
	Test Mode	Head			Hotspot		Body-worn			Specific			
	Receiver state	Receiver on				Receiver off							
	Full Power	Standal one	Simultaneous transmission		Simultaneous transmission		Standal one	Simultaneous transmission		Standal one	Simultaneous transmission		
			+2.4G WLAN	+5G WLAN	+2.4G WLAN	+5G WLAN		+2.4G WLAN	+5G WLAN		+2.4G WLAN	+5G WLAN	
GSM 850	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	
GPRS850 1 Tx Slot	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	33.50	
GPRS850 2 Tx Slots	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	32.00	
GPRS850 3 Tx Slots	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	
GPRS850 4 Tx Slots	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	
EGPRS850 1 Tx Slot	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	
EGPRS850 2 Tx Slots	26.50	26.50	26.50	26.50	26.50	26.50	26.50	26.50	26.50	26.50	26.50	26.50	
EGPRS850 3 Tx Slots	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	24.50	
EGPRS850 4 Tx Slots	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	
GSM 1900	30.50	30.50	30.50	30.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	
GPRS1900 1 Tx Slot	30.50	30.50	30.50	30.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	29.50	
GPRS1900 2 Tx Slots	29.00	29.00	29.00	29.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	
GPRS1900 3 Tx Slots	28.00	28.00	28.00	28.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
GPRS1900 4 Tx Slots	27.00	27.00	27.00	27.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
EGPRS1900 1 Tx Slot	27.00	27.00	27.00	27.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	
EGPRS1900 2 Tx Slots	26.00	26.00	26.00	26.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	
EGPRS1900 3 Tx Slots	24.00	24.00	24.00	24.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	
EGPRS1900 4 Tx Slots	23.00	23.00	23.00	23.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	21.00	
WCDMA Band5 RMC	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	
HSDPA Subtest-1	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	
HSDPA Subtest-2	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	
HSDPA Subtest-3	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	
HSDPA Subtest-4	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	
DC-HSDPA Subtest-1	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	
DC-HSDPA Subtest-2	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	
DC-HSDPA Subtest-3	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	
DC-HSDPA Subtest-4	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	23.00	
HSUPA Subtest-1	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	
HSUPA Subtest-2	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	
HSUPA Subtest-3	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	
HSUPA Subtest-4	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	
HSUPA Subtest-5	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	
HSPA+	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	
LTE Band5	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	24.30	

LTE Band7	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50	23.50
LTE Band38	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
LTE Band41	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00

**WLAN Antenna Power Table**

Mode	WLAN								
	Test Mode	Head		Hotspot	Body-worn		Specific		
	Receiver state	Receiver on		Receiver off					
	Full Power	Standalone	Simultaneous transmission WWAN + WLAN 2.4G or WLAN 5G	Simultaneous transmission WWAN + WLAN 2.4G or WLAN 5G	Standalone	Simultaneous transmission WWAN + WLAN 2.4G or WLAN 5G	Standalone	Simultaneous transmission WWAN + WLAN 2.4G or WLAN 5G	
2.4G WLAN 802.11b	17.00	15.00	14.00	14.00	17.00	14.00	17.00	14.00	
2.4G WLAN 802.11g	18.50	16.50	15.50	15.50	18.50	15.50	18.50	15.50	
2.4G WLAN 802.11n20	18.50	16.50	15.50	15.50	18.50	15.50	18.50	15.50	
5.2G WLAN 802.11a	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.2G WLAN 802.11n20	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.2G WLAN 802.11n40	18.00	14.50	14.00	14.00	18.00	14.00	18.00	14.00	
5.2G WLAN 802.11ac20	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.2G WLAN 802.11ac40	18.00	14.50	14.00	14.00	18.00	14.00	18.00	14.00	
5.2G WLAN 802.11ac80	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	
5.3G WLAN 802.11a	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.3G WLAN 802.11n20	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.3G WLAN 802.11n40	19.00	15.50	15.00	15.00	19.00	15.00	19.00	15.00	
5.3G WLAN 802.11ac20	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.3G WLAN 802.11ac40	19.00	15.50	15.00	15.00	19.00	15.00	19.00	15.00	
5.3G WLAN 802.11ac80	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
5.6G WLAN 802.11a	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.6G WLAN 802.11n20	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.6G WLAN 802.11n40	19.00	15.50	15.00	15.00	19.00	15.00	19.00	15.00	
5.6G WLAN 802.11ac20	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.6G WLAN 802.11ac40	19.00	15.50	15.00	15.00	19.00	15.00	19.00	15.00	
5.6G WLAN 802.11ac80	17.00	13.50	13.50	13.50	17.00	13.50	17.00	13.50	
5.8G WLAN 802.11a	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.8G WLAN 802.11n20	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.8G WLAN 802.11n40	19.00	15.50	15.00	15.00	19.00	15.00	19.00	15.00	
5.8G WLAN 802.11ac20	20.00	16.50	16.00	16.00	20.00	16.00	20.00	16.00	
5.8G WLAN 802.11ac40	19.00	15.50	15.00	15.00	19.00	15.00	19.00	15.00	
5.8G LAN 802.11ac80	19.00	15.50	15.00	15.00	19.00	15.00	19.00	15.00	
BT	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	

## 9 TEST EXCLUSION CONSIDERATION



Description	Support Bands
WWAN TX Antenna	GSM 850/1900
	WCDMA B5
	LTE B5/7/38/41
WIFI/BT Antenna	2.4G WLAN
	5G WLAN
	Bluetooth

Antenna	Front Side (mm)	Back Side (mm)	Left Edge (mm)	Right Edge (mm)	Top Edge (mm)	Bottom Edge (mm)
WIFI/BT Antenna	<5	<5	6	50	<5	148
WWAN TX Antenna	<5	<5	<5	<5	142	<5

## 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  $\leq 50$  mm> Table, this Device SAR test configurations consider as following :

### WWAN TX Antenna

Band	Mode	Max. Peak Power		Test Position Configurations					
		dBm	mW	Head	Front/ Back	Left Edge	Right Edge	Top Edge	Bottom Edge
GSM 850	Distance to User			<5mm	<5mm	6mm	50mm	<5mm	148mm
	Voice	33.50	2238.72	Yes	Yes	Yes	Yes	Yes	No
	Data	33.50	2238.72	Yes	Yes	Yes	Yes	Yes	No
GSM 1900	Distance to User			<5mm	<5mm	6mm	50mm	116mm	148mm
	Voice	30.50	1122.02	Yes	Yes	Yes	Yes	Yes	No
	Data	30.50	1122.02	Yes	Yes	Yes	Yes	Yes	No
WCDMA Band 5	Distance to User			<5mm	<5mm	6mm	50mm	116mm	148mm
	RMC	24.20	263.03	Yes	Yes	Yes	Yes	Yes	No
LTE Band 5	Distance to User			<5mm	<5mm	6mm	50mm	116mm	148mm
	QPSK	24.20	263.03	Yes	Yes	Yes	Yes	Yes	No
LTE Band 7	Distance to User			<5mm	<5mm	6mm	50mm	116mm	148mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes	No
LTE Band 38	Distance to User			<5mm	<5mm	6mm	50mm	116mm	148mm
	QPSK	24.00	251.19	Yes	Yes	Yes	Yes	Yes	No
LTE Band 41	Distance to User			<5mm	<5mm	6mm	50mm	116mm	148mm
	QPSK	24.00	251.19	Yes	Yes	Yes	Yes	Yes	No



**WIFI/BT Antenna**

Band	Mode	Max. Peak 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	<5mm	<5mm	142mm	<5mm
	802.11b	17.00	50.12	Yes	Yes	Yes	Yes	Yes	Yes
	802.11g	18.50	70.79	No	No	No	No	No	No
	802.11n(HT20)	18.50	70.79	No	No	No	No	No	No
WLAN 5.2 G	Distance to User			<5mm	<5mm	<5mm	<5mm	142mm	<5mm
	802.11a	16.50	44.67	Yes	Yes	Yes	Yes	Yes	Yes
	802.11n(HT20)	16.50	44.67	No	No	No	No	No	No
	802.11n(HT40)	14.50	28.18	No	No	No	No	No	No
	802.11ac(VHT20)	16.50	44.67	No	No	No	No	No	No
	802.11ac(VHT40)	14.50	28.18	No	No	No	No	No	No
	802.11ac(VHT80)	11.00	12.59	No	No	No	No	No	No
WLAN 5.3 G	Distance to User			<5mm	<5mm	<5mm	<5mm	142mm	<5mm
	802.11a	16.50	44.67	Yes	Yes	Yes	Yes	Yes	Yes
	802.11n(HT20)	16.50	44.67	No	No	No	No	No	No
	802.11n(HT40)	15.50	35.48	No	No	No	No	No	No
	802.11ac(VHT20)	16.50	44.67	No	No	No	No	No	No
	802.11ac(VHT40)	15.50	35.48	No	No	No	No	No	No
	802.11ac(VHT80)	12.00	15.85	No	No	No	No	No	No
WLAN 5.6 G	Distance to User			<5mm	<5mm	<5mm	<5mm	142mm	<5mm
	802.11a	16.50	44.67	Yes	Yes	Yes	Yes	Yes	Yes
	802.11n(HT20)	16.50	44.67	No	No	No	No	No	No
	802.11n(HT40)	15.50	35.48	No	No	No	No	No	No
	802.11ac(VHT20)	16.50	44.67	No	No	No	No	No	No
	802.11ac(VHT40)	15.50	35.48	No	No	No	No	No	No
	802.11ac(VHT80)	13.50	22.39	No	No	No	No	No	No
Bluetooth	Distance to User			<5mm	<5mm	<5mm	<5mm	142mm	<5mm
	BR/EDR	13.00	19.95	Yes	Yes	Yes	Yes	Yes	Yes
	BLE	-1.00	0.79	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  $\leq 50$  mm are determined by:  

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0$$
 for 1-g SAR and  $\leq 7.5$  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  $\left[ \frac{3.0}{\sqrt{f(\text{GHz})}} \right] \cdot \text{(min. test separation distance, mm)} = \text{exclusion threshold of mW}$ .
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.  $\left[ \text{Threshold at 50 mm in step 1} + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150) \right]$  mW, at 100 MHz to 1500 MHz
  - b.  $\left[ \text{Threshold at 50 mm in step 1} + (\text{test separation distance} - 50 \text{ mm}) \cdot 10 \right]$  mW at > 1500 MHz and  $\leq 6$  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  $\leq 1.2$ W/kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
7. 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
8. 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  $\leq 1.2$  W/kg.
9. 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  $\leq 1.2$  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  $\leq 1.2$  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 GSM 850

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>													
Down	Level1&2&3	GPRS (3slots)	Left Cheek	0	190	836.6	-0.18	0.227	29.96	31.00	1.270	0.288	/
	Level1&2&3		Left Tilt	0	190	836.6	0.12	0.127	29.96	31.00	1.270	0.161	/
	Level1&2&3		Right Cheek	0	190	836.6	0.06	0.235	29.96	31.00	1.270	<b>0.298</b>	<b>1#</b>
	Level1&2&3		Right Tilt	0	190	836.6	0.07	0.152	29.96	31.00	1.270	0.193	/
<b>Body-worn Accessory</b>													
Down	Level4	Voice	Front Side	15	190	836.6	-0.07	0.109	32.49	33.50	1.262	0.138	/
	Level4		Back Side	15	190	836.6	0.17	0.123	32.49	33.50	1.262	0.155	/
	Level4	GPRS (3slots)	Front Side	15	190	836.6	0.18	0.106	29.96	31.00	1.270	0.135	/
	Level4		Back Side	15	190	836.6	-0.05	0.131	29.96	31.00	1.270	<b>0.166</b>	<b>2#</b>
<b>Hotspot</b>													
Down	Level5&6	Voice	Front Side	10	190	836.6	-0.09	0.126	32.49	33.50	1.262	0.159	/
	Level5&6		Back Side	10	190	836.6	0.13	0.218	32.49	33.50	1.262	0.275	/
	Level5&6	GPRS (3slots)	Front Side	10	190	836.6	-0.06	0.144	29.96	31.00	1.270	0.183	/
	Level5&6		Back Side	10	190	836.6	0.03	0.224	29.96	31.00	1.270	<b>0.284</b>	<b>3#</b>
	Level5&6		Left Edge	10	190	836.6	0.18	0.183	29.96	31.00	1.270	0.232	/
	Level5&6		Right Edge	10	190	836.6	0.00	0.112	29.96	31.00	1.270	0.142	/
	Level5&6		Bottom Edge	10	190	836.6	0.13	0.185	29.96	31.00	1.270	0.235	/

Note: Refer to ANNEX C for the detailed test data for each test configuration.

**10.2GSM 1900**

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>													
Down	Level1&2&3	GPRS (4slots)	Left Cheek	0	661	1880.0	-0.06	0.063	26.56	27.00	1.107	0.070	/
	Level1&2&3		Left Tilt	0	661	1880.0	-0.02	0.061	26.56	27.00	1.107	0.068	/
	Level1&2&3		Right Cheek	0	661	1880.0	0.18	0.104	26.56	27.00	1.107	<b>0.115</b>	<b>4#</b>
	Level1&2&3		Right Tilt	0	661	1880.0	0.16	0.057	26.56	27.00	1.107	0.063	/
<b>Body-worn Accessory</b>													
Down	Level4	Voice	Front Side	15	512	1850.2	-0.02	0.079	29.16	29.50	1.081	0.085	/
	Level4		Back Side	15	512	1850.2	-0.06	0.208	29.16	29.50	1.081	0.225	/
	Level4	GPRS (4slots)	Front Side	15	512	1850.2	-0.04	0.083	23.54	25.00	1.401	0.116	/
	Level4		Back Side	15	512	1850.2	0.19	0.220	23.54	25.00	1.401	<b>0.308</b>	<b>5#</b>
<b>Hotspot</b>													
Down	Level5&6	Voice	Front Side	10	512	1850.2	0.06	0.247	29.16	29.50	1.081	0.267	/
	Level5&6		Back Side	10	512	1850.2	0.11	0.710	29.16	29.50	1.081	0.768	/
	Level5&6	GPRS (4slots)	Front Side	10	512	1850.2	0.18	0.256	23.54	25.00	1.401	0.359	/
	Level5&6		Back Side	10	512	1850.2	-0.16	0.724	23.54	25.00	1.401	1.014	/
	Level5&6			10	661	1880.0	0.14	0.682	23.53	25.00	1.404	0.957	/
	Level5&6			10	810	1909.8	-0.02	0.695	23.52	25.00	1.407	0.978	/
	Level5&6		Left Edge	10	512	1850.2	-0.11	0.070	23.54	25.00	1.401	0.098	/
	Level5&6		Right Edge	10	512	1850.2	-0.14	0.113	23.54	25.00	1.401	0.158	/
	Level5&6		Bottom Edge	10	512	1850.2	-0.08	0.739	23.54	25.00	1.401	<b>1.035</b>	<b>6#</b>
	Level5&6			10	661	1880.0	-0.05	0.724	23.53	25.00	1.404	1.016	/
	Level5&6			10	810	1909.8	-0.04	0.716	23.52	25.00	1.407	1.007	/
	Level5&6												

Note: Refer to ANNEX C for the detailed test data for each test configuration.

## 10.3WCDMA Band 5

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>													
Down	Level1&2&3	RMC	Left Cheek	0	4132	826.4	0.03	0.141	22.89	24.20	1.352	0.191	/
	Level1&2&3		Left Tilt	0	4132	826.4	0.01	0.075	22.89	24.20	1.352	0.101	/
	Level1&2&3		Right Cheek	0	4132	826.4	-0.01	0.144	22.89	24.20	1.352	<b>0.195</b>	7#
	Level1&2&3		Right Tilt	0	4132	826.4	0.00	0.084	22.89	24.20	1.352	0.114	/
<b>Body-worn Accessory</b>													
Down	Level4	RMC	Front Side	15	4132	826.4	-0.16	0.098	22.89	24.20	1.352	0.133	/
	Level4		Back Side	15	4132	826.4	-0.04	0.127	22.89	24.20	1.352	<b>0.172</b>	8#
<b>Hotspot</b>													
Down	Level5&6	RMC	Front Side	10	4132	826.4	-0.12	0.121	22.89	24.20	1.352	0.164	/
	Level5&6		Back Side	10	4132	826.4	0.04	0.203	22.89	24.20	1.352	<b>0.274</b>	9#
	Level5&6		Left Edge	10	4132	826.4	-0.18	0.161	22.89	24.20	1.352	0.218	/
	Level5&6		Right Edge	10	4132	826.4	0.08	0.102	22.89	24.20	1.352	0.138	/
	Level5&6		Bottom Edge	10	4132	826.4	-0.15	0.155	22.89	24.20	1.352	0.210	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

### 10.4LTE Band 5 (10MHz Bandwidth)

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>															
Down	Level1&2&3	QPSK	Left Cheek	0	20600	844	1	MID	-0.18	0.340	23.10	24.20	1.288	0.438	/
	Level1&2&3			0	20525	836.5	25	LOW	-0.12	0.282	22.01	23.20	1.315	0.371	/
	Level1&2&3		Left Tilt	0	20600	844	1	MID	-0.06	0.278	23.10	24.20	1.288	0.359	/
	Level1&2&3			0	20525	836.5	25	LOW	-0.16	0.139	22.01	23.20	1.315	0.183	/
	Level1&2&3		Right Cheek	0	20600	844	1	MID	0.17	0.385	23.10	24.20	1.288	<b>0.496</b>	<b>10#</b>
	Level1&2&3			0	20525	836.5	25	LOW	0.04	0.314	22.01	23.20	1.315	0.413	/
	Level1&2&3		Right Tilt	0	20600	844	1	MID	0.00	0.210	23.10	24.20	1.288	0.271	/
	Level1&2&3			0	20525	836.5	25	LOW	-0.10	0.170	22.01	23.20	1.315	0.224	/
<b>Body-worn Accessory</b>															
Down	Level4	QPSK	Front Side	15	20600	844	1	MID	0.18	0.113	23.10	24.20	1.288	0.146	/
	Level4			15	20525	836.5	25	LOW	-0.02	0.093	22.01	23.20	1.315	0.122	/
	Level4		Back Side	15	20600	844	1	MID	-0.08	0.132	23.10	24.20	1.288	<b>0.170</b>	<b>11#</b>
	Level4			15	20525	836.5	25	LOW	-0.13	0.119	22.01	23.20	1.315	0.157	/
<b>Hotspot</b>															
Down	Level5&6	QPSK	Front Side	10	20600	844	1	MID	-0.02	0.127	23.10	24.20	1.288	0.164	/
	Level5&6			10	20525	836.5	25	LOW	0.17	0.085	22.01	23.20	1.315	0.112	/
	Level5&6		Back Side	10	20600	844	1	MID	-0.06	0.262	23.10	24.20	1.288	<b>0.338</b>	<b>12#</b>
	Level5&6			10	20525	836.5	25	LOW	-0.07	0.181	22.01	23.20	1.315	0.238	/
	Level5&6		Left Edge	10	20600	844	1	MID	0.08	0.134	23.10	24.20	1.288	0.173	/
	Level5&6			10	20525	836.5	25	LOW	0.16	0.114	22.01	23.20	1.315	0.150	/
	Level5&6		Right Edge	10	20600	844	1	MID	0.13	0.086	23.10	24.20	1.288	0.111	/
	Level5&6			10	20525	836.5	25	LOW	-0.04	0.072	22.01	23.20	1.315	0.095	/
	Level5&6		Bottom Edge	10	20600	844	1	MID	-0.02	0.178	23.10	24.20	1.288	0.229	/
	Level5&6			10	20525	836.5	25	LOW	-0.14	0.120	22.01	23.20	1.315	0.158	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.															

### 10.5LTE Band 7 (20MHz Bandwidth)

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>															
Down	Level1&2&3	QPSK	Left Cheek	0	21350	2560	1	MID	-0.01	0.300	22.71	23.50	1.199	<b>0.360</b>	13#
	Level1&2&3			0	21350	2560	50	MID	0.12	0.222	21.66	22.50	1.213	0.269	/
	Level1&2&3		Left Tilt	0	21350	2560	1	MID	0.16	0.146	22.71	23.50	1.199	0.175	/
	Level1&2&3			0	21350	2560	50	MID	0.02	0.105	21.66	22.50	1.213	0.127	/
	Level1&2&3		Right Cheek	0	21350	2560	1	MID	-0.01	0.148	22.71	23.50	1.199	0.178	/
	Level1&2&3			0	21350	2560	50	MID	-0.04	0.113	21.66	22.50	1.213	0.137	/
	Level1&2&3		Right Tilt	0	21350	2560	1	MID	-0.08	0.108	22.71	23.50	1.199	0.130	/
	Level1&2&3			0	21350	2560	50	MID	-0.10	0.088	21.66	22.50	1.213	0.107	/
<b>Body-worn Accessory</b>															
Down	Level4	QPSK	Front Side	15	21350	2560	1	MID	-0.06	0.224	22.71	23.50	1.199	0.269	/
	Level4			15	21350	2560	50	MID	0.15	0.192	21.66	22.50	1.213	0.233	/
	Level4		Back Side	15	21350	2560	1	MID	0.00	0.317	22.71	23.50	1.199	<b>0.380</b>	14#
	Level4			15	21350	2560	50	MID	-0.11	0.295	21.66	22.50	1.213	0.358	/
<b>Hotspot</b>															
Down	Level5&6	QPSK	Front Side	10	21350	2560	1	MID	0.18	0.369	22.71	23.50	1.199	0.443	/
	Level5&6			10	21350	2560	50	MID	0.04	0.300	21.66	22.50	1.213	0.364	/
	Level5&6		Back Side	10	21350	2560	1	MID	-0.14	0.696	22.71	23.50	1.199	<b>0.835</b>	15#
	Level5&6			10	20850	2510	1	MID	0.11	0.674	22.68	23.50	1.208	0.814	/
	Level5&6			10	21100	2535	1	MID	0.03	0.683	22.71	23.50	1.199	0.819	/
	Level5&6			10	21350	2560	50	MID	0.05	0.578	21.66	22.50	1.213	0.701	/
	Level5&6		Left Edge	10	21350	2560	100	LOW	0.07	0.572	21.66	22.50	1.213	0.694	/
	Level5&6			10	21350	2560	1	MID	0.16	0.126	22.71	23.50	1.199	0.151	/
	Level5&6		Right Edge	10	21350	2560	50	MID	0.17	0.114	21.66	22.50	1.213	0.138	/
	Level5&6			10	21350	2560	1	MID	-0.13	0.400	22.71	23.50	1.199	0.480	/
	Level5&6		Bottom Edge	10	21350	2560	50	MID	-0.11	0.343	21.66	22.50	1.213	0.416	/
	Level5&6			10	21350	2560	1	MID	-0.03	0.603	22.71	23.50	1.199	0.723	/
	Level5&6		Bottom Edge	10	21350	2560	1	MID	-0.03	0.603	22.71	23.50	1.199	0.723	/
	Level5&6			10	21350	2560	50	MID	0.07	0.467	21.66	22.50	1.213	0.567	/

Note: Refer to ANNEX C for the detailed test data for each test configuration.

### 10.6LTE Band 38 (20MHz Bandwidth)

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>															
Down	Level1&2&3	QPSK	Left Cheek	0	37850	2580	1	MID	0.16	0.103	23.28	24.00	1.180	<b>0.122</b>	16#
	Level1&2&3			0	38150	2610	50	MID	-0.04	0.088	22.12	23.00	1.225	0.108	/
	Level1&2&3		Left Tilt	0	37850	2580	1	MID	0.06	0.055	23.28	24.00	1.180	0.065	/
	Level1&2&3			0	38150	2610	50	MID	0.02	0.045	22.12	23.00	1.225	0.055	/
	Level1&2&3		Right Cheek	0	37850	2580	1	MID	-0.19	0.051	23.28	24.00	1.180	0.060	/
	Level1&2&3			0	38150	2610	50	MID	-0.13	0.037	22.12	23.00	1.225	0.045	/
	Level1&2&3		Right Tilt	0	37850	2580	1	MID	-0.17	0.038	23.28	24.00	1.180	0.045	/
	Level1&2&3			0	38150	2610	50	MID	0.17	0.031	22.12	23.00	1.225	0.038	/
<b>Body-worn Accessory</b>															
Down	Level4	QPSK	Front Side	15	37850	2580	1	MID	-0.17	0.090	23.28	24.00	1.180	0.106	/
	Level4			15	38150	2610	50	MID	-0.16	0.068	22.12	23.00	1.225	0.083	/
	Level4		Back Side	15	37850	2580	1	MID	0.11	0.167	23.28	24.00	1.180	<b>0.197</b>	17#
	Level4			15	38150	2610	50	MID	0.09	0.130	22.12	23.00	1.225	0.159	/
<b>Hotspot</b>															
Down	Level5&6	QPSK	Front Side	10	37850	2580	1	MID	-0.05	0.210	23.28	24.00	1.180	0.248	/
	Level5&6			10	38150	2610	50	MID	0.03	0.163	22.12	23.00	1.225	0.200	/
	Level5&6		Back Side	10	37850	2580	1	MID	0.17	0.494	23.28	24.00	1.180	<b>0.583</b>	18#
	Level5&6			10	38150	2610	50	MID	-0.07	0.449	22.12	23.00	1.225	0.550	/
	Level5&6		Left Edge	10	37850	2580	1	MID	0.07	0.079	23.28	24.00	1.180	0.093	/
	Level5&6			10	38150	2610	50	MID	-0.10	0.062	22.12	23.00	1.225	0.076	/
	Level5&6		Right Edge	10	37850	2580	1	MID	-0.07	0.247	23.28	24.00	1.180	0.292	/
	Level5&6			10	38150	2610	50	MID	0.00	0.192	22.12	23.00	1.225	0.235	/
	Level5&6		Bottom Edge	10	37850	2580	1	MID	-0.19	0.469	23.28	24.00	1.180	0.554	/
	Level5&6			10	38150	2610	50	MID	0.02	0.458	22.12	23.00	1.225	0.561	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.															



### 10.7LTE Band 41 (20MHz Bandwidth)

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>															
Down	Level1&2&3	QPSK	Left Cheek	0	41490	2680	1	MID	-0.15	0.143	23.47	24.00	1.130	<b>0.162</b>	19#
	Level1&2&3			0	41490	2680	1	MID	-0.06	0.126	22.14	23.00	1.219	0.154	/
	Level1&2&3		Left Tilt	0	41490	2680	1	MID	0.06	0.077	23.47	24.00	1.130	0.087	/
	Level1&2&3			0	41490	2680	1	MID	0.01	0.062	22.14	23.00	1.219	0.076	/
	Level1&2&3		Right Cheek	0	41490	2680	1	MID	-0.06	0.064	23.47	24.00	1.130	0.072	/
	Level1&2&3			0	41490	2680	1	MID	-0.17	0.055	22.14	23.00	1.219	0.067	/
	Level1&2&3		Right Tilt	0	41490	2680	1	MID	0.17	0.049	23.47	24.00	1.130	0.055	/
	Level1&2&3			0	41490	2680	1	MID	-0.17	0.047	22.14	23.00	1.219	0.057	/
<b>Body-worn Accessory</b>															
Down	Level4	QPSK	Front Side	15	41490	2680	1	MID	-0.10	0.144	23.47	24.00	1.130	0.163	/
	Level4			15	41490	2680	50	MID	0.12	0.100	22.14	23.00	1.219	0.122	/
	Level4		Back Side	15	41490	2680	1	MID	0.11	0.378	23.47	24.00	1.130	<b>0.427</b>	20#
	Level4			15	41490	2680	50	MID	0.01	0.216	22.14	23.00	1.219	0.263	/
<b>Hotspot</b>															
Down	Level5&6	QPSK	Front Side	10	41490	2680	1	MID	0.01	0.280	23.47	24.00	1.130	0.316	/
	Level5&6			10	41490	2680	50	MID	0.06	0.172	22.14	23.00	1.219	0.210	/
	Level5&6		Back Side	10	41490	2680	1	MID	0.15	0.429	23.47	24.00	1.130	0.485	/
	Level5&6			10	41490	2680	50	MID	-0.06	0.406	22.14	23.00	1.219	0.495	/
	Level5&6		Left Edge	10	41490	2680	1	MID	0.09	0.085	23.47	24.00	1.130	0.096	/
	Level5&6			10	41490	2680	50	MID	0.09	0.063	22.14	23.00	1.219	0.077	/
	Level5&6		Right Edge	10	41490	2680	1	MID	-0.10	0.197	23.47	24.00	1.130	0.223	/
	Level5&6			10	41490	2680	50	MID	-0.02	0.192	22.14	23.00	1.219	0.234	/
	Level5&6		Bottom Edge	10	41490	2680	1	MID	0.04	0.444	23.47	24.00	1.130	<b>0.502</b>	21#
	Level5&6			10	41490	2680	50	MID	-0.01	0.403	22.14	23.00	1.219	0.491	/

Note: Refer to ANNEX C for the detailed test data for each test configuration.

**10.8WIFI 2.4GHz**

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>															
UP	Level1	802.11 b	Left Cheek	0	6	2437	-0.01	0.344	99.22	1.008	13.92	15.00	1.282	<b>0.445</b>	22#
	Level1		Left Tilt	0	6	2437	0.03	0.244	99.22	1.008	13.92	15.00	1.282	0.315	/
	Level1		Right Cheek	0	6	2437	0.14	0.133	99.22	1.008	13.92	15.00	1.282	0.172	/
	Level1		Right Tilt	0	6	2437	0.08	0.144	99.22	1.008	13.92	15.00	1.282	0.186	/
UP	Level2	802.11 b	Left Cheek	0	6	2437	-0.15	0.270	99.22	1.008	12.81	14.00	1.315	0.358	/
	Level2		Left Tilt	0	6	2437	-0.07	0.196	99.22	1.008	12.81	14.00	1.315	0.259	/
	Level2		Right Cheek	0	6	2437	0.16	0.105	99.22	1.008	12.81	14.00	1.315	0.139	/
	Level2		Right Tilt	0	6	2437	0.03	0.112	99.22	1.008	12.81	14.00	1.315	0.148	/
<b>Body-worn Accessory</b>															
UP	Level3	802.11 b	Front Side	15	6	2437	-0.05	0.053	99.22	1.008	15.88	17.00	1.294	0.069	/
	Level3		Back Side	15	6	2437	-0.06	0.062	99.22	1.008	15.88	17.00	1.294	<b>0.080</b>	23#
<b>Hotspot</b>															
UP	Level4	802.11 b	Front Side	10	6	2437	0.07	0.033	99.22	1.008	12.81	14.00	1.315	0.044	/
	Level4		Back Side	10	6	2437	-0.07	0.042	99.22	1.008	12.81	14.00	1.315	0.055	/
	Level4		Left Edge	10	6	2437	0.14	0.054	99.22	1.008	12.81	14.00	1.315	0.072	/
	Level4		Right Edge	10	6	2437	0.06	0.011	99.22	1.008	12.81	14.00	1.315	0.015	/
	Level4		Top Edge	10	6	2437	0.00	0.060	99.22	1.008	12.81	14.00	1.315	<b>0.080</b>	24#
	Level4		Bottom Edge	10	6	2437	0.08	0.005	99.22	1.008	12.81	14.00	1.315	0.007	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.															

## 10.9WIFI 5GHz

Fre. Band	Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>																
5.3G	Up	Level1	802.11a	Left Cheek	0	52	5260	-0.18	0.502	96.45	1.037	15.42	16.50	1.282	0.668	/
		Level1		Left Tilt	0	52	5260	0.12	0.577	96.45	1.037	15.42	16.50	1.282	<b>0.767</b>	25#
		Level1			0	64	5320	-0.09	0.478	96.45	1.037	14.96	16.00	1.271	0.630	/
		Level1		Right Cheek	0	52	5260	0.05	0.231	96.45	1.037	15.42	16.50	1.282	0.307	/
		Level1		Right Tilt	0	52	5260	-0.12	0.260	96.45	1.037	15.42	16.50	1.282	0.346	/
5.3G	Up	Level2	802.11a	Left Cheek	0	64	5320	-0.17	0.470	96.45	1.037	14.95	16.00	1.274	0.621	/
		0			52	5260	0.11	0.467	96.45	1.037	14.89	16.00	1.291	0.625	/	
		Level2		Left Tilt	0	64	5320	-0.19	0.424	96.45	1.037	14.95	16.00	1.274	0.560	/
		Level2		Right Cheek	0	64	5320	0.15	0.174	96.45	1.037	14.95	16.00	1.274	0.230	/
		Level2		Right Tilt	0	64	5320	0.03	0.193	96.45	1.037	14.95	16.00	1.274	0.255	/
5.6G	Up	Level1	802.11a	Left Cheek	0	116	5580	-0.13	0.619	96.45	1.037	15.35	16.50	1.303	<b>0.837</b>	26#
		0			100	5500	-0.02	0.542	96.45	1.037	14.86	16.00	1.300	0.731	/	
		0			140	5700	-0.14	0.516	96.45	1.037	11.40	13.00	1.445	0.773	/	
		Level1		Left Tilt	0	116	5580	-0.03	0.501	96.45	1.037	15.35	16.50	1.303	0.677	/
		Level1		Right Cheek	0	116	5580	-0.09	0.219	96.45	1.037	15.35	16.50	1.303	0.296	/
		Level1		Right Tilt	0	116	5580	-0.01	0.208	96.45	1.037	15.35	16.50	1.303	0.281	/
5.6G	Up	Level2	802.11a	Left Cheek	0	116	5580	0.12	0.503	96.45	1.037	14.87	16.00	1.297	0.677	/
		0			100	5500	-0.09	0.463	96.45	1.037	14.84	16.00	1.306	0.627	/	
		0			140	5700	-0.07	0.459	96.45	1.037	11.42	13.00	1.439	0.685	/	
		Level2		Left Tilt	0	116	5580	-0.07	0.452	96.45	1.037	14.87	16.00	1.297	0.608	/
		Level2		Right Cheek	0	116	5580	-0.16	0.197	96.45	1.037	14.87	16.00	1.297	0.265	/
		Level2		Right Tilt	0	116	5580	0.05	0.194	96.45	1.037	14.87	16.00	1.297	0.261	/
5.8G	Up	Level1	802.11a	Left Cheek	0	157	5745	0.09	0.656	96.45	1.037	14.98	16.50	1.419	0.965	/
		Level1		Left Tilt	0	157	5745	0.11	0.726	96.45	1.037	14.98	16.50	1.419	<b>1.068</b>	27#
		Level1			0	149	5745	-0.03	0.539	96.45	1.037	14.98	16.50	1.419	0.793	/
		Level1			0	165	5825	-0.18	0.647	96.45	1.037	14.90	16.50	1.445	0.970	/
		Level1		Right Cheek	0	157	5745	-0.03	0.240	96.45	1.037	14.98	16.50	1.419	0.353	/
		Level1		Right Tilt	0	157	5745	-0.18	0.282	96.45	1.037	14.98	16.50	1.419	0.415	/
5.8G	Up	Level2	802.11a	Left Cheek	0	157	5745	0.01	0.501	96.45	1.037	14.47	16.00	1.422	0.739	/
		0			149	5745	0.19	0.506	96.45	1.037	14.46	16.00	1.426	0.748	/	
		0			165	5825	-0.18	0.514	96.45	1.037	14.42	16.00	1.439	0.767	/	
		Level2		Left Tilt	0	157	5745	-0.08	0.436	96.45	1.037	14.47	16.00	1.422	0.643	/
		Level2		Right Cheek	0	157	5745	0.08	0.189	96.45	1.037	14.47	16.00	1.422	0.279	/
		Level2		Right Tilt	0	157	5745	0.05	0.210	96.45	1.037	14.47	16.00	1.422	0.310	/
<b>Body-worn Accessory</b>																
5.3G	Up	Level3	802.11a	Front Side	15	60	5300	0.07	0.172	96.45	1.037	19.08	20.00	1.236	0.220	/
		Level3		Back Side	15	60	5300	-0.01	0.242	96.45	1.037	19.08	20.00	1.236	<b>0.310</b>	28#
5.6G	Up	Level3	802.11a	Front Side	15	116	5580	0.18	0.185	96.45	1.037	18.88	20.00	1.294	0.248	/
		Level3		Back Side	15	116	5580	0.11	0.268	96.45	1.037	18.88	20.00	1.294	<b>0.360</b>	29#

5.8G	Up	Level3	802.11a	Front Side	15	157	5745	-0.07	0.192	96.45	1.037	18.78	20.00	1.324	0.263	/	
		Level3		Back Side	15	157	5745	0.01	0.301	96.45	1.037	18.78	20.00	1.324	<b>0.413</b>	30#	
<b>Hotspot</b>																	
5.2G	Up	Level4	802.11a	Front Side	10	44	5220	0.01	0.089	96.45	1.037	14.86	16.00	1.300	0.120	/	
		Level4		Back Side	10	44	5220	0.10	0.185	96.45	1.037	14.86	16.00	1.300	<b>0.249</b>	31#	
		Level4		Left Edge	10	44	5220	-0.18	0.131	96.45	1.037	14.86	16.00	1.300	0.177	/	
		Level4		Right Edge	10	44	5220	0.16	0.018	96.45	1.037	14.86	16.00	1.300	0.024	/	
		Level4		Top Edge	10	44	5220	-0.13	0.165	96.45	1.037	14.86	16.00	1.300	0.222	/	
		Level4		Bottom Edge	10	44	5220	-0.05	0.029	96.45	1.037	14.86	16.00	1.300	0.039	/	
5.8G	Up	Level4	802.11a	Front Side	10	157	5785	-0.11	0.105	96.45	1.037	14.47	16.00	1.422	0.155	/	
		Level4		Back Side	10	157	5785	0.10	0.119	96.45	1.037	14.47	16.00	1.422	0.176	/	
		Level4		Left Edge	10	157	5785	0.06	0.172	96.45	1.037	14.47	16.00	1.422	0.254	/	
		Level4		Right Edge	10	157	5785	0.15	0.017	96.45	1.037	14.47	16.00	1.422	0.025	/	
		Level4		Top Edge	10	157	5785	0.05	0.257	96.45	1.037	14.47	16.00	1.422	<b>0.379</b>	32#	
		Level4		Bottom Edge	10	157	5785	0.01	0.031	96.45	1.037	14.47	16.00	1.422	0.046	/	

Note: Refer to ANNEX C for the detailed test data for each test configuration.

Fre. Band	Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	10g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.	
<b>Specific</b>																	
5.3G	Up	Level3	802.11a	Front Side	0	60	5300	0.08	0.681	96.45	1.037	19.08	20.00	1.236	0.873	/	
		Level3		Back Side	0	60	5300	0.15	0.922	96.45	1.037	19.08	20.00	1.236	1.182	/	
		Level3		Left Edge	0	60	5300	0.02	0.807	96.45	1.037	19.08	20.00	1.236	1.034	/	
		Level3		Right Edge	0	60	5300	-0.09	0.035	96.45	1.037	19.08	20.00	1.236	0.045	/	
		Level3		Top Edge	0	60	5300	-0.10	0.973	96.45	1.037	19.08	20.00	1.236	<b>1.247</b>	33#	
		Level3		Bottom Edge	0	60	5300	0.14	0.046	96.45	1.037	19.08	20.00	1.236	0.059	/	
5.6G	Up	Level3	802.11a	Front Side	0	116	5580	0.03	0.881	96.45	1.037	18.88	20.00	1.294	1.182	/	
		Level3		Back Side	0	116	5580	-0.06	1.066	96.45	1.037	18.88	20.00	1.294	1.431	/	
		Level3		Left Edge	0	116	5580	-0.04	1.033	96.45	1.037	18.88	20.00	1.294	1.387	/	
		Level3		Right Edge	0	116	5580	0.06	0.034	96.45	1.037	18.88	20.00	1.294	0.045	/	
		Level3		Top Edge	0	116	5580	0.07	1.280	96.45	1.037	18.88	20.00	1.294	<b>1.718</b>	34#	
		Level3		Bottom Edge	0	116	5580	0.12	0.065	96.45	1.037	18.88	20.00	1.294	0.087	/	

Note: Refer to ANNEX C for the detailed test data for each test configuration.

## 10.10 Bluetooth

Antenna	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
<b>Head</b>														
Up	DH5	Left Cheek	0	78	2480	-0.03	0.116	76.68	1.304	11.06	13.000	1.563	<b>0.236</b>	35#
		Left Tilt	0	78	2480	0.16	0.088	76.68	1.304	11.06	13.000	1.563	0.179	/
		Right Cheek	0	78	2480	0.00	0.051	76.68	1.304	11.06	13.000	1.563	0.104	/
		Right Tilt	0	78	2480	0.10	0.047	76.68	1.304	11.06	13.000	1.563	0.096	/
<b>Body-worn Accessory</b>														
Up	DH5	Front Side	15	78	2480	-0.12	0.021	76.68	1.304	11.06	13.000	1.563	0.043	/
		Back Side	15	78	2480	-0.15	0.028	76.68	1.304	11.06	13.000	1.563	<b>0.057</b>	36#
<b>Hotspot</b>														
Up	DH5	Front Side	10	78	2480	0.14	0.038	76.68	1.304	11.06	13.000	1.563	0.077	/
		Back Side	10	78	2480	-0.13	0.049	76.68	1.304	11.06	13.000	1.563	<b>0.100</b>	37#
		Left Edge	10	78	2480	-0.11	0.042	76.68	1.304	11.06	13.000	1.563	0.086	/
		Right Edge	10	78	2480	-0.03	0.009	76.68	1.304	11.06	13.000	1.563	0.018	/
		Top Edge	10	78	2480	-0.15	0.043	76.68	1.304	11.06	13.000	1.563	0.088	/
		Bottom Edge	10	78	2480	0.19	0.006	76.68	1.304	11.06	13.000	1.563	0.012	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

## 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  $\leq 1.45$  W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is  $\leq 1.10$ , 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  $\geq 0.80$  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  $\geq 1.45$  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  $\geq 1.5$  W/kg, perform a third repeated measurement.

Note: For 1g SAR, the highest measured 1g SAR is  $0.726 < 0.80$  W/kg, 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.	Simultaneous Tx Combination	Head	Body-worn	Hotspot
1	WLAN 5GHz + BT	Yes	Yes	Yes
2	WWAN + WLAN 2.4GHz	Yes	Yes	Yes
3	WWAN + BT	Yes	Yes	Yes
4	WWAN + WLAN 5GHz	Yes	Yes	Yes
5	WWAN + WLAN 5GHz + BT	Yes	Yes	Yes

Note:

1. 2G&3G&4G share the same antenna and can't transmit simultaneously.
2. WWAN antennas can switch automatically, but can't transmit simultaneously.
3. The maximum SAR summation is calculated based on the same configuration and test position.
4. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
5. This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz WLAN/5.5GHz WLAN supports WiFi Direct (GC only).

## 12.2 Sum SAR of Simultaneous Transmission

### 12.2.1 Head Simultaneous Transmission SAR Evaluation for WWAN Antenna with WLAN and Bluetooth

Band	Position	Stand alone SAR				SUM SAR	
		1	2	3	4	Sum SAR (1+2)	Sum SAR (1+3+4)
		WWAN	2.4GWIFI	MAX.5GWIFI	Bluetooth		
GSM850	Left Cheek	0.288	0.358	0.767	0.236	0.646	1.291
	Left Tilt	0.161	0.259	0.643	0.179	0.420	0.983
	Right Cheek	0.298	0.139	0.279	0.104	0.437	0.681
	Right Tilt	0.193	0.148	0.310	0.096	0.341	0.599
GSM1900	Left Cheek	0.070	0.358	0.767	0.236	0.428	1.073
	Left Tilt	0.068	0.259	0.643	0.179	0.327	0.890
	Right Cheek	0.115	0.139	0.279	0.104	0.254	0.498
	Right Tilt	0.063	0.148	0.310	0.096	0.211	0.469
WCDMA B5	Left Cheek	0.191	0.358	0.767	0.236	0.549	1.194
	Left Tilt	0.101	0.259	0.643	0.179	0.360	0.923
	Right Cheek	0.195	0.139	0.279	0.104	0.334	0.578
	Right Tilt	0.114	0.148	0.310	0.096	0.262	0.520
LTE B5	Left Cheek	0.438	0.358	0.767	0.236	0.796	<b>1.441</b>
	Left Tilt	0.359	0.259	0.643	0.179	0.618	1.181
	Right Cheek	0.496	0.139	0.279	0.104	0.635	0.879
	Right Tilt	0.271	0.148	0.310	0.096	0.419	0.677
LTE B7	Left Cheek	0.360	0.358	0.767	0.236	0.718	1.363
	Left Tilt	0.175	0.259	0.643	0.179	0.434	0.997
	Right Cheek	0.178	0.139	0.279	0.104	0.317	0.561
	Right Tilt	0.130	0.148	0.310	0.096	0.278	0.536
LTE B38	Left Cheek	0.122	0.358	0.767	0.236	0.480	1.125
	Left Tilt	0.065	0.259	0.643	0.179	0.324	0.887
	Right Cheek	0.060	0.139	0.279	0.104	0.199	0.443
	Right Tilt	0.045	0.148	0.310	0.096	0.193	0.451
LTE B41	Left Cheek	0.162	0.358	0.767	0.236	0.520	1.165
	Left Tilt	0.087	0.259	0.643	0.179	0.346	0.909
	Right Cheek	0.067	0.139	0.279	0.104	0.206	0.450
	Right Tilt	0.057	0.148	0.310	0.096	0.205	0.463

**Note:**

1: The simultaneous transmission combinations of the three antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations was shown in this table.

2: The highest Summed 1g SAR is 1.441 W/Kg < 1.5 W/kg, so Simultaneous Transmission SAR test is not required.



### 12.2.2 Body-worn Simultaneous Transmission SAR Evaluation for WWAN Antenna with WLAN and Bluetooth

Band	Position	Stand alone SAR				SUM SAR	
		1	5	3	4	Sum SAR (1+2)	Sum SAR (1+3+4)
		WWAN	2.4GWIFI	MAX.5GWIFI	Bluetooth		
GSM850	Front Side 15mm	0.138	0.069	0.263	0.043	0.207	0.444
	Back Side 15mm	0.166	0.080	0.413	0.057	0.246	0.636
GSM1900	Front Side 15mm	0.116	0.069	0.263	0.043	0.185	0.422
	Back Side 15mm	0.308	0.080	0.413	0.057	0.388	0.778
WCDMA B5	Front Side 15mm	0.133	0.069	0.263	0.043	0.202	0.439
	Back Side 15mm	0.172	0.080	0.413	0.057	0.252	0.642
LTE B5	Front Side 15mm	0.146	0.069	0.263	0.043	0.215	0.452
	Back Side 15mm	0.170	0.080	0.413	0.057	0.250	0.640
LTE B7	Front Side 15mm	0.380	0.069	0.263	0.043	0.449	0.686
	Back Side 15mm	0.358	0.080	0.413	0.057	0.438	<b>0.828</b>
LTE B38	Front Side 15mm	0.197	0.069	0.263	0.043	0.266	0.503
	Back Side 15mm	0.159	0.080	0.413	0.057	0.239	0.629
LTE B41	Front Side 15mm	0.427	0.069	0.263	0.043	0.496	0.733
	Back Side 15mm	0.263	0.080	0.413	0.057	0.343	0.733

**Note:**

1: The simultaneous transmission combinations of the three antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations was shown in this table.

2: The highest Summed 10g SAR is 0.828 W/Kg < 1.5 W/kg, so Simultaneous Transmission SAR test is not required.

### 12.2.3 Hotspot Simultaneous Transmission SAR Evaluation for WWAN Antenna with WLAN and Bluetooth

Band	Position	Stand alone SAR				SUM SAR	
		1	2	3	4	Sum SAR (1+2)	Sum SAR (1+3+4)
		WWAN	2.4GWIFI	MAX.5GWIFI	Bluetooth		
GSM850	Front Side 10mm	0.183	0.044	0.155	0.077	0.227	0.415
	Back Side 10mm	0.284	0.055	0.249	0.100	0.339	0.633
	Left Edge 10mm	0.232	0.072	0.254	0.086	0.304	0.572
	Right Edge 10mm	0.142	0.015	0.025	0.018	0.157	0.185
	Bottom Edge 10mm	0.235	0.007	0.046	0.012	0.242	0.293
GSM1900	Front Side 10mm	0.359	0.044	0.155	0.077	0.403	0.591
	Back Side 10mm	1.014	0.055	0.249	0.100	1.069	<b>1.363</b>
	Left Edge 10mm	0.098	0.072	0.254	0.086	0.170	0.438
	Right Edge 10mm	0.158	0.015	0.025	0.018	0.173	0.201
	Bottom Edge 10mm	1.035	0.007	0.046	0.012	1.042	1.093
WCDMA B5	Front Side 10mm	0.164	0.044	0.155	0.077	0.208	0.396
	Back Side 10mm	0.274	0.055	0.249	0.100	0.329	0.623
	Left Edge 10mm	0.218	0.072	0.254	0.086	0.290	0.558
	Right Edge 10mm	0.138	0.015	0.025	0.018	0.153	0.181
	Bottom Edge 10mm	0.210	0.007	0.046	0.012	0.217	0.268
LTE B5	Front Side 10mm	0.164	0.044	0.155	0.077	0.208	0.396
	Back Side 10mm	0.338	0.055	0.249	0.100	0.393	0.687
	Left Edge 10mm	0.173	0.072	0.254	0.086	0.245	0.513
	Right Edge 10mm	0.111	0.015	0.025	0.018	0.126	0.154
	Bottom Edge 10mm	0.229	0.007	0.046	0.012	0.236	0.287
LTE B7	Front Side 10mm	0.443	0.044	0.155	0.077	0.487	0.675
	Back Side 10mm	0.835	0.055	0.249	0.100	0.890	1.184
	Left Edge 10mm	0.151	0.072	0.254	0.086	0.223	0.491
	Right Edge 10mm	0.480	0.015	0.025	0.018	0.495	0.523
	Bottom Edge 10mm	0.723	0.007	0.046	0.012	0.730	0.781
LTE B38	Front Side 10mm	0.248	0.044	0.155	0.077	0.292	0.480
	Back Side 10mm	0.583	0.055	0.249	0.100	0.638	0.932
	Left Edge 10mm	0.093	0.072	0.254	0.086	0.165	0.433
	Right Edge 10mm	0.292	0.015	0.025	0.018	0.307	0.335
	Bottom Edge 10mm	0.561	0.007	0.046	0.012	0.568	0.619
LTE B41	Front Side 10mm	0.316	0.044	0.155	0.077	0.360	0.548
	Back Side 10mm	0.495	0.055	0.249	0.100	0.550	0.844
	Left Edge 10mm	0.096	0.072	0.254	0.086	0.168	0.436
	Right Edge 10mm	0.234	0.015	0.025	0.018	0.249	0.277
	Bottom Edge 10mm	0.502	0.007	0.046	0.012	0.509	0.560

**Note:**

1: The simultaneous transmission combinations of the three antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations was shown in this table.

2: The highest Summed 1g SAR is 1.363 W/Kg < 1.5 W/kg, so Simultaneous Transmission SAR test is not required.

## 13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
Test Software	Speag	DASY5	52.8.8.1222	N/A	N/A
835MHz Validation Dipole	Speag	D835V2	SN: 4d187	2021/05/17	2024/05/16
1900MHz Validation Dipole	Speag	D1900V2	SN: 5d193	2021/05/20	2024/05/19
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2021/05/19	2024/05/18
2600MHz Validation Dipole	Speag	D2600V2	SN: 1095	2021/05/19	2024/05/18
5GHz Validation Dipole	Speag	D5GHzV2	SN: 1200	2021/05/18	2024/05/17
E-Field Probe	Speag	EX3DV4	SN: 7510	2020/11/30	2021/11/29
E-Field Probe	Speag	EX3DV4	SN: 7607	2020/08/07	2021/08/06
Data Acquisition Electronics	Speag	DAE4	SN: 1454	2020/11/06	2021/11/05
Data Acquisition Electronics	Speag	DAE4	SN: 878	2020/09/30	2021/09/29
Signal Generator	R&S	SMB100A	182396	2020/12/21	2021/12/20
Power Meter	R&S	NRVD-B2	7250BJ-0112/2011	2020/09/25	2021/09/24
Power Sensor	R&S	NRV-Z4	100381	2020/09/25	2021/09/24
Wireless Communication Test Set	Anritsu	MT8820C	6201502974	2021/03/16	2022/03/15
Wireless Communication Test Set	Anritsu	MT8820C	6201502991	2021/03/16	2022/03/15
Network Analyzer	Agilent	E5071B	MY42404001	2021/04/01	2022/03/31
Thermometer	Elitech	RC-4HC	EF720B004820	2020/12/24	2021/12/23
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Dielectric Probe Kit	SATIMO	SCLMP	SN 25/13 OCPG56	N/A	N/A
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

Note: For dipole antennas, BALUN has adopted 3 years as calibration intervals, and 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.

Head Liquid

Date	Liquid Type	Fre. (MHz)	Temp. (°C)	Meas. Conductivity ( $\sigma$ ) (S/m)	Meas. Permittivity ( $\epsilon$ )	Target Conductivity ( $\sigma$ ) (S/m)	Target Permittivity ( $\epsilon$ )	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2021.07.21	Head	835	21.5	0.90	41.43	0.90	41.50	0.00	-0.17
2021.07.23	Head	1900	21.3	1.40	39.89	1.40	40.00	0.00	-0.27
2021.07.24	Head	2450	21.6	1.81	39.04	1.80	39.20	0.56	-0.41
2021.08.18	Head	2450	21.6	1.79	39.13	1.80	39.20	-0.56	-0.18
2021.07.26	Head	2600	21.5	1.98	38.86	1.96	39.01	1.02	-0.38
2021.07.29	Head	5250	21.5	4.70	35.94	4.71	35.93	-0.21	0.03
2021.07.30	Head	5600	21.6	5.09	35.48	5.07	35.53	0.39	-0.14
2021.07.31	Head	5750	21.3	5.26	35.29	5.22	35.36	0.77	-0.20

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).

Head liquid 1g

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2021.07.21	Head	835	100	0.955	9.55	9.76	-2.15
2021.07.23	Head	1900	100	3.940	39.40	40.30	-2.23
2021.07.24	Head	2450	100	5.27	52.70	53.00	-0.56
2021.08.18	Head	2450	100	5.580	55.80	53.00	5.28
2021.07.26	Head	2600	100	5.370	53.70	56.80	-5.46
2021.07.29	Head	5250	100	7.390	73.90	77.80	-5.01
2021.07.30	Head	5600	100	8.460	84.60	81.20	4.19
2021.07.31	Head	5750	100	7.920	79.20	77.20	2.59

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

Head liquid 10g

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2021.07.29	Head	5250	100	2.230	22.30	22.10	0.90
2021.07.30	Head	5600	100	2.320	23.20	23.10	0.43

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

# System Performance Check Data (835MHz)

Date: 2021.07.21

Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.901$  S/m;  $\epsilon_r = 41.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.3 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**CW 835 100mW HEAD/Area Scan (61x81x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.02 W/kg

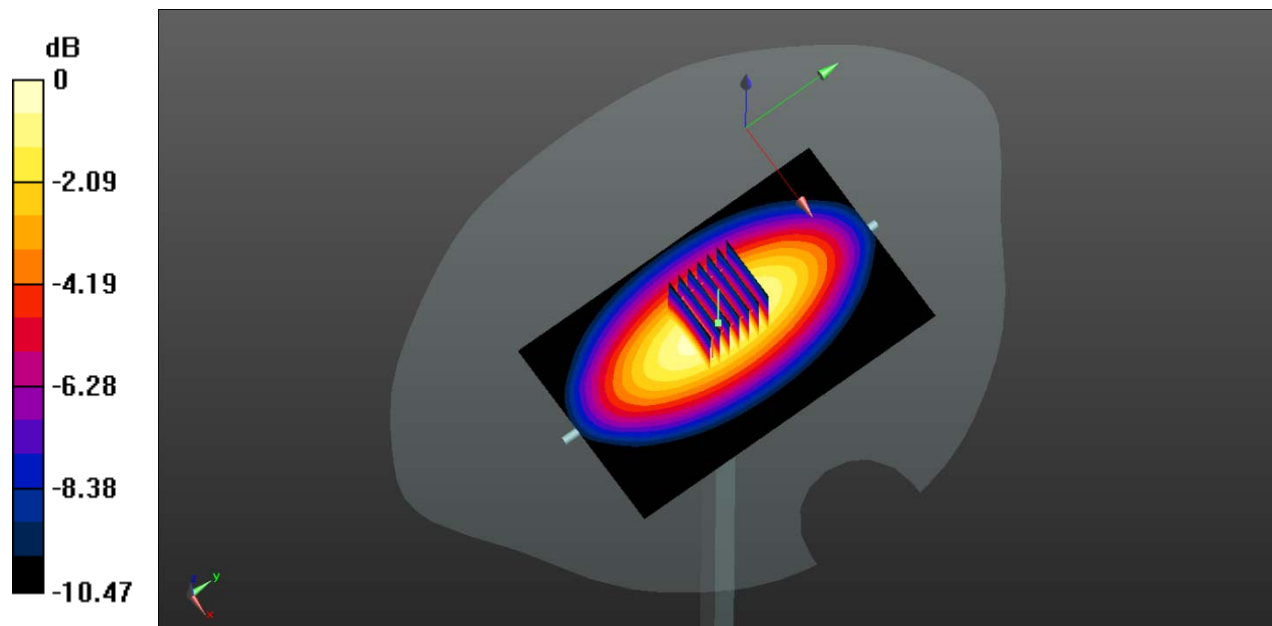
**CW 835 100mW HEAD/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.18 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.41 W/kg

**SAR(1 g) = 0.955 W/kg; SAR(10 g) = 0.621 W/kg**

Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg

## System Performance Check Data (1900MHz)

Date: 2021.07.23

Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.403$  S/m;  $\epsilon_r = 39.893$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.6 Liquid Temperature: 21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.26, 8.26, 8.26); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**CW 1900 100mW/Area Scan (101x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 4.65 W/kg

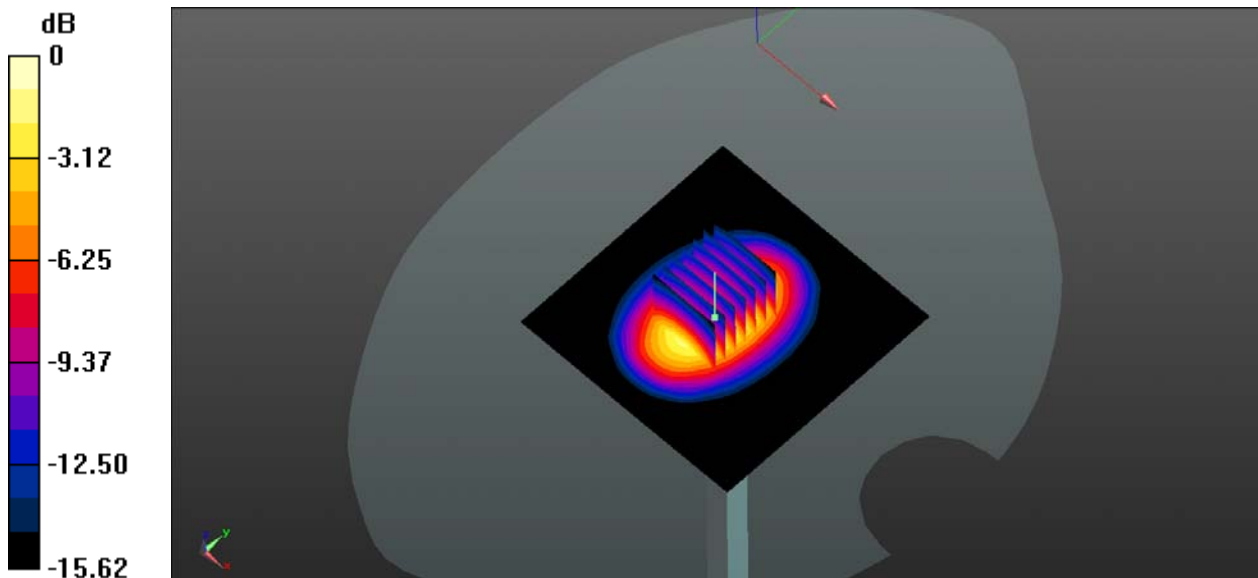
**CW 1900 100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.45 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 7.36 W/kg

**SAR(1 g) = 3.94 W/kg; SAR(10 g) = 2.12 W/kg**

Maximum value of SAR (measured) = 4.39 W/kg



0 dB = 4.39 W/kg

**System Check: Head 2450 MHz**

Date: 2021.07.24

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

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.808$  S/m;  $\epsilon_r = 39.044$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.4 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.66, 7.66, 7.66); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**CW 2450 100mW/Area Scan (101x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 6.18 W/kg

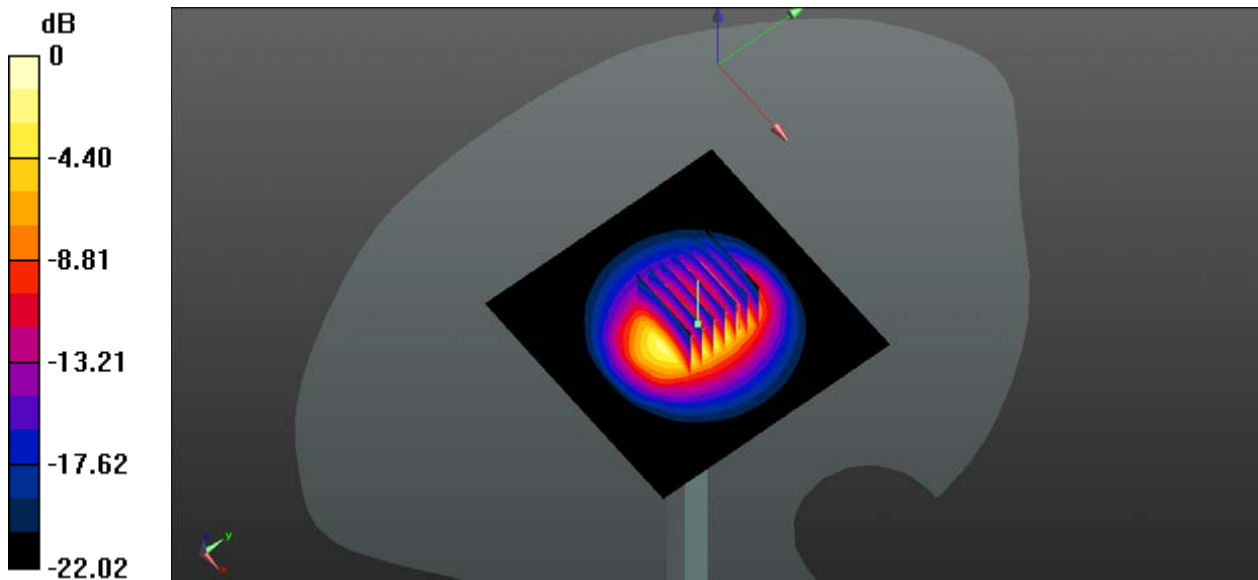
**CW 2450 100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.87 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 11.0 W/kg

**SAR(1 g) = 5.27 W/kg; SAR(10 g) = 2.36 W/kg**

Maximum value of SAR (measured) = 6.04 W/kg



0 dB = 6.04 W/kg



# System Performance Check Data (2450MHz)

Date: 2021.08.18

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

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.788$  S/m;  $\epsilon_r = 39.134$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.6 Liquid Temperature: 21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.54, 7.54, 7.54); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- 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) = 6.35 W/kg

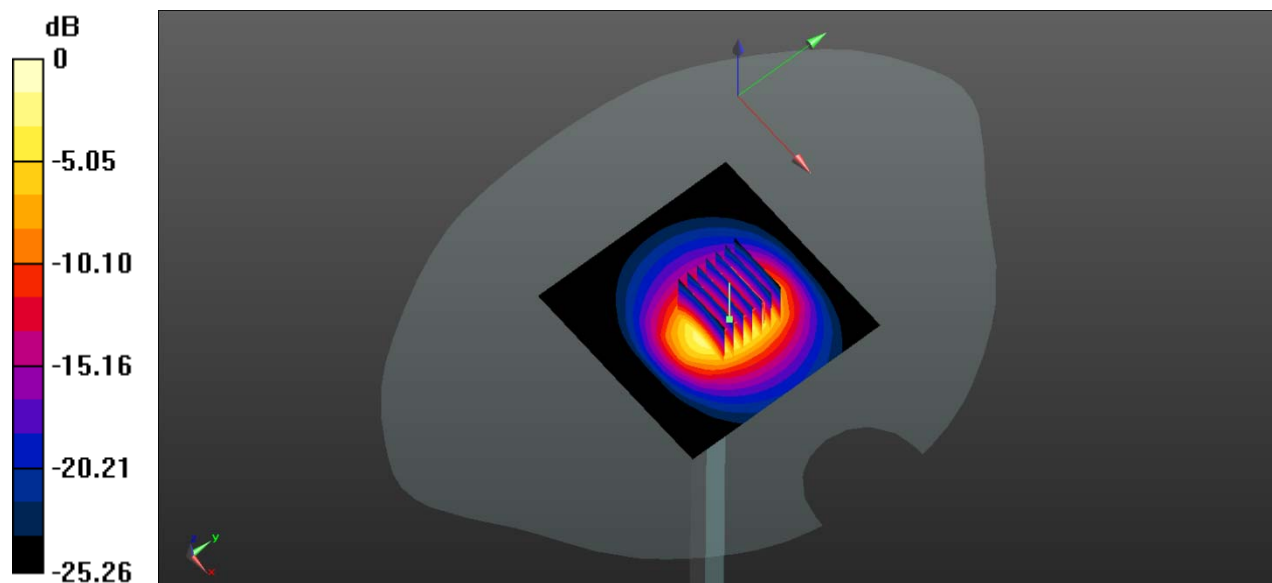
**CW2450 HEAD 100mw/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 46.24 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 13.1 W/kg

**SAR(1 g) = 5.58 W/kg; SAR(10 g) = 2.42 W/kg**

Maximum value of SAR (measured) = 6.31 W/kg



0 dB = 6.31 W/kg

# System Performance Check Data (2600MHz)

Date: 2021.07.26

Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used (extrapolated):  $f = 2600$  MHz;  $\sigma = 1.98$  S/m;  $\epsilon_r = 38.855$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.7 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**CW 2600 100mW/Area Scan (101x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 6.46 W/kg

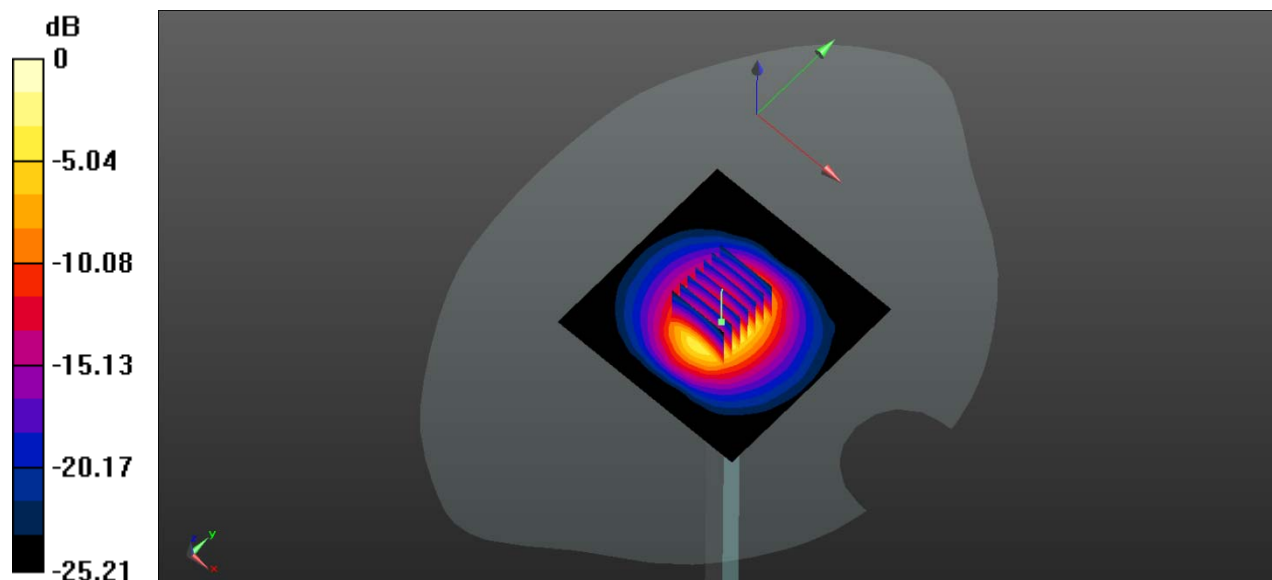
**CW 2600 100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.23 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 12.7 W/kg

**SAR(1 g) = 5.37 W/kg; SAR(10 g) = 2.45 W/kg**

Maximum value of SAR (measured) = 6.44 W/kg



0 dB = 6.44 W/kg

# System Performance Check Data (5250MHz)

Date: 2021.07.29

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

Medium parameters used:  $f = 5250$  MHz;  $\sigma = 4.701$  S/m;  $\epsilon_r = 35.938$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.5 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(5.46, 5.46, 5.46); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**CW 5250 100mW/Area Scan (101x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.11 W/kg

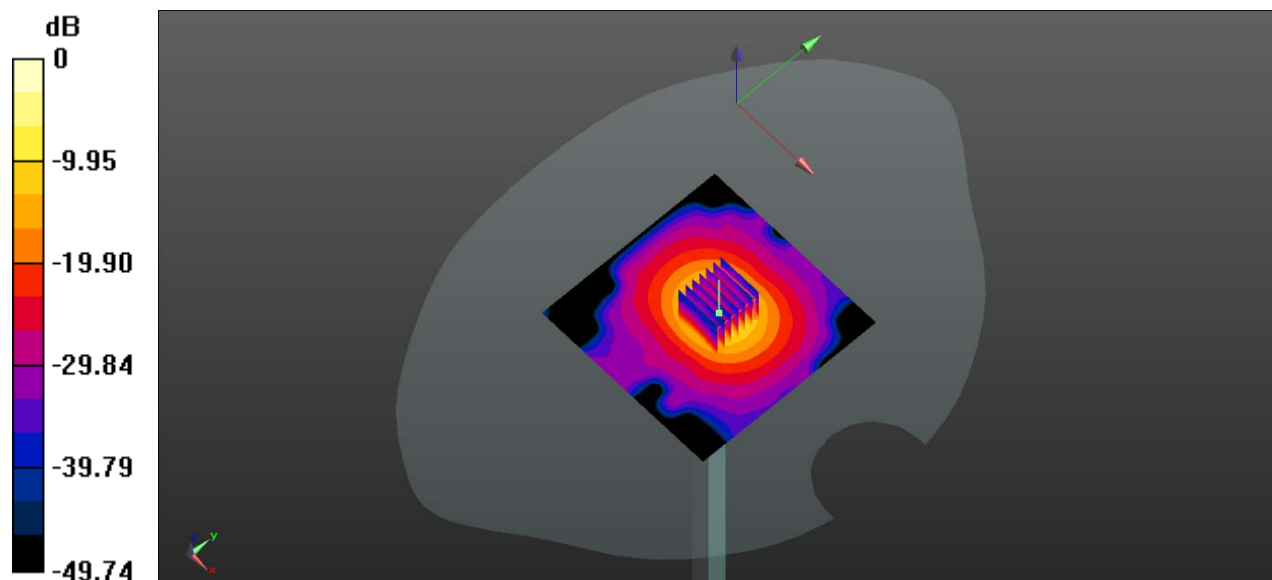
**CW 5250 100mW/Zoom Scan (7x7x21)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 36.19 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 31.8 W/kg

**SAR(1 g) = 7.39 W/kg; SAR(10 g) = 2.23 W/kg**

Maximum value of SAR (measured) = 17.9 W/kg



0 dB = 17.9 W/kg

## System Performance Check Data (5600MHz)

Date: 2021.07.30

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

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.092$  S/m;  $\epsilon_r = 35.482$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.8 Liquid Temperature: 21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(4.85, 4.85, 4.85); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**CW 5600 100mW /Area Scan (81x81x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 9.13 W/kg

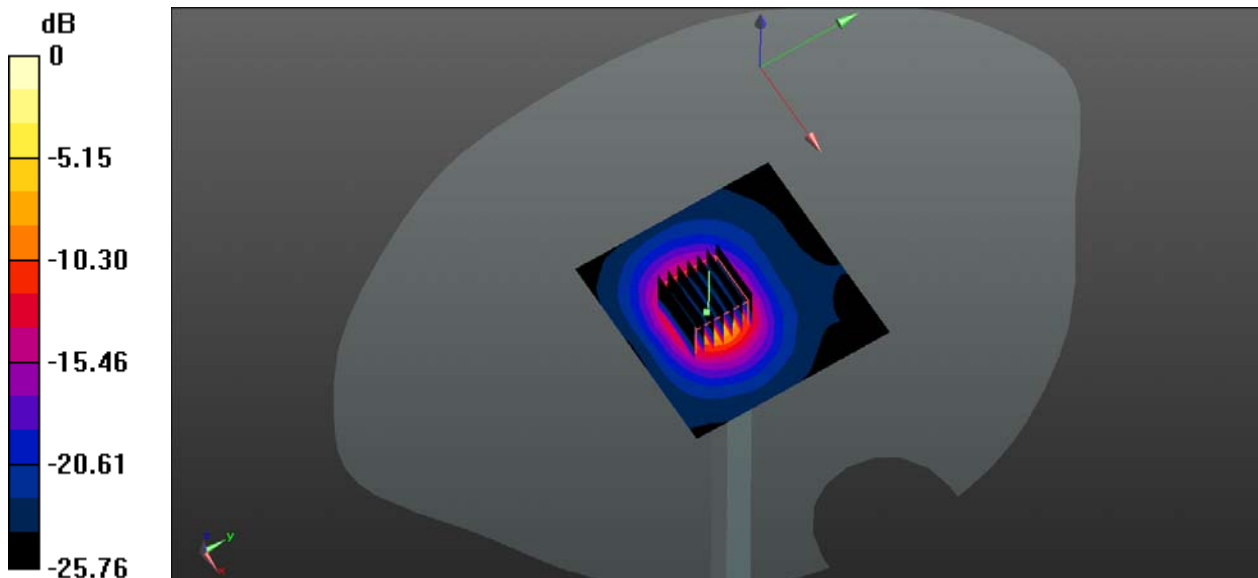
**CW 5600 100mW /Zoom Scan (7x7x15)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 22.55V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 37.61 W/kg

**SAR(1 g) = 8.46 W/kg; SAR(10 g) = 2.32 W/kg**

Maximum value of SAR (measured) = 21.5 W/kg



0 dB = 21.5 W/kg

# System Performance Check Data (5750MHz)

Date: 2021.07.31

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

Medium parameters used:  $f = 5750$  MHz;  $\sigma = 5.259$  S/m;  $\epsilon_r = 35.286$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.5 Liquid Temperature: 21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(4.86, 4.86, 4.86); Calibrated: 2020.08.07;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**CW5750 HEAD 100mW/Area Scan (81x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.48 W/kg

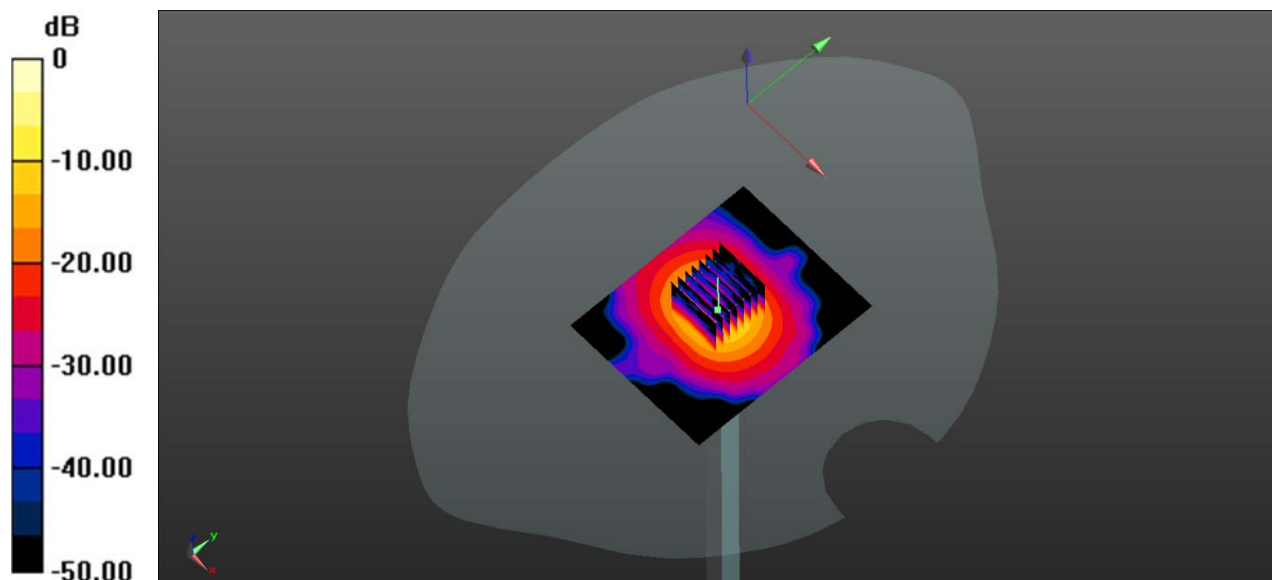
**CW5750 HEAD 100mW/Zoom Scan (8x8x21)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 36.43 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 35.42 W/kg

**SAR(1 g) = 7.92 W/kg; SAR(10 g) = 2.15 W/kg**

Maximum value of SAR (measured) = 16.4 W/kg



0 dB = 16.4 W/kg

## ANNEX C TEST DATA

### MEAS.1 Right Head with Cheek on Middle Channel in GPRS850 3Slots Mode

Date: 2021.07.21

Communication System Band: GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:2.77

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.906$  S/m;  $\epsilon_r = 41.406$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Ambient Temperature: 22.3 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch190/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.252 W/kg

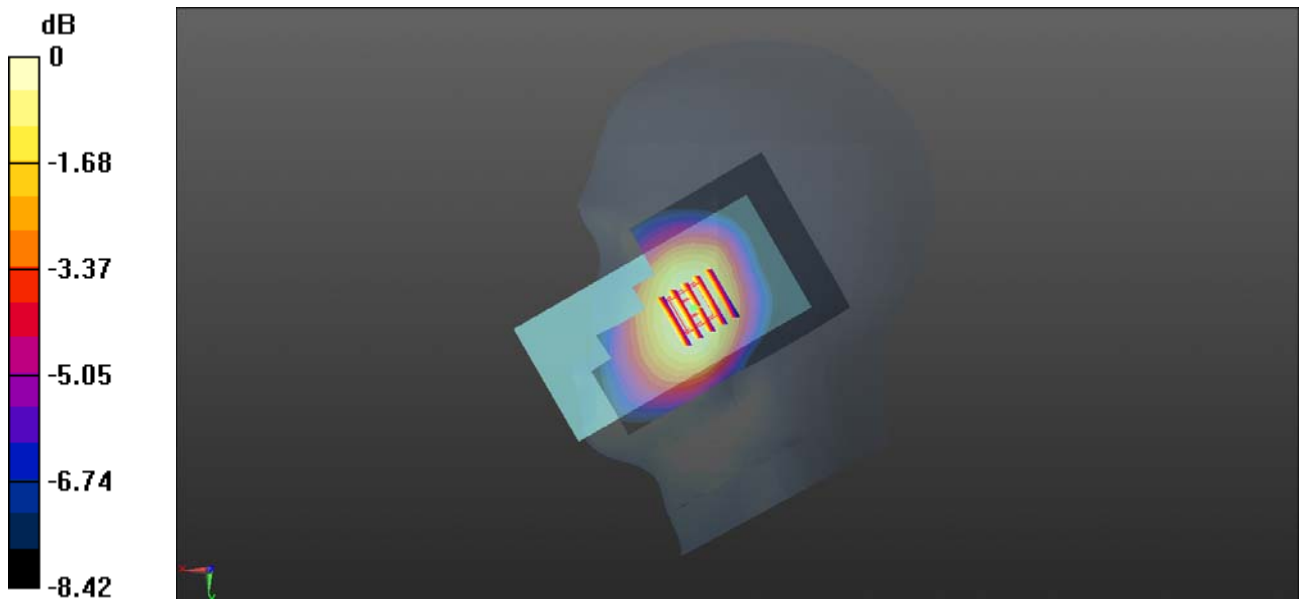
**Ch190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.220 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.286 W/kg

**SAR(1 g) = 0.235 W/kg; SAR(10 g) = 0.185 W/kg**

Maximum value of SAR (measured) = 0.247 W/kg



0 dB = 0.196 W/kg

**MEAS.2 Body Plane with Back Side 15mm on Middle Channel in GPRS850 3Slots Mode**

Date: 2021.07.21

Communication System Band: GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:2.77

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.906$  S/m;  $\epsilon_r = 41.406$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch190/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.138 W/kg

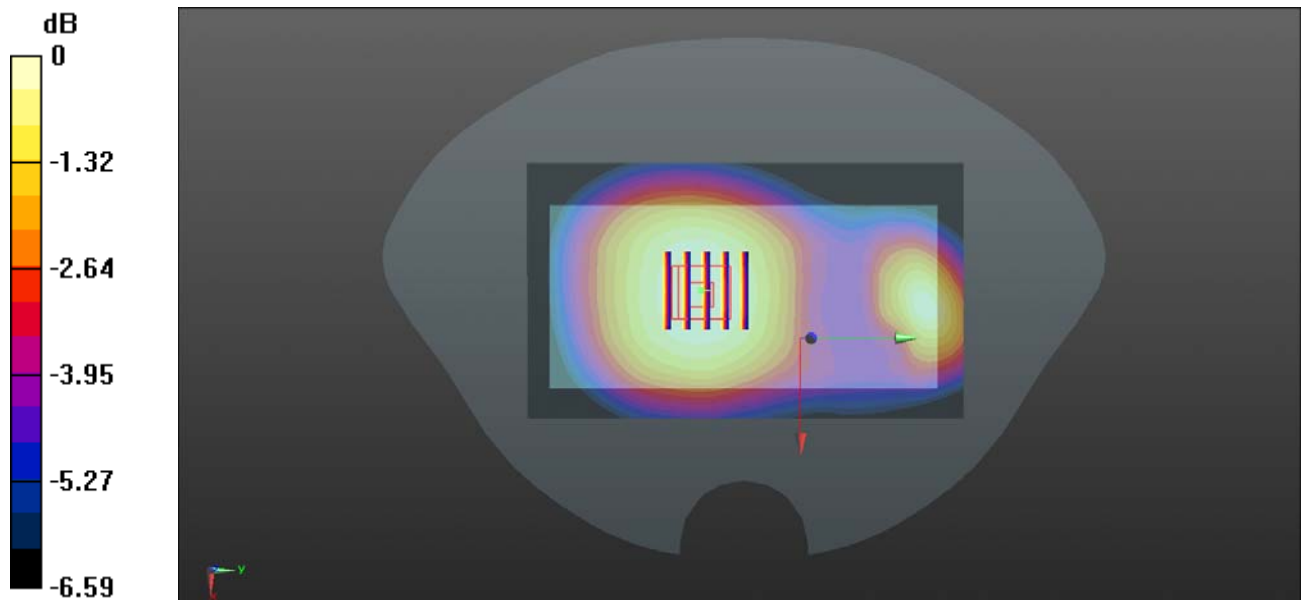
**Ch190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.42 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.163 W/kg

**SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.103 W/kg**

Maximum value of SAR (measured) = 0.137 W/kg



0 dB = 0.137 W/kg

**MEAS.3 Body Plane with Back Side 10mm on Middle Channel in GPRS850 3Slots Mode**

Date: 2021.07.21

Communication System Band: GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:2.77

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.906$  S/m;  $\epsilon_r = 41.406$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch190/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.235 W/kg

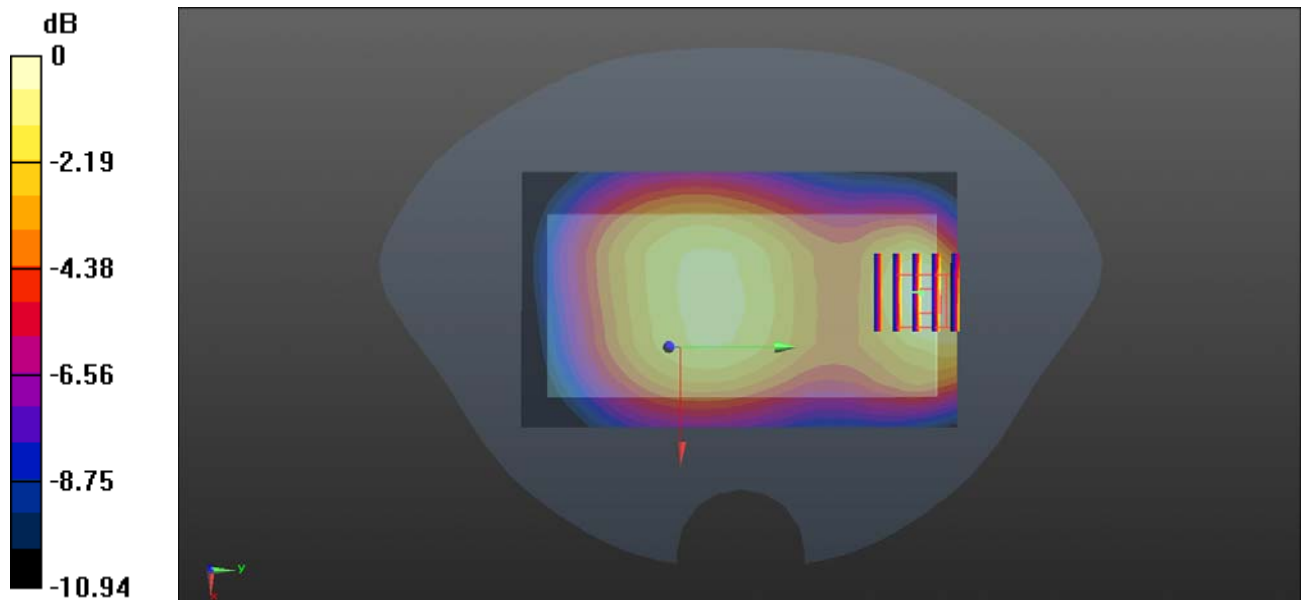
**Ch190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.53 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.365 W/kg

**SAR(1 g) = 0.224 W/kg; SAR(10 g) = 0.137 W/kg**

Maximum value of SAR (measured) = 0.238 W/kg



0 dB = 0.238 W/kg



**MEAS.4 Right Head with Cheek on Middle Channel in GPRS1900 4Slots Mode**

Date: 2021.07.23

Communication System Band: GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium parameters used (interpolated):  $f = 1880$  MHz;  $\sigma = 1.402$  S/m;  $\epsilon_r = 39.961$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Ambient Temperature:22.6 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.26, 8.26, 8.26); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch661/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.109 W/kg

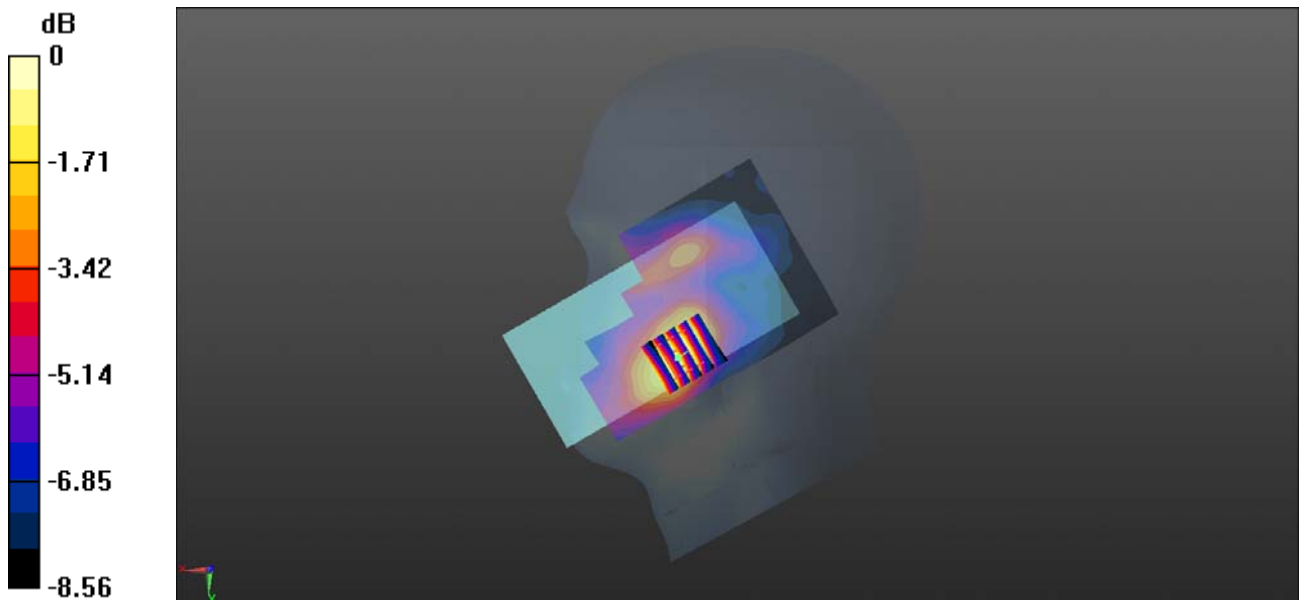
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.863 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.151 W/kg

**SAR(1 g) = 0.104 W/kg; SAR(10 g) = 0.069 W/kg**

Maximum value of SAR (measured) = 0.112 W/kg



0 dB = 0.112 W/kg

**MEAS.5 Body Plane with Back Side 15mm on Low Channel in GPRS1900 4Slots Mode**

Date: 2021.07.23

Communication System Band: GPRS1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2.08

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.399$  S/m;  $\epsilon_r = 40.002$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.26, 8.26, 8.26); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch512/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.237 W/kg

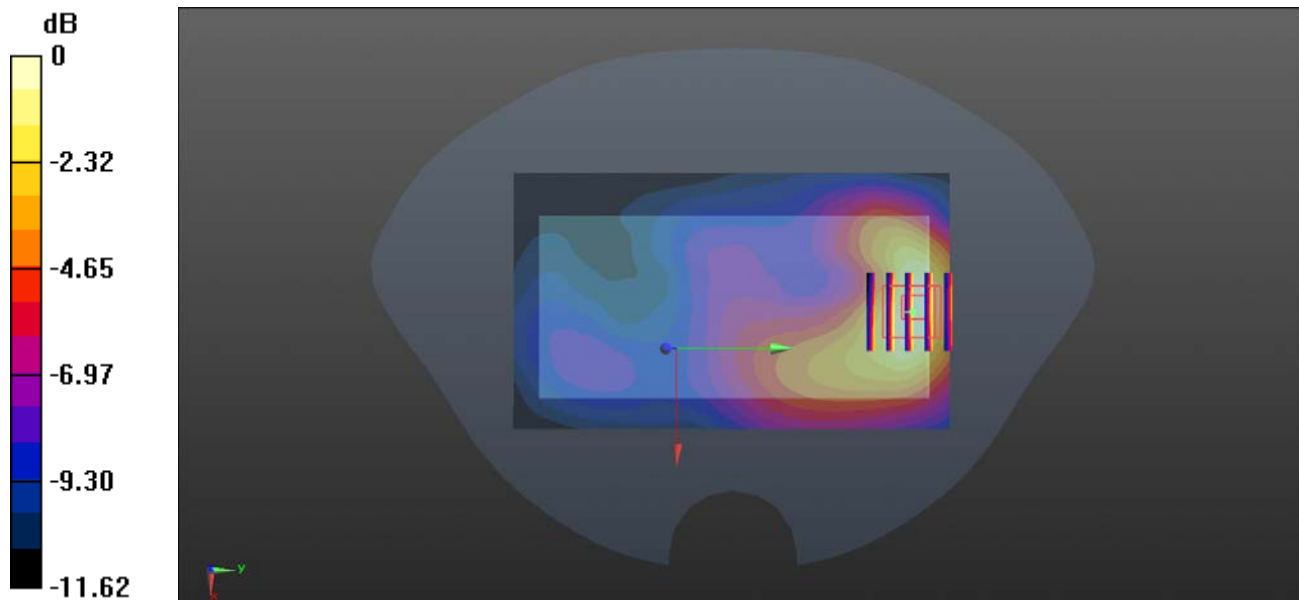
**Ch512/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.689 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.340 W/kg

**SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.135 W/kg**

Maximum value of SAR (measured) = 0.240 W/kg



0 dB = 0.240 W/kg

**MEAS.6 Body Plane with Bottom Edge 10mm on Low Channel in GPRS1900 4Slots Mode**

Date: 2021.07.23

Communication System Band: GPRS1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2.08

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.399$  S/m;  $\epsilon_r = 40.002$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.26, 8.26, 8.26); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch512/Area Scan (51x81x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.962 W/kg

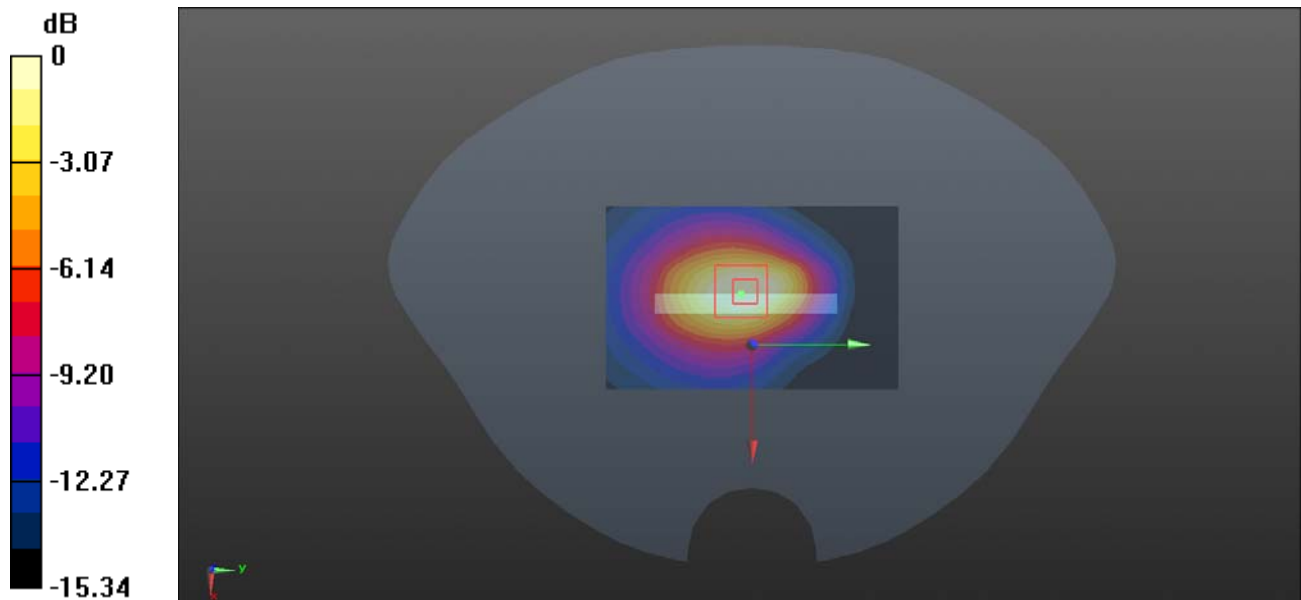
**Ch512/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.76 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.22 W/kg

**SAR(1 g) = 0.739 W/kg; SAR(10 g) = 0.415 W/kg**

Maximum value of SAR (measured) = 0.815 W/kg



0 dB = 0.815 W/kg

**MEAS.7 Right Head with Cheek on Low Channel in WCDMA Band 5 Mode**

Date: 2021.07.21

Communication System Band: V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.936$  S/m;  $\epsilon_r = 42.179$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Ambient Temperature: 22.3 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch4132/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.153 W/kg

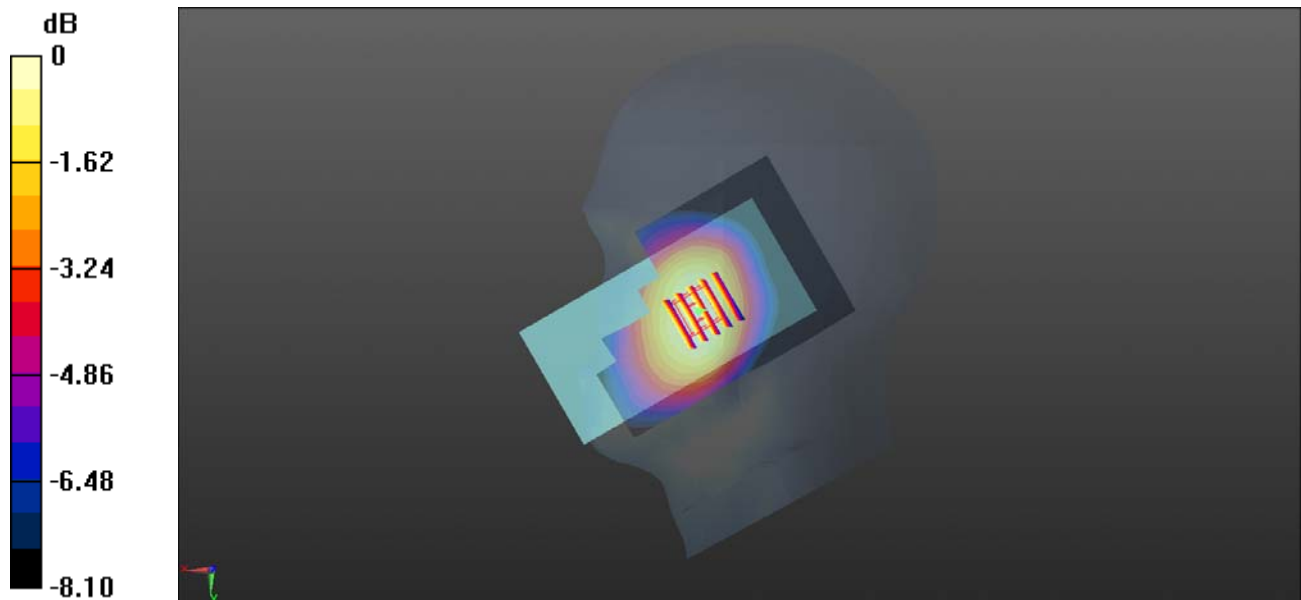
**Ch4132/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.697 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.171 W/kg

**SAR(1 g) = 0.144 W/kg; SAR(10 g) = 0.114 W/kg**

Maximum value of SAR (measured) = 0.151 W/kg



0 dB = 0.151 W/kg

**MEAS.8 Body Plane with Back Side 15mm on Low Channel in WCDMA Band 5 Mode**

Date: 2021.07.21

Communication System Band: V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.936$  S/m;  $\epsilon_r = 42.179$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch4132/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

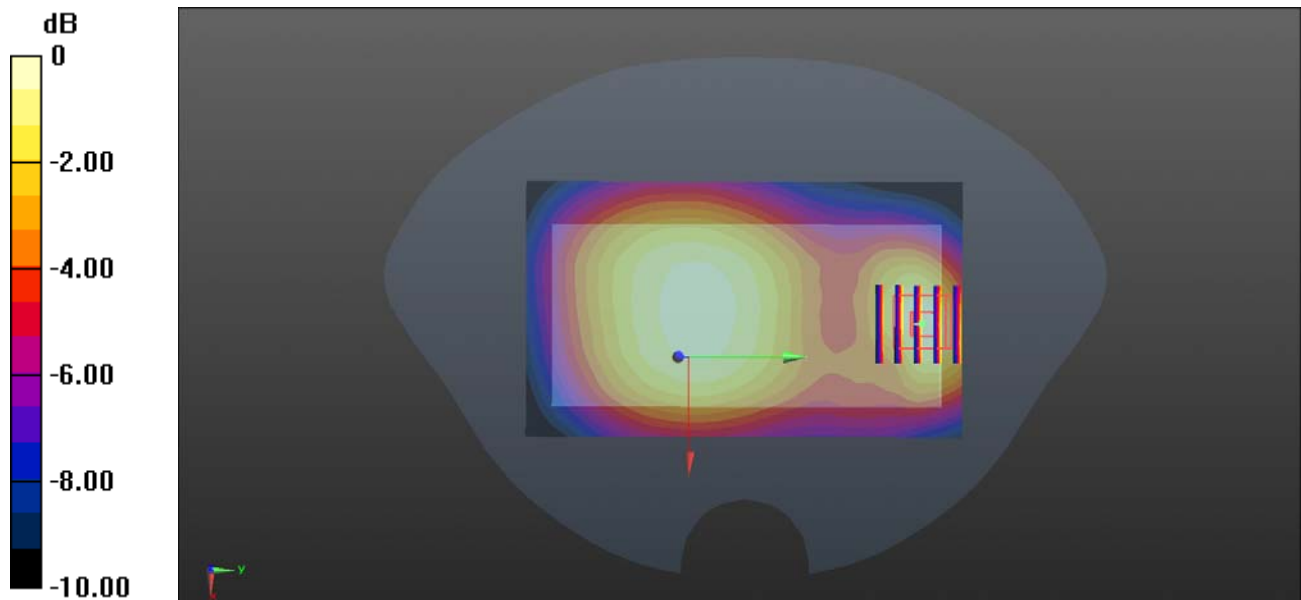
**Ch4132/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.01 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.200 W/kg

**SAR(1 g) = 0.127 W/kg; SAR(10 g) = 0.080 W/kg**

Maximum value of SAR (measured) = 0.138 W/kg



0 dB = 0.138 W/kg

**MEAS.9 Body Plane with Back Side 10mm on Low Channel in WCDMA Band 5 Mode**

Date: 2021.07.21

Communication System Band: V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.936$  S/m;  $\epsilon_r = 42.179$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.3 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch4132/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.211 W/kg

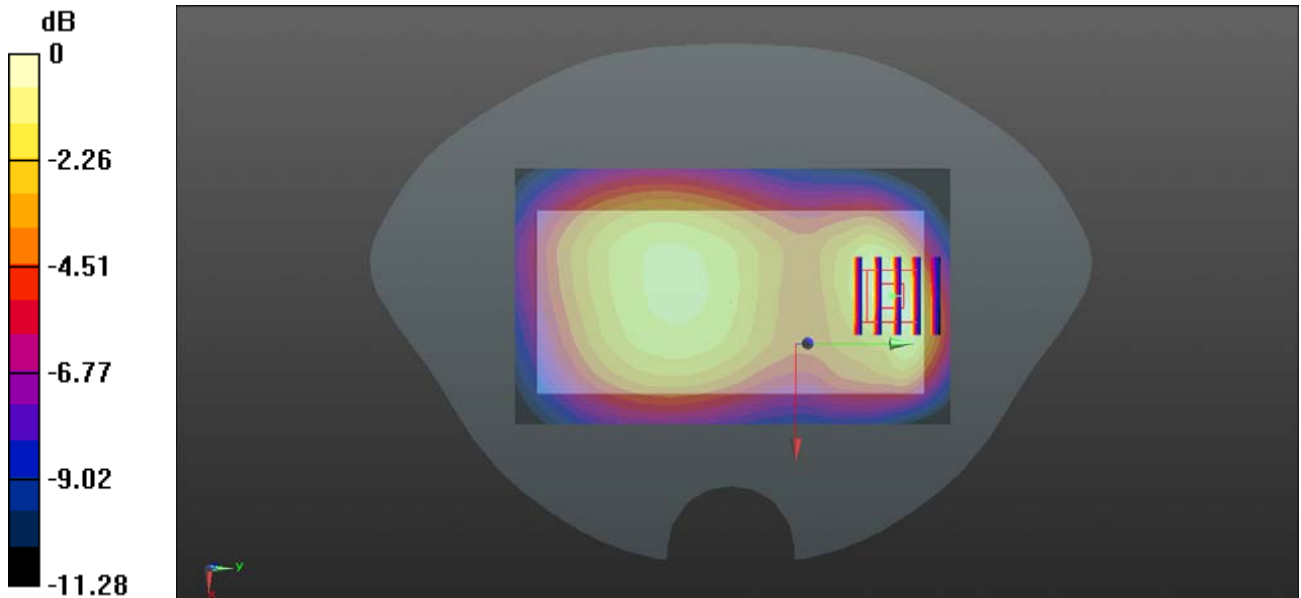
**Ch4132/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.26 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.332 W/kg

**SAR(1 g) = 0.203 W/kg; SAR(10 g) = 0.124 W/kg**

Maximum value of SAR (measured) = 0.223 W/kg



0 dB = 0.223 W/kg

**MEAS.10 Right Head with Cheek on High Channel in LTE Band 5 Mode**

Date: 2021.07.21

Communication System Band: Band 5, E-UTRA/FDD (824.0 - 849.0 MHz); Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 844$  MHz;  $\sigma = 0.914$  S/m;  $\epsilon_r = 41.388$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch20600/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.402 W/kg

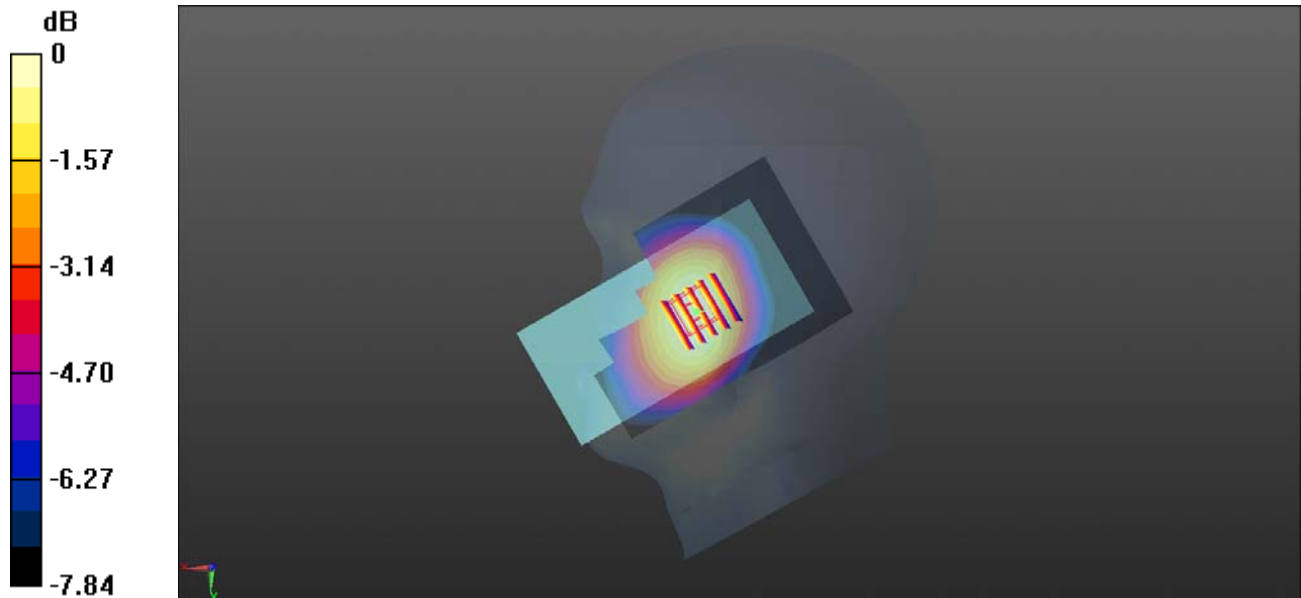
**Ch20600/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.084 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.461 W/kg

**SAR(1 g) = 0.385 W/kg; SAR(10 g) = 0.306 W/kg**

Maximum value of SAR (measured) = 0.401 W/kg



0 dB = 0.401 W/kg

**MEAS.11 Body Plane with Back Side 15mm on High Channel in LTE Band 5 Mode**

Date: 2021.07.21

Communication System Band: Band 5, E-UTRA/FDD (824.0 - 849.0 MHz); Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 844$  MHz;  $\sigma = 0.914$  S/m;  $\epsilon_r = 41.388$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch20600/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.146 W/kg

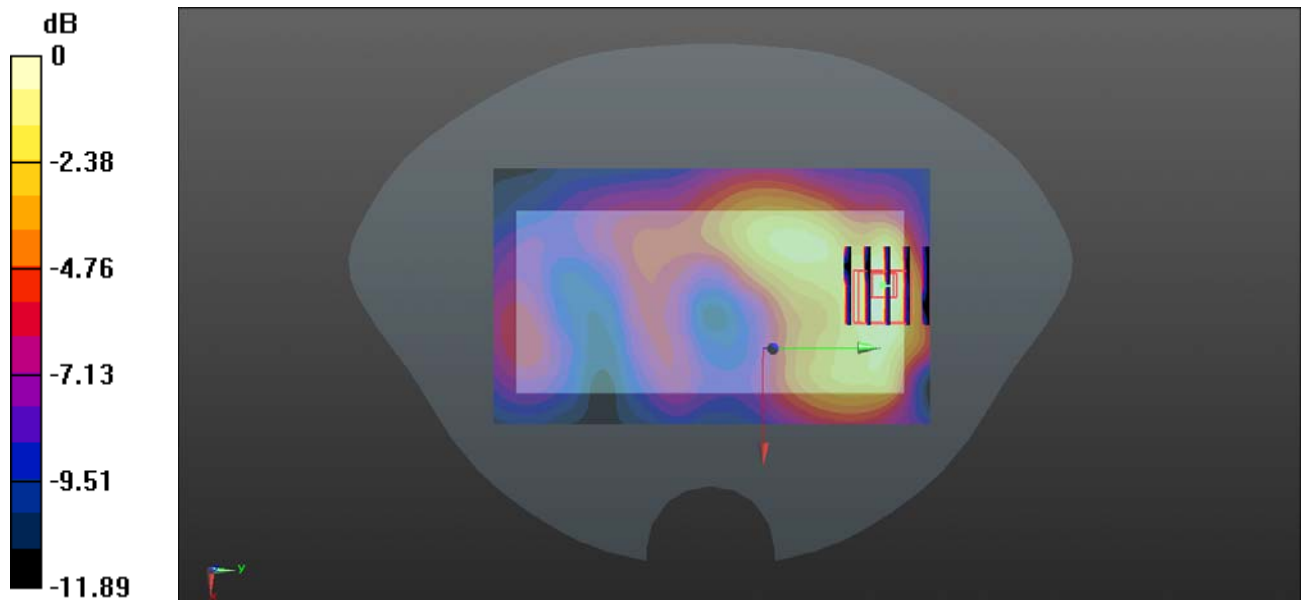
**Ch20600/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.436 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.552 W/kg

**SAR(1 g) = 0.132 W/kg; SAR(10 g) = 0.068 W/kg**

Maximum value of SAR (measured) = 0.132 W/kg



0 dB = 0.132 W/kg



**MEAS.12 Body Plane with Back Side 10mm on High Channel in LTE Band 5 Mode**

Date: 2021.07.21

Communication System Band: Band 5, E-UTRA/FDD (824.0 - 849.0 MHz); Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 844$  MHz;  $\sigma = 0.914$  S/m;  $\epsilon_r = 41.388$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.3 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.49, 10.49, 10.49); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch20600/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.277 W/kg

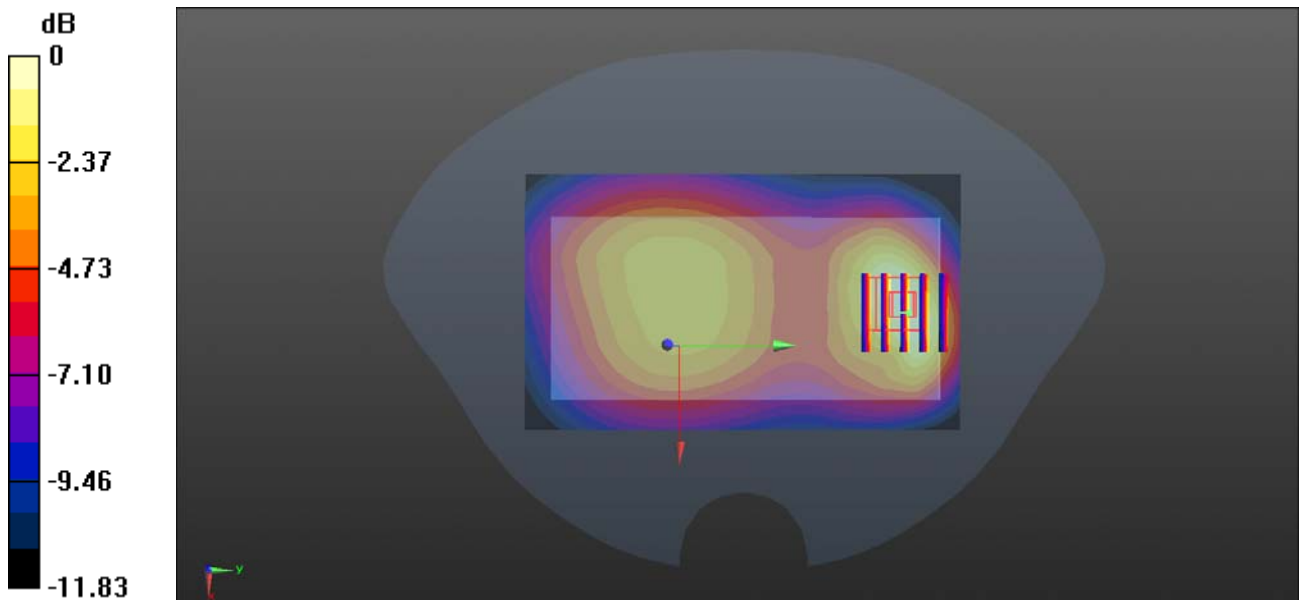
**Ch20600/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.61 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.429 W/kg

**SAR(1 g) = 0.262 W/kg; SAR(10 g) = 0.159 W/kg**

Maximum value of SAR (measured) = 0.281 W/kg



0 dB = 0.281 W/kg

**MEAS.13 Left Head with Cheek on High Channel in LTE Band 7 Mode**

Date: 2021.07.26

Communication System Band: Band 7, E-UTRA/FDD (2500.0 - 2570.0 MHz); Frequency: 2560 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 2560$  MHz;  $\sigma = 1.926$  S/m;  $\epsilon_r = 38.918$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Ambient Temperature:22.7 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch21100/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.342 W/kg

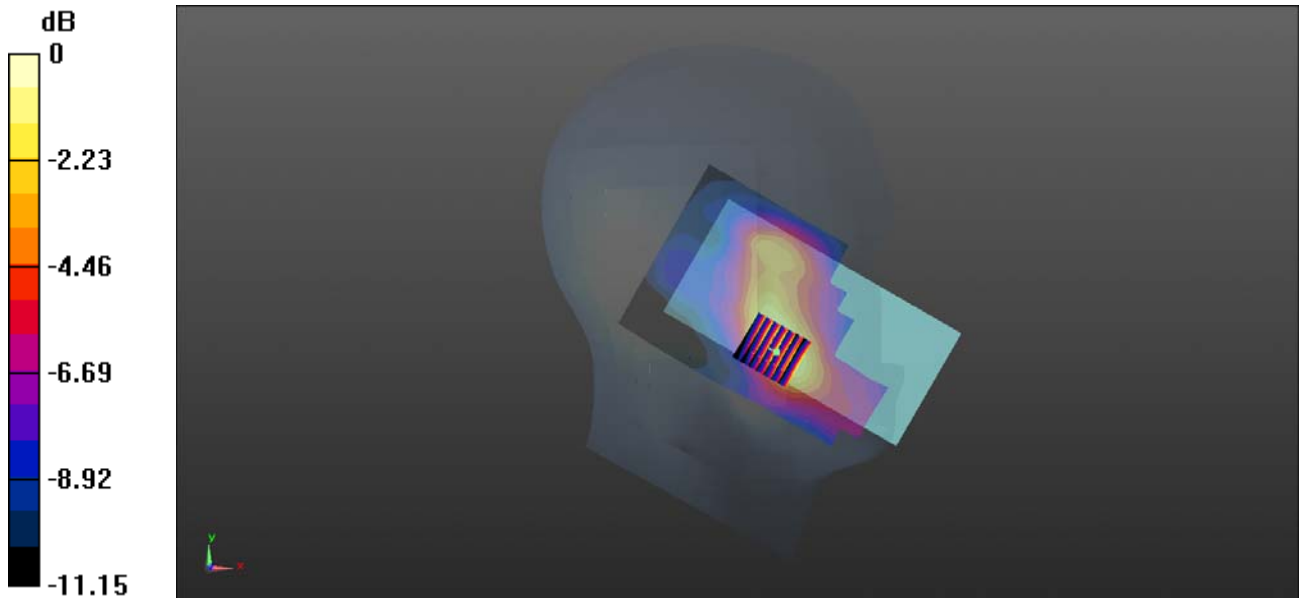
**Ch21100/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.829 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.505 W/kg

**SAR(1 g) = 0.300 W/kg; SAR(10 g) = 0.172 W/kg**

Maximum value of SAR (measured) = 0.325 W/kg



0 dB = 0.325 W/kg

**MEAS.14 Body Plane with Back Side 15mm on High Channel in LTE Band 7 Mode**

Date: 2021.07.26

Communication System Band: Band 7, E-UTRA/FDD (2500.0 - 2570.0 MHz); Frequency: 2560 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 2560$  MHz;  $\sigma = 1.926$  S/m;  $\epsilon_r = 38.918$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.7 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch20850/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.359 W/kg

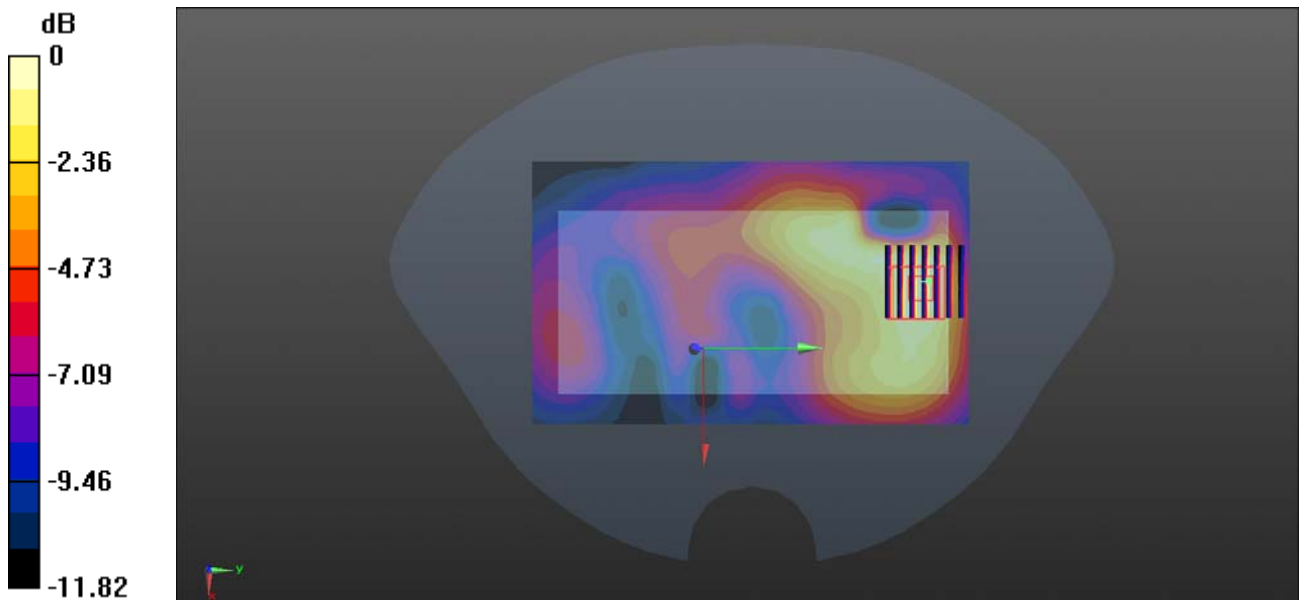
**Ch20850/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.911 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.586 W/kg

**SAR(1 g) = 0.317 W/kg; SAR(10 g) = 0.175 W/kg**

Maximum value of SAR (measured) = 0.345 W/kg



0 dB = 0.345 W/kg

**MEAS.15 Body Plane with Back Side 10mm on High Channel in LTE Band 7 Mode**

Date: 2021.07.26

Communication System Band: Band 7, E-UTRA/FDD (2500.0 - 2570.0 MHz); Frequency: 2560 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 2560$  MHz;  $\sigma = 1.926$  S/m;  $\epsilon_r = 38.918$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.7 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch21350/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.835 W/kg

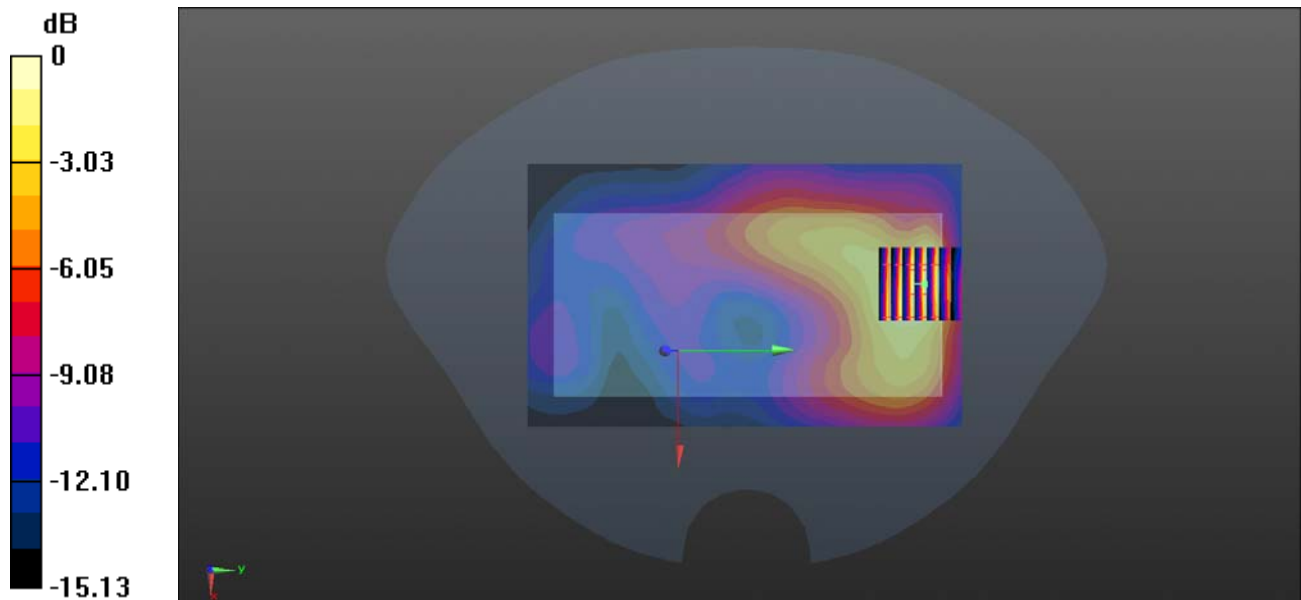
**Ch21350/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.684 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.45 W/kg

**SAR(1 g) = 0.696 W/kg; SAR(10 g) = 0.339 W/kg**

Maximum value of SAR (measured) = 0.791 W/kg



0 dB = 0.791 W/kg

**MEAS.16 Left Head with Cheek on Low Channel in LTE Band 38 Mode**

Date: 2021.07.26

Communication System Band: Band 38, E-UTRA/TDD (2570.0 - 2620.0 MHz); Frequency: 2580 MHz; Duty Cycle: 1:1.58

Medium parameters used (interpolated):  $f = 2580$  MHz;  $\sigma = 1.956$  S/m;  $\epsilon_r = 38.885$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Ambient Temperature:22.7 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch37850/Area Scan (71x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.120 W/kg

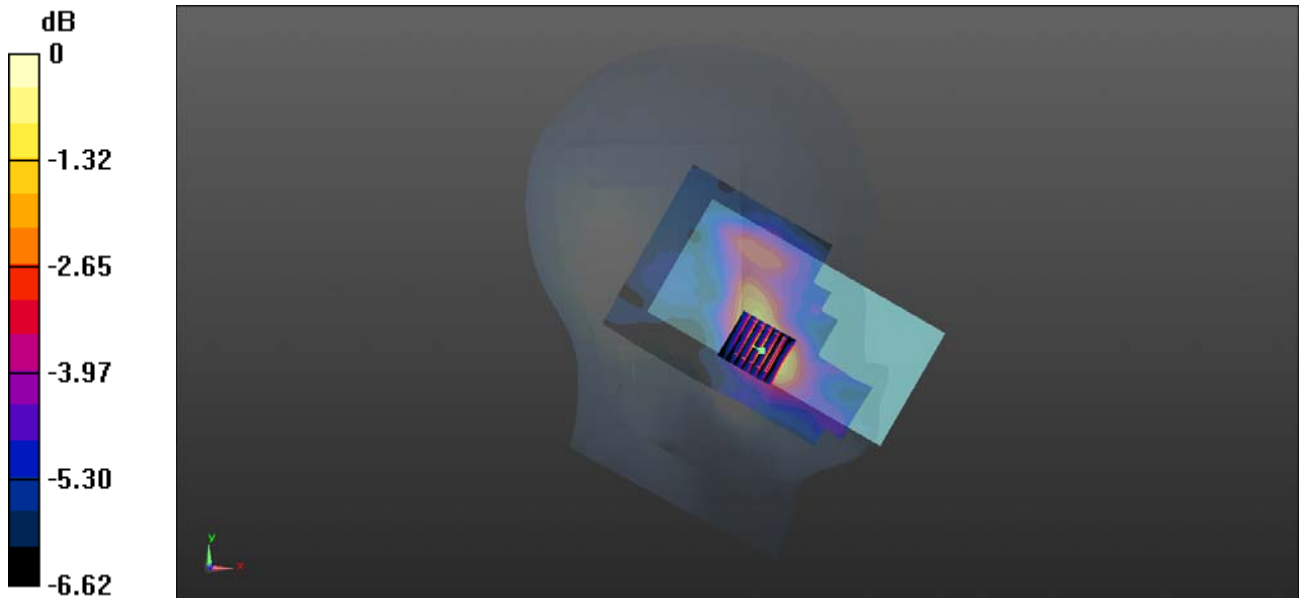
**Ch37850/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.796 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.174 W/kg

**SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.064 W/kg**

Maximum value of SAR (measured) = 0.109 W/kg



0 dB = 0.109 W/kg

**MEAS.17 Body Plane with Back Side 15mm on Low Channel in LTE Band 38 Mode**

Date: 2021.07.26

Communication System Band: Band 38, E-UTRA/TDD (2570.0 - 2620.0 MHz); Frequency: 2580 MHz; Duty Cycle: 1:1.58

Medium parameters used (interpolated):  $f = 2580$  MHz;  $\sigma = 1.956$  S/m;  $\epsilon_r = 38.885$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.7 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch37850/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.194 W/kg

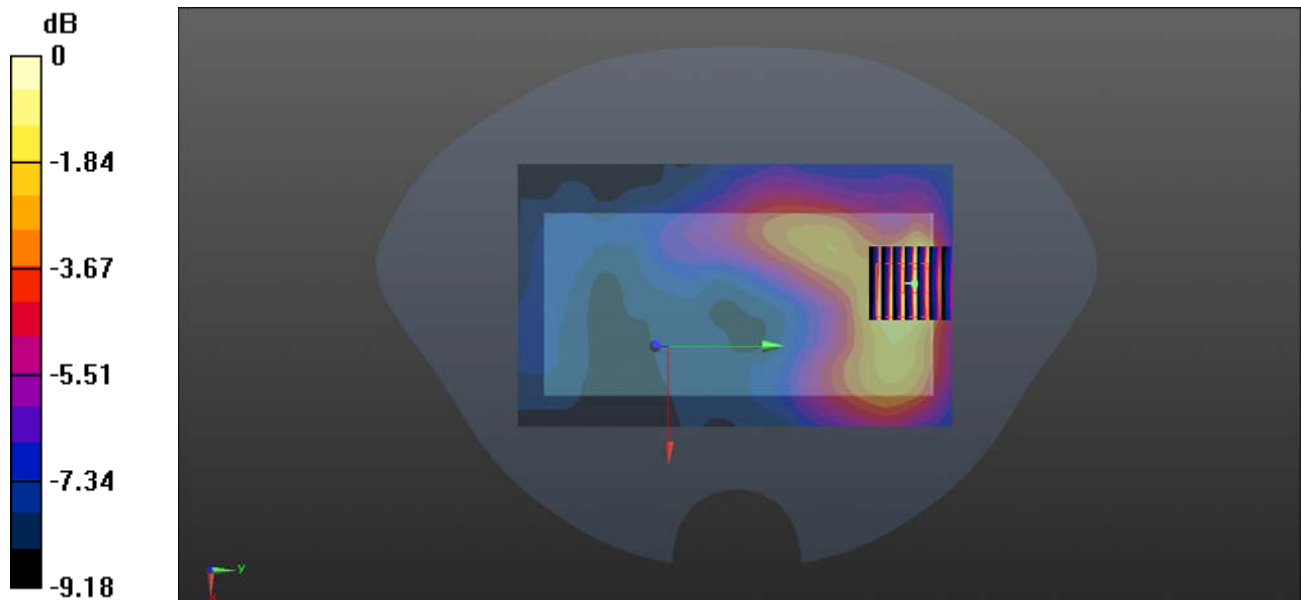
**Ch37850/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.313 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.308 W/kg

**SAR(1 g) = 0.167 W/kg; SAR(10 g) = 0.090 W/kg**

Maximum value of SAR (measured) = 0.188 W/kg



0 dB = 0.188 W/kg

**MEAS.18 Body Plane with Back Side 10mm on Low Channel in LTE Band 38 Mode**

Date: 2021.07.26

Communication System Band: Band 38, E-UTRA/TDD (2570.0 - 2620.0 MHz); Frequency: 2580 MHz; Duty Cycle: 1:1.58

Medium parameters used (interpolated):  $f = 2580$  MHz;  $\sigma = 1.956$  S/m;  $\epsilon_r = 38.885$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.7 Liquid Temperature: 21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch37850/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.586 W/kg

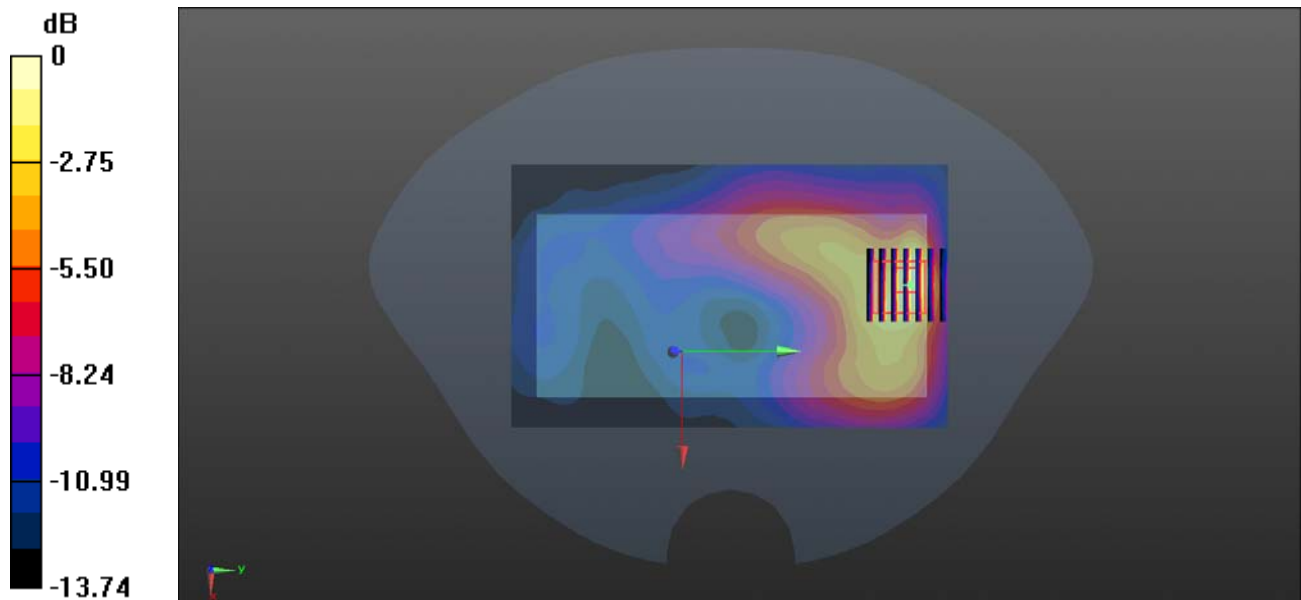
**Ch37850/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.697 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.04 W/kg

**SAR(1 g) = 0.494 W/kg; SAR(10 g) = 0.232 W/kg**

Maximum value of SAR (measured) = 0.567 W/kg



0 dB = 0.567 W/kg

**MEAS.19 Left Head with Cheek on High Channel in LTE Band 41 Mode**

Date: 2021.07.26

Communication System Band: Band 41, E-UTRA/TDD (2496.0 - 2690.0 MHz); Frequency: 2680 MHz; Duty Cycle: 1:1.58

Medium parameters used (interpolated):  $f = 2680$  MHz;  $\sigma = 2.076$  S/m;  $\epsilon_r = 38.652$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Ambient Temperature:22.7 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch41490/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.172 W/kg

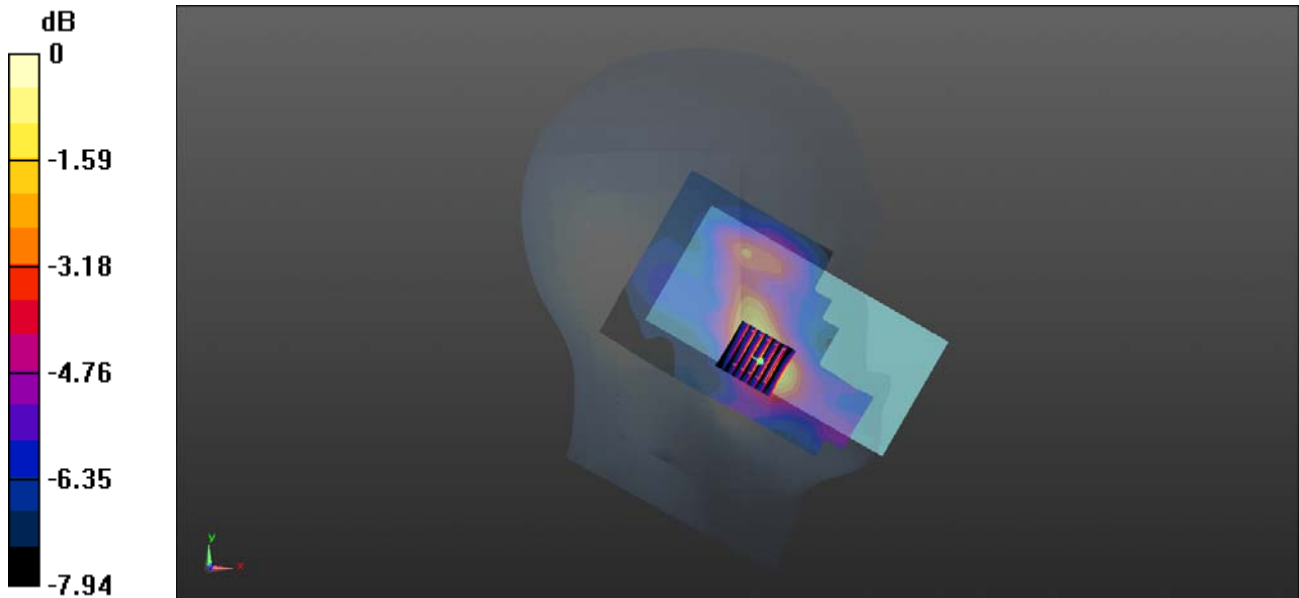
**Ch41490/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.312 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.238 W/kg

**SAR(1 g) = 0.143 W/kg; SAR(10 g) = 0.085 W/kg**

Maximum value of SAR (measured) = 0.155 W/kg



0 dB = 0.155 W/kg



**MEAS.20 Body Plane with Back Side 15mm on High Channel in LTE Band 41 Mode**

Date: 2021.07.26

Communication System Band: Band 41, E-UTRA/TDD (2496.0 - 2690.0 MHz); Frequency: 2680 MHz; Duty Cycle: 1:1.58

Medium parameters used (interpolated):  $f = 2680$  MHz;  $\sigma = 2.076$  S/m;  $\epsilon_r = 38.652$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.7 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch41490/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.441 W/kg

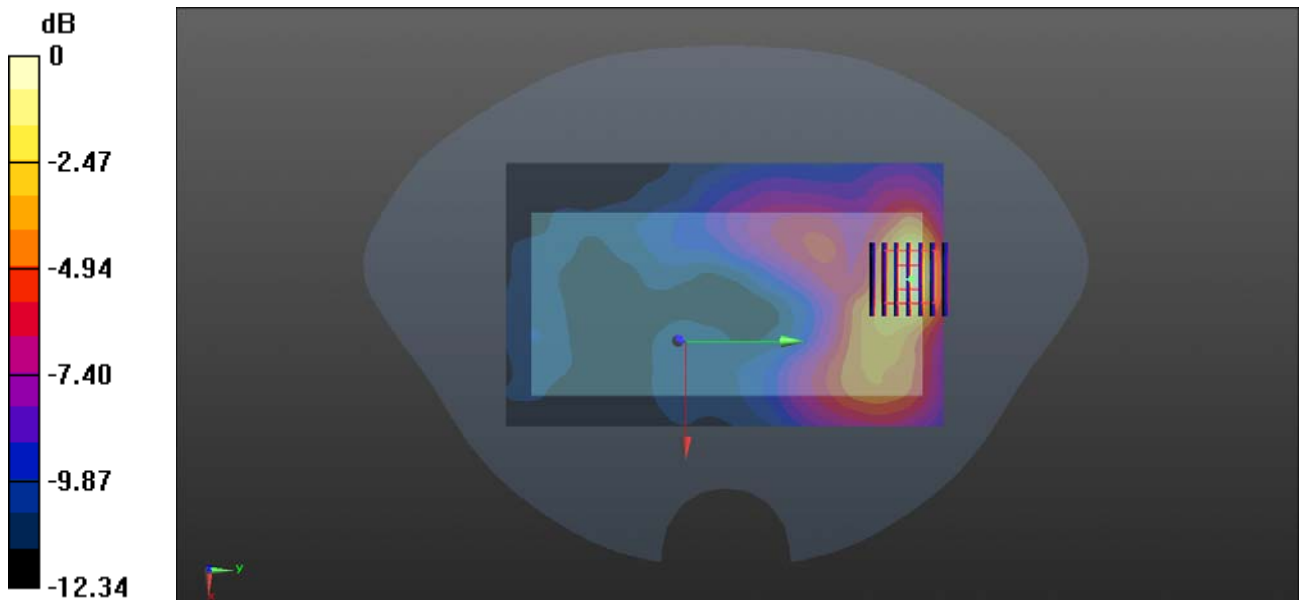
**Ch41490/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.466 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.726 W/kg

**SAR(1 g) = 0.378 W/kg; SAR(10 g) = 0.183 W/kg**

Maximum value of SAR (measured) = 0.428 W/kg



0 dB = 0.428 W/kg

**MEAS.21 Body Plane with Bottom Edde 10mm on High Channel in LTE Band 41 Mode**

Date: 2021.07.26

Communication System Band: Band 41, E-UTRA/TDD (2496.0 - 2690.0 MHz); Frequency: 2680 MHz; Duty Cycle: 1:1.58

Medium parameters used (interpolated):  $f = 2680$  MHz;  $\sigma = 2.076$  S/m;  $\epsilon_r = 38.652$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.7 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.5, 7.5, 7.5); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch41490/Area Scan (61x101x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.528 W/kg

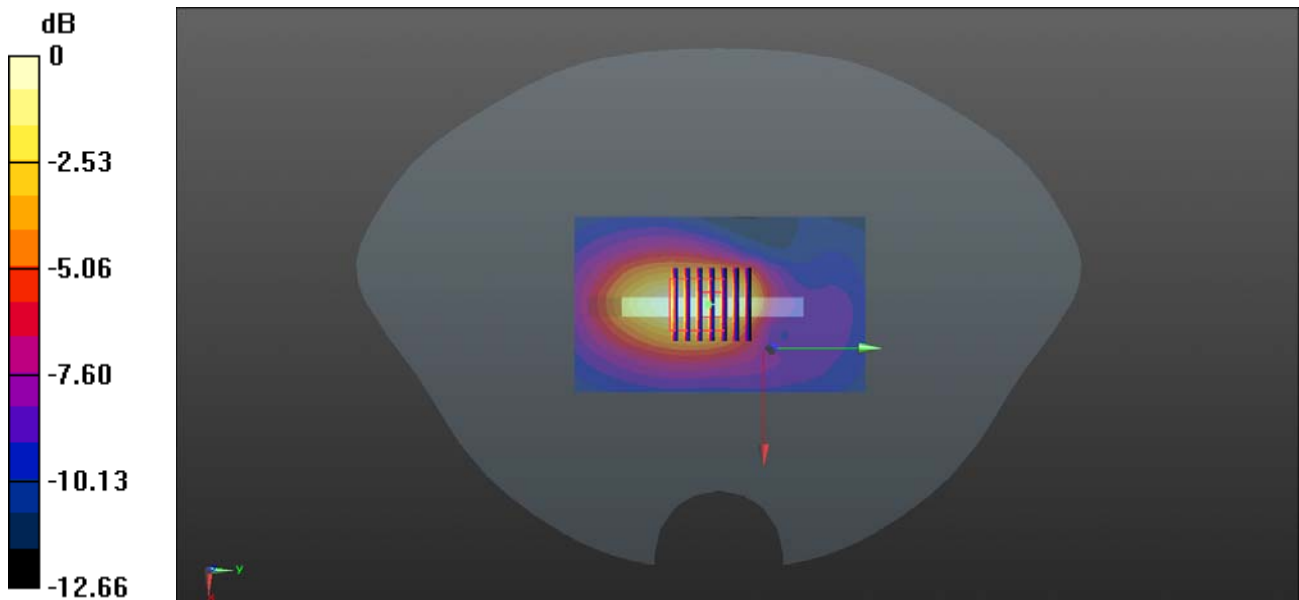
**Ch41490/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.15 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.849 W/kg

**SAR(1 g) = 0.444 W/kg; SAR(10 g) = 0.245 W/kg**

Maximum value of SAR (measured) = 0.489 W/kg



0 dB = 0.489 W/kg

**MEAS.22 Left Head with Cheek on 6 Channel in IEEE802.11b mode**

Date: 2021.08.18

Communication System Band: WLAN(b); Frequency: 2437 MHz; Duty Cycle: 1:1.008

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.775$  S/m;  $\epsilon_r = 39.227$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Ambient Temperature:22.6 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.54, 7.54, 7.54); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch6/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.441 W/kg

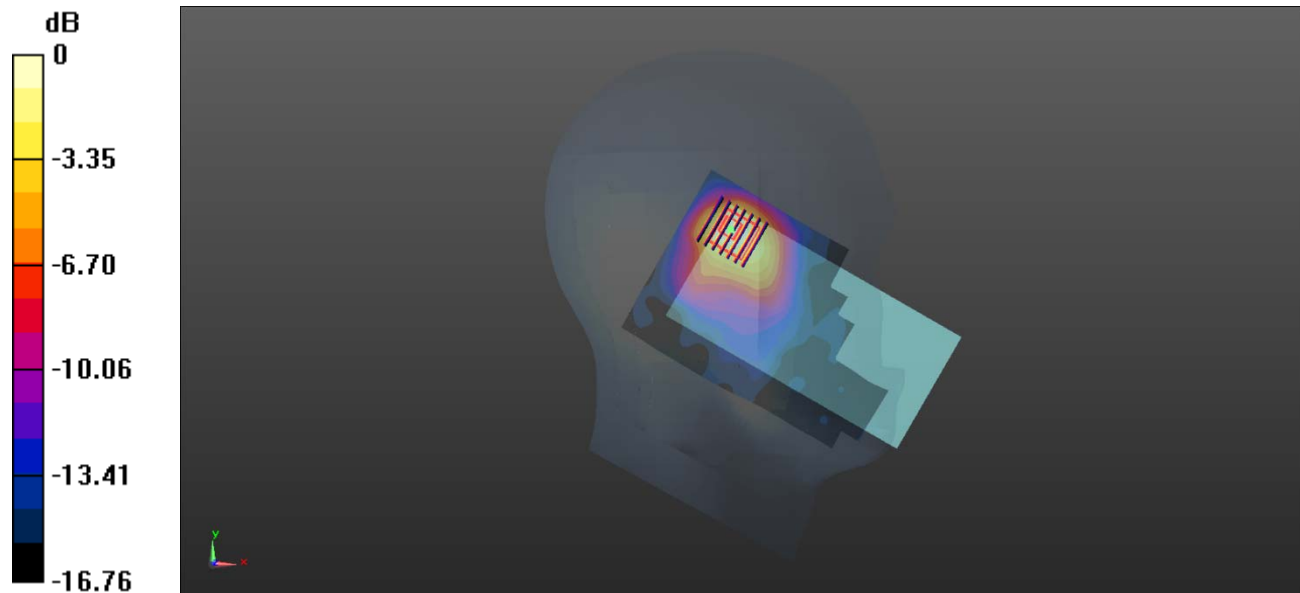
**Ch6/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.713 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.734 W/kg

**SAR(1 g) = 0.344 W/kg; SAR(10 g) = 0.170 W/kg**

Maximum value of SAR (measured) = 0.383 W/kg



0 dB = 0.383 W/kg

**MEAS.23 Body Plane with Back Side 15mm on 6 Channel in IEEE802.11b mode**

Date: 2021.08.18

Communication System Band: WLAN(b); Frequency: 2437 MHz; Duty Cycle: 1:1.008

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.775$  S/m;  $\epsilon_r = 39.227$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.54, 7.54, 7.54); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch6/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0733 W/kg

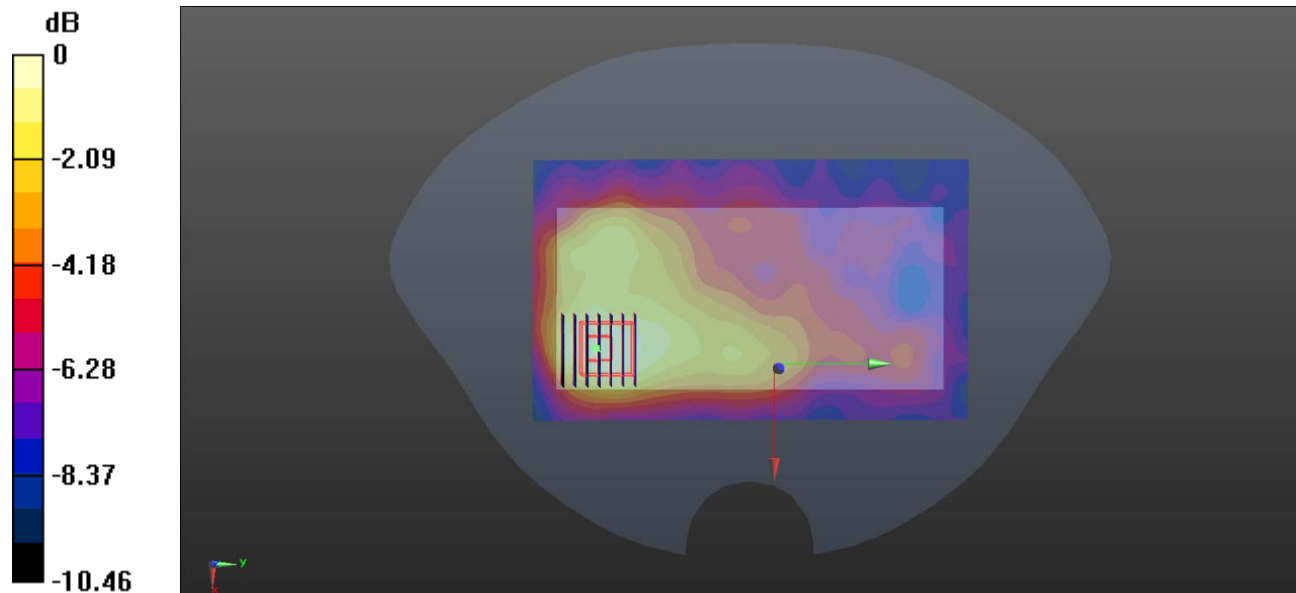
**Ch6/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.522 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.107 W/kg

**SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.035 W/kg**

Maximum value of SAR (measured) = 0.0680 W/kg



0 dB = 0.0680 W/kg

**MEAS.24 Body Plane with Top Edge 10mm on 6 Channel in IEEE802.11b mode**

Date: 2021.08.18

Communication System Band: WLAN(b); Frequency: 2437 MHz; Duty Cycle: 1:1.008

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 1.775$  S/m;  $\epsilon_r = 39.227$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.54, 7.54, 7.54); Calibrated: 2020.11.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2020.11.06
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch6/Area Scan (61x101x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0749 W/kg

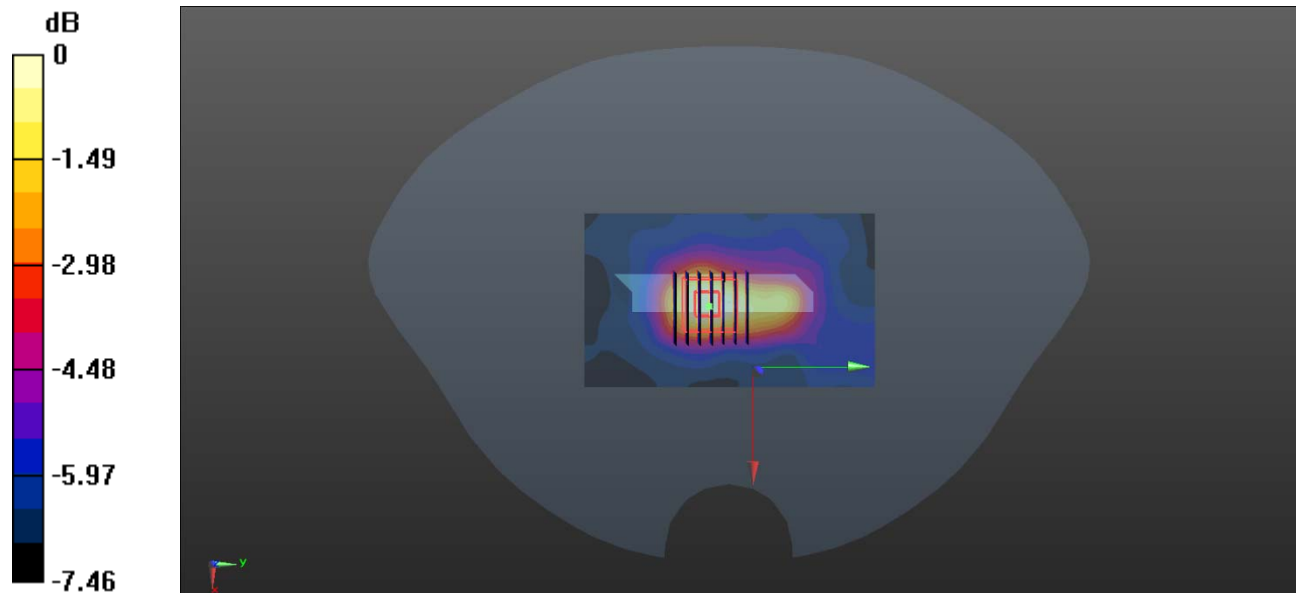
**Ch6/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.768 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.104 W/kg

**SAR(1 g) = 0.060 W/kg; SAR(10 g) = 0.034 W/kg**

Maximum value of SAR (measured) = 0.0675 W/kg



0 dB = 0.0675 W/kg

**MEAS.25 Left Head with Tilt on Channel 52 in IEEE802.11a Mode**

Date: 2021.07.29

Communication System Band: WLAN(a); Frequency: 5260 MHz; Duty Cycle: 1:1.037

Medium parameters used (interpolated):  $f = 5260$  MHz;  $\sigma = 4.715$  S/m;  $\epsilon_r = 35.921$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Ambient Temperature:22.5 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(5.3, 5.3, 5.3); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch52/Area Scan (111x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.21 W/kg

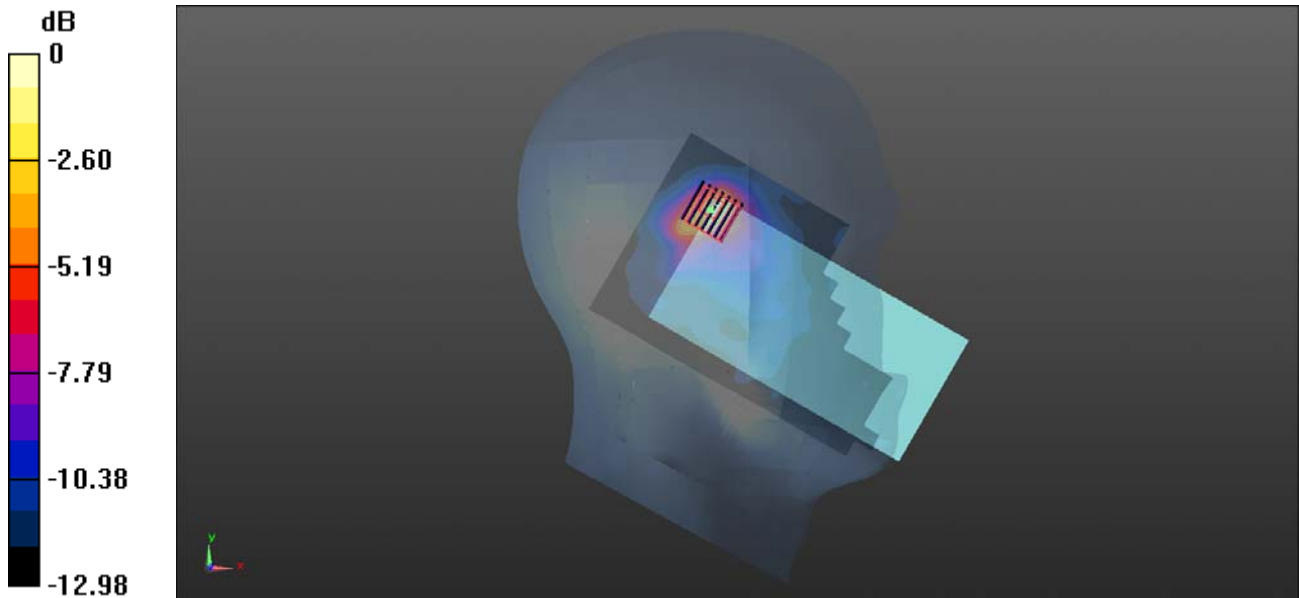
**Ch52/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.149 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 2.60 W/kg

**SAR(1 g) = 0.577 W/kg; SAR(10 g) = 0.219 W/kg**

Maximum value of SAR (measured) = 1.16 W/kg



0 dB = 1.16 W/kg

**MEAS.26 Left Head with Cheek on Channel 116 in IEEE802.11a Mode**

Date: 2021.07.30

Communication System Band: WLAN(a); Frequency: 5580 MHz; Duty Cycle: 1:1.037

Medium parameters used (interpolated):  $f = 5580$  MHz;  $\sigma = 5.068$  S/m;  $\epsilon_r = 35.517$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Ambient Temperature:22.8 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(4.85, 4.85, 4.85); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch116/Area Scan (111x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.14 W/kg

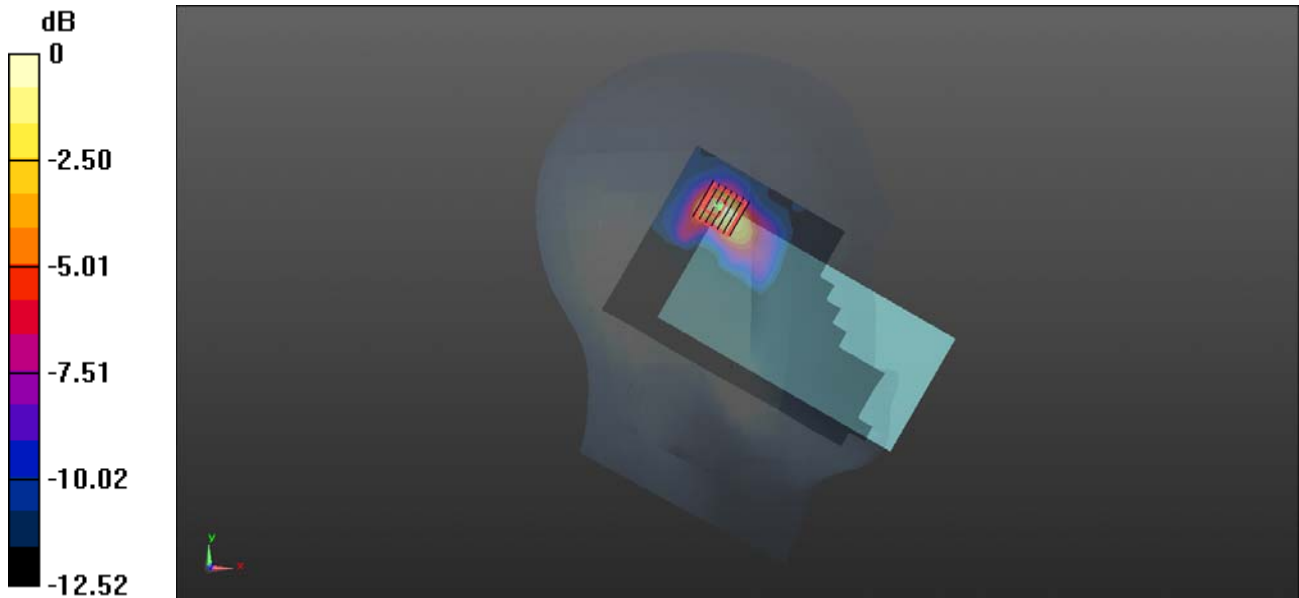
**Ch116/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.712 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 2.76 W/kg

**SAR(1 g) = 0.619 W/kg; SAR(10 g) = 0.238 W/kg**

Maximum value of SAR (measured) = 1.26 W/kg



0 dB = 1.26 W/kg

**MEAS.27 Left Head with Tilt on Channel 157 in IEEE802.11a Mode**

Date: 2021.07.31

Communication System Band: WLAN(a); Frequency: 5785 MHz; Duty Cycle: 1:1.037

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 5.299$  S/m;  $\epsilon_r = 35.227$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Ambient Temperature:22.5 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(4.86, 4.86, 4.86); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch157/Area Scan (111x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.43 W/kg

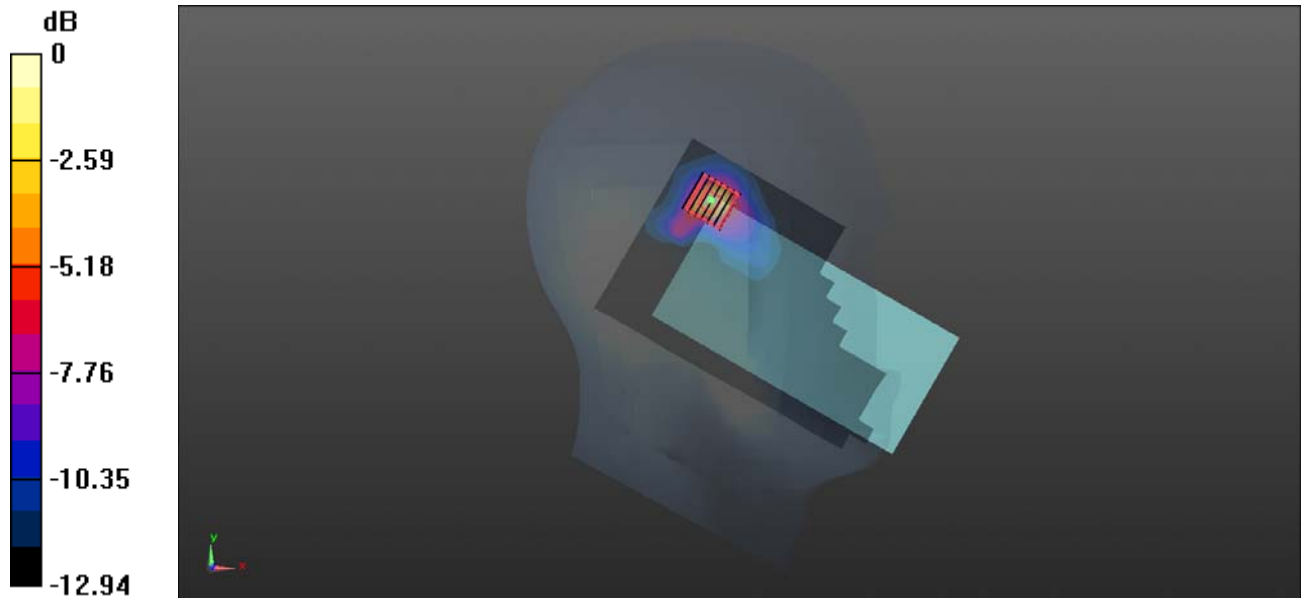
**Ch157/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.724 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 3.51 W/kg

**SAR(1 g) = 0.726 W/kg; SAR(10 g) = 0.243 W/kg**

Maximum value of SAR (measured) = 1.57 W/kg



0 dB = 1.57 W/kg



**MEAS.28 Body Plane with Back Side 15mm on Channel 60 in IEEE802.11a Mode**

Date: 2021.07.29

Communication System Band: WLAN(a); Frequency: 5300 MHz; Duty Cycle: 1:1.037

Medium parameters used:  $f = 5300$  MHz;  $\sigma = 4.762$  S/m;  $\epsilon_r = 35.871$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(5.3, 5.3, 5.3); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD00P40CD; Serial: TP1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch60/Area Scan (111x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.396 W/kg

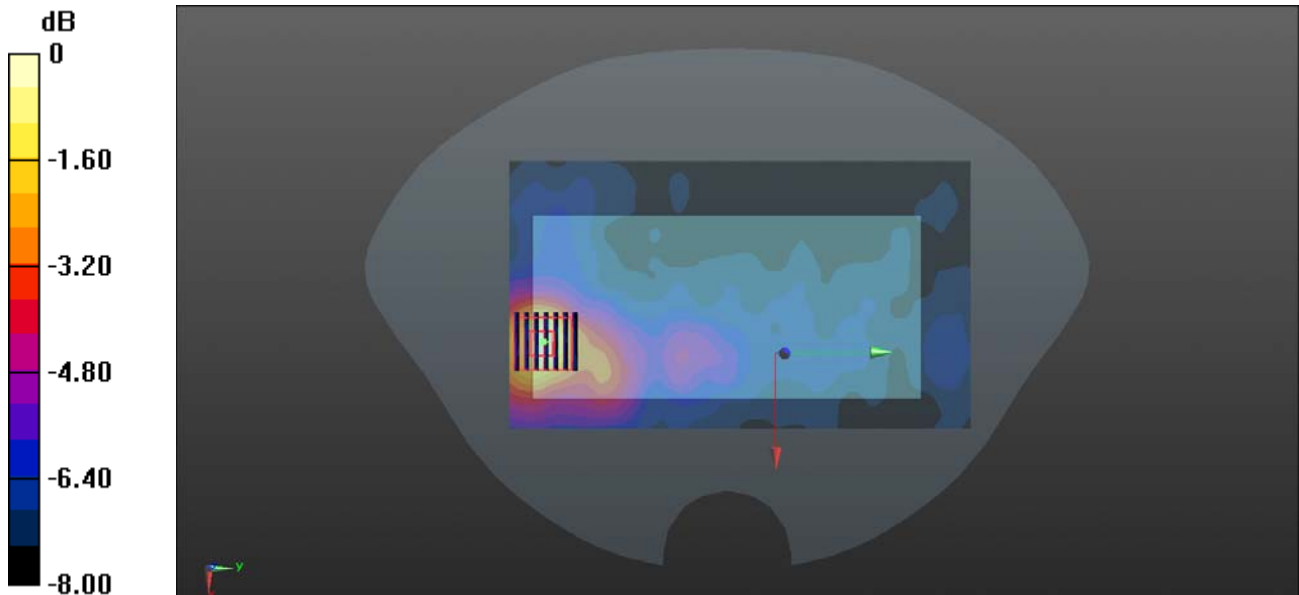
**Ch60/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.095 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.768 W/kg

**SAR(1 g) = 0.242 W/kg; SAR(10 g) = 0.138 W/kg**

Maximum value of SAR (measured) = 0.393 W/kg



0 dB = 0.393 W/kg

**MEAS.29 Body Plane with Back Side 15mm on Channel 116 in IEEE802.11a Mode**

Date: 2021.07.30

Communication System Band: WLAN(a); Frequency: 5580 MHz; Duty Cycle: 1:1.037

Medium parameters used (interpolated):  $f = 5580$  MHz;  $\sigma = 5.068$  S/m;  $\epsilon_r = 35.517$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.8 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(4.85, 4.85, 4.85); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD00P40CD; Serial: TP1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Ch116/Area Scan (111x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.456 W/kg

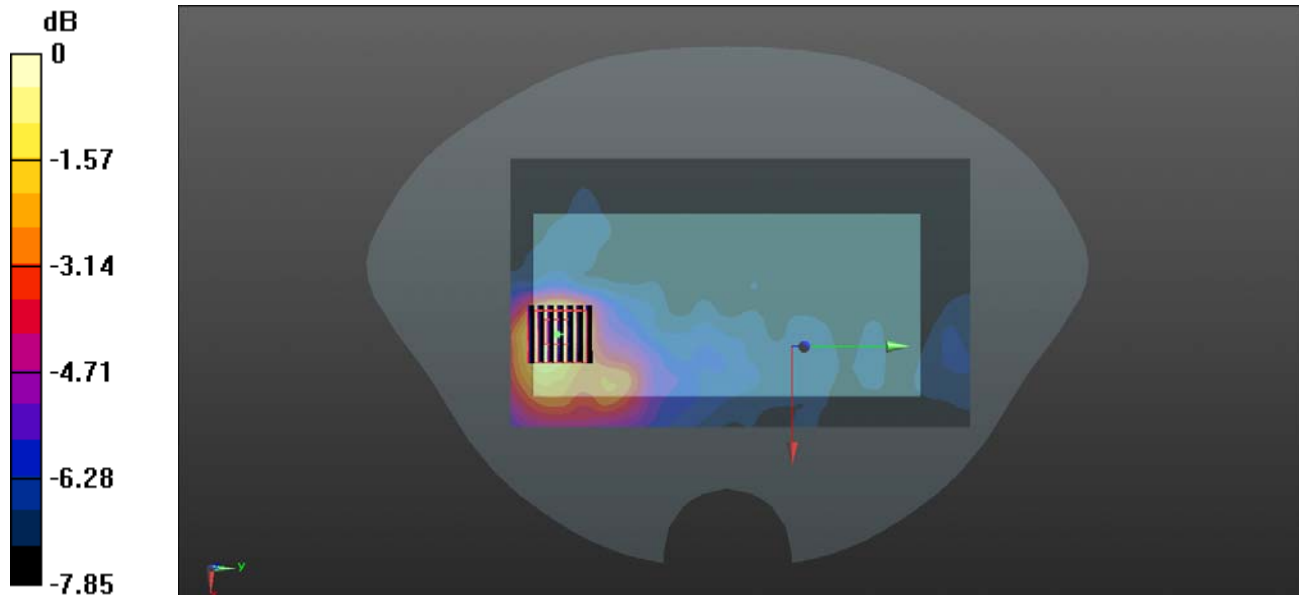
**Ch116/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.975 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.06 W/kg

**SAR(1 g) = 0.268 W/kg; SAR(10 g) = 0.152 W/kg**

Maximum value of SAR (measured) = 0.437 W/kg



0 dB = 0.437 W/kg

**MEAS.30 Body Plane with Back Side 15mm on Channel 157 in IEEE802.11a Mode**

Date: 2021.07.31

Communication System Band: WLAN(a); Frequency: 5785 MHz; Duty Cycle: 1:1.037

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 5.299$  S/m;  $\epsilon_r = 35.227$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(4.86, 4.86, 4.86); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch157/Area Scan (111x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.463 W/kg

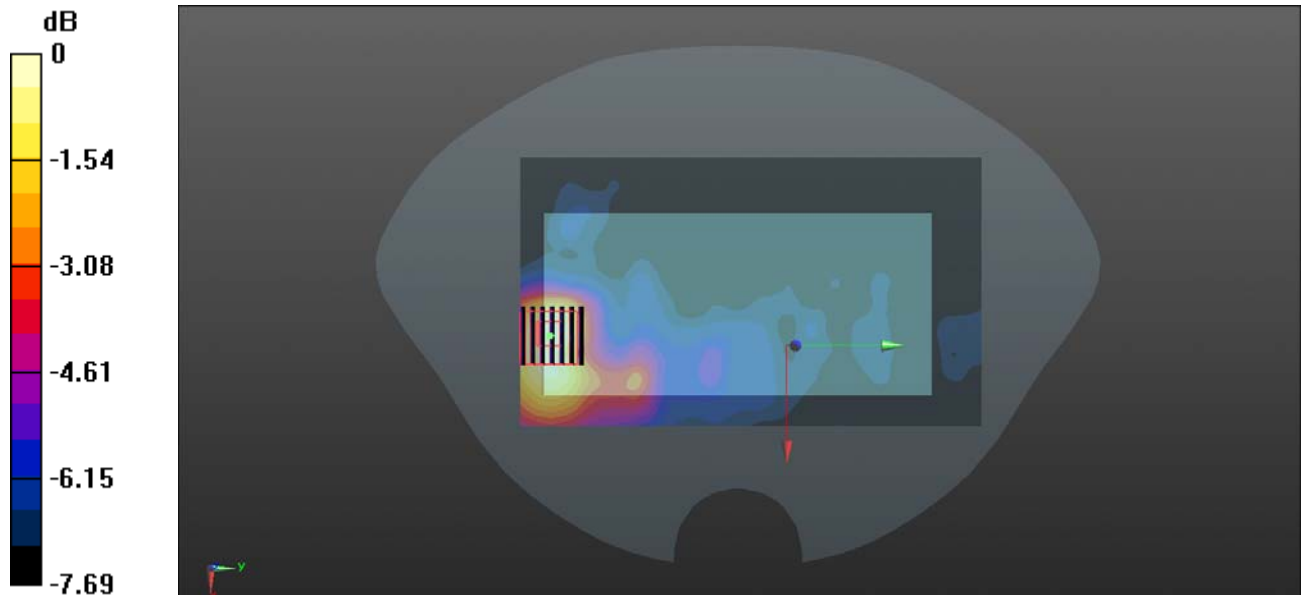
**/Ch157/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.101 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.22 W/kg

**SAR(1 g) = 0.301 W/kg; SAR(10 g) = 0.171 W/kg**

Maximum value of SAR (measured) = 0.460 W/kg



0 dB = 0.460 W/kg

**MEAS.31 Body Plane with Back Side 10mm on Channel 44 in IEEE802.11a Mode**

Date: 2021.07.29

Communication System Band: WLAN(a); Frequency: 5220 MHz; Duty Cycle: 1:1.037

Medium parameters used (interpolated):  $f = 5220$  MHz;  $\sigma = 4.652$  S/m;  $\epsilon_r = 35.918$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(5.46, 5.46, 5.46); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch44/Area Scan (111x191x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.290 W/kg

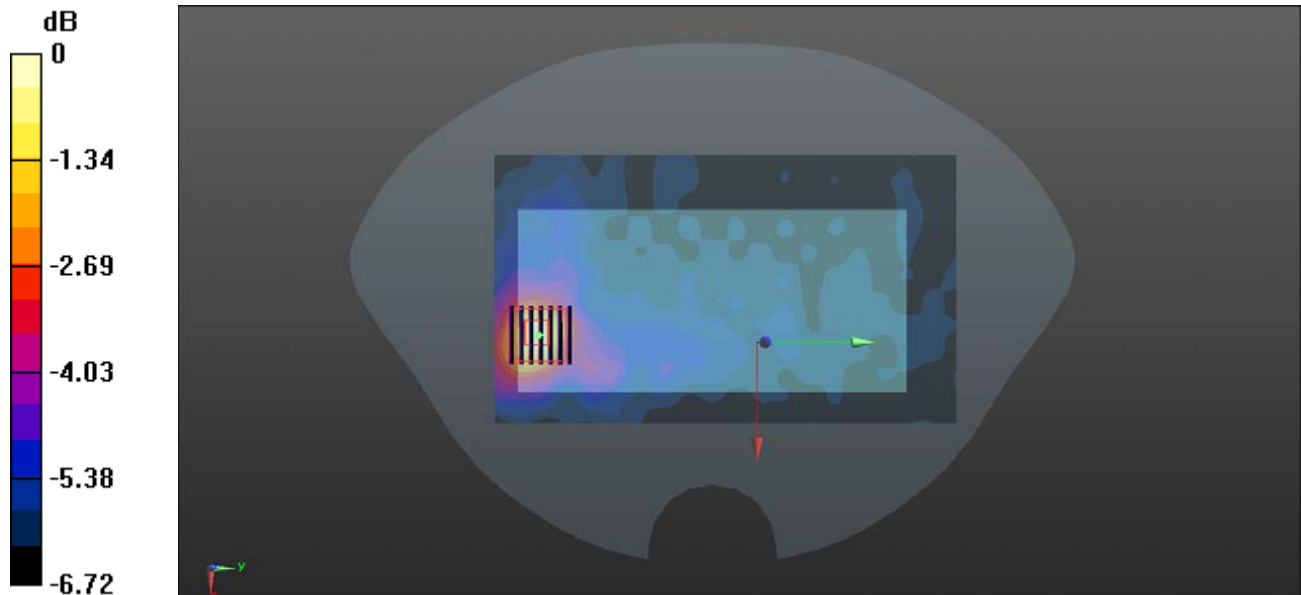
**Ch44/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.876 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.752 W/kg

**SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.108 W/kg**

Maximum value of SAR (measured) = 0.279 W/kg



0 dB = 0.279 W/kg

**MEAS.32 Body Plane with Top Edge 10mm on Channel 157 in IEEE802.11a Mode**

Date: 2021.07.31

Communication System Band: WLAN(a); Frequency: 5785 MHz; Duty Cycle: 1:1.037

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 5.299$  S/m;  $\epsilon_r = 35.227$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(4.86, 4.86, 4.86); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch157/Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.460 W/kg

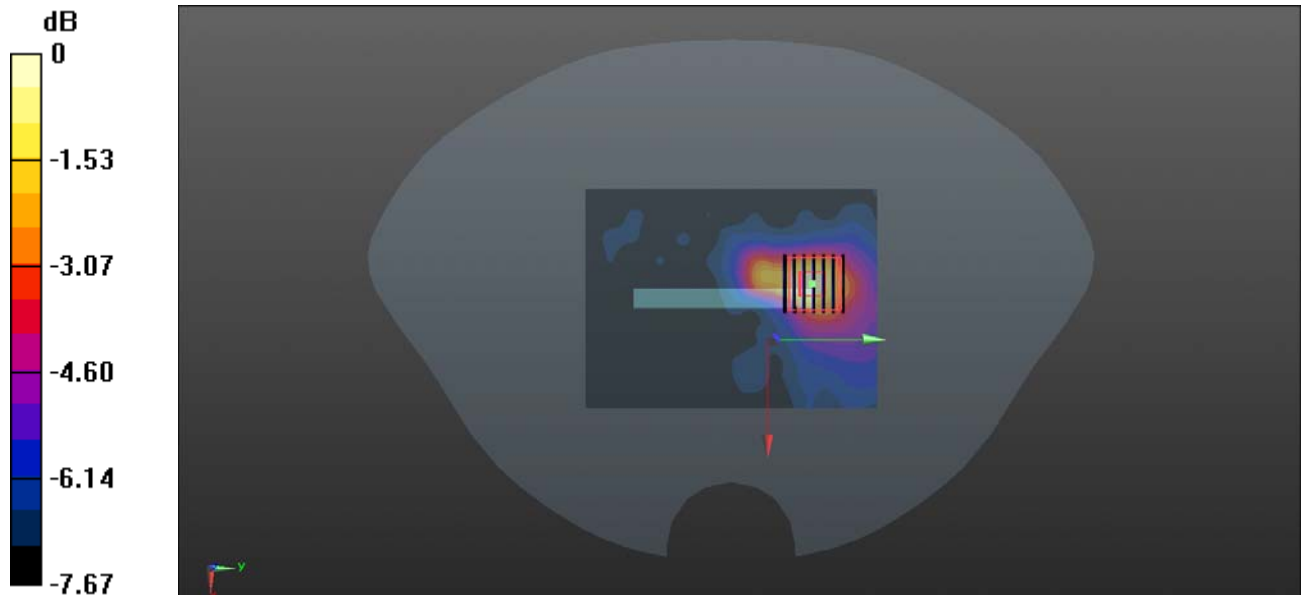
**Ch157/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.707 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.06 W/kg

**SAR(1 g) = 0.257 W/kg; SAR(10 g) = 0.142 W/kg**

Maximum value of SAR (measured) = 0.444 W/kg



0 dB = 0.444 W/kg

**MEAS.33 Body Plane with Top Edge 0mm on Channel 60 in IEEE802.11a Mode**

Date: 2021.07.29

Communication System Band: WLAN(a); Frequency: 5300 MHz; Duty Cycle: 1:1.037

Medium parameters used:  $f = 5300$  MHz;  $\sigma = 4.762$  S/m;  $\epsilon_r = 35.871$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.5

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(5.3, 5.3, 5.3); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch60/Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 12.7 W/kg

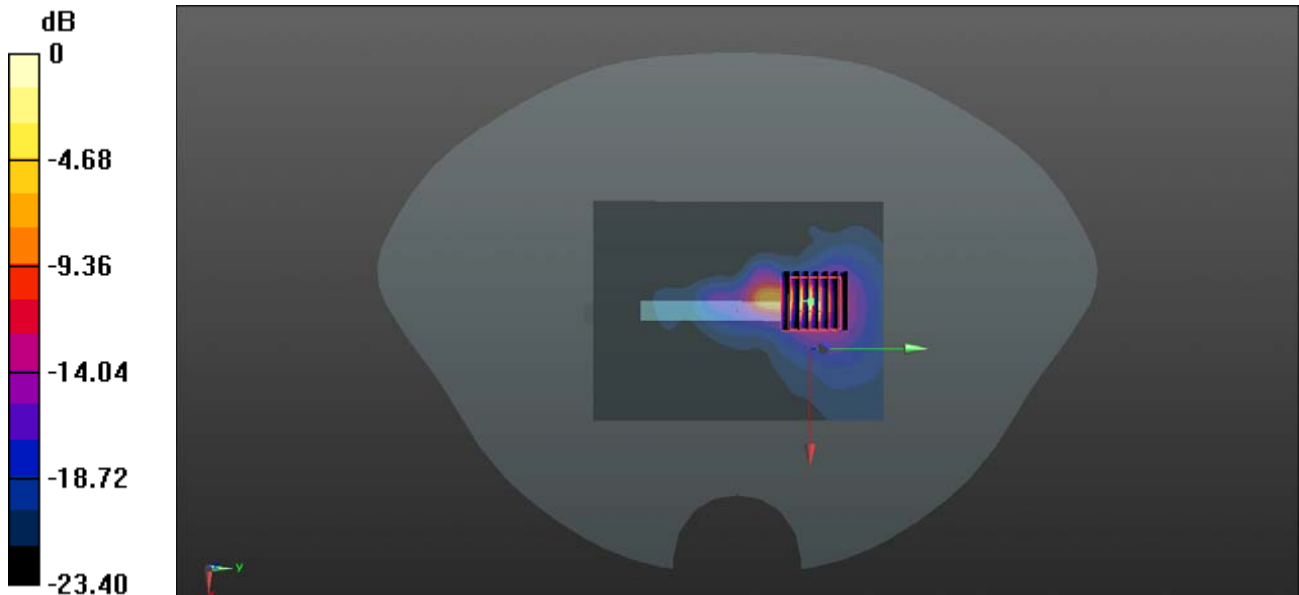
**Ch60/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 7.865 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 39.2 W/kg

**SAR(1 g) = 5.07 W/kg; SAR(10 g) = 0.973 W/kg**

Maximum value of SAR (measured) = 13.9 W/kg



0 dB = 13.9 W/kg

**MEAS.34 Body Plane with Top Edge 0mm on Channel 116 in IEEE802.11a Mode**

Date: 2021.07.30

Communication System Band: WLAN(a); Frequency: 5580 MHz; Duty Cycle: 1:1.037

Medium parameters used (interpolated):  $f = 5580$  MHz;  $\sigma = 5.068$  S/m;  $\epsilon_r = 35.517$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature:22.8 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(4.85, 4.85, 4.85); Calibrated: 2020.08.07;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch116/Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

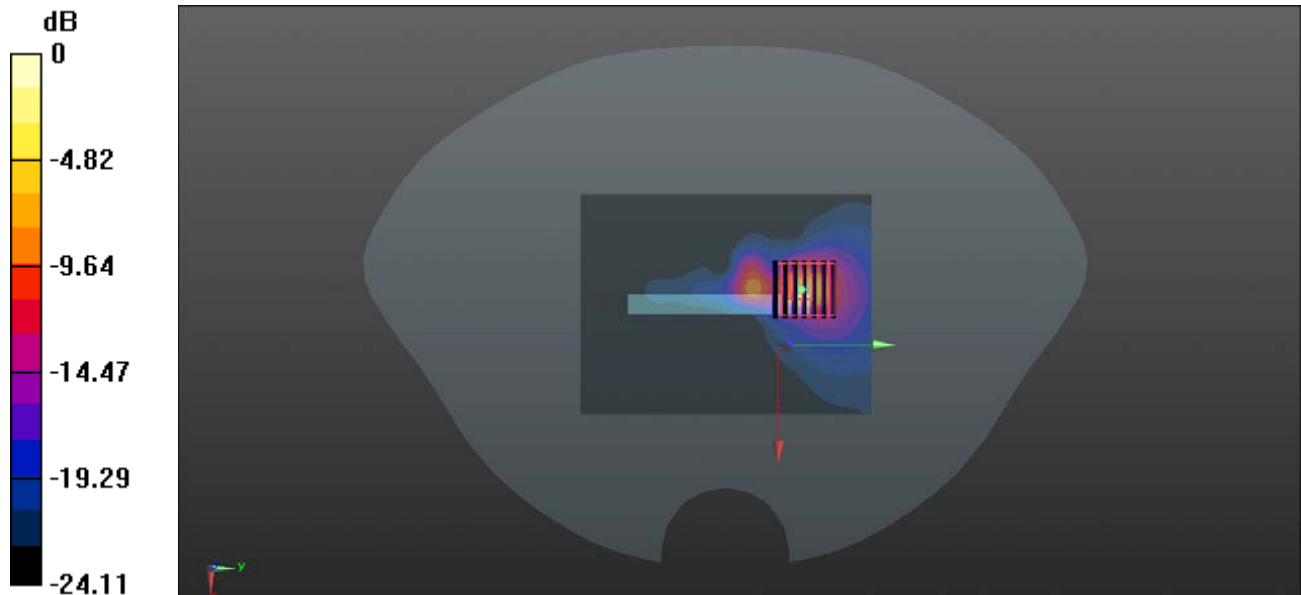
**Ch116/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.176 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 54.9 W/kg

**SAR(1 g) = 6.83 W/kg; SAR(10 g) = 1.28 W/kg**

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



0 dB = 19.1 W/kg

**MEAS.35 Left Head with Cheek on High Channel in Bluetooth Mode**

Date: 2021.07.24

Communication System Band: BT; Frequency: 2480 MHz; Duty Cycle: 1:1.304

Medium parameters used (interpolated):  $f = 2480$  MHz;  $\sigma = 1.845$  S/m;  $\epsilon_r = 38.971$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Ambient Temperature: 22.4 Liquid Temperature: 21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.66, 7.66, 7.66); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch78/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.139 W/kg

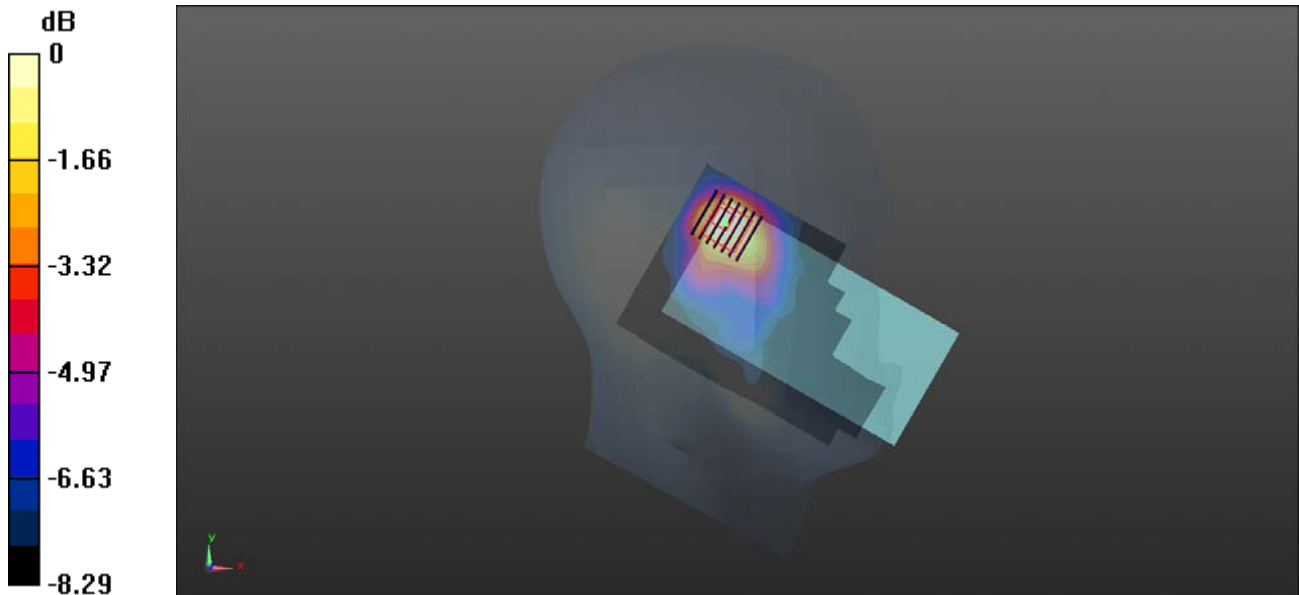
**Ch78/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.295 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.240 W/kg

**SAR(1 g) = 0.116 W/kg; SAR(10 g) = 0.066 W/kg**

Maximum value of SAR (measured) = 0.124 W/kg



0 dB = 0.124 W/kg



**MEAS.36 Body Plane with Back Side 15mm on High Channel in Bluetooth Mode**

Date: 2021.07.24

Communication System Band: BT; Frequency: 2480 MHz; Duty Cycle: 1:1.304

Medium parameters used (interpolated):  $f = 2480$  MHz;  $\sigma = 1.845$  S/m;  $\epsilon_r = 38.971$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.4 Liquid Temperature: 21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.66, 7.66, 7.66); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch78/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0378 W/kg

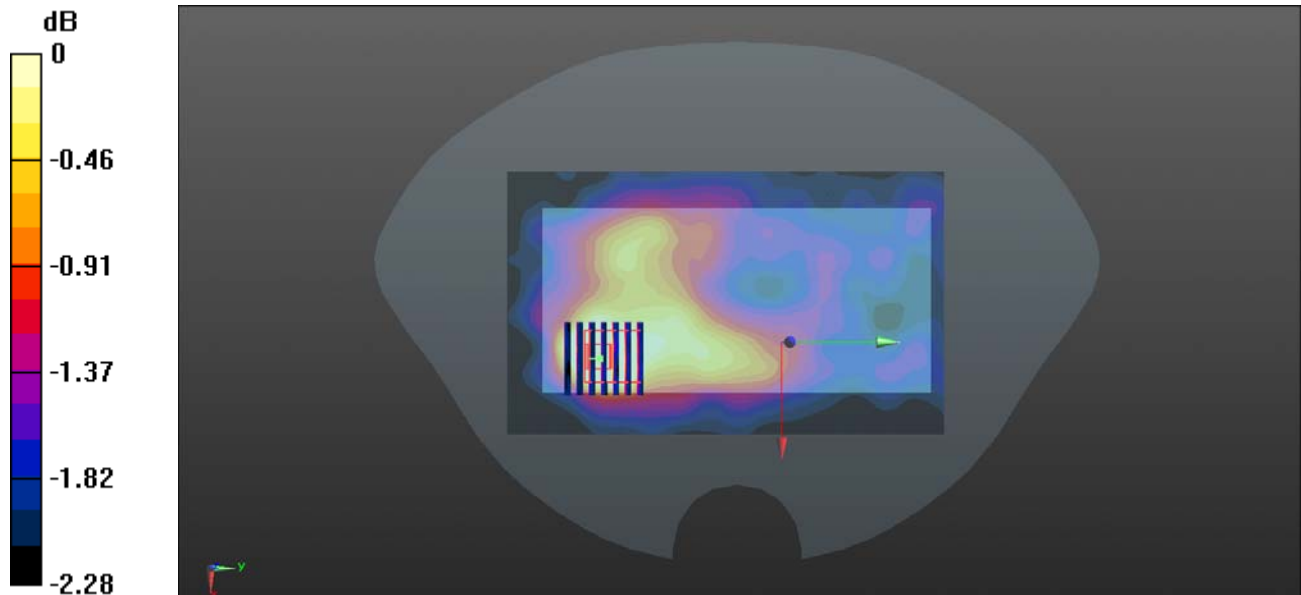
**Ch78/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.826 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.0420 W/kg

**SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.023 W/kg**

Maximum value of SAR (measured) = 0.0299 W/kg



0 dB = 0.0299 W/kg

**MEAS.37 Body Plane with Back Side 10mm on High Channel in Bluetooth Mode**

Date: 2021.07.24

Communication System Band: BT; Frequency: 2480 MHz; Duty Cycle: 1:1.304

Medium parameters used (interpolated):  $f = 2480$  MHz;  $\sigma = 1.845$  S/m;  $\epsilon_r = 38.971$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Ambient Temperature: 22.4 Liquid Temperature: 21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(7.66, 7.66, 7.66); Calibrated: 2020.08.07;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2020.09.30
- Phantom: SAM (20deg 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)

**Ch78/Area Scan (91x151x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0631 W/kg

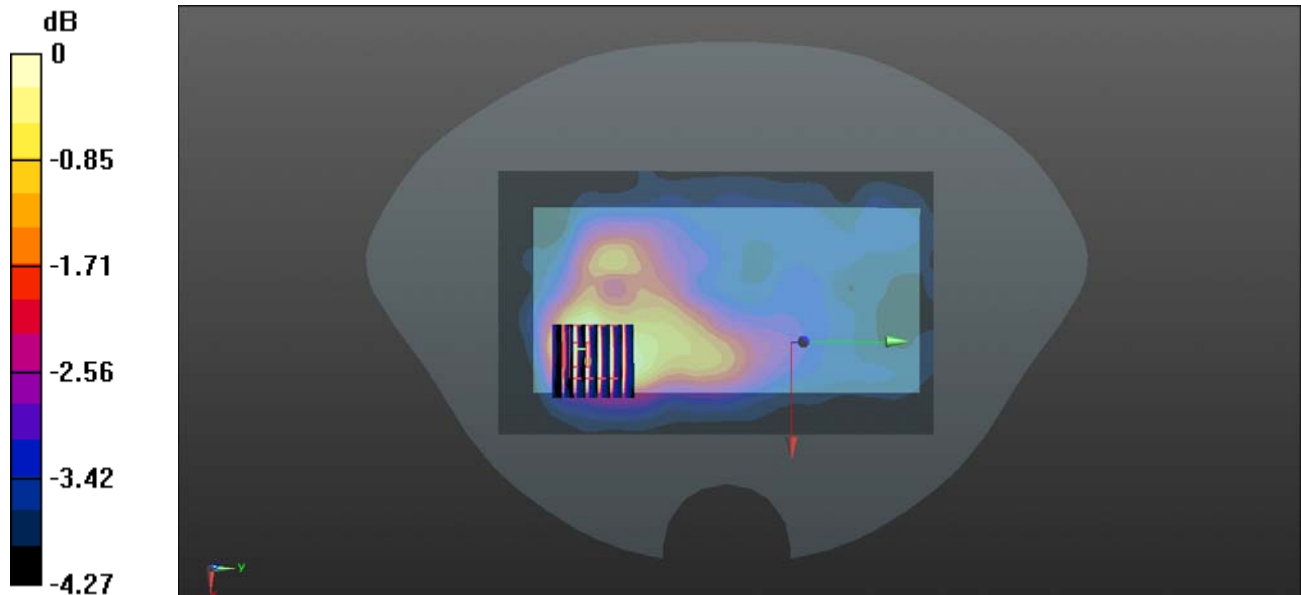
**Ch78/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.995 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.214 W/kg

**SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.032 W/kg**

Maximum value of SAR (measured) = 0.0476 W/kg



0 dB = 0.0476 W/kg

## **ANNEX D EUT EXTERNAL PHOTOS**

Please refer the document "BL-SZ2170683-AW.pdf".

## **ANNEX E SAR TEST SETUP PHOTOS**

Please refer the document "BL-SZ2170683-AS.pdf".

## **ANNEX F CALIBRATION REPORT**

Please refer the document "CALIBRATION REPORT.pdf".

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