TEST REPORT

Reference No......	:	WTX21X03019866W
FCC ID.....	:	TQ4-XC2907A
Applicant	:	Invengo Information Technology Co., Ltd.
Address	:	27th and 28th Floor,Hi-Tech Zone Union Tower, NO.63, Gaoxin South 10th Road, Yuehai Sub-district, Nanshan District，Shenzhen，China
Product Name	:	Portable reader
Test Model.	:	XC2907-A
Standards	:	FCC Part 2.1093, ANSI / IEEE C95.1 :2005+A1:2010 ANSI / IEEE C95.3 :2002(R2008)
Date of Receipt sample....	:	Mar.16, 2021
Date of Test.....	:	Mar.16, 2021 to Apr.28, 2021
Date of Issue	:	Apr.28, 2021
Test Result.....	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Report version

Version No.	Date of issue	Description
Rev.00	Mar.26, 2021	Original
Rev.01	Apr.02, 2021	Updated the basic information of EUT and retest the wifi SAR.
Rev.02	Apr.25, 2021	Added the SAR test data for head and back of body.
Rev.03	Apr.27, 2021	Added the SAR test for LTE B40.

1. General Information

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Invengo Information Technology Co., Ltd.
Address of applicant:	27th and 28th Floor,Hi-Tech Zone Union Tower, NO.63, Gaoxin South 10th Road, Yuehai Sub-district, Nanshan District，Shenzhen，China
Manufacturer:	Invengo Information Technology Co., Ltd.
Address of manufacturer:	27th and 28th Floor,Hi-Tech Zone Union Tower, NO.63, Gaoxin South 10th Road, Yuehai Sub-district, Nanshan District，Shenzhen，China

General Description of EUT:	
Product Name:	Portable reader
Trade Name:	/
Model No.:	XC2907-A
Adding Model:	XC2907, XC2907-B, XC2907-C, XC2907-D, XC2907-E, XC2907-F, XC2907-G
Rated Voltage:	Battery DC 3.8V
Battery capacity:	9000mAh
Software Version:	V1.0
Hardware Version:	V1.0
Note: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model XC2907-A, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT:	
2G	
Support Networks:	GSM, GPRS, EDGE
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS/EDGE 850: 869~894MHz GSM/GPRS/EDGE 1900: 1930~1990MHz
RF Output Power:	GSM850: 33.60dBm, GSM1900: 29.93dBm EDGE850: 25.43dBm, EDGE1900: 27.22dBm
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: 0.5dBi; GSM1900: 0.7dBi
GPRS/EDGE Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 5
Uplink Frequency:	WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 5: 22.29dBm
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 5: 0.5dBi
4G	
Support Networks:	FDD-LTE, TDD-LTE
Support Band:	FDD-LTE Band 5, 7 TDD-LTE Band 38, 40, 41
Uplink Frequency:	FDD-LTE Band 5: Tx: 824-849MHz, FDD-LTE Band 7: Tx: 2500-2570MHz, TDD-LTE Band 38: Tx: 2570-2620MHz TDD-LTE Band 40a: Tx: 2305-2315MHz TDD-LTE Band 40b: Tx: 2350-2360MHz TDD-LTE Band 41: Tx: 2555-2655MHz
Downlink Frequency:	FDD-LTE Band 5: Rx: 869-894MHz, FDD-LTE Band 7: Rx: 2620-2690MHz, TDD-LTE Band 38: Rx: 2570-2620MHz TDD-LTE Band 40a: Rx: 2305-2315MHz TDD-LTE Band 40b: Rx: 2350-2360MHz TDD-LTE Band 41: Rx: 2555-2655MHz
RF Output Power:	FDD-LTE Band 5: 23.21dBm FDD-LTE Band 7: 21.77dBm TDD-LTE Band 38: 21.80dBm

	TDD-LTE Band 40a: 20.50dBm TDD-LTE Band 40b: 20.76dBm TDD-LTE Band 41: 21.44dBm
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 5: 0.5dBi, FDD-LTE Band 7: 0.9dBi, TDD-LTE Band 38: 0.6dBi, TDD-LTE Band 40a: 0.7dBi, TDD-LTE Band 40b: 0.7dBi, TDD-LTE Band 41: 0.7dBi
WIFI(2.4G)	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 802.11b/g/n-HT20 2422-2452MHz for 802.11n-HT40
RF Output Power:	13.505dBm (Conducted)
Type of Modulation:	DBPSK,BPSK,DQPSK,QPSK,16QAM,64QAM
Quantity of Channels:	11 for 802.11b/g/n-HT20 7 for 802.11n-HT40
Channel Separation:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	0.6dBi
Bluetooth	
Bluetooth Version:	V4.2
Frequency Range:	2402-2480MHz
RF Output Power:	6.915dBm (Conducted)
Data Rate:	1Mbps, 2Mbps, 3Mbps
Modulation:	GFSK, Pi/4 QDPSK, 8DPSK
Quantity of Channels:	79/40
Channel Separation:	1MHz/2MHz
Antenna Type:	Integral Antenna
Antenna Gain:	0.6dBi
WIFI(5G)	
Support Standards:	802.11a, 802.11n-HT20/40, 802.11ac-HT80
Frequency Range:	Band 1: 5180-5240MHz,Band 2: 5260-5320MHz, Band 4: 5745-5825MHz
RF Output Power:	7.975dBm (Conducted)
Type of Modulation:	BPSK,QPSK, 16QAM, 64QAM, 256-QAM
Type of Antenna:	Integral Antenna
Antenna Gain:	0.8dBi
RFID	
Frequency Range:	902.75-927.25MHz
RF Output Power:	7.98dBm (Conducted)
Type of Modulation:	BPSK

1.2 Test Standards

The following report is prepared on behalf of the Invengo Information Technology Co., Ltd. in accordance with FCC 47 CFR Part 2.1093, ANSI/IEEE C95.1-2005, ANSI / IEEE C95.3 :2002, IEEE 1528-2013, KDB 447498 D01 v06, KDB 648474 D04 v01r03, KDB 248227 D01 v02r02, KDB 941225 D01 v03r01, KDB 941225 D05 v02r05 , and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02.

The objective is to determine compliance with FCC Part 2.1093 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02. The public notice KDB 447498 D01 v06 for Mobile and Portable Devices RF Exposure Procedure also.

1.4 Test Facility

Address of the test laboratory
Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.
Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,Block 70 Bao'an District, Shenzhen, Guangdong, China

FCC – Registration No.: 125990
Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010.Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A
The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

2. Summary of Test Results

The maximum results of Specific Absorption Rate (SAR) have found during testing are as follows:

Frequency Band	Head SAR	Body-worn (10mm Gap)	SAR_{1g} Limit (W/kg)
	Maximum SAR_{1g} (W/kg)	Maximum SAR_{1g} (W/kg)	
GSM	0.268	**0.911**	1.6
WCDMA	0.248	0.206	1.6
LTE	**0.475**	0.264	1.6
WLAN 2.4G	0.201	0.177	1.6
WLAN 5G	0.319	0.303	1.6
Simultaneous Transmission	0.861	**1.016**	1.6

The device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR Part 2.1093 and ANSI/IEEE C95.1-2005, and had been tested in accordance with the measurement methods and procedure specified in IEEE 1528-2013 and KDB 865664 D01 v01r04 and KDB 865664 D02 v01r02

3. Specific Absorption Rate (SAR)

3.1 Introduction

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 techiques 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.

3.2 SAR Definition

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

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

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

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

Where: C is the specific heat capacity, δ T is the temperature rise and δ t is the exposure duration, or related to the
electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

4. SAR Measurement System

4.1 The Measurement System

Comosar is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The Comosar system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.

The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The OpenSAR software computes the results to give a SAR value in a 1g or 10g mass.

4.2 Probe

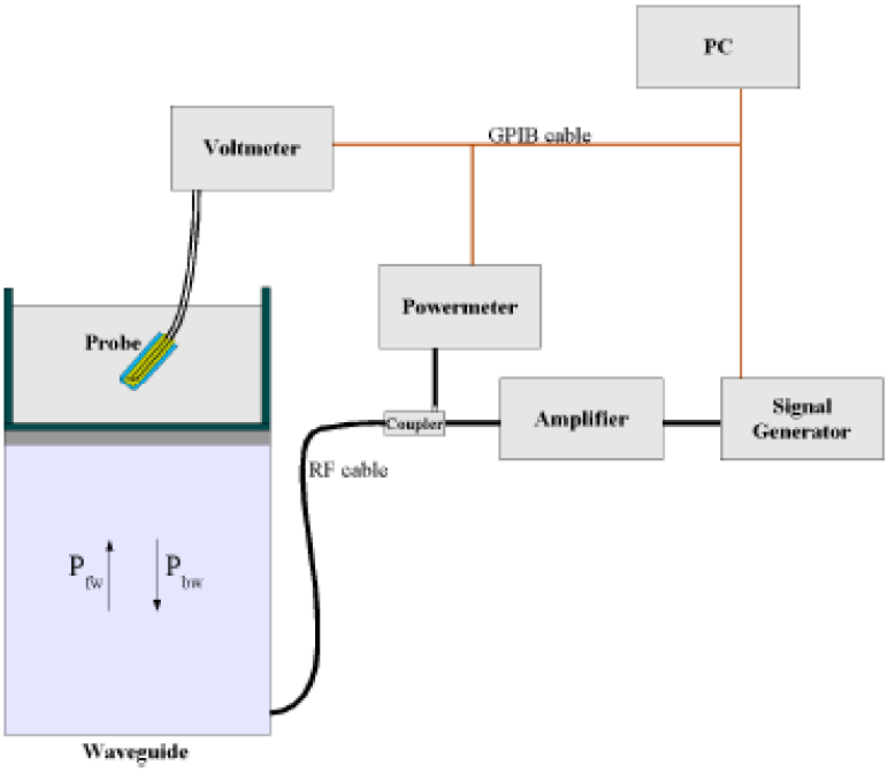
For the measurements the Specific Dosimetric E-Field Probe SSE2 SN 45/15 EPGO280 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Probe Length: 330 mm
- Length of Individual Dipoles: 4.5 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter : 5 mm

- Distance between dipoles / probe extremity: 2.7mm
- Probe linearity: ＜0.25 dB
- Axial Isotropy: ＜0.25 dB
- Spherical Isotropy: ＜0.50 dB
- Calibration range: 700 to 3000MHz for head & body simulating liquid.

Angle between probe axis (evaluation axis) and suface normal line:1ess than 30°

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



$$SAR = \frac{4\left(P_{fw} - P_{bw}\right)}{ab\delta} \cos^2\left(\pi \frac{y}{a}\right) e^{(-2z/\delta)}$$

Where :

Pfw = Forward Power

Pbw = Backward Power

a and b =Waveguide dimensions

I = Skin depth

Keithley configuration:

Rate = Medium; Filter = ON; RDGS = 10; Filter type = Moving Average; Range auto after each calibration, a SAR measurement is performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

The calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

$$CF(N)=SAR(N)/Vlin(N) \quad (N=1,2,3)$$

The linearised output voltage Vlin(N) is obtained from the displayed output voltage V(N) using

$$Vlin(N)=V(N)*(1+V(N)/DCP(N)) \quad (N=1,2,3)$$

where DCP is the diode compression point in mV.

4.3 Probe Calibration Process

Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. SATIMO Probe calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm2) using an with CALISAR, Antenna proprietary calibration system.

Free Space Assessment Procedure

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1mW/cm2.

Temperature Assessment Procedure

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated head tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where:

Δt = exposure time (30 seconds),

C = heat capacity of tissue (brain or muscle),

ΔT = temperature increase due to RF exposure.

SAR is proportional to $\Delta T/\Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

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

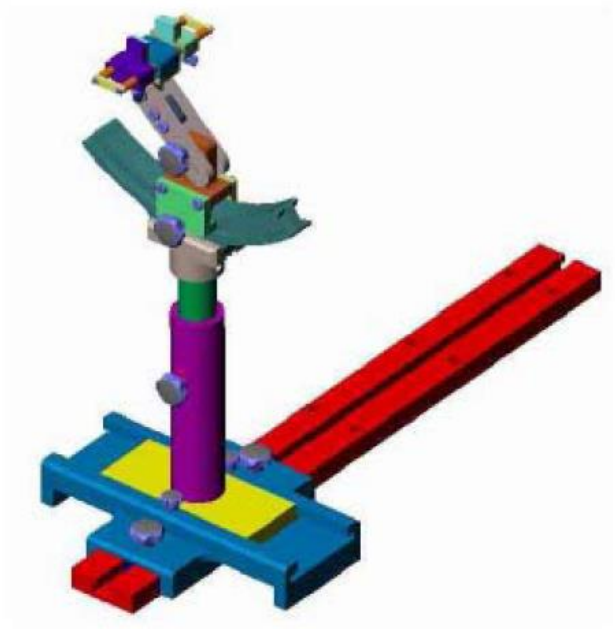
Where:
σ = simulated tissue conductivity,
ρ = Tissue density (1.25 g/cm3 for brain tissue)

4.4 Phantom

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.

4.5 Device Holder

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 °.



System Material	Permittivity	Loss Tangent
Delrin	3.7	0.005

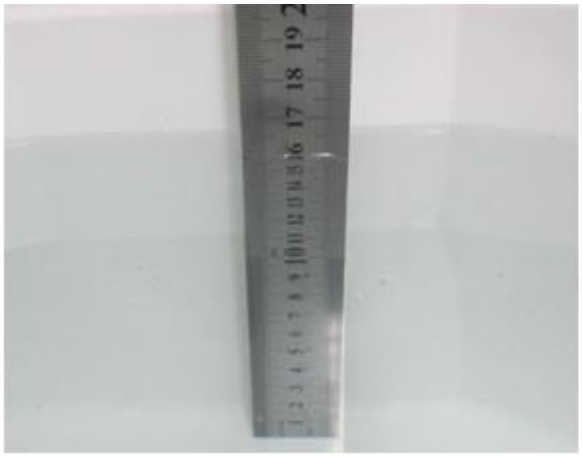
4.6 Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
E-Field Probe	MVG	SSE5	SN 09/13 EP168	2020-05-22	2022-05-21
E-Field Probe	MVG	SSE2	SN 45/15 EPGO280	2020-07-03	2022-07-02
835MHz Dipole	MVG	SID835	SN 47/12 DIP 0G835-204	2020-03-11	2022-03-10
1800MHz Dipole	MVG	SID1800	SN 47/12 DIP 1G800-206	2020-03-11	2022-03-10
2450MHz Dipole	MVG	SID2450	SN 13/15 DIP 2G450-364	2020-03-11	2022-03-10
2600MHz Dipole	MVG	SID2600	SN 13/15 DIP 2G600-365	2020-03-11	2022-03-10
5 GHz Waveguide	MVG	SWG5500	SN 49/16 WGA45	2020-07-03	2022-07-02
Dielectric Probe	SATIMO	SCLMP	SN 47/12 OCPG49	2020-03-11	2022-03-10
SAM Phantom	MVG	SAM	SN/ 47/12 SAM95	N/A	N/A
MULTIMETER	KEITHLEY	Keithley 2000	4006367	2021-03-27	2021-03-26
Signal Generator	Rohde & Schwarz	SMR20	100047	2021-03-27	2021-03-26
Universal Tester	Rohde & Schwarz	CMU200	112012	2021-03-27	2021-03-26
Communications Tester	Rohde & Schwarz	CMW500	148650	2021-03-27	2021-03-26
Network Analyzer	HP	8753C	2901A00831	2021-03-27	2021-03-26
Directional Couplers	Agilent	778D	20160	2021-03-27	2021-03-26

5. Tissue Simulating Liquids

5.1 Composition of Tissue Simulating Liquid

For the measurement of the field distribution inside the SAM phantom with SMTIMO, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. 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. Please see the following photos for the liquid height.



Liquid Height for Head SAR

Liquid Height for Body SAR

The Composition of Tissue Simulating Liquid

Frequency (MHz)	Water (%)	Salt (%)	Sugar (%)	HEC (%)	Preventol (%)	DGBE (%)
Head						
835	40.3	1.4	57.9	0.2	0.2	0
1700-2000	55.2	0.3	0	0	0	44.5
2450	55.0	0.1	0	0	0	44.9
2600	54.9	0.1	0	0	0	45.0

Frequency (MHz)	Water (%)	Hexyl Carbitol (%)	Triton X-100 (%)
Head			
5000-6000	65.52	17.24	17.24

5.2 Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

Target Frequency (MHz)	**Head**	
	Conductivity (σ)	**Permittivity** (ε_r)
150	0.76	52.3
300	0.87	45.3
450	0.87	43.5
750	0.89	41.9
835	**0.90**	**41.5**
900	0.97	41.5
915	0.98	41.5
1450	1.20	40.5
1610	1.29	40.3
1750	**1.37**	**40.1**
1800-2000	**1.40**	**40.0**
2450	**1.80**	**39.2**
3000	2.40	38.5
5200	4.66	36.0
5800	5.27	35.3

5.3 Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using COMOSAR Dielectric Probe Kit and an Agilent Network Analyzer.

Calibration Result for Dielectric Parameters of Tissue Simulating Liquid

Head Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
835	22.8	0.88	0.90	-2.22	42.38	41.50	2.12	±5	2021-03-22
1900	22.5	1.41	1.40	0.71	40.76	40.0	1.90	±5	2021-03-19
2450	22.3	1.78	1.80	-1.11	39.85	39.20	1.66	±5	2021-03-24
2450	23.0	1.77	1.80	-1.67	39.79	39.2	1.51	±5	2021-04-01
2600	22.3	1.99	1.96	1.53	38.71	39.0	-0.74	±5	2021-03-24

Head Tissue Simulating Liquid									
Freq. MHz.	Temp. (℃)	Conductivity			Permittivity			Limit (%)	Date
		Reading (σ)	Target (σ)	Delta (%)	Reading (ε r)	Target (ε r)	Delta (%)		
835	22.1	0.92	0.90	2.22	42.70	41.5	2.89	±5	2021-04-24
1900	22.5	1.40	1.40	0.00	39.57	40.0	-1.08	±5	2021-04-23
2450	22.5	1.82	1.80	1.11	39.85	39.2	1.66	±5	2021-04-23
2600	22.5	1.99	1.96	1.53	39.22	39.0	0.56	±5	2021-04-23
5800	22.0	6.15	6.00	2.50	47.08	48.2	-2.32	±5	2021-04-22
2450	22.3	1.79	1.80	-0.56	40.18	39.2	2.50	±5	2021-04-28

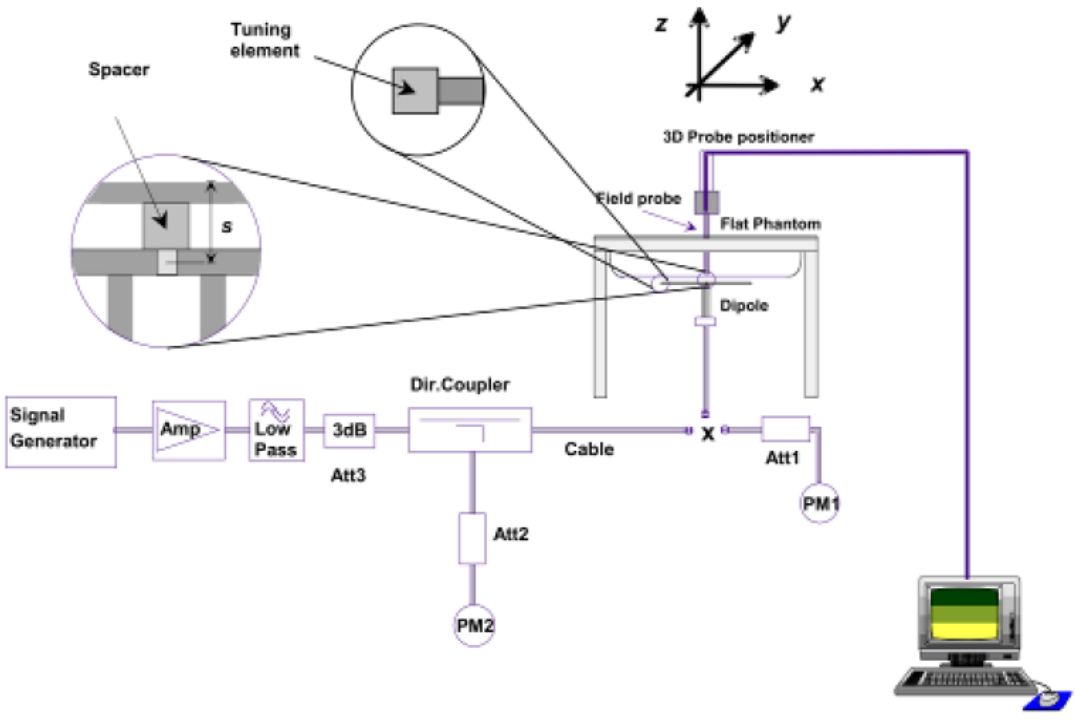
6. SAR Measurement Evaluation

6.1 Purpose of System Performance 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.

6.2 System 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 which comes from a signal generator at frequency 835MHz ,1800MHz, 1900MHz 2450MHz,2600MHz,and 5GHz. 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.



System Verification Setup Block Diagram

Setup Photo of Dipole Antenna

The output power on dipole port must be calibrated to 24 dBm(250 mW) before dipole is connected.
The output power on 5 GHz Waveguide must be calibrated to 20 dBm (100mW) before 5 GHz Waveguide is connected.

6.3 Validation Results

Comparing to the original SAR value provided by SATIMO, the validation data should be within its specification of 10 %. Table 6.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion.

Frequency	Power	Targeted SAR_{1g}	Measured SAR_{1g}	Normalized SAR_{1g}	Tolerance	Date
MHz	(mw)	(W/kg)	(W/kg)	(W/kg)	(%)	
835	250	9.65	2.47	9.88	2.38	2021-03-22
1900	250	38.49	9.97	39.88	3.61	2021-03-19
2450	250	53.76	13.56	54.24	0.89	2021-03-24
2450	250	53.76	13.23	52.92	-1.56	2021-04-01
2600	250	55.7	13.71	54.84	-1.54	2021-03-24

Frequency	Power	Targeted SAR_{1g}	Measured SAR_{1g}	Normalized SAR_{1g}	Tolerance	Date
MHz	(mw)	(W/kg)	(W/kg)	(W/kg)	(%)	
835	250	6.26	1.51	6.04	-3.51	2021-04-24
1900	250	39.59	9.50	38.00	-4.02	2021-04-23
2450	250	53.76	13.83	55.32	2.90	2021-04-23
2600	250	55.7	14.11	56.44	1.33	2021-04-23
5800	250	181.2	18.702	187.02	3.21	2021-04-22
2450	250	53.76	13.15	52.6	-2.16	2021-04-28

Remark: Referring to IEEE 1528-2013, Section 8.2, The system check shall be performed at a test frequency that is within ±10% or ±100 MHz of the compliance test mid-band frequency, so the 1750 MHz system verification is made of 1800MHz Dipole.

Targeted and Measurement SAR

Please refer to Annex A for the plots of system performance check.

7. EUT Testing Position

7.1 Define Two Imaginary Lines on The Handset

(a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

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

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

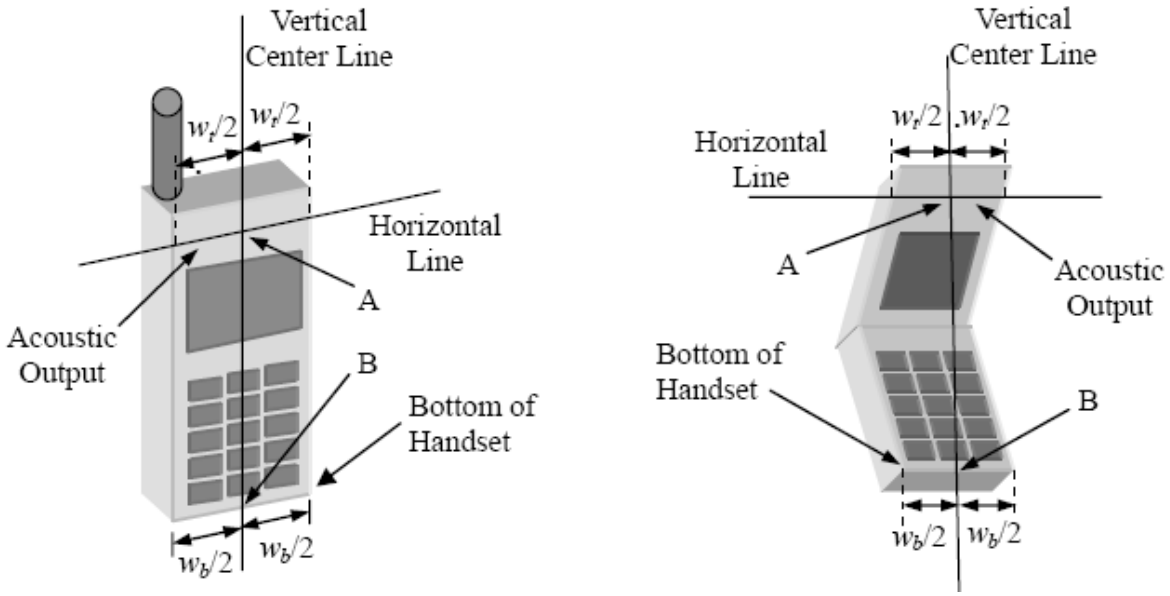


Illustration for Handset Vertical and Horizontal Reference Lines

7.2 Cheek Position

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig. 7.2).

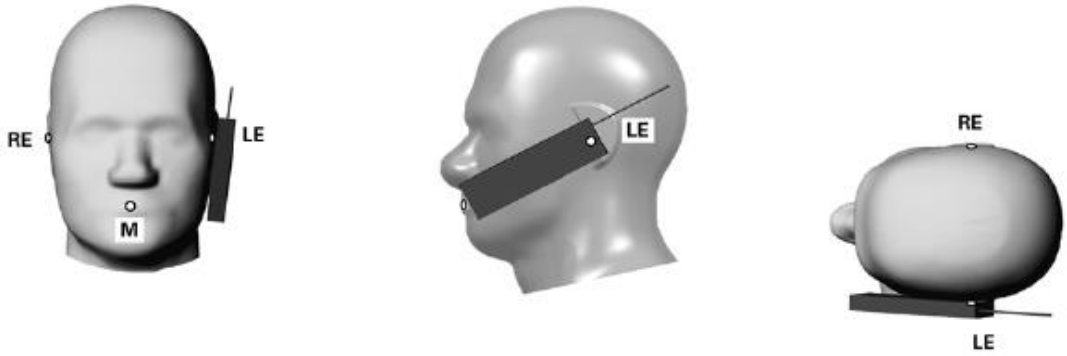


Illustration for Cheek Position

7.3 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 (see Fig. 7.3).

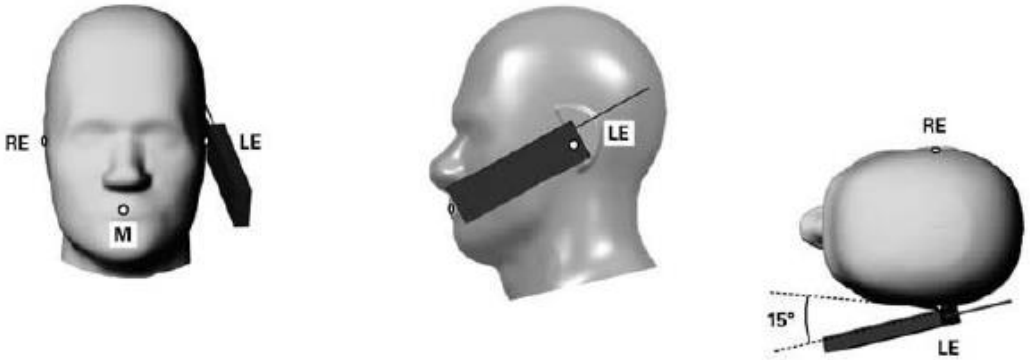


Illustration for Tilted Position

7.4 Body Position

(a) To position the device parallel to the phantom surface with each side.
(b) To adjust the device parallel to the flat phantom.
(c) To adjust the distance between the device surface and the flat phantom to 10mm.

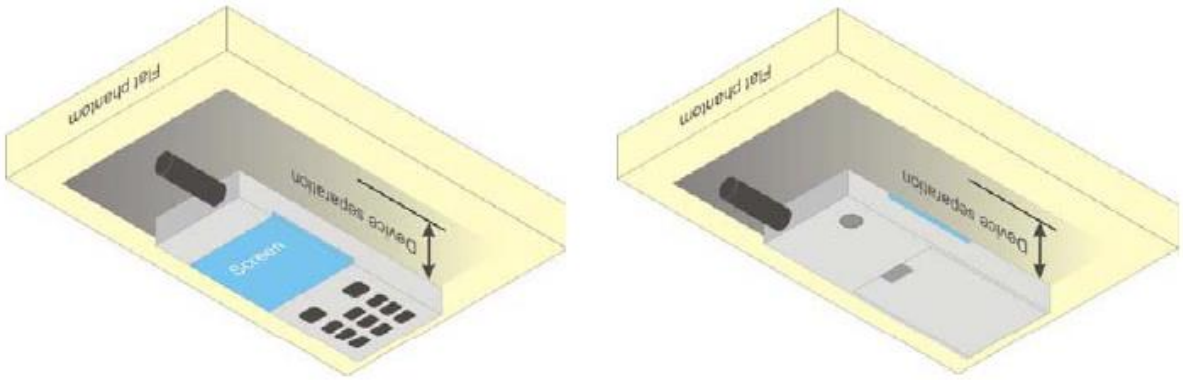


Illustration for Body Position

7.5 EUT Antenna Position

Block Diagram for EUT Antenna Position

Distance of EUT antenna-to-edge/surface(mm), Test distance:10mm						
Antennas	**Front**	**Back**	**Left Side**	**Right Side**	**Top Side**	**Bottom Side**
WWAN	<25	<25	<25	27	123	<25
WLAN	<25	<25	<25	60	<25	118

7.6 EUT Testing Position

Body mode SAR assessments are required for this device. This EUT was tested in different positions for different SAR test modes, more information as below:

Body SAR tests, Test distance: 10mm						
Antennas	**Front**	**Back**	**Left Side**	**Right Side**	**Top Side**	**Bottom Side**
WWAN	Yes	Yes	Yes	No	No	Yes
WLAN	Yes	Yes	Yes	No	Yes	No

Remark:

1. Referring to KDB 941225 D06, when the overall device length and width are >= 9cm*5cm, the test separation distances is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
2. Referring to KDB 648474 D04 Handset SAR v01r03, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg

Please refer to Annex D for the EUT test setup photos.

8. SAR Measurement Procedures

8.1 Measurement Procedures

The measurement procedures are as follows:
(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the highest power channel.
(b) Keep EUT to radiate maximum output power or 100% factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the EUT in the positions as Annex D demonstrates.
(e) Set scan area, grid size and other setting on the SATIMO software.
(f) Measure SAR results for the highest power channel on each testing position.
(g) Find out the largest SAR result on these testing positions of each band
(h) Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:
(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

8.2 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The SATIMO software includes all numerical procedures necessary to evaluate the spatial peak SAR value.
The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.
The entire evaluation of the spatial peak values is performed within the post-processing engine. The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:
(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

8.3 Area & Zoom Scan Procedures

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 measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz, and 8x8x8 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

8.4 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.5 SAR Averaged Methods

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10g and 1 g requires a very fine resolution in the three dimensional scanned data array.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In SATIMO measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

9. SAR Test Result

9.1 Conducted RF Output Power

GSM - Burst Average Power (dBm)								
Band	**GSM850**			**Tune-up power (dBm)**	**PCS1900**			**Tune-up power (dBm)**
Channel	**128**	**190**	**251**		**512**	**661**	**810**	
Frequency (MHz)	**824.2**	**836.6**	**848.8**		**1850.2**	**1880**	**1909.8**	
GSM	33.11	33.48	33.60	34.0	29.31	29.90	29.71	30.0
GPRS (1 slot)	33.10	33.45	33.58	34.0	29.34	29.93	29.72	30.0
GPRS (2 slots)	32.60	32.95	33.12	33.5	28.49	29.28	29.13	29.5
GPRS (3 slots)	31.09	31.47	31.67	32.0	26.83	27.81	27.70	28.0
GPRS (4 slots)	29.95	30.39	30.60	31.0	25.99	27.03	26.93	27.5
EDGE (1 slot)	25.43	25.40	25.28	25.5	27.22	27.22	27.17	28.0
EDGE (2 slots)	24.59	24.51	24.52	25.0	26.42	26.12	26.69	27.0
EDGE (3 slots)	23.40	23.16	23.02	23.5	25.93	25.68	25.23	26.0
EDGE (4 slots)	21.93	21.82	21.69	22.0	24.58	24.55	24.47	25.0

GSM - Source-Based Time-Average Power (dBm)								
Band	**GSM850**			**Tune-up power (dBm)**	**PCS1900**			**Tune-up power (dBm)**
Channel	**128**	**190**	**251**		**512**	**661**	**810**	
Frequency (MHz)	**824.2**	**836.6**	**848.8**		**1850.2**	**1880**	**1909.8**	
GSM	24.11	24.48	24.60	25.0	20.31	20.90	20.71	21.0
GPRS (1 slot)	24.10	24.45	24.58	25.0	20.34	20.93	20.72	21.0
GPRS (2 slots)	26.60	26.95	27.12	27.5	22.49	23.28	23.13	23.5
GPRS (3 slots)	26.84	27.22	27.42	27.5	22.58	23.56	23.45	24.0
GPRS (4 slots)	26.95	27.39	27.60	28.0	22.99	24.03	23.93	24.5
EDGE (1 slot)	16.43	16.40	16.28	16.5	18.22	18.22	18.17	18.5
EDGE (2 slots)	18.59	18.51	18.52	19.0	20.42	20.12	20.69	21.0
EDGE (3 slots)	19.15	18.91	18.77	19.5	21.68	21.43	20.98	22.0
EDGE (4 slots)	18.93	18.82	18.69	19.0	21.58	21.55	21.47	22.0
Note: The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below: Source based time-average power = Burst averaged power - Duty cycle factor in dB Duty cycle factor = 9 dB for 1 Tx slot, 6 dB for 2 Tx slots, 4.25 dB for 3 Tx slots, 3 dB for 4 Tx slots								

Remark:

1. For Head SAR testing, GSM should be evaluated, therefore the EUT was set in GSM for GSM850 and GSM1900 due to its highest source-based time-average power.

2. For Body SAR testing, GPRS should be evaluated, therefore the EUT was set in GPRS (4TX slots) for GSM850 and

GPRS (4TX slots) for GSM1900 due to its highest source-based time-average power.

3. Per KDB 447498 D01 v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.

4. The DUT do not support DTM function.

5. The DUT do not support Hotspot function.

WCDMA - Average Power (dBm)				
Band	**WCDMA Band V**			
Channel	**4132**	**4183**	**4233**	**Tune-up power (dBm)**
Frequency (MHz)	**826.4**	**836.4**	**846.6**	
RMC 12.2k	21.96	22.29	22.09	22.5
HSDPA Subtest-1	21.03	21.35	21.18	21.5
HSDPA Subtest-2	20.66	20.83	20.80	21.0
HSDPA Subtest-3	20.79	20.88	20.52	21.0
HSDPA Subtest-4	20.40	20.34	20.44	20.5
HSUPA Subtest-1	20.93	20.17	20.31	21.0
HSUPA Subtest-2	20.44	20.39	20.35	20.5
HSUPA Subtest-3	20.45	20.34	20.55	21.0
HSUPA Subtest-4	20.36	20.36	20.49	20.5
HSUPA Subtest-5	20.49	20.59	20.53	21.0

Remark:

1. per KDB 941225 D01 v03, The 12.2kbps RMC mode was selected for SAR testing(the primary mode).

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

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	high Limit (dBm)	Verdict
Band5	1.4	20407	1	#0	QPSK	23.08	37	PASS
Band5	1.4	20407	1	#Mid	QPSK	**23.21**	37	PASS
Band5	1.4	20407	1	#Max	QPSK	23.04	37	PASS
Band5	1.4	20407	3	#0	QPSK	23.12	37	PASS
Band5	1.4	20407	3	#Max	QPSK	23.05	37	PASS
Band5	1.4	20407	6	#0	QPSK	22.06	37	PASS
Band5	1.4	20407	1	#0	QAM16	21.90	37	PASS
Band5	1.4	20407	1	#Mid	QAM16	22.08	37	PASS
Band5	1.4	20407	1	#Max	QAM16	21.92	37	PASS
Band5	1.4	20407	3	#0	QAM16	22.01	37	PASS
Band5	1.4	20407	3	#Max	QAM16	22.00	37	PASS
Band5	1.4	20407	6	#0	QAM16	21.00	37	PASS
Band5	1.4	20525	1	#0	QPSK	22.89	37	PASS
Band5	1.4	20525	1	#Mid	QPSK	23.15	37	PASS
Band5	1.4	20525	1	#Max	QPSK	22.84	37	PASS
Band5	1.4	20525	3	#0	QPSK	22.79	37	PASS
Band5	1.4	20525	3	#Max	QPSK	22.80	37	PASS
Band5	1.4	20525	6	#0	QPSK	21.88	37	PASS
Band5	1.4	20525	1	#0	QAM16	21.74	37	PASS
Band5	1.4	20525	1	#Mid	QAM16	21.93	37	PASS
Band5	1.4	20525	1	#Max	QAM16	21.74	37	PASS
Band5	1.4	20525	3	#0	QAM16	21.81	37	PASS
Band5	1.4	20525	3	#Max	QAM16	21.88	37	PASS
Band5	1.4	20525	6	#0	QAM16	20.84	37	PASS
Band5	1.4	20643	1	#0	QPSK	22.58	37	PASS
Band5	1.4	20643	1	#Mid	QPSK	22.77	37	PASS
Band5	1.4	20643	1	#Max	QPSK	22.57	37	PASS
Band5	1.4	20643	3	#0	QPSK	22.66	37	PASS
Band5	1.4	20643	3	#Max	QPSK	22.61	37	PASS
Band5	1.4	20643	6	#0	QPSK	21.73	37	PASS
Band5	1.4	20643	1	#0	QAM16	21.77	37	PASS
Band5	1.4	20643	1	#Mid	QAM16	21.94	37	PASS
Band5	1.4	20643	1	#Max	QAM16	21.73	37	PASS
Band5	1.4	20643	3	#0	QAM16	21.64	37	PASS
Band5	1.4	20643	3	#Max	QAM16	21.62	37	PASS
Band5	1.4	20643	6	#0	QAM16	20.62	37	PASS
Band5	3	20415	1	#0	QPSK	23.09	37	PASS
Band5	3	20415	1	#Mid	QPSK	23.00	37	PASS
Band5	3	20415	1	#Max	QPSK	23.06	37	PASS
Band5	3	20415	8	#0	QPSK	22.07	37	PASS

Band5	3	20415	8	#Max	QPSK	22.04	37	PASS
Band5	3	20415	15	#0	QPSK	22.06	37	PASS
Band5	3	20415	1	#0	QAM16	22.40	37	PASS
Band5	3	20415	1	#Mid	QAM16	22.41	37	PASS
Band5	3	20415	1	#Max	QAM16	22.38	37	PASS
Band5	3	20415	8	#0	QAM16	21.07	37	PASS
Band5	3	20415	8	#Max	QAM16	21.08	37	PASS
Band5	3	20415	15	#0	QAM16	21.01	37	PASS
Band5	3	20525	1	#0	QPSK	22.88	37	PASS
Band5	3	20525	1	#Mid	QPSK	22.86	37	PASS
Band5	3	20525	1	#Max	QPSK	22.83	37	PASS
Band5	3	20525	8	#0	QPSK	21.94	37	PASS
Band5	3	20525	8	#Max	QPSK	21.88	37	PASS
Band5	3	20525	15	#0	QPSK	21.82	37	PASS
Band5	3	20525	1	#0	QAM16	22.02	37	PASS
Band5	3	20525	1	#Mid	QAM16	21.94	37	PASS
Band5	3	20525	1	#Max	QAM16	21.95	37	PASS
Band5	3	20525	8	#0	QAM16	20.83	37	PASS
Band5	3	20525	8	#Max	QAM16	20.75	37	PASS
Band5	3	20525	15	#0	QAM16	20.66	37	PASS
Band5	3	20635	1	#0	QPSK	22.75	37	PASS
Band5	3	20635	1	#Mid	QPSK	22.80	37	PASS
Band5	3	20635	1	#Max	QPSK	22.81	37	PASS
Band5	3	20635	8	#0	QPSK	21.67	37	PASS
Band5	3	20635	8	#Max	QPSK	21.77	37	PASS
Band5	3	20635	15	#0	QPSK	21.69	37	PASS
Band5	3	20635	1	#0	QAM16	21.63	37	PASS
Band5	3	20635	1	#Mid	QAM16	21.62	37	PASS
Band5	3	20635	1	#Max	QAM16	21.57	37	PASS
Band5	3	20635	8	#0	QAM16	20.71	37	PASS
Band5	3	20635	8	#Max	QAM16	20.70	37	PASS
Band5	3	20635	15	#0	QAM16	20.67	37	PASS
Band5	5	20425	1	#0	QPSK	23.01	37	PASS
Band5	5	20425	1	#Mid	QPSK	23.11	37	PASS
Band5	5	20425	1	#Max	QPSK	22.94	37	PASS
Band5	5	20425	12	#0	QPSK	22.08	37	PASS
Band5	5	20425	12	#Max	QPSK	22.15	37	PASS
Band5	5	20425	25	#0	QPSK	22.16	37	PASS
Band5	5	20425	1	#0	QAM16	22.28	37	PASS
Band5	5	20425	1	#Mid	QAM16	22.43	37	PASS
Band5	5	20425	1	#Max	QAM16	22.26	37	PASS
Band5	5	20425	12	#0	QAM16	21.04	37	PASS
Band5	5	20425	12	#Max	QAM16	21.11	37	PASS

Band5	5	20425	25	#0	QAM16	21.19	37	PASS
Band5	5	20525	1	#0	QPSK	22.87	37	PASS
Band5	5	20525	1	#Mid	QPSK	22.89	37	PASS
Band5	5	20525	1	#Max	QPSK	22.74	37	PASS
Band5	5	20525	12	#0	QPSK	22.00	37	PASS
Band5	5	20525	12	#Max	QPSK	21.74	37	PASS
Band5	5	20525	25	#0	QPSK	21.84	37	PASS
Band5	5	20525	1	#0	QAM16	21.95	37	PASS
Band5	5	20525	1	#Mid	QAM16	21.99	37	PASS
Band5	5	20525	1	#Max	QAM16	21.93	37	PASS
Band5	5	20525	12	#0	QAM16	20.83	37	PASS
Band5	5	20525	12	#Max	QAM16	20.57	37	PASS
Band5	5	20525	25	#0	QAM16	20.75	37	PASS
Band5	5	20625	1	#0	QPSK	22.64	37	PASS
Band5	5	20625	1	#Mid	QPSK	22.73	37	PASS
Band5	5	20625	1	#Max	QPSK	22.56	37	PASS
Band5	5	20625	12	#0	QPSK	21.64	37	PASS
Band5	5	20625	12	#Max	QPSK	21.77	37	PASS
Band5	5	20625	25	#0	QPSK	21.74	37	PASS
Band5	5	20625	1	#0	QAM16	22.03	37	PASS
Band5	5	20625	1	#Mid	QAM16	22.02	37	PASS
Band5	5	20625	1	#Max	QAM16	21.81	37	PASS
Band5	5	20625	12	#0	QAM16	20.68	37	PASS
Band5	5	20625	12	#Max	QAM16	20.77	37	PASS
Band5	5	20625	25	#0	QAM16	20.77	37	PASS
Band5	10	20450	1	#0	QPSK	23.04	37	PASS
Band5	10	20450	1	#Mid	QPSK	23.20	37	PASS
Band5	10	20450	1	#Max	QPSK	22.92	37	PASS
Band5	10	20450	25	#0	QPSK	22.04	37	PASS
Band5	10	20450	25	#Max	QPSK	22.20	37	PASS
Band5	10	20450	50	#0	QPSK	22.09	37	PASS
Band5	10	20450	1	#0	QAM16	22.38	37	PASS
Band5	10	20450	1	#Mid	QAM16	22.56	37	PASS
Band5	10	20450	1	#Max	QAM16	22.15	37	PASS
Band5	10	20450	25	#0	QAM16	21.10	37	PASS
Band5	10	20450	25	#Max	QAM16	21.23	37	PASS
Band5	10	20450	50	#0	QAM16	21.09	37	PASS
Band5	10	20525	1	#0	QPSK	22.96	37	PASS
Band5	10	20525	1	#Mid	QPSK	22.97	37	PASS
Band5	10	20525	1	#Max	QPSK	22.75	37	PASS
Band5	10	20525	25	#0	QPSK	22.02	37	PASS
Band5	10	20525	25	#Max	QPSK	21.69	37	PASS
Band5	10	20525	50	#0	QPSK	21.90	37	PASS

Band5	10	20525	1	#0	QAM16	22.10	37	PASS
Band5	10	20525	1	#Mid	QAM16	22.16	37	PASS
Band5	10	20525	1	#Max	QAM16	22.00	37	PASS
Band5	10	20525	25	#0	QAM16	20.98	37	PASS
Band5	10	20525	25	#Max	QAM16	20.63	37	PASS
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Band5	10	20600	1	#0	QPSK	22.86	37	PASS
Band5	10	20600	1	#Mid	QPSK	22.93	37	PASS
Band5	10	20600	1	#Max	QPSK	22.77	37	PASS
Band5	10	20600	25	#0	QPSK	21.86	37	PASS
Band5	10	20600	25	#Max	QPSK	21.96	37	PASS
Band5	10	20600	50	#0	QPSK	21.87	37	PASS
Band5	10	20600	1	#0	QAM16	21.69	37	PASS
Band5	10	20600	1	#Mid	QAM16	21.85	37	PASS
Band5	10	20600	1	#Max	QAM16	21.54	37	PASS
Band5	10	20600	25	#0	QAM16	20.92	37	PASS
Band5	10	20600	25	#Max	QAM16	20.99	37	PASS
Band5	10	20600	50	#0	QAM16	20.88	37	PASS
Band7	5	20775	1	#0	QPSK	21.45	37	PASS
Band7	5	20775	1	#Mid	QPSK	21.57	37	PASS
Band7	5	20775	1	#Max	QPSK	21.39	37	PASS
Band7	5	20775	12	#0	QPSK	20.53	37	PASS
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Band7	5	20775	1	#Max	QAM16	20.70	37	PASS
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Band7	5	20775	12	#Max	QAM16	20.56	37	PASS
Band7	5	20775	25	#0	QAM16	20.59	37	PASS
Band7	5	21100	1	#0	QPSK	21.12	37	PASS
Band7	5	21100	1	#Mid	QPSK	21.21	37	PASS
Band7	5	21100	1	#Max	QPSK	21.06	37	PASS
Band7	5	21100	12	#0	QPSK	20.22	37	PASS
Band7	5	21100	12	#Max	QPSK	20.25	37	PASS
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Band7	5	21100	1	#Max	QAM16	20.30	37	PASS
Band7	5	21100	12	#0	QAM16	20.20	37	PASS
Band7	5	21100	12	#Max	QAM16	20.21	37	PASS
Band7	5	21100	25	#0	QAM16	20.23	37	PASS
Band7	5	21425	1	#0	QPSK	21.39	37	PASS

Band7	5	21425	1	#Mid	QPSK	21.57	37	PASS
Band7	5	21425	1	#Max	QPSK	21.42	37	PASS
Band7	5	21425	12	#0	QPSK	20.55	37	PASS
Band7	5	21425	12	#Max	QPSK	20.55	37	PASS
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Band7	5	21425	1	#Mid	QAM16	20.83	37	PASS
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Band7	5	21425	12	#0	QAM16	20.62	37	PASS
Band7	5	21425	12	#Max	QAM16	20.65	37	PASS
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Band7	10	21100	50	#0	QAM16	20.28	37	PASS
Band7	10	21400	1	#0	QPSK	21.57	37	PASS
Band7	10	21400	1	#Mid	QPSK	**21.77**	37	PASS
Band7	10	21400	1	#Max	QPSK	21.58	37	PASS
Band7	10	21400	25	#0	QPSK	20.56	37	PASS
Band7	10	21400	25	#Max	QPSK	20.57	37	PASS
Band7	10	21400	50	#0	QPSK	20.59	37	PASS
Band7	10	21400	1	#0	QAM16	20.34	37	PASS
Band7	10	21400	1	#Mid	QAM16	20.55	37	PASS

Band7	10	21400	1	#Max	QAM16	20.42	37	PASS
Band7	10	21400	25	#0	QAM16	19.56	37	PASS
Band7	10	21400	25	#Max	QAM16	19.58	37	PASS
Band7	10	21400	50	#0	QAM16	19.58	37	PASS
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Band7	15	20825	1	#Mid	QPSK	21.53	37	PASS
Band7	15	20825	1	#Max	QPSK	21.40	37	PASS
Band7	15	20825	36	#0	QPSK	20.61	37	PASS
Band7	15	20825	36	#Max	QPSK	20.61	37	PASS
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Band7	15	21375	1	#0	QAM16	20.42	37	PASS
Band7	15	21375	1	#Mid	QAM16	20.63	37	PASS
Band7	15	21375	1	#Max	QAM16	20.55	37	PASS
Band7	15	21375	36	#0	QAM16	19.54	37	PASS
Band7	15	21375	36	#Max	QAM16	19.58	37	PASS
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Band7	20	20850	1	#0	QPSK	21.49	37	PASS
Band7	20	20850	1	#Mid	QPSK	21.68	37	PASS
Band7	20	20850	1	#Max	QPSK	21.31	37	PASS

Band7	20	20850	50	#0	QPSK	20.53	37	PASS
Band7	20	20850	50	#Max	QPSK	20.41	37	PASS
Band7	20	20850	100	#0	QPSK	20.45	37	PASS
Band7	20	20850	1	#0	QAM16	20.66	37	PASS
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Band7	20	21100	1	#0	QPSK	21.27	37	PASS
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Band7	20	21350	100	#0	QAM16	19.49	37	PASS
Band38	5	37775	1	#0	QPSK	21.42	37	PASS
Band38	5	37775	1	#Mid	QPSK	21.45	37	PASS
Band38	5	37775	1	#Max	QPSK	21.29	37	PASS
Band38	5	37775	12	#0	QPSK	20.49	37	PASS
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Band38	5	37775	1	#Mid	QAM16	20.79	37	PASS
Band38	5	37775	1	#Max	QAM16	20.63	37	PASS
Band38	5	37775	12	#0	QAM16	20.41	37	PASS

Band38	5	37775	12	#Max	QAM16	20.35	37	PASS
Band38	5	37775	25	#0	QAM16	20.41	37	PASS
Band38	5	38000	1	#0	QPSK	21.36	37	PASS
Band38	5	38000	1	#Mid	QPSK	21.49	37	PASS
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Band38	5	38000	25	#0	QAM16	20.47	37	PASS
Band38	5	38225	1	#0	QPSK	21.39	37	PASS
Band38	5	38225	1	#Mid	QPSK	21.48	37	PASS
Band38	5	38225	1	#Max	QPSK	21.30	37	PASS
Band38	5	38225	12	#0	QPSK	20.46	37	PASS
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Band38	10	37800	1	#Max	QAM16	20.68	37	PASS
Band38	10	37800	25	#0	QAM16	20.63	37	PASS
Band38	10	37800	25	#Max	QAM16	20.45	37	PASS
Band38	10	37800	50	#0	QAM16	20.46	37	PASS
Band38	10	38000	1	#0	QPSK	21.43	37	PASS
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Band38	10	38000	1	#Max	QPSK	21.54	37	PASS
Band38	10	38000	25	#0	QPSK	20.56	37	PASS
Band38	10	38000	25	#Max	QPSK	20.56	37	PASS

Band38	10	38000	50	#0	QPSK	20.55	37	PASS
Band38	10	38000	1	#0	QAM16	20.50	37	PASS
Band38	10	38000	1	#Mid	QAM16	20.74	37	PASS
Band38	10	38000	1	#Max	QAM16	20.61	37	PASS
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Band38	10	38000	50	#0	QAM16	20.53	37	PASS
Band38	10	38200	1	#0	QPSK	21.60	37	PASS
Band38	10	38200	1	#Mid	QPSK	**21.80**	37	PASS
Band38	10	38200	1	#Max	QPSK	21.45	37	PASS
Band38	10	38200	25	#0	QPSK	20.60	37	PASS
Band38	10	38200	25	#Max	QPSK	20.58	37	PASS
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Band38	10	38200	50	#0	QAM16	20.58	37	PASS
Band38	15	37825	1	#0	QPSK	21.38	37	PASS
Band38	15	37825	1	#Mid	QPSK	21.35	37	PASS
Band38	15	37825	1	#Max	QPSK	21.24	37	PASS
Band38	15	37825	36	#0	QPSK	20.58	37	PASS
Band38	15	37825	36	#Max	QPSK	20.40	37	PASS
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Band38	15	38000	36	#0	QAM16	20.54	37	PASS
Band38	15	38000	36	#Max	QAM16	20.55	37	PASS
Band38	15	38000	75	#0	QAM16	20.55	37	PASS

Band38	15	38175	1	#0	QPSK	21.58	37	PASS
Band38	15	38175	1	#Mid	QPSK	21.66	37	PASS
Band38	15	38175	1	#Max	QPSK	21.43	37	PASS
Band38	15	38175	36	#0	QPSK	20.68	37	PASS
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Band38	15	38175	1	#Mid	QAM16	20.64	37	PASS
Band38	15	38175	1	#Max	QAM16	20.41	37	PASS
Band38	15	38175	36	#0	QAM16	20.63	37	PASS
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Band38	20	37850	1	#0	QAM16	20.53	37	PASS
Band38	20	37850	1	#Mid	QAM16	20.71	37	PASS
Band38	20	37850	1	#Max	QAM16	20.49	37	PASS
Band38	20	37850	50	#0	QAM16	20.54	37	PASS
Band38	20	37850	50	#Max	QAM16	20.34	37	PASS
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Band38	20	38150	50	#Max	QPSK	20.57	37	PASS
Band38	20	38150	100	#0	QPSK	20.54	37	PASS
Band38	20	38150	1	#0	QAM16	20.16	37	PASS

Band38	20	38150	1	#Mid	QAM16	20.41	37	PASS
Band38	20	38150	1	#Max	QAM16	20.00	37	PASS
Band38	20	38150	50	#0	QAM16	20.61	37	PASS
Band38	20	38150	50	#Max	QAM16	20.57	37	PASS
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Band40a	5	38725	1	#0	QPSK	20.29	37	PASS
Band40a	5	38725	1	#Mid	QPSK	20.39	37	PASS
Band40a	5	38725	1	#Max	QPSK	20.31	37	PASS
Band40a	5	38725	12	#0	QPSK	19.42	37	PASS
Band40a	5	38725	12	#Max	QPSK	19.25	37	PASS
Band40a	5	38725	25	#0	QPSK	19.36	37	PASS
Band40a	5	38725	1	#0	QAM16	19.65	37	PASS
Band40a	5	38725	1	#Mid	QAM16	19.78	37	PASS
Band40a	5	38725	1	#Max	QAM16	19.68	37	PASS
Band40a	5	38725	12	#0	QAM16	18.38	37	PASS
Band40a	5	38725	12	#Max	QAM16	18.23	37	PASS
Band40a	5	38725	25	#0	QAM16	18.40	37	PASS
Band40a	5	38750	1	#0	QPSK	20.28	37	PASS
Band40a	5	38750	1	#Mid	QPSK	20.43	37	PASS
Band40a	5	38750	1	#Max	QPSK	20.26	37	PASS
Band40a	5	38750	12	#0	QPSK	19.42	37	PASS
Band40a	5	38750	12	#Max	QPSK	19.30	37	PASS
Band40a	5	38750	25	#0	QPSK	19.41	37	PASS
Band40a	5	38750	1	#0	QAM16	19.50	37	PASS
Band40a	5	38750	1	#Mid	QAM16	19.64	37	PASS
Band40a	5	38750	1	#Max	QAM16	19.51	37	PASS
Band40a	5	38750	12	#0	QAM16	18.36	37	PASS
Band40a	5	38750	12	#Max	QAM16	18.24	37	PASS
Band40a	5	38750	25	#0	QAM16	18.36	37	PASS
Band40a	5	38775	1	#0	QPSK	20.26	37	PASS
Band40a	5	38775	1	#Mid	QPSK	20.39	37	PASS
Band40a	5	38775	1	#Max	QPSK	20.24	37	PASS
Band40a	5	38775	12	#0	QPSK	19.44	37	PASS
Band40a	5	38775	12	#Max	QPSK	19.30	37	PASS
Band40a	5	38775	25	#0	QPSK	19.40	37	PASS
Band40a	5	38775	1	#0	QAM16	19.59	37	PASS
Band40a	5	38775	1	#Mid	QAM16	19.73	37	PASS
Band40a	5	38775	1	#Max	QAM16	19.55	37	PASS
Band40a	5	38775	12	#0	QAM16	18.48	37	PASS
Band40a	5	38775	12	#Max	QAM16	18.34	37	PASS
Band40a	5	38775	25	#0	QAM16	18.45	37	PASS
Band40a	10	38750	1	#0	QPSK	20.32	37	PASS
Band40a	10	38750	1	#Mid	QPSK	20.50	37	PASS

Band40a	10	38750	1	#Max	QPSK	20.30	37	PASS
Band40a	10	38750	25	#0	QPSK	19.60	37	PASS
Band40a	10	38750	25	#Max	QPSK	19.28	37	PASS
Band40a	10	38750	50	#0	QPSK	19.50	37	PASS
Band40a	10	38750	1	#0	QAM16	19.69	37	PASS
Band40a	10	38750	1	#Mid	QAM16	19.89	37	PASS
Band40a	10	38750	1	#Max	QAM16	19.70	37	PASS
Band40a	10	38750	25	#0	QAM16	18.69	37	PASS
Band40a	10	38750	25	#Max	QAM16	18.38	37	PASS
Band40a	10	38750	50	#0	QAM16	18.53	37	PASS
Band40b	5	39175	1	#0	QPSK	20.50	37	PASS
Band40b	5	39175	1	#Mid	QPSK	20.64	37	PASS
Band40b	5	39175	1	#Max	QPSK	20.52	37	PASS
Band40b	5	39175	12	#0	QPSK	19.49	37	PASS
Band40b	5	39175	12	#Max	QPSK	19.63	37	PASS
Band40b	5	39175	25	#0	QPSK	19.57	37	PASS
Band40b	5	39175	1	#0	QAM16	19.65	37	PASS
Band40b	5	39175	1	#Mid	QAM16	19.79	37	PASS
Band40b	5	39175	1	#Max	QAM16	19.67	37	PASS
Band40b	5	39175	12	#0	QAM16	18.44	37	PASS
Band40b	5	39175	12	#Max	QAM16	18.56	37	PASS
Band40b	5	39175	25	#0	QAM16	18.54	37	PASS
Band40b	5	39200	1	#0	QPSK	20.44	37	PASS
Band40b	5	39200	1	#Mid	QPSK	20.57	37	PASS
Band40b	5	39200	1	#Max	QPSK	20.44	37	PASS
Band40b	5	39200	12	#0	QPSK	19.50	37	PASS
Band40b	5	39200	12	#Max	QPSK	19.56	37	PASS
Band40b	5	39200	25	#0	QPSK	19.55	37	PASS
Band40b	5	39200	1	#0	QAM16	19.74	37	PASS
Band40b	5	39200	1	#Mid	QAM16	19.87	37	PASS
Band40b	5	39200	1	#Max	QAM16	19.73	37	PASS
Band40b	5	39200	12	#0	QAM16	18.51	37	PASS
Band40b	5	39200	12	#Max	QAM16	18.60	37	PASS
Band40b	5	39200	25	#0	QAM16	18.55	37	PASS
Band40b	5	39225	1	#0	QPSK	20.52	37	PASS
Band40b	5	39225	1	#Mid	QPSK	20.63	37	PASS
Band40b	5	39225	1	#Max	QPSK	20.49	37	PASS
Band40b	5	39225	12	#0	QPSK	19.55	37	PASS
Band40b	5	39225	12	#Max	QPSK	19.56	37	PASS
Band40b	5	39225	25	#0	QPSK	19.60	37	PASS
Band40b	5	39225	1	#0	QAM16	19.83	37	PASS
Band40b	5	39225	1	#Mid	QAM16	19.94	37	PASS
Band40b	5	39225	1	#Max	QAM16	19.82	37	PASS

Band40b	5	39225	12	#0	QAM16	18.52	37	PASS
Band40b	5	39225	12	#Max	QAM16	18.50	37	PASS
Band40b	5	39225	25	#0	QAM16	18.58	37	PASS
Band40b	10	39200	1	#0	QPSK	20.54	37	PASS
Band40b	10	39200	1	#Mid	QPSK	20.76	37	PASS
Band40b	10	39200	1	#Max	QPSK	20.54	37	PASS
Band40b	10	39200	25	#0	QPSK	19.51	37	PASS
Band40b	10	39200	25	#Max	QPSK	19.63	37	PASS
Band40b	10	39200	50	#0	QPSK	19.58	37	PASS
Band40b	10	39200	1	#0	QAM16	19.87	37	PASS
Band40b	10	39200	1	#Mid	QAM16	20.06	37	PASS
Band40b	10	39200	1	#Max	QAM16	19.87	37	PASS
Band40b	10	39200	25	#0	QAM16	18.59	37	PASS
Band40b	10	39200	25	#Max	QAM16	18.70	37	PASS
Band40b	10	39200	50	#0	QAM16	18.57	37	PASS
Band41a	5	40265	1	#0	QPSK	20.97	37	PASS
Band41a	5	40265	1	#Mid	QPSK	21.16	37	PASS
Band41a	5	40265	1	#Max	QPSK	21.05	37	PASS
Band41a	5	40265	12	#0	QPSK	20.01	37	PASS
Band41a	5	40265	12	#Max	QPSK	20.10	37	PASS
Band41a	5	40265	25	#0	QPSK	20.07	37	PASS
Band41a	5	40265	1	#0	QAM16	20.14	37	PASS
Band41a	5	40265	1	#Mid	QAM16	20.28	37	PASS
Band41a	5	40265	1	#Max	QAM16	20.19	37	PASS
Band41a	5	40265	12	#0	QAM16	20.94	37	PASS
Band41a	5	40265	12	#Max	QAM16	20.01	37	PASS
Band41a	5	40265	25	#0	QAM16	20.01	37	PASS
Band41a	5	40740	1	#0	QPSK	21.03	37	PASS
Band41a	5	40740	1	#Mid	QPSK	21.15	37	PASS
Band41a	5	40740	1	#Max	QPSK	21.02	37	PASS
Band41a	5	40740	12	#0	QPSK	20.12	37	PASS
Band41a	5	40740	12	#Max	QPSK	20.14	37	PASS
Band41a	5	40740	25	#0	QPSK	20.14	37	PASS
Band41a	5	40740	1	#0	QAM16	20.34	37	PASS
Band41a	5	40740	1	#Mid	QAM16	20.46	37	PASS
Band41a	5	40740	1	#Max	QAM16	20.31	37	PASS
Band41a	5	40740	12	#0	QAM16	20.16	37	PASS
Band41a	5	40740	12	#Max	QAM16	20.19	37	PASS
Band41a	5	40740	25	#0	QAM16	20.16	37	PASS
Band41a	5	41215	1	#0	QPSK	20.55	37	PASS
Band41a	5	41215	1	#Mid	QPSK	20.64	37	PASS
Band41a	5	41215	1	#Max	QPSK	20.46	37	PASS
Band41a	5	41215	12	#0	QPSK	20.63	37	PASS

Band41a	5	41215	12	#Max	QPSK	20.50	37	PASS
Band41a	5	41215	25	#0	QPSK	20.58	37	PASS
Band41a	5	41215	1	#0	QAM16	20.88	37	PASS
Band41a	5	41215	1	#Mid	QAM16	20.97	37	PASS
Band41a	5	41215	1	#Max	QAM16	20.74	37	PASS
Band41a	5	41215	12	#0	QAM16	20.61	37	PASS
Band41a	5	41215	12	#Max	QAM16	20.51	37	PASS
Band41a	5	41215	25	#0	QAM16	20.62	37	PASS
Band41a	10	40290	1	#0	QPSK	21.02	37	PASS
Band41a	10	40290	1	#Mid	QPSK	21.33	37	PASS
Band41a	10	40290	1	#Max	QPSK	21.15	37	PASS
Band41a	10	40290	25	#0	QPSK	20.09	37	PASS
Band41a	10	40290	25	#Max	QPSK	20.17	37	PASS
Band41a	10	40290	50	#0	QPSK	20.11	37	PASS
Band41a	10	40290	1	#0	QAM16	20.33	37	PASS
Band41a	10	40290	1	#Mid	QAM16	20.59	37	PASS
Band41a	10	40290	1	#Max	QAM16	20.44	37	PASS
Band41a	10	40290	25	#0	QAM16	20.13	37	PASS
Band41a	10	40290	25	#Max	QAM16	20.21	37	PASS
Band41a	10	40290	50	#0	QAM16	20.07	37	PASS
Band41a	10	40740	1	#0	QPSK	21.17	37	PASS
Band41a	10	40740	1	#Mid	QPSK	**21.44**	37	PASS
Band41a	10	40740	1	#Max	QPSK	21.19	37	PASS
Band41a	10	40740	25	#0	QPSK	20.26	37	PASS
Band41a	10	40740	25	#Max	QPSK	20.25	37	PASS
Band41a	10	40740	50	#0	QPSK	20.22	37	PASS
Band41a	10	40740	1	#0	QAM16	20.19	37	PASS
Band41a	10	40740	1	#Mid	QAM16	20.45	37	PASS
Band41a	10	40740	1	#Max	QAM16	20.19	37	PASS
Band41a	10	40740	25	#0	QAM16	20.28	37	PASS
Band41a	10	40740	25	#Max	QAM16	20.27	37	PASS
Band41a	10	40740	50	#0	QAM16	20.21	37	PASS
Band41a	10	41190	1	#0	QPSK	20.80	37	PASS
Band41a	10	41190	1	#Mid	QPSK	20.94	37	PASS
Band41a	10	41190	1	#Max	QPSK	20.55	37	PASS
Band41a	10	41190	25	#0	QPSK	20.82	37	PASS
Band41a	10	41190	25	#Max	QPSK	20.61	37	PASS
Band41a	10	41190	50	#0	QPSK	20.71	37	PASS
Band41a	10	41190	1	#0	QAM16	20.70	37	PASS
Band41a	10	41190	1	#Mid	QAM16	20.81	37	PASS
Band41a	10	41190	1	#Max	QAM16	20.42	37	PASS
Band41a	10	41190	25	#0	QAM16	20.82	37	PASS
Band41a	10	41190	25	#Max	QAM16	20.62	37	PASS

Band41a	10	41190	50	#0	QAM16	20.74	37	PASS
Band41a	15	40315	1	#0	QPSK	21.00	37	PASS
Band41a	15	40315	1	#Mid	QPSK	21.19	37	PASS
Band41a	15	40315	1	#Max	QPSK	21.07	37	PASS
Band41a	15	40315	36	#0	QPSK	20.16	37	PASS
Band41a	15	40315	36	#Max	QPSK	20.20	37	PASS
Band41a	15	40315	75	#0	QPSK	20.19	37	PASS
Band41a	15	40315	1	#0	QAM16	20.28	37	PASS
Band41a	15	40315	1	#Mid	QAM16	20.46	37	PASS
Band41a	15	40315	1	#Max	QAM16	20.38	37	PASS
Band41a	15	40315	36	#0	QAM16	20.06	37	PASS
Band41a	15	40315	36	#Max	QAM16	20.13	37	PASS
Band41a	15	40315	75	#0	QAM16	20.11	37	PASS
Band41a	15	40740	1	#0	QPSK	21.10	37	PASS
Band41a	15	40740	1	#Mid	QPSK	21.22	37	PASS
Band41a	15	40740	1	#Max	QPSK	21.03	37	PASS
Band41a	15	40740	36	#0	QPSK	20.25	37	PASS
Band41a	15	40740	36	#Max	QPSK	20.24	37	PASS
Band41a	15	40740	75	#0	QPSK	20.21	37	PASS
Band41a	15	40740	1	#0	QAM16	20.09	37	PASS
Band41a	15	40740	1	#Mid	QAM16	20.19	37	PASS
Band41a	15	40740	1	#Max	QAM16	20.06	37	PASS
Band41a	15	40740	36	#0	QAM16	20.20	37	PASS
Band41a	15	40740	36	#Max	QAM16	20.16	37	PASS
Band41a	15	40740	75	#0	QAM16	20.17	37	PASS
Band41a	15	41165	1	#0	QPSK	20.87	37	PASS
Band41a	15	41165	1	#Mid	QPSK	20.79	37	PASS
Band41a	15	41165	1	#Max	QPSK	20.52	37	PASS
Band41a	15	41165	36	#0	QPSK	20.88	37	PASS
Band41a	15	41165	36	#Max	QPSK	20.66	37	PASS
Band41a	15	41165	75	#0	QPSK	20.81	37	PASS
Band41a	15	41165	1	#0	QAM16	20.85	37	PASS
Band41a	15	41165	1	#Mid	QAM16	20.79	37	PASS
Band41a	15	41165	1	#Max	QAM16	20.52	37	PASS
Band41a	15	41165	36	#0	QAM16	20.85	37	PASS
Band41a	15	41165	36	#Max	QAM16	20.59	37	PASS
Band41a	15	41165	75	#0	QAM16	20.80	37	PASS
Band41a	20	40340	1	#0	QPSK	20.97	37	PASS
Band41a	20	40340	1	#Mid	QPSK	21.32	37	PASS
Band41a	20	40340	1	#Max	QPSK	20.93	37	PASS
Band41a	20	40340	50	#0	QPSK	20.04	37	PASS
Band41a	20	40340	50	#Max	QPSK	20.98	37	PASS
Band41a	20	40340	100	#0	QPSK	20.04	37	PASS

Band41a	20	40340	1	#0	QAM16	20.11	37	PASS
Band41a	20	40340	1	#Mid	QAM16	20.46	37	PASS
Band41a	20	40340	1	#Max	QAM16	20.11	37	PASS
Band41a	20	40340	50	#0	QAM16	20.01	37	PASS
Band41a	20	40340	50	#Max	QAM16	20.98	37	PASS
Band41a	20	40340	100	#0	QAM16	20.99	37	PASS
Band41a	20	40740	1	#0	QPSK	20.97	37	PASS
Band41a	20	40740	1	#Mid	QPSK	21.37	37	PASS
Band41a	20	40740	1	#Max	QPSK	21.02	37	PASS
Band41a	20	40740	50	#0	QPSK	20.17	37	PASS
Band41a	20	40740	50	#Max	QPSK	20.16	37	PASS
Band41a	20	40740	100	#0	QPSK	20.13	37	PASS
Band41a	20	40740	1	#0	QAM16	20.94	37	PASS
Band41a	20	40740	1	#Mid	QAM16	20.28	37	PASS
Band41a	20	40740	1	#Max	QAM16	20.93	37	PASS
Band41a	20	40740	50	#0	QAM16	20.13	37	PASS
Band41a	20	40740	50	#Max	QAM16	20.11	37	PASS
Band41a	20	40740	100	#0	QAM16	20.13	37	PASS
Band41a	20	41140	1	#0	QPSK	20.79	37	PASS
Band41a	20	41140	1	#Mid	QPSK	20.99	37	PASS
Band41a	20	41140	1	#Max	QPSK	20.47	37	PASS
Band41a	20	41140	50	#0	QPSK	19.90	37	PASS
Band41a	20	41140	50	#Max	QPSK	19.59	37	PASS
Band41a	20	41140	100	#0	QPSK	19.76	37	PASS
Band41a	20	41140	1	#0	QAM16	19.44	37	PASS
Band41a	20	41140	1	#Mid	QAM16	19.64	37	PASS
Band41a	20	41140	1	#Max	QAM16	19.10	37	PASS
Band41a	20	41140	50	#0	QAM16	20.39	37	PASS
Band41a	20	41140	50	#Max	QAM16	20.63	37	PASS
Band41a	20	41140	100	#0	QAM16	20.74	37	PASS

Remark:

1. Per KDB941225 D05 v02r05, Start with the largest channel bandwidth then measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle, and lower edge of each required test channel. When the reported SAR is≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. 6 When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
2. Per KDB941225 D05 v02r05, The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.
3. Per KDB941225 D05 v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations, and

the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4. Per KDB941225 D05 v02r05, For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in 5.2.1, 5.2.2, and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

WLAN(2.4G) - Maximum Average Power					
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
802.11b	1Mbps	CH 01	2412	13.505	14.0
		CH 06	2437	13.068	13.5
		CH 11	2462	13.350	13.5
802.11g	6Mbps	CH 01	2412	12.325	12.5
		CH 06	2437	12.069	12.5
		CH 11	2462	12.080	12.5
802.11n (20MHz)	MCS0	CH 01	2412	11.444	11.5
		CH 06	2437	11.150	11.5
		CH 11	2462	11.117	11.5
802.11n (40MHz)	MCS0	CH 03	2422	10.155	10.5
		CH 06	2437	10.227	10.5
		CH 09	2452	10.671	11.0

Remark:

1. Per KDB 248227 D01 v02r02, For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.

2. Per KDB 248227 D01 v02r02, For 802.11b DSSS SAR measurements ,when the reported SAR of the highest measured maximum output power channel (see 3.1) for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

3 .For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is <= 1.2W/kg.

4. Per KDB 248227 D01 v02r02, When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined by applying the following steps sequentially.

1) The largest channel bandwidth configuration is selected among the multiple configurations in a frequency band with the same specified maximum output power.

2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.

3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.

4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n.

WLAN(5.2G) – Conducted Power				
Test Mode	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
802.11a	CH 36	5180	7.063	7.5
	CH 40	5200	7.772	8.0
	CH 48	5240	7.946	8.0
802.11n (HT20)	CH 36	5180	6.871	7.0
	CH 40	5200	6.723	7.0
	CH 48	5240	6.421	6.5
802.11n (HT40)	CH 38	5190	5.556	6.0
	CH 46	5230	5.712	6.0
802.11ac (VHT80)	CH 42	5210	3.699	6.0

Remark:

WIFI(5G Band 1) maximum output power is 7.946dBm and Maximum Tune-Up output power is 8.0dBm,. Per KDB 447498 D01 V06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,16 where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation17
- The result is rounded to one decimal place for comparison

WIFI(5G Band 1):

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
8.0	6.31	5	5.240	2.89	3

The exclusion thresholds is 1.44< 3, therefore, the RF exposure evaluation is not required.

WLAN(5.3G) – Conducted Power				
Test Mode	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
802.11a	CH 52	5260	7.299	7.5
	CH 56	5280	7.101	7.5
	CH 64	5320	7.092	7.5
802.11n (HT20)	CH 52	5260	6.178	6.5
	CH 56	5280	6.224	6.5
	CH 64	5320	6.667	7.0
802.11n (HT40)	CH 54	5270	5.166	5.5
	CH 62	5310	5.820	6.0
802.11ac (VHT80)	CH 58	5290	3.544	4.0

Remark:

WIFI(5G Band 2) maximum output power is 7.299dBm and Maximum Tune-Up output power is 7.5dBm,. Per KDB 447498 D01 V06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,16 where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation17
- The result is rounded to one decimal place for comparison

WIFI(5G Band 2):

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
7.5	5.62	5	5.260	2.58	3

The exclusion thresholds is 1.29< 3, therefore, the RF exposure evaluation is not required.

WLAN(5.8G) – Conducted Power				
Test Mode	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
802.11a	CH 149	5745	7.975	8.0
	CH 157	5785	7.321	7.5
	CH 165	5825	7.053	7.5
802.11n (HT20)	CH 149	5745	6.926	7.0
	CH 157	5785	6.199	6.5
	CH 165	5825	6.233	6.5
802.11n (HT40)	CH 151	5755	5.209	5.5
	CH 159	5795	5.015	5.5
802.11ac (VHT80)	CH 155	5775	3.830	4.0

Bluetooth - Maximum Average Power			
Test Mode	**Data Rate**	**Average Power(dBm)**	**Tune-up power (dBm)**
GFSK	1Mbps	6.915	7.0
Pi/4 QDPSK	2Mbps	6.695	7.0
8DPSK	3Mbps	6.646	7.0

Bluetooth - Maximum Average Power					
Test Mode	**Data Rate**	**Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
BLE	1Mbps	CH 00	2402	2.369	2.5
		CH 19	2440	0.149	0.5
		CH 39	2480	0.521	1.0

Remark:

Bluetooth maximum output power is 6.915dBm and Maximum Tune-Up output power is 7.0dBm,. Per KDB 447498 D01 V06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,16 where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation17
- The result is rounded to one decimal place for comparison

Bluetooth:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
7.0	5.01	5	2.480	1.58	3

The exclusion thresholds is 0.79< 3, therefore, the RF exposure evaluation is not required.

RFID –Maximum Average Power			
Test Mode	**Frequency(MHz)**	**Average Power (dBm)**	**Tune-up power (dBm)**
RFID	902.75	7.98	8.0
	914.75	7.64	8.0
	927.25	7.75	8.0

Remark:

RFID maximum output power is 7.98dBm and Maximum Tune-Up output power is 8.0dBm,. Per KDB 447498 D01 V06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,16 where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation17
- The result is rounded to one decimal place for comparison

RFID:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	Result	Limit
8.0	6.31	5	0.903	1.20	3

The exclusion thresholds is 0.60< 3, therefore, the RF exposure evaluation is not required.

9.2 Test Results for Standalone SAR Test

Head SAR

GSM850 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
	GSM	Right Cheek	251	848.8	33.60	34.0	1.096	0.071	0.078
	GSM	Right Tilted	251	848.8	33.60	34.0	1.096	0.030	0.033
1	GSM	Left Cheek	251	848.8	33.60	34.0	1.096	0.085	0.093
	GSM	Left Tilted	251	848.8	33.60	34.0	1.096	0.036	0.039

GSM1900 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	M Hz					
2	GSM	Right Cheek	661	1880	29.90	30.0	1.023	0.262	0.268
	GSM	Right Tilted	661	1880	29.90	30.0	1.023	0.115	0.118
	GSM	Left Cheek	661	1880	29.90	30.0	1.023	0.129	0.132
	GSM	Left Tilted	661	1880	29.90	30.0	1.023	0.061	0.062

WCDMA Band 5 – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
	RMC	Right Cheek	4183	836.4	22.29	22.5	1.050	0.206	0.216
	RMC	Right Tilted	4183	836.4	22.29	22.5	1.050	0.092	0.097
3	RMC	Left Cheek	4183	836.4	22.29	22.5	1.050	0.236	0.248
	RMC	Left Tilted	4183	836.4	22.29	22.5	1.050	0.105	0.110

LTE Band 5– Head SAR Test								
Plot No.	Mode	Test Position Head	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth		MHz					
	QPSK 10MHz 1RB	Right Cheek	829	23.20	23.5	1.072	0.048	0.051
	QPSK 10MHz 1RB	Right Tilted	829	23.20	23.5	1.072	0.022	0.024
4	QPSK 10MHz 1RB	Left Cheek	829	23.20	23.5	1.072	0.059	0.063
	QPSK 10MHz 1RB	Left Tilted	829	23.20	23.5	1.072	0.026	0.028
	QPSK 10MHz 50%RB	Right Cheek	829	22.20	22.5	1.072	0.041	0.044
	QPSK 10MHz 50%RB	Right Tilted	829	22.20	22.5	1.072	0.019	0.020
	QPSK 10MHz 50%RB	Left Cheek	829	22.20	22.5	1.072	0.052	0.056
	QPSK 10MHz 50%RB	Left Tilted	829	22.20	22.5	1.072	0.023	0.025

LTE Band 7– Head SAR Test								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth	Head	MHz	(dBm)	(dBm)			
	QPSK 20MHz 1RB	Right Cheek	2560	21.74	22.0	1.062	0.272	0.289
	QPSK 20MHz 1RB	Right Tilted	2560	21.74	22.0	1.062	0.142	0.151
5	QPSK 20MHz 1RB	Left Cheek	2560	21.74	22.0	1.062	0.447	0.475
	QPSK 20MHz 1RB	Left Tilted	2560	21.74	22.0	1.062	0.235	0.249
	QPSK 20MHz 50%RB	Right Cheek	2560	20.54	21.0	1.112	0.241	0.268
	QPSK 20MHz 50%RB	Right Tilted	2560	20.54	21.0	1.112	0.128	0.142
	QPSK 20MHz 50%RB	Left Cheek	2560	20.54	21.0	1.112	0.406	0.451
	QPSK 20MHz 50%RB	Left Tilted	2560	20.54	21.0	1.112	0.210	0.233

LTE Band 38– Head SAR Test								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth	Head	MHz	(dBm)	(dBm)			
	QPSK 20MHz 1RB	Right Cheek	2610	21.76	22.0	1.057	0.089	0.094
	QPSK 20MHz 1RB	Right Tilted	2610	21.76	22.0	1.057	0.050	0.053
6	QPSK 20MHz 1RB	Left Cheek	2610	21.76	22.0	1.057	0.157	0.166
	QPSK 20MHz 1RB	Left Tilted	2610	21.76	22.0	1.057	0.081	0.086
	QPSK 20MHz 50%RB	Right Cheek	2610	20.57	21.0	1.104	0.072	0.079
	QPSK 20MHz 50%RB	Right Tilted	2610	20.57	21.0	1.104	0.043	0.047
	QPSK 20MHz 50%RB	Left Cheek	2610	20.57	21.0	1.104	0.134	0.148
	QPSK 20MHz 50%RB	Left Tilted	2610	20.57	21.0	1.104	0.074	0.082

LTE Band 40a– Head SAR Test								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth	Head	MHz	(dBm)	(dBm)			
	QPSK 10MHz 1RB	Right Cheek	2310	20.50	21.0	1.122	0.101	0.113
	QPSK 10MHz 1RB	Right Tilted	2310	20.50	21.0	1.122	0.054	0.061
7	QPSK 10MHz 1RB	Left Cheek	2310	20.50	21.0	1.122	0.146	0.164
	QPSK 10MHz 1RB	Left Tilted	2310	20.50	21.0	1.122	0.078	0.088
	QPSK 10MHz 50%RB	Right Cheek	2310	19.60	20.0	1.096	0.092	0.101
	QPSK 10MHz 50%RB	Right Tilted	2310	19.60	20.0	1.096	0.048	0.053
	QPSK 10MHz 50%RB	Left Cheek	2310	19.60	20.0	1.096	0.125	0.137
	QPSK 10MHz 50%RB	Left Tilted	2310	19.60	20.0	1.096	0.069	0.076

LTE Band 40b– Head SAR Test								
Plot No.	Mode	Test Position Head	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth		MHz					
	QPSK 10MHz 1RB	Right Cheek	2355	20.76	21.0	1.057	0.096	0.101
	QPSK 10MHz 1RB	Right Tilted	2355	20.76	21.0	1.057	0.050	0.053
8	QPSK 10MHz 1RB	Left Cheek	2355	20.76	21.0	1.057	0.129	0.136
	QPSK 10MHz 1RB	Left Tilted	2355	20.76	21.0	1.057	0.071	0.075
	QPSK 10MHz 50%RB	Right Cheek	2355	19.63	20.0	1.089	0.088	0.096
	QPSK 10MHz 50%RB	Right Tilted	2355	19.63	20.0	1.089	0.045	0.049
	QPSK 10MHz 50%RB	Left Cheek	2355	19.63	20.0	1.089	0.109	0.119
	QPSK 10MHz 50%RB	Left Tilted	2355	19.63	20.0	1.089	0.056	0.061

LTE Band 41– Head SAR Test								
Plot No.	Mode	Test Position Head	Frequency	Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth		MHz					
	QPSK 20MHz 1RB	Right Cheek	2605	21.37	21.5	1.030	0.146	0.150
	QPSK 20MHz 1RB	Right Tilted	2605	21.37	21.5	1.030	0.080	0.082
9	QPSK 20MHz 1RB	Left Cheek	2605	21.37	21.5	1.030	0.263	0.271
	QPSK 20MHz 1RB	Left Tilted	2605	21.37	21.5	1.030	0.146	0.150
	QPSK 20MHz 50%RB	Right Cheek	2605	20.17	20.5	1.079	0.125	0.135
	QPSK 20MHz 50%RB	Right Tilted	2605	20.17	20.5	1.079	0.064	0.069
	QPSK 20MHz 50%RB	Left Cheek	2605	20.17	20.5	1.079	0.223	0.241
	QPSK 20MHz 50%RB	Left Tilted	2605	20.17	20.5	1.079	0.128	0.138

WLAN 2.4GHz – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
10	802.11b	Right Cheek	01	2412	13.51	14.0	1.119	0.180	0.201
	802.11b	Right Tilted	01	2412	13.51	14.0	1.119	0.165	0.185
	802.11b	Left Cheek	01	2412	13.51	14.0	1.119	0.072	0.081
	802.11b	Left Tilted	01	2412	13.51	14.0	1.119	0.067	0.075

WLAN 5GHz(Band 4) – Head SAR Test									
Plot No.	Mode	Test Position Head	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
11	802.11a	Right Cheek	149	5745	7.975	8.0	1.006	0.317	0.319
	802.11a	Right Tilted	149	5745	7.975	8.0	1.006	0.289	0.291

	802.11a	Left Cheek	149	5745	7.975	8.0	1.006	0.225	0.226
	802.11a	Left Tilted	149	5745	7.975	8.0	1.006	0.196	0.197

Remark: Per KDB 447498 D01 v06, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

Body SAR

GSM850 – Body SAR Test (Gap: 10mm)									
Plot No.	**Mode**	**Test Position Body**	**Frequency**		**Output Power (dBm)**	**Rated Limit (dBm)**	**Scaling Factor**	**SAR1g (W/kg)**	**Scaled SAR1g (W/kg)**
			CH.	**MHz**					
	GSM	Back Side	251	848.8	33.60	34.0	1.096	0.068	0.075
	GSM	Front Side	251	848.8	33.60	34.0	1.096	0.205	0.225
	GPRS_4TX	Back Side	251	848.8	30.60	31.0	1.096	0.118	0.129
	GPRS_4TX	Front Side	251	848.8	30.60	31.0	1.096	0.359	0.394
	GPRS_4TX	Left side	251	848.8	30.60	31.0	1.096	0.304	0.333
12	GPRS_4TX	Bottom side	251	848.8	30.60	31.0	1.096	0.487	0.534

GSM1900 – Body SAR Test (Gap: 10mm)									
Plot No.	**Mode**	**Test Position Body**	**Frequency**		**Output Power (dBm)**	**Rated Limit (dBm)**	**Scaling Factor**	**SAR1g (W/kg)**	**Scaled SAR1g (W/kg)**
			CH.	**MHz**					
	GSM	Back Side	661	1880	29.90	30.0	1.023	0.143	0.146
	GSM	Front Side	661	1880	29.90	30.0	1.023	0.171	0.175
	GPRS_4TX	Back Side	661	1880	27.03	27.5	1.114	0.262	0.292
	GPRS_4TX	Front Side	661	1880	27.03	27.5	1.114	0.304	0.339
	GPRS_4TX	Left side	661	1880	27.03	27.5	1.114	0.106	0.118
13	GPRS_4TX	Bottom side	661	1880	27.03	27.5	1.114	0.818	0.911
	GPRS_4TX	**Bottom side**	**661**	**1880**	**27.03**	**27.5**	**1.114**	**0.802**	**0.894**
	GPRS_4TX	Bottom side	512	1850.2	25.99	27.0	1.262	0.717	0.905
	GPRS_4TX	Bottom side	810	1909.8	26.93	27.5	1.140	0.647	0.738

WCDMA Band 5 – Body SAR Test (Gap: 10mm)									
Plot No.	**Mode**	**Test Position Body**	**Frequency**		**Output Power (dBm)**	**Rated Limit (dBm)**	**Scaling Factor**	**SAR1g (W/kg)**	**Scaled SAR1g (W/kg)**
			CH.	**MHz**					
	RMC 12.2k	Back side	4183	836.4	22.29	22.5	1.050	0.116	0.122
	RMC 12.2k	Front side	4183	836.4	22.29	22.5	1.050	0.145	0.152
	RMC 12.2k	Left side	4183	836.4	22.29	22.5	1.050	0.189	0.198
14	RMC 12.2k	Bottom side	4183	836.4	22.29	22.5	1.050	0.196	0.206

LTE Band 5–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
	QPSK 10MHz 1RB	Back side	829	23.20	23.5	1.072	0.034	0.036
	QPSK 10MHz 1RB	Front side	829	23.20	23.5	1.072	0.165	0.177
	QPSK 10MHz 1RB	Left side	829	23.20	23.5	1.072	0.148	0.159
15	QPSK 10MHz 1RB	Bottom side	829	23.20	23.5	1.072	0.186	0.199
	QPSK 10MHz 50%RB	Back side	829	22.20	22.5	1.072	0.025	0.027
	QPSK 10MHz 50%RB	Front side	829	22.20	22.5	1.072	0.123	0.132
	QPSK 10MHz 50%RB	Left side	829	22.20	22.5	1.072	0.105	0.113
	QPSK 10MHz 50%RB	Bottom side	829	22.20	22.5	1.072	0.156	0.167

LTE Band 7–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
	QPSK 20MHz 1RB	Back side	2560	21.74	22.0	1.062	0.227	0.241
	QPSK 20MHz 1RB	Front side	2560	21.74	22.0	1.062	0.090	0.096
	QPSK 20MHz 1RB	Left side	2560	21.74	22.0	1.062	0.142	0.151
16	QPSK 20MHz 1RB	Bottom side	2560	21.74	22.0	1.062	0.249	0.264
	QPSK 20MHz 50%RB	Back side	2560	20.54	21.0	1.112	0.198	0.220
	QPSK 20MHz 50%RB	Front side	2560	20.54	21.0	1.112	0.078	0.087
	QPSK 20MHz 50%RB	Left side	2560	20.54	21.0	1.112	0.105	0.117
	QPSK 20MHz 50%RB	Bottom side	2560	20.54	21.0	1.112	0.214	0.238

LTE Band 38–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
	QPSK 20MHz 1RB	Back side	2610	21.76	22.0	1.057	0.052	0.055
	QPSK 20MHz 1RB	Front side	2610	21.76	22.0	1.057	0.047	0.050
	QPSK 20MHz 1RB	Left side	2610	21.76	22.0	1.057	0.077	0.081
17	QPSK 20MHz 1RB	Bottom side	2610	21.76	22.0	1.057	0.117	0.124
	QPSK 20MHz 50%RB	Back side	2610	20.57	21.0	1.104	0.044	0.049
	QPSK 20MHz 50%RB	Front side	2610	20.57	21.0	1.104	0.035	0.039
	QPSK 20MHz 50%RB	Left side	2610	20.57	21.0	1.104	0.060	0.066
	QPSK 20MHz 50%RB	Bottom side	2610	20.57	21.0	1.104	0.098	0.108

LTE Band 40a–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
	QPSK 10MHz 1RB	Back side	2310	20.50	21.0	1.122	0.018	0.020
	QPSK 10MHz 1RB	Front side	2310	20.50	21.0	1.122	0.020	0.022
	QPSK 10MHz 1RB	Left side	2310	20.50	21.0	1.122	0.042	0.047
18	QPSK 10MHz 1RB	Bottom side	2310	20.50	21.0	1.122	0.086	0.096
	QPSK 10MHz 50%RB	Back side	2310	19.60	20.0	1.096	0.015	0.016
	QPSK 10MHz 50%RB	Front side	2310	19.60	20.0	1.096	0.018	0.020
	QPSK 10MHz 50%RB	Left side	2310	19.60	20.0	1.096	0.036	0.039
	QPSK 10MHz 50%RB	Bottom side	2310	19.60	20.0	1.096	0.074	0.081

LTE Band 40b–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
	QPSK 10MHz 1RB	Back side	2355	20.76	21.0	1.057	0.016	0.017
	QPSK 10MHz 1RB	Front side	2355	20.76	21.0	1.057	0.023	0.024
	QPSK 10MHz 1RB	Left side	2355	20.76	21.0	1.057	0.038	0.040
19	QPSK 10MHz 1RB	Bottom side	2355	20.76	21.0	1.057	0.077	0.081
	QPSK 10MHz 50%RB	Back side	2355	19.63	20.0	1.089	0.010	0.011
	QPSK 10MHz 50%RB	Front side	2355	19.63	20.0	1.089	0.015	0.016
	QPSK 10MHz 50%RB	Left side	2355	19.63	20.0	1.089	0.032	0.035
	QPSK 10MHz 50%RB	Bottom side	2355	19.63	20.0	1.089	0.066	0.072

LTE Band 41–Body SAR Test (Gap: 10mm)								
Plot No.	Mode	Test Position	Frequency	Output Power	Rated Limit	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
	Modulation, Bandwidth, RB	Body	MHz	(dBm)	(dBm)			
	QPSK 20MHz 1RB	Back side	2605	21.37	21.5	1.030	0.087	0.090
	QPSK 20MHz 1RB	Front side	2605	21.37	21.5	1.030	0.075	0.077
	QPSK 20MHz 1RB	Left side	2605	21.37	21.5	1.030	0.088	0.091
20	QPSK 20MHz 1RB	Bottom side	2605	21.37	21.5	1.030	0.146	0.150
	QPSK 20MHz 50%RB	Back side	2605	20.17	20.5	1.079	0.072	0.078
	QPSK 20MHz 50%RB	Front side	2605	20.17	20.5	1.079	0.067	0.072
	QPSK 20MHz 50%RB	Left side	2605	20.17	20.5	1.079	0.075	0.081
	QPSK 20MHz 50%RB	Bottom side	2605	20.17	20.5	1.079	0.120	0.129

WLAN 2.4GHz –Body SAR Test									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
21	802.11b	Back side	01	2412	13.51	14.0	1.119	0.158	0.177
	802.11b	Front side	01	2412	13.51	14.0	1.119	0.016	0.018
	802.11b	Left side	01	2412	13.51	14.0	1.119	0.156	0.175
	802.11b	Top side	01	2412	13.51	14.0	1.119	0.054	0.060

WLAN 5.8GHz –Body SAR Test									
Plot No.	Mode	Test Position Body	Frequency		Output Power (dBm)	Rated Limit (dBm)	Scaling Factor	SAR1g (W/kg)	Scaled SAR1g (W/kg)
			CH.	MHz					
22	802.11a	Back side	149	5745	7.975	8.0	1.006	0.301	0.303
	802.11a	Front side	149	5745	7.975	8.0	1.006	0.193	0.194
	802.11a	Left side	149	5745	7.975	8.0	1.006	0.293	0.295
	802.11a	Top side	149	5745	7.975	8.0	1.006	0.115	0.116

Repeated SAR

Mode	Test Position Body	Frequency		SAR1g (W/kg)	Repeated SAR		Ratio	
		CH.	MHz		1	2	1	2
GPRS_4TX	Bottom side	661	1880	0.818	0.802	/	1.02	/

Remark:

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

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

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

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

9.3 Simultaneous Multi-band Transmission SAR Analysis

List of Mode for Simultaneous Multi-band Transmission

No.	Configurations	Head SAR	Body SAR
1	GSM(Voice/Data) + WLAN(2.4G)(Data)	Yes	Yes
2	WCDMA (Voice/Data)+ (2.4G)(Data)	Yes	Yes
3	LTE(Data) + (2.4G)(Data)	Yes	Yes
4	GSM(Voice/Data) + WLAN(5G)(Data)	Yes	Yes
5	WCDMA (Voice/Data)+ (5G)(Data)	Yes	Yes
6	LTE(Data) + (5G)(Data)	Yes	Yes
7	GSM(Voice/Data) + Bluetooth(Data)	Yes	Yes
8	WCDMA (Voice/Data) + Bluetooth(Data)	Yes	Yes
9	LTE(Data) + Bluetooth(Data)	Yes	Yes
10	GSM(Voice/Data) +RFID(Data)	NO	Yes
11	WCDMA (Voice/Data) + RFID(Data)	NO	Yes
12	LTE(Data) + RFID(Data)	NO	Yes

Remark:

1. GSM ,WCDMA and LTE share the same antenna, and cannot transmit simultaneously.
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. According to the KDB 447498 D01 v06, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;

where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.

For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01 v06 as below:

WIFI(5G Band 1):

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	X	SAR(1g) 5mm	SAR(1g) 10mm
8.0	6.31	5/10	5.24	7.5	0.386	0.193

WIFI(5G Band 2):

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	X	SAR(1g) 5mm	SAR(1g) 10mm
7.0	5.01	5/10	5.26	7.5	0.344	0.172

Bluetooth:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	X	SAR(1g) 5mm	SAR(1g) 10mm
7.0	5.01	5/10	2.480	7.5	0.210	0.105

RFID:

Tune-Up Power (dBm)	Max. Power (mW)	Distance (mm)	Frequency (GHz)	X	SAR(1g) 5mm	SAR(1g) 10mm
8.0	6.31	5/10	0.903	7.5	0.160	0.080

4. The maximum SAR summation is calculated based on the same configuration and test position.

Head SAR

WWAN and WLAN

	WWAN		**WLAN(2.4G)**	**Summed SAR (W/kg)**
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM	0.268	0.201	0.469
Right Tilted	GSM	0.118	0.185	0.303
Left Cheek	GSM	0.132	0.081	0.213
Left Tilted	GSM	0.062	0.075	0.137
Right Cheek	WCDMA	0.216	0.201	0.417
Right Tilted	WCDMA	0.097	0.185	0.282
Left Cheek	WCDMA	0.248	0.081	0.329
Left Tilted	WCDMA	0.110	0.075	0.185
Right Cheek	LTE	0.289	0.201	0.490
Right Tilted	LTE	0.151	0.185	0.336
Left Cheek	LTE	0.475	0.081	0.556
Left Tilted	LTE	0.249	0.075	0.324

	WWAN		**WLAN(5G)**	**Summed SAR (W/kg)**
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM	0.268	0.386	0.654
Right Tilted	GSM	0.118	0.386	0.504
Left Cheek	GSM	0.132	0.386	0.518
Left Tilted	GSM	0.062	0.386	0.448
Right Cheek	WCDMA	0.216	0.386	0.602
Right Tilted	WCDMA	0.097	0.386	0.483
Left Cheek	WCDMA	0.248	0.386	0.634

Left Tilted	WCDMA	0.110	0.386	0.496
Right Cheek	LTE	0.289	0.386	0.675
Right Tilted	LTE	0.151	0.386	0.537
Left Cheek	LTE	0.475	0.386	0.861
Left Tilted	LTE	0.249	0.386	0.635

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Band**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Right Cheek	GSM	0.268	0.210	0.478
Right Tilted	GSM	0.118	0.210	0.328
Left Cheek	GSM	0.132	0.210	0.342
Left Tilted	GSM	0.062	0.210	0.272
Right Cheek	WCDMA	0.216	0.210	0.426
Right Tilted	WCDMA	0.097	0.210	0.307
Left Cheek	WCDMA	0.248	0.210	0.458
Left Tilted	WCDMA	0.110	0.210	0.320
Right Cheek	LTE	0.289	0.210	0.499
Right Tilted	LTE	0.151	0.210	0.361
Left Cheek	LTE	0.475	0.210	0.685
Left Tilted	LTE	0.249	0.210	0.459

Body SAR

WWAN and WLAN

	WWAN		WLAN(2.4G)	Summed SAR (W/kg)
Position	**Mode**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM	0.292	0.177	0.469
Front	GSM	0.394	0.018	0.412
Right side	GSM	/	/	/
Left side	GSM	0.333	0.175	0.508
Top side	GSM	/	0.060	0.060
Bottom side	GSM	0.911	/	0.911
Back	WCDMA	0.122	0.177	0.299
Front	WCDMA	0.152	0.018	0.170
Right side	WCDMA	/	/	/
Left side	WCDMA	0.198	0.175	0.373
Top side	WCDMA	/	0.060	0.060
Bottom side	WCDMA	0.206	/	0.206
Back	LTE	0.241	0.177	0.418
Front	LTE	0.177	0.018	0.195

Right side	LTE	/	/	/
Left side	LTE	0.159	0.175	0.334
Top side	LTE	/	0.060	0.060
Bottom side	LTE	0.264	/	0.264

	WWAN		WLAN(5G)	Summed SAR (W/kg)
Position	**Mode**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM	0.292	0.303	0.595
Front	GSM	0.394	0.194	0.588
Right side	GSM	/	/	/
Left side	GSM	0.333	0.295	0.628
Top side	GSM	/	0.193	0.193
Bottom side	GSM	0.911	/	0.911
Back	WCDMA	0.122	0.303	0.425
Front	WCDMA	0.152	0.194	0.346
Right side	WCDMA	/	/	/
Left side	WCDMA	0.198	0.295	0.493
Top side	WCDMA	/	0.193	0.193
Bottom side	WCDMA	0.206	/	0.206
Back	LTE	0.241	0.303	0.544
Front	LTE	0.177	0.194	0.371
Right side	LTE	/	/	/
Left side	LTE	0.159	0.295	0.454
Top side	LTE	/	0.193	0.193
Bottom side	LTE	0.264	/	0.264

	WWAN		Bluetooth	Summed SAR (W/kg)
Position	**Mode**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM	0.292	0.105	0.397
Front	GSM	0.394	0.105	0.499
Right side	GSM	/	0.105	0.105
Left side	GSM	0.333	0.105	0.438
Top side	GSM	/	0.105	0.105
Bottom side	GSM	0.911	0.105	1.016
Back	WCDMA	0.122	0.105	0.227
Front	WCDMA	0.152	0.105	0.257
Right side	WCDMA	/	0.105	0.105
Left side	WCDMA	0.198	0.105	0.303
Top side	WCDMA	/	0.105	0.105
Bottom side	WCDMA	0.206	0.105	0.311

Back	LTE	0.241	0.105	0.346
Front	LTE	0.177	0.105	0.282
Right side	LTE	/	0.105	0.105
Left side	LTE	0.159	0.105	0.264
Top side	LTE	/	0.105	0.105
Bottom side	LTE	0.264	0.105	0.369

	WWAN		RFID	Summed SAR (W/kg)
Position	**Mode**	**Scaled SAR (W/kg)**	**Scaled SAR (W/kg)**	
Back	GSM	0.292	0.080	0.372
Front	GSM	0.394	0.080	0.474
Right side	GSM	/	0.080	0.080
Left side	GSM	0.333	0.080	0.413
Top side	GSM	/	0.080	0.080
Bottom side	GSM	0.911	0.080	0.991
Back	WCDMA	0.122	0.080	0.202
Front	WCDMA	0.152	0.080	0.232
Right side	WCDMA	/	0.080	0.080
Left side	WCDMA	0.198	0.080	0.278
Top side	WCDMA	/	0.080	0.080
Bottom side	WCDMA	0.206	0.080	0.286
Back	LTE	0.241	0.080	0.321
Front	LTE	0.177	0.080	0.257
Right side	LTE	/	0.080	0.080
Left side	LTE	0.159	0.080	0.239
Top side	LTE	/	0.080	0.080
Bottom side	LTE	0.264	0.080	0.344

10. Measurement Uncertainty

10.1 Uncertainty for EUT SAR Test

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	**Sec.**	**Tol (+- %)**	**Prob. Dist.**	**Div.**	**Ci (1g)**	**Ci (10g)**	**1g Ui (+-%)**	**10g Ui (+-%)**	**Vi**
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	∝
Axial Isotropy	E.2.2	2.5	R	√3	(1_Cp)^1/2	(1_Cp)^1/2	1.02	1.02	∝
Hemispherical Isotropy	E.2.2	4.0	R	√3	(Cp)^1/2	(Cp)^1/2	1.63	1.63	∝
Boundary effect	E.2.3	1.0	R	√3	1	1	0.58	0.58	∝
Linearity	E.2.4	5.0	R	√3	1	1	2.89	2.89	∝
System detection limits	E.2.5	1.0	R	√3	1	1	0.58	0.58	∝
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∝
Reponse Time	E.2.7	3.0	R	√3	1	1	1.73	1.73	∝
Integration Time	E.2.8	2.0	R	√3	1	1	1.15	1.15	∝
RF ambient Conditions – Noise	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
RF ambient Conditions - Reflections	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	√3	1	1	1.15	1.15	∝
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	√3	1	1	0.03	0.03	∝
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	E.5	5.0	R	√3	1	1	2.89	2.89	∝
Test Sample Related									
Test sample positioning	E.4.2	0.03	N	1	1	1	0.03	0.03	N–1
Device Holder Uncertainty	E.4.1	5.00	N	1	1	1	5.00	5.00	
Output power Variation - SAR drift measurement	E.2.9	12.02	R	√3	1	1	6.94	6.94	∝
SAR scaling	E6.5	0.0	R	√3	1	1	0.0	0.0	∝
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	√3	1	1	0.03	0.03	∝
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	1.9	R	√3	1	0.84	1.10	0.90	∝

Liquid conductivity - deviation from target value	E.3.2	5.00	R	√3	0.64	0.43	1.85	1.24	∝
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	∝
Liquid permittivity - deviation from target value	E.3.2	0.37	R	√3	0.6	0.49	0.13	0.10	∝
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	∝
Combined Standard Uncertainty			RSS				12.98	12.53	
Expanded Uncertainty (95% Confidence interval)			K=2				25.32	24.43	

10.2 Uncertainty for System Performance Check

a	b	c	d	e= f(d,k)	f	g	h= c*f/e	i= c*g/e	k
Uncertainty Component	**Sec.**	**Tol (+- %)**	**Prob. Dist.**	**Div.**	**Ci (1g)**	**Ci (10g)**	**1g Ui (+-%)**	**10g Ui (+-%)**	**Vi**
Measurement System									
Probe calibration	E.2.1	7.0	N	1	1	1	7.00	7.00	∝
Axial Isotropy	E.2.2	2.5	R	√3	(1_Cp)^1/2	(1_Cp)^1/2	1.02	1.02	∝
Hemispherical Isotropy	E.2.2	4.0	R	√3	(Cp)^1/2	(Cp)^1/2	1.63	1.63	∝
Boundary effect	E.2.3	1.0	R	√3	1	1	0.58	0.58	∝
Linearity	E.2.4	5.0	R	√3	1	1	2.89	2.89	∝
System detection limits	E.2.5	1.0	R	√3	1	1	0.58	0.58	∝
Modulation response	E.2.5	0	R	√3	0	0	0.0	0.0	∝
Readout Electronics	E.2.6	0.02	N	1	1	1	0.02	0.02	∝
Reponse Time	E.2.7	3.0	R	√3	1	1	1.73	1.73	∝
Integration Time	E.2.8	2.0	R	√3	1	1	1.15	1.15	∝
RF ambient Conditions – Noise	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
RF ambient Conditions - Reflections	E.6.1	3.0	R	√3	1	1	1.73	1.73	∝
Probe positioner Mechanical Tolerance	E.6.2	2.0	R	√3	1	1	1.15	1.15	∝
Probe positioning with respect to Phantom Shell	E.6.3	0.05	R	√3	1	1	0.03	0.03	∝
Extrapolation, interpolation and	E.5.2	5.0	R	√3	1	1	2.89	2.89	∝

integration Algoritms for Max. SAR Evaluation									
Dipole									
Dipole axis to liquid Distance	8,E.4.2	1.00	N	√3	1	1	0.58	0.58	N–1
Input power and SAR drift measurement	8,6.6.2	12.02	R	√3	1	1	6.94	6.94	∝
Deviation of experimental dipole from numerical dipole	E.6.4	5.5	R	√3	1	1	3.20	3.20	∝
Phantom and Tissue Parameters									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	0.05	R	√3	1	1	0.03	0.03	∝
Uncertainty in SAR correction for deviations in permittivity and conductivity	E3.2	2.0	R	√3	1	0.84	1.10	1.10	∝
Liquid conductivity - deviation from target value	E.3.2	5.00	R	√3	0.64	0.43	1.85	1.24	
Liquid conductivity - measurement uncertainty	E.3.3	5.00	N	1	0.64	0.43	3.20	2.15	
Liquid permittivity - deviation from target value	E.3.2	0.37	R	√3	0.6	0.49	0.13	0.10	
Liquid permittivity - measurement uncertainty	E.3.3	10.00	N	1	0.6	0.49	6.00	4.90	M
Combined Standard Uncertainty			RSS				12.00	11.50	
Expanded Uncertainty (95% Confidence interval)			K=2				23.39	22.43	

Annex A. Plots of System Performance Check

MEASUREMENT 1

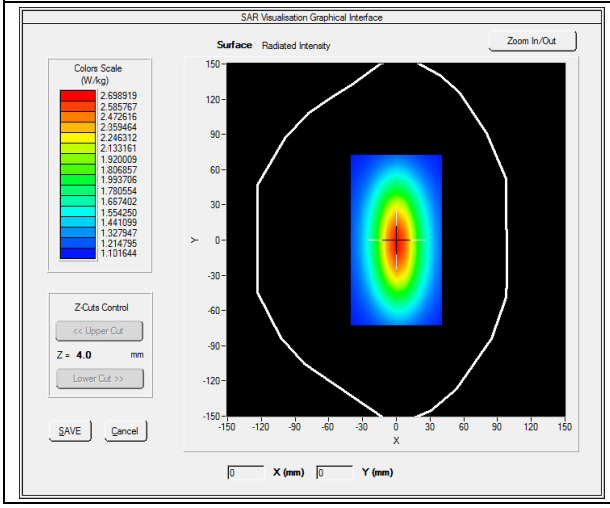
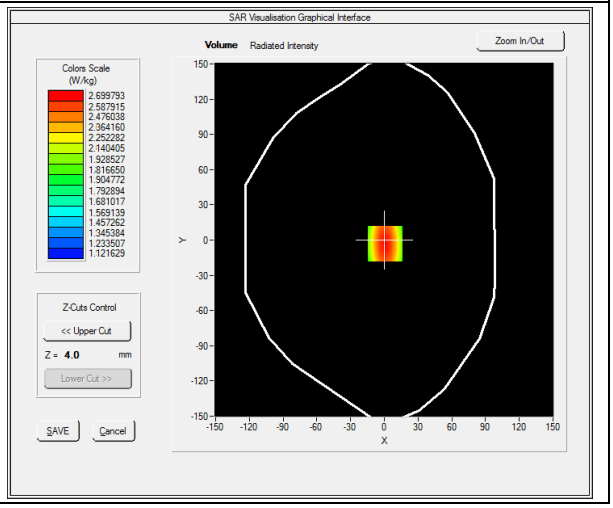
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative Permittivity (real part)	42.382156
Conductivity (S/m)	0.880439
Power Variation (%)	1.420000
Ambient Temperature	22.8
Liquid Temperature	22.8

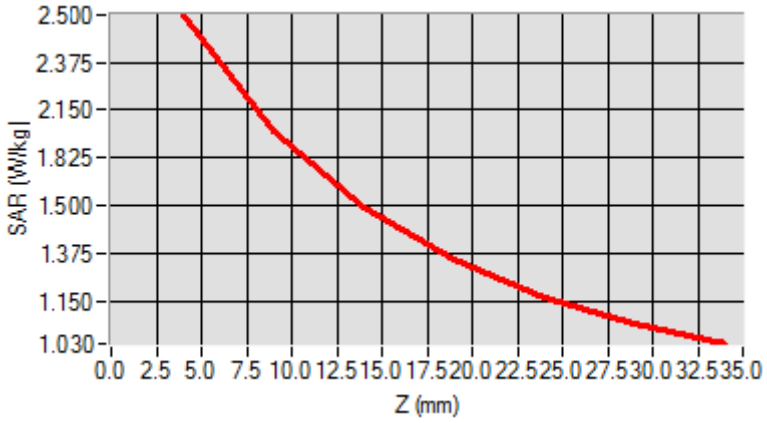
SURFACE SAR	VOLUME SAR
	

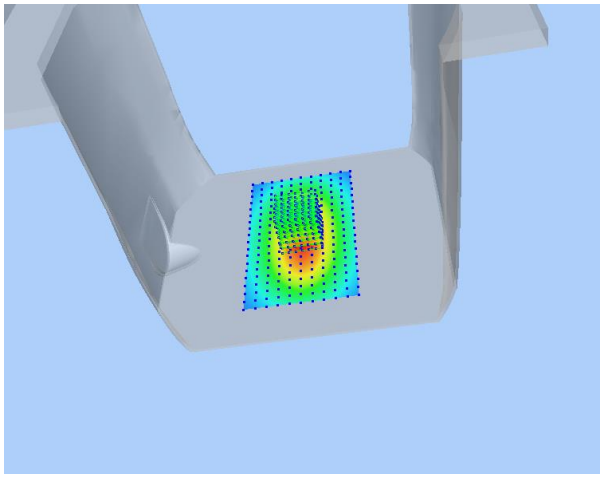
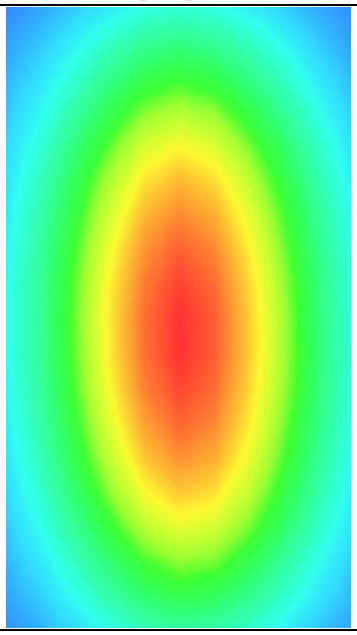
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.581074
SAR 1g (W/Kg)	2.470352

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	2.4900	1.8942	1.4811	1.3541	1.1123	1.0539



3D screen shot	Hot spot position
	

MEASUREMENT 2

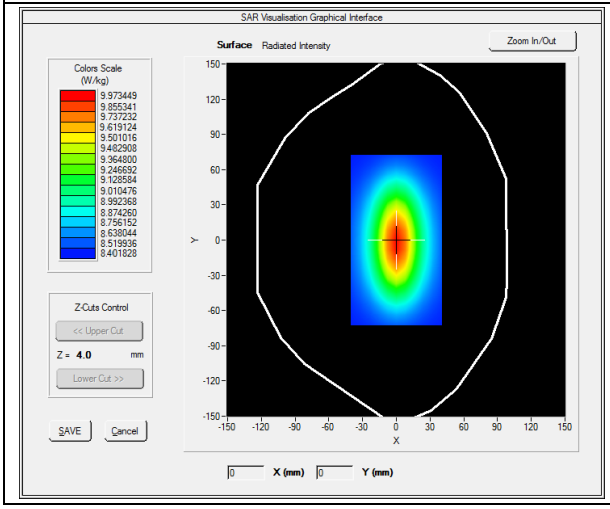
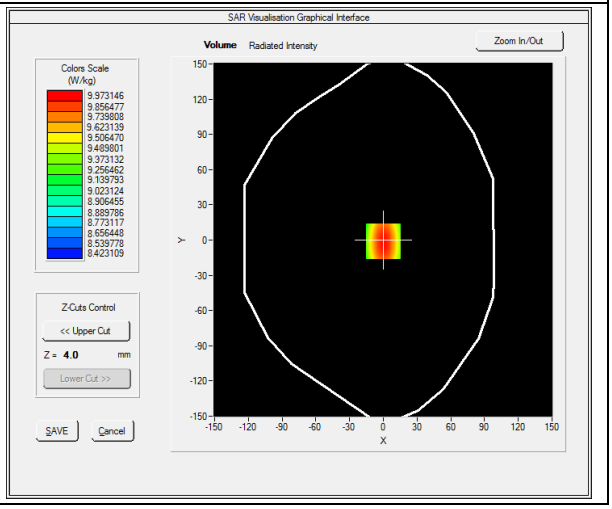
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	1900.000000
Relative Permittivity (real part)	40.764379
Conductivity (S/m)	1.403746
Power Variation (%)	-1.710000
Ambient Temperature	22.5
Liquid Temperature	22.5

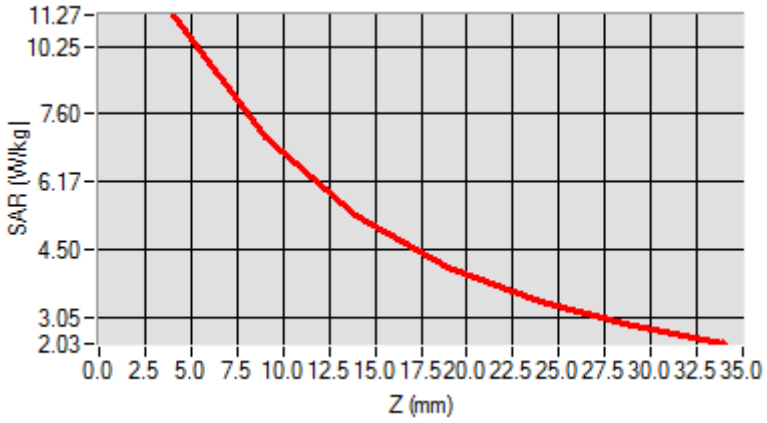
SURFACE SAR	VOLUME SAR
	

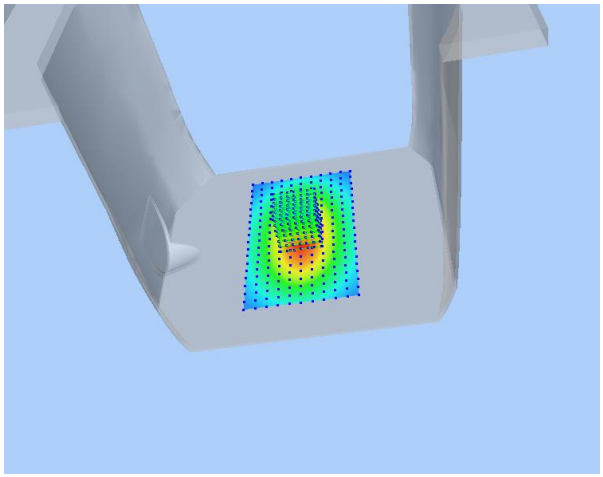
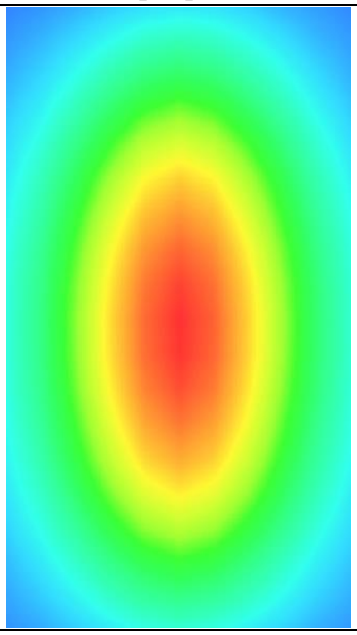
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	5.281504
SAR 1g (W/Kg)	9.970523

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	10.3455	7.1125	5.1026	3.425	3.0242	2.1125



3D screen shot	Hot spot position
	

MEASUREMENT 3

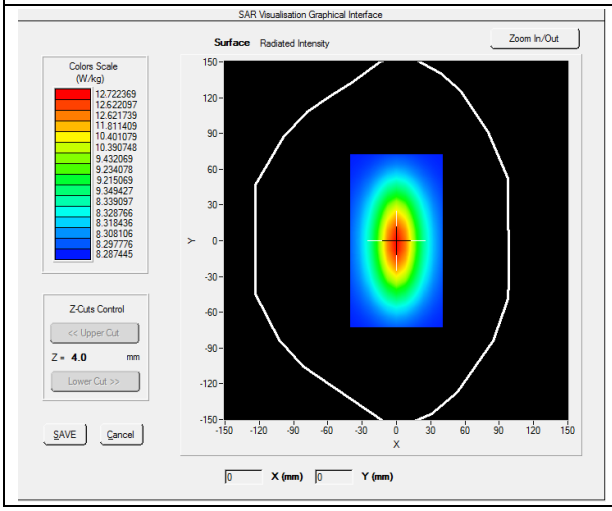
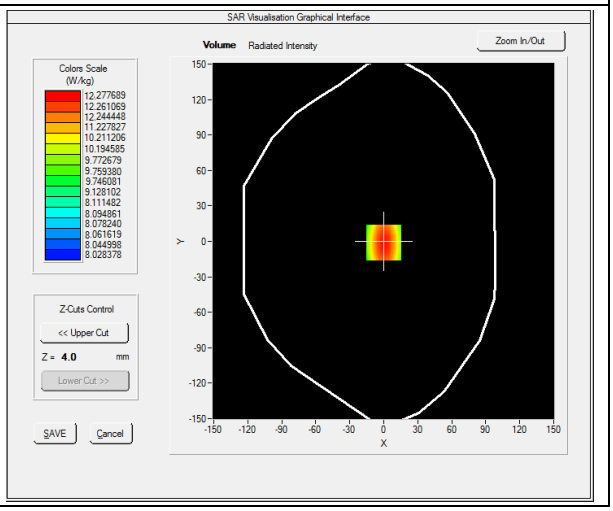
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2450.000000
Relative Permittivity (real part)	39.850317
Conductivity (S/m)	1.783504
Power Variation (%)	-1.220000
Ambient Temperature	22.3
Liquid Temperature	22.3

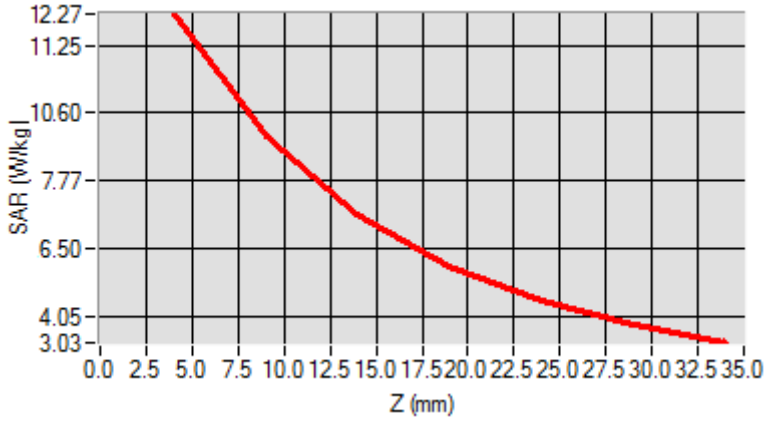
SURFACE SAR	VOLUME SAR
	

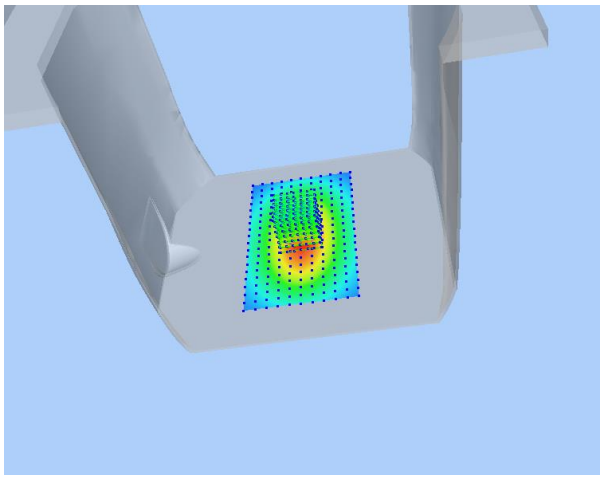
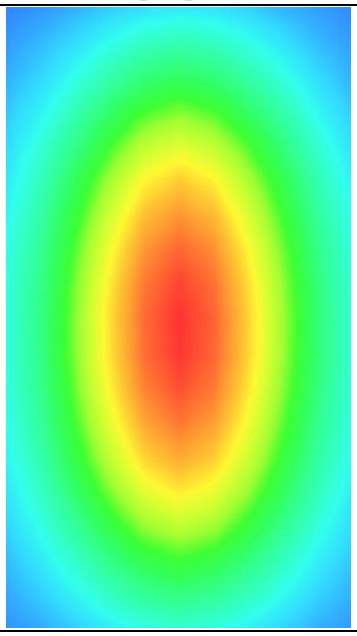
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	6.053726
SAR 1g (W/Kg)	13.561382

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	12.2365	10.3321	8.4512	6.4365	5.6123	3.5621



3D screen shot	Hot spot position
	

MEASUREMENT 4

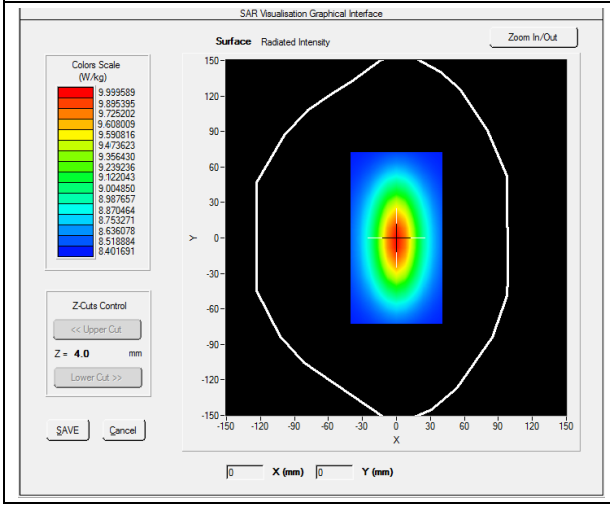
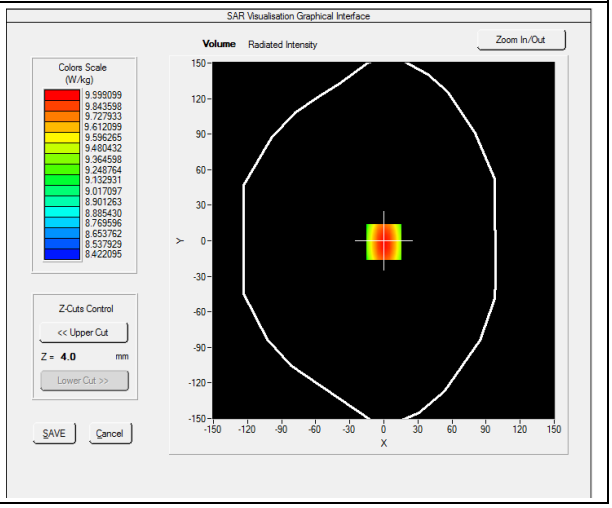
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2600.000000
Relative Permittivity (real part)	38.710562
Conductivity (S/m)	1.987214
Power Variation (%)	1.530000
Ambient Temperature	22.3
Liquid Temperature	22.3

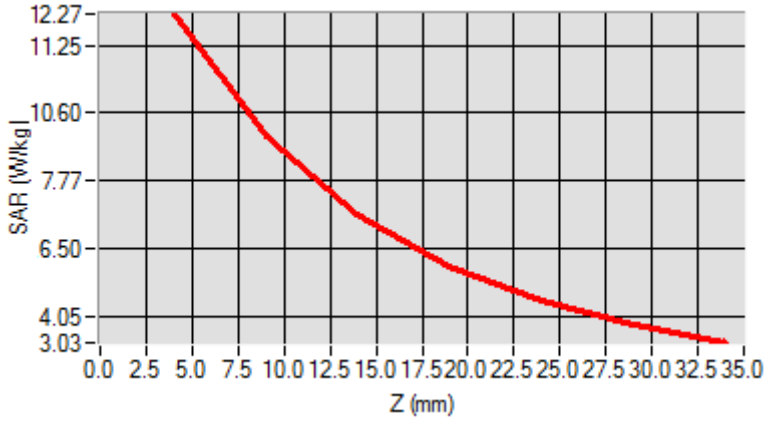
SURFACE SAR	VOLUME SAR
	

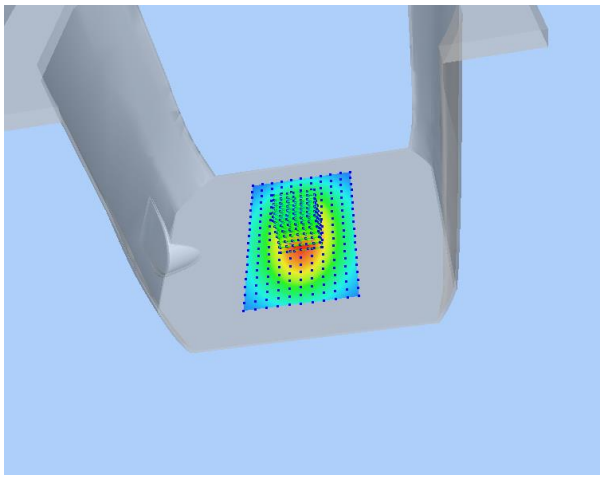
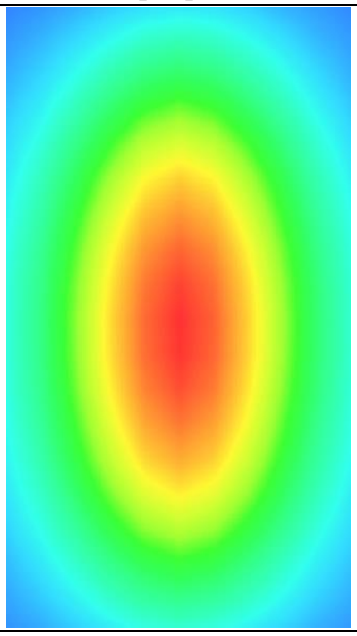
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	**6.065237**
SAR 1g (W/Kg)	**13.714325**

Z Axis Scan

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**	**24.00**	**29.00**
SAR (W/Kg)	**0.0000**	**12.14321**	**10.3214**	**8.4598**	**6.4653**	**5.6765**	**3.5986**



3D screen shot	**Hot spot position**
	

MEASUREMENT 5

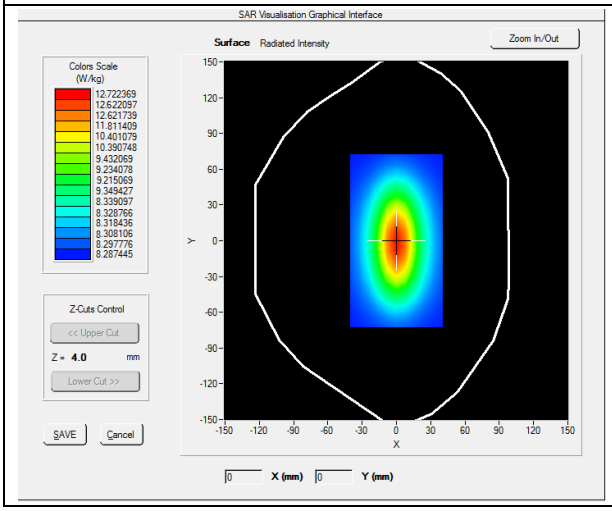
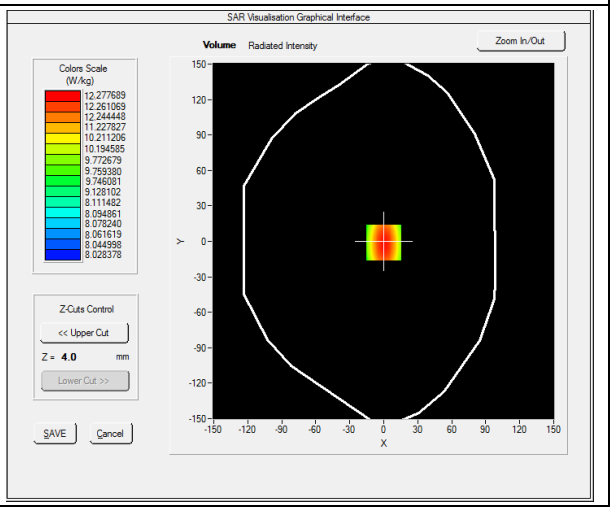
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=5mm dy=5mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2450.000000
Relative Permittivity (real part)	39.792054
Conductivity (S/m)	1.772658
Power Variation (%)	-1.050000
Ambient Temperature	22.2
Liquid Temperature	22.2

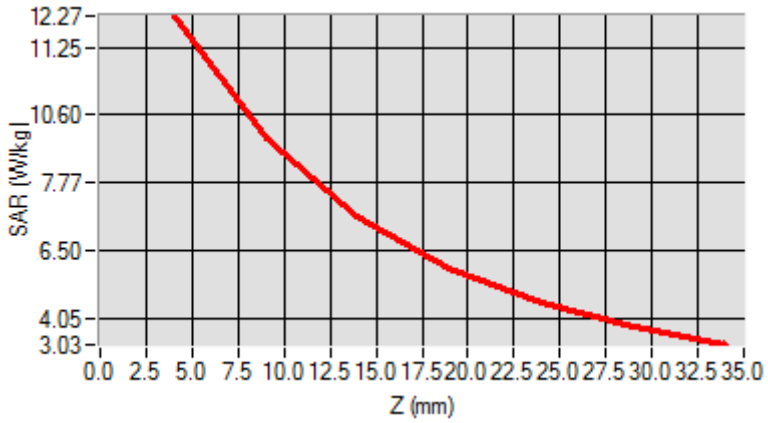
SURFACE SAR	VOLUME SAR
	

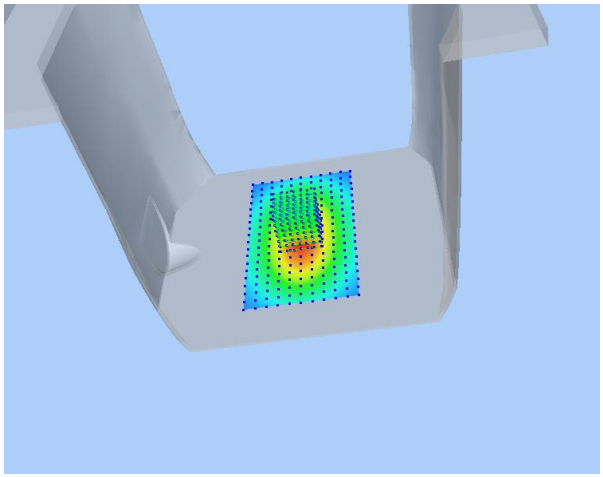
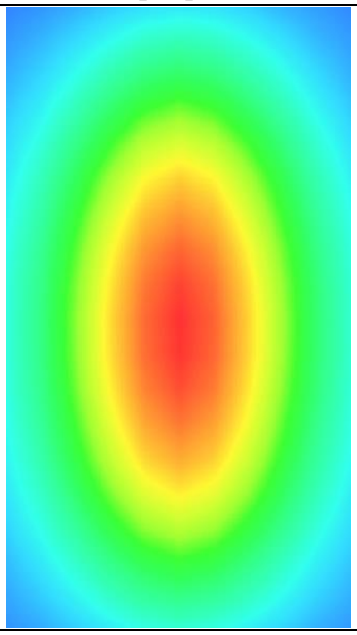
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	5.914122
SAR 1g (W/Kg)	13.230835

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	12.2365	10.3321	8.4512	6.4365	5.6123	3.5621



3D screen shot	Hot spot position
	

MEASUREMENT 6

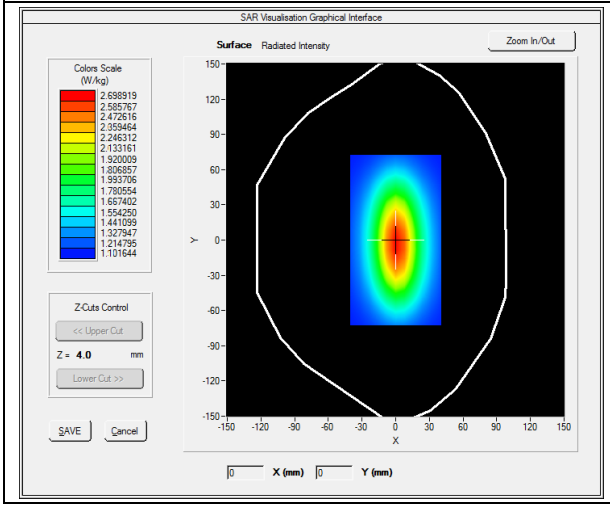
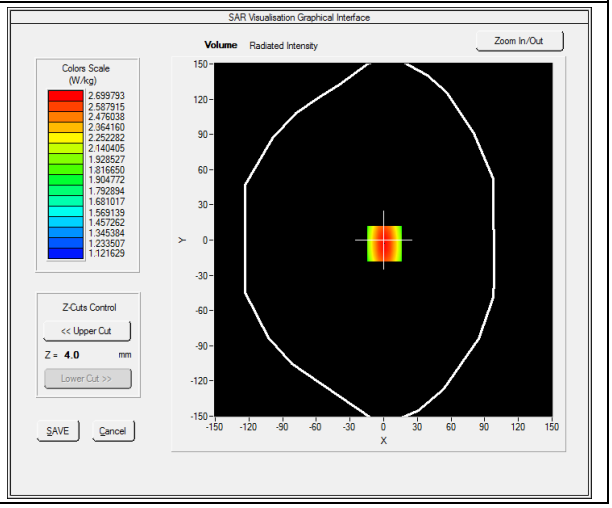
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 7 minutes 21 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	835.000000
Relative Permittivity (real part)	42.702834
Conductivity (S/m)	0.918657
Power Variation (%)	-1.620000
Ambient Temperature	22.1
Liquid Temperature	22.1

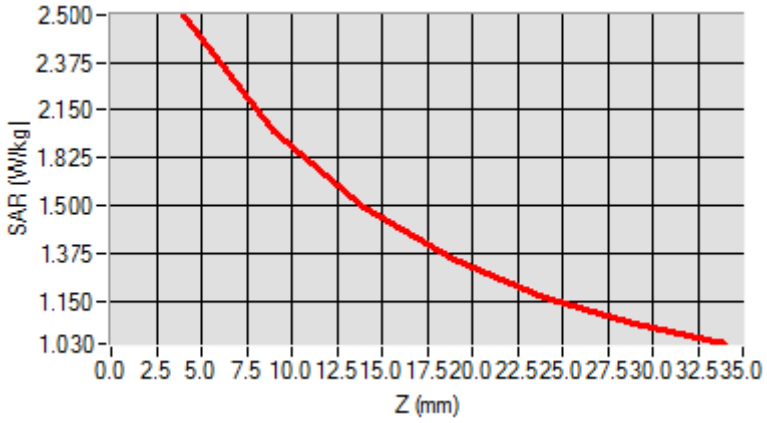
SURFACE SAR	VOLUME SAR
	

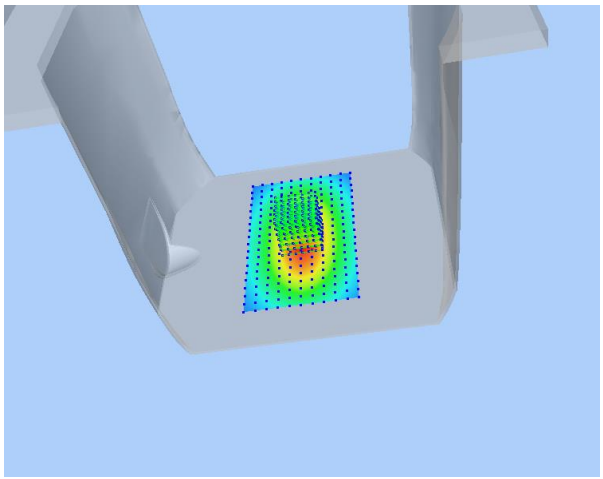
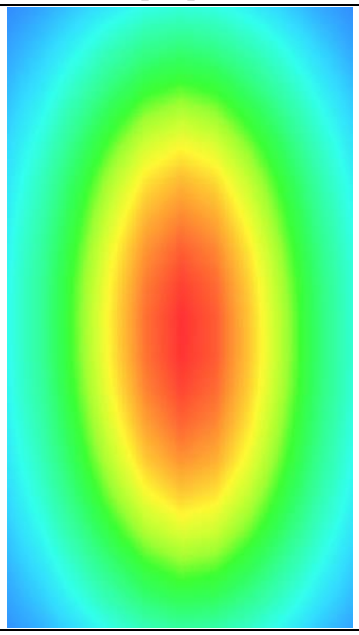
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	1.512763
SAR 1g (W/Kg)	2.380250

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	2.4900	1.8942	1.4811	1.3541	1.1123	1.0539



3D screen shot	Hot spot position
	

MEASUREMENT 7

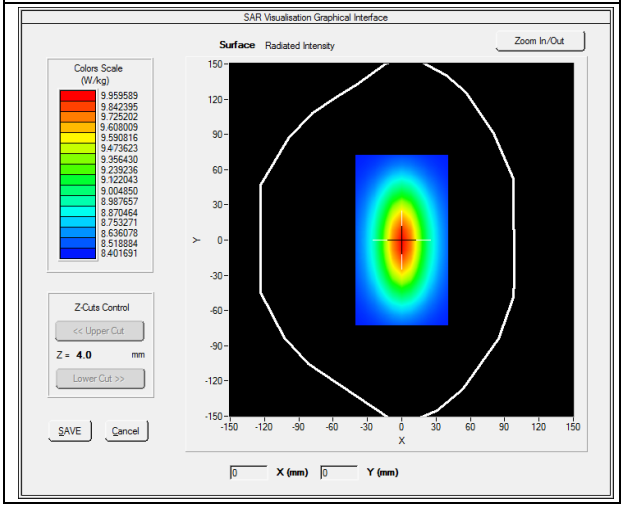
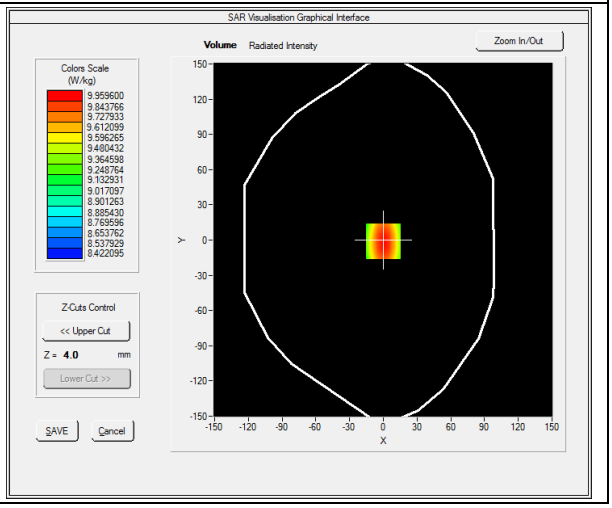
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	1900.00000
Relative Permittivity (real part)	39.570296
Conductivity (S/m)	1.403845
Power Variation (%)	-1.710000
Ambient Temperature	22.5
Liquid Temperature	22.5

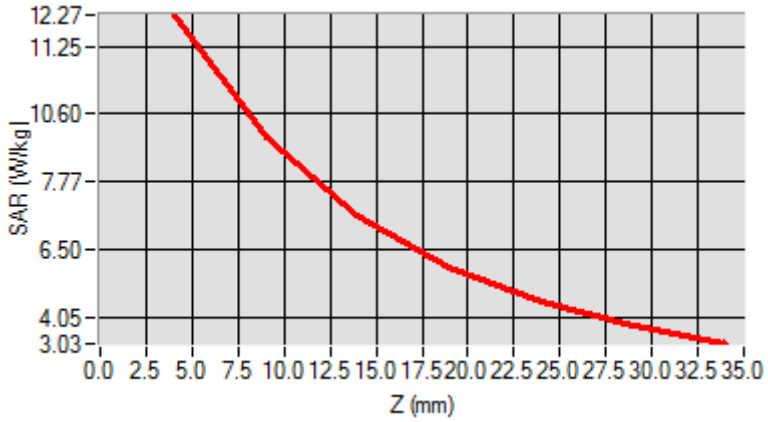
SURFACE SAR	VOLUME SAR
	

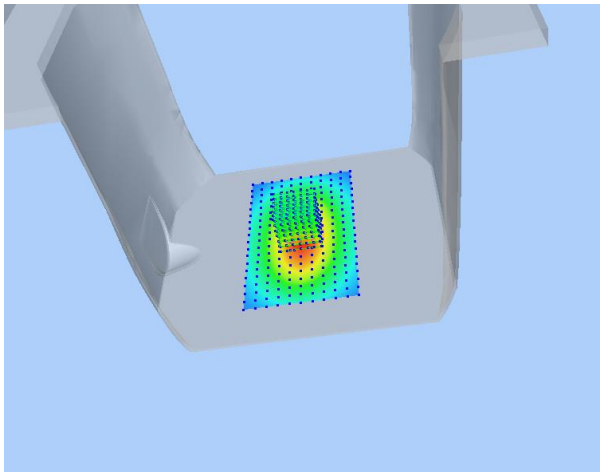
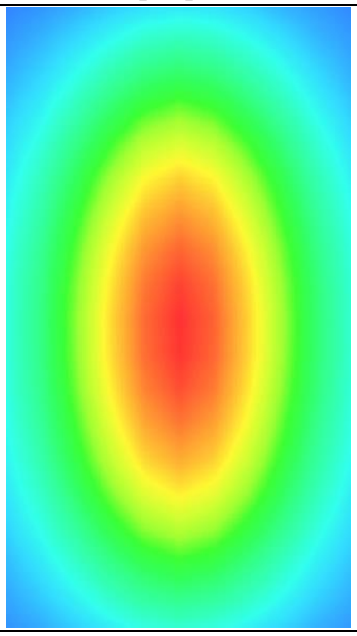
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	5.071250
SAR 1g (W/Kg)	9.501250

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	12.1250	10.3114	8.4212	6.4041	5.3425	3.3642



3D screen shot	Hot spot position
	

MEASUREMENT 8

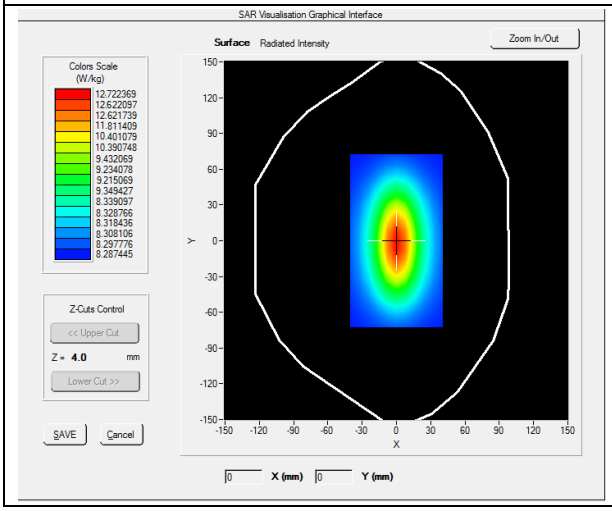
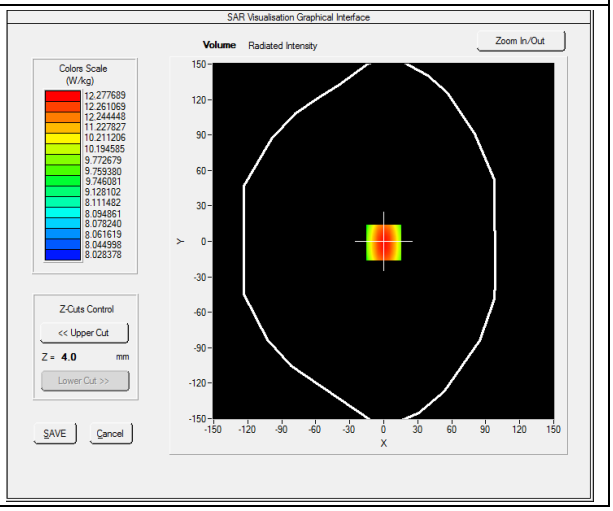
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2450.000000
Relative Permittivity (real part)	39.850317
Conductivity (S/m)	1.824035
Power Variation (%)	-1.050000
Ambient Temperature	22.5
Liquid Temperature	22.5

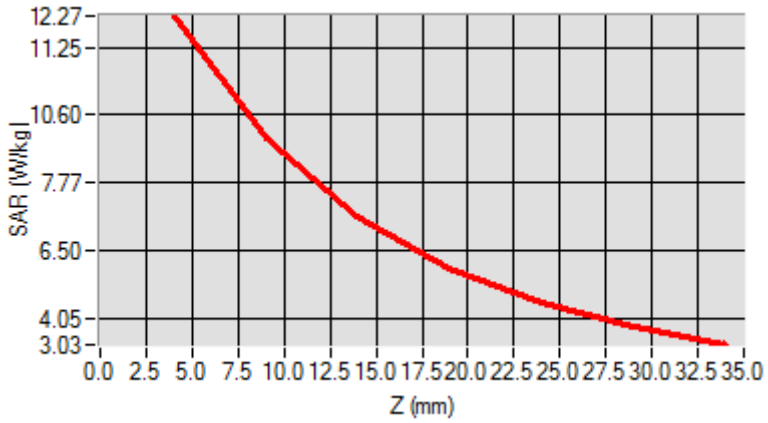
SURFACE SAR	VOLUME SAR
	

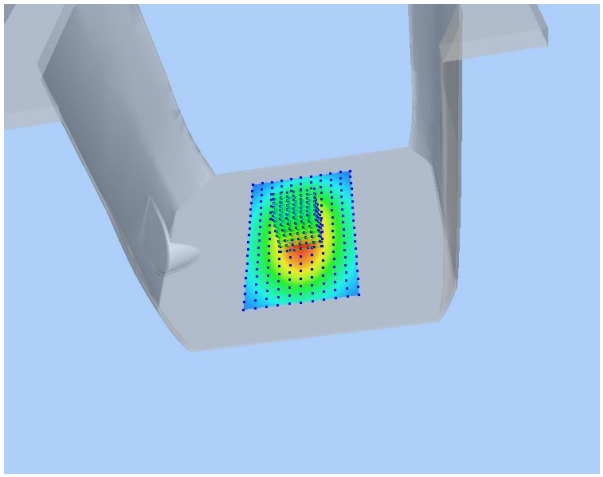
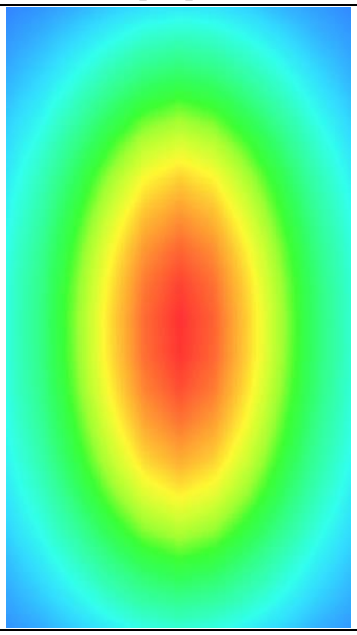
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	6.152122
SAR 1g (W/Kg)	13.831201

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	12.2365	10.3321	8.4512	6.4365	5.6123	3.5621



3D screen shot	Hot spot position
	

MEASUREMENT 9

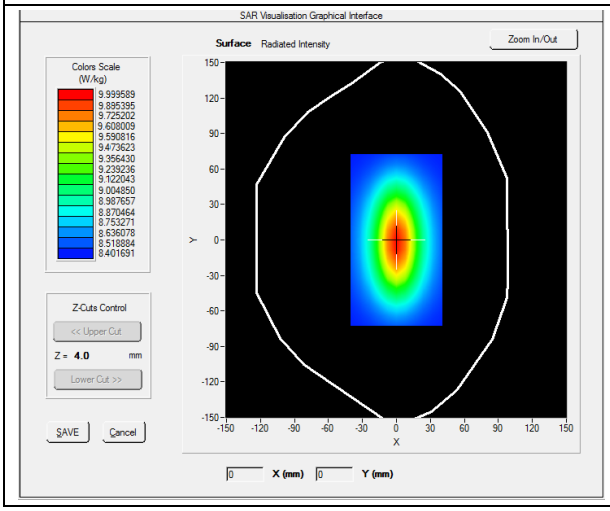
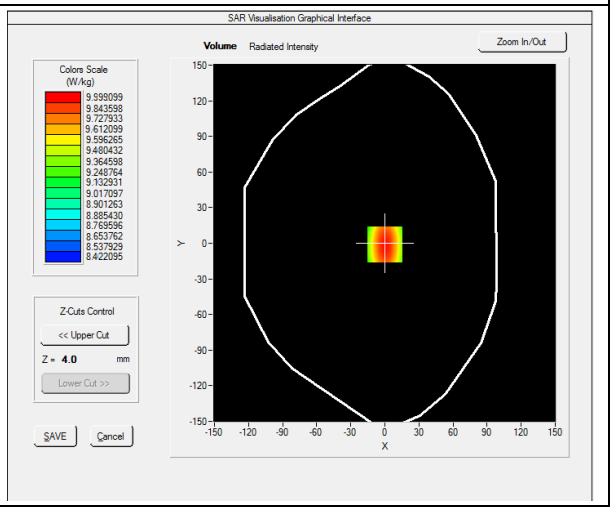
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SN 09/13 EP168; ConvF: 5.37; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=8mm dy=8mm dz=5mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

Frequency (MHz)	2600.000000
Relative Permittivity (real part)	39.218356
Conductivity (S/m)	1.990324
Power Variation (%)	-1.360000
Ambient Temperature	22.5
Liquid Temperature	22.5

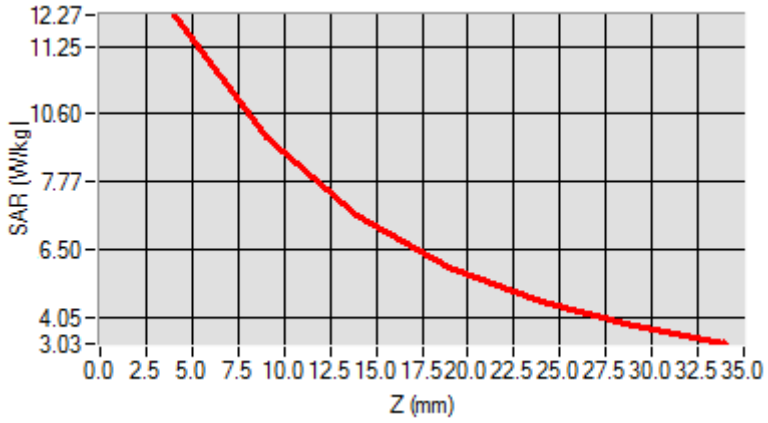
SURFACE SAR	VOLUME SAR
	

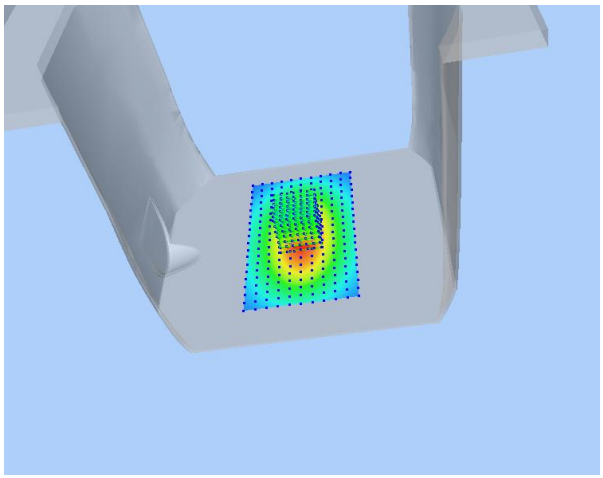
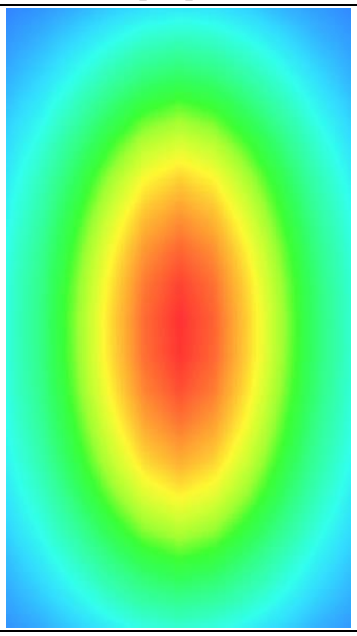
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	6.183156
SAR 1g (W/Kg)	14.113311

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	12.14321	10.3214	8.4598	6.4653	5.6765	3.5986



3D screen shot	Hot spot position
	

MEASUREMENT 10

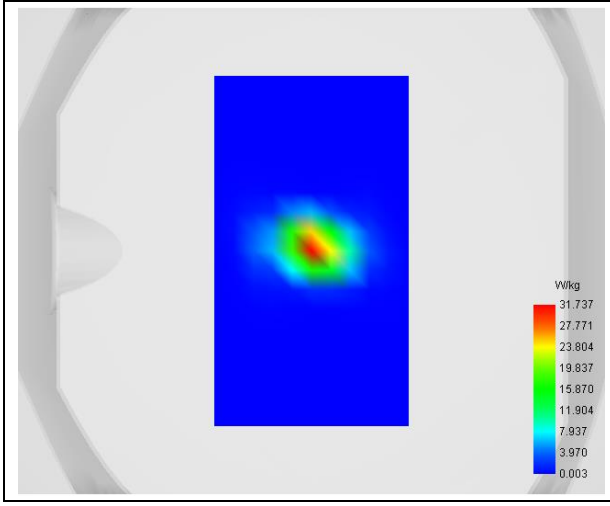
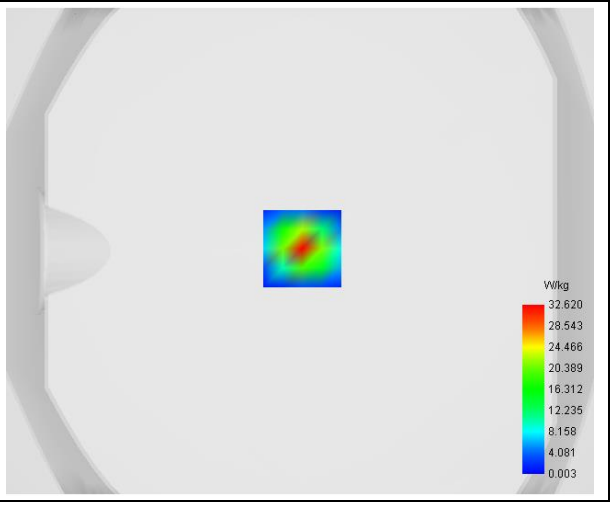
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SN 45/15 EPGO280; ConvF: 2.52; Calibrated: 2020-07-03

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Zoom Scan	dx=4mm dy=4mm dz=2mm
Phantom	Validation plane
Device Position	Dipole
Band	CW5800
Signal	CW (Crest factor: 1.0)

B. SAR Measurement Results

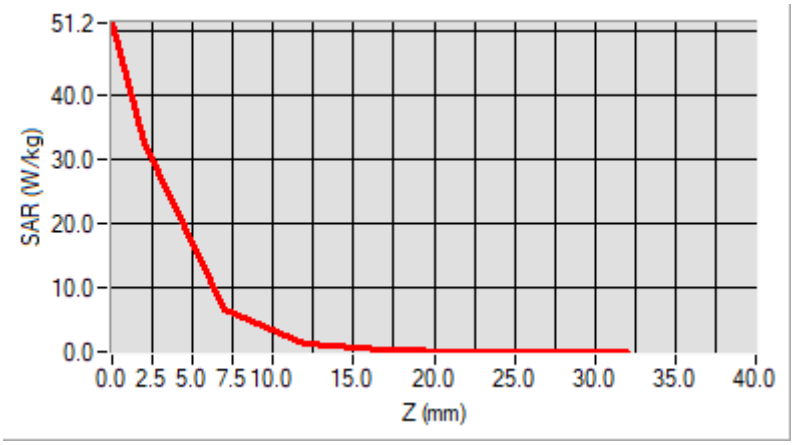
Frequency (MHz)	5800.000000
Relative Permittivity (real part)	47.084615
Conductivity (S/m)	6.153824
Power Variation (%)	-1.750000
Ambient Temperature	22.0
Liquid Temperature	22.0

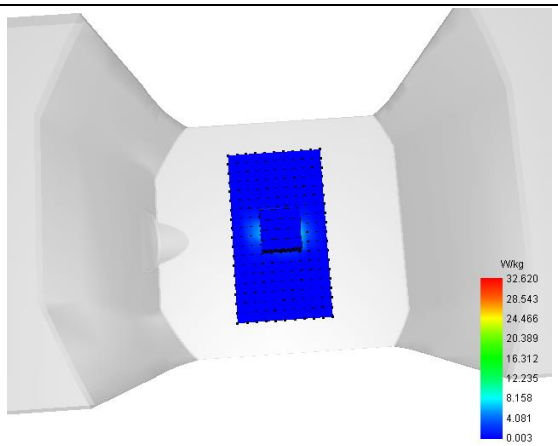
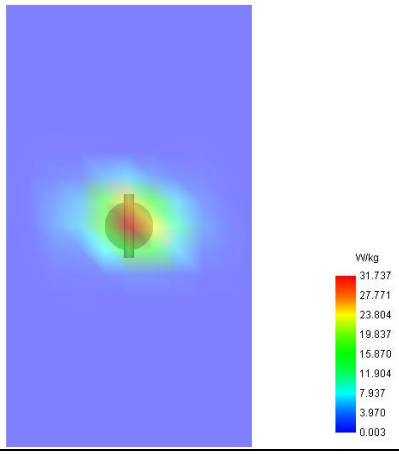
SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=1.00

SAR 10g (W/Kg)	6.260337
SAR 1g (W/Kg)	18.701835

Z (mm)	0.00	2.00	7.00	12.00	17.00	22.00	27.00
SAR (W/Kg)	51.2061	32.6198	6.6166	1.3486	0.2638	0.0509	0.0050



3D screen shot	Hot spot position
	

MEASUREMENT 11

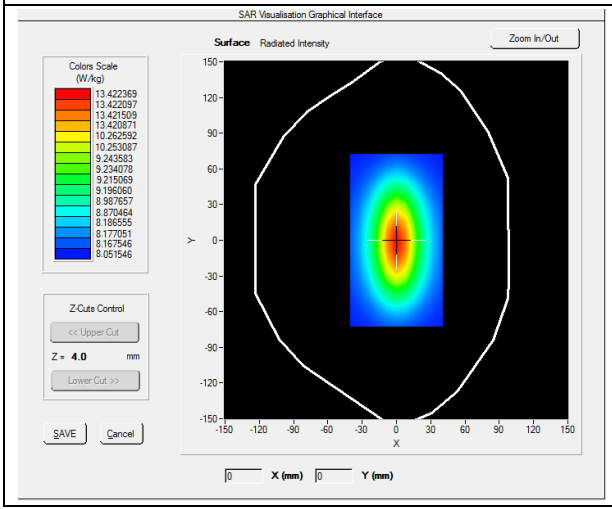
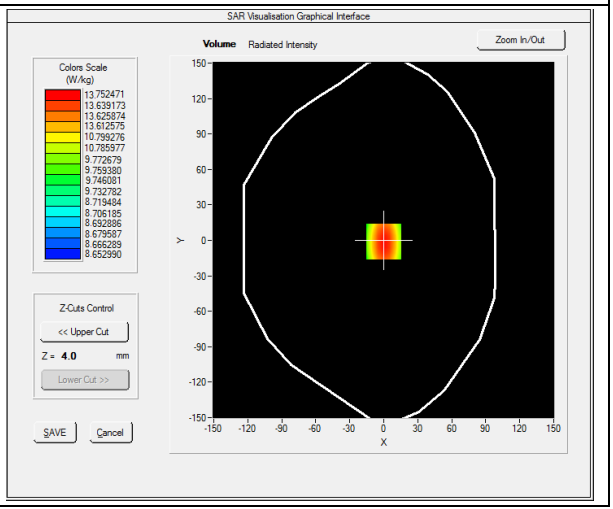
Type: Validation measurement (Fast, 75.00 %)
Measurement duration: 12 minutes 21 seconds
E-field Probe: SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2450.000000
Relative Permittivity (real part)	40.182784
Conductivity (S/m)	1.792106
Power Variation (%)	-1.710000
Ambient Temperature	22.3
Liquid Temperature	22.3

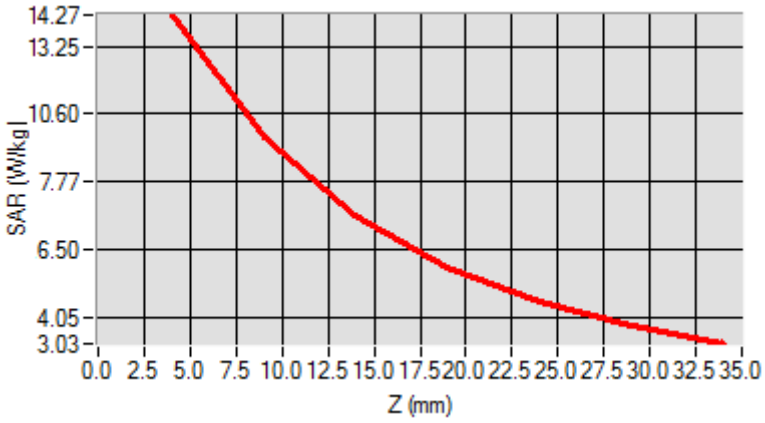
SURFACE SAR	VOLUME SAR
	

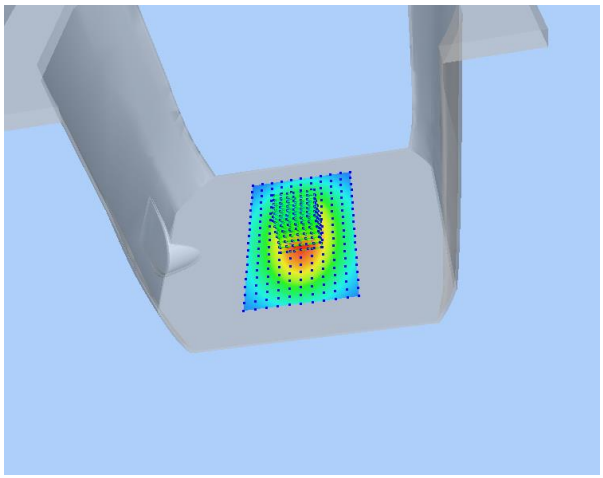
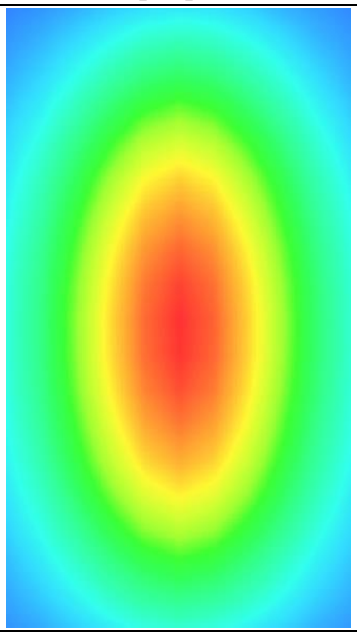
Maximum location: X=0.00, Y=0.00

SAR 10g (W/Kg)	6.180427
SAR 1g (W/Kg)	13.152457

Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0000	14.1034	12.0012	10.2624	7.4715	5.9022	4.5114



3D screen shot	Hot spot position
	

Annex B. Plots of SAR Measurement

MEASUREMENT 1

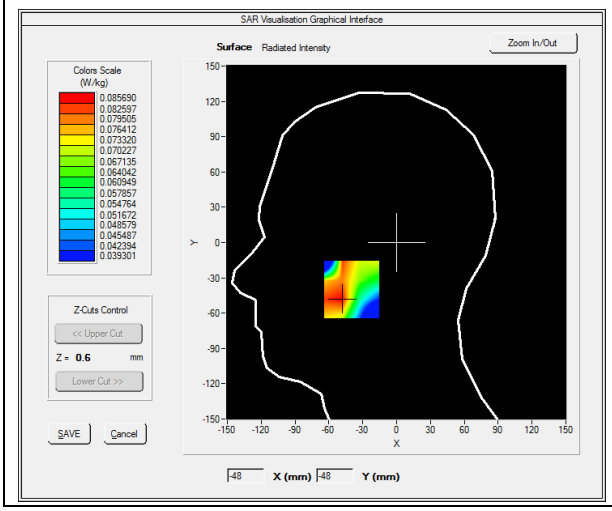
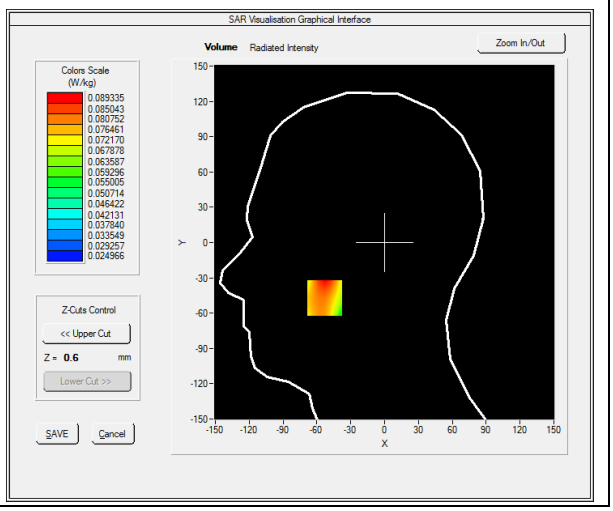
Date of measurement: 2021-04-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Left Head
Device Position	Cheek
Band	GSM850
Channels	High
Signal	Duty Cycle: 1:1

B. SAR Measurement Results

Frequency (MHz)	848.800000
Relative Permittivity (real part)	42.564773
Conductivity (S/m)	0.930528
Power Variation (%)	0.250000
Ambient Temperature	22.1
Liquid Temperature	22.1

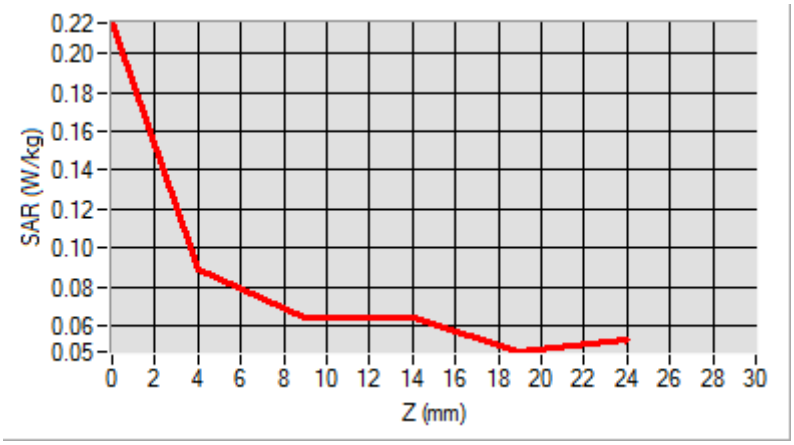
SURFACE SAR	VOLUME SAR
	

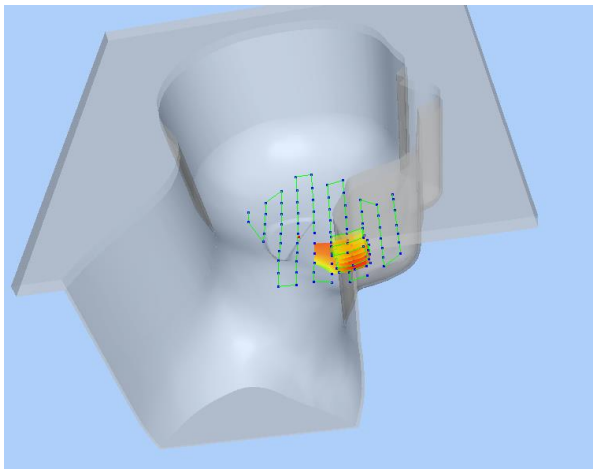
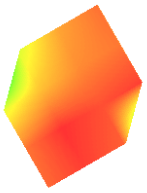
Maximum location: X=-53.00, Y=-47.00

SAR Peak: 0.11 W/kg

SAR 10g (W/Kg)	0.070608
SAR 1g (W/Kg)	0.084891

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2157	0.0893	0.0637	0.0645	0.0466



3D screen shot	Hot spot position
	

MEASUREMENT 2

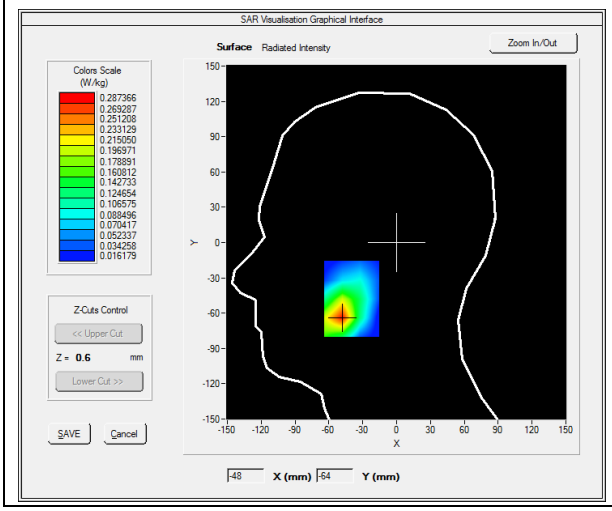
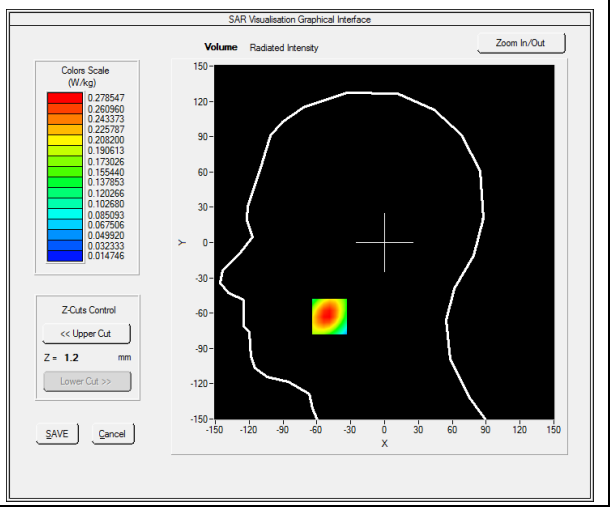
Date of measurement: 2021-04-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Right Head
Device Position	Cheek
Band	GSM1900
Channels	Middle
Signal	Duty Cycle: 1:1

B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative Permittivity (real part)	39.610526
Conductivity (S/m)	1.395134
Power Variation (%)	-1.560000
Ambient Temperature	22.5
Liquid Temperature	22.5

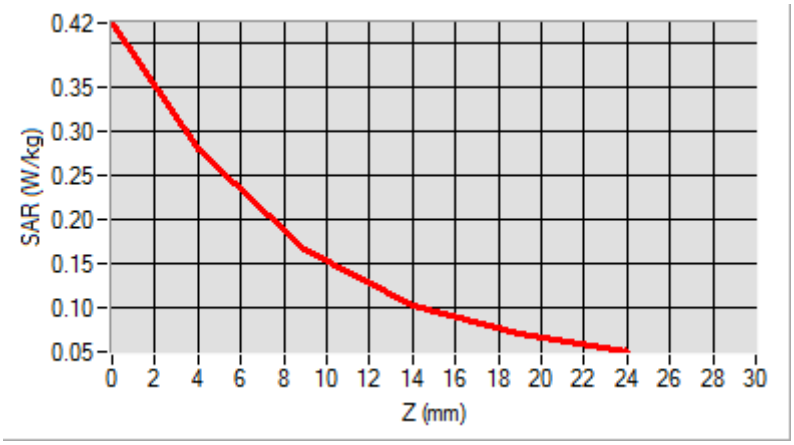
SURFACE SAR	VOLUME SAR
	

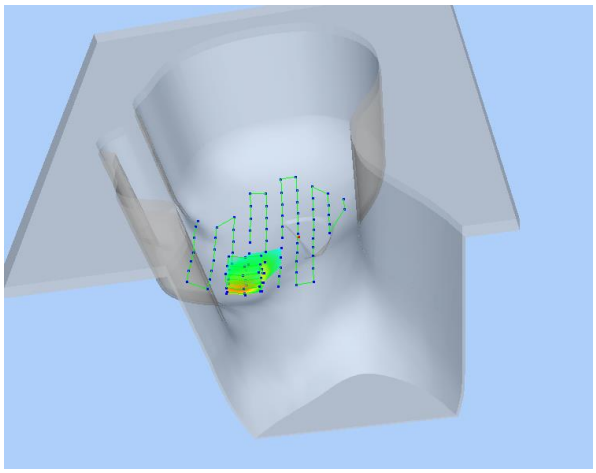
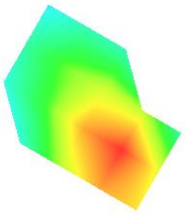
Maximum location: X=-49.00, Y=-63.00

SAR Peak: 0.43 W/kg

SAR 10g (W/Kg)	**0.152233**
SAR 1g (W/Kg)	**0.262496**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.4217**	**0.2785**	**0.1655**	**0.1030**	**0.0704**



3D screen shot	**Hot spot position**
	

MEASUREMENT 3

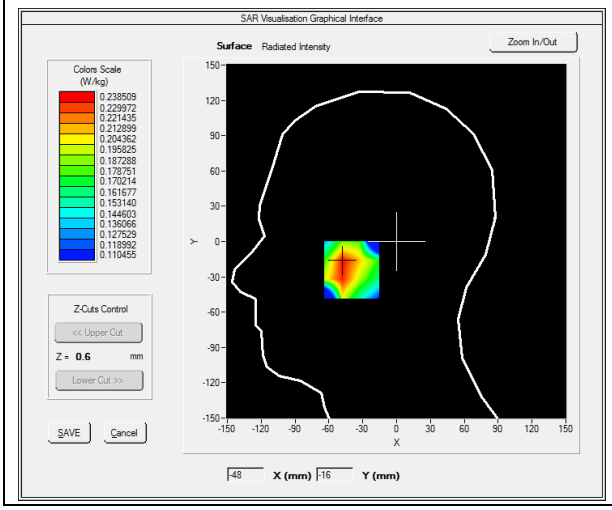
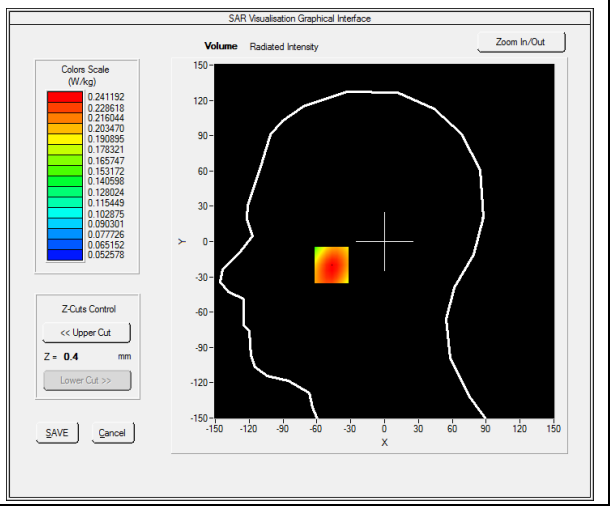
Date of measurement: 2021-04-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Left Head
Device Position	Cheek
Band	WCDMA850_RMC
Channels	Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative Permittivity (real part)	42.702834
Conductivity (S/m)	0.918657
Power Variation (%)	-1.980000
Ambient Temperature	22.1
Liquid Temperature	22.1

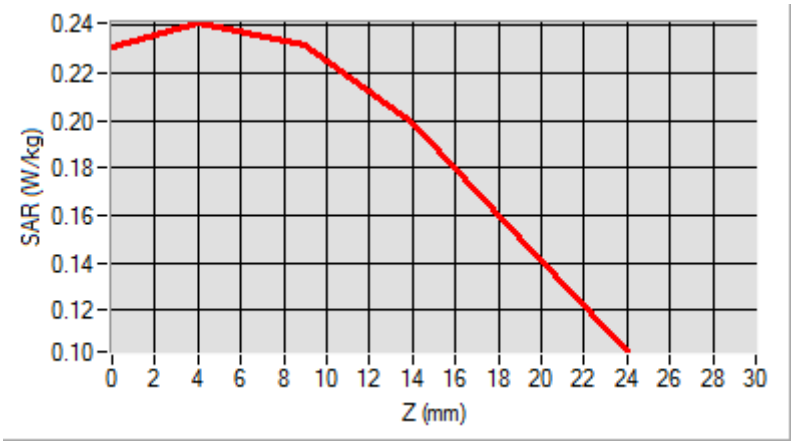
SURFACE SAR	VOLUME SAR
	

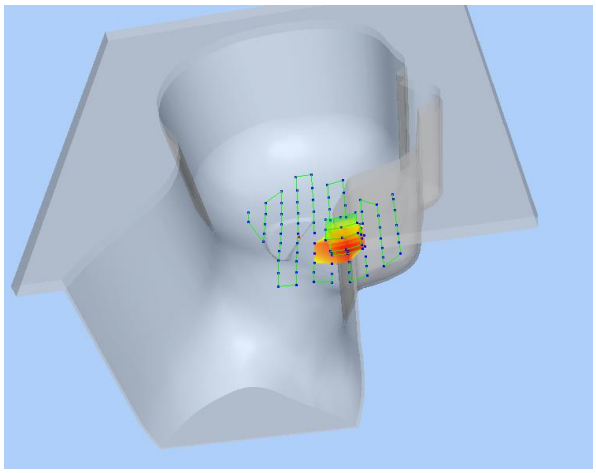
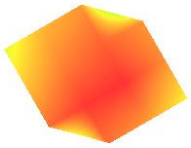
Maximum location: X=-47.00, Y=-20.00

SAR Peak: 0.23 W/kg

SAR 10g (W/Kg)	0.196854
SAR 1g (W/Kg)	0.235556

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2306	0.2412	0.2315	0.1987	0.1509



3D screen shot	Hot spot position
	

MEASUREMENT 4

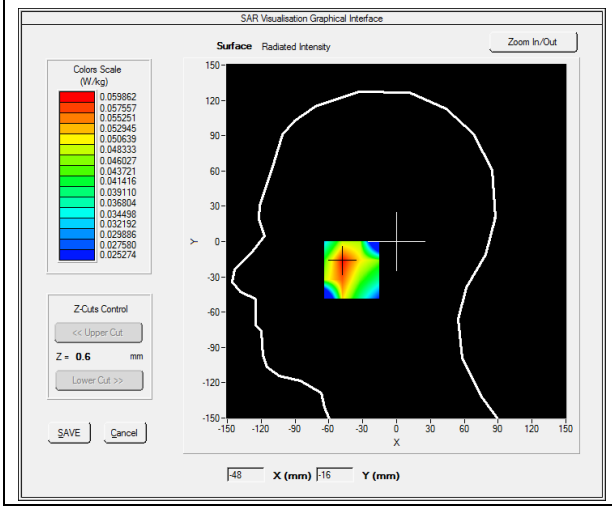
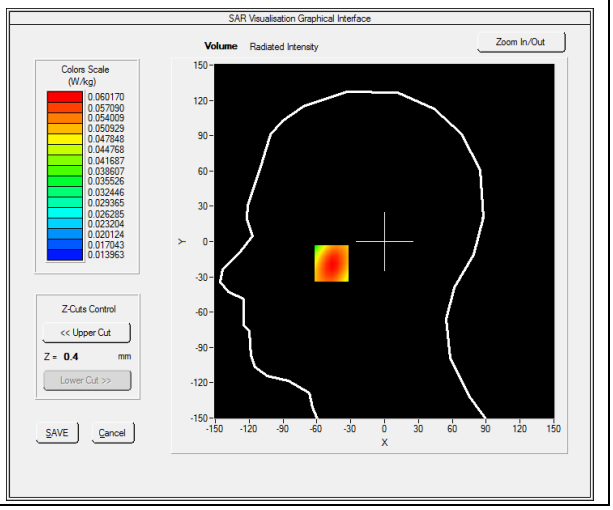
Date of measurement: 2021-04-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Left Head
Device Position	Cheek
Band	LTE Band 5
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	829.000000
Relative Permittivity (real part)	42.780325
Conductivity (S/m)	0.915472
Power Variation (%)	-1.010000
Ambient Temperature	22.1
Liquid Temperature	22.1

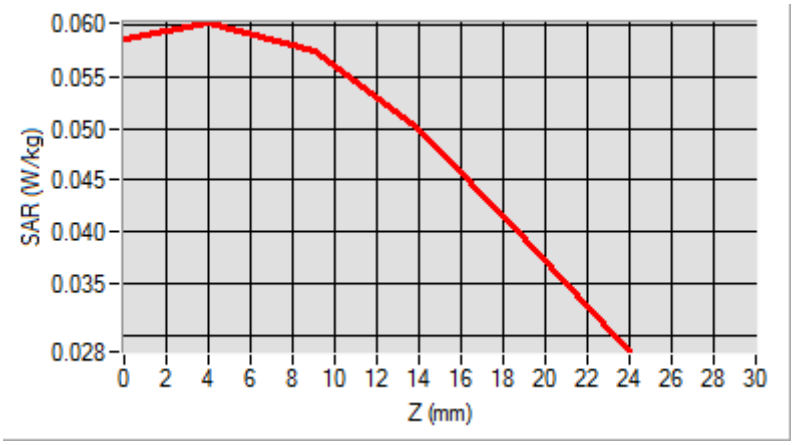
SURFACE SAR	VOLUME SAR
	

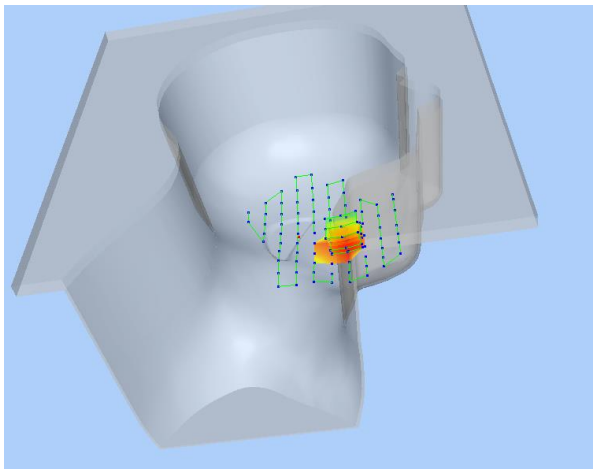
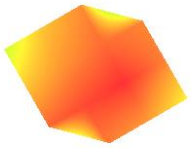
Maximum location: X=-47.00, Y=-18.00

SAR Peak: 0.06 W/kg

SAR 10g (W/Kg)	0.049288
SAR 1g (W/Kg)	0.058607

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.0586	0.0602	0.0575	0.0500	0.0393



3D screen shot	Hot spot position
	

MEASUREMENT 5

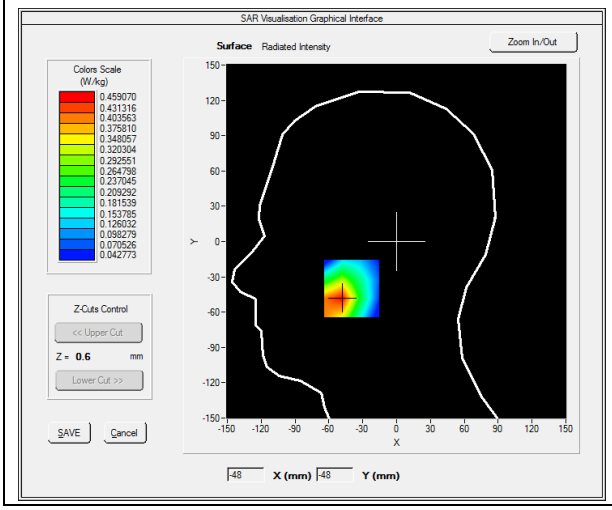
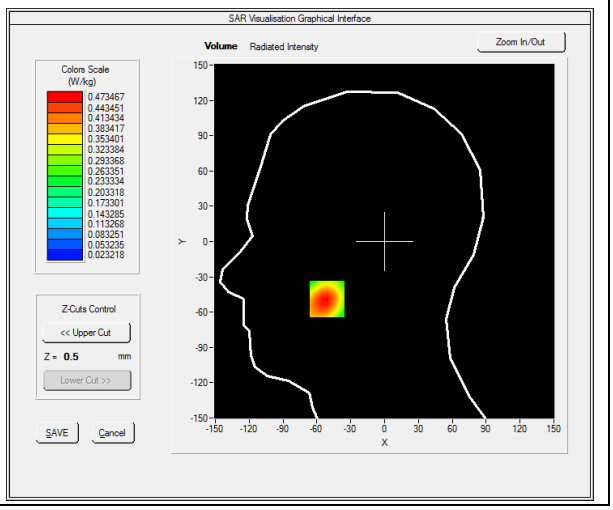
Date of measurement: 2021-04-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Left Head
Device Position	Cheek
Band	LTE Band 7
Channels	QPSK, 20MHz, 1RB, High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2560.000000
Relative Permittivity (real part)	39.485891
Conductivity (S/m)	1.963572
Power Variation (%)	-0.310000
Ambient Temperature	22.5
Liquid Temperature	22.5

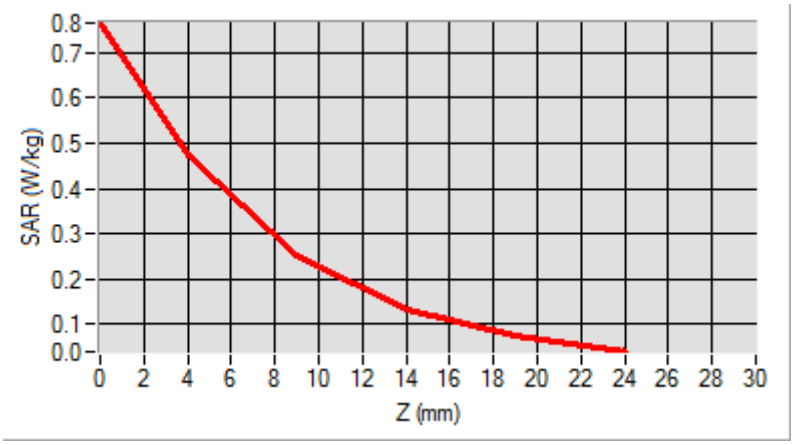
SURFACE SAR	VOLUME SAR
	

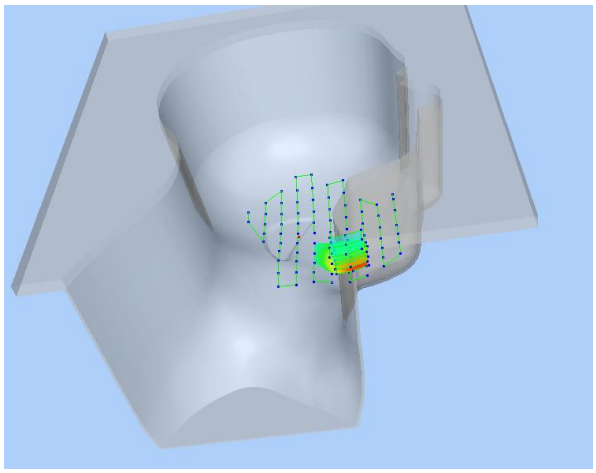
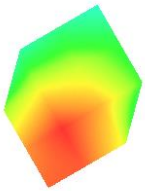
Maximum location: X=-51.00, Y=-49.00

SAR Peak: 0.77 W/kg

SAR 10g (W/Kg)	0.245038
SAR 1g (W/Kg)	0.446512

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.7661	0.4735	0.2501	0.1315	0.0721



3D screen shot	Hot spot position
	

MEASUREMENT 6

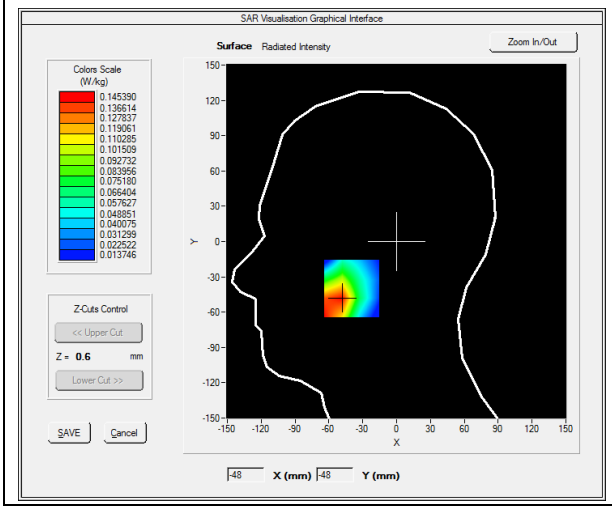
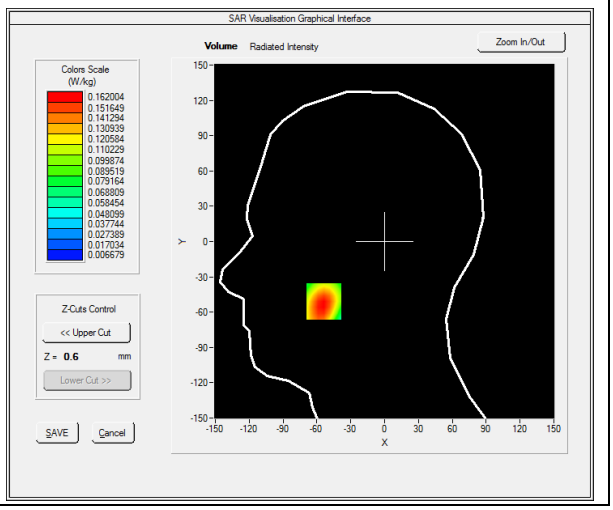
Date of measurement: 2021-04-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Left Head
Device Position	Cheek
Band	LTE Band 38
Channels	QPSK, 20MHz, 1RB, High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2610.000000
Relative Permittivity (real part)	39.218356
Conductivity (S/m)	1.990324
Power Variation (%)	-1.390000
Ambient Temperature	22.5
Liquid Temperature	22.5

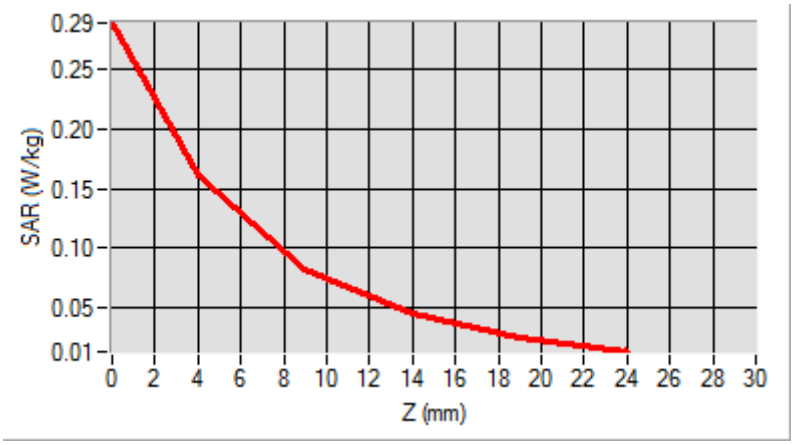
SURFACE SAR	VOLUME SAR
	

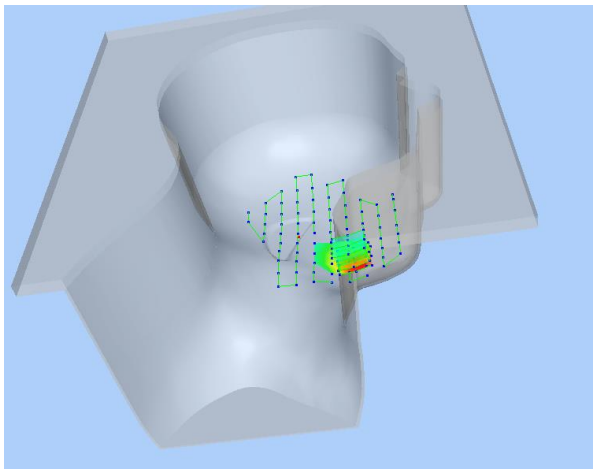
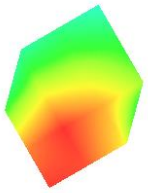
Maximum location: X=-54.00, Y=-51.00

SAR Peak: 0.26 W/kg

SAR 10g (W/Kg)	**0.085492**
SAR 1g (W/Kg)	**0.156607**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.2891**	**0.1620**	**0.0819**	**0.0452**	**0.0245**



3D screen shot	**Hot spot position**
	

MEASUREMENT 7

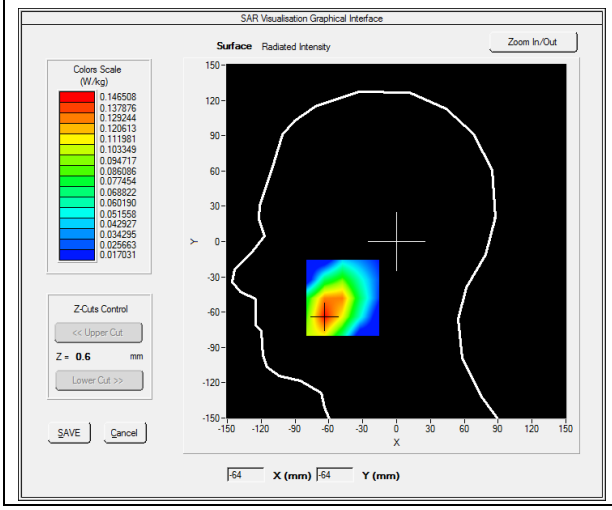
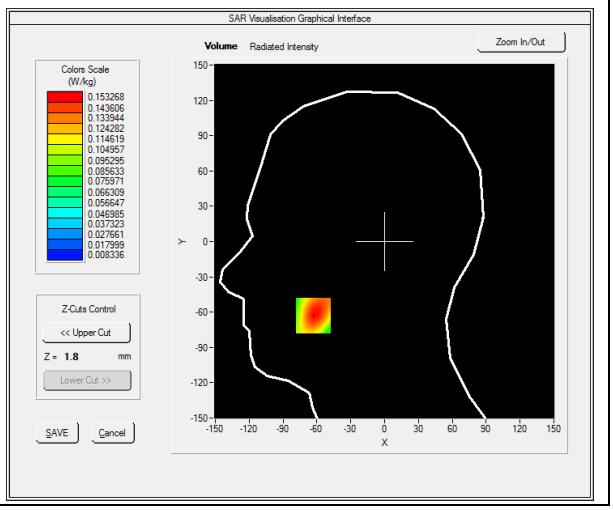
Date of measurement: 2021-04-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Left Head
Device Position	Cheek
Band	LTE Band 40a
Channels	QPSK, 10MHz, 1RB,Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2310.000000
Relative Permittivity (real part)	40.380512
Conductivity (S/m)	1.744062
Power Variation (%)	1.070000
Ambient Temperature	22.5
Liquid Temperature	22.5

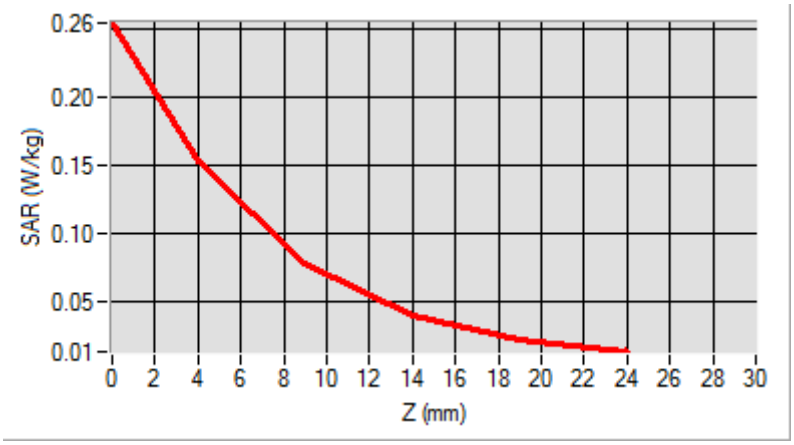
SURFACE SAR	VOLUME SAR
	

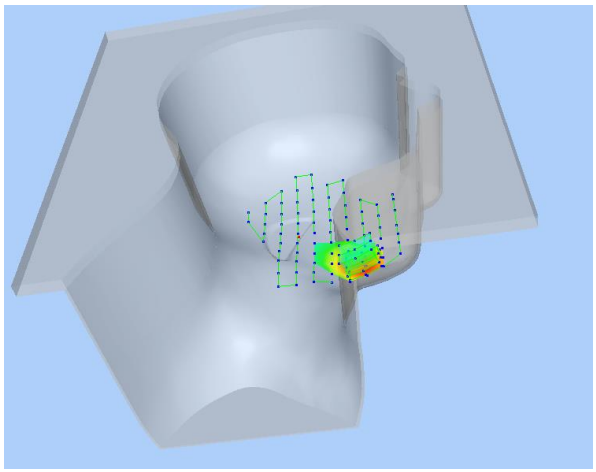
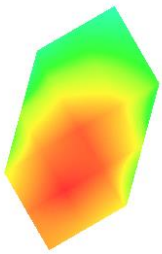
Maximum location: X=-63.00, Y=-63.00

SAR Peak: 0.26 W/kg

SAR 10g (W/Kg)	**0.080175**
SAR 1g (W/Kg)	**0.146083**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.2550**	**0.1533**	**0.0781**	**0.0403**	**0.0227**



3D screen shot	**Hot spot position**
	

MEASUREMENT 8

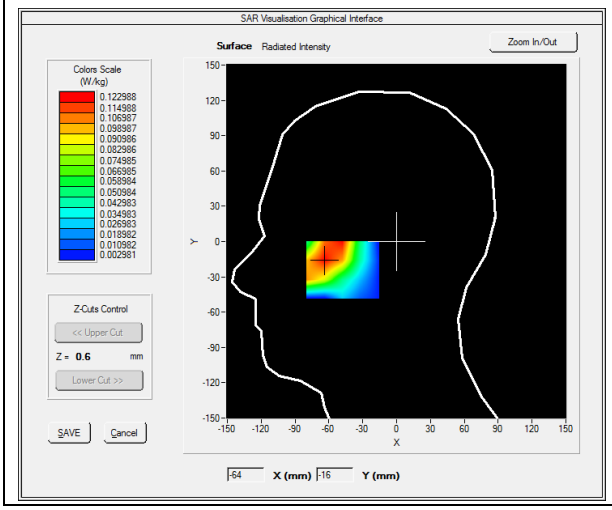
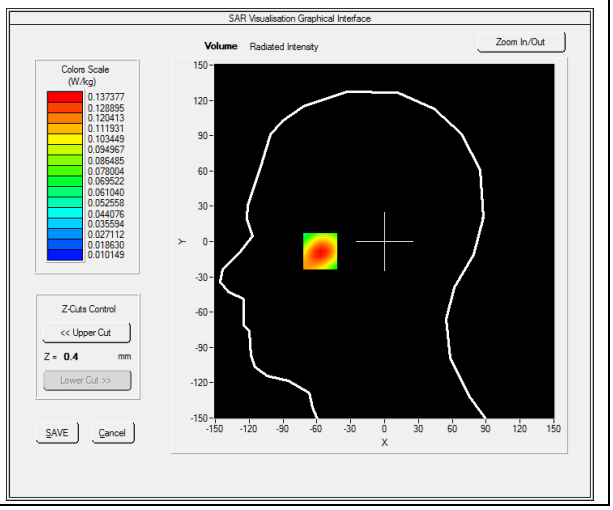
Date of measurement: 2021-04-28
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Left Head
Device Position	Cheek
Band	LTE Band 40b
Channels	QPSK, 10MHz, 1RB,Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2355.000000
Relative Permittivity (real part)	40.521876
Conductivity (S/m)	1.730245
Power Variation (%)	-1.720000
Ambient Temperature	22.3
Liquid Temperature	22.3

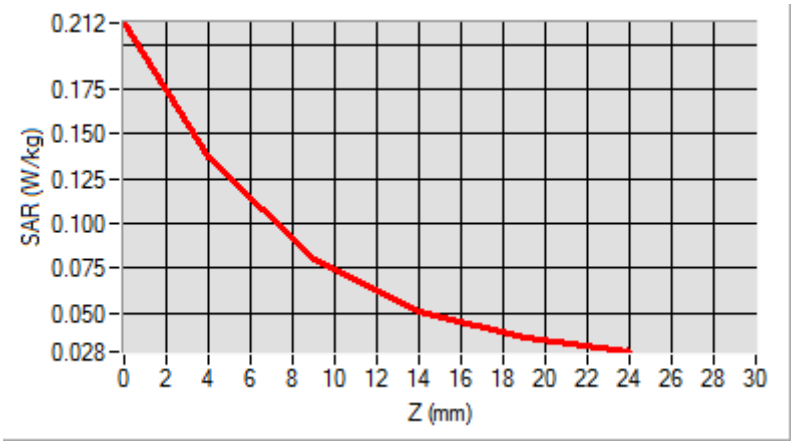
SURFACE SAR	VOLUME SAR
	

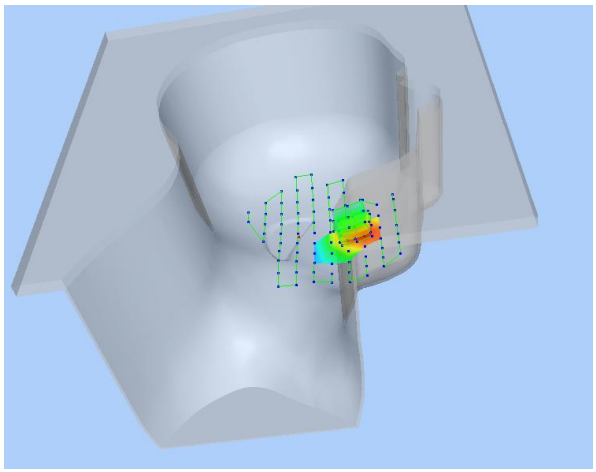
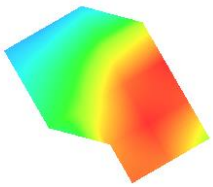
Maximum location: X=-57.00, Y=-7.00

SAR Peak: 0.21 W/kg

SAR 10g (W/Kg)	**0.078053**
SAR 1g (W/Kg)	**0.128954**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.2122**	**0.1374**	**0.0801**	**0.0503**	**0.0360**



3D screen shot	**Hot spot position**
	

MEASUREMENT 9

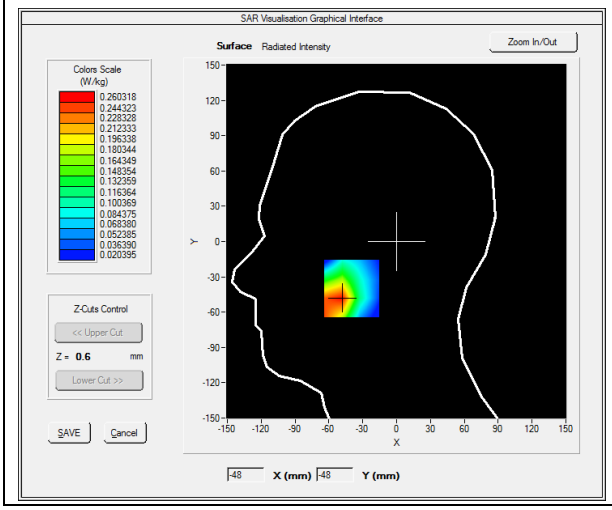
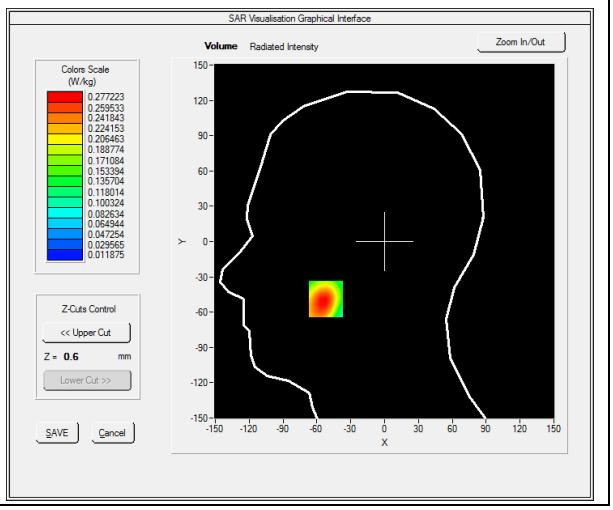
Date of measurement: 2021-04-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Left Head
Device Position	Cheek
Band	LTE Band 41
Channels	QPSK, 20MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2605.000000
Relative Permittivity (real part)	39.218356
Conductivity (S/m)	1.990324
Power Variation (%)	-1.670000
Ambient Temperature	22.5
Liquid Temperature	22.5

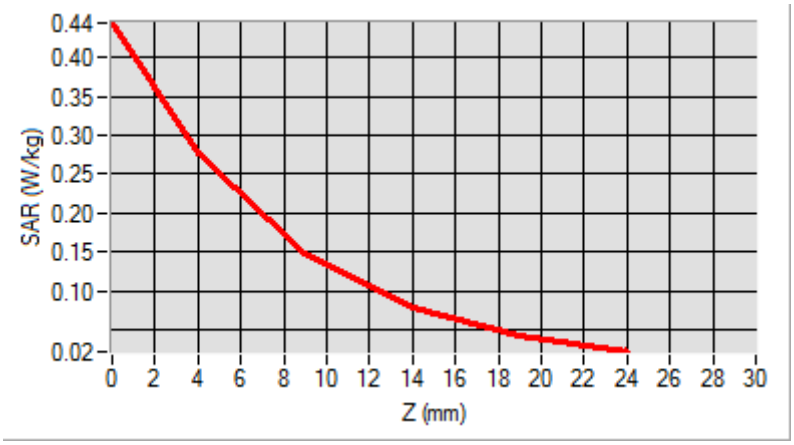
SURFACE SAR	VOLUME SAR
	

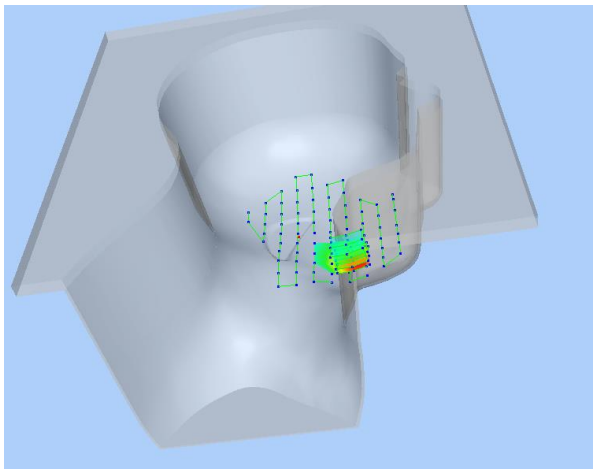
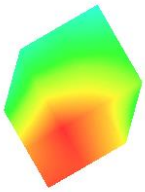
Maximum location: X=-52.00, Y=-49.00

SAR Peak: 0.45 W/kg

SAR 10g (W/Kg)	0.143073
SAR 1g (W/Kg)	0.263172

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.4445	0.2772	0.1481	0.0783	0.0425



3D screen shot	Hot spot position
	

MEASUREMENT 10

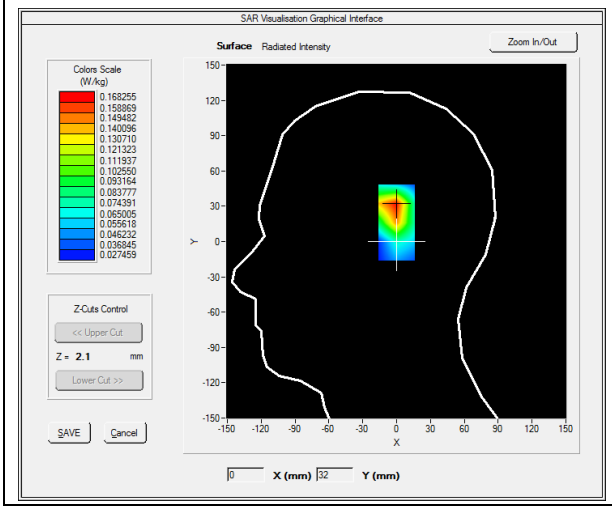
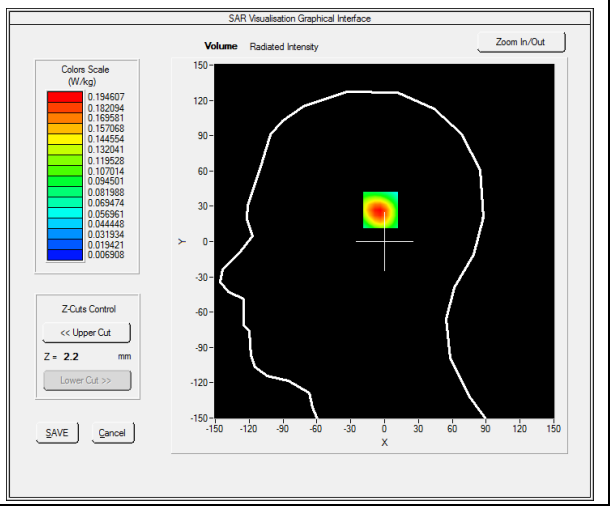
Date of measurement: 2021-04-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Right Head
Device Position	Cheek
Band	WiFi_802.11b
Channels	Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2412.000000
Relative Permittivity (real part)	40.023927
Conductivity (S/m)	1.796182
Power Variation (%)	-1.020000
Ambient Temperature	22.5
Liquid Temperature	22.5

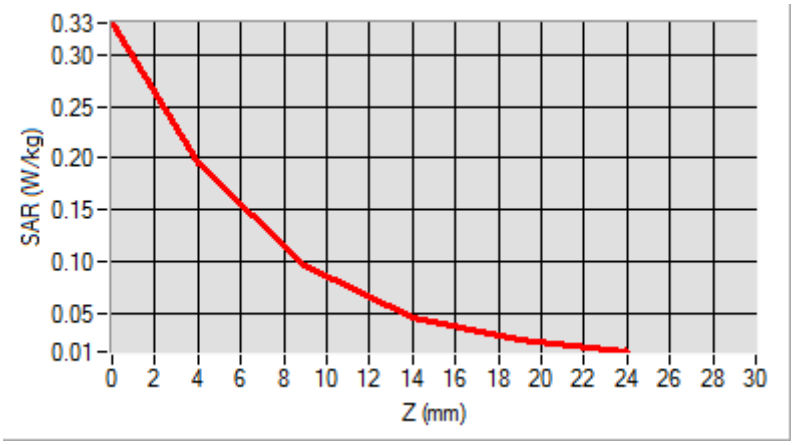
SURFACE SAR	VOLUME SAR
	

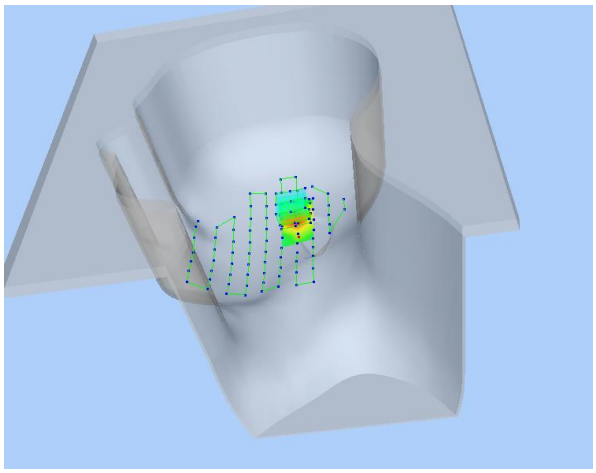
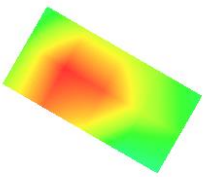
Maximum location: X=-2.00, Y=28.00

SAR Peak: 0.33 W/kg

SAR 10g (W/Kg)	0.090785
SAR 1g (W/Kg)	0.180401

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.3308	0.1946	0.0954	0.0464	0.0241



3D screen shot	Hot spot position
	

MEASUREMENT 11

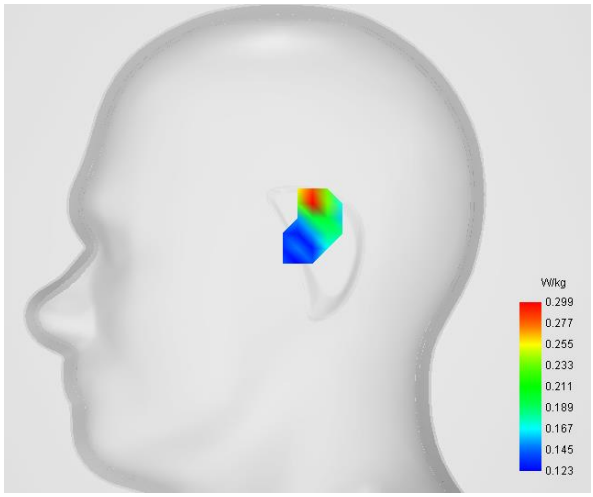
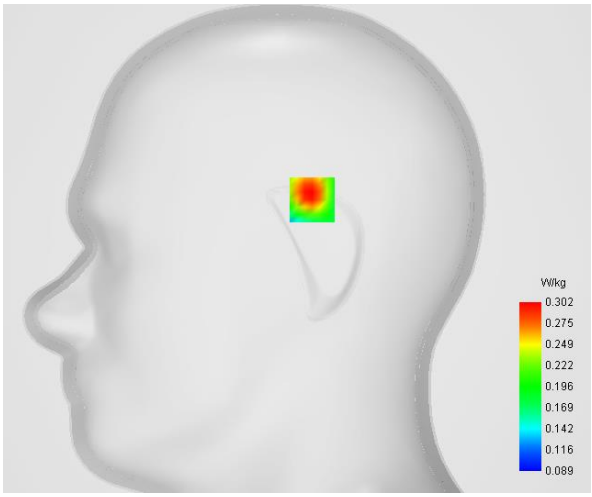
Date of measurement: 2021-04-22
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: 2.52; Calibrated: 2020-07-03

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Right Head
Device Position	Cheek
Band	WiFi_802.11a
Channels	Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

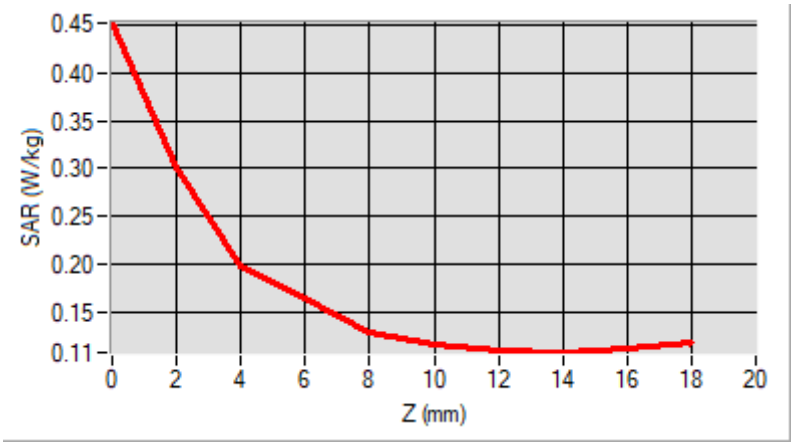
Frequency (MHz)	5745.000000
Relative Permittivity (real part)	47.362475
Conductivity (S/m)	6.098355
Power Variation (%)	-1.720000
Ambient Temperature	22.0
Liquid Temperature	22.0

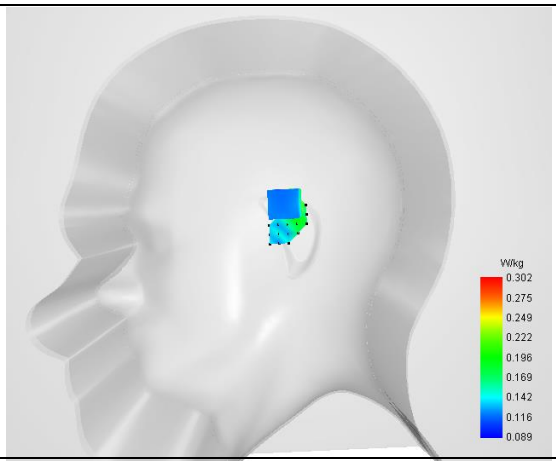
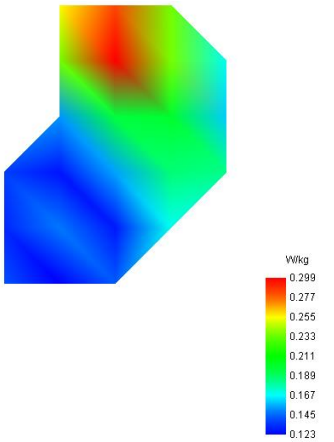
SURFACE SAR	VOLUME SAR
	

Maximum location: X=8.00, Y=26.0

SAR 10g (W/Kg)	0.198969
SAR 1g (W/Kg)	0.316708

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00
SAR (W/Kg)	0.4527	0.3019	0.1985	0.1638	0.1276	0.1143	0.1080	0.1068	0.1104



3D screen shot	Hot spot position
	

MEASUREMENT 12

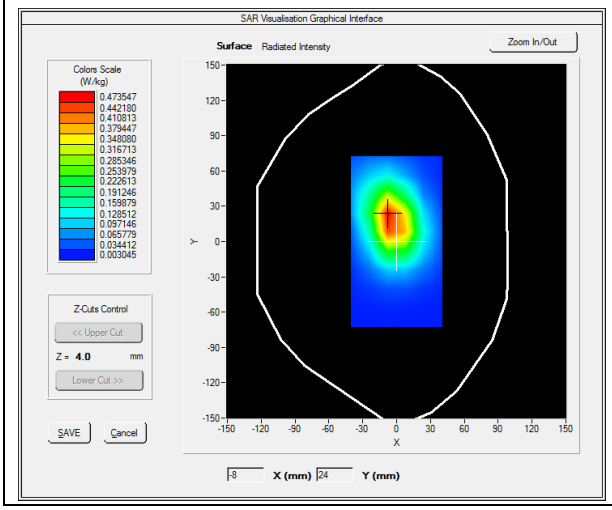
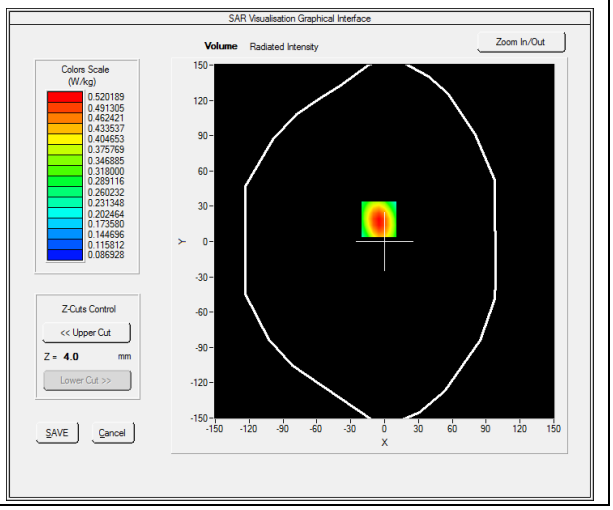
Date of measurement: 2021-03-22
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 2020-05-22

B. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat plane
Device Position	Bottom
Band	GPRS850_4TX
Channels	High
Signal	Duty Cycle: 1:1

B. SAR Measurement Results

Frequency (MHz)	848.800000
Relative Permittivity (real part)	42.250415
Conductivity (S/m)	0.894808
Power Variation (%)	1.210000
Ambient Temperature	22.8
Liquid Temperature	22.8

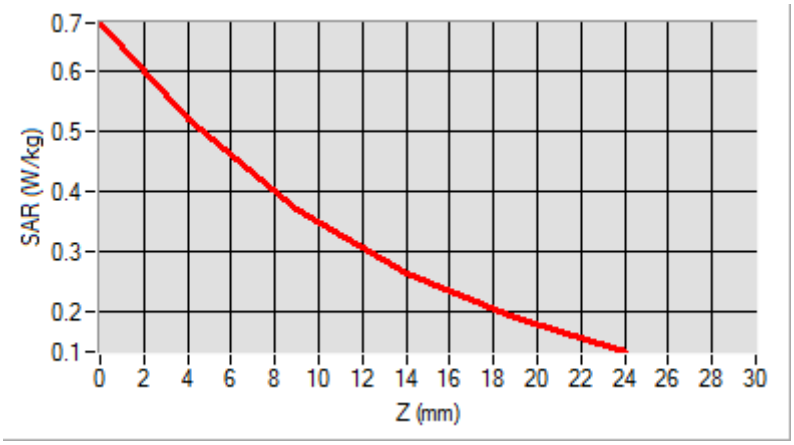
SURFACE SAR	VOLUME SAR
	

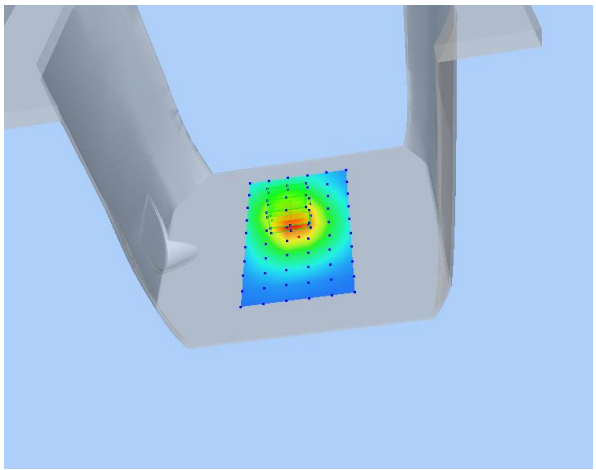
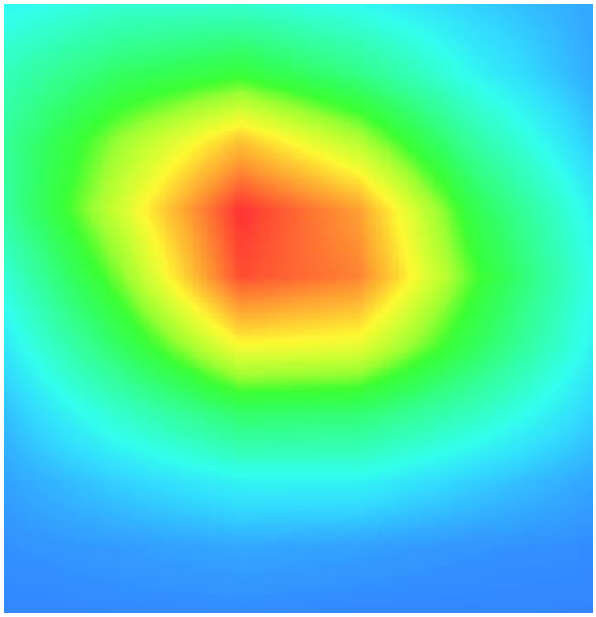
Maximum location: X=-5.00, Y=19.00

SAR Peak: 0.69 W/kg

SAR 10g (W/Kg)	**0.318267**
SAR 1g (W/Kg)	**0.487045**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.6819**	**0.5202**	**0.3690**	**0.2625**	**0.1878**



3D screen shot	**Hot spot position**
	

MEASUREMENT 13

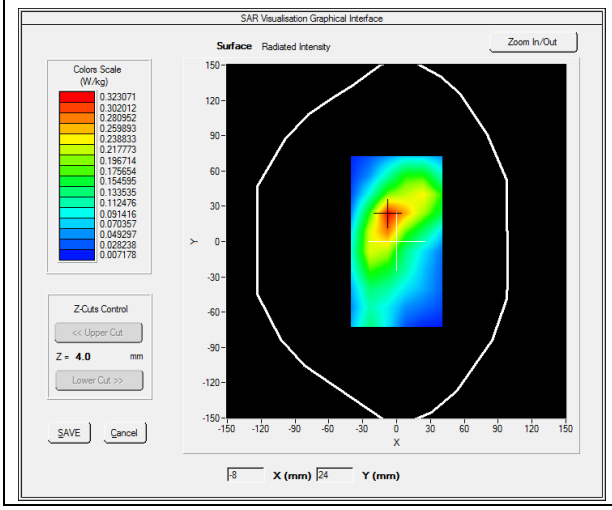
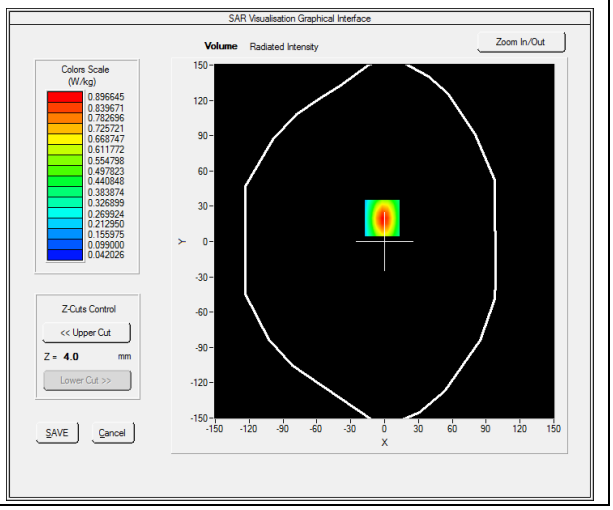
Date of measurement: 2021-03-19
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat plane
Device Position	Bottom
Band	GPRS1900_4TX
Channels	Middle
Signal	Duty Cycle: 1:1

B. SAR Measurement Results

Frequency (MHz)	1880.000000
Relative Permittivity (real part)	40.820039
Conductivity (S/m)	1.401248
Power Variation (%)	1.930000
Ambient Temperature	22.5
Liquid Temperature	22.5

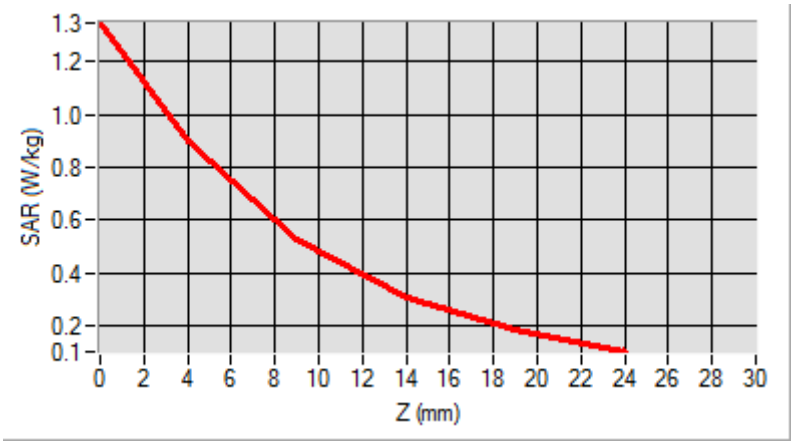
SURFACE SAR	VOLUME SAR
	

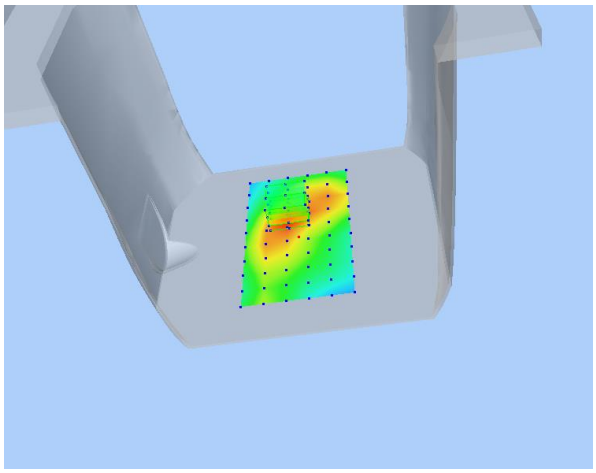
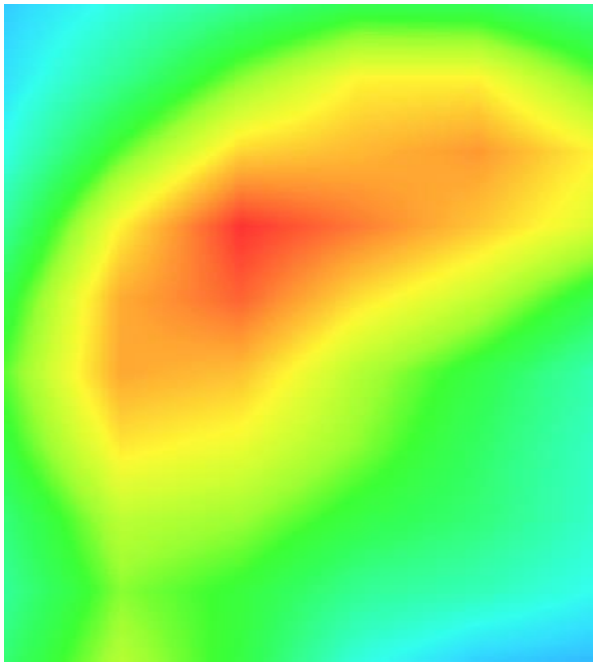
Maximum location: X=-2.00, Y=20.00

SAR Peak: 1.35 W/kg

SAR 10g (W/Kg)	0.439675
SAR 1g (W/Kg)	0.818452

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.3450	0.8966	0.5277	0.3090	0.1833



3D screen shot	Hot spot position
	

MEASUREMENT 14

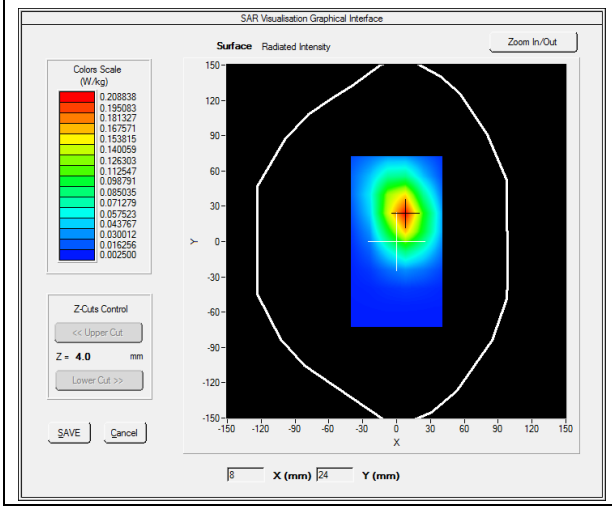
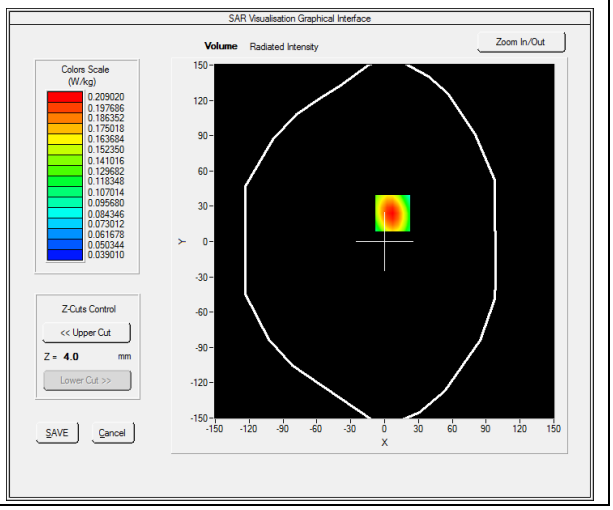
Date of measurement: 2021-03-22
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Bottom
Band	WCDMA850_RMC
Channels	Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	836.400000
Relative Permittivity (real part)	42.382156
Conductivity (S/m)	0.880439
Power Variation (%)	1.030000
Ambient Temperature	22.8
Liquid Temperature	22.8

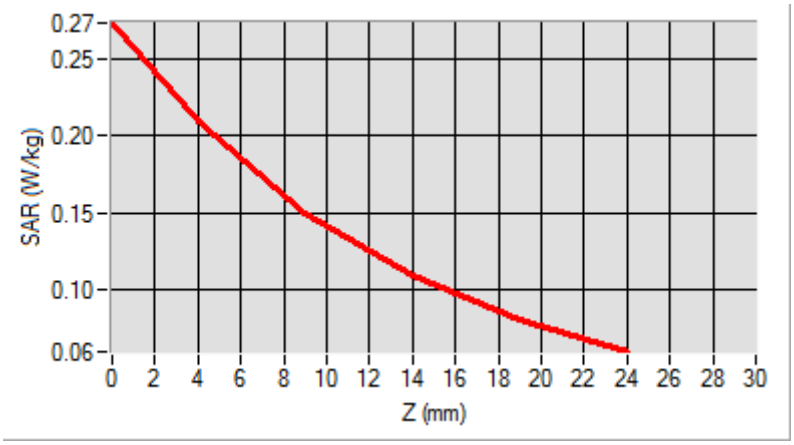
SURFACE SAR	VOLUME SAR
	

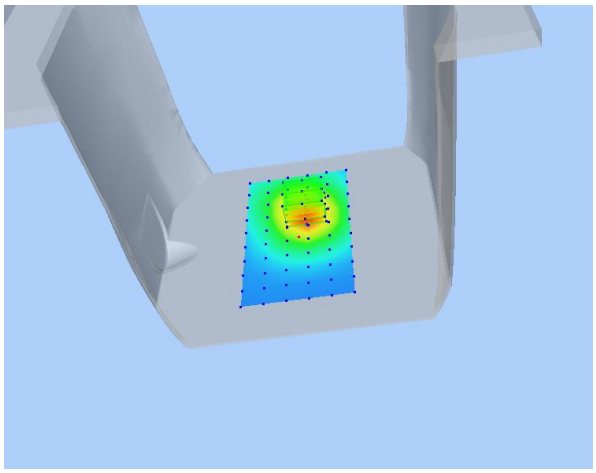
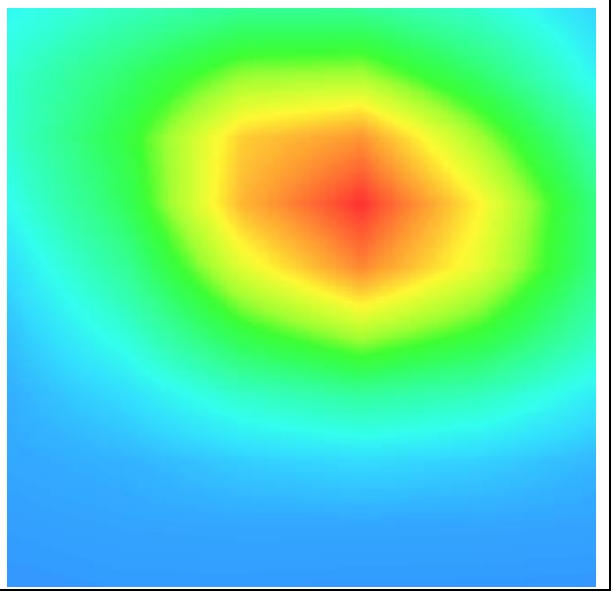
Maximum location: X=7.00, Y=24.00

SAR Peak: 0.27 W/kg

SAR 10g (W/Kg)	0.132366
SAR 1g (W/Kg)	0.196341

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2730	0.2090	0.1500	0.1093	0.0813



3D screen shot	Hot spot position
	

MEASUREMENT 15

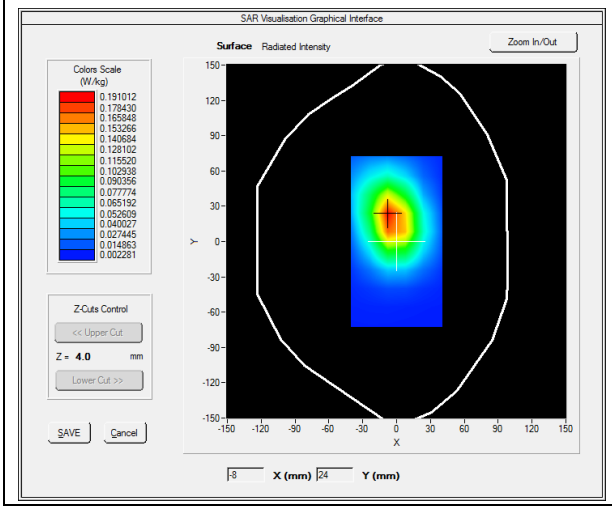
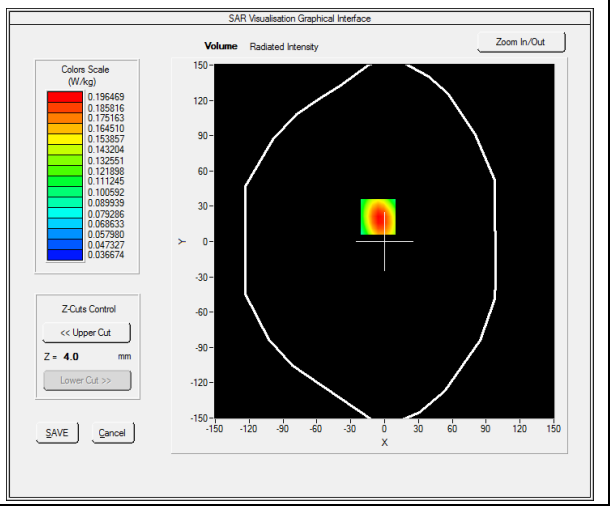
Date of measurement: 2021-03-22
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Bottom
Band	LTE Band 5
Channels	QPSK, 10MHz, 1RB, Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	829.000000
Relative Permittivity (real part)	42.382156
Conductivity (S/m)	0.880439
Power Variation (%)	0.380000
Ambient Temperature	22.8
Liquid Temperature	22.8

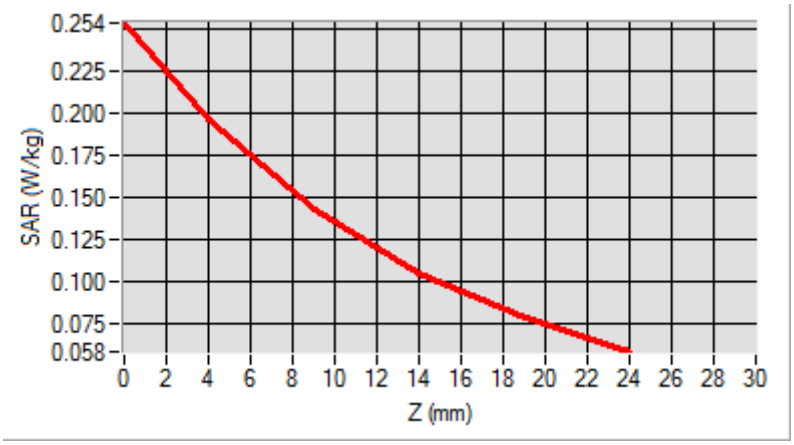
SURFACE SAR	VOLUME SAR
	

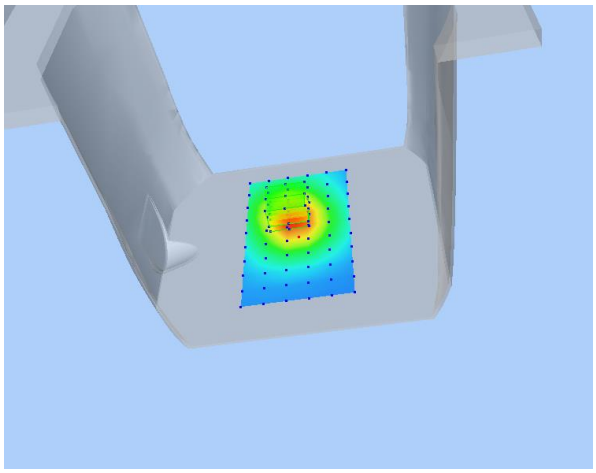
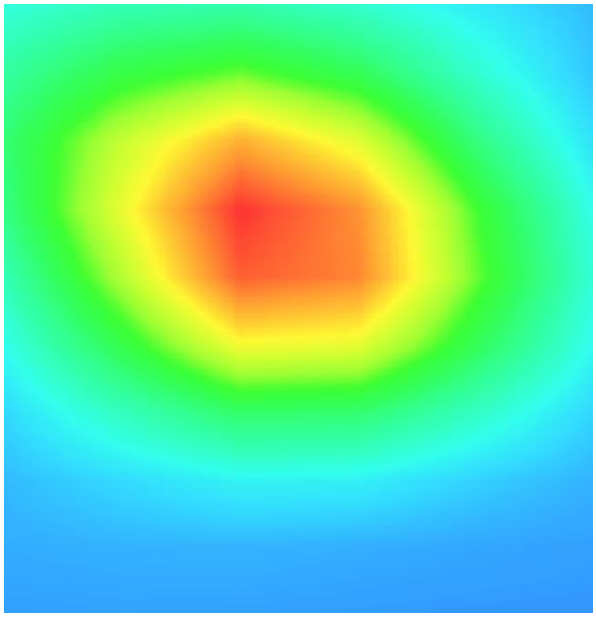
Maximum location: X=-6.00, Y=21.00

SAR Peak: 0.26 W/kg

SAR 10g (W/Kg)	**0.127162**
SAR 1g (W/Kg)	**0.186110**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.2541**	**0.1965**	**0.1426**	**0.1047**	**0.0782**



3D screen shot	**Hot spot position**
	

MEASUREMENT 16

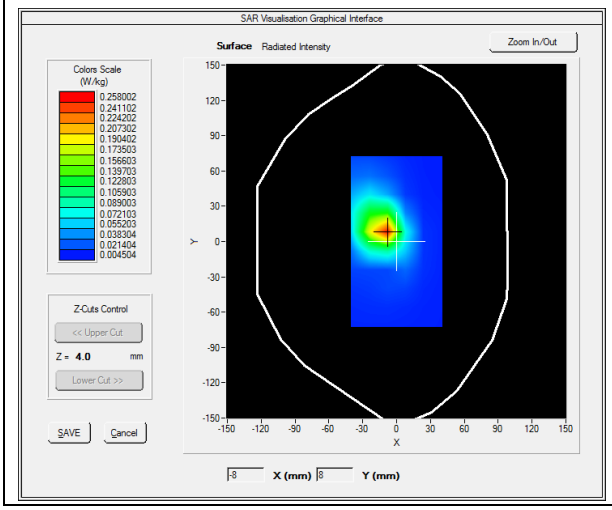
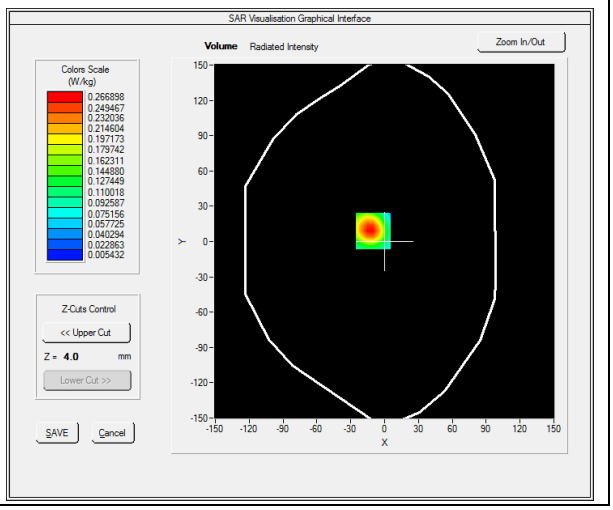
Date of measurement: 2021-03-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Bottom
Band	LTE Band 7
Channels	QPSK, 20MHz, 1RB, High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2560.000000
Relative Permittivity (real part)	38.943367
Conductivity (S/m)	1.952479
Power Variation (%)	-1.910000
Ambient Temperature	22.3
Liquid Temperature	22.3

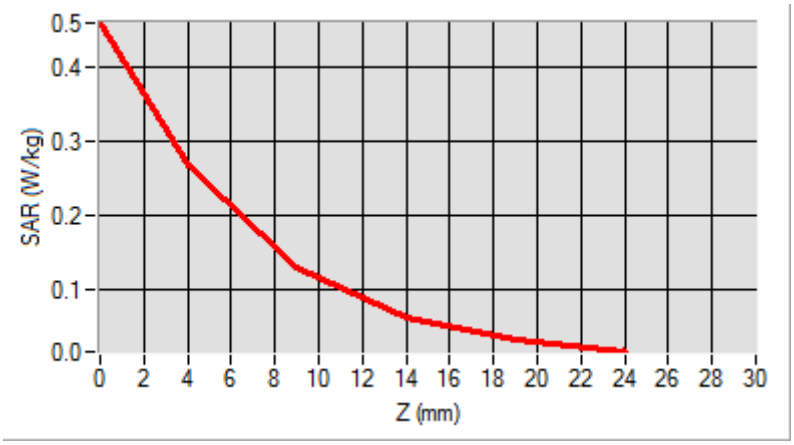
SURFACE SAR	VOLUME SAR
	

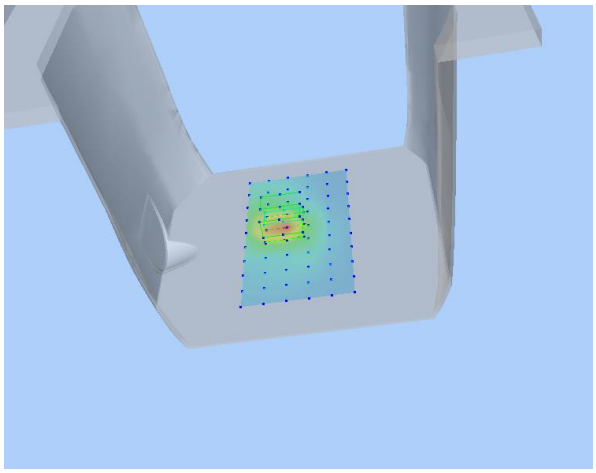
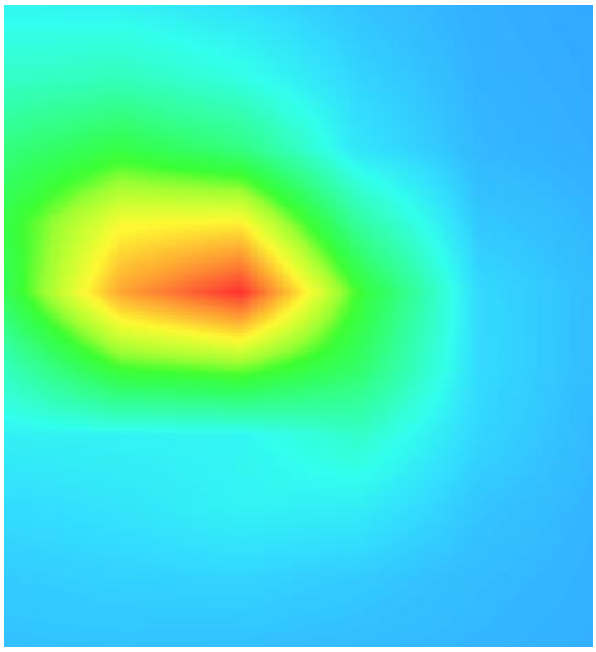
Maximum location: X=-10.00, Y=9.00

SAR Peak: 0.47 W/kg

SAR 10g (W/Kg)	0.121067
SAR 1g (W/Kg)	0.248590

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.4601	0.2669	0.1276	0.0599	0.0298



3D screen shot	Hot spot position
	

MEASUREMENT 17

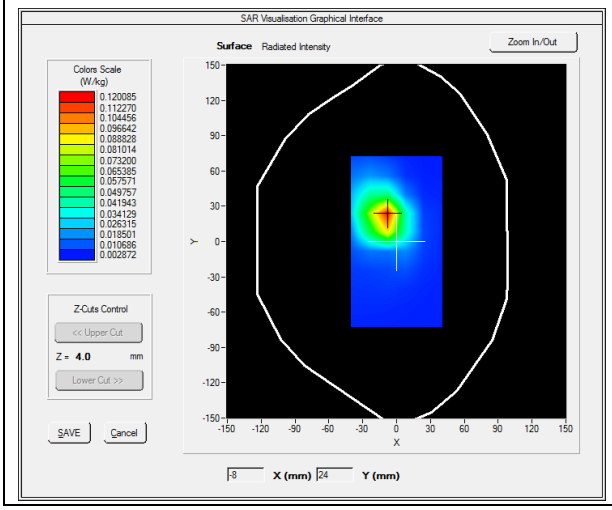
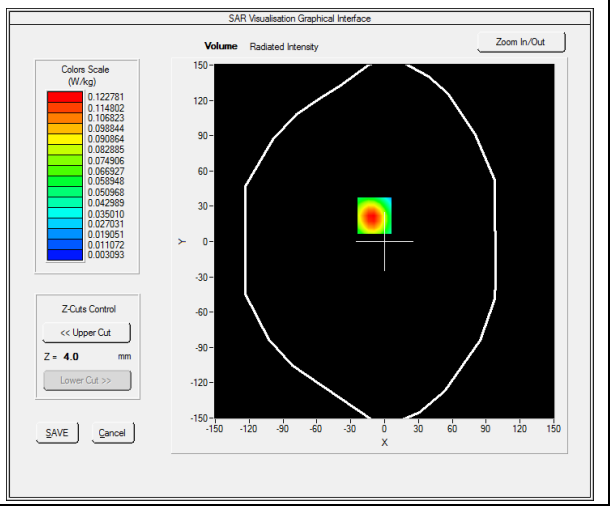
Date of measurement: 2021-03-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Bottom
Band	LTE Band 38
Channels	QPSK, 10MHz, 1RB,High
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2610.000000
Relative Permittivity (real part)	38.710562
Conductivity (S/m)	1.987214
Power Variation (%)	-1.640000
Ambient Temperature	22.3
Liquid Temperature	22.3

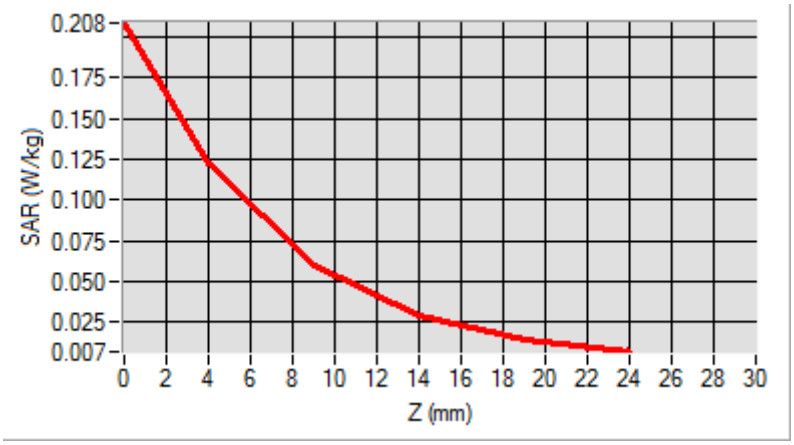
SURFACE SAR	VOLUME SAR
	

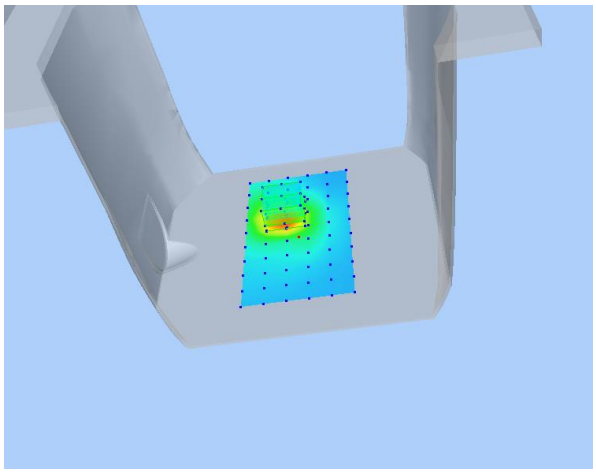
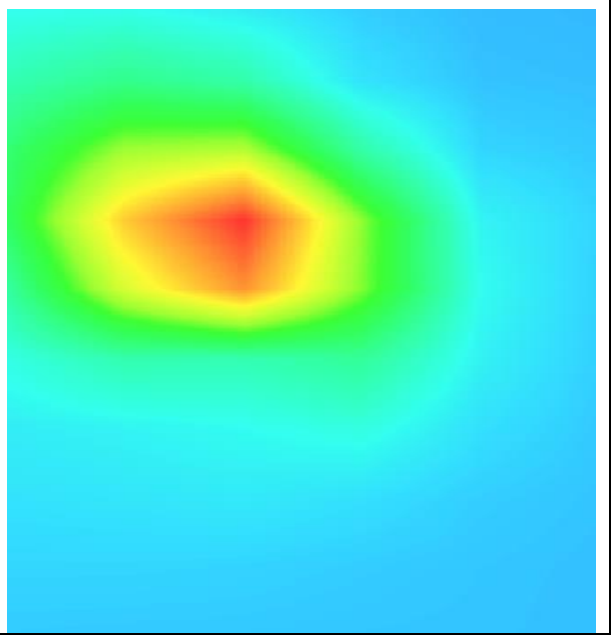
Maximum location: X=-9.00, Y=22.00

SAR Peak: 0.21 W/kg

SAR 10g (W/Kg)	**0.058185**
SAR 1g (W/Kg)	**0.116761**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.2083**	**0.1228**	**0.0602**	**0.0290**	**0.0146**



3D screen shot	**Hot spot position**
	

MEASUREMENT 18

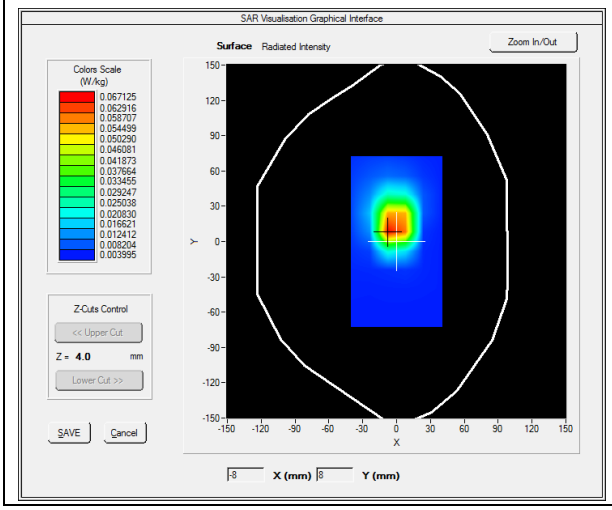
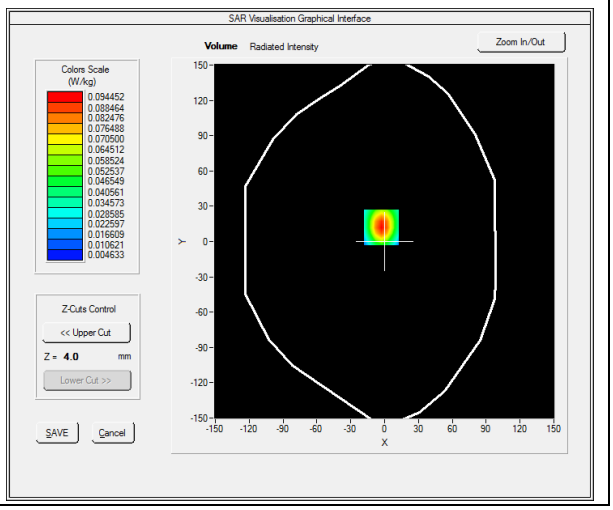
Date of measurement: 2021-03-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Bottom
Band	LTE Band 40a
Channels	QPSK, 10MHz, 1RB,Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2310.000000
Relative Permittivity (real part)	40.091372
Conductivity (S/m)	1.682191
Power Variation (%)	1.770000
Ambient Temperature	22.3
Liquid Temperature	22.3

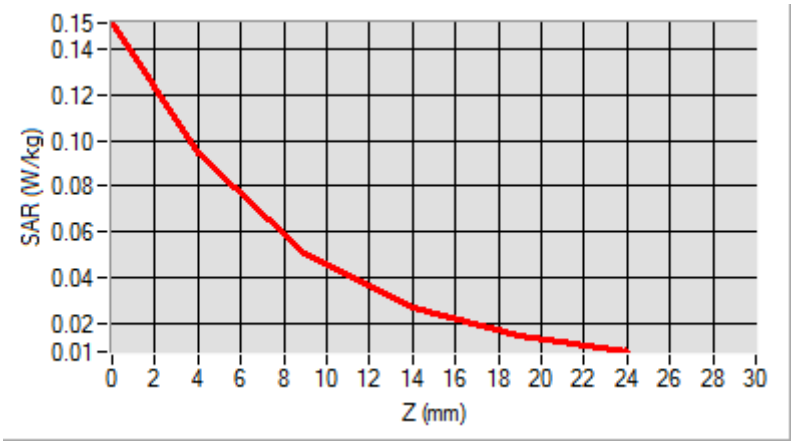
SURFACE SAR	VOLUME SAR
	

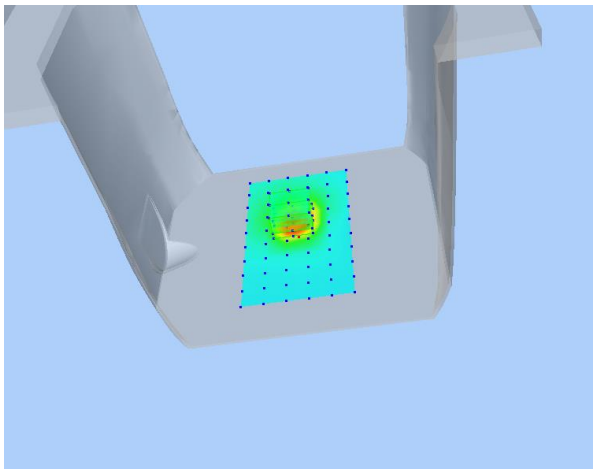
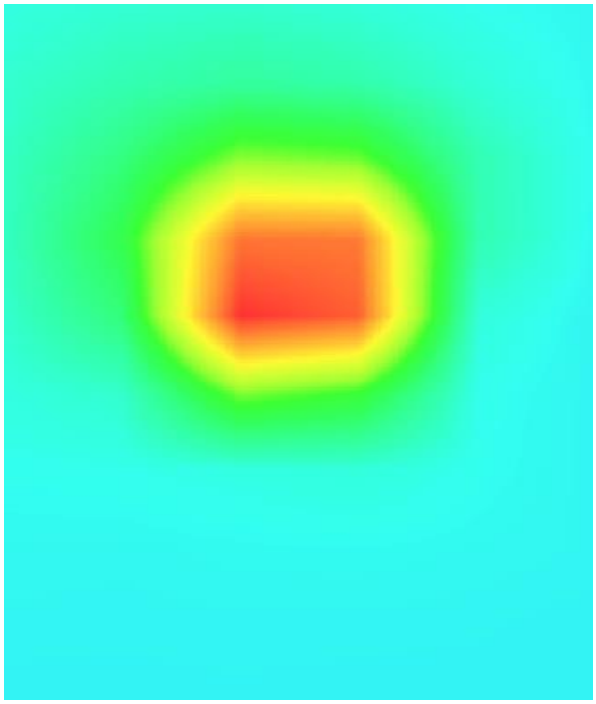
Maximum location: X=-3.00, Y=12.00

SAR Peak: 0.15 W/kg

SAR 10g (W/Kg)	0.043095
SAR 1g (W/Kg)	0.085689

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.1513	0.0945	0.0506	0.0269	0.0148



3D screen shot	Hot spot position
	

MEASUREMENT 19

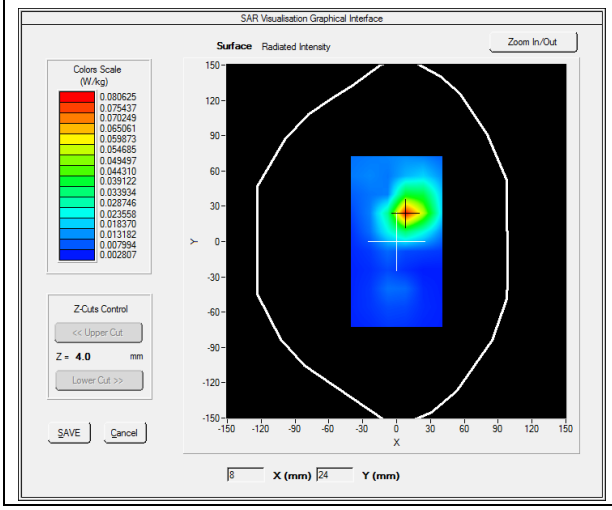
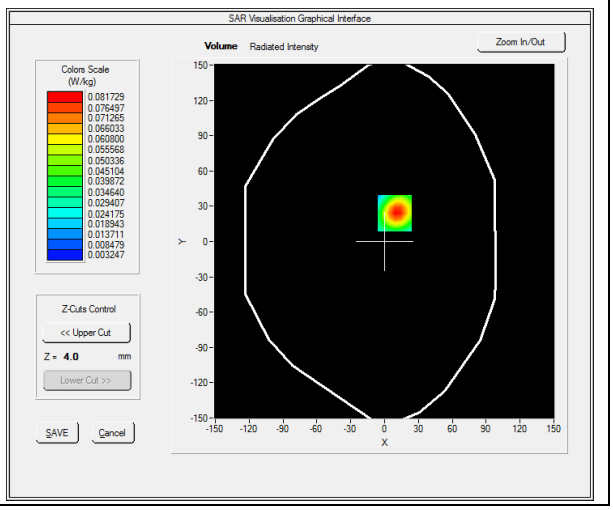
Date of measurement: 2021-04-28
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Bottom
Band	LTE Band 40b
Channels	QPSK, 10MHz, 1RB,Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2355.000000
Relative Permittivity (real part)	40.521876
Conductivity (S/m)	1.730245
Power Variation (%)	-1.130000
Ambient Temperature	22.3
Liquid Temperature	22.3

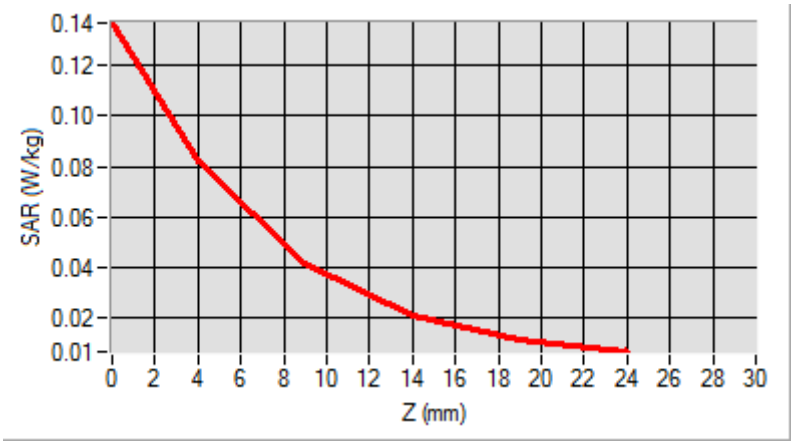
SURFACE SAR	VOLUME SAR
	

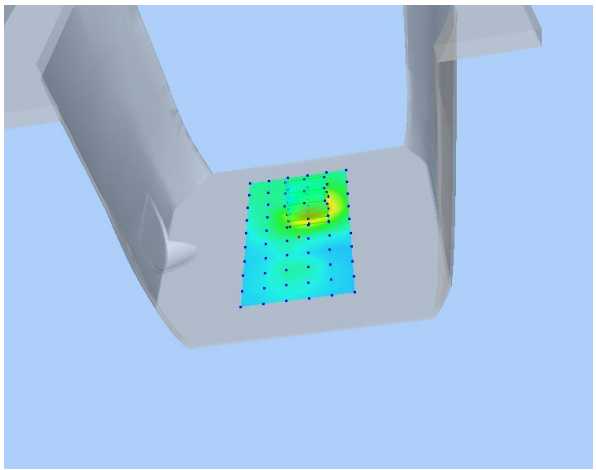
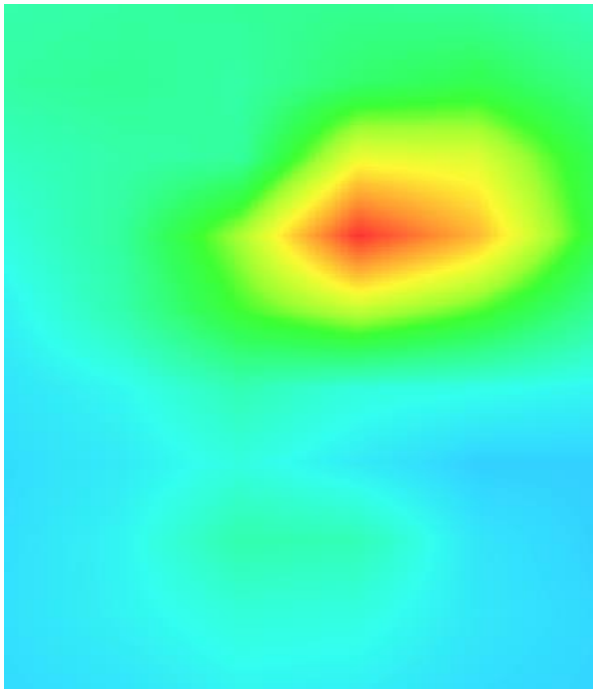
Maximum location: X=9.00, Y=24.00

SAR Peak: 0.14 W/kg

SAR 10g (W/Kg)	**0.038797**
SAR 1g (W/Kg)	**0.077262**

Z (mm)	**0.00**	**4.00**	**9.00**	**14.00**	**19.00**
SAR (W/Kg)	**0.1366**	**0.0817**	**0.0414**	**0.0212**	**0.0119**



3D screen shot	**Hot spot position**
	

MEASUREMENT 20

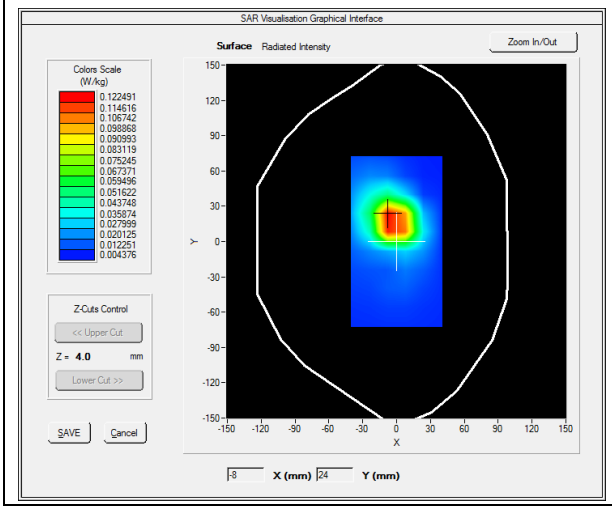
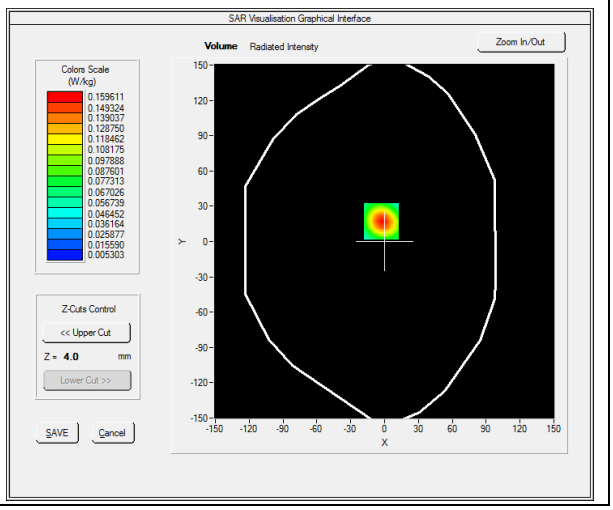
Date of measurement: 2021-03-24
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Bottom
Band	LTE Band 41
Channels	QPSK, 20MHz, 1RB, Middle
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2605.00000
Relative Permittivity (real part)	38.710562
Conductivity (S/m)	1.987214
Power Variation (%)	-0.500000
Ambient Temperature	22.3
Liquid Temperature	22.3

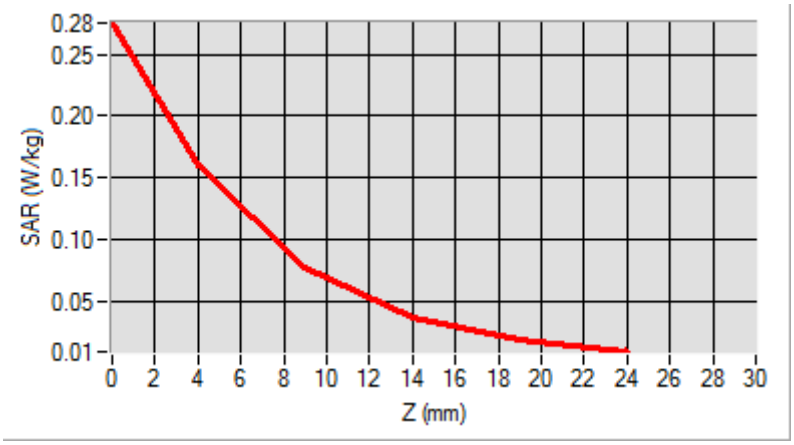
SURFACE SAR	VOLUME SAR
	

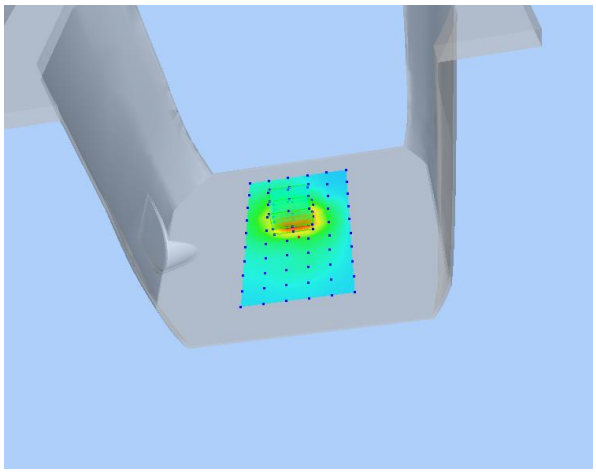
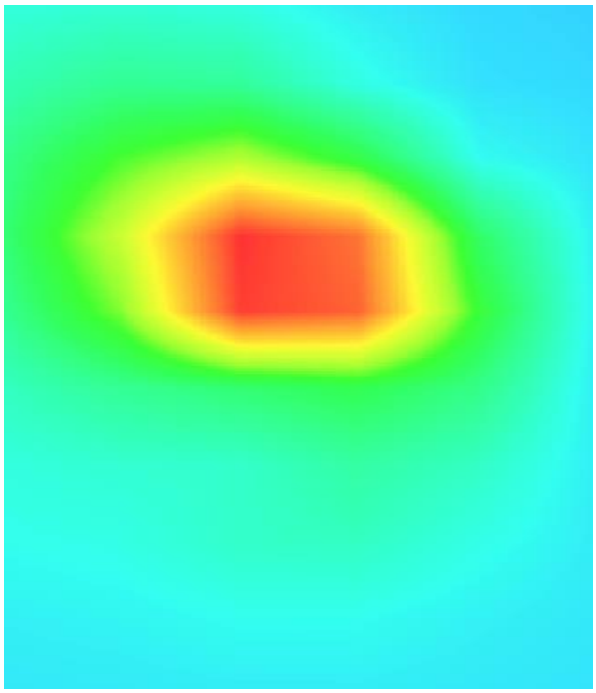
Maximum location: X=-3.00, Y=17.00

SAR Peak: 0.27 W/kg

SAR 10g (W/Kg)	0.071874
SAR 1g (W/Kg)	0.146317

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2753	0.1596	0.0762	0.0357	0.0177



3D screen shot	Hot spot position
	

MEASUREMENT 21

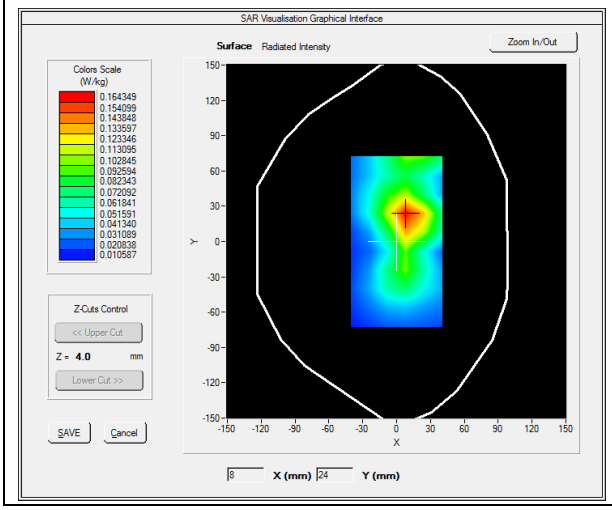
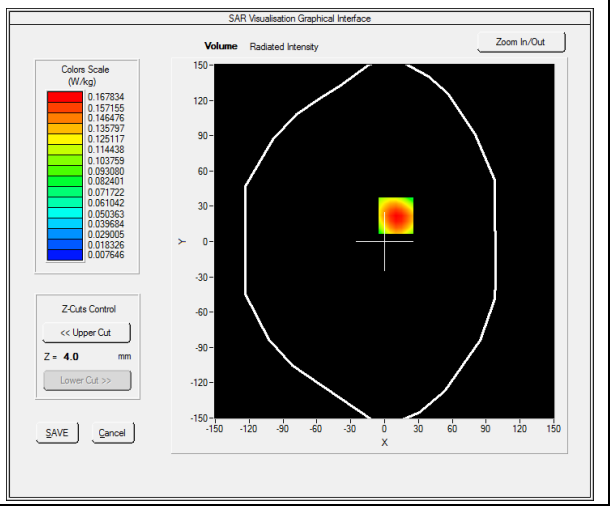
Date of measurement: 2021-04-23
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 2020-05-22

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Back
Band	WiFi_802.11b
Channels	Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

Frequency (MHz)	2412.000000
Relative Permittivity (real part)	40.023927
Conductivity (S/m)	1.796182
Power Variation (%)	0.260000
Ambient Temperature	22.5
Liquid Temperature	22.5

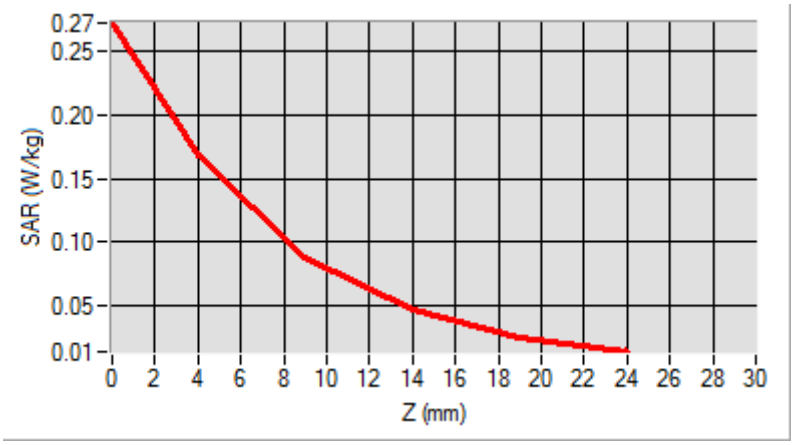
SURFACE SAR	VOLUME SAR
	

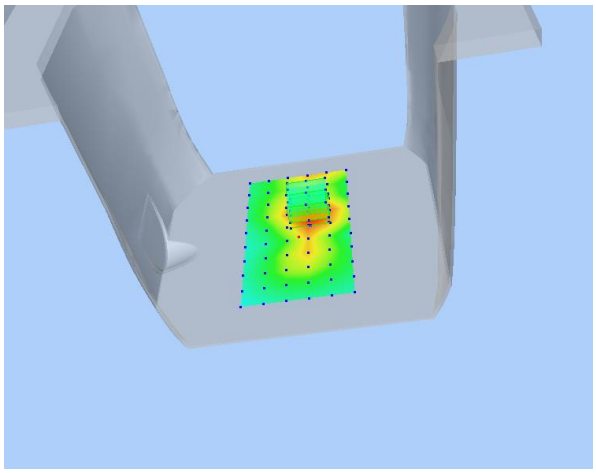
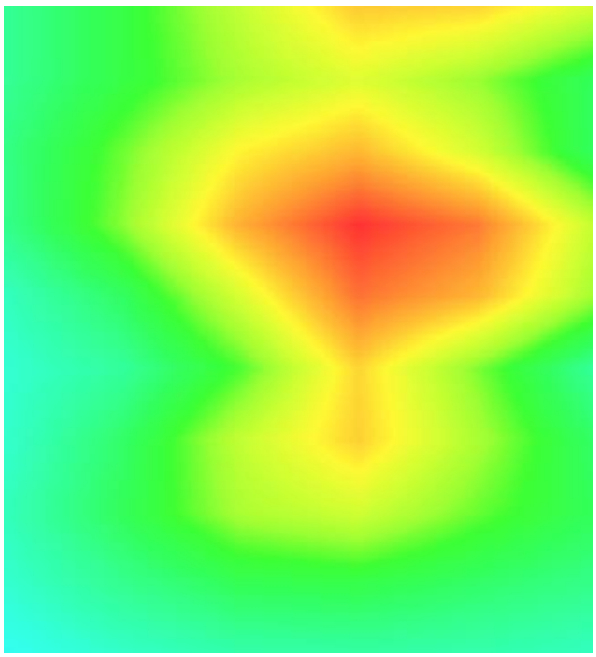
Maximum location: X=10.00, Y=22.00

SAR Peak: 0.27 W/kg

SAR 10g (W/Kg)	0.087431
SAR 1g (W/Kg)	0.158382

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.2725	0.1678	0.0882	0.0463	0.0255



3D screen shot	Hot spot position
	

MEASUREMENT 22

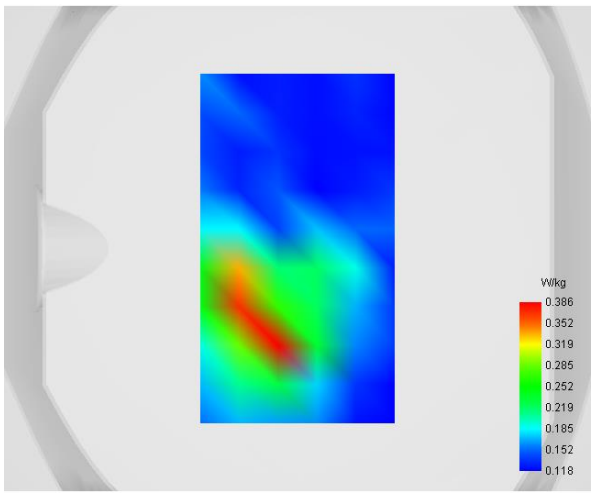
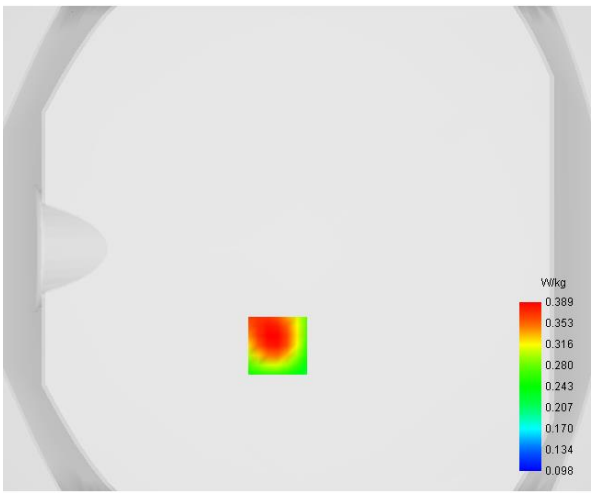
Date of measurement: 2021-04-22
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE2 - SN 45/15 EPGO280; ConvF: 2.52; Calibrated: 2020-07-03

A. Experimental conditions

Area Scan	dx=8mm dy=8mm
Phantom	Flat Plane
Device Position	Back
Band	WiFi_802.11a
Channels	Low
Signal	Duty Cycle 1:1

B. SAR Measurement Results

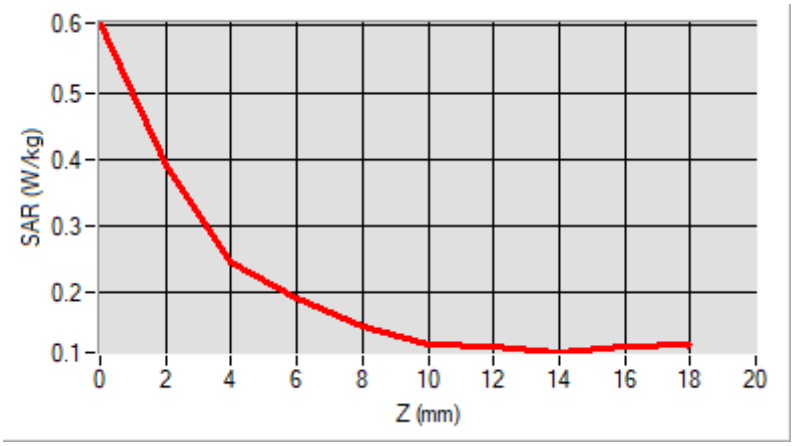
Frequency (MHz)	5745.000000
Relative Permittivity (real part)	47.362475
Conductivity (S/m)	6.098355
Power Variation (%)	-1.150000
Ambient Temperature	22.0
Liquid Temperature	22.0

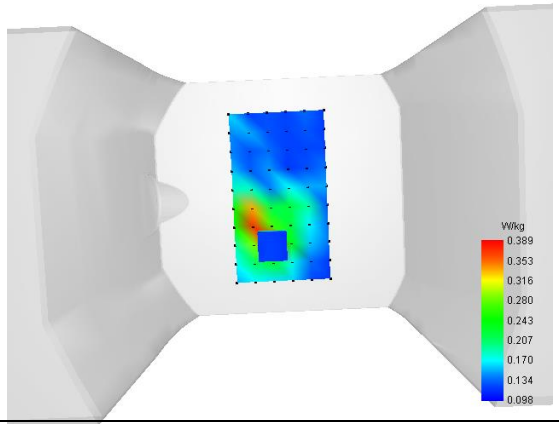
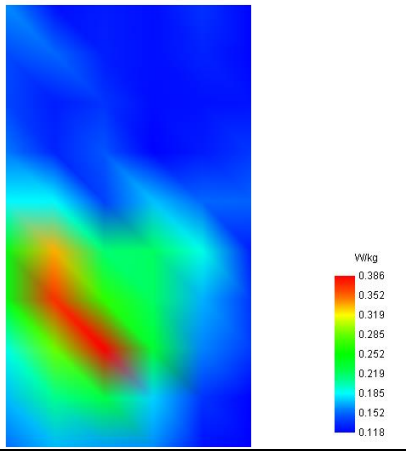
SURFACE SAR	VOLUME SAR
	

Maximum location: X=-8.00, Y=-40.00

SAR 10g (W/Kg)	0.197179
SAR 1g (W/Kg)	0.300987

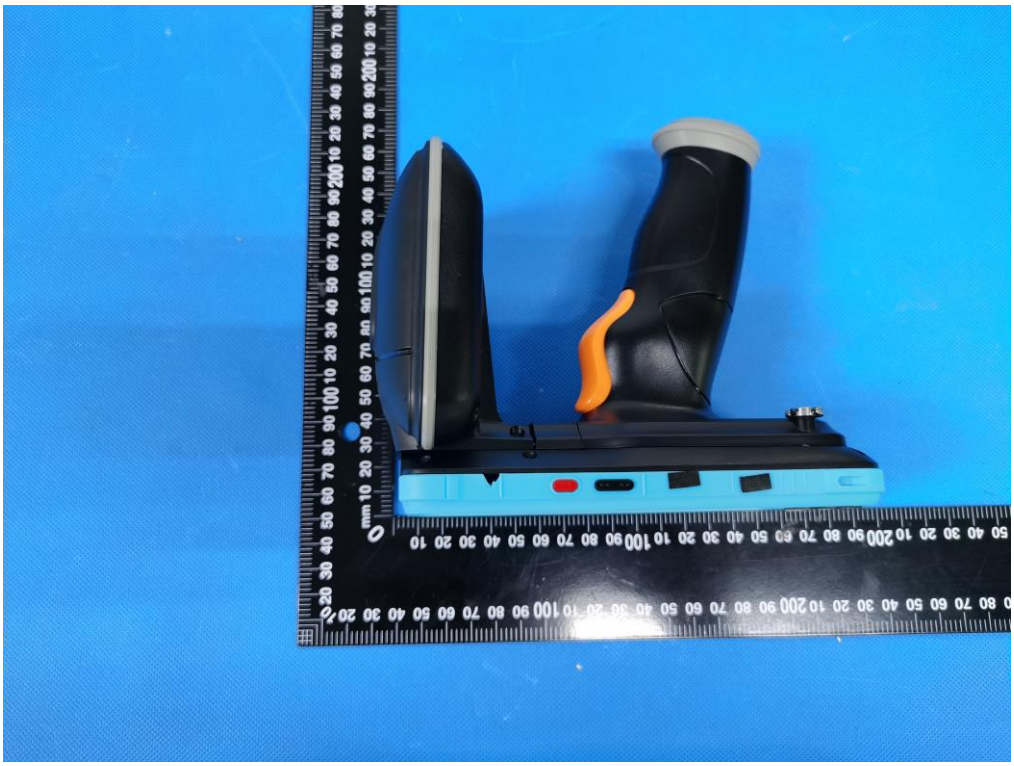
Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00
SAR (W/Kg)	0.6044	0.3894	0.2442	0.1911	0.1497	0.1221	0.1191	0.1101	0.1179



3D screen shot	Hot spot position
	

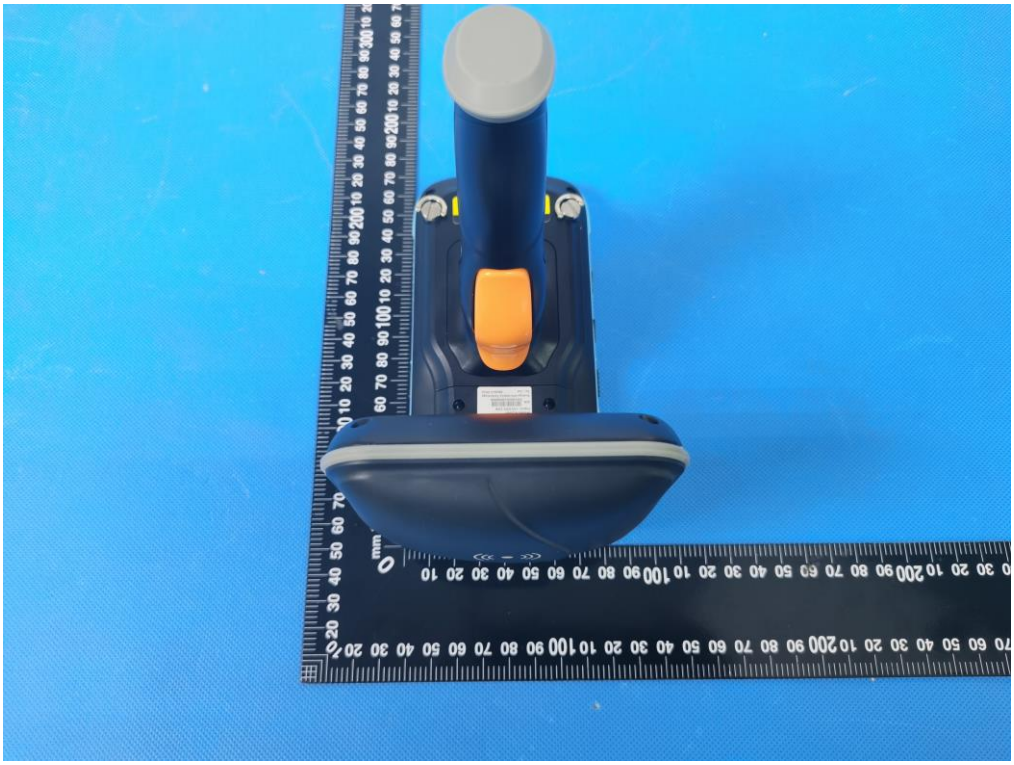
Annex C. EUT Photos

EUT View 1



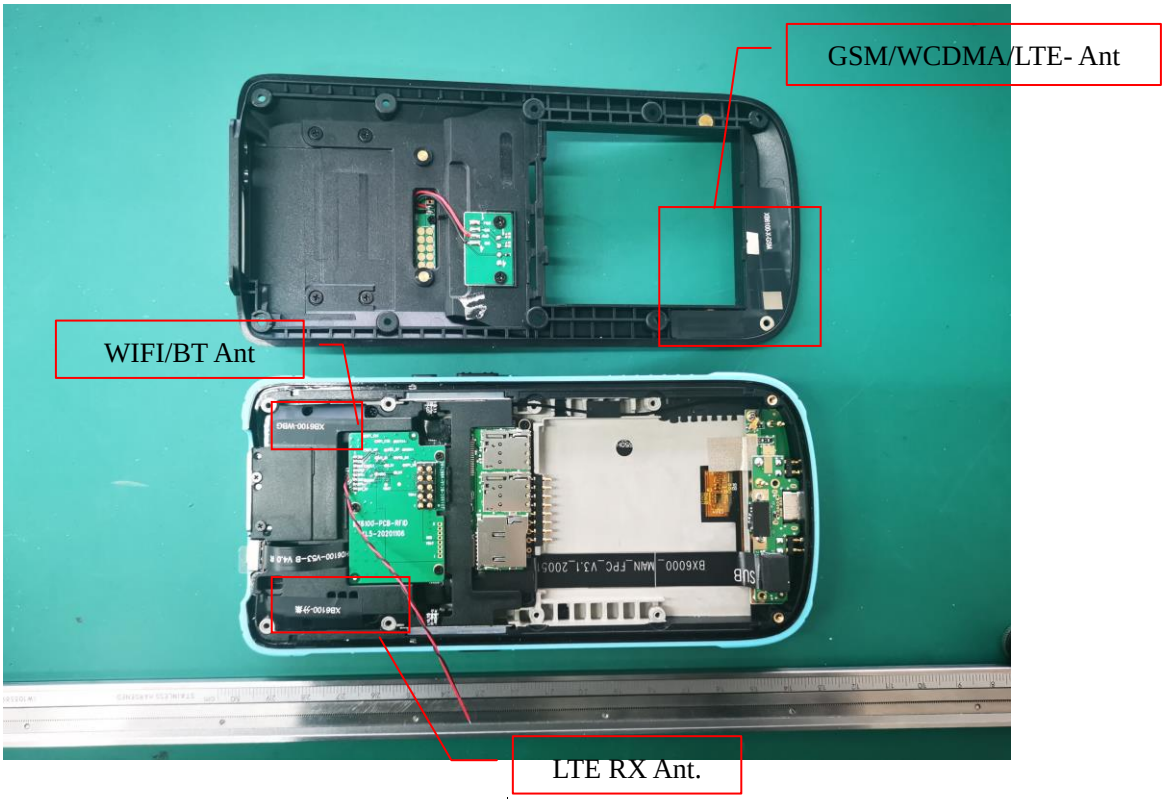
EUT View 2

EUT View 3



EUT View 4

Antenna View

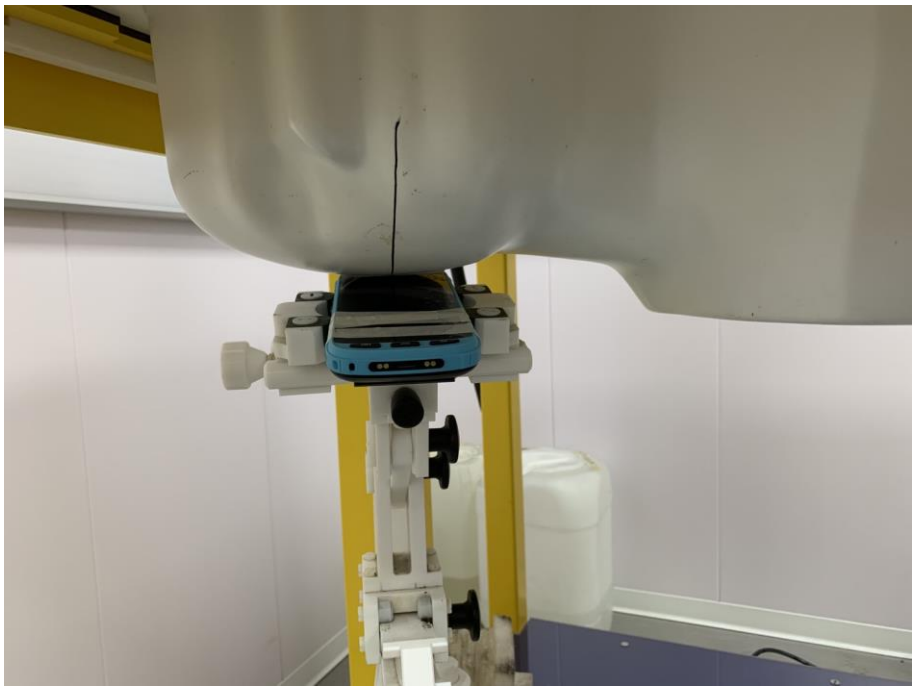


Annex D. Test Setup Photos

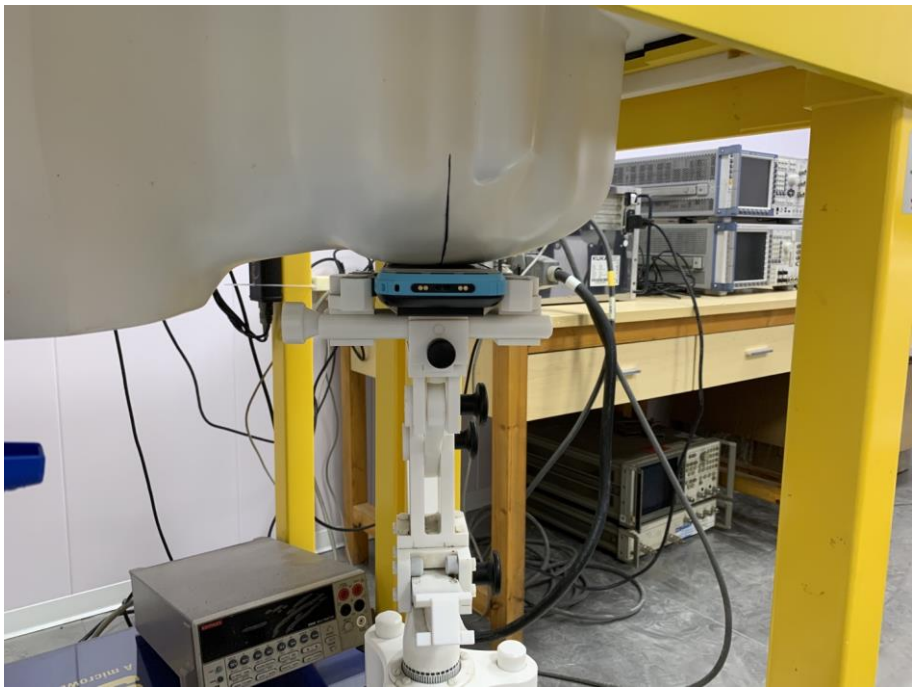
Head Exposure Conditions

Right Cheek

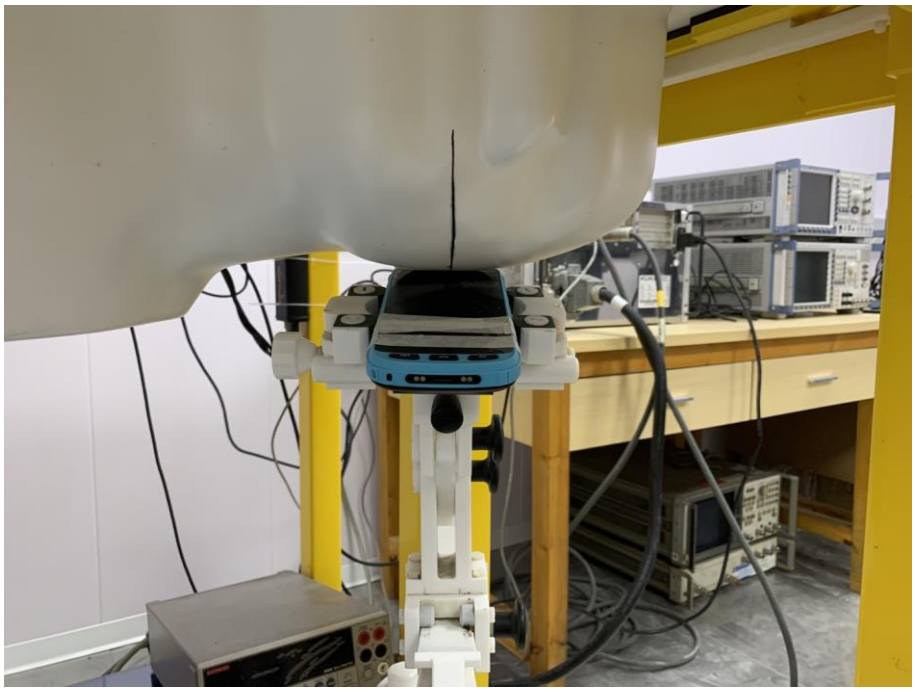
Right Tilt



Left Cheek

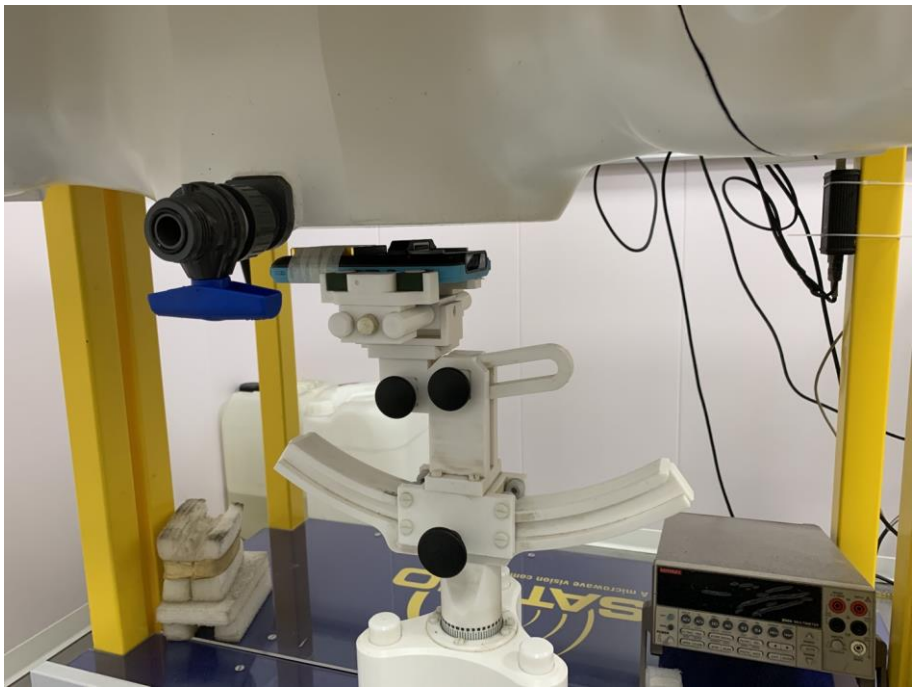


Left Tilt



Body mode Exposure Conditions
Test distance: 10mm

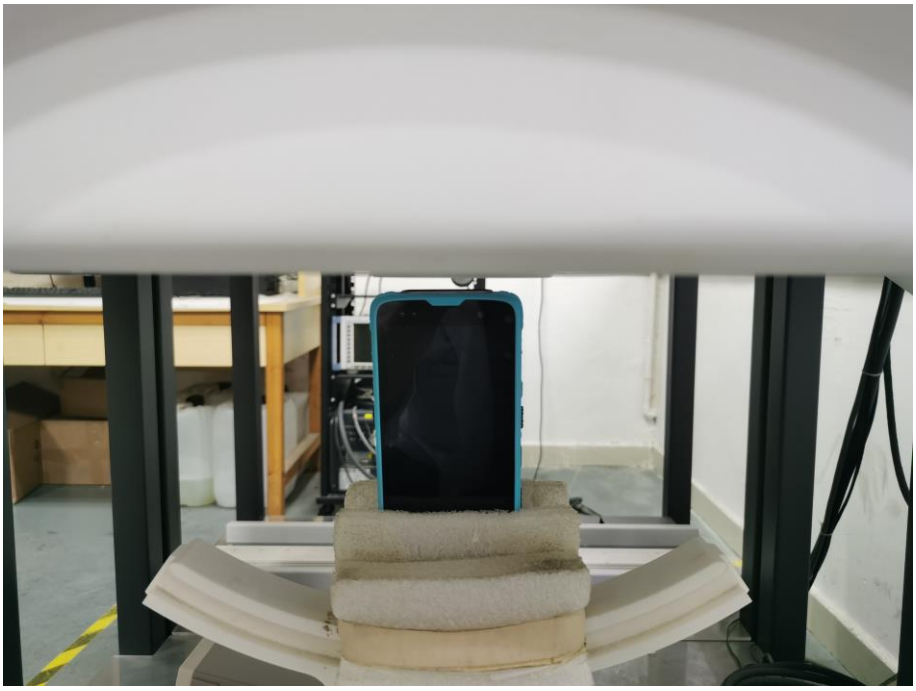
Body Back



Body Front

Body Left

Body Top



Body Bottom

Annex E. Calibration Certificate

Please refer to the exhibit for the calibration certificate

******* END OF REPORT *******