

### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

### Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.9 ± 6 %	1.88 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>52.5 W/kg ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.24 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	<b>24.5 W/kg ± 16.5 % (k=2)</b>

### Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.4 ± 6 %	2.03 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.3 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>52.1 W/kg ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	<b>24.4 W/kg ± 16.5 % (k=2)</b>

**Appendix (Additional assessments outside the scope of SCS 0108)**

**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	49.8 $\Omega$ + 4.4 j $\Omega$
Return Loss	- 27.2 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	52.3 $\Omega$ + 1.5 j $\Omega$
Return Loss	- 31.4 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.162 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	November 10, 2009

## DASY5 Validation Report for Head TSL

Date: 24.07.2015

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:853**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.88$  S/m;  $\epsilon_r = 37.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.54, 4.54, 4.54); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

### Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.4 V/m; Power Drift = 0.04 dB

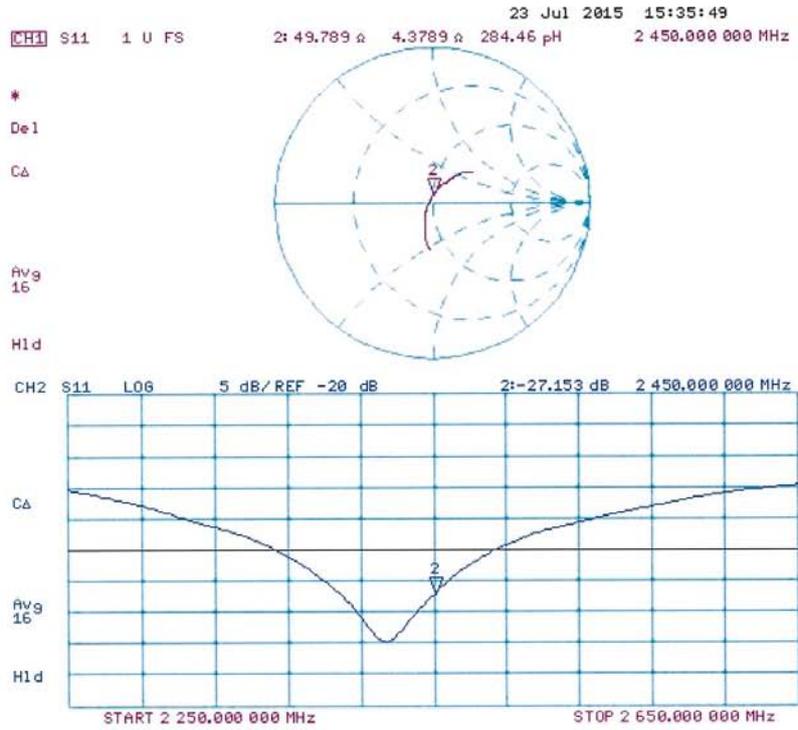
Peak SAR (extrapolated) = 27.9 W/kg

**SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.24 W/kg**

Maximum value of SAR (measured) = 17.7 W/kg



Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body TSL

Date: 24.07.2015

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:853**

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.03$  S/m;  $\epsilon_r = 52.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.32, 4.32, 4.32); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

### Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

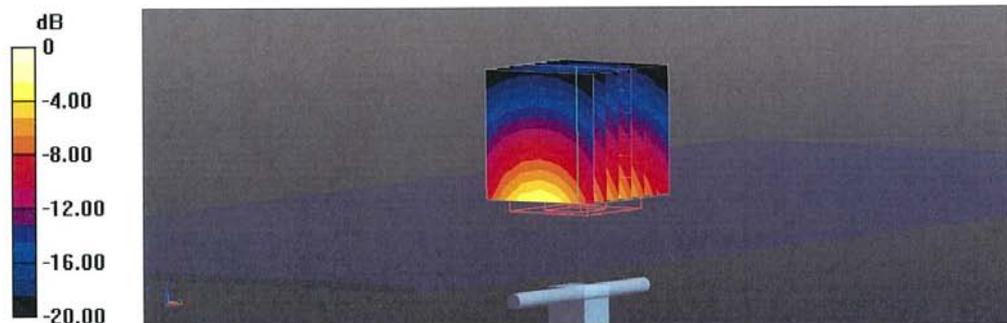
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.79 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 27.5 W/kg

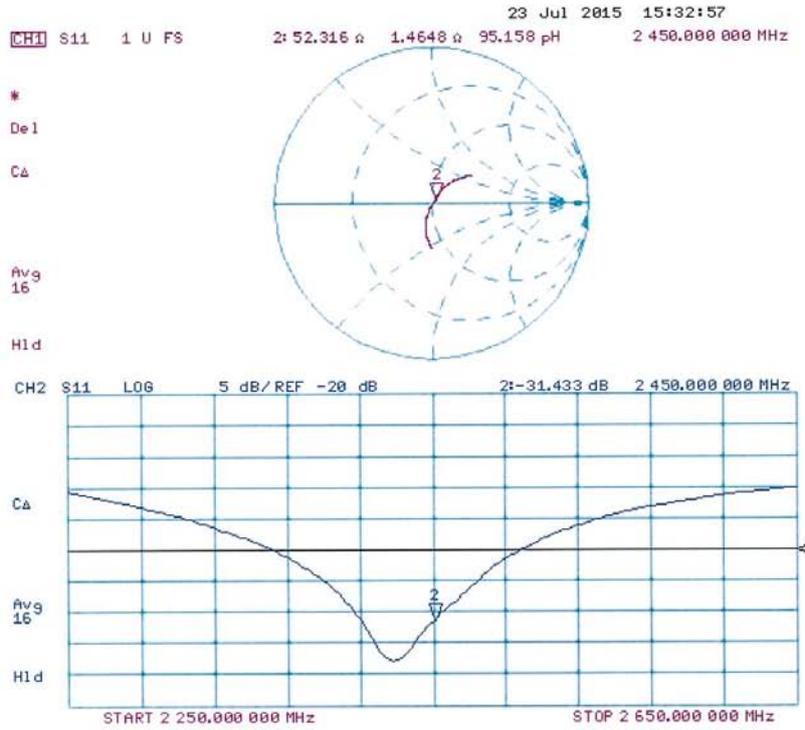
**SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.16 W/kg**

Maximum value of SAR (measured) = 17.6 W/kg



0 dB = 17.6 W/kg = 12.46 dBW/kg

Impedance Measurement Plot for Body TSL



## ANNEX I SPOT CHECK TEST

As the test lab for 4017S from TCL Communication Ltd, we, CTTL (Shouxiang), declare on our sole responsibility that, according to “Declaration of changes” provided by applicant, only the Spot check test should be performed. The test results are as below.

### I.1 Conducted power of selected case

**Table I.1: The conducted power results for GSM850/1900**

GSM 850MHz	Conducted Power (dBm)		
	Channel 251(848.8MHz)	Channel 190(836.6MHz)	Channel 128(824.2MHz)
	31.33	\	\
GSM 1900MHz	Conducted Power (dBm)		
	Channel 810(1909.8MHz)	Channel 661(1880MHz)	Channel 512(1850.2MHz)
	\	\	29.63

**Table I.2: The conducted power results for GPRS**

GSM 850 GPRS (GMSK)	Measured Power (dBm)		
	251	190	128
3 Txslots	29.17	\	\
PCS1900 GPRS (GMSK)	Measured Power (dBm)		
	810	661	512
2 Txslots	28.99	\	\

## I.2 Measurement results

**Table I.2-1: SAR Values (GSM 850 MHz Band - Head)**

Ambient Temperature: 23.0 °C						Liquid Temperature: 22.5 °C					
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
824.2	128	Left	Touch	Fig.1	31.33	32	0.466	<b>0.54</b>	0.61	<b>0.71</b>	0.09

**Table I.2-2: SAR Values (GSM 850 MHz Band - Body)**

Ambient Temperature: 23.0 °C						Liquid Temperature: 22.5 °C					
Frequency		Mode (number of timeslots)	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
848.8	251	GPRS (3)	Rear	Fig.2	29.17	29.5	0.314	<b>0.34</b>	0.429	<b>0.46</b>	-0.04

**Table I.2-3: SAR Values (GSM 1900 MHz Band - Head)**

Ambient Temperature: 23.0 °C						Liquid Temperature: 22.5 °C					
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1850.2	512	Left	Touch	Fig.3	29.63	30	0.199	<b>0.22</b>	0.335	<b>0.36</b>	0.11

**Table I.2-4: SAR Values (GSM 1900 MHz Band - Body)**

Ambient Temperature: 23.0 °C						Liquid Temperature: 22.5 °C					
Frequency		Mode (number of timeslots)	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1909.8	810	GPRS (2)	Rear	Fig.4	28.99	29	0.187	<b>0.19</b>	0.317	<b>0.32</b>	-0.04

## I.3 Reported SAR Comparison

Exposure Configuration	Technology Band	Reported SAR 1g (W/Kg): spot check	Reported SAR 1g (W/Kg): original
Head (Separation Distance 0mm)	GSM 850	0.71	0.82
	PCS 1900	0.36	0.33
Hotspot (Separation Distance 10mm)	GSM 850	0.46	0.69
	PCS 1900	0.32	0.58

**Note: The spot check results of PCS 1900(Head) is larger than the original result, the spot check results replace the original results and others are quoted.**

### 850 Left Cheek Low

Date: 2016-04-02

Electronics: DAE4 Sn777

Medium: Head 850 MHz

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.864$  mho/m;  $\epsilon_r = 41.449$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.0°C      Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 - SN3617 ConvF(9.58, 9.58, 9.58)

**Area Scan (61x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.691 W/kg

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

Reference Value = 7.466 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.840 W/kg

**SAR(1 g) = 0.610 W/kg; SAR(10 g) = 0.446 W/kg**

Maximum value of SAR (measured) = 0.639 W/kg

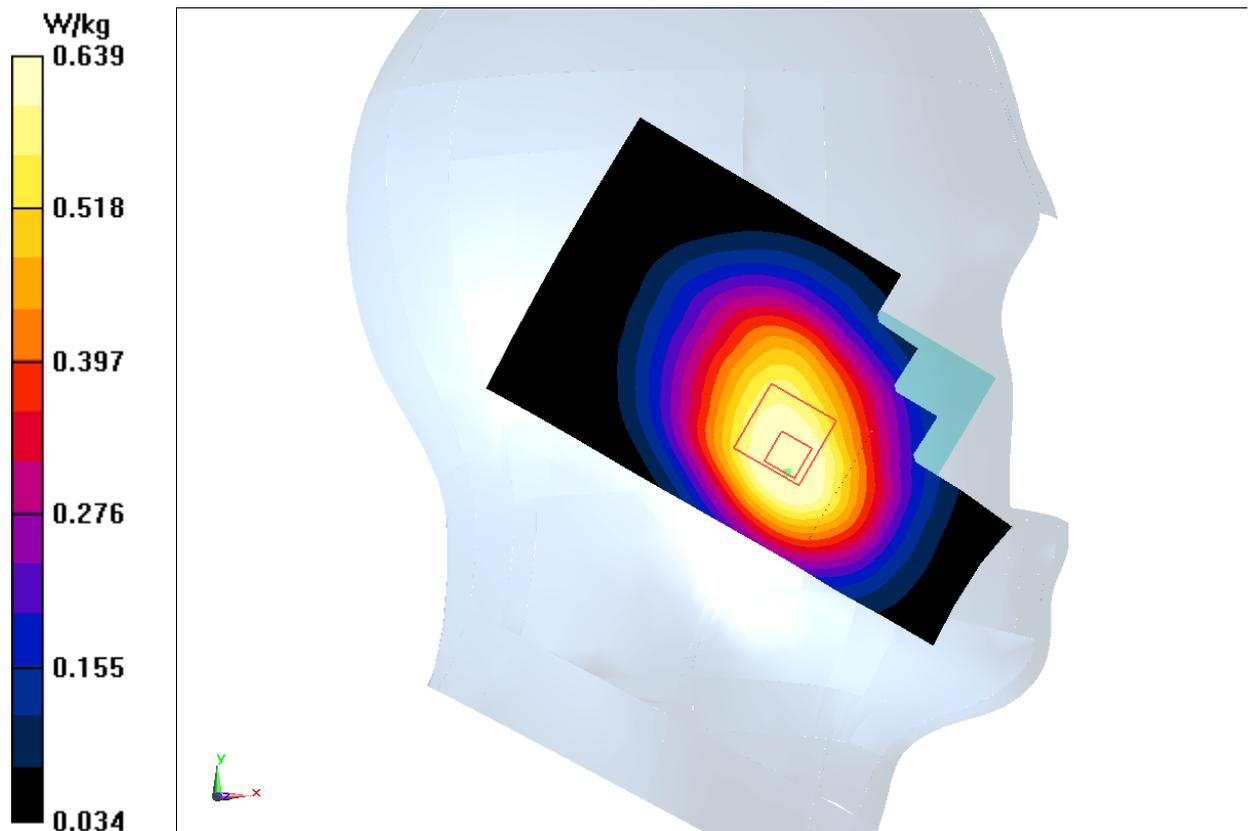


Fig.1 850MHz

### 850 Body Rear High

Date: 2016-04-02

Electronics: DAE4 Sn777

Medium: Body 850 MHz

Medium parameters used (interpolated):  $f = 848.8$  MHz;  $\sigma = 0.956$  mho/m;  $\epsilon_r = 56.311$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.0°C      Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2.67

Probe: EX3DV4 - SN3617 ConvF(9.71, 9.71, 9.71)

**Area Scan (101x61x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.485 W/kg

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

Reference Value = 18.61 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.551 W/kg

**SAR(1 g) = 0.429 W/kg; SAR(10 g) = 0.314 W/kg**

Maximum value of SAR (measured) = 0.452 W/kg

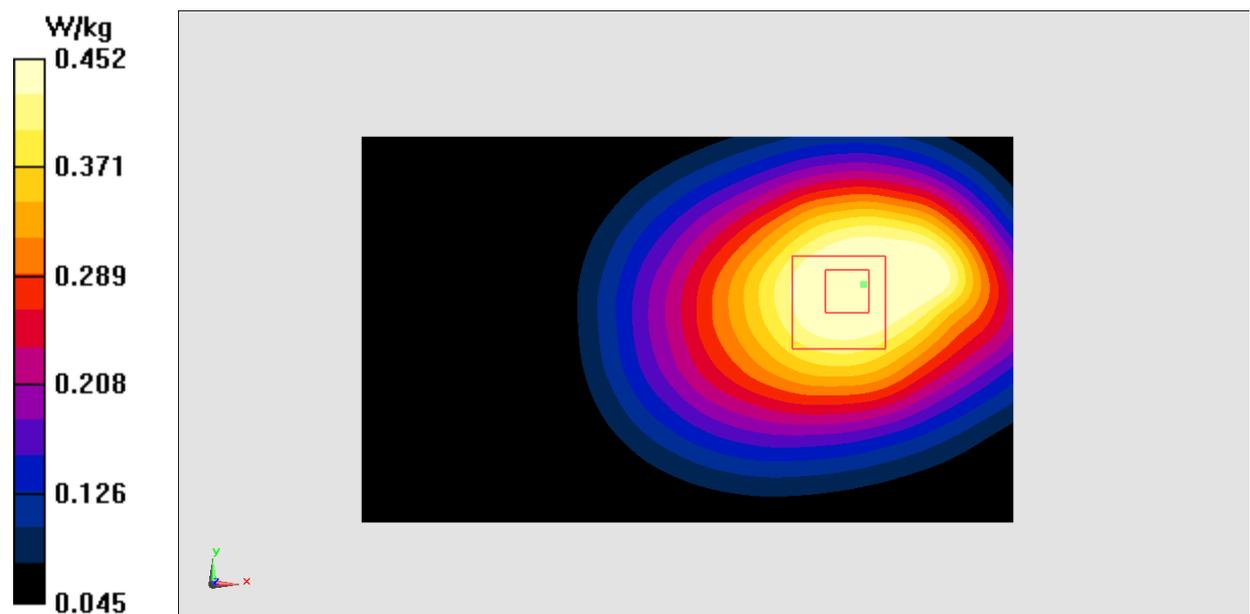


Fig.2 850 MHz

### 1900 Left Cheek Low

Date: 2016-04-13

Electronics: DAE4 Sn777

Medium: Head 1900 MHz

Medium parameters use (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.356$  mho/m;  $\epsilon_r = 39.98$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.0°C      Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3

Probe: EX3DV4 - SN3617ConvF(8.07, 8.07, 8.07)

**Area Scan (71x101x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.386 W/kg

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

Reference Value = 6.463 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.518 W/kg

**SAR(1 g) = 0.335 W/kg; SAR(10 g) = 0.199 W/kg**

Maximum value of SAR (measured) = 0.367 W/kg

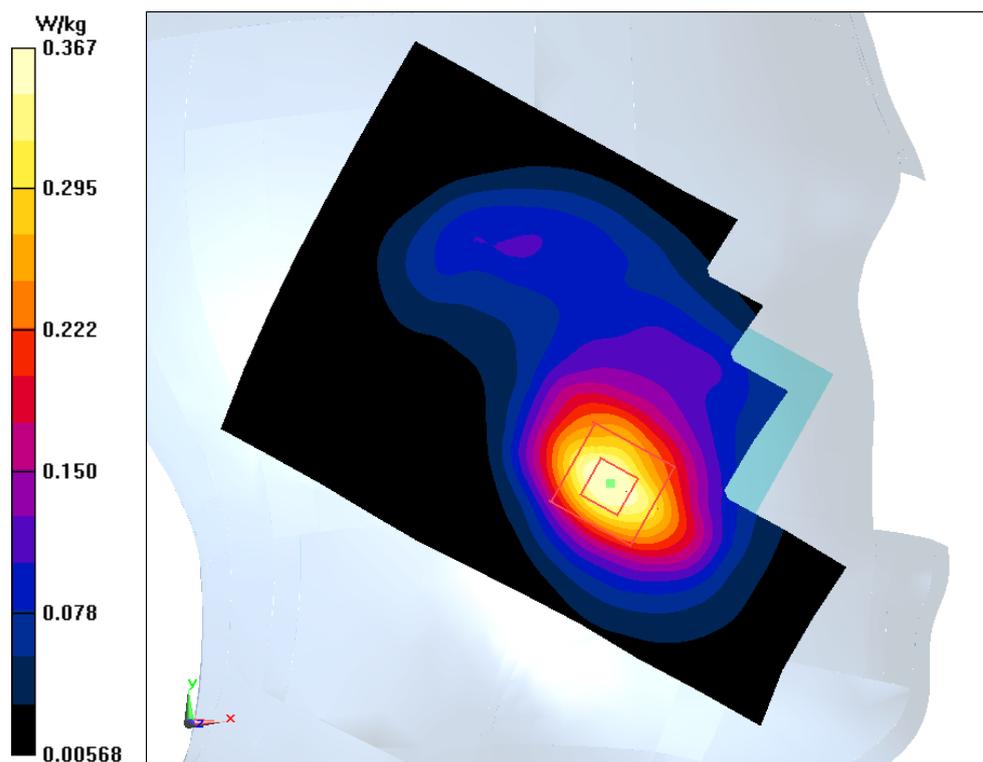


Fig.3 1900 MHz

### 1900 Body Rear High

Date: 2016-04-13

Electronics: DAE4 Sn777

Medium: Body 1900 MHz

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.505$  mho/m;  $\epsilon_r = 55.14$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.0°C      Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Frequency: 1850.2 MHz Duty Cycle: 1:4

Probe: EX3DV4 – SN3617 ConvF(7.74, 7.74, 7.74)

**A Area Scan (101x61x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.397 W/kg

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

Reference Value = 6.366 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.498 W/kg

**SAR(1 g) = 0.317 W/kg; SAR(10 g) = 0.187 W/kg**

Maximum value of SAR (measured) = 0.352 W/kg

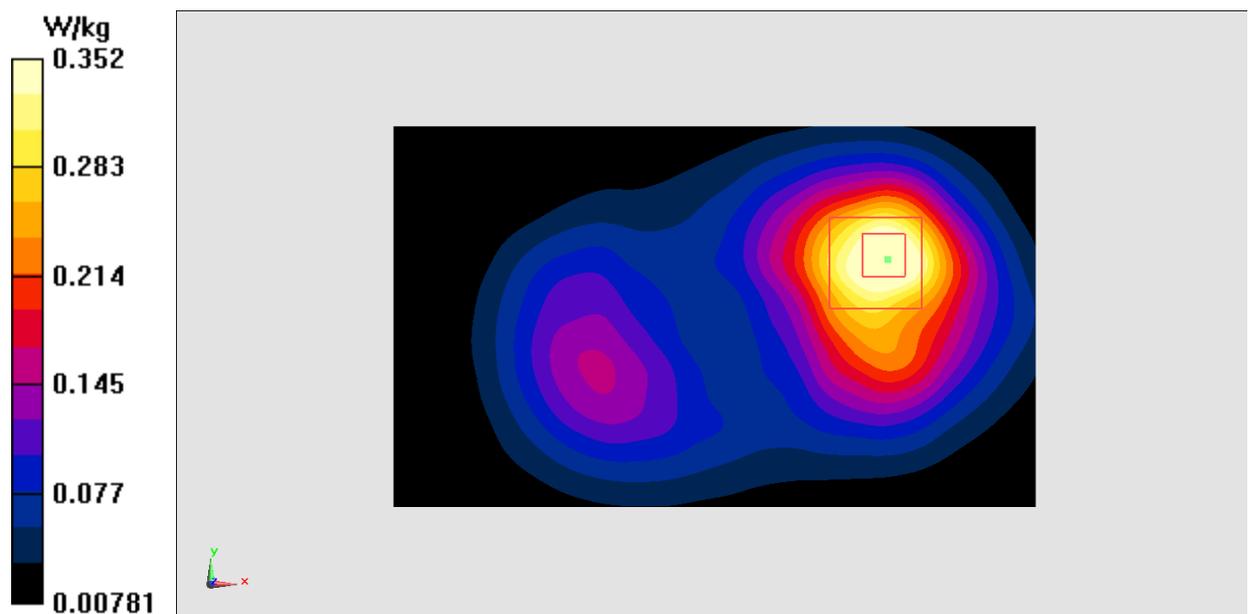


Fig.4 1900 MHz

## ANNEX J Accreditation Certificate

 	
<b>China National Accreditation Service for Conformity Assessment</b>	
<b>LABORATORY ACCREDITATION CERTIFICATE</b>	
<b>(No. CNAS L0570 )</b>	
<b>Telecommunication Technology Labs,</b> <b>Academy of Telecommunication Research, MIIT</b> <u>No.52, Huayuan North Road, Haidian District, Beijing, China</u> <u>No.51, Xueyuan Road, Haidian District, Beijing, China</u>	
<i>to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing and calibration.</i>	
<i>The scope of accreditation is detailed in the attached schedule bearing the same accreditation number as above. The schedule forms an integral part of this certificate.</i>	
<b>Date of Issue:</b> 2014-10-29	
<b>Date of Expiry:</b> 2017-06-19	
<b>Date of Initial Accreditation:</b> 1998-07-03	
Signed on behalf of China National Accreditation Service for Conformity Assessment	
<small>China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC-MRA) and Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (APLAC/MRA).</small>	
No. CNAS AL 2	0011149