

DASY5 Validation Report for Body TSL

Date: 22.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2; Serial: D2600V2 - SN:1012

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.2$ S/m; $\epsilon_r = 51.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.48, 7.48, 7.48); Calibrated: 15.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

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

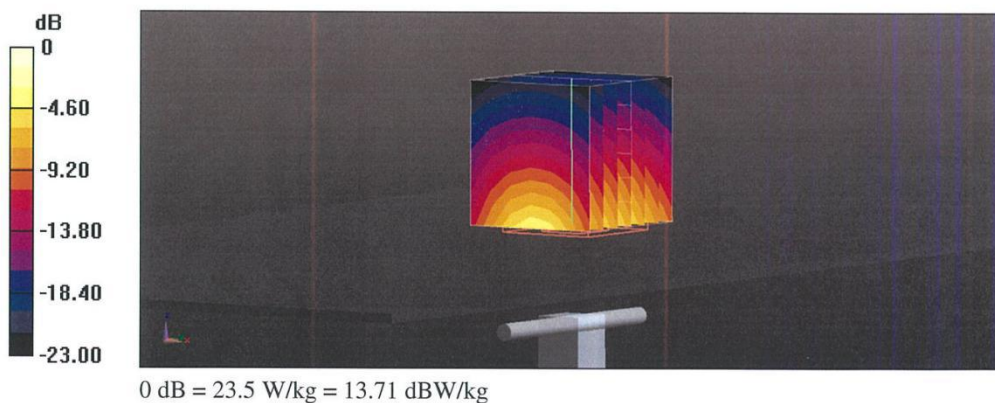
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.8 V/m; Power Drift = -0.03 dB

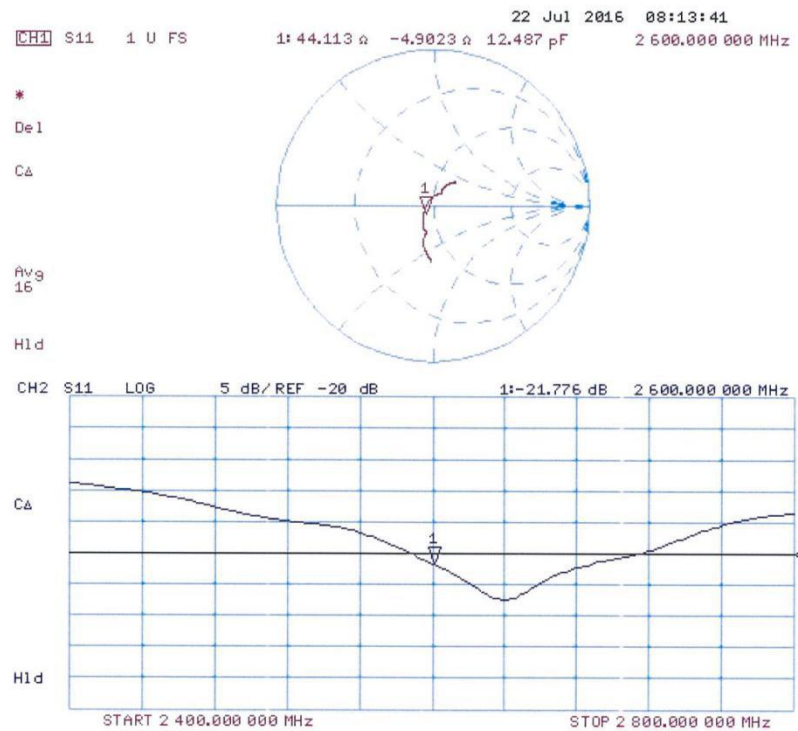
Peak SAR (extrapolated) = 28.9 W/kg

SAR(1 g) = 14 W/kg; SAR(10 g) = 6.25 W/kg

Maximum value of SAR (measured) = 23.5 W/kg



Impedance Measurement Plot for Body TSL



5 GHz Dipole Calibration Certificate

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **CTTL-BJ (Auden)**

Certificate No: **D5GHzV2-1060_Jul16**

CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN:1060**

Calibration procedure(s) **QA CAL-22.v2**
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: **July 27, 2016**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 3503	30-Jun-16 (No. EX3-3503_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Issued: July 27, 2016

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Calibration Laboratory of
Schmid & Partner
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Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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 V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz \pm 1 MHz 5600 MHz \pm 1 MHz 5750 MHz \pm 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	34.4 \pm 6 %	4.52 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.94 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	78.6 W/kg \pm 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.28 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.5 W/kg \pm 19.5 % (k=2)

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.9 ± 6 %	4.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.8 W / kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.37 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.4 W/kg ± 19.5 % (k=2)

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.7 ± 6 %	5.02 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.07 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	79.8 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.7 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.1 ± 6 %	5.42 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.62 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	75.6 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.2 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.5 ± 6 %	5.88 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.97 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	79.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	22.1 W/kg ± 19.5 % (k=2)

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.3	5.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.2 ± 6 %	6.11 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.51 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	74.5 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.10 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	20.8 W/kg ± 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	48.6 Ω - 4.9 j Ω
Return Loss	- 25.7 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.1 Ω - 0.1 j Ω
Return Loss	- 28.1 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	51.9 Ω - 0.5 j Ω
Return Loss	- 34.4 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	49.7 Ω - 1.5 j Ω
Return Loss	- 36.0 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	56.8 Ω + 2.3 j Ω
Return Loss	- 23.5 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	54.6 Ω + 3.4 j Ω
Return Loss	- 25.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.210 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 27, 2006

DASY5 Validation Report for Head TSL

Date: 27.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1060

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.52$ S/m; $\epsilon_r = 34.4$; $\rho = 1000$ kg/m³Medium parameters used: $f = 5600$ MHz; $\sigma = 4.86$ S/m; $\epsilon_r = 33.9$; $\rho = 1000$ kg/m³Medium parameters used: $f = 5750$ MHz; $\sigma = 5.02$ S/m; $\epsilon_r = 33.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.42, 5.42, 5.42); Calibrated: 30.06.2016, ConvF(4.89, 4.89, 4.89); Calibrated: 30.06.2016, ConvF(4.85, 4.85, 4.85); Calibrated: 30.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 72.54 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 29.0 W/kg

SAR(1 g) = 7.94 W/kg; SAR(10 g) = 2.28 W/kg

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

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 72.22 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 32.4 W/kg

SAR(1 g) = 8.27 W/kg; SAR(10 g) = 2.37 W/kg

Maximum value of SAR (measured) = 19.3 W/kg

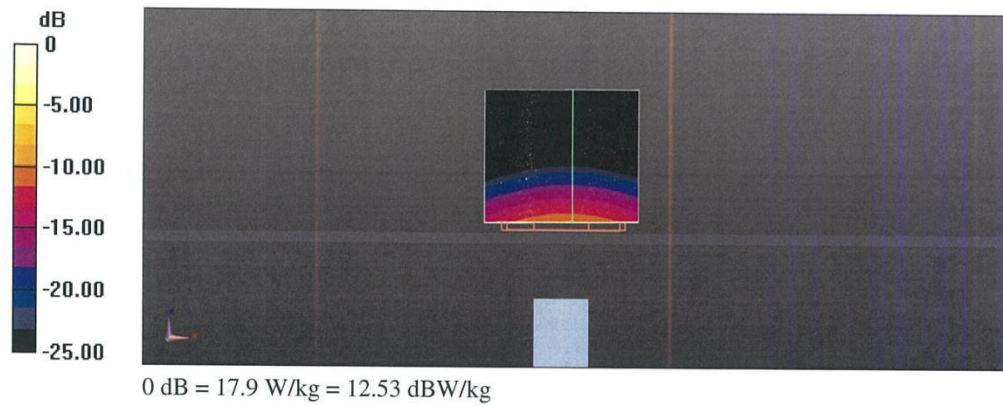
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 71.12 V/m; Power Drift = 0.01 dB

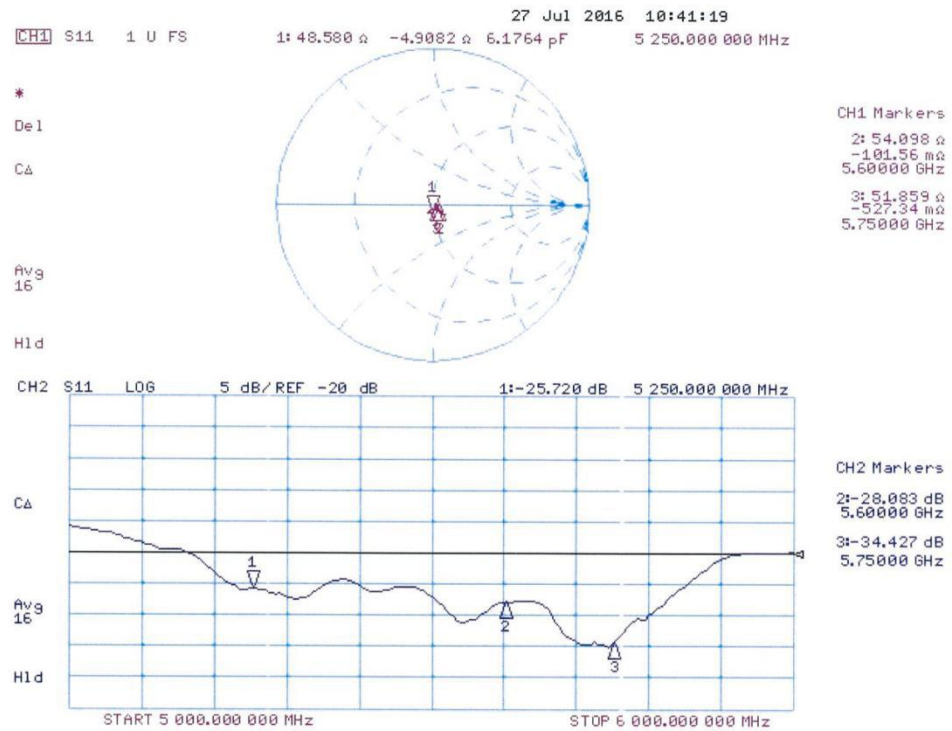
Peak SAR (extrapolated) = 32.8 W/kg

SAR(1 g) = 8.07 W/kg; SAR(10 g) = 2.3 W/kg

Maximum value of SAR (measured) = 19.2 W/kg



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 26.07.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1060

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz

Medium parameters used: $f = 5250$ MHz; $\sigma = 5.42$ S/m; $\epsilon_r = 47.1$; $\rho = 1000$ kg/m³Medium parameters used: $f = 5600$ MHz; $\sigma = 5.88$ S/m; $\epsilon_r = 46.5$; $\rho = 1000$ kg/m³Medium parameters used: $f = 5750$ MHz; $\sigma = 6.11$ S/m; $\epsilon_r = 46.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.85, 4.85, 4.85); Calibrated: 30.06.2016, ConvF(4.35, 4.35, 4.35); Calibrated: 30.06.2016, ConvF(4.3, 4.3, 4.3); Calibrated: 30.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 67.69 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 28.9 W/kg

SAR(1 g) = 7.62 W/kg; SAR(10 g) = 2.14 W/kg

Maximum value of SAR (measured) = 18.0 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 67.99 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 33.0 W/kg

SAR(1 g) = 7.97 W/kg; SAR(10 g) = 2.23 W/kg

Maximum value of SAR (measured) = 19.2 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0:

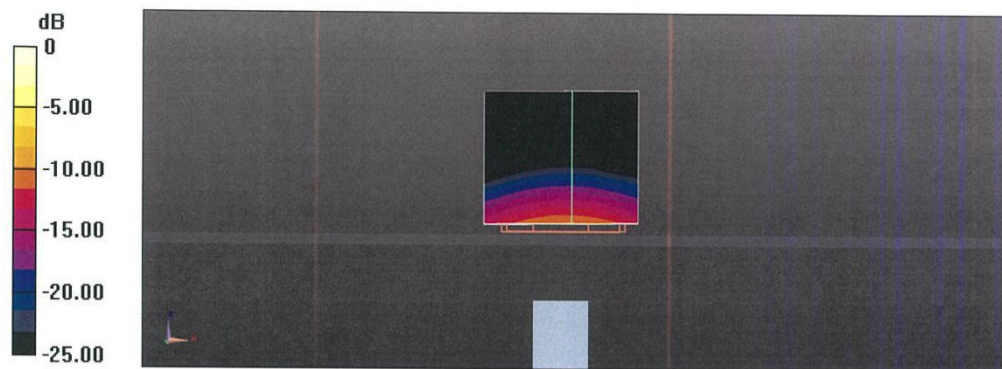
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 65.44 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 32.4 W/kg

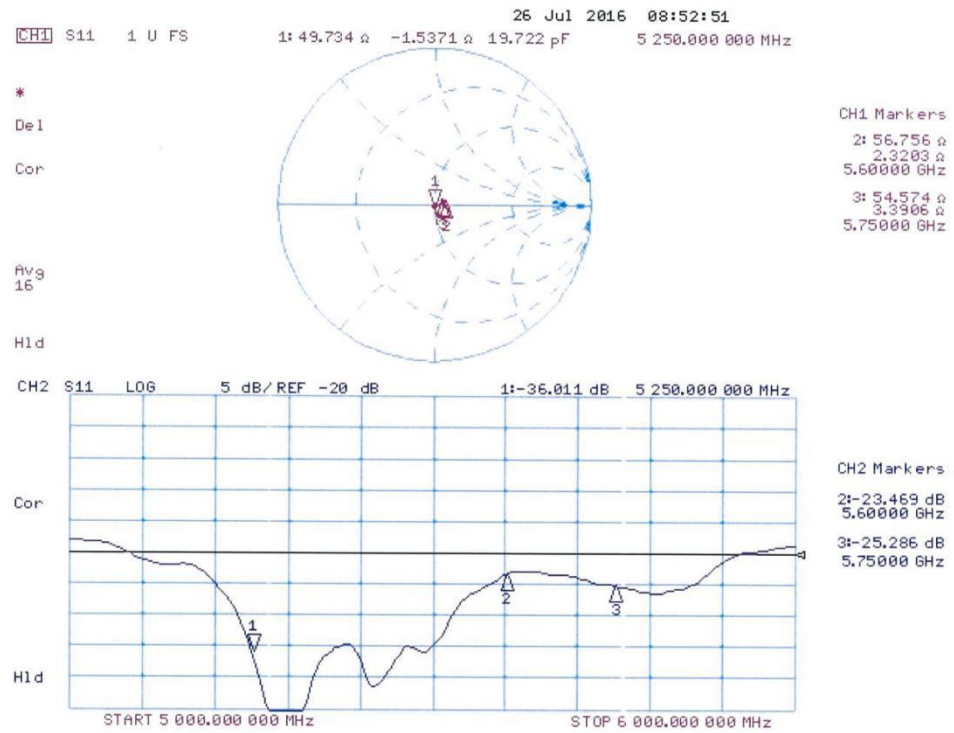
SAR(1 g) = 7.51 W/kg; SAR(10 g) = 2.1 W/kg

Maximum value of SAR (measured) = 18.2 W/kg



0 dB = 18.2 W/kg = 12.60 dBW/kg

Impedance Measurement Plot for Body TSL



ANNEX I SPOT CHECK

As the test lab for 50850 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.1-1: The conducted power results for GSM850/1900

GSM 850MHz	Conducted Power (dBm)		
	Channel 251(848.8MHz)	Channel 190(836.6MHz)	Channel 128(824.2MHz)
	31.59	31.80	31.90
GSM 1900MHz	Conducted Power(dBm)		
	Channel 810(1909.8MHz)	Channel 661(1880MHz)	Channel 512(1850.2MHz)
	28.76	28.48	28.44

Table I.1-2: The conducted power results for GPRS

GSM 850 GPRS (GMSK)	Measured Power (dBm)		
	251	190	128
4 Txslots	26.22	26.40	26.50
PCS1900 GPRS (GMSK)	Measured Power (dBm)		
	810	661	512
4 Txslots	23.73	23.45	23.34

Table I.1-3: The conducted Power for WCDMA

Item	band	FDDV result		
	ARFCN	4233(846.6MHz)	4182(836.4MHz)	4132(826.4MHz)
WCDMA	\	23.52	23.42	23.37
Item	band	FDDII result		
	ARFCN	9538(1907.6MHz)	9400(1880MHz)	9262(1852.4MHz)
WCDMA	\	22.86	22.68	22.62
Item	band	FDDIV result		
	ARFCN	1513 (1752.6MHz)	1412 (1732.4MHz)	1312 (1712.4MHz)
WCDMA	\	22.96	22.95	22.87

Table I.1-4: The conducted Power for LTE

LTE Band2 20MHz	1RB-Low (0)	1900 (19100)	22.98
	1RB-High (99)	1880 (18900)	22.97
	1RB-High (99)	1860 (18700)	22.97
LTE Band4 20MHz	1RB-High (99)	1745 (20300)	23.94
		1732.5 (20175)	23.92
		1720 (20050)	23.90
LTE Band5 10MHz	1RB-High (49)	844 (20600)	23.88
		836.5 (20525)	23.87
		829 (20450)	23.84
LTE Band7 20MHz	1RB-High (99)	2560 (21350)	23.30
	1RB-Low (0)	2535 (21100)	23.29
	1RB-High (99)	2510 (20850)	23.26
LTE Band12 10MHz	1RB-Low (0)	711 (23130)	23.78
	1RB-High (49)	707.5 (23095)	23.79
	1RB-High (49)	704 (23060)	23.75

Table I.1-5: The conducted Power for WLAN

Mode / data rate	Channel	Measured Power (dBm)
802.11b – 1Mbps	1	17.53
802.11a – 6Mbps	165	14.66

I.2 Measurement results

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

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C					
Frequency		Side	Test Position	Figure No./Note	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)
Ch.	MHz										
128	824.2	L	Cheek	Fig.1	31.90	32	0.118	0.12	0.154	0.16	0.01

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

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C					
Frequency		Mode (number of timeslots)	Test Position	Figure No./Note	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)
Ch.	MHz										
128	824.2	GPRS (4)	Rear	Fig.2	26.50	26.5	0.238	0.24	0.305	0.31	0.01

Note: The distance between the EUT and the phantom bottom is 10mm.

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

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C					
Frequency		Side	Test Position	Figure No./Note	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)
Ch.	MHz										
512	1850.2	L	Cheek	Fig.3	28.44	29	0.073	0.08	0.118	0.13	-0.20

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

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C					
Frequency		Mode (number of timeslots)	Test Position	Figure No./Note	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)
Ch.	MHz										
512	1850.2	GPRS (4)	Bottom	Fig.4	23.34	24	0.419	0.49	0.834	0.97	0.11

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table I.2-5: SAR Values (WCDMA 850 MHz Band - Head)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C					
Frequency		Side	Test Position	Figure No./Note	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)
Ch.	MHz										
4233	846.6	L	Cheek	Fig.5	23.52	24	0.160	0.16	0.209	0.21	0.20

Table I.2-6: SAR Values (WCDMA 850 MHz Band - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C				
Frequency		Test Position	Figure No./Note	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)
Ch.	MHz									
4233	846.6	Left	Fig.6	23.52	24	0.163	0.16	0.238	0.24	0.02

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table I.2-7: SAR Values(WCDMA 1700 MHz Band - Head)

Ambient Temperature: 22.9°C						Liquid Temperature: 22.5°C					
Frequency		Side	Test Position	Figure No./Note	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)
Ch.	MHz										
1738	1752.6	L	Cheek	Fig.7	22.96	23	0.134	0.14	0.199	0.20	-0.03

Table I.2-8: SAR Values (WCDMA 1700 MHz Band - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C				
Frequency		Test Position	Figure No./Note	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)
Ch.	MHz									
1738	1752.6	Bottom	Fig.8	22.96	23	0.616	0.62	1.18	1.19	-0.01

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table I.2-9: SAR Values(WCDMA 1900 MHz Band - Head)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Side	Test Position	Figure No./Note	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)
Ch.	MHz										
9662	1852.4	R	Cheek	Fig.9	22.62	23	0.140	0.15	0.225	0.25	-0.16

Table I.2-10: SAR Values (WCDMA 1900 MHz Band - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C				
Frequency		Test Position	Figure No./Note	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)
Ch.	MHz									
9938	1907.6	Bottom	Fig.10	22.86	23	0.685	0.71	1.34	1.38	0.06

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table I.2-11: SAR Values (LTE Band2 - Head)

Ambient Temperature: 22.9°C						Liquid Temperature: 22.5°C						
Frequency		Mode	Side	Test Position	Figure No./ Note	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)
Ch.	MHz											
19100	1900	1RB_Low	L	Cheek	Fig.11	22.98	23	0.102	0.10	0.166	0.17	0.03

Note1: The LTE mode is QPSK_20MHz.

Table I.2-12: SAR Values (LTE Band2 - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C					
Frequency		Mode	Test Position	Figure No./ Note	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)
Ch.	MHz										
19100	1900	1RB_Low	Bottom	Fig.12	22.98	23	0.526	0.53	1.03	1.03	0.03

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table I.2-13: SAR Values(LTE Band4 - Head)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C						
Frequency		Mode	Side	Test Position	Figure No./ Note	Conduct ed 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)	Powe r Drift (dB)
Ch.	MHz											
20300	1745	1RB_High	L	Cheek	Fig.13	23.94	24	0.124	0.13	0.196	0.20	0.18

Note1: The LTE mode is QPSK_20MHz.

Table I.2-14: SAR Values (LTE Band4 - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C					
Frequency		Mode	Test Position	Figure No./Note	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)
Ch.	MHz										
20300	1745	1RB_High	Bottom	Fig.14	23.94	24	0.598	0.61	1.17	1.19	0.06

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table I.2-15: SAR Values(LTE Band5 - Head)

Ambient Temperature: 22.9°C						Liquid Temperature: 22.5°C						
Frequency		Mode	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)
Ch.	MHz											
20600	844	1RB_High	L	Cheek	Fig.15	23.88	24.5	0.153	0.15	0.202	0.23	-0.04

Note1: The LTE mode is QPSK_10MHz.

Table I.2-16: SAR Values (LTE Band5-Body)

Ambient Temperature: 22.9°C						Liquid Temperature: 22.5°C					
Frequency		Mode	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)
Ch.	MHz										
20600	844	1RB_High	Left	Fig.16	23.88	24.5	0.161	0.17	0.237	0.27	-0.08

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

Table I.2-17: SAR Values(LTE Band7 - Head)

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C												
Frequency		Mode	Side	Test Position	Figure No./ Note	Conduct ed 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)
Ch.	MHz											
21350	2560	1RB_High	L	Cheek	Fig.17	23.30	23.5	0.017	0.02	0.030	0.03	0.00

Note1: The LTE mode is QPSK_20MHz.

Table I.2-18: SAR Values (LTE Band7 - Body)

Ambient Temperature: 22.9°C						Liquid Temperature: 22.5°C					
Frequency		Mode	Test Position	Figure No./Note	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)
Ch.	MHz										
21350	2560	1RB_High	Bottom	Fig.18	23.30	23.5	0.325	0.34	0.718	0.75	0.06

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table I.2-19: SAR Values(LTE Band12 - Head)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5°C						
Frequency		Mode	Side	Test Position	Figure No./ Note	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)
Ch.	MHz											
23095	707.5	1RB_High	L	Cheek	Fig.19	23.79	24	0.143	0.15	0.179	0.19	0.02

Note1: The LTE mode is QPSK_10MHz.

Table I.1-20: SAR Values (LTE Band12 - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Mode	Test Position	Figure No./Note	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)
Ch.	MHz										
23095	707.5	1RB_High	Left	Fig.20	23.79	24	0.173	0.18	0.245	0.26	-0.03

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

I.3 WLAN Evaluation

Head Evaluation

Table I.3-1: SAR Values(WLAN - Head) – 802.11b (Full SAR)

Ambient Temperature: 22.9 °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.										
2412	1	Right	Tilt	Fig.21	17.53	19	0.192	0.27	0.414	0.58	-0.03

Table I.3-2: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

Ambient Temperature: 22.9°C				Liquid Temperature: 22.5°C			
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.						
2412	1	Right	Tilt	99.48%	100%	0.58	0.58

Table I.3-3: SAR Values(WLAN - Head) – 802.11a (Full SAR)

Ambient Temperature: 22.9 °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.										
5825	165	Right	Tilt	Fig.22	14.66	16.5	0.096	0.15	0.298	0.46	0.03

Table I.3-4: SAR Values (WLAN - Head) – 802.11a (Scaled Reported SAR)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5 °C			
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.						
5825	165	Right	Tilt	98.85%	100%	0.46	0.47

Body Evaluation

Table I.3-5: SAR Values(WLAN - Body) – 802.11b (Full SAR)

Ambient Temperature: 22.9°C					Liquid Temperature: 22.5°C					
Frequency		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.									
2412	1	Rear	Fig.23	17.53	19	0.112	0.16	0.235	0.33	-0.04

Table I.3-6: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)

Ambient Temperature: 23.0 °C				Liquid Temperature: 22.5 °C		
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
2412	1	Rear	99.48%	100%	0.33	0.33

Table I.3-7: SAR Values(WLAN - Body) – 802.11a (Full SAR)

Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5 °C					
Frequency		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.									
5825	165	Top	Fig.24	14.66	16.5	0.044	0.04	0.148	0.23	-0.12

Table I.3-8: SAR Values (WLAN - Body) – 802.11a (Scaled Reported SAR)

Ambient Temperature: 23.0 °C				Liquid Temperature: 22.5 °C		
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
5825	165	Top	98.85%	100%	0.23	0.23

I.4 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	0.16	0.22
	PCS 1900	0.13	0.11
	WCDMA850	0.21	0.29
	WCDMA1700	0.20	0.21
	WCDMA1900	0.25	0.19
	LTE Band 2	0.17	0.20
	LTE Band 4	0.20	0.24
	LTE Band 5	0.23	0.33
	LTE Band 7	0.03	0.02
	LTE Band 12	0.19	0.34
	WLAN 2.4 GHz	0.58	0.63
	WLAN 5 GHz	0.47	0.34
Hotspot (Separation Distance 10mm)	GSM 850	0.31	0.26
	PCS 1900	0.97	1.08
	WCDMA850	0.24	0.38
	WCDMA1700	1.19	1.22
	WCDMA1900	1.38	1.40
	LTE Band 2	1.03	1.10
	LTE Band 4	1.19	1.19
	LTE Band 5	0.27	0.44
	LTE Band 7	0.75	0.89
	LTE Band 12	0.26	0.51
	WLAN 2.4 GHz	0.33	0.33
	WLAN 5 GHz	0.23	0.22

Note:The spot check results of Head for PCS1900 / WCDMA1900 / LTE Band7 /WLAN 5 GHz and body for GSM850 /WLAN 5 GHz are larger than the original results, so these values replace the original results and others are quoted.

I.5 Graph Results of spotcheck

850 Left Cheek Low

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.914$ S/m; $\epsilon_r = 41.748$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

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

Probe: EX3DV4 – SN3846ConvF(9.33, 9.33, 9.33)

Area Scan (71x131x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.181 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 5.061 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.204 W/kg

SAR(1 g) = 0.154 W/kg; SAR(10 g) = 0.118 W/kg

Maximum value of SAR (measured) = 0.186 W/kg

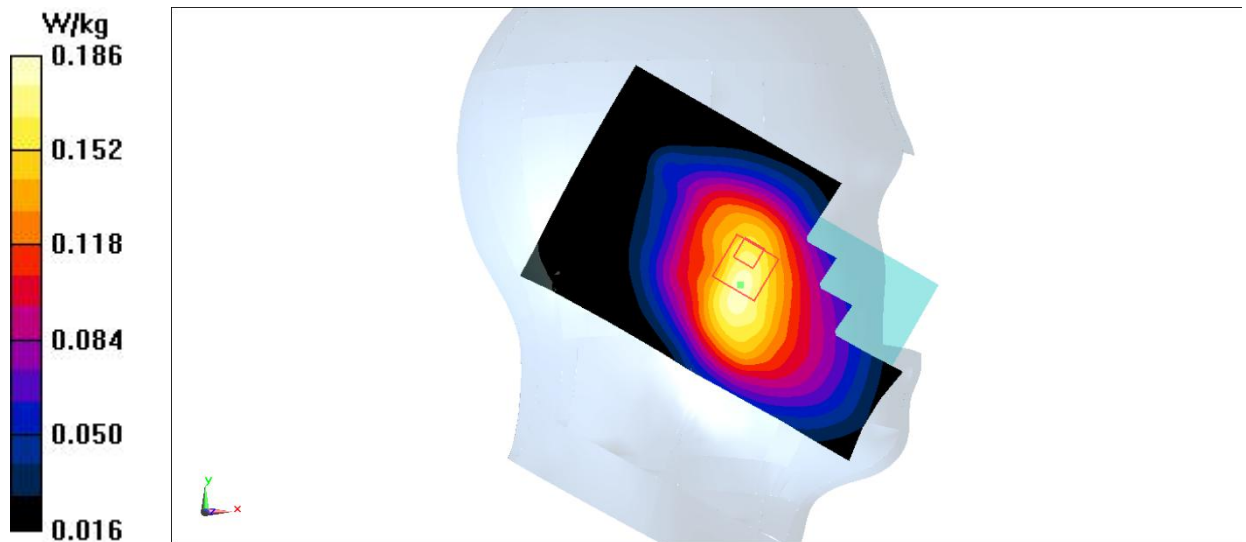


Fig.1 850 MHz

850 Body Rear Low

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.996$ S/m; $\epsilon_r = 55.441$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:2

Probe: EX3DV4 – SN3846ConvF(9.52, 9.52, 9.52)

Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.364 W/kg

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

Reference Value = 19.88 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.385 W/kg

SAR(1 g) = 0.305 W/kg; SAR(10 g) = 0.238 W/kg

Maximum value of SAR (measured) = 0.358 W/kg

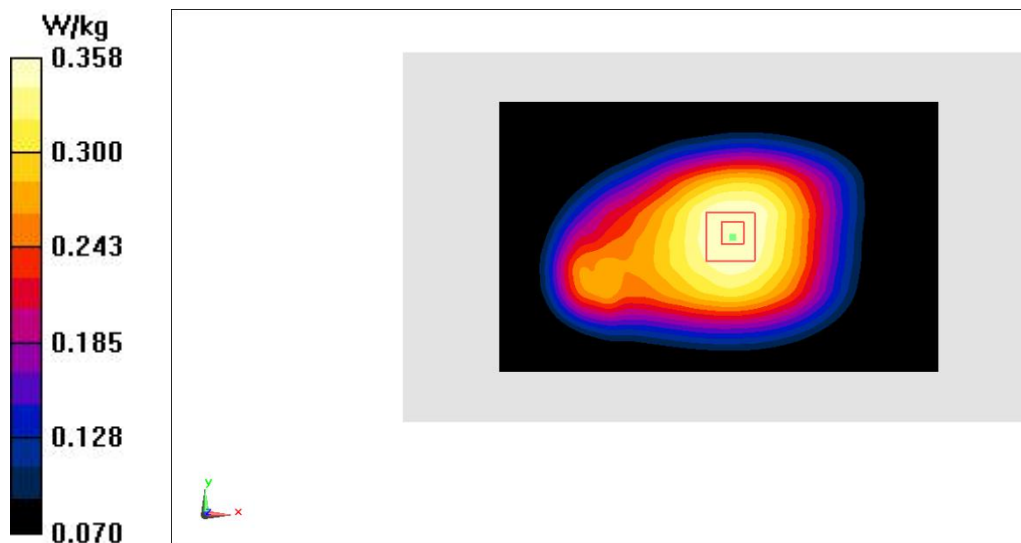


Fig.2 850 MHz

1900 Left Cheek Low

Date: 2017-5-17

Electronics: DAE4 Sn1331

Medium: Head 1900 MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.435$ S/m; $\epsilon_r = 40.164$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

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

Probe: EX3DV4– SN3846 ConvF(7.89, 7.89, 7.89)

Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.156 W/kg

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

Reference Value = 3.724 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.183 W/kg

SAR(1 g) = 0.118 W/kg; SAR(10 g) = 0.073 W/kg

Maximum value of SAR (measured) = 0.159 W/kg

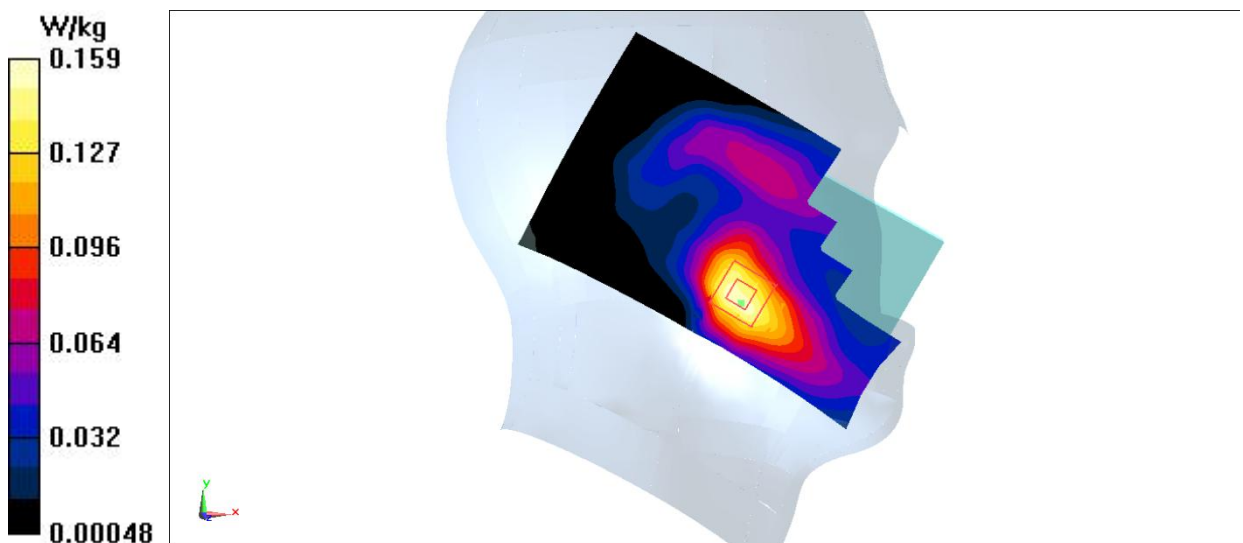


Fig.3 1900 MHz

1900 Body Bottom Low

Date: 2017-5-17

Electronics: DAE4 Sn1331

Medium: Body 1900 MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.525$ S/m; $\epsilon_r = 51.321$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Frequency: 1850.2 MHz Duty Cycle: 1:2

Probe: EX3DV4– SN3846 ConvF(7.57, 7.57, 7.57)

Area Scan (51x81x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.39 W/kg

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

Reference Value = 28.90 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.52 W/kg

SAR(1 g) = 0.834 W/kg; SAR(10 g) = 0.419 W/kg

Maximum value of SAR (measured) = 1.29 W/kg

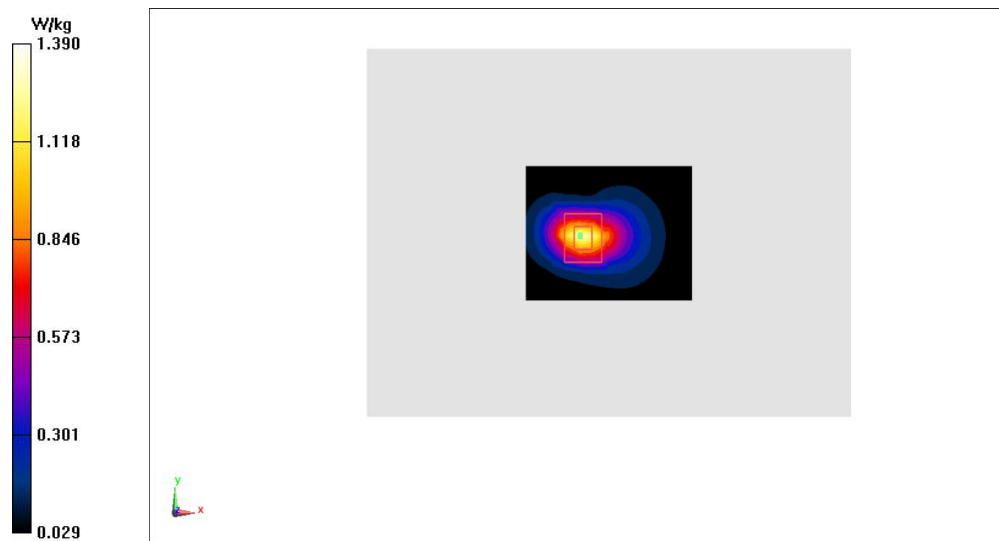


Fig.4 1900 MHz

WCDMA 850 Left Cheek High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Head 850 MHz

Medium parameters used: $f = 846.6$ MHz; $\sigma = 0.93$ S/m; $\epsilon_r = 41.602$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 – SN3846 ConvF(9.33, 9.33, 9.33)

Area Scan (71x131x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.255 W/kg

Zoom Scan (6x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.522 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 0.274 W/kg

SAR(1 g) = 0.209 W/kg; SAR(10 g) = 0.160 W/kg

Maximum value of SAR (measured) = 0.250 W/kg

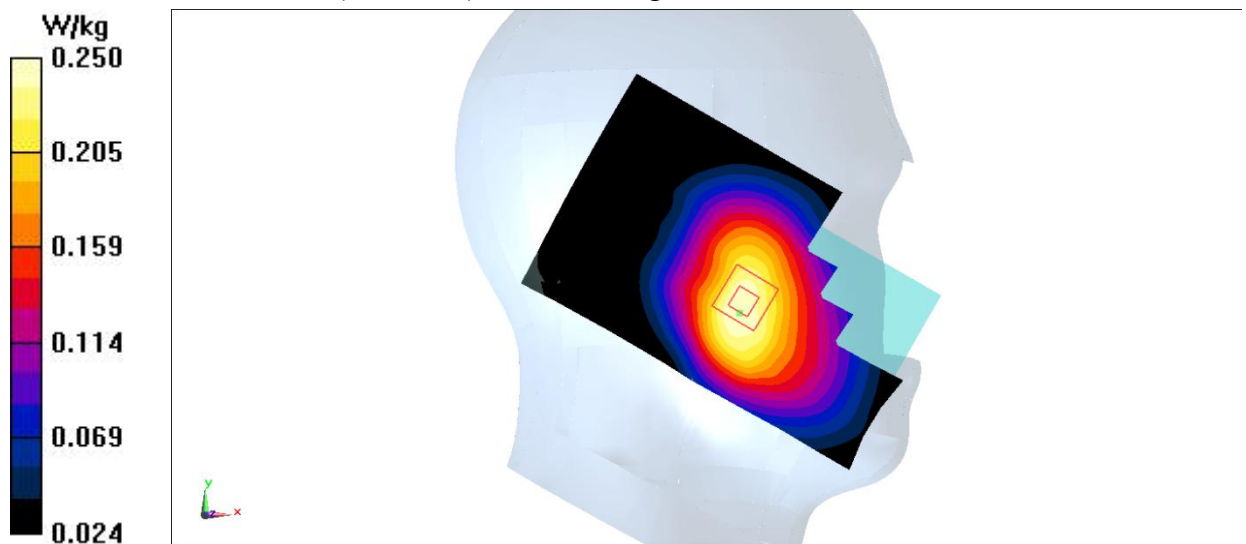


Fig.5 WCDMA 850

WCDMA 850 Body Left High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Body 850 MHz

Medium parameters used: $f = 846.6$ MHz; $\sigma = 1.011$ S/m; $\epsilon_r = 55.325$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 – SN3846ConvF(9.52, 9.52, 9.52)

Area Scan (41x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.313 W/kg

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

Reference Value = 18.48 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.347 W/kg

SAR(1 g) = 0.238 W/kg; SAR(10 g) = 0.163 W/kg

Maximum value of SAR (measured) = 0.309 W/kg

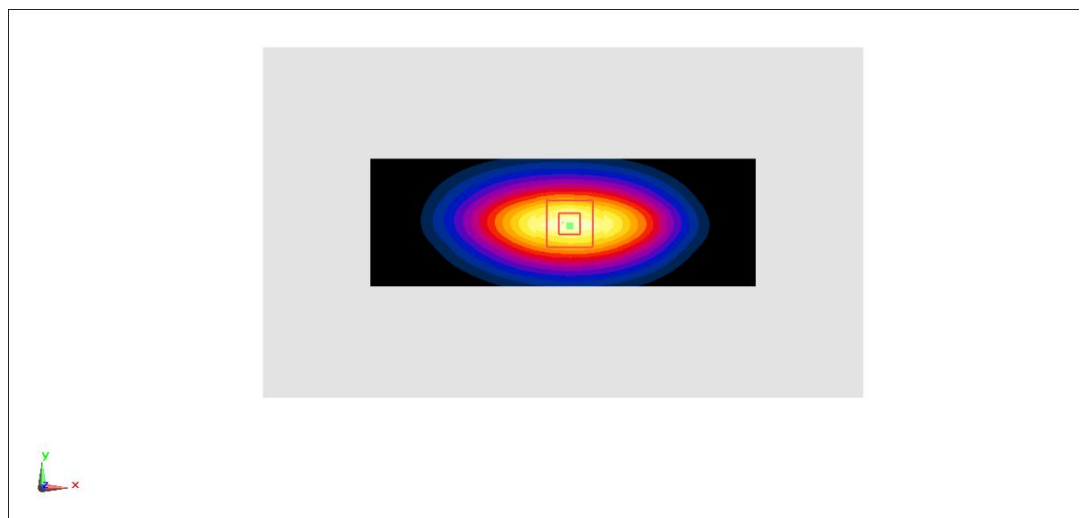
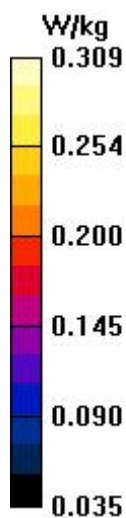


Fig.6 WCDMA 850

WCDMA 1700Left Cheek High

Date: 2017-4-14

Electronics: DAE4 Sn1331

Medium: Head 1750 MHz

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.335$ S/m; $\epsilon_r = 40.61$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1750 Frequency: 1752.6 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(8.16, 8.16, 8.16)

Area Scan (71x121x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.236 W/kg

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

Reference Value = 4.913 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.278 W/kg

SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.134 W/kg

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

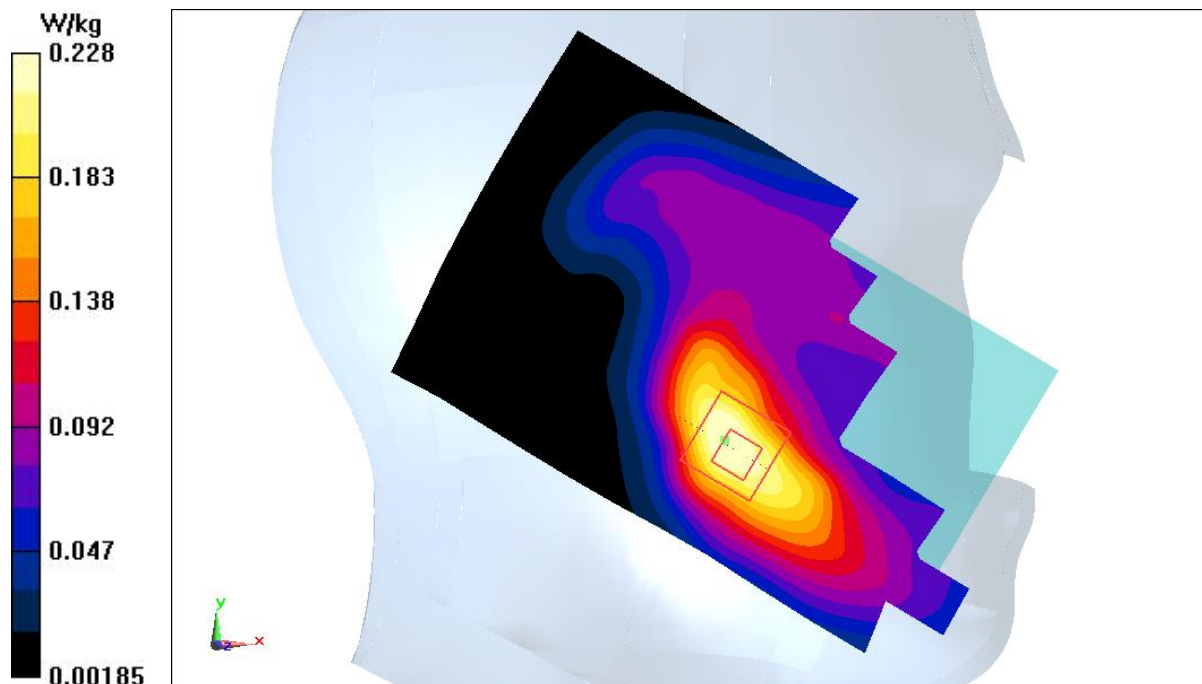


Fig.7WCDMA1700

WCDMA 1700 Body Bottom High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Body 1750 MHz

Medium parameters used: $f = 1752.6$ MHz; $\sigma = 1.423$ mho/m; $\epsilon_r = 51.69$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1900 Frequency: 1752.6 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(7.90, 7.90, 7.90)

Area Scan (121x81x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.59 W/kg

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

Reference Value = 27.05 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 2.07 W/kg

SAR(1 g) = 1.18 W/kg; SAR(10 g) = 0.616 W/kg

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

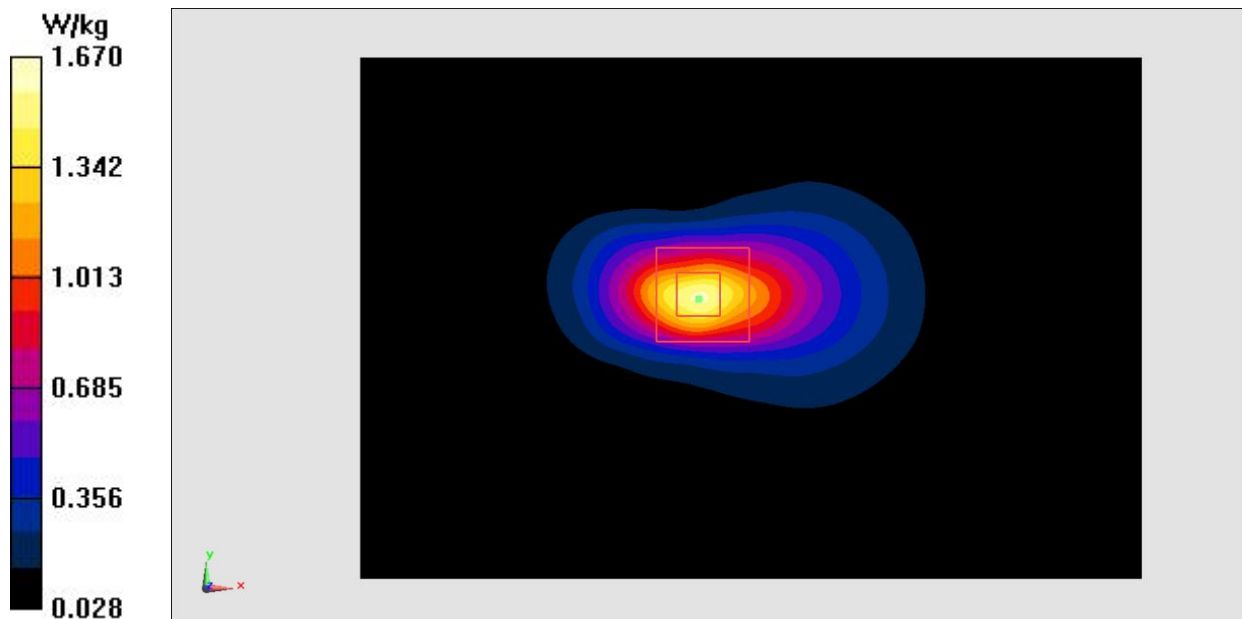


Fig.8 WCDMA1700

WCDMA 1900 Right Cheek Low

Date: 2017-5-17

Electronics: DAE4 Sn1331

Medium: Head 1900 MHz

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.437$ S/m; $\epsilon_r = 40.151$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(7.89, 7.89, 7.89)

Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.293 W/kg

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

Reference Value = 6.043 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.340 W/kg

SAR(1 g) = 0.225 W/kg; SAR(10 g) = 0.140 W/kg

Maximum value of SAR (measured) = 0.298 W/kg

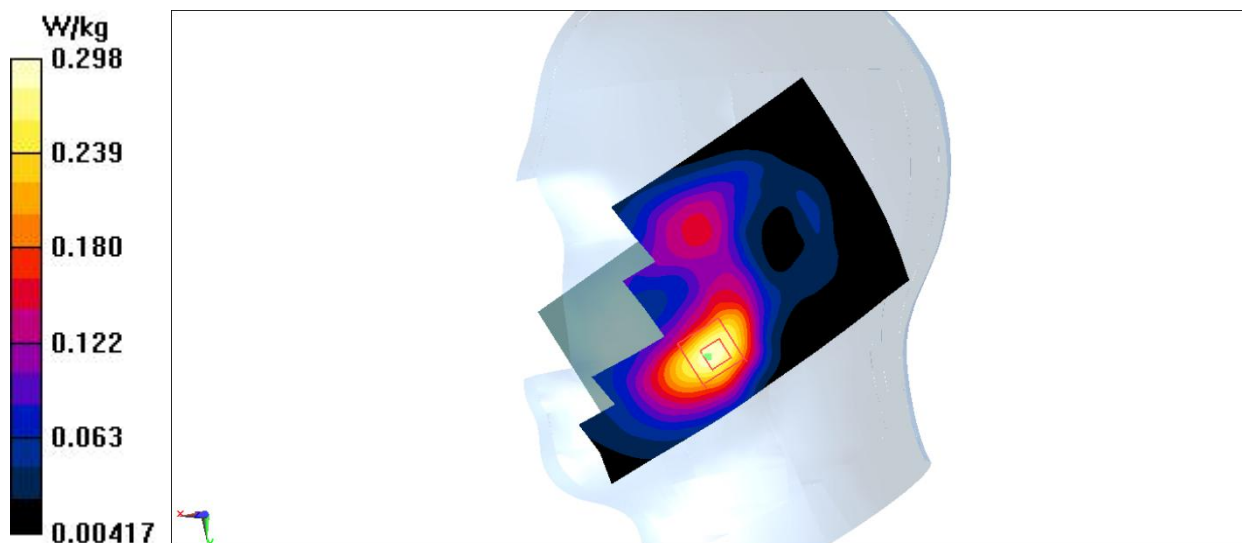


Fig.9 WCDMA1900

WCDMA 1900 Body Bottom High

Date: 2017-4-15

Electronics: DAE4 Sn1331

Medium: Body 1900 MHz

Medium parameters used: $f = 1907.6$ MHz; $\sigma = 1.576$ S/m; $\epsilon_r = 51.089$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(7.57, 7.57, 7.57)

Area Scan (41x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 2.04 W/kg

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

Reference Value = 27.87 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.50 W/kg

SAR(1 g) = 1.34 W/kg; SAR(10 g) = 0.658 W/kg

Maximum value of SAR (measured) = 2.10 W/kg

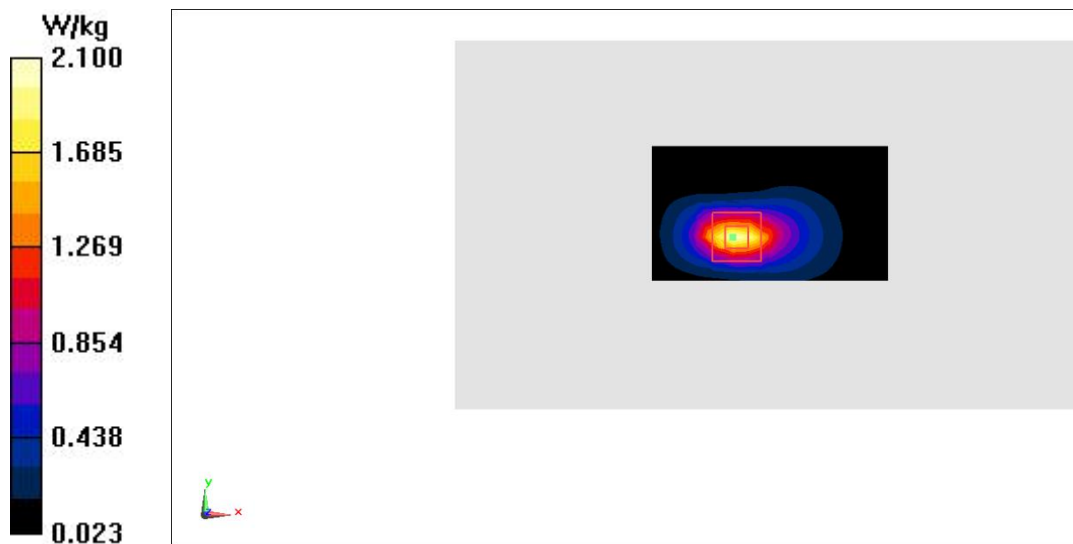


Fig.10 WCDMA1900

LTE Band2 Left Cheek High with QPSK_20M_1RB_Low

Date: 2017-5-17

Electronics: DAE4 Sn1331

Medium: Head 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ S/m; $\epsilon_r = 39.938$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band2 Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(7.89, 7.89, 7.89)

Area Scan (71x131x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

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

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

Reference Value = 4.296 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.261 W/kg

SAR(1 g) = 0.166 W/kg; SAR(10 g) = 0.102 W/kg

Maximum value of SAR (measured) = 0.225 W/kg

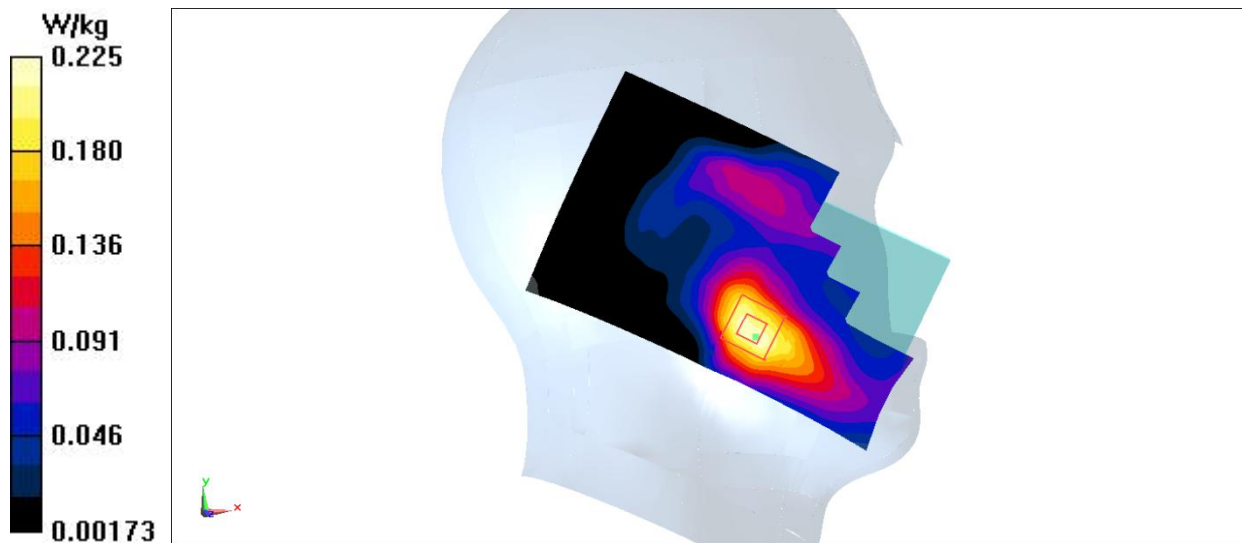


Fig.11 LTE Band2

LTE Band2 Body Bottom High with QPSK_20M_1RB_Low

Date: 2017-5-17

Electronics: DAE4 Sn1331

Medium: Body 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.571$ S/m; $\epsilon_r = 51.124$; $\rho = 1000$ kg/m³ Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band2 Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(7.57, 7.57, 7.57)

Area Scan (41x71x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.52 W/kg

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

Reference Value = 22.84 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.526 W/kg

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

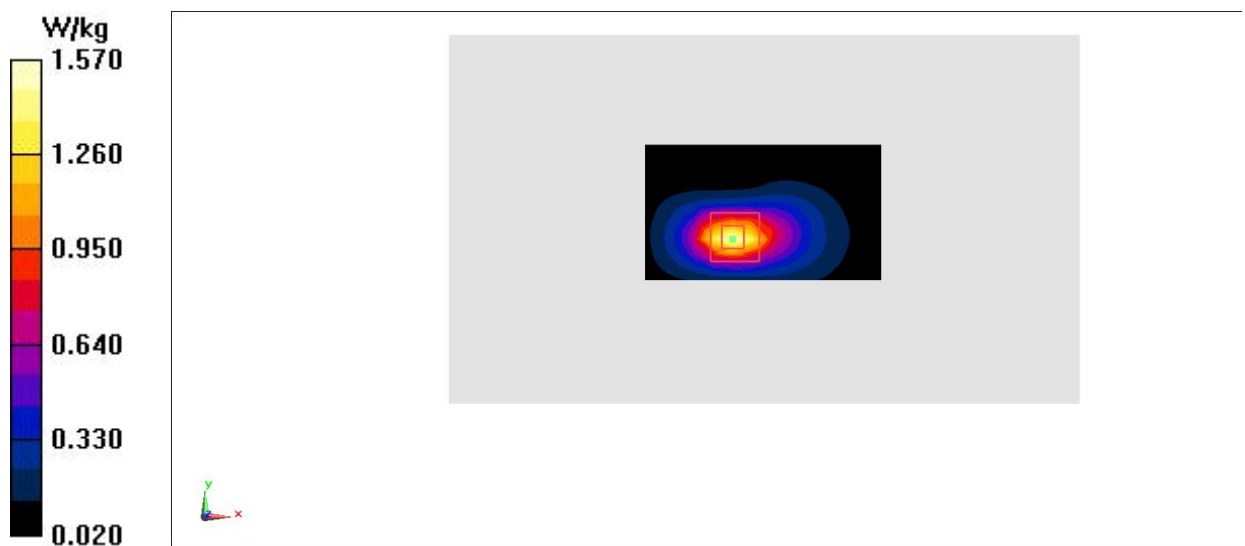


Fig.12 LTE Band2

LTE Band4 Left Cheek High with QPSK_20M_1RB_High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Head 1750 MHz

Medium parameters used: $f = 1745$ MHz; $\sigma = 1.328$ S/m; $\epsilon_r = 40.641$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band4 Frequency: 1745MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3846ConvF(8.16, 8.16, 8.16)

Area Scan (71x131x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.259 W/kg

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

Reference Value = 5.305 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.299 W/kg

SAR(1 g) = 0.196 W/kg; SAR(10 g) = 0.124 W/kg

Maximum value of SAR (measured) = 0.261 W/kg

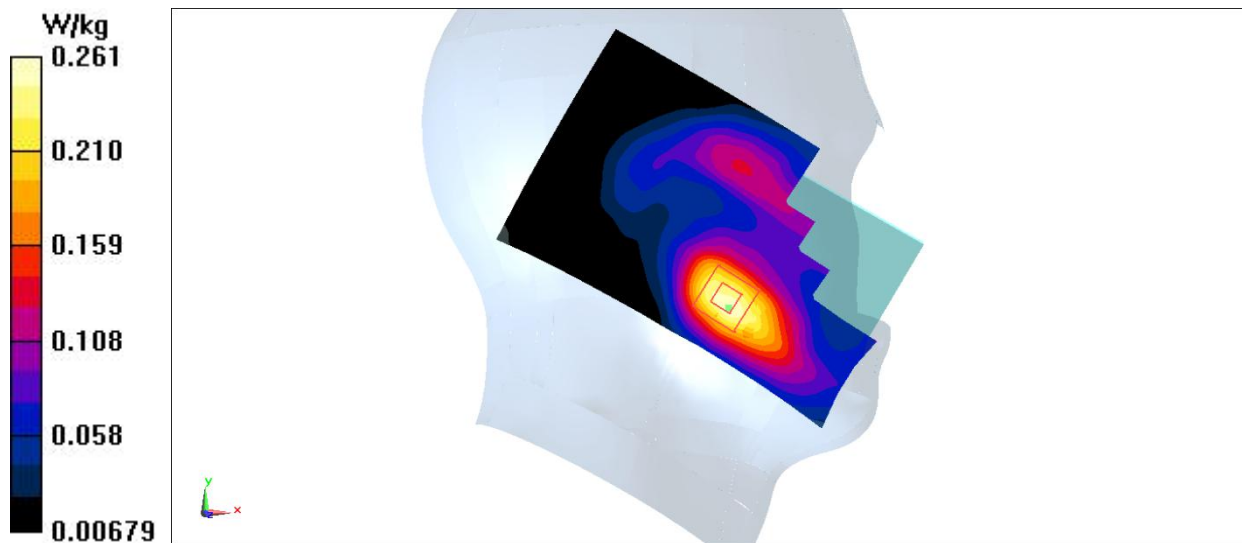


Fig.13 LTE Band4

LTE Band4 Body Bottom High with QPSK_20M_1RB_High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Body 1750 MHz

Medium parameters used: $f = 1745$ MHz; $\sigma = 1.415$ S/m; $\epsilon_r = 51.716$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band4 Frequency: 1745 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3846ConvF(7.90, 7.90, 7.90)

Area Scan (51x81x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.87 W/kg

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

Reference Value = 28.43 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.15 W/kg

SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.598 W/kg

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

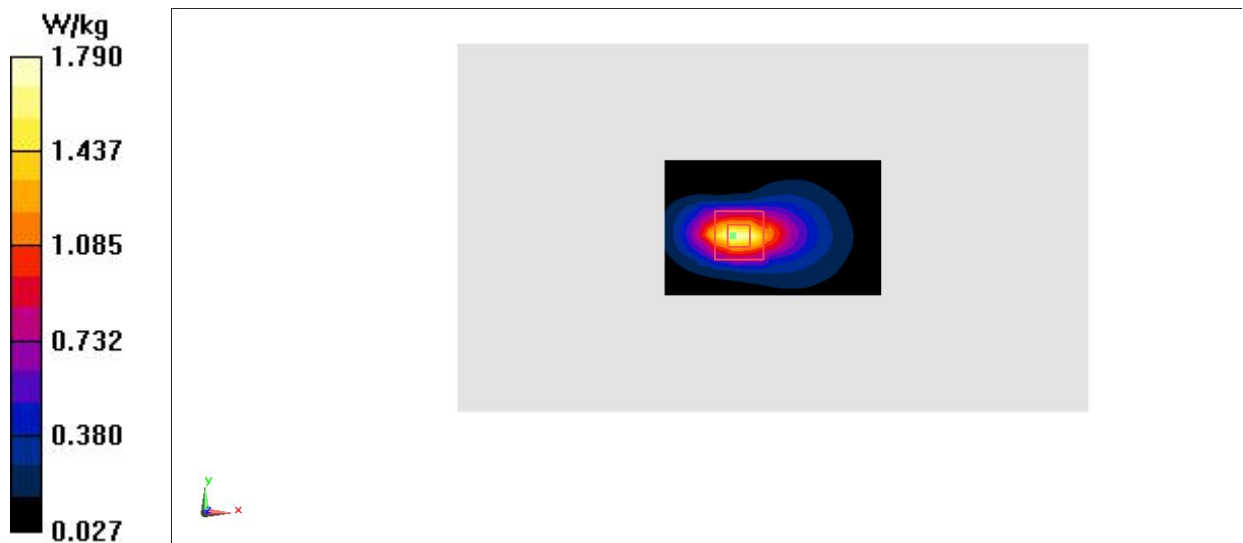


Fig.14 LTE Band4

LTE Band5 Left Cheek High with QPSK_10M_1RB_High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Head 850 MHz

Medium parameters used: $f = 844$ MHz; $\sigma = 0.928$ S/m; $\epsilon_r = 41.624$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band5 Frequency: 844 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3846 ConvF(9.33, 9.33, 9.33)

Area Scan (71x131x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.249 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.568 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.269 W/kg

SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.153 W/kg

Maximum value of SAR (measured) = 0.245 W/kg

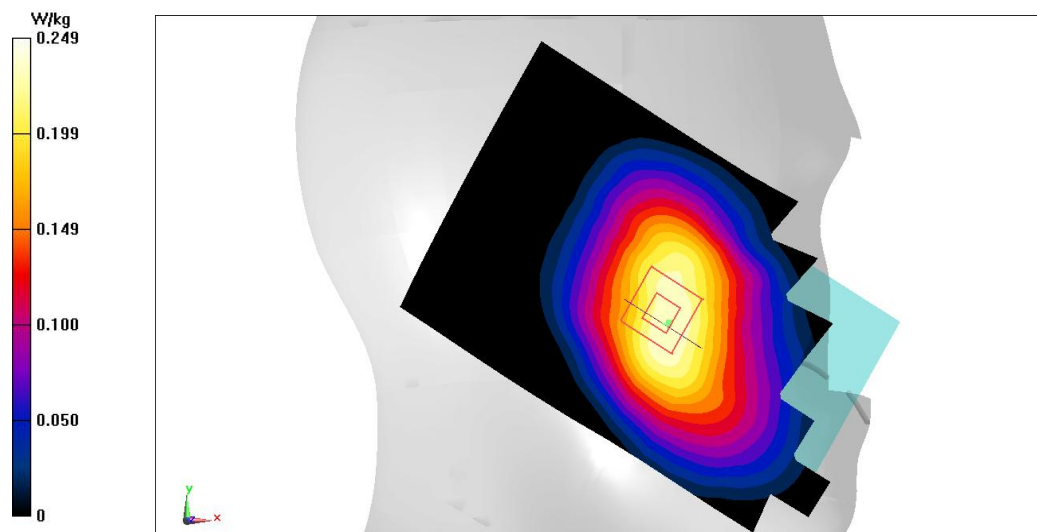


Fig.15 LTE Band5

LTE Band5 Body LeftHigh with QPSK_10M_1RB_High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Body 850 MHz

Medium parameters used: $f = 844$ MHz; $\sigma = 1.009$ S/m; $\epsilon_r = 55.338$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band5 Frequency: 844 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3846 ConvF(9.52, 9.52, 9.52)

Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.311 W/kg

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

Reference Value = 18.18 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.347 W/kg

SAR(1 g) = 0.237 W/kg; SAR(10 g) = 0.161 W/kg

Maximum value of SAR (measured) = 0.309 W/kg

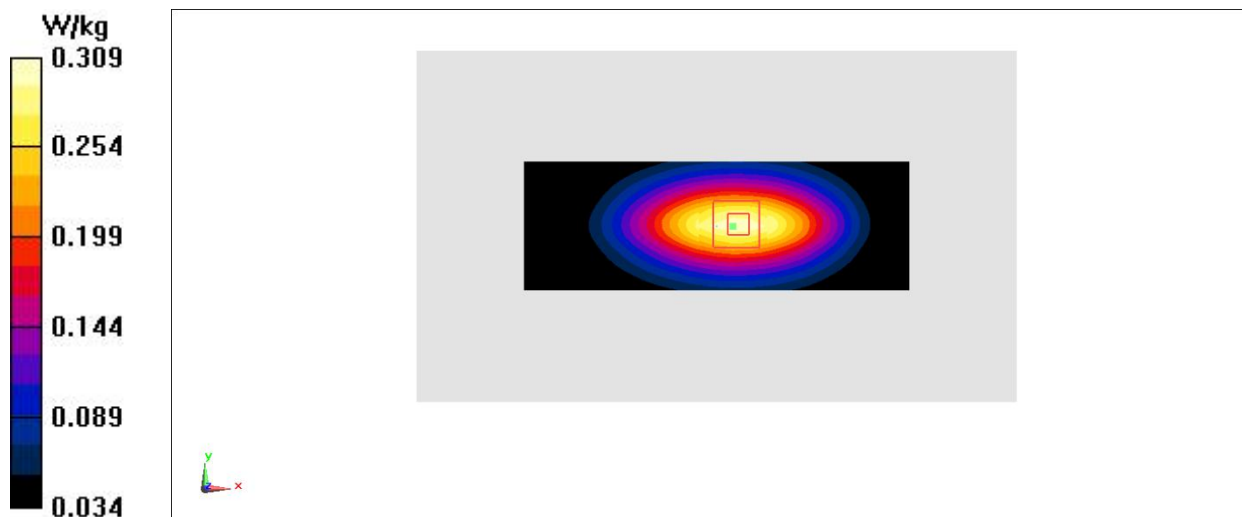


Fig.16 LTE Band5

LTE Band7 Left Cheek High with QPSK_20M_1RB_High

Date: 2017-5-17

Electronics: DAE4 Sn1331

Medium: Head2600 MHz

Medium parameters used: $f = 2560$ MHz; $\sigma = 1.981$ S/m; $\epsilon_r = 37.314$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band7 Frequency: 2560 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(7.12, 7.12, 7.12)

Area Scan (91x151x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.0726 W/kg

Zoom Scan (9x8x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 0 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.0560 W/kg

SAR(1 g) = 0.030 W/kg; SAR(10 g) = 0.017 W/kg

Maximum value of SAR (measured) = 0.0466 W/kg

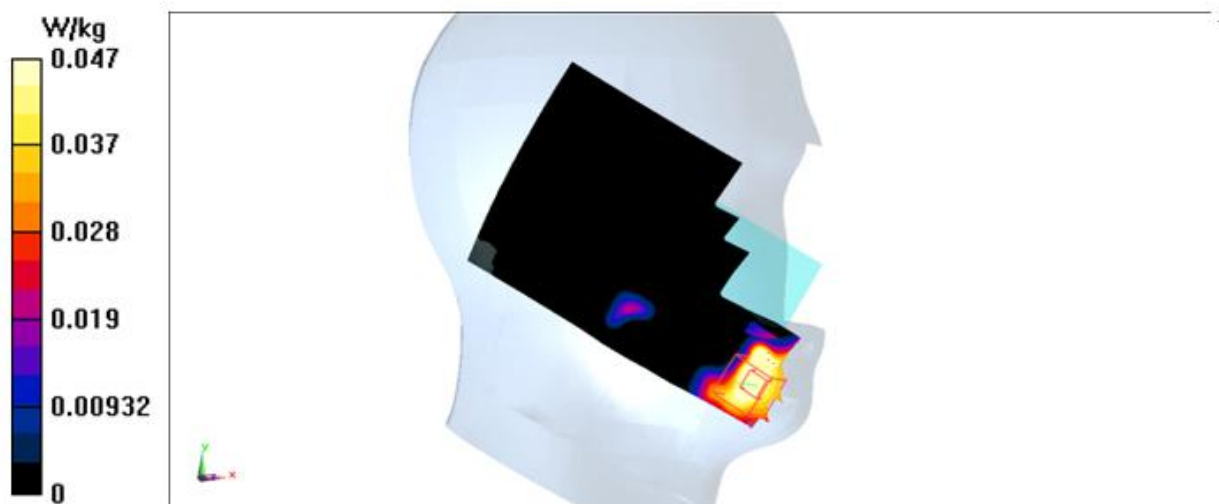


Fig.17 LTE Band7

LTE Band7 Body Bottom High with QPSK_20M_1RB_High

Date: 2017-4-17

Electronics: DAE4 Sn1331

Medium: Body2600 MHz

Medium parameters used: $f = 2560$ MHz; $\sigma = 2.099$ S/m; $\epsilon_r = 51.658$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band7 Frequency: 2560 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(7.25, 7.25, 7.25)

Area Scan (41x71x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 1.19 W/kg

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

Reference Value = 17.51 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 0.718 W/kg; SAR(10 g) = 0.325 W/kg

Maximum value of SAR (measured) = 0.824 W/kg

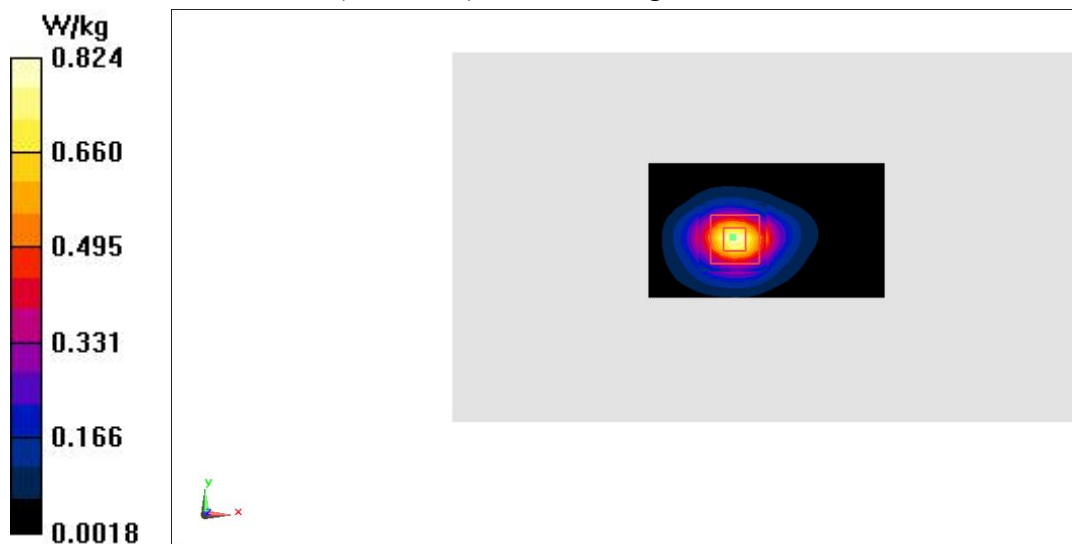


Fig.18 LTE Band7

LTE Band12 Left Cheek Middle with QPSK_10M_1RB_High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Head750 MHz

Medium parameters used (interpolated): $f = 707.5$ MHz; $\sigma = 0.36$ mho/m; $\epsilon_r = 42.59$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band12 Frequency: 707.5 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(9.65, 9.65, 9.65)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

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

Reference Value = 4.462 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.219 W/kg

SAR(1 g) = 0.179 W/kg; SAR(10 g) = 0.143 W/kg

Maximum value of SAR (measured) = 0.193 W/kg

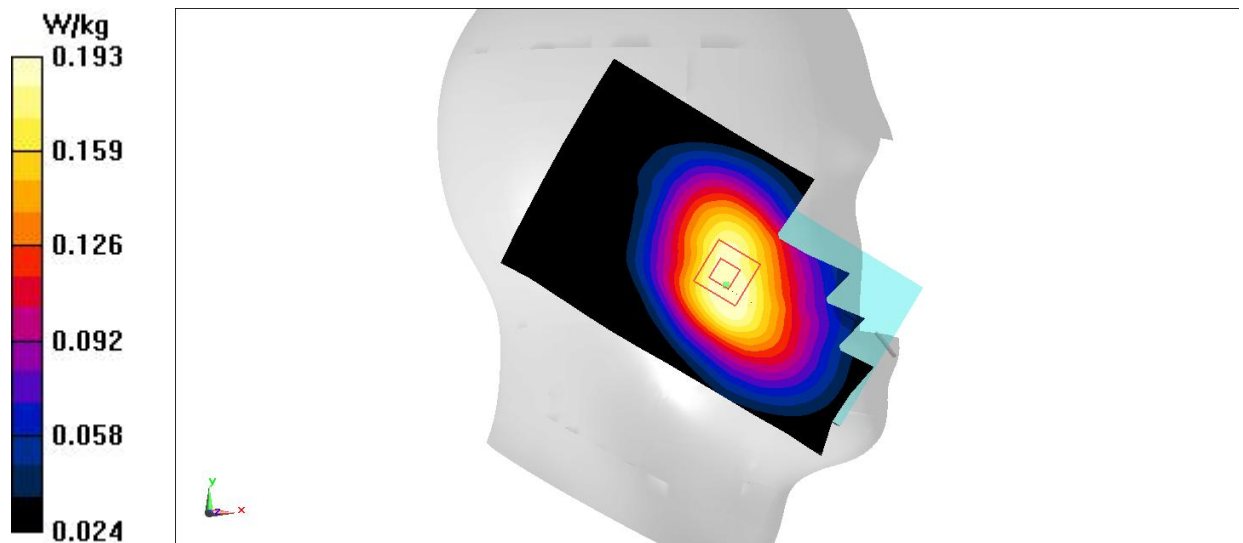


Fig.19 LTE Band12

LTE Band12 Body Left Middle with QPSK_10M_1RB_High

Date: 2017-5-16

Electronics: DAE4 Sn1331

Medium: Body750 MHz

Medium parameters used (interpolated): $f = 707.5$ MHz; $\sigma = 0.926$ mho/m; $\epsilon_r = 55.97$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band12 Frequency: 707.5 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(9.96, 9.96, 9.96)

Area Scan (121x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.296 W/kg

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

Reference Value = 16.70 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.343 W/kg

SAR(1 g) = 0.245 W/kg; SAR(10 g) = 0.173 W/kg

Maximum value of SAR (measured) = 0.296 W/kg

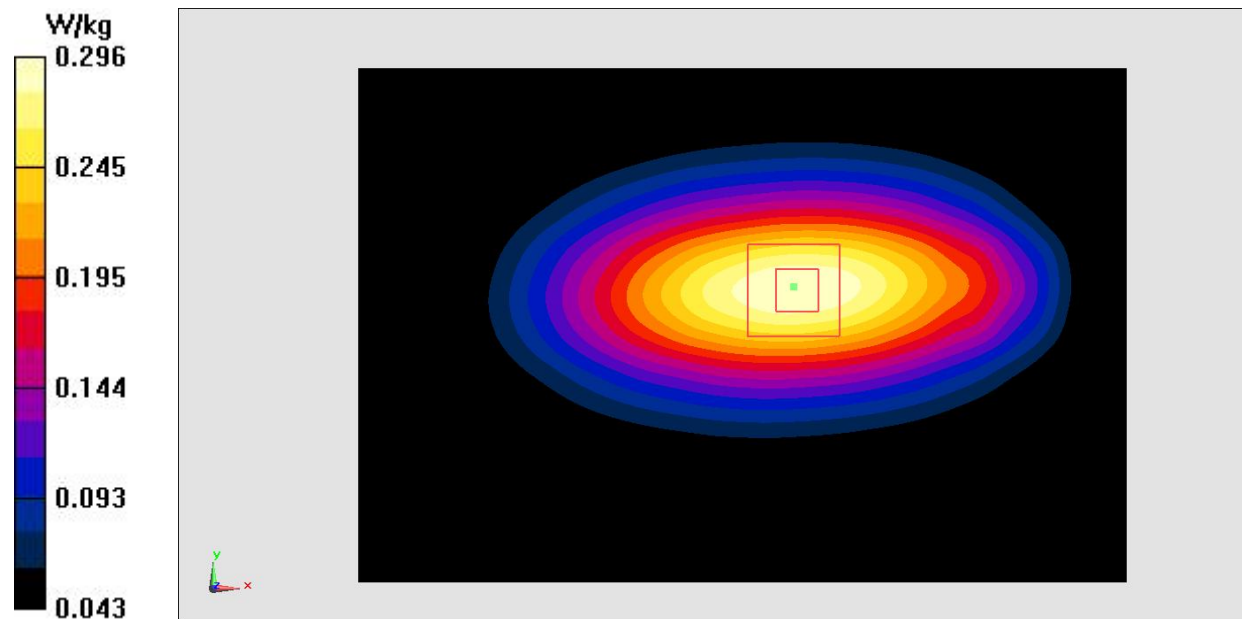


Fig.20 LTE Band12

Wifi 802.11b Right Tilt Channel 1

Date: 2017-5-17

Electronics: DAE4 Sn1331

Medium: Head 2450 MHz

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.812$ S/m; $\epsilon_r = 37.949$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WLan 2450 Frequency: 2412 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(7.22, 7.22, 7.22)

Area Scan (91x151x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.744 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 17.74 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.978 W/kg

SAR(1 g) = 0.414 W/kg; SAR(10 g) = 0.192 W/kg

Maximum value of SAR (measured) = 0.732 W/kg

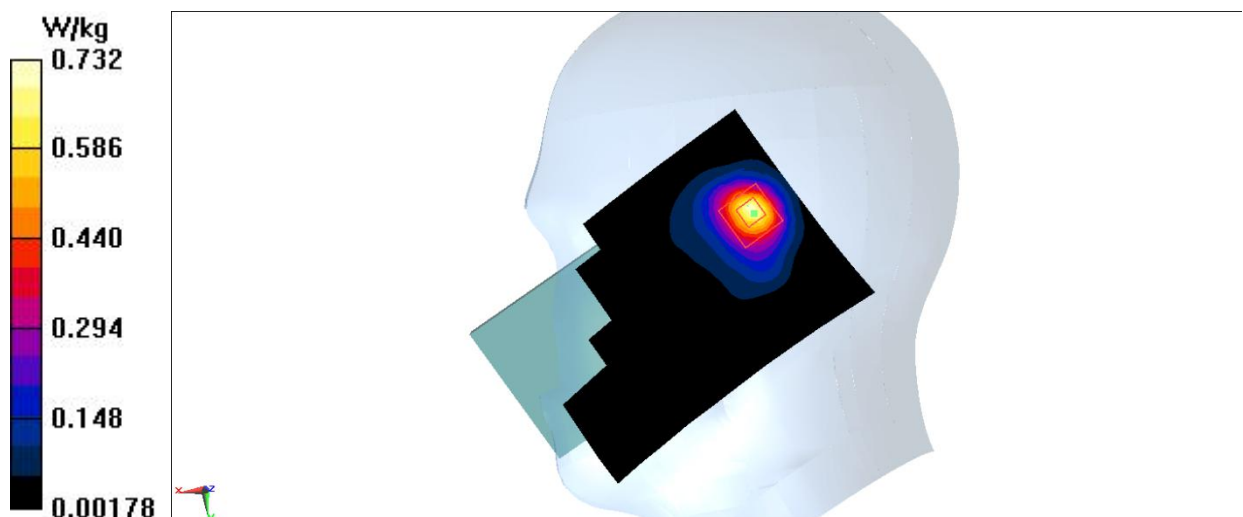


Fig.21 2450 MHz

Wifi 802.11b Body Rear Channel 1

Date: 2017-5-17

Electronics: DAE4 Sn1331

Medium: Body 2450 MHz

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.917$ S/m; $\epsilon_r = 52.181$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: Wlan 2450 Frequency: 2412 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN3846 ConvF(7.31, 7.31, 7.31)

rea Scan (121x71x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.304 W/kg

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

Reference Value = 2.946 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.504 W/kg

SAR(1 g) = 0.235 W/kg; SAR(10 g) = 0.112 W/kg

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

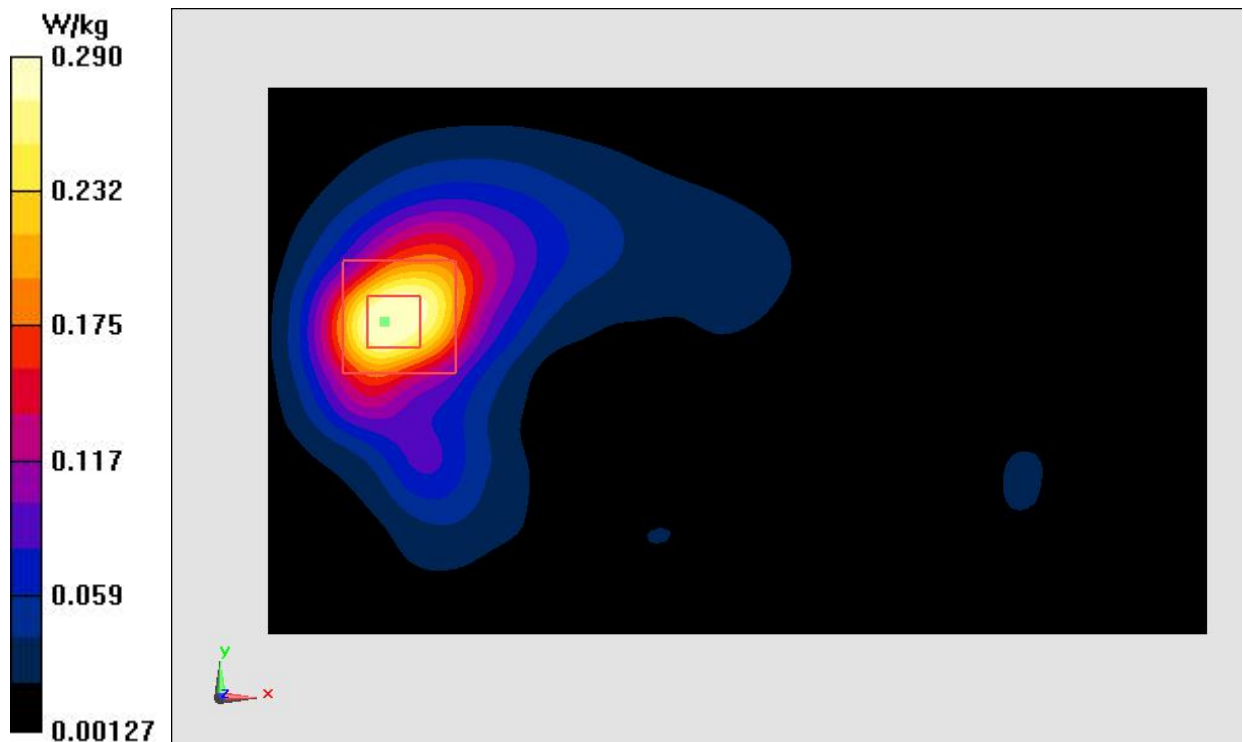


Fig.22 2450 MHz

Wifi 802.11a Right Tilt Channel 165

Date: 2017-5-18

Electronics: DAE4 Sn1331

Medium: Head 5 GHz

Medium parameters used (interpolated): $f = 5825$ MHz; $\sigma = 5.422$ S/m; $\epsilon_r = 33.989$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: Wlan 5G Frequency: 5825 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(4.95, 4.95, 4.95)

Area Scan (91x171x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.787 W/kg

Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (10x10x7)/Cube 0: Measurement grid:

$dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 7.809 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.57 W/kg

SAR(1 g) = 0.298 W/kg; SAR(10 g) = 0.096 W/kg

Maximum value of SAR (measured) = 0.735 W/kg

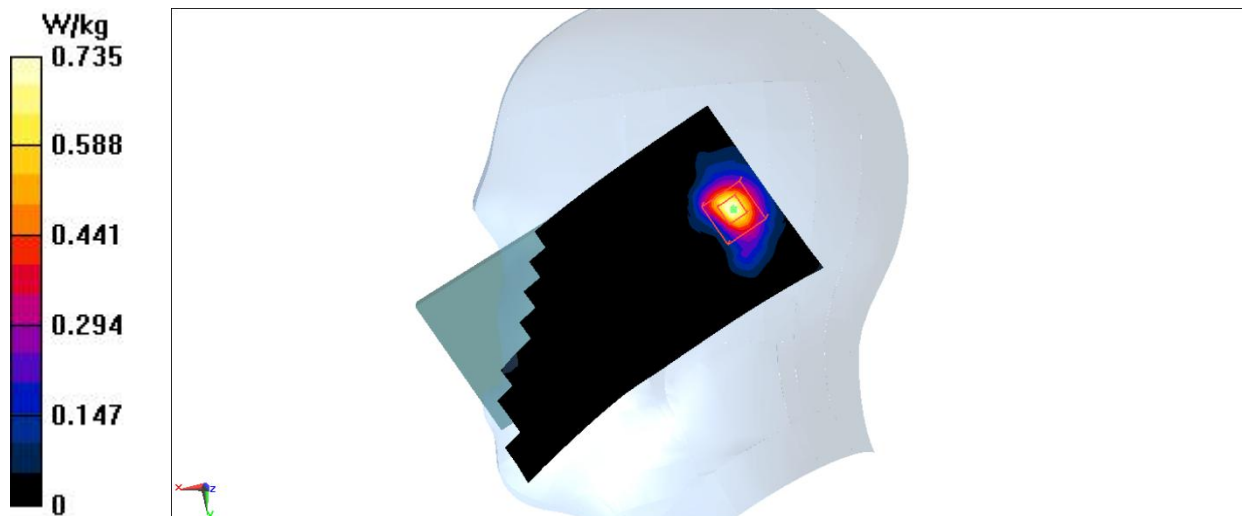


Fig.23 5GHz

Wifi 802.11a Top Channel 165

Date: 2017-5-18

Electronics: DAE4 Sn1331

Medium: Body5 GHz

Medium parameters used (interpolated): $f = 5825$ MHz; $\sigma = 5.98$ S/m; $\epsilon_r = 46.179$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: Wlan 5G Frequency: 5825 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN3846 ConvF(4.53, 4.53, 4.53)

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

Maximum value of SAR (interpolated) = 0.382 W/kg

Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (10x10x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 9.146 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.676 W/kg

SAR(1 g) = 0.148 W/kg; SAR(10 g) = 0.044 W/kg

Maximum value of SAR (measured) = 0.415 W/kg

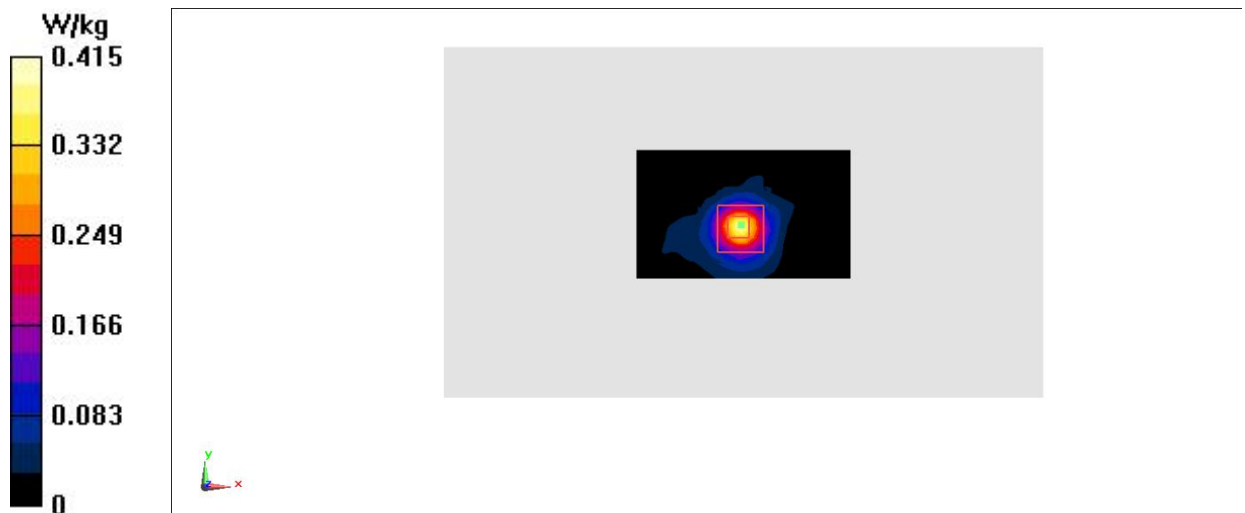


Fig.24 5GHz

ANNEX J Accreditation Certificate



China National Accreditation Service for Conformity Assessment
LABORATORY ACCREDITATION CERTIFICATE
(Registration No. CNAS L0570)

**Telecommunication Technology Labs,
Academy of Telecommunication Research, MIIT**

No.52, Huayuan North Road, Haidian District, Beijing, China

No.51, Xueyuan Road, Haidian District, Beijing, China

TCL International E City, No. 1001 Zhongshanyuan Road, Nanshan
District, Shenzhen, Guangdong Province

*is accredited in accordance with 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 to undertake testing and calibration service as
described in the schedule attached to this certificate.*

*The scope of accreditation is detailed in the attached schedule bearing the
same registration number as above. The schedule form an integral part of this
certificate.*

Date of Issue: 2015-11-13

Date of Expiry: 2017-06-19

Date of Initial Accreditation: 1998-07-03

Signed on behalf of China National Accreditation Service for Conformity Assessment



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 a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Laboratory Accreditation Cooperation Mutual Recognition Arrangement (APLAC MRA). The validity of the certificate can be checked on CNAS website at <http://www.cnas.org.cn/english/findanaccreditedbody/index.shtml>