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 jΩ
Return Loss	- 25.7 dB

Antenna Parameters with Head TSL at 5600 MHz

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

Antenna Parameters with Head TSL at 5750 MHz

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

Antenna Parameters with Body TSL at 5250 MHz

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

Antenna Parameters with Body TSL at 5600 MHz

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

Antenna Parameters with Body TSL at 5750 MHz

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

General Antenna Parameters and Design

Electrical Delay (one direction)	1.210 ns

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; σ = 4.52 S/m; ε_r = 34.4; ρ = 1000 kg/m^3
Medium parameters used: f = 5600 MHz; σ = 4.86 S/m; ε_r = 33.9; ρ = 1000 kg/m^3
Medium parameters used: f = 5750 MHz; σ = 5.02 S/m; ε_r = 33.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

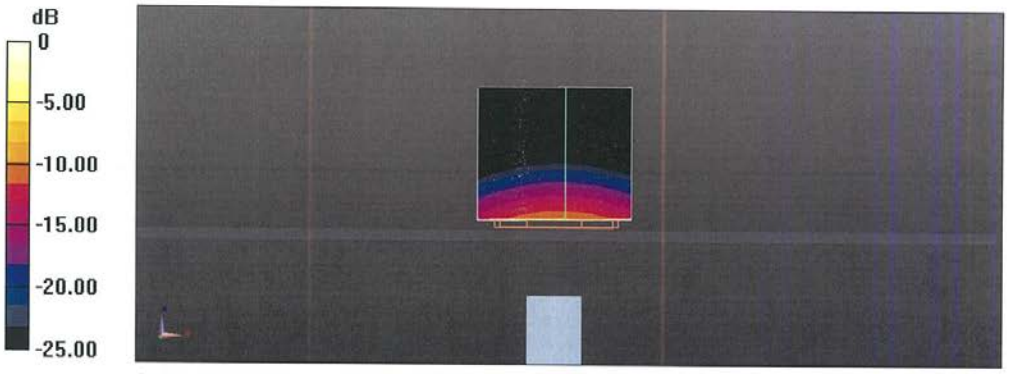
DASY52 Configuration:

- 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

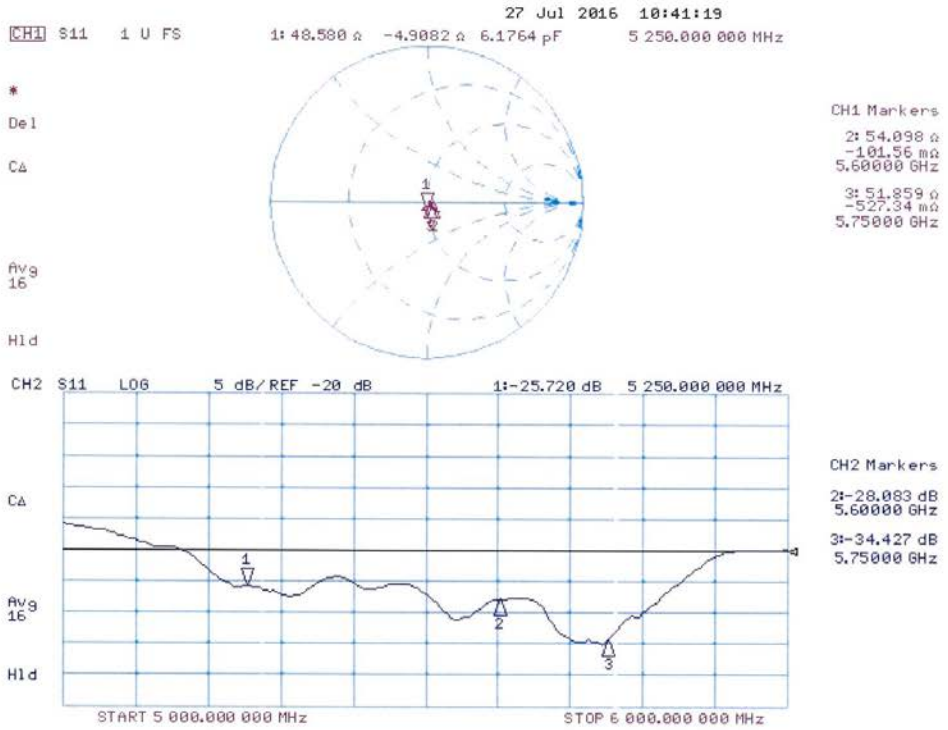
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 72.22 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(1 g) = 8.27 W/kg; SAR(10 g) = 2.37 W/kg
Maximum value of SAR (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



0 dB = 17.9 W/kg = 12.53 dBW/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; σ = 5.42 S/m; ε_r = 47.1; ρ = 1000 kg/m^3
Medium parameters used: f = 5600 MHz; σ = 5.88 S/m; ε_r = 46.5; ρ = 1000 kg/m^3
Medium parameters used: f = 5750 MHz; σ = 6.11 S/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

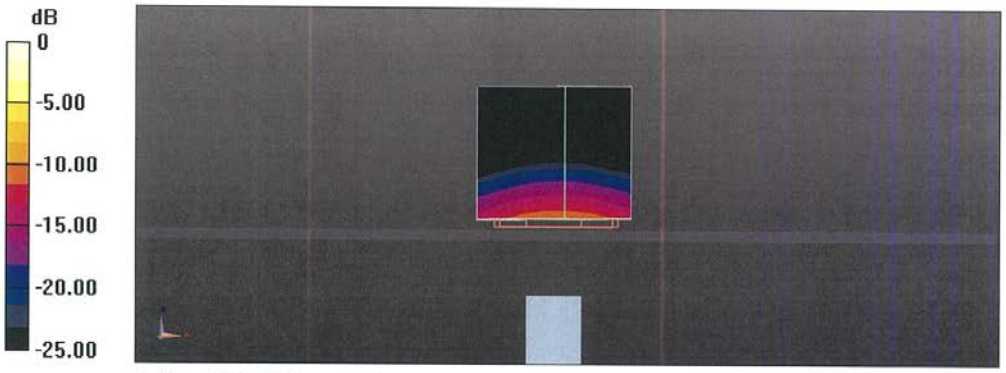
DASY52 Configuration:

- 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

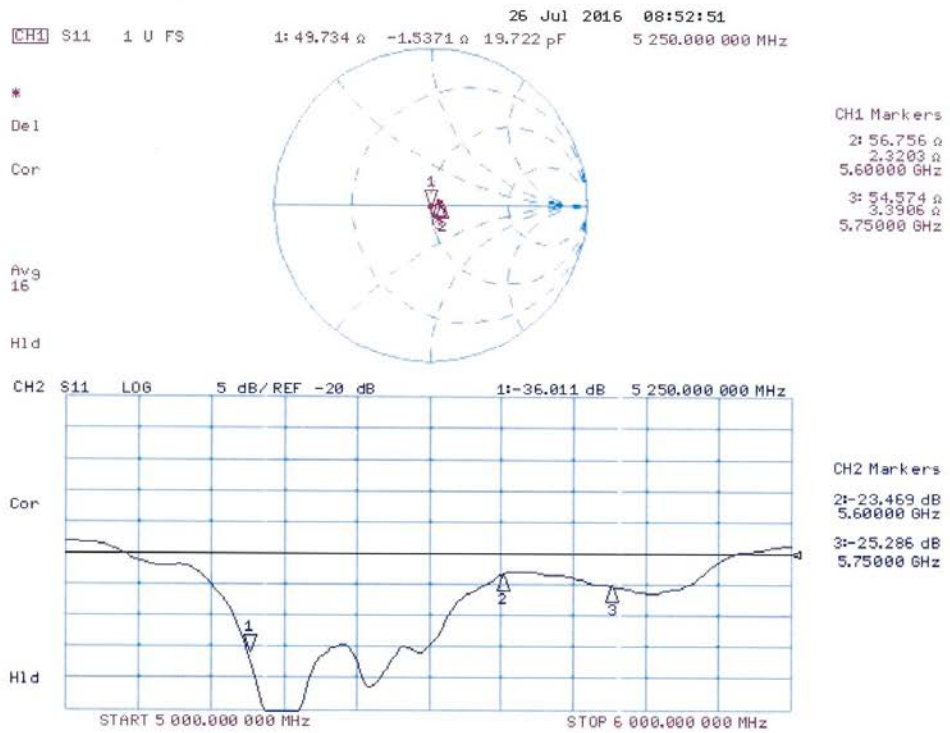
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.99 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 33.0 W/kg
SAR(1 g) = 7.97 W/kg; SAR(10 g) = 2.23 W/kg
Maximum value of SAR (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

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)
	33.39	33.36	33.27
GSM 1900MHz	Conducted Power (dBm)		
	Channel 810(1909.8MHz)	Channel 661(1880MHz)	Channel 512(1850.2MHz)
	30.48	30.21	30.26

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

GSM 850 GPRS (GMSK)	Measured Power (dBm)		
	251	190	128
4 Txslots	27.86	27.92	27.90
PCS1900 GPRS (GMSK)	Measured Power (dBm)		
	810	661	512
4 Txslots	27.89	27.58	27.52

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

Item	**band**	**FDDV result**		
	ARFCN	**4233 (846.6MHz)**	**4182 (836.4MHz)**	**4132 (826.4MHz)**
WCDMA	****	24.32	24.35	24.34
Item	**band**	**FDDII result**		
	ARFCN	**9538 (1907.6MHz)**	**9400 (1880MHz)**	**9262 (1852.4MHz)**
WCDMA	****	24.15	24.09	23.96
Item	**band**	**FDDIV result**		
	ARFCN	**1513 (1752.6MHz)**	**1412 (1732.4MHz)**	**1312 (1712.4MHz)**
WCDMA	****	23.89	23.93	23.86

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

LTE Band2 20MHz	1RB-Middle (50)	1900 (19100)	24.78
	1RB-High (99)	1880 (18900)	24.58
	1RB-Middle (50)	1860 (18700)	24.80
LTE Band4 20MHz	1RB-High (99)	1745 (20300)	24.55
	1RB-High (99)	1732.5 (20175)	24.62
	1RB-Middle (50)	1720 (20050)	24.80
LTE Band7 20MHz	1RB-Middle (50)	2560 (21350)	24.41
	1RB-Middle (50)	2535 (21100)	24.23
	1RB-Middle (50)	2510 (20850)	24.16
LTE Band12 10MHz	1RB-Middle (24)	711 (23130)	24.32
	1RB-Middle (24)	707.5 (23095)	24.31
	1RB-Middle (24)	704 (23060)	24.02
LTE Band38 20MHz	1RB-Middle (50)	2610 (38150)	24.23
	1RB-High (99)	2595 (38000)	23.86
	1RB-High (99)	2580 (37850)	23.93

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

Mode / data rate	Channel	Measured Power (dBm)
802.11b – 1Mbps	6	15.95
802.11a – 6Mbps	157	11.59

I.2 Measurement results

Test Band	Channel	Frequency	Test Position	Figure No./Note	Conducted Power (dBm)	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)
GSM850	128	824.2	Right	Fig I.1	33.27	33.6	0.122	**0.13**	0.158	**0.17**	-0.07
GSM850	128	824.2	Right	Fig I.2	27.90	29	0.172	**0.22**	0.258	**0.33**	0.05
GSM1900	661	1880	Left	Fig I.3	30.21	31	0.114	**0.14**	0.180	**0.22**	0.09
GSM1900	512	1850.2	Left	Fig I.4	27.52	28	0.215	**0.24**	0.376	**0.42**	0.12
WCDMA 850	4182	836.4	Right	Fig I.5	24.35	24.5	0.116	**0.12**	0.153	**0.16**	-0.04
WCDMA 850	4182	836.4	Right	Fig I.6	24.35	24.5	0.256	**0.26**	0.368	**0.38**	-0.02
WCDMA1700	1738	1752.6	Left	Fig I.7	23.89	24.5	0.153	**0.18**	0.231	**0.27**	0.05
WCDMA1700	1738	1752.6	Bottom	Fig I.8	23.89	24.5	0.162	**0.19**	0.311	**0.36**	-0.02
WCDMA1900	9938	1907.6	Left	Fig I.9	24.15	24.5	0.199	**0.22**	0.318	**0.34**	0.01
WCDMA1900	9800	1880	Left	Fig I.10	24.09	24.5	0.300	**0.33**	0.504	**0.55**	0.00
LTE Band2	19100	1900	Left	Fig I.11	24.87	24.9	0.166	**0.17**	0.266	**0.27**	-0.12
LTE Band2	19100	1900	Front	Fig I.12	24.87	24.9	0.192	**0.19**	0.352	**0.35**	-0.04
LTE Band4	20050	1720	Left	Fig I.13	24.80	24.8	0.120	**0.12**	0.182	**0.18**	0.06
LTE Band4	20050	1720	Left	Fig I.14	24.80	24.8	0.106	**0.11**	0.177	**0.18**	-0.02
LTE Band7	21350	2560	Left	Fig I.15	24.41	24.5	0.242	**0.25**	0.447	**0.46**	0.05
LTE Band7	21350	2560	Left	Fig I.16	24.41	24.5	0.249	**0.25**	0.476	**0.49**	0.07
LTE Band12	23130	711	Right	Fig I.17	24.32	25	0.071	**0.08**	0.088	**0.10**	-0.09
LTE Band12	23130	711	Right	Fig I.18	24.32	25	0.121	**0.14**	0.172	**0.20**	-0.15
LTE Band38	38150	2610	Left	Fig I.19	24.23	24.5	0.122	**0.13**	0.233	**0.25**	0.07
LTE Band38	38150	2610	Front	Fig I.20	24.23	24.5	0.066	**0.07**	0.127	**0.14**	-0.09
Wi-Fi 2.4G	6	2437	Right	Fig I.21	15.95	16	0.372	**0.38**	0.908	**0.92**	-0.07
Wi-Fi 2.4G	1	2412	Front	Fig I.22	15.28	16	0.030	**0.04**	0.054	**0.06**	-0.03
Wi-Fi 5G	157	5785	Right	Fig I.23	11.59	11.8	0.129	**0.14**	0.402	**0.42**	0.13
Wi-Fi 5G	157	5785	Top	Fig I.24	11.59	11.8	0.015	**0.02**	0.042	**0.04**	0.00

Table I.2-1: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

Ambient Temperature: 22.5 °C		Liquid Temperature: 23.3°C					
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.						
2437	6	Right	Touch	97.73%	100%	**0.92**	**0.94**

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

Ambient Temperature: 22.5 °C		Liquid Temperature: 23.3°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	Front	97.73%	100%	**0.06**	**0.06**

Table I.2-3: 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.						
5785	157	Right	Touch	87.24%	100%	**0.42**	**0.48**

Table I.2-4: 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.					
5785	157	Top	87.24%	100%	**0.04**	**0.05**

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	0.17	0.18
	PCS 1900	0.22	0.19
	UMTS FDD 2	0.34	0.53
	UMTS FDD 4	0.27	0.30
	UMTS FDD 5	0.16	0.23
	LTE Band 2	0.27	0.36
	LTE Band 4	0.18	0.13
	LTE Band 7	0.46	0.42
	LTE Band 12	0.10	0.16
	LTE Band 38	0.25	0.24
	WLAN 2.4 GHz	0.94	1.22
	WLAN 5 GHz	0.48	1.24
Hotspot (Separation Distance 10mm)	GSM 850	0.33	0.32
	PCS 1900	0.42	0.58
	UMTS FDD 2	0.55	0.62
	UMTS FDD 4	0.36	0.42
	UMTS FDD 5	0.38	0.38
	LTE Band 2	0.35	0.47
	LTE Band 4	0.18	0.18
	LTE Band 7	0.49	0.53
	LTE Band 12	0.20	0.23
	LTE Band 38	0.14	0.17
	WLAN 2.4 GHz	0.06	0.09
	WLAN 5 GHz	0.05	0.06

Note: All the spot check results marked blue are larger than the original result. So it replace the original results and others are shared.

I.4 Graph Results of spot check

GSM850_CH128 Right Cheek
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Head 835 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.921 mho/m; εr = 41.96; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: GSM850 824.2 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN3846 ConvF(9.33,9.33,9.33)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.172 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.360 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.204 W/kg
SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.122 W/kg
Maximum value of SAR (measured) = 0.174 W/kg

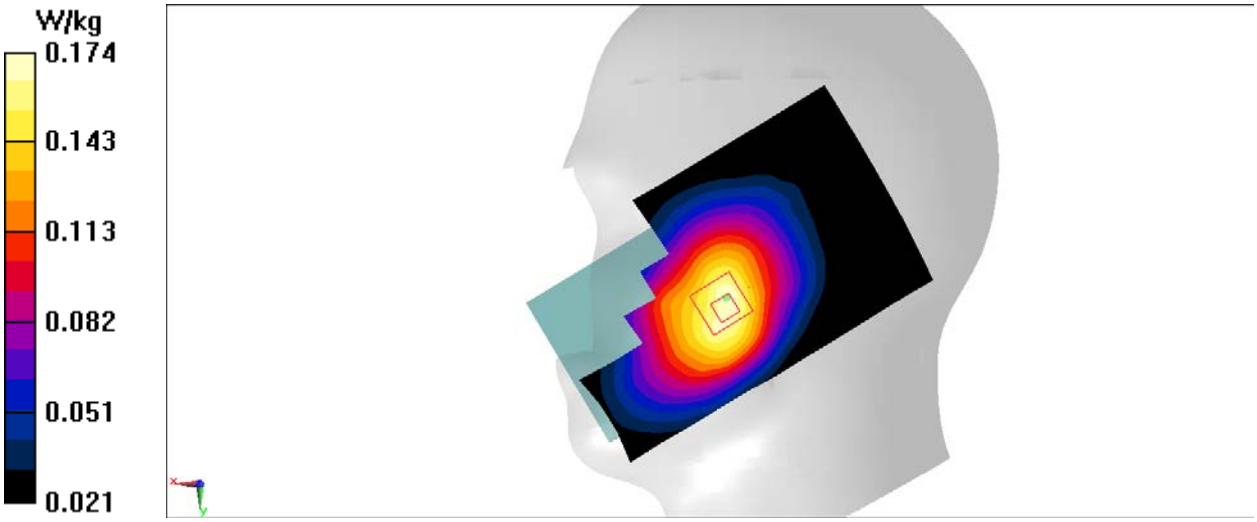


Figure I.1

GSM850_CH128 Right edge
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Body835 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.958 mho/m; εr = 56.36; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: GSM850 824.2 MHz Duty Cycle: 1:2
Probe: EX3DV4 – SN3846 ConvF(9.52,9.52,9.52)

Area Scan (111x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.512 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.41 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.419 W/kg
SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.172 W/kg
Maximum value of SAR (measured) = 0.279 W/kg

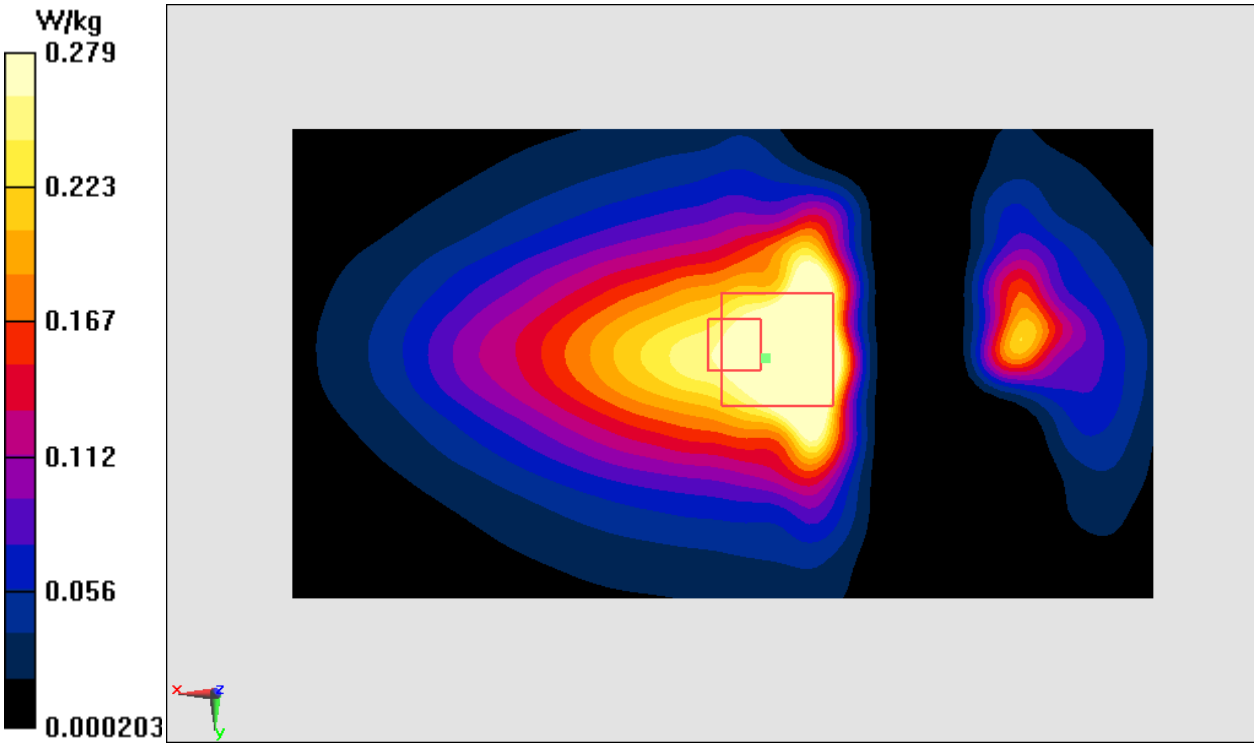


Figure I.2

PCS1900_CH661 Left Cheek
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.67; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: PCS1900 1880 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN3846 ConvF(7.89,7.89,7.89)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.211 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.069 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.267 W/kg
SAR(1 g) = 0.180 W/kg; SAR(10 g) = 0.114 W/kg
Maximum value of SAR (measured) = 0.207 W/kg

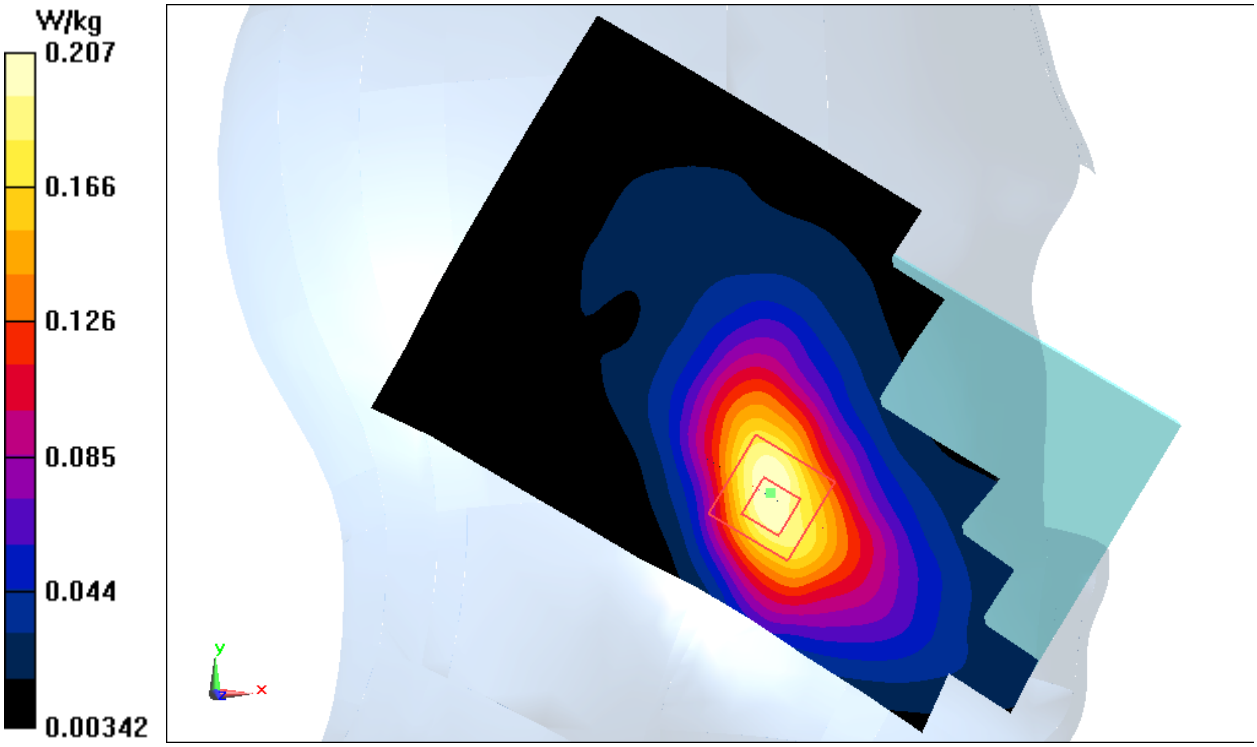


Figure I.3

PCS1900_CH512 Left edge
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Body1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.499 mho/m; εr = 52.75; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:2
Probe: EX3DV4 – SN3846 ConvF(7.57,7.57,7.57)

Area Scan (121x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.365 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.76 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.669 W/kg
SAR(1 g) = 0.376 W/kg; SAR(10 g) = 0.215 W/kg
Maximum value of SAR (measured) = 0.404 W/kg

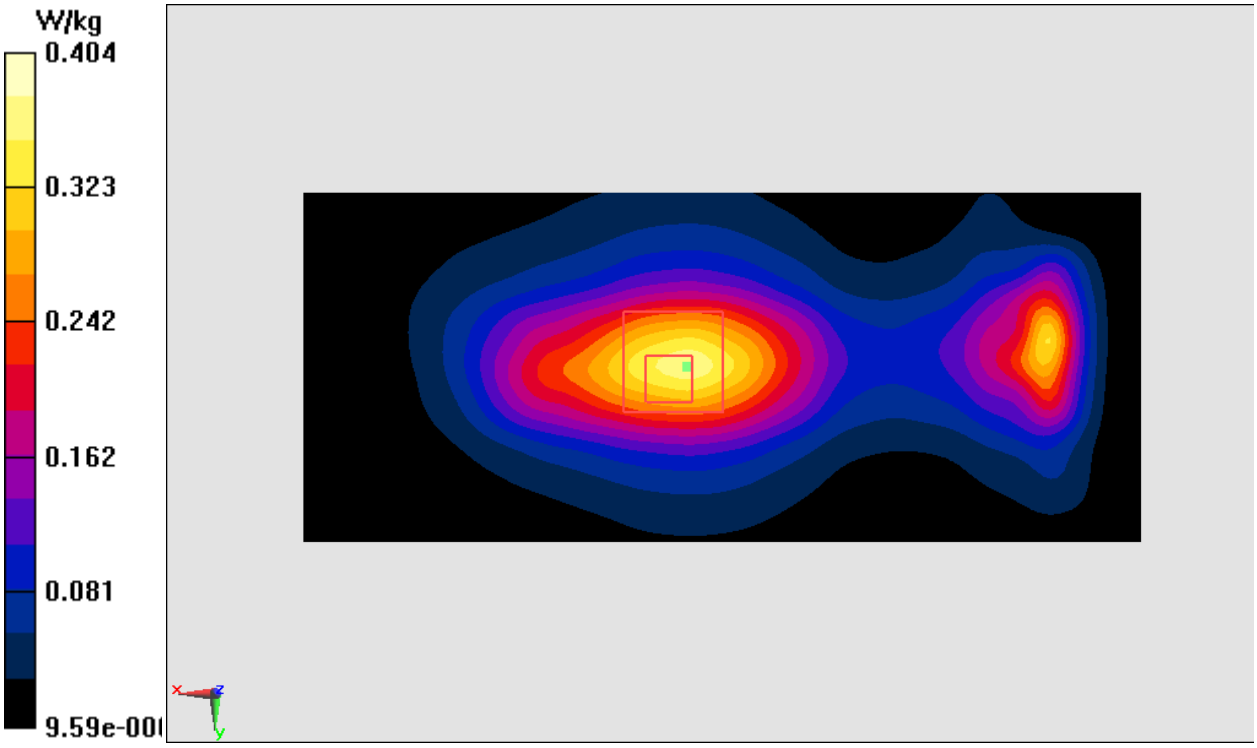


Figure I.4

WCDMA1900-BII_CH9538 Left Cheek
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Head 1900 MHz
Medium parameters used: f = 1907.6 MHz; σ = 1.417 mho/m; εr = 40.64; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WCDMA1900-BII 1907.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.89,7.89,7.89)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.368 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.129 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.466 W/kg
SAR(1 g) = 0.318 W/kg; SAR(10 g) = 0.199 W/kg
Maximum value of SAR (measured) = 0.373 W/kg

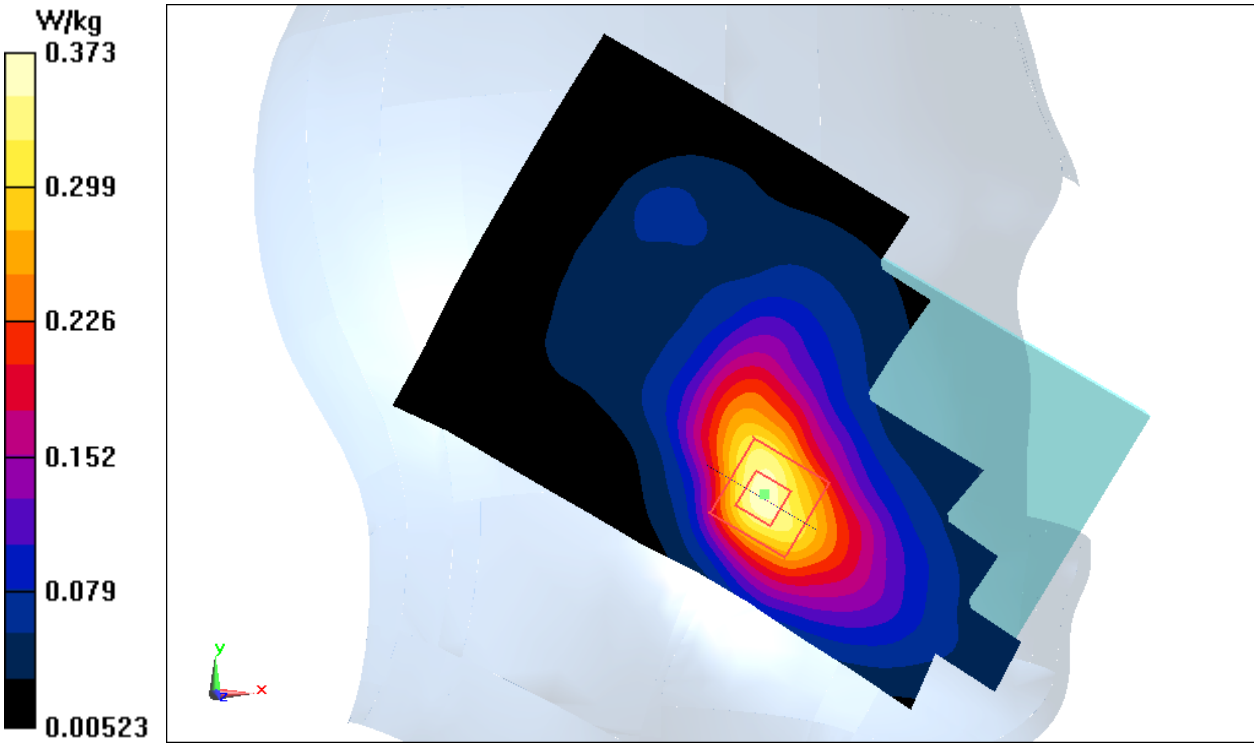


Figure I.5

WCDMA1900-BII_CH9400 Left edge
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Body1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.528 mho/m; εr = 52.71; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.57,7.57,7.57)

Area Scan (131x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.600 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.70 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.805 W/kg
SAR(1 g) = 0.504 W/kg; SAR(10 g) = 0.300 W/kg
Maximum value of SAR (measured) = 0.603 W/kg

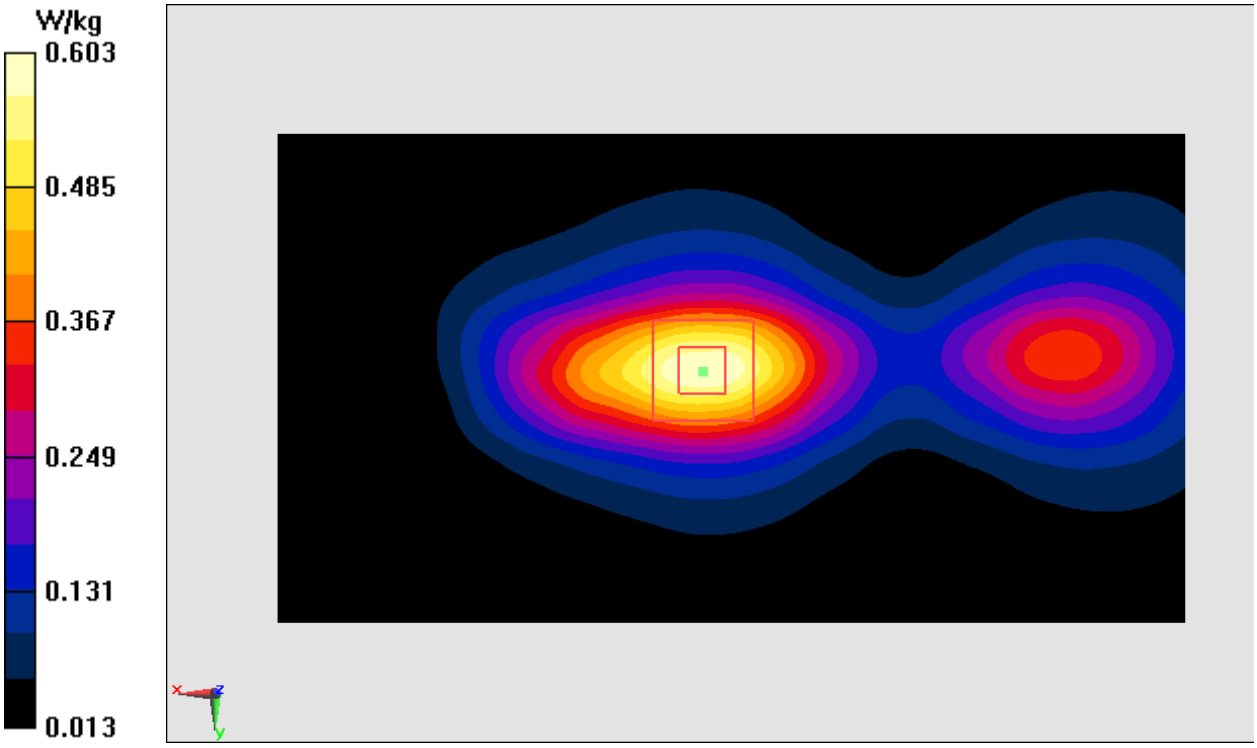


Figure I.6

WCDMA1700-BIV_CH1513 Left Cheek
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Head 1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.398 mho/m; εr = 40.37; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(8.16,8.16,8.16)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.269 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.945 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.323 W/kg
SAR(1 g) = 0.231 W/kg; SAR(10 g) = 0.153 W/kg
Maximum value of SAR (measured) = 0.263 W/kg

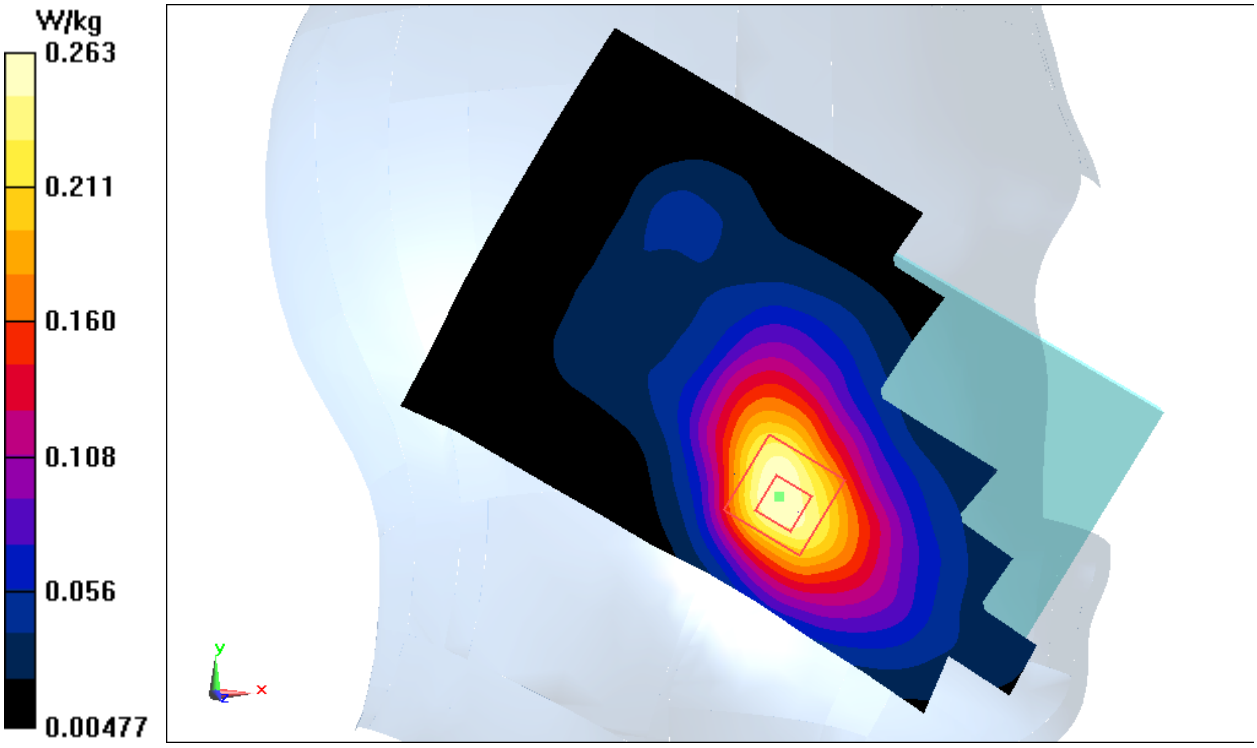


Figure I.7

WCDMA1700-BIV_CH1513 Bottom edge
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Body1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.512 mho/m; εr = 53.01; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.90,7.90,7.90)

Area Scan (131x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.394 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.78 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.577 W/kg
SAR(1 g) = 0.311 W/kg; SAR(10 g) = 0.162 W/kg
Maximum value of SAR (measured) = 0.388 W/kg

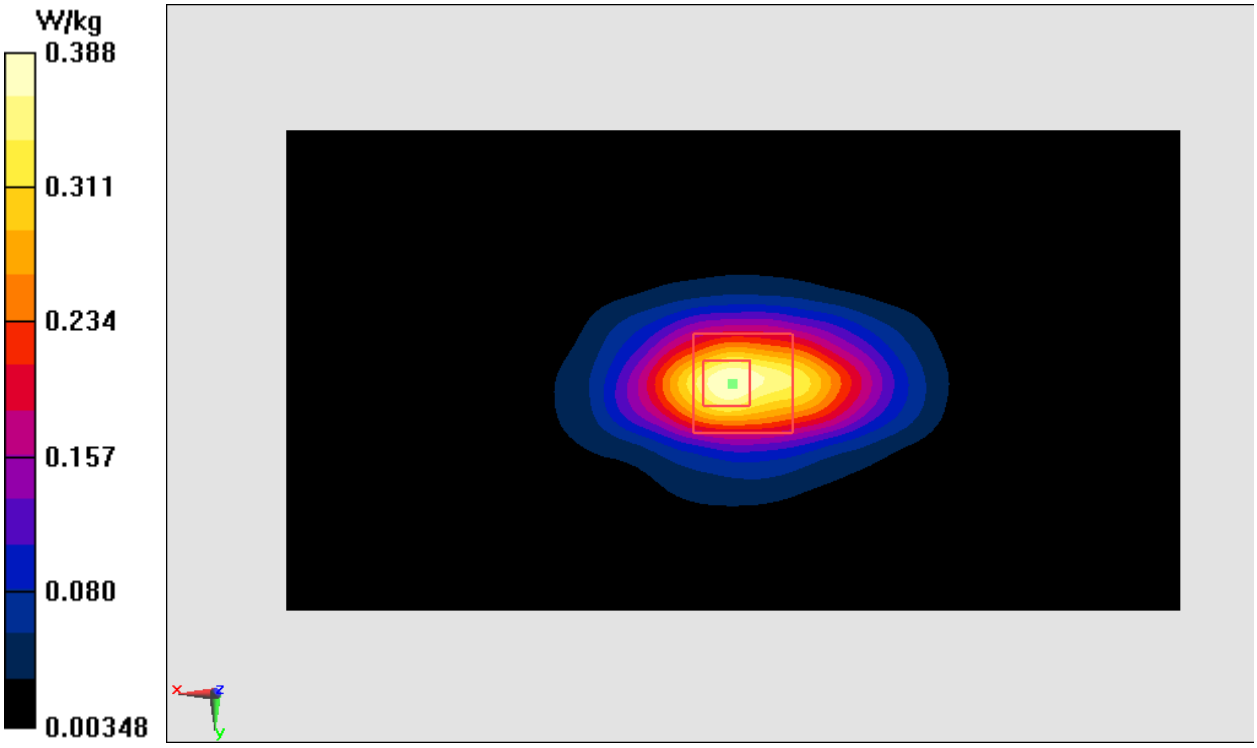


Figure I.8

WCDMA850-BV_CH4715 Right Cheek
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Head 835 MHz
Medium parameters used: f = 835.4 MHz; σ = 0.932 mho/m; εr = 41.94; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WCDMA850-BV 835.4 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(9.33,9.33,9.33)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.173 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.447 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.198 W/kg
SAR(1 g) = 0.153 W/kg; SAR(10 g) = 0.116 W/kg
Maximum value of SAR (measured) = 0.166 W/kg

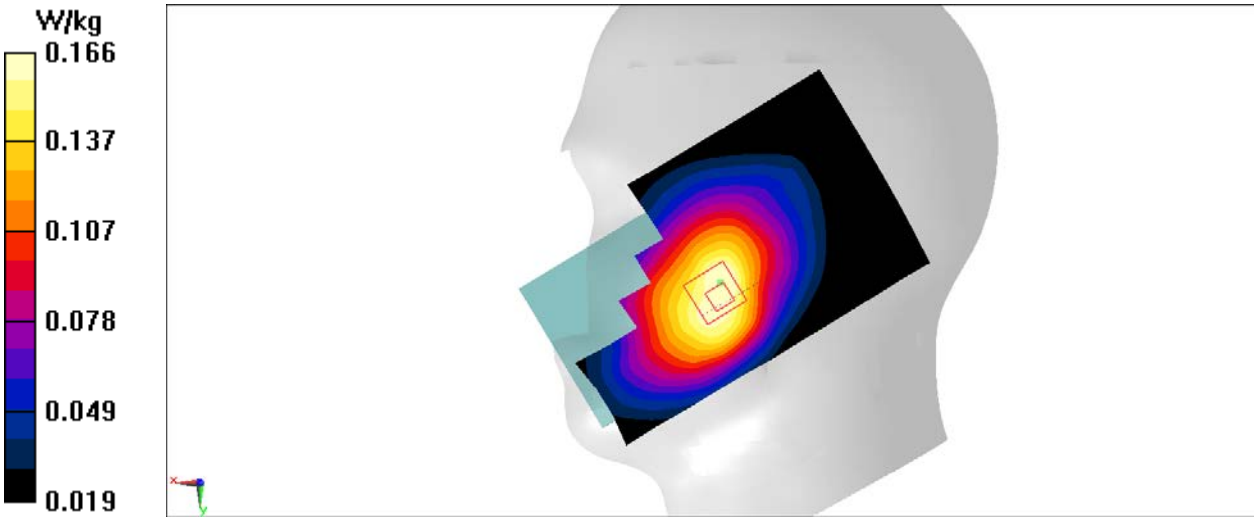


Figure I.9

WCDMA850-BV_CH4715 Right edge
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Body835 MHz
Medium parameters used: f = 835.4 MHz; σ = 0.969 mho/m; εr = 56.34; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WCDMA850-BV 835.4 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(9.52,9.52,9.52)

Area Scan (111x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.421 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.95 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.511 W/kg
SAR(1 g) = 0.368 W/kg; SAR(10 g) = 0.256 W/kg
Maximum value of SAR (measured) = 0.420 W/kg

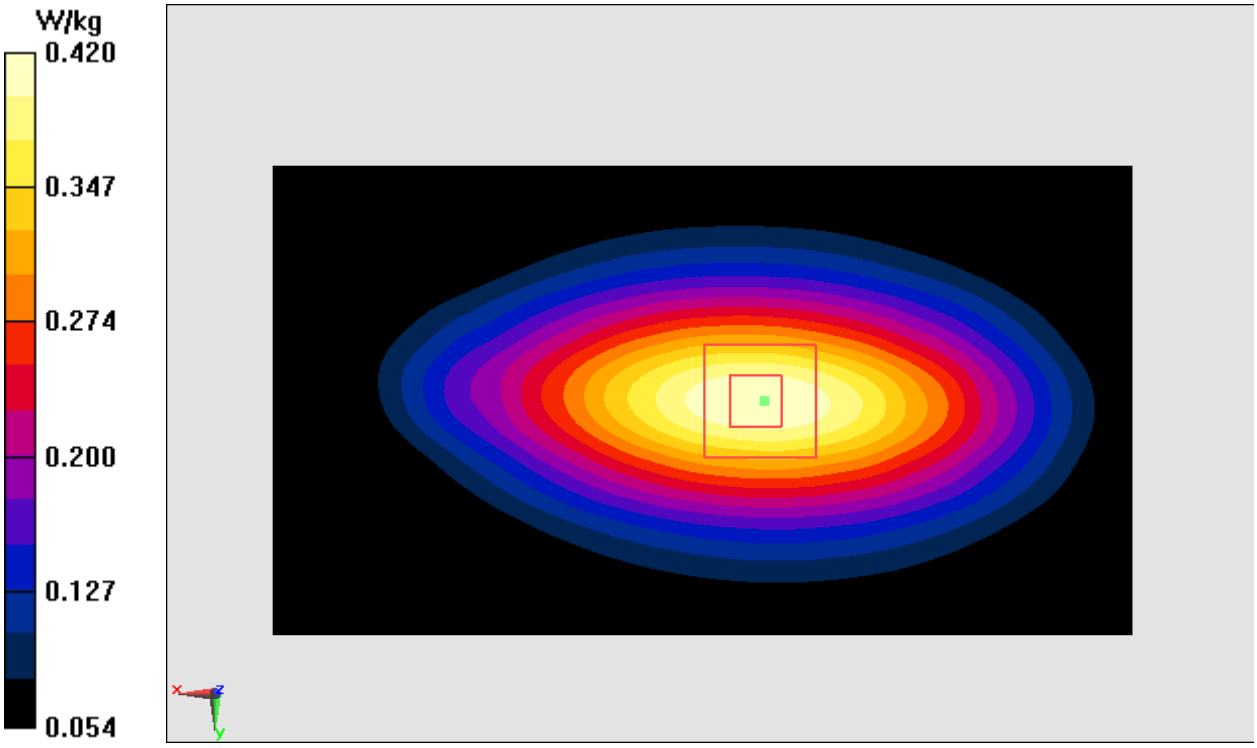


Figure I.10

LTE1900-FDD2_CH19100 Left Cheek
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.409 mho/m; εr = 40.65; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: LTE1900-FDD2 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.89,7.89,7.89)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.324 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.664 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.395 W/kg
SAR(1 g) = 0.266 W/kg; SAR(10 g) = 0.166 W/kg
Maximum value of SAR (measured) = 0.312 W/kg

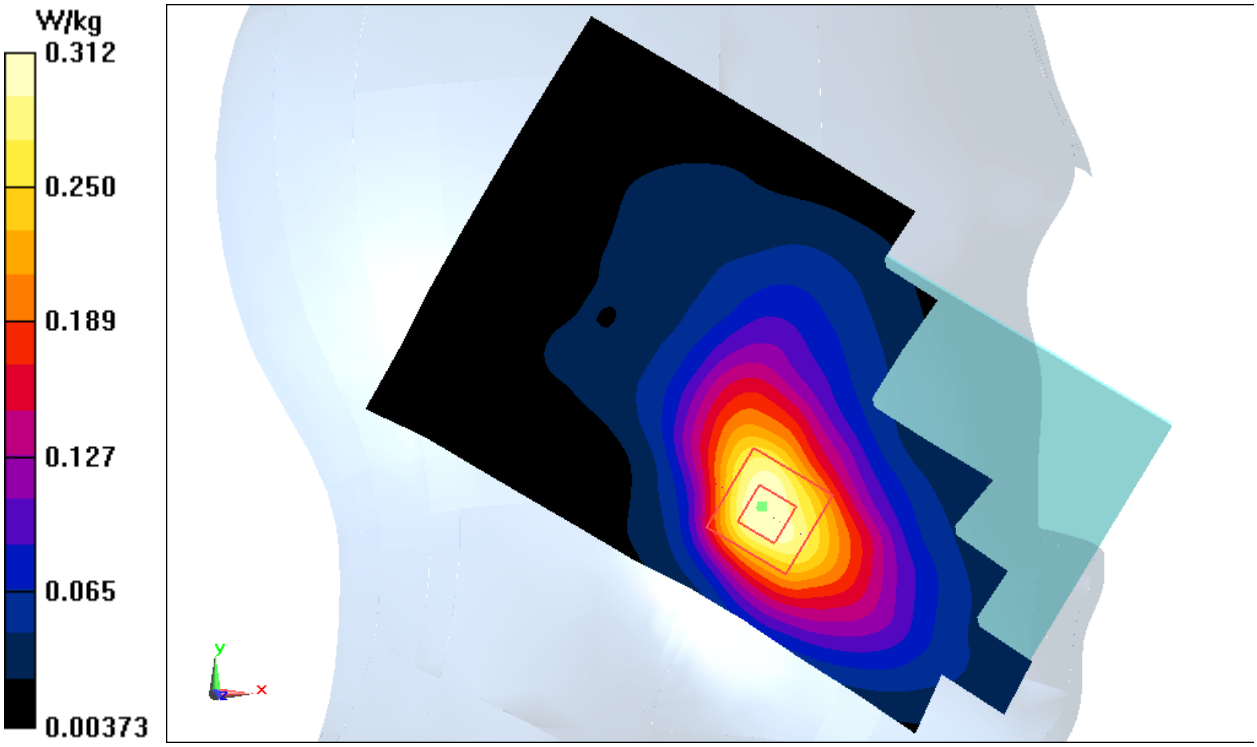


Figure I.11

LTE1900-FDD2_CH19100 Front
Date: 5/21/2017
Electronics: DAE4 Sn1331
Medium: Body1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.547 mho/m; εr = 52.69; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: LTE1900-FDD2 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.57,7.57,7.57)

Area Scan (131x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.474 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.298 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.654 W/kg
SAR(1 g) = 0.352 W/kg; SAR(10 g) = 0.192 W/kg
Maximum value of SAR (measured) = 0.454 W/kg

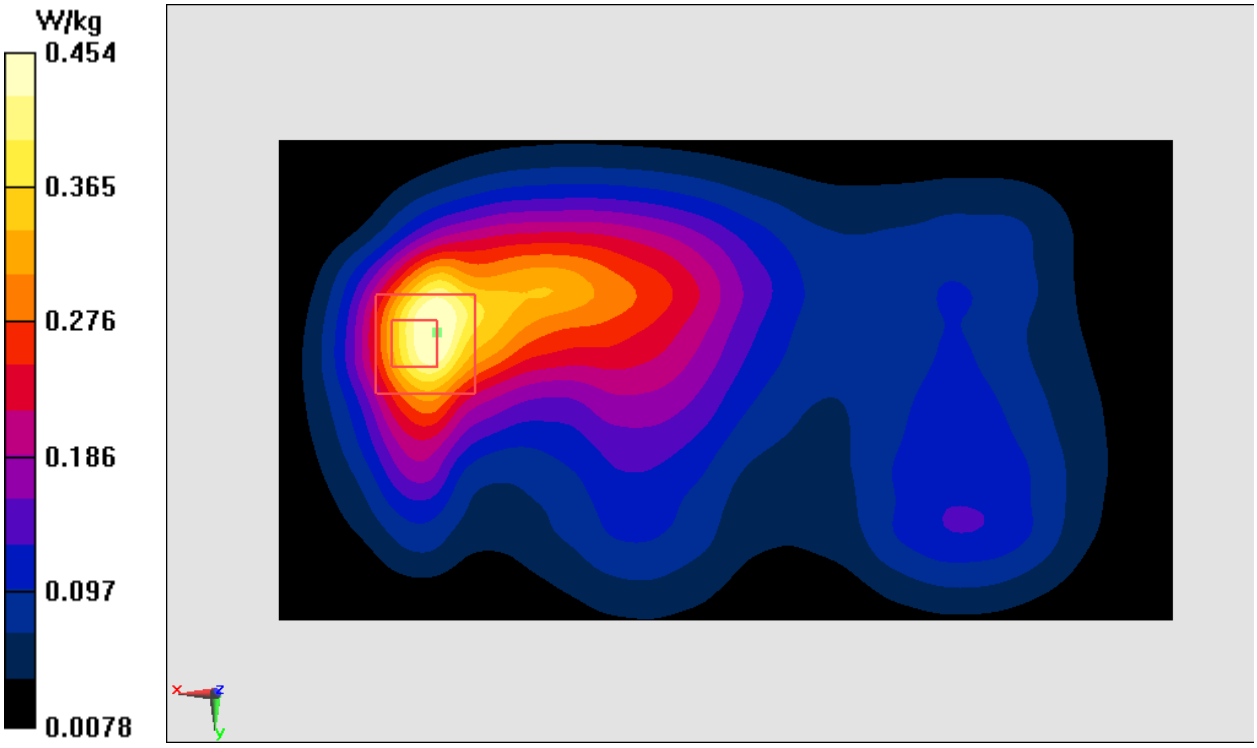


Figure I.12

LTE1700-FDD4_CH20050 Left Cheek
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Head 1750 MHz
Medium parameters used: f = 1720 MHz; σ = 1.367 mho/m; εr = 40.42; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: LTE1700-FDD4 1720 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(8.16,8.16,8.16)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.231 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.736 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.254 W/kg
SAR(1 g) = 0.182 W/kg; SAR(10 g) = 0.120 W/kg
Maximum value of SAR (measured) = 0.211 W/kg

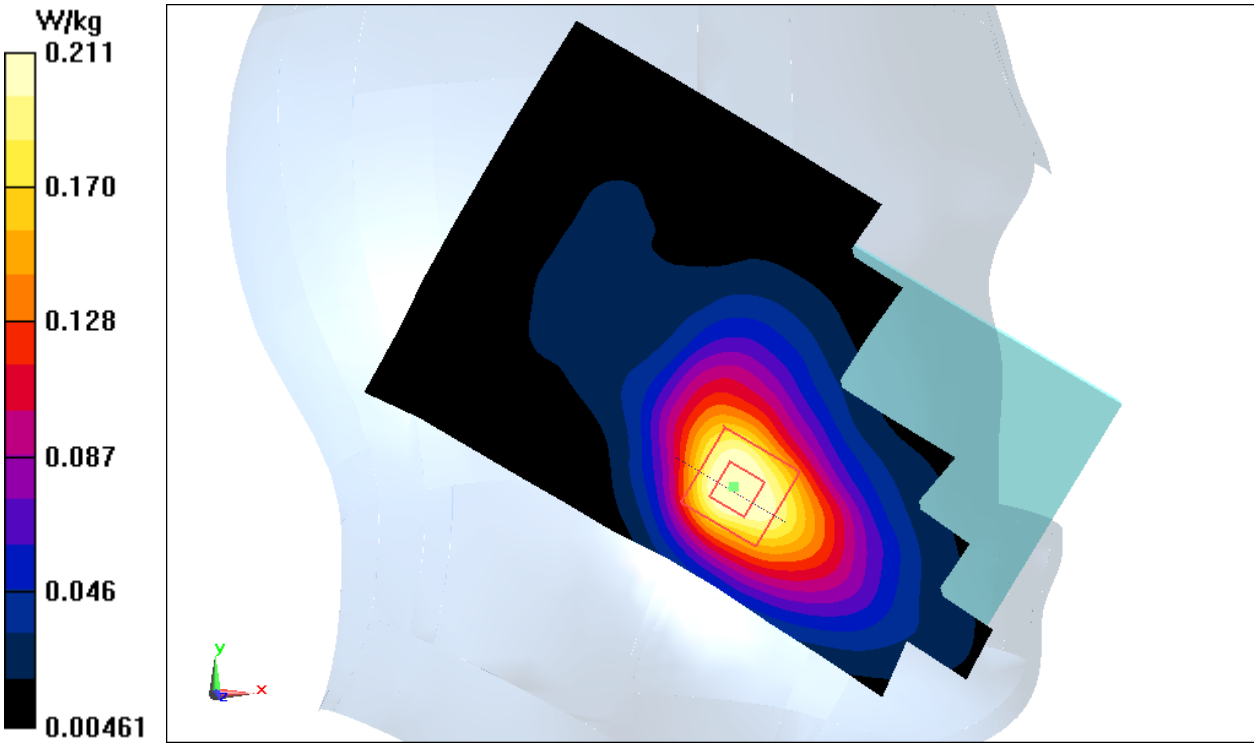


Figure I.13

LTE1700-FDD4_CH20050 Left edge
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Body1750 MHz
Medium parameters used: f = 1720 MHz; σ = 1.481 mho/m; εr = 53.06; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: LTE1700-FDD4 1720 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.90,7.90,7.90)

Area Scan (131x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.214 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.389 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.177 W/kg; SAR(10 g) = 0.106 W/kg
Maximum value of SAR (measured) = 0.212 W/kg

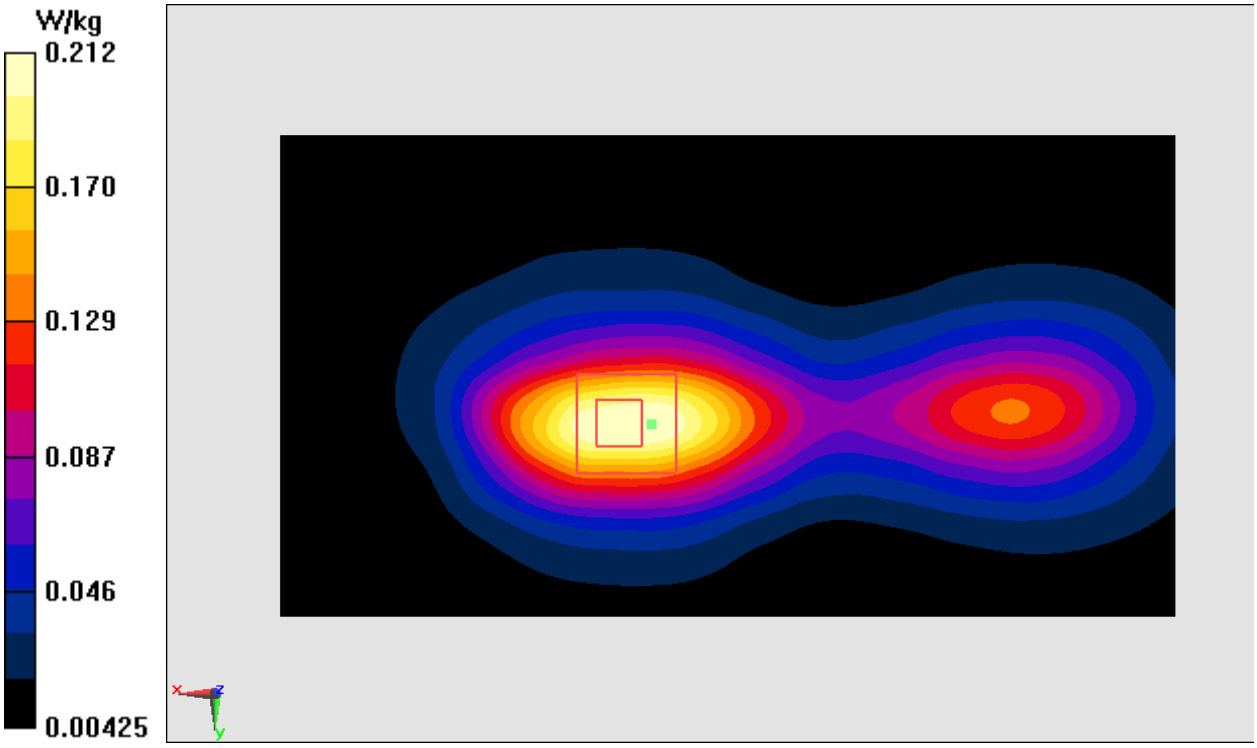


Figure I.14

LTE2500-FDD7_CH21350 Left Cheek
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Head 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 1.948 mho/m; εr = 39.51; ρ = 1000 kg/m^3
Ambient Temperature: 22.5^{o}C, Liquid Temperature: 23.3^{o}C
Communication System: LTE2500-FDD7 2560 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.12,7.12,7.12)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.536 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.804 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.772 W/kg
SAR(1 g) = 0.447 W/kg; SAR(10 g) = 0.242 W/kg
Maximum value of SAR (measured) = 0.547 W/kg

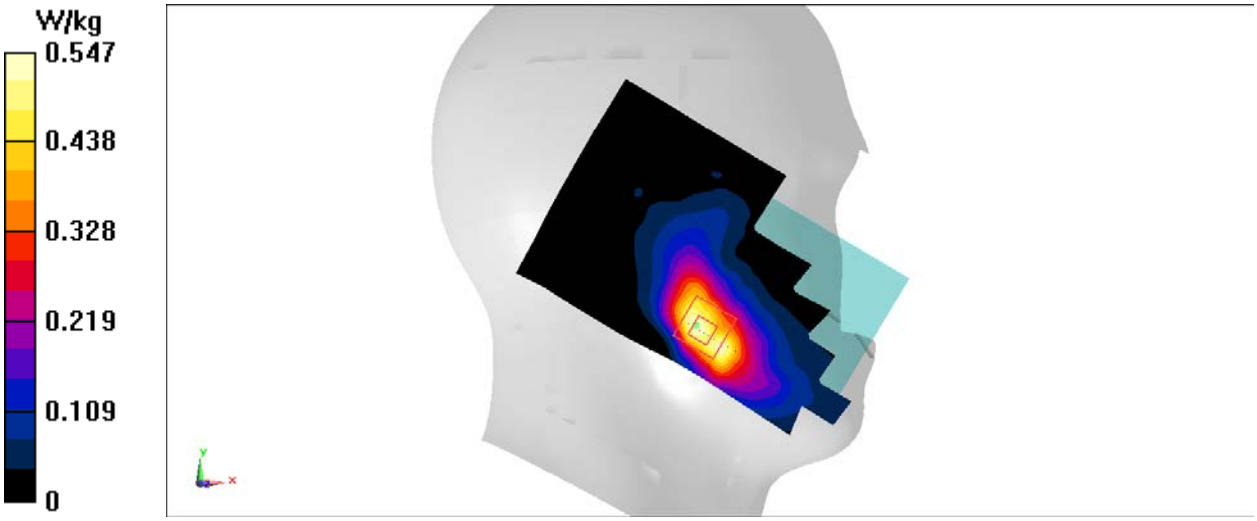


Figure I.15

LTE2500-FDD7_CH21350 Left edge
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Body2600 MHz
Medium parameters used: f = 2560 MHz; σ = 2.14 mho/m; εr = 51.87; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: LTE2500-FDD7 2560 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.25,7.25,7.25)

Area Scan (131x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.595 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.43 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.904 W/kg
SAR(1 g) = 0.476 W/kg; SAR(10 g) = 0.249 W/kg
Maximum value of SAR (measured) = 0.592 W/kg

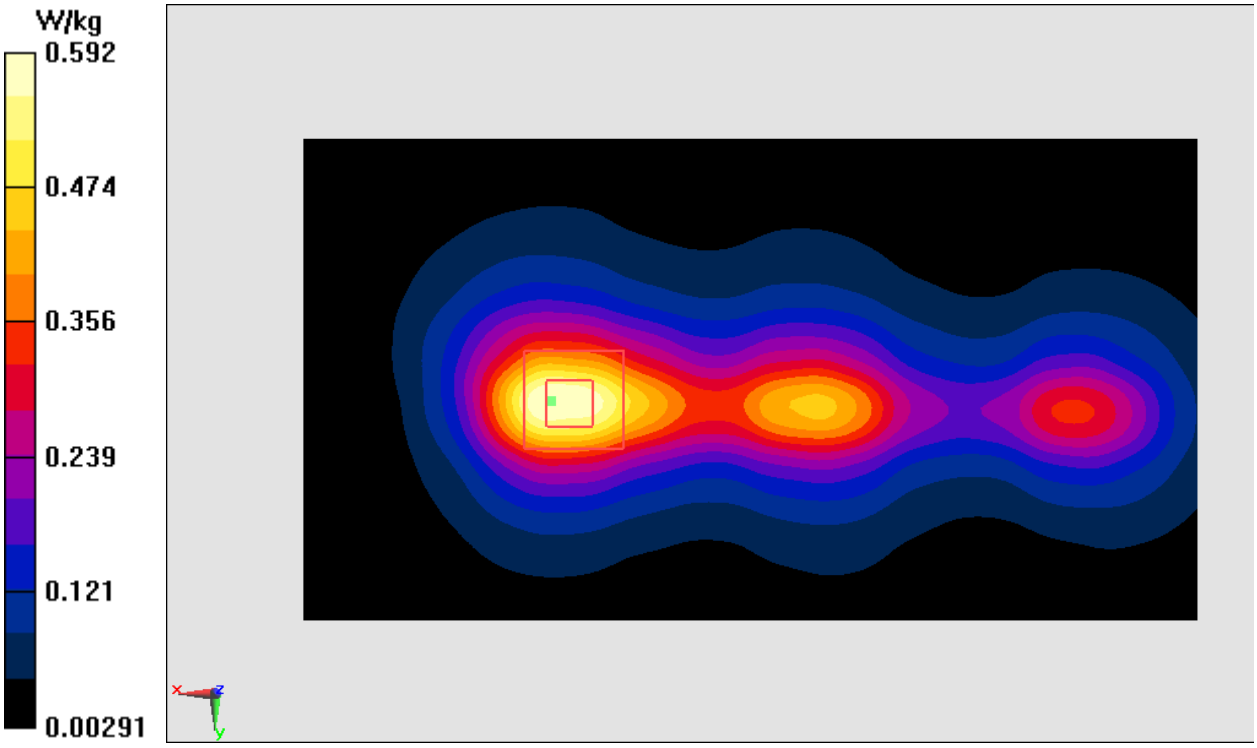


Figure I.16

LTE700-FDD12_CH23130 Right Cheek
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Head 750 MHz
Medium parameters used: f = 711 MHz; σ = 0.841 mho/m; εr = 41.85; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: LTE700-FDD12 711 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) = 0.0982 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.922 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.108 W/kg
SAR(1 g) = 0.088 W/kg; SAR(10 g) = 0.071 W/kg
Maximum value of SAR (measured) = 0.0948 W/kg

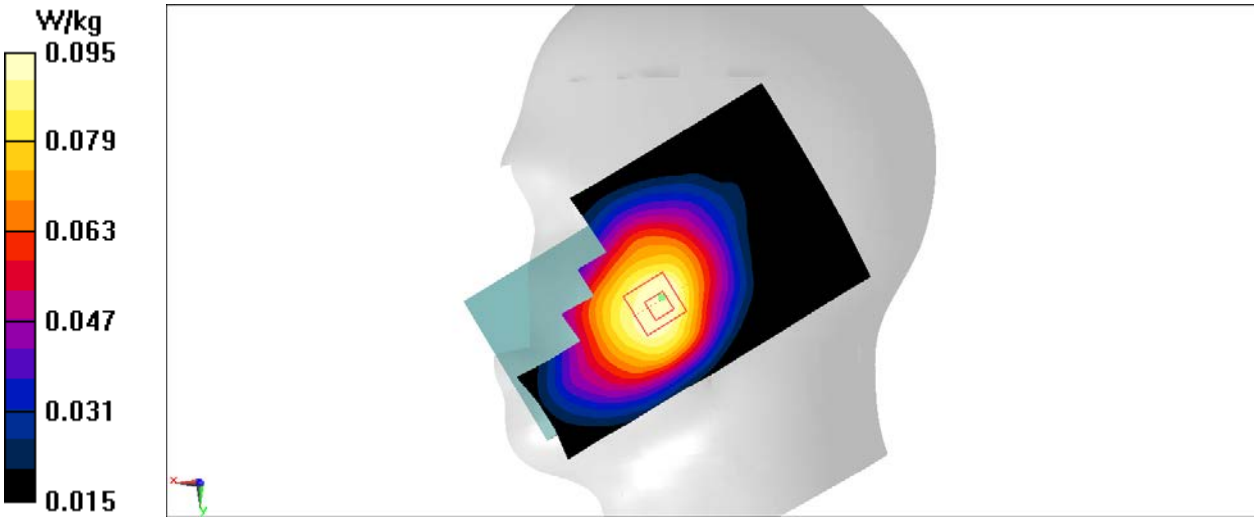


Figure I.17

LTE700-FDD12_CH23130 Right edge
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Body750 MHz
Medium parameters used: f = 711 MHz; σ = 0.929 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: LTE700-FDD12 711 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(9.96,9.96,9.96)

Area Scan (111x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.192 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.90 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.241 W/kg
SAR(1 g) = 0.172 W/kg; SAR(10 g) = 0.121 W/kg
Maximum value of SAR (measured) = 0.196 W/kg

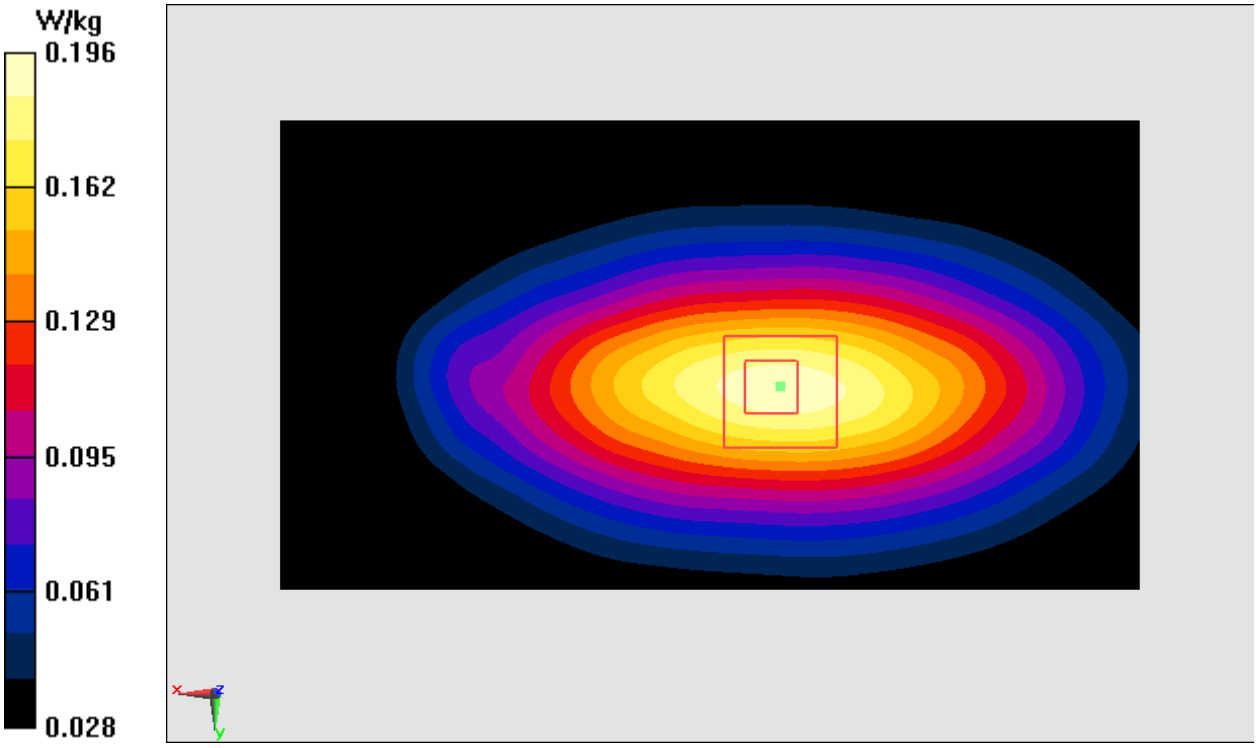


Figure I.18

LTE2600-TDD38_CH38150 Left Cheek
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Head 2600 MHz
Medium parameters used: f = 2610 MHz; σ = 1.996 mho/m; εr = 39.45; ρ = 1000 kg/m^3
Ambient Temperature: 22.5^{o}C, Liquid Temperature: 23.3^{o}C
Communication System: LTE2600-TDD38 2610 MHz Duty Cycle: 1:1.58
Probe: EX3DV4 – SN3846 ConvF(7.12,7.12,7.12)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.274 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.003 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.409 W/kg
SAR(1 g) = 0.233 W/kg; SAR(10 g) = 0.122 W/kg
Maximum value of SAR (measured) = 0.280 W/kg

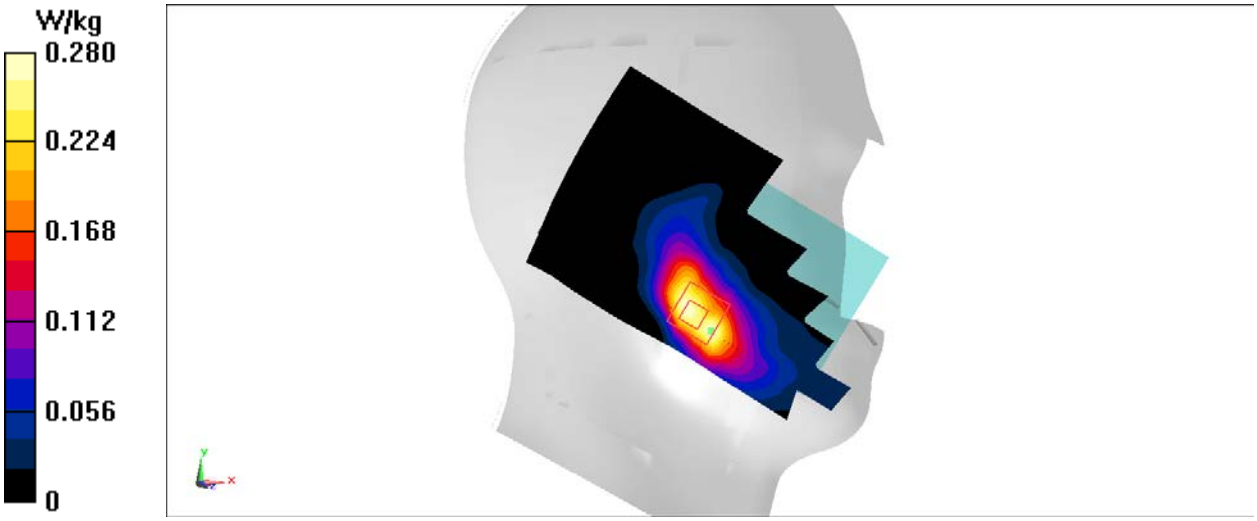


Figure I.19

LTE2600-TDD38_CH38150 Front
Date: 5/20/2017
Electronics: DAE4 Sn1331
Medium: Body2600 MHz
Medium parameters used: f = 2610 MHz; σ = 2.188 mho/m; εr = 51.81; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: LTE2600-TDD38 2610 MHz Duty Cycle: 1:1.58
Probe: EX3DV4 – SN3846 ConvF(7.25,7.25,7.25)

Area Scan (131x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.178 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.797 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.256 W/kg
SAR(1 g) = 0.127 W/kg; SAR(10 g) = 0.066 W/kg
Maximum value of SAR (measured) = 0.154 W/kg

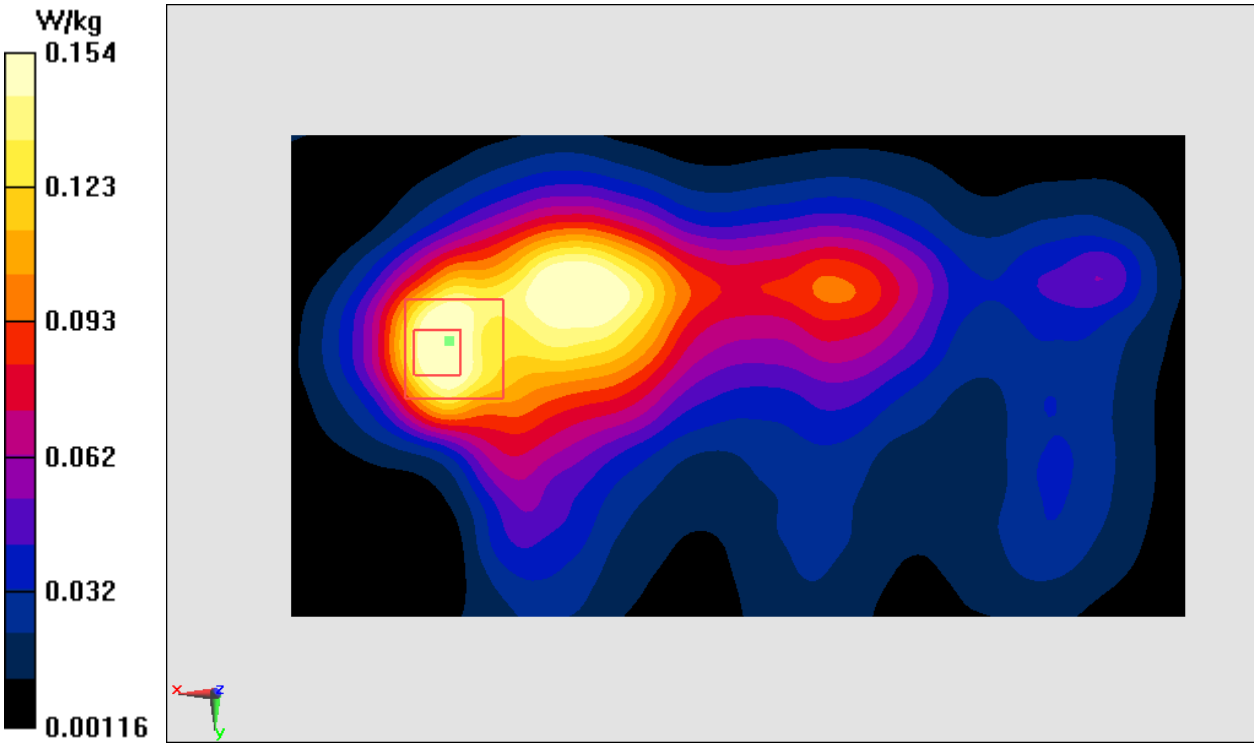


Figure I.20

WLAN2450_CH6 Right Cheek
Date: 5/22/2017
Electronics: DAE4 Sn1331
Medium: Head 2450 MHz
Medium parameters used: f = 2437 MHz; σ = 1.752 mho/m; εr = 39.48; ρ = 1000 kg/m^3
Ambient Temperature: 22.5^{o}C, Liquid Temperature: 23.3^{o}C
Communication System: WLAN2450 2437 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.22,7.22,7.22)

Area Scan (91x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.27 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.08 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 2.55 W/kg
SAR(1 g) = 0.908 W/kg; SAR(10 g) = 0.372 W/kg
Maximum value of SAR (measured) = 1.26 W/kg

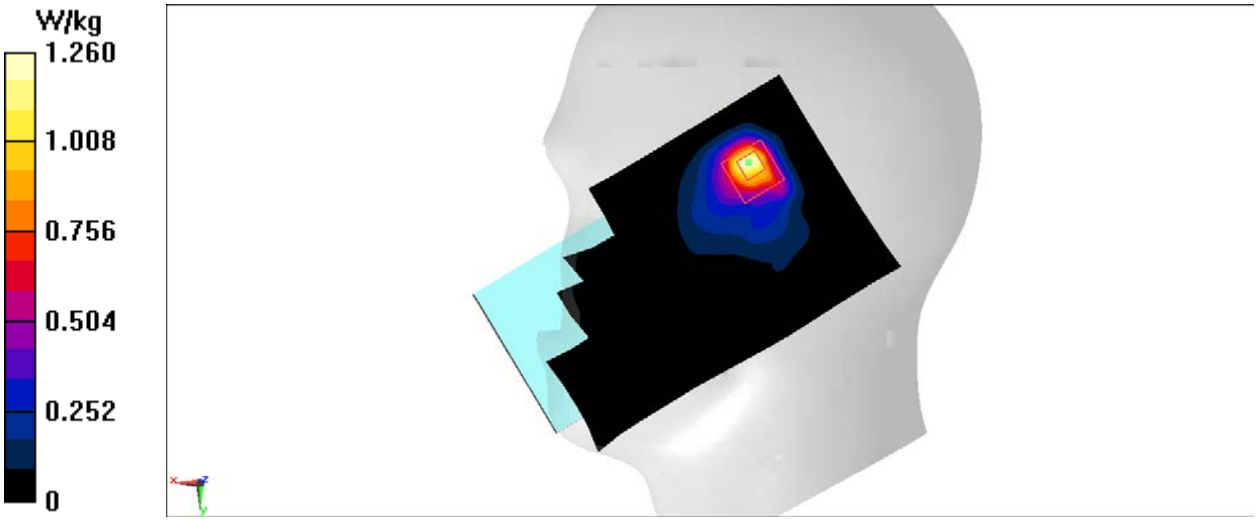


Figure I.21

WLAN2450_CH1 Front
Date: 5/22/2017
Electronics: DAE4 Sn1331
Medium: Body2450 MHz
Medium parameters used: f = 2412 MHz; σ = 1.941 mho/m; εr = 53.21; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WLAN2450 2412 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(7.31,7.31,7.31)

Area Scan (131x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0700 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.099 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.132 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.030 W/kg
Maximum value of SAR (measured) = 0.0669 W/kg

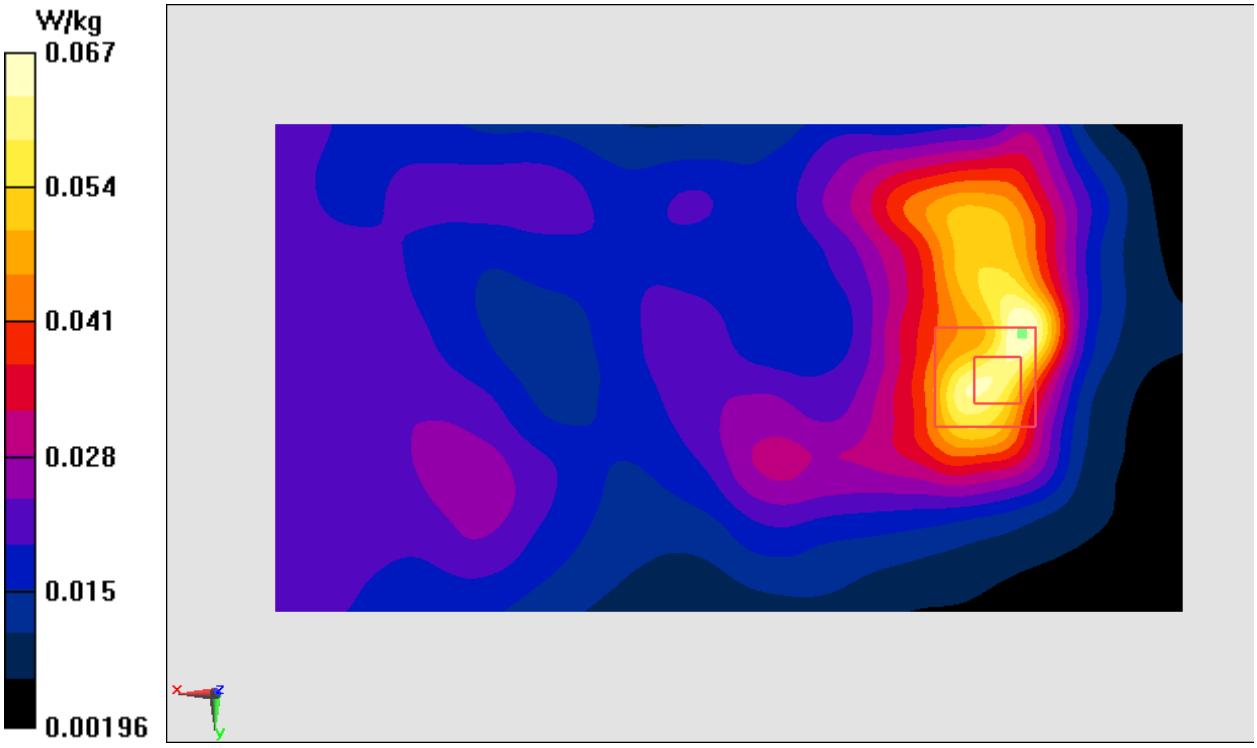


Figure I.22

WLAN5G_CH157 Right Cheek
Date: 5/22/2017
Electronics: DAE4 Sn1331
Medium: Head 5750 MHz
Medium parameters used: f = 5785 MHz; σ = 5.346 mho/m; εr = 35.75; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WLAN5G 5785 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(4.95,4.95,4.95)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.858 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.098 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 2.46 W/kg
SAR(1 g) = 0.402 W/kg; SAR(10 g) = 0.129 W/kg
Maximum value of SAR (measured) = 1.18 W/kg

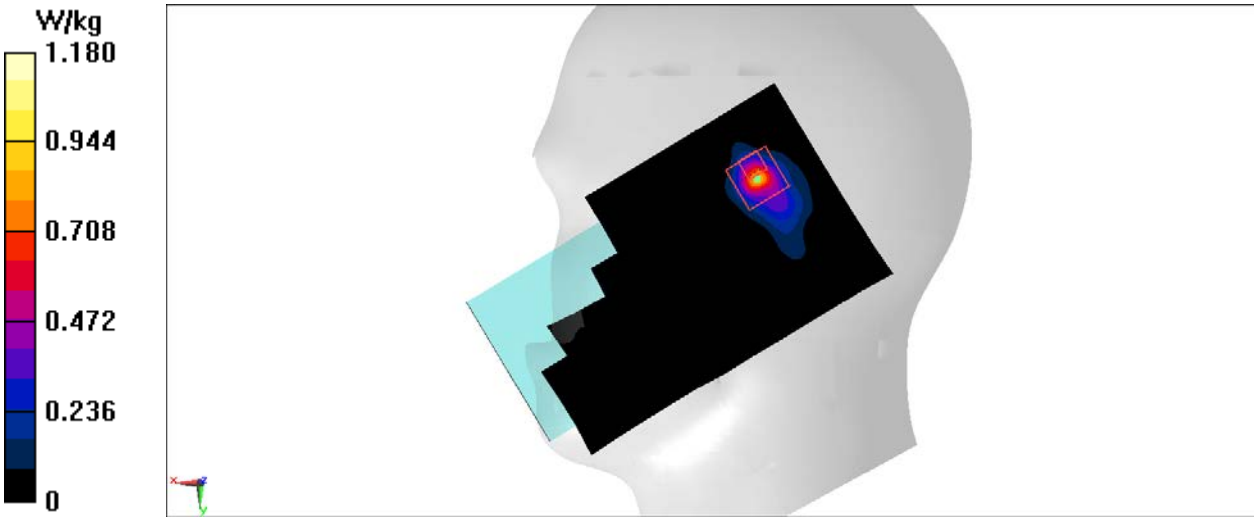


Figure I.23

WLAN5G_CH157 Top
Date: 5/22/2017
Electronics: DAE4 Sn1331
Medium: Body5750 MHz
Medium parameters used: f = 5785 MHz; σ = 5.925 mho/m; εr = 47.04; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 23.3°C
Communication System: WLAN5G 5785 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(4.53,4.53,4.53)

Area Scan (111x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0662 W/kg

Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.194 W/kg
SAR(1 g) = 0.042 W/kg; SAR(10 g) = 0.015 W/kg
Maximum value of SAR (measured) = 0.115 W/kg

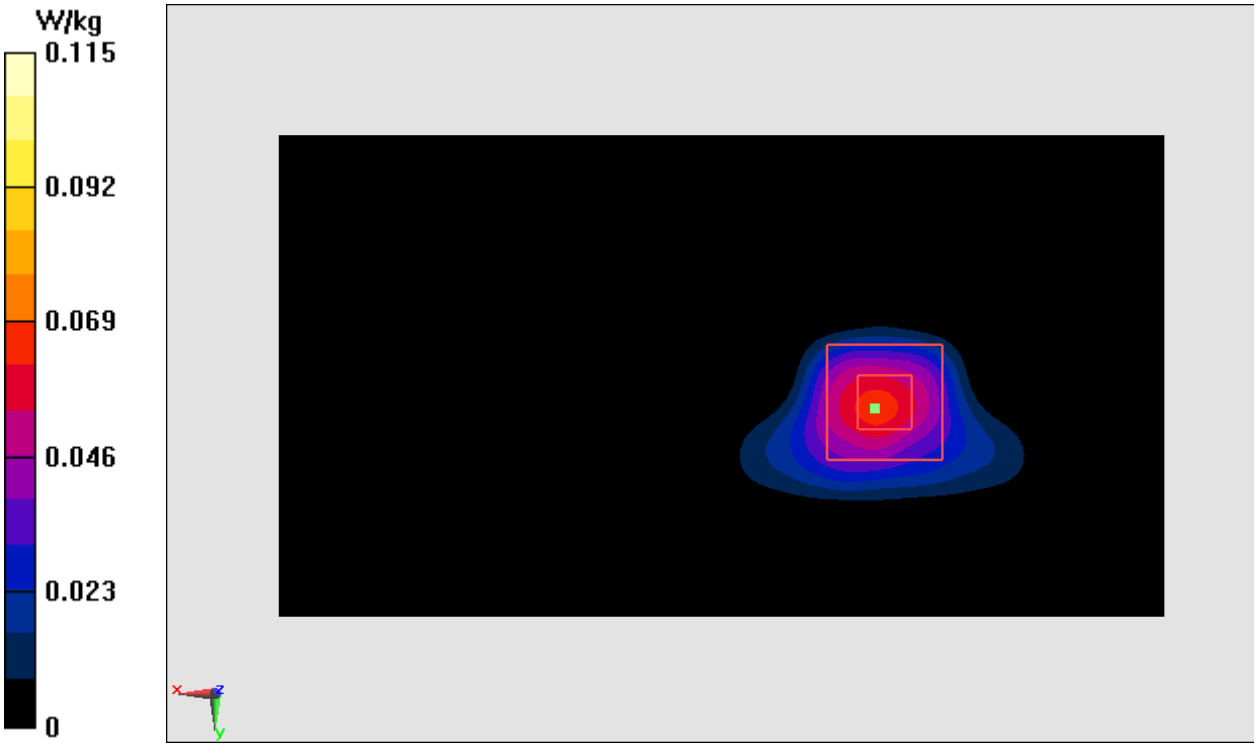


Figure I.24

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