802.11b Back Side High (Battery 2)

Date: 7/19/2014

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2462 MHz; σ = 2.009 S/m; ε_r = 52.109; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃　　　　Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.61, 7.61, 7.61); Calibrated: 11/28/2013

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side Middle/Area Scan (81x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0881 W/kg

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

Reference Value = 2.656 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.200 W/kg

SAR(1 g) = 0.045 W/kg; SAR(10 g) = 0.019 W/kg

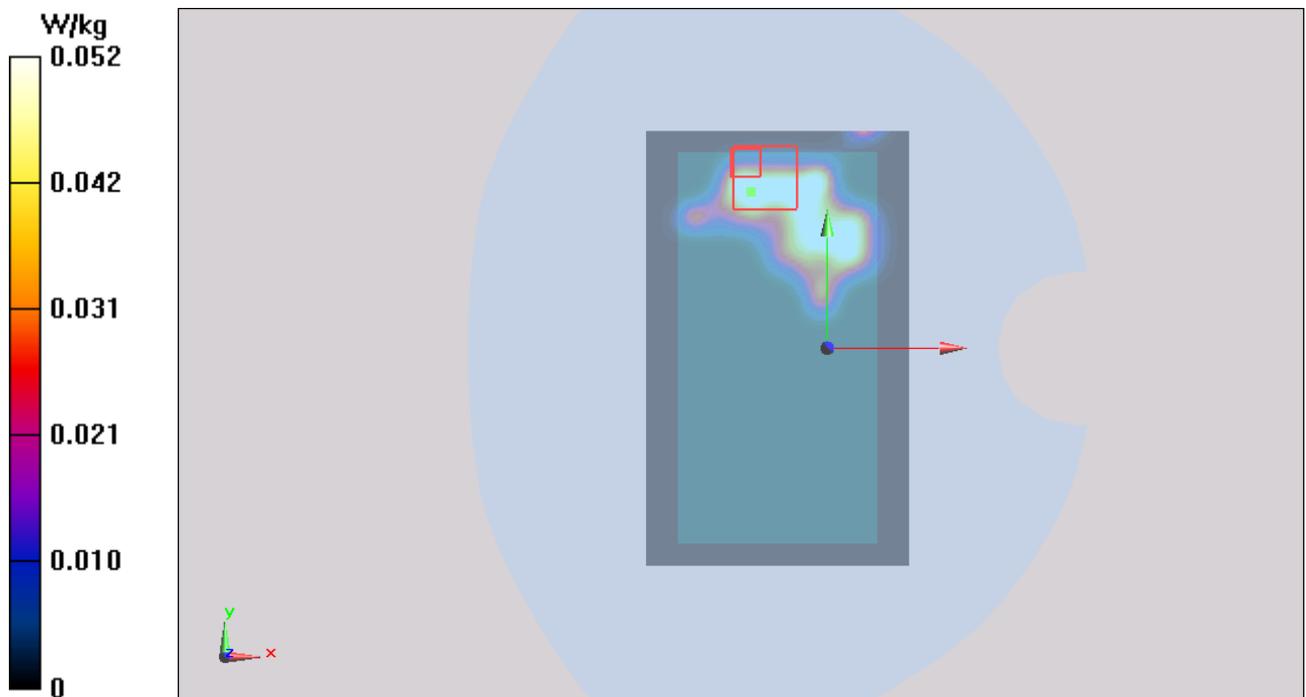Maximum value of SAR (measured) = 0.0525 W/kg

Figure 112 Body, Back Side, 802.11b Channel 11

802.11b Back Side High (Battery 3)

Date: 7/19/2014

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2462 MHz; σ = 2.009 S/m; ε_r = 52.109; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.61, 7.61, 7.61); Calibrated: 11/28/2013

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side Middle/Area Scan (81x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

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

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

Reference Value = 2.485 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 0.119 W/kg

SAR(1 g) = 0.045 W/kg; SAR(10 g) = 0.020 W/kg

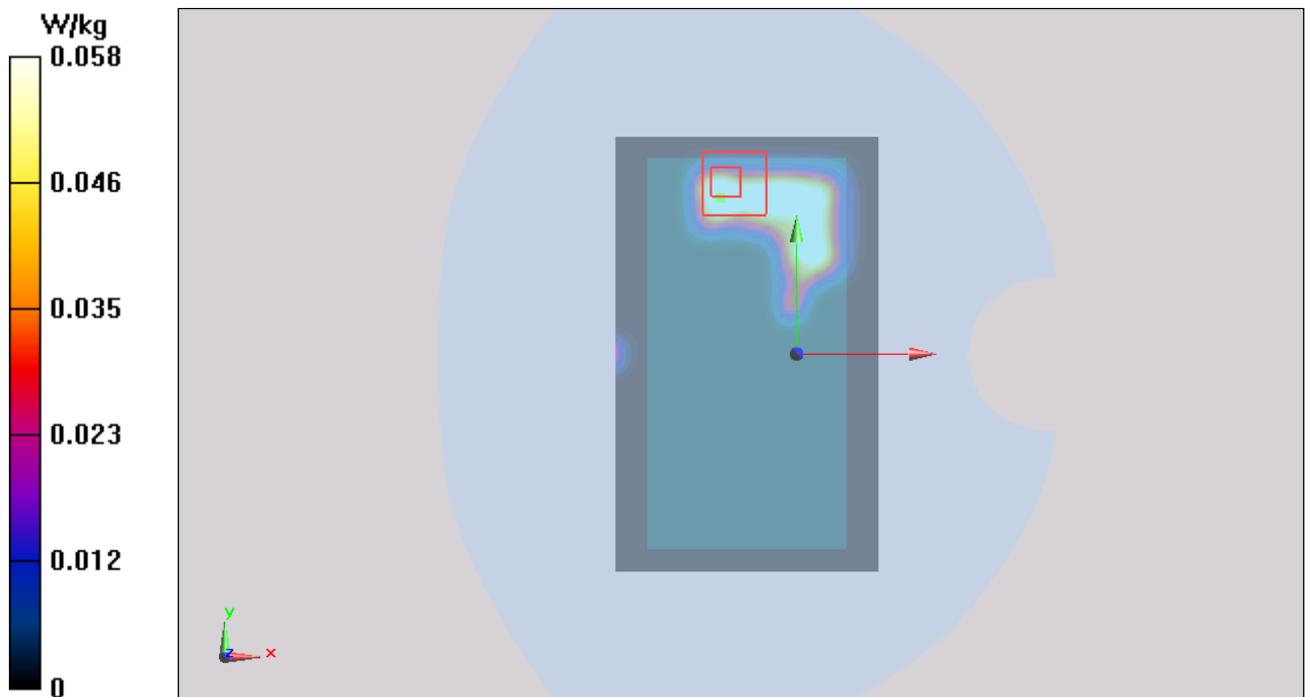Maximum value of SAR (measured) = 0.0580 W/kg

Figure 113 Body, Back Side, 802.11b Channel 11

802.11b Back Side High (Battery 4)

Date: 7/19/2014

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2462 MHz; σ = 2.009 S/m; ε_r = 52.109; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.61, 7.61, 7.61); Calibrated: 11/28/2013

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side Middle/Area Scan (81x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.123 W/kg

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

Reference Value = 2.368 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.111 W/kg

SAR(1 g) = 0.057 W/kg; SAR(10 g) = 0.030 W/kg
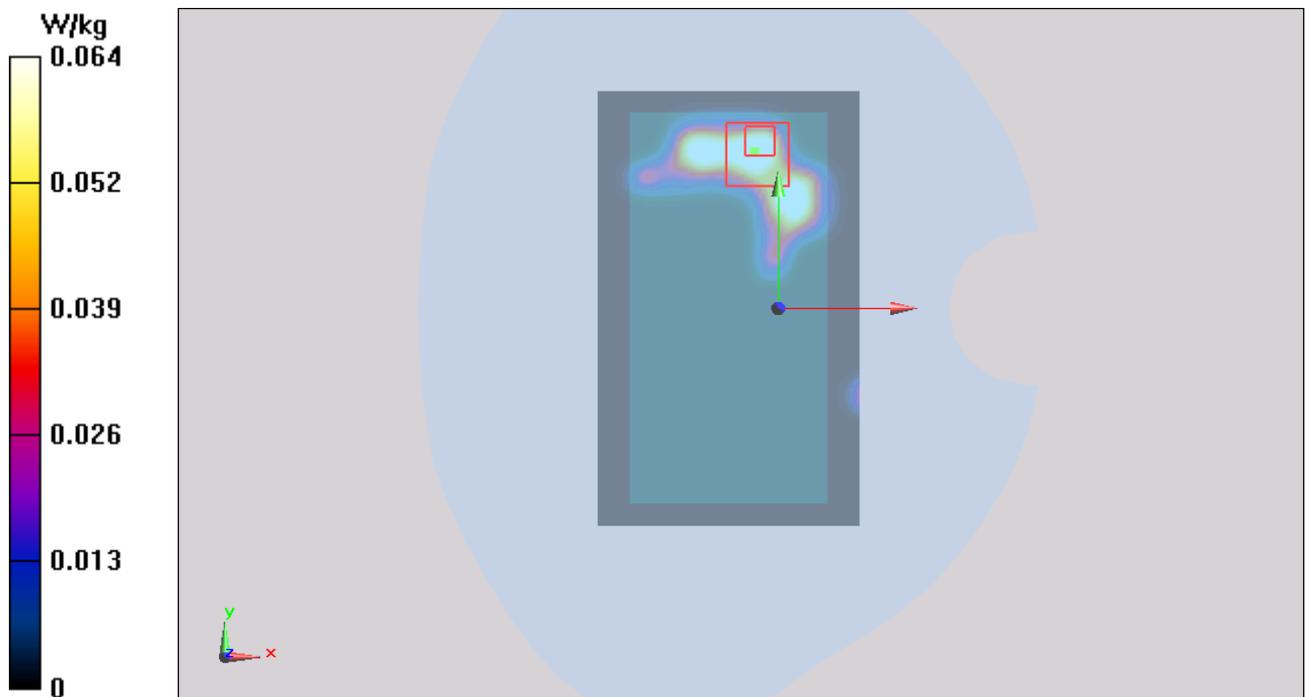
Maximum value of SAR (measured) = 0.0644 W/kg

Figure 114 Body, Back Side, 802.11b Channel 11

ANNEX E: Plots Results(Variant Model)

GSM 850 Left Cheek Middle

Date: 12/4/2014

Communication System: UID 0, GSM (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042

Medium parameters used: f = 837 MHz; σ = 0.918 S/m; ε_r = 41.361; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(9.62, 9.62, 9.62); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.666 W/kg

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

Reference Value = 8.182 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 0.786 W/kg

SAR(1 g) = 0.641 W/kg; SAR(10 g) = 0.489 W/kg

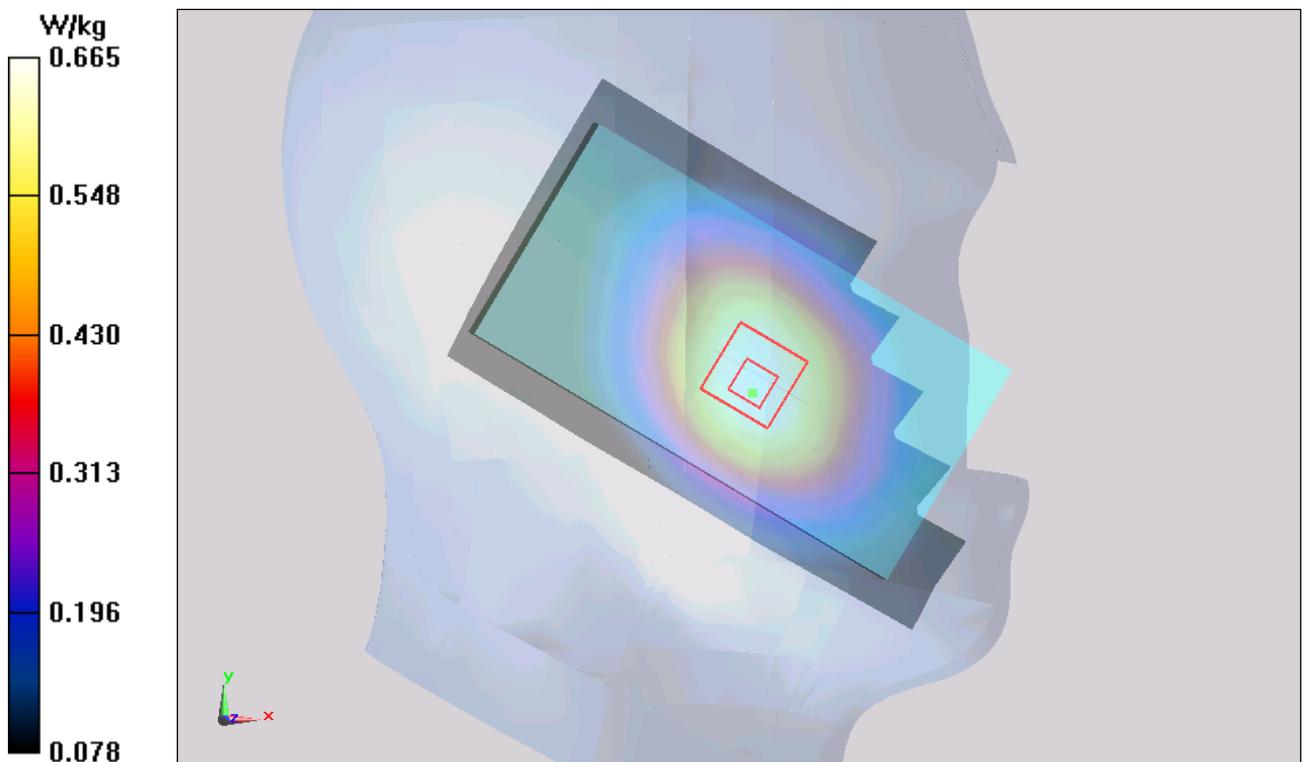Maximum value of SAR (measured) = 0.665 W/kg

Figure 115 Left Hand Touch Cheek GSM 850 Channel 190

GSM 850 Back Side High

Date: 12/4/2014

Communication System: UID 0, GPRS 3TX (0); Frequency: 848.8 MHz;Duty Cycle: 1:2.76694

Medium parameters used: f = 849 MHz; σ = 1.006 S/m; ε_r = 55.736; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 – SN3977; ConvF(9.74, 9.74, 9.74); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side High/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.25 W/kg

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

Reference Value = 35.222 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.49 W/kg

SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.902 W/kg
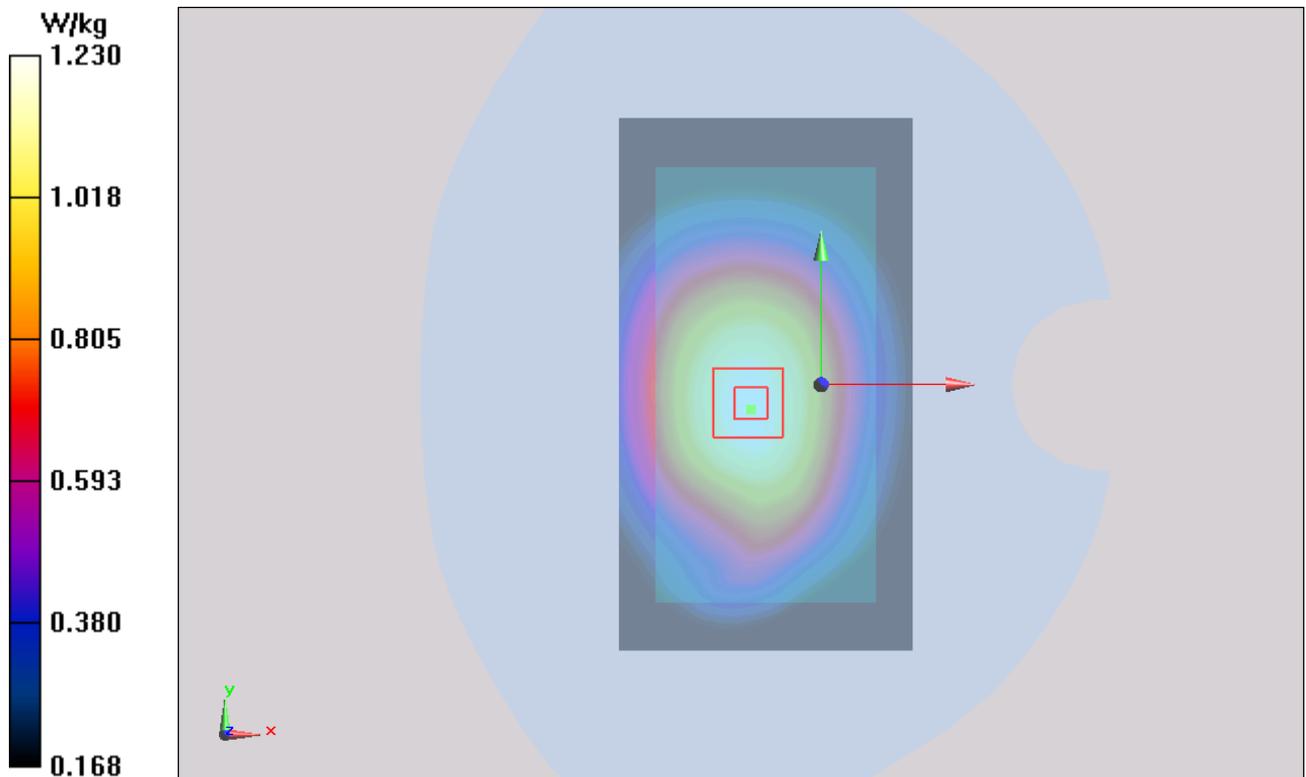
Maximum value of SAR (measured) = 1.23 W/kg

Figure 116 Body, Back Side, GSM 850 Channel 251

GSM 850 Back Side High (repeated SAR)

Date: 12/4/2014

Communication System: UID 0, GPRS 3TX (0); Frequency: 848.8 MHz;Duty Cycle: 1:2.76694

Medium parameters used: f = 849 MHz; σ = 1.006 S/m; ε_r = 55.736; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 – SN3977; ConvF(9.74, 9.74, 9.74); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side High/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

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

Reference Value = 35.139 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.905 W/kg
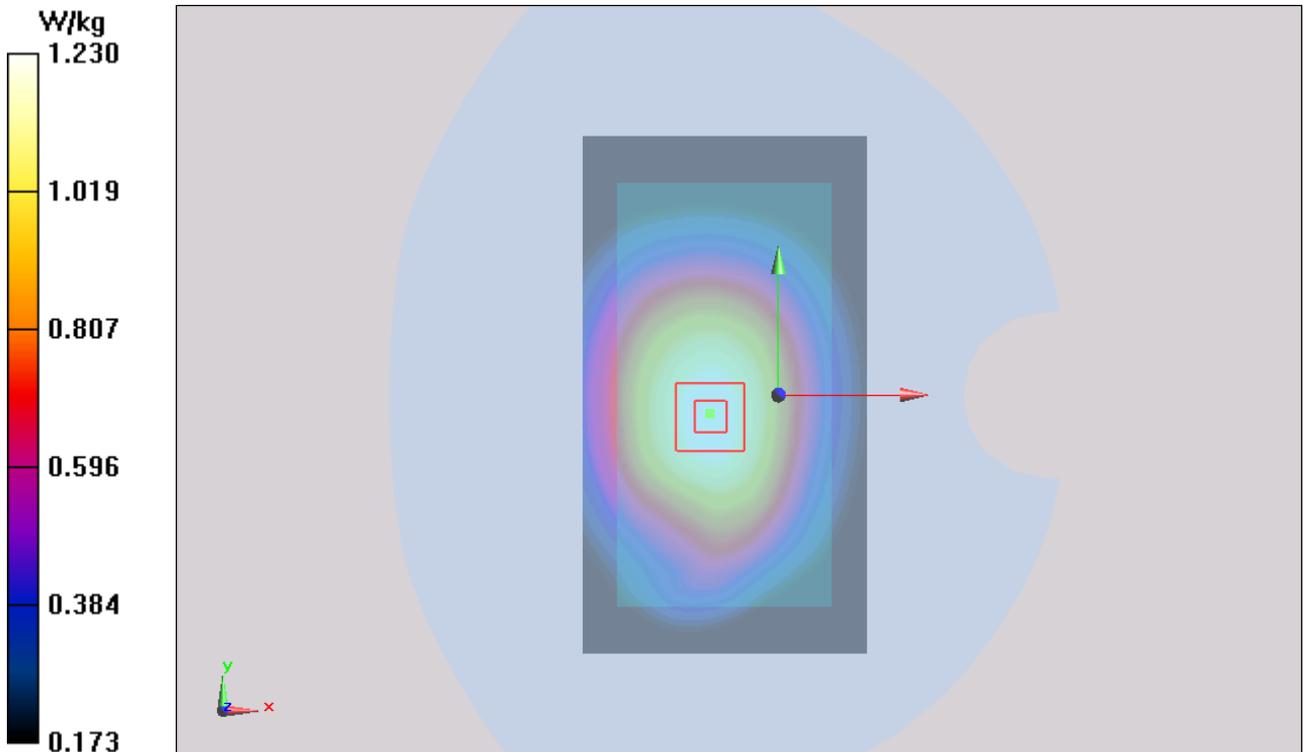
Maximum value of SAR (measured) = 1.23 W/kg

Figure 117 Body, Back Side, GSM 850 Channel 251

GSM 1900 Left Cheek Middle

Date: 12/7/2014

Communication System: UID 0, GSM (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042

Medium parameters used: f = 1880 MHz; σ = 1.413 S/m; ε_r = 39.689; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.97, 7.97, 7.97); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.265 W/kg

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

Reference Value = 5.573 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.358 W/kg

SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.149 W/kg

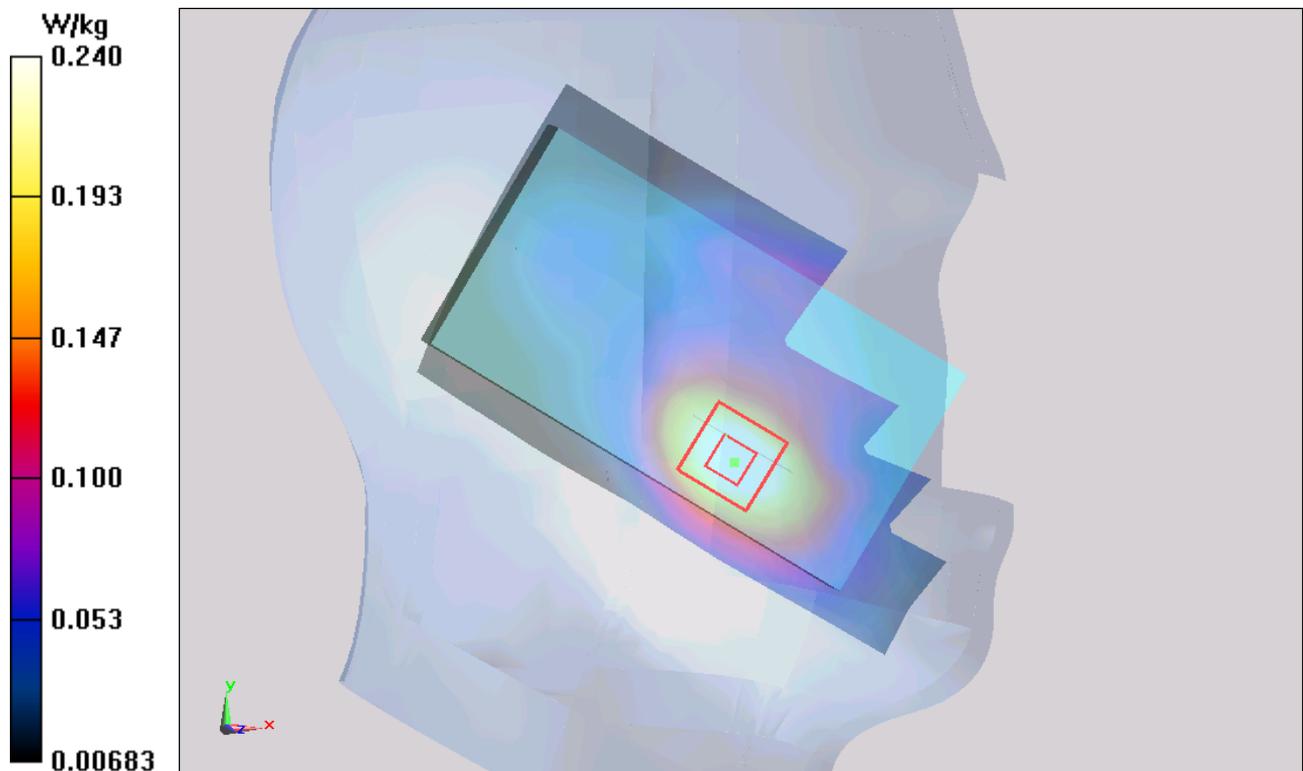Maximum value of SAR (measured) = 0.240 W/kg

Figure 118 Left Hand Touch Cheek GSM 1900 Channel 661

GSM 1900 Back Side Middle

Date: 12/7/2014

Communication System: UID 0, GPRS 2TX (0); Frequency: 1747.2 MHz;Duty Cycle: 1:4.14954

Medium parameters used: f = 1800 MHz; σ = 1.427 S/m; ε_r = 53.336; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 – SN3977; ConvF(7.37, 7.37, 7.37); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side Middle/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.774 W/kg

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

Reference Value = 12.174 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.657 W/kg; SAR(10 g) = 0.379 W/kg
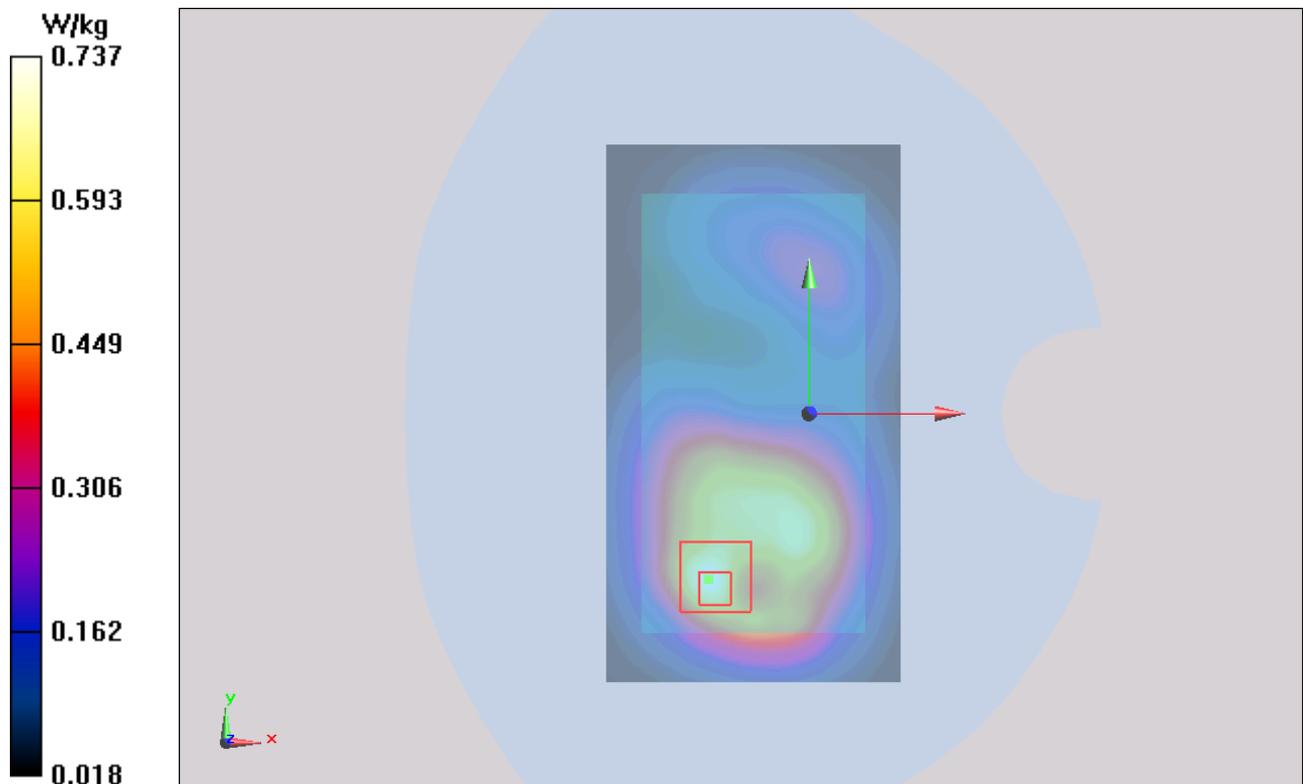
Maximum value of SAR (measured) = 0.737 W/kg

Figure 119 Body, Back Side, GSM 1900 Channel 661

UMTS Band II Left Cheek Middle

Date: 12/7/2014

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ = 1.413 S/m; $ε_r$ = 39.689; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.97, 7.97, 7.97); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.630 W/kg

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

Reference Value = 7.359 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 0.747 W/kg

SAR(1 g) = 0.498 W/kg; SAR(10 g) = 0.300 W/kg

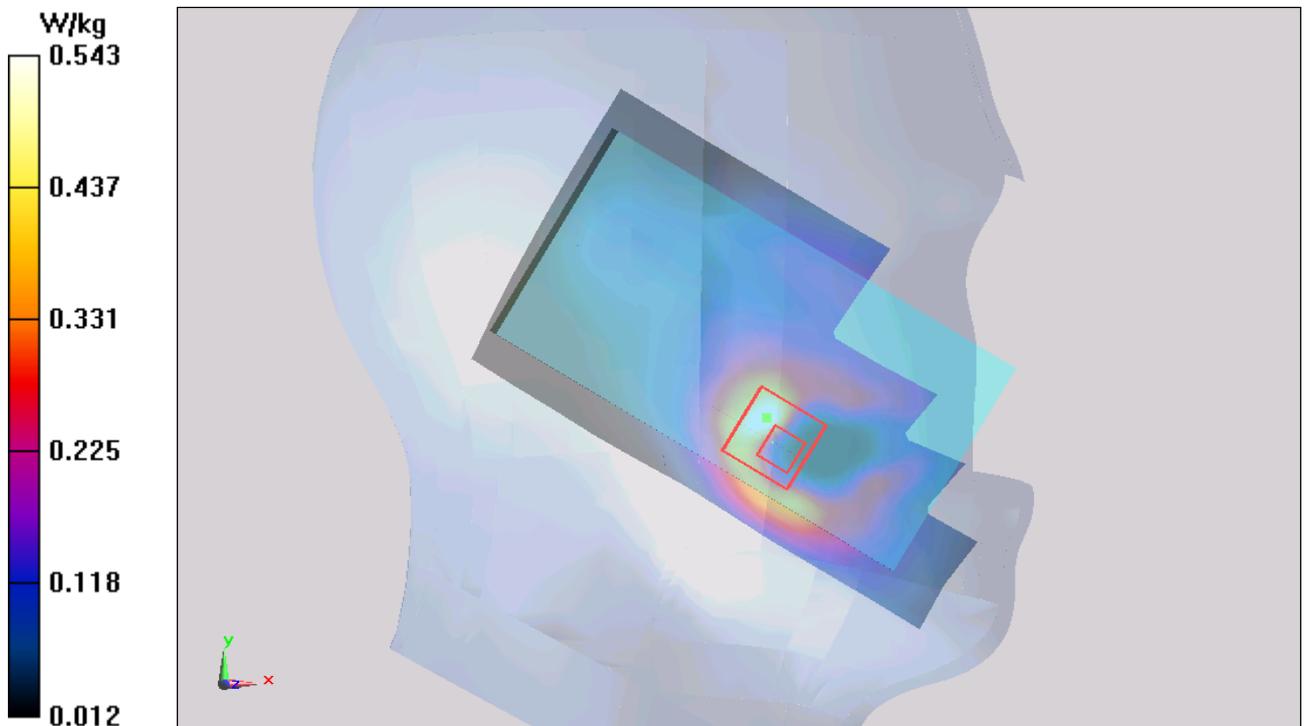Maximum value of SAR (measured) = 0.543 W/kg

Figure 120 Left Hand Touch Cheek UMTS Band II Channel 9400

UMTS Band II Back Side Middle

Date: 12/7/2014

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ = 1.504 S/m; ε_r = 53.137; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 – SN3977; ConvF(7.37, 7.37, 7.37); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side Middle/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.899 W/kg

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

Reference Value = 12.938 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.763 W/kg; SAR(10 g) = 0.441 W/kg

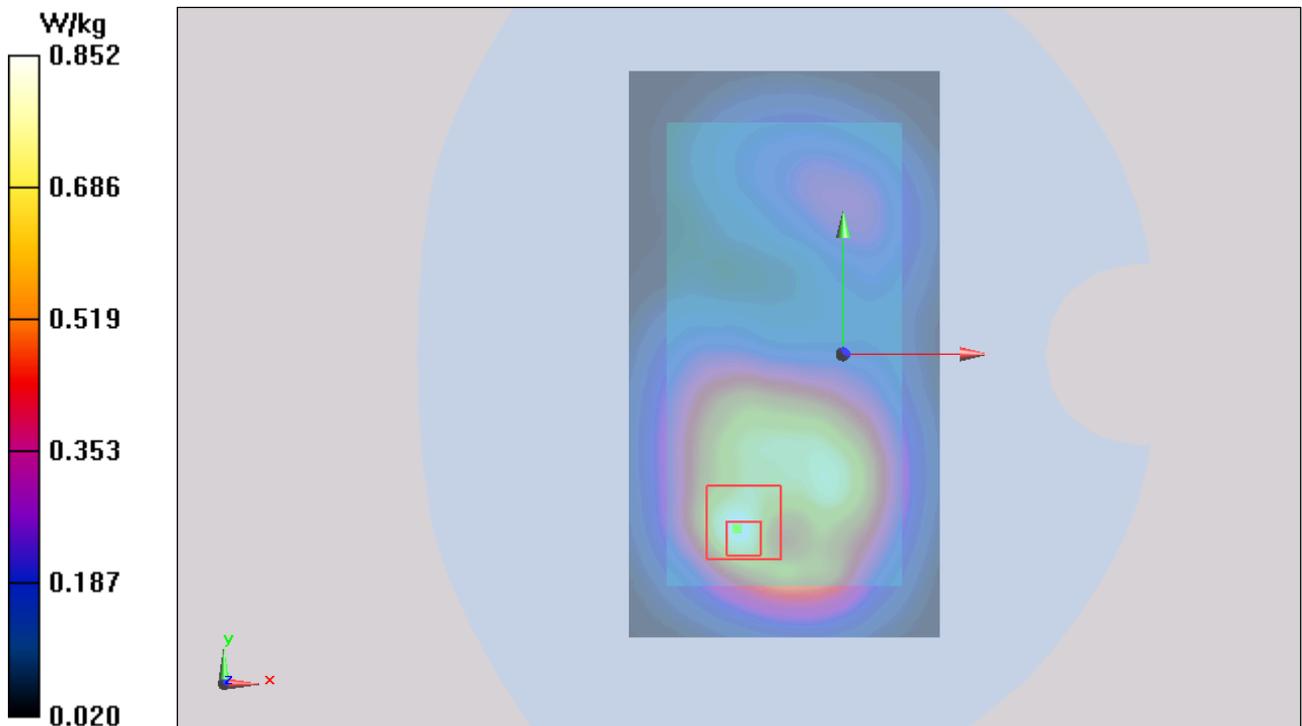Maximum value of SAR (measured) = 0.852 W/kg

Figure 121 Body, Back Side, UMTS Band II Channel 9400

UMTS Band IV Left Cheek Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.306 S/m; $ε_r$ = 39.731; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(8.14, 8.14, 8.14); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.537 W/kg

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

Reference Value = 9.733 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.701 W/kg

SAR(1 g) = 0.479 W/kg; SAR(10 g) = 0.305 W/kg

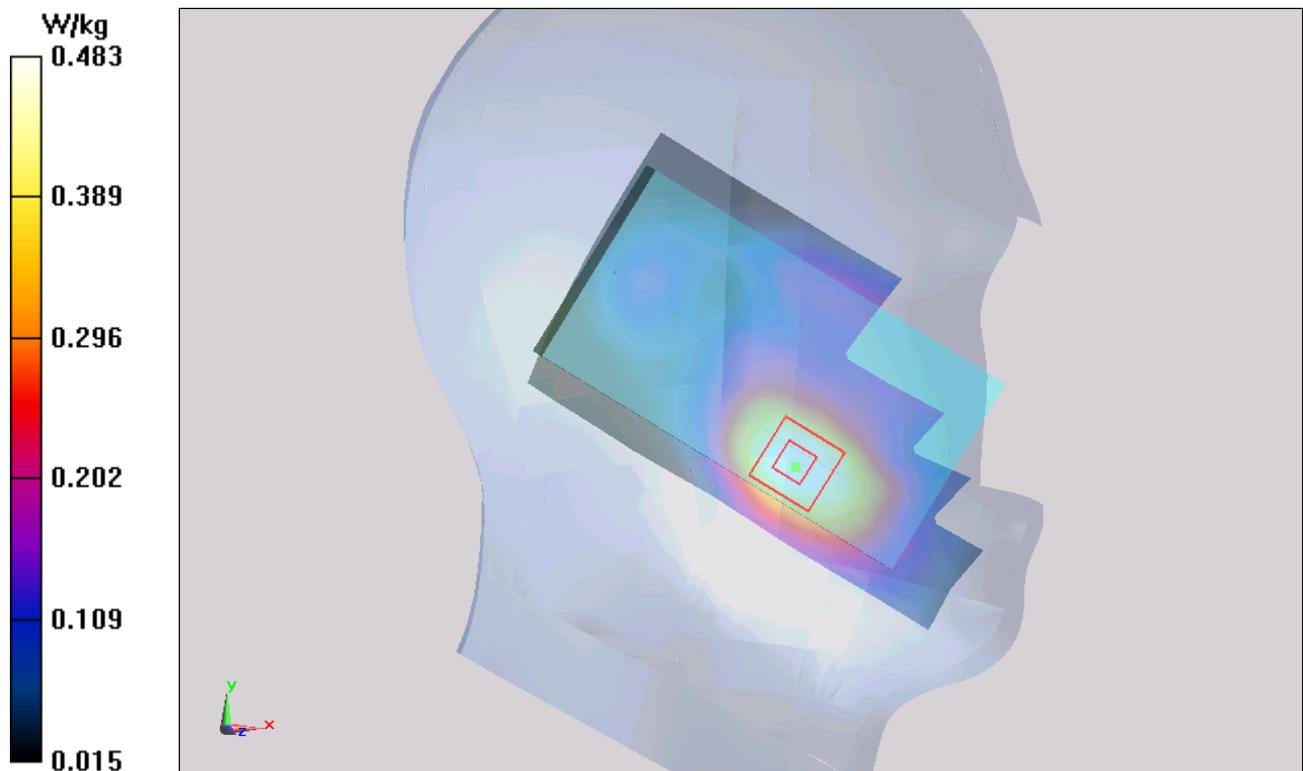Maximum value of SAR (measured) = 0.483 W/kg

Figure 122 Left Hand Touch Cheek UMTS Band IV Channel 1413

UMTS Band IV Left Tilt Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.306 S/m; ε_r = 39.731; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(8.14, 8.14, 8.14); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Tilt Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.185 W/kg

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

Reference Value = 10.805 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.256 W/kg

SAR(1 g) = 0.167 W/kg; SAR(10 g) = 0.099 W/kg

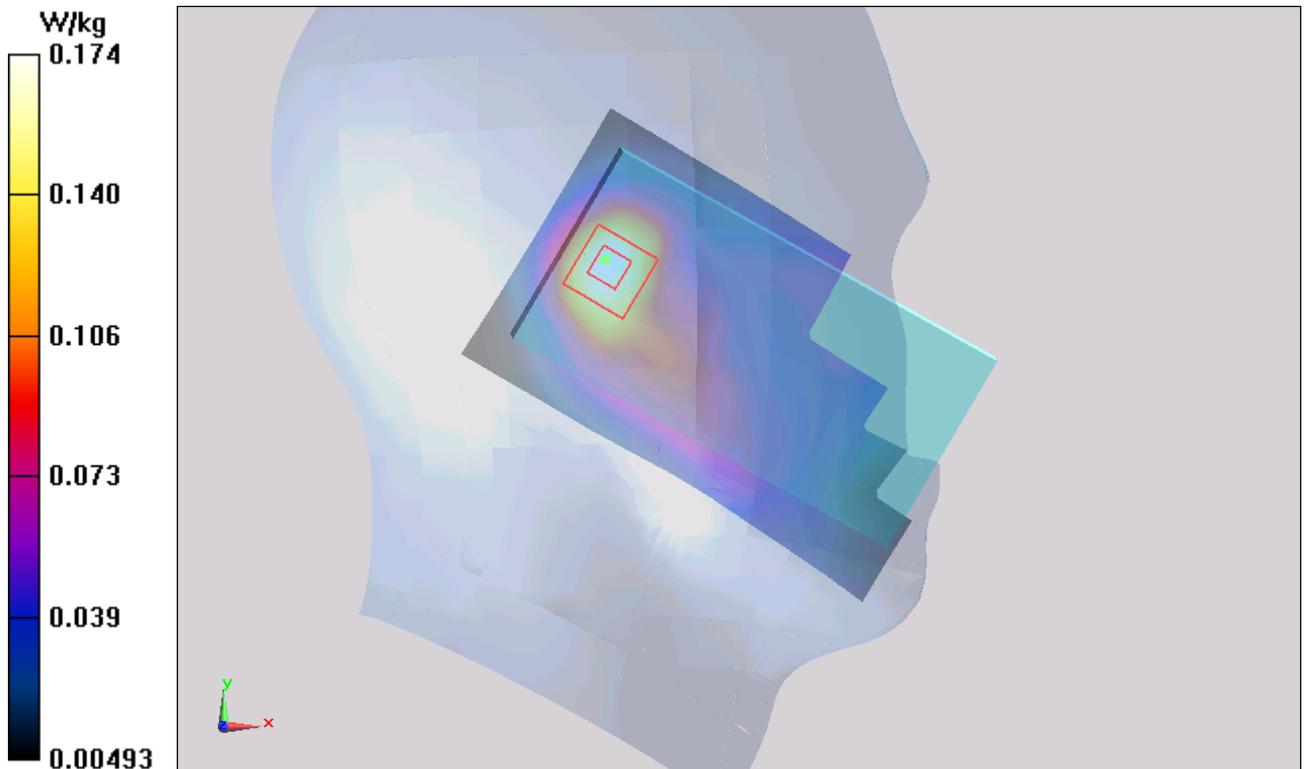Maximum value of SAR (measured) = 0.174 W/kg

Figure 123 Left Hand Tilt 15° UMTS Band IV Channel 1413

UMTS Band IV Right Cheek Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.306 S/m; $ε_r$ = 39.731; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(8.14, 8.14, 8.14); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Right/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.447 W/kg

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

Reference Value = 9.285 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.607 W/kg

SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.264 W/kg

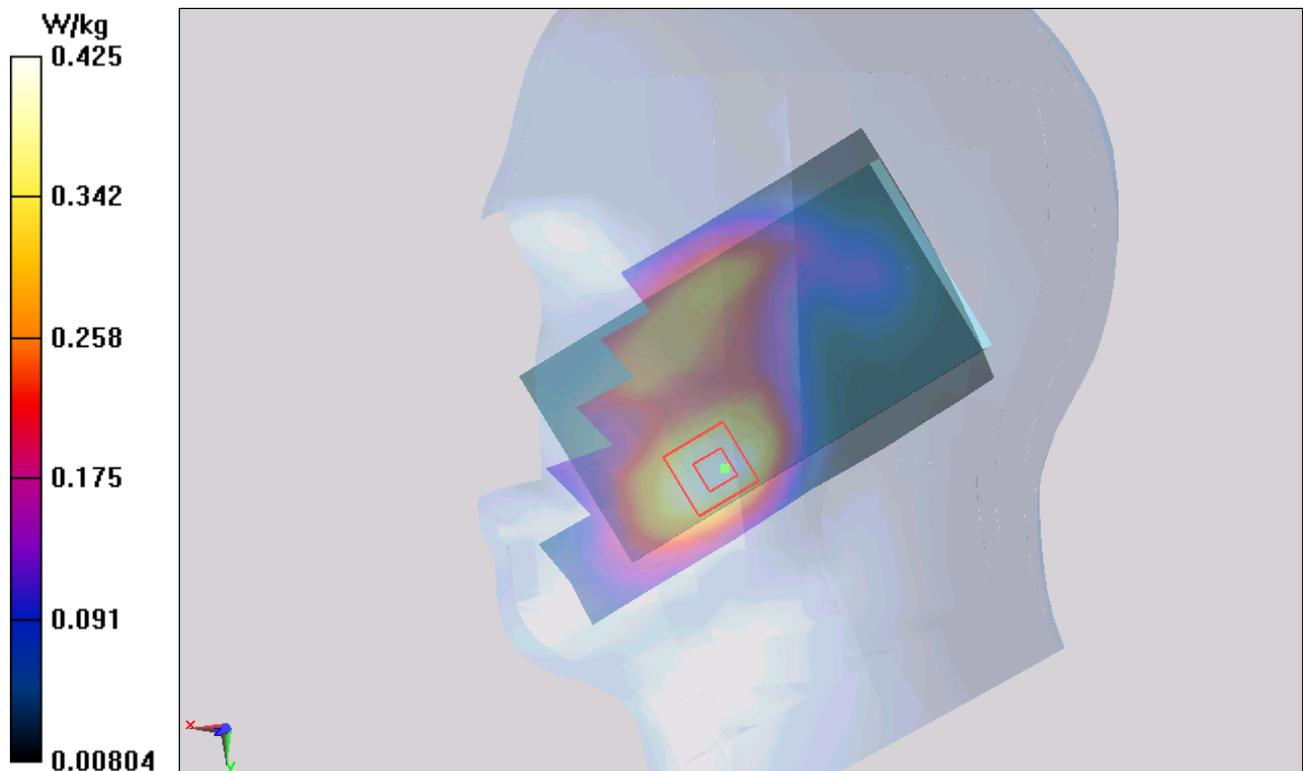Maximum value of SAR (measured) = 0.425 W/kg

Figure 124 Right Hand Touch Cheek UMTS Band IV Channel 1413

UMTS Band IV Right Tilt Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.306 S/m; $ε_r$ = 39.731; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(8.14, 8.14, 8.14); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Right/Tilt Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.201 W/kg

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

Reference Value = 10.912 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.276 W/kg

SAR(1 g) = 0.180 W/kg; SAR(10 g) = 0.112 W/kg

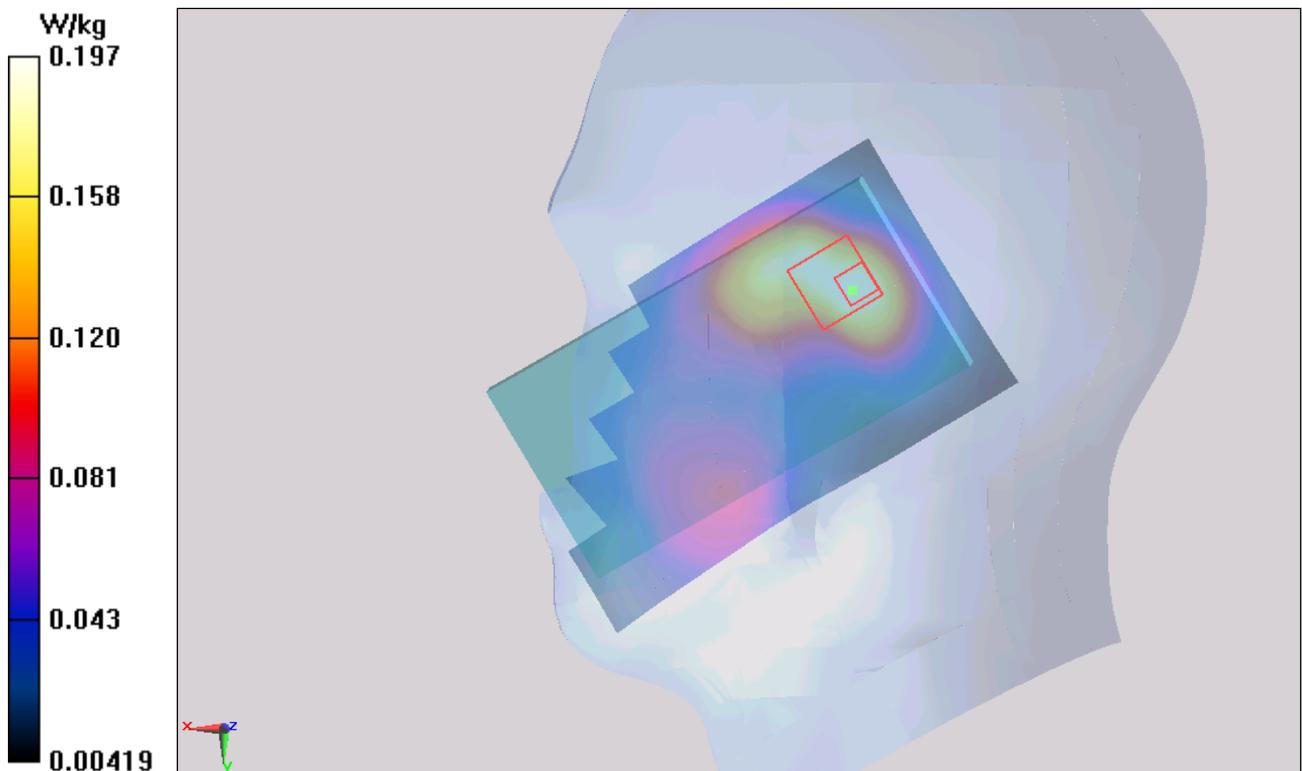Maximum value of SAR (measured) = 0.197 W/kg

Figure 125 Right Hand Tilt 15° UMTS Band IV Channel 1413

UMTS Band IV Left Cheek Middle (Battery 2)

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.306 S/m; ε_r = 39.731; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(8.14, 8.14, 8.14); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.547 W/kg

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

Reference Value = 10.305 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.722 W/kg

SAR(1 g) = 0.490 W/kg; SAR(10 g) = 0.309 W/kg

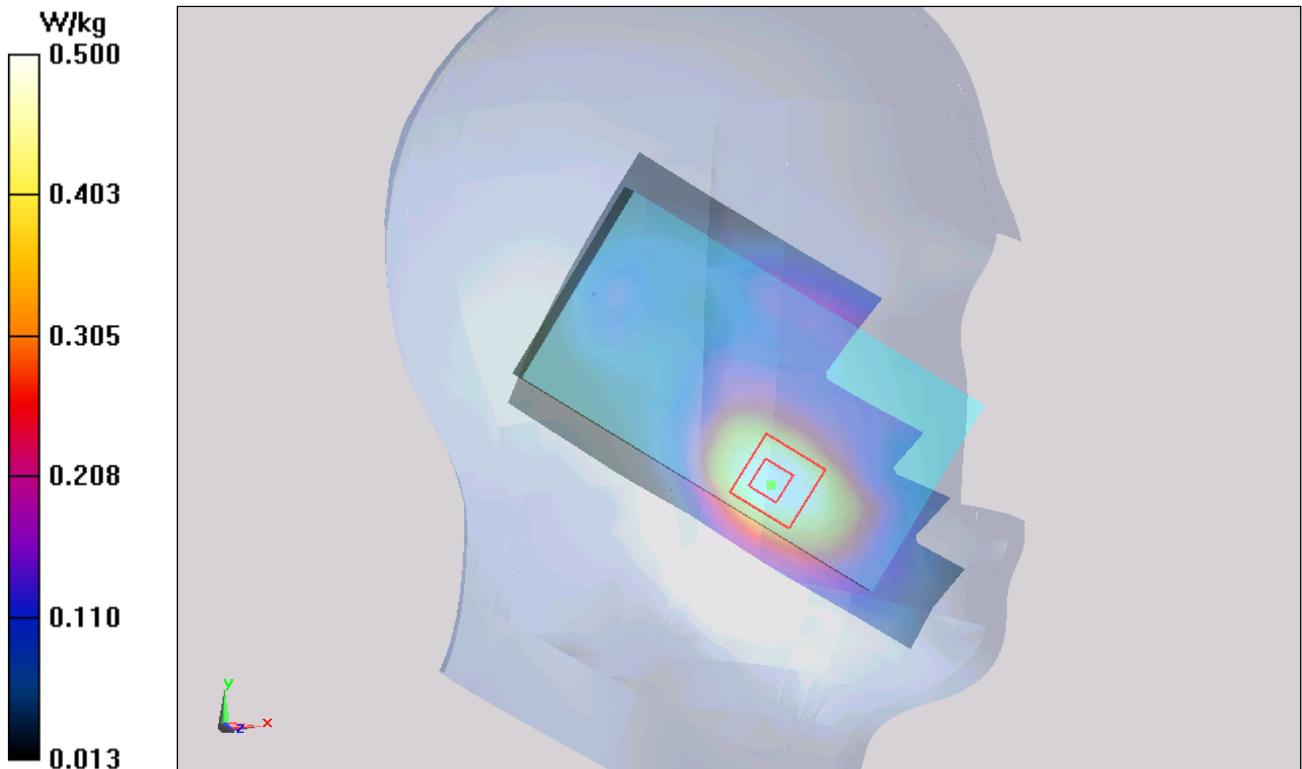Maximum value of SAR (measured) = 0.500 W/kg

Figure 126 Left Touch Cheek UMTS Band IV Channel 1413

UMTS Band IV Left Cheek Middle (Battery 3)

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.306 S/m; ε_r = 39.731; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(8.14, 8.14, 8.14); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.531 W/kg

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

Reference Value = 10.314 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.697 W/kg

SAR(1 g) = 0.478 W/kg; SAR(10 g) = 0.304 W/kg

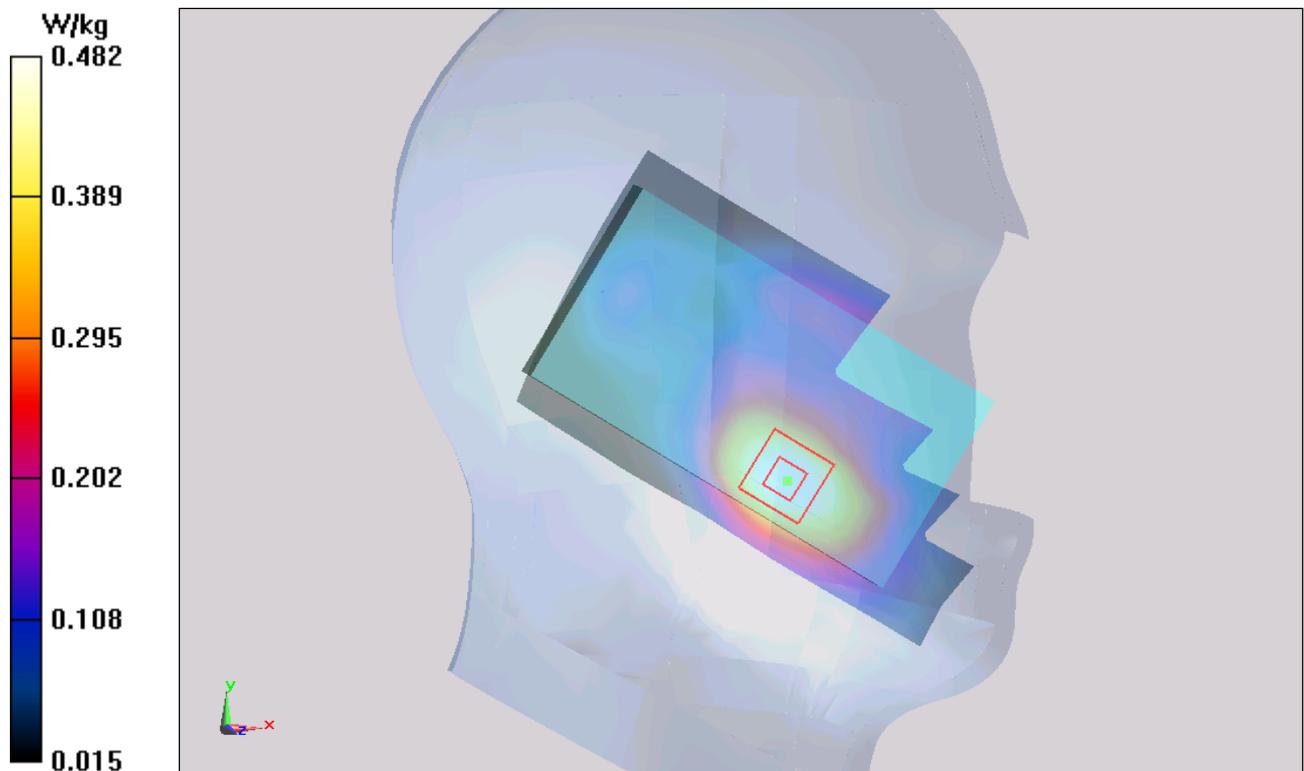Maximum value of SAR (measured) = 0.482 W/kg

Figure 127 Left Touch Cheek UMTS Band IV Channel 1413

UMTS Band IV Left Cheek Middle (Battery 4)

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.306 S/m; ε_r = 39.731; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(8.14, 8.14, 8.14); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.565 W/kg

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

Reference Value = 9.731 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.752 W/kg

SAR(1 g) = 0.506 W/kg; SAR(10 g) = 0.318 W/kg

Maximum value of SAR (measured) = 0.507 W/kg
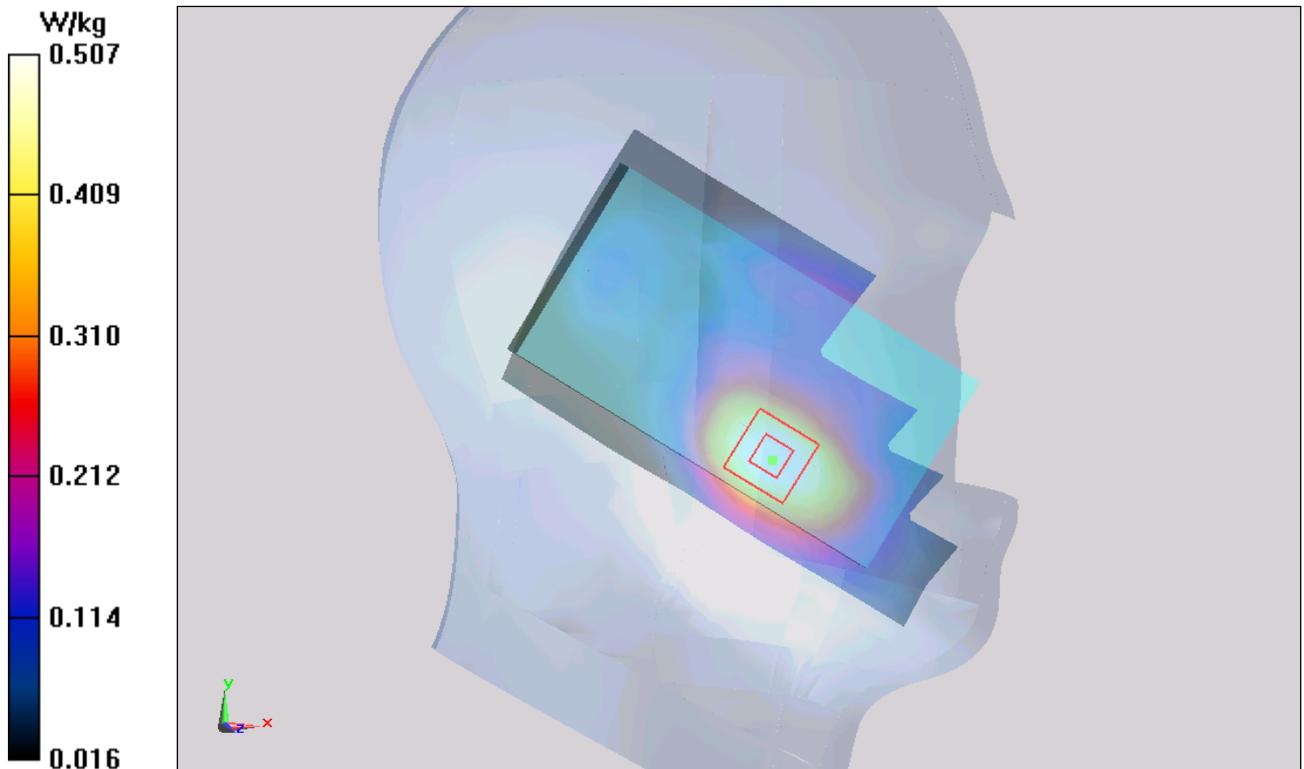
Figure 128 Left Touch Cheek UMTS Band IV Channel 1413

UMTS Band IV Back Side High

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1753 MHz; σ = 1.507 S/m; $ε_r$ = 52.874; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.857 W/kg

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

Reference Value = 12.694 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.822 W/kg; SAR(10 g) = 0.517 W/kg

Maximum value of SAR (measured) = 0.889 W/kg

Figure 129 Body, Back Side, UMTS Band IV Channel 1513

UMTS Band IV Back Side Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.489 S/m; $ε_r$ = 52.919; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.820 W/kg

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

Reference Value = 12.350 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.788 W/kg; SAR(10 g) = 0.496 W/kg

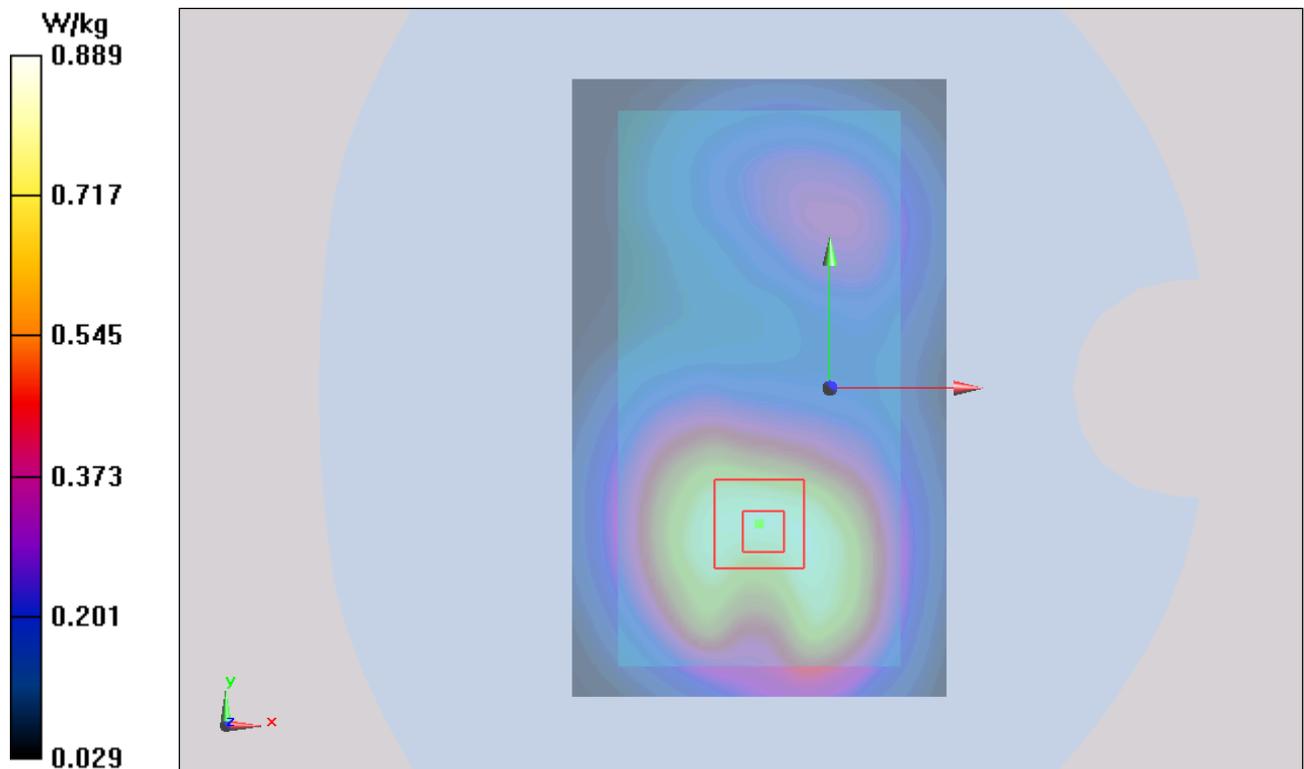Maximum value of SAR (measured) = 0.852 W/kg

Figure 130 Body, Back Side, UMTS Band IV Channel 1413

UMTS Band IV Back Side Low

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1712.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.469 S/m; ε_r = 52.971; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side Low/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.730 W/kg

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

Reference Value = 11.488 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.708 W/kg; SAR(10 g) = 0.444 W/kg

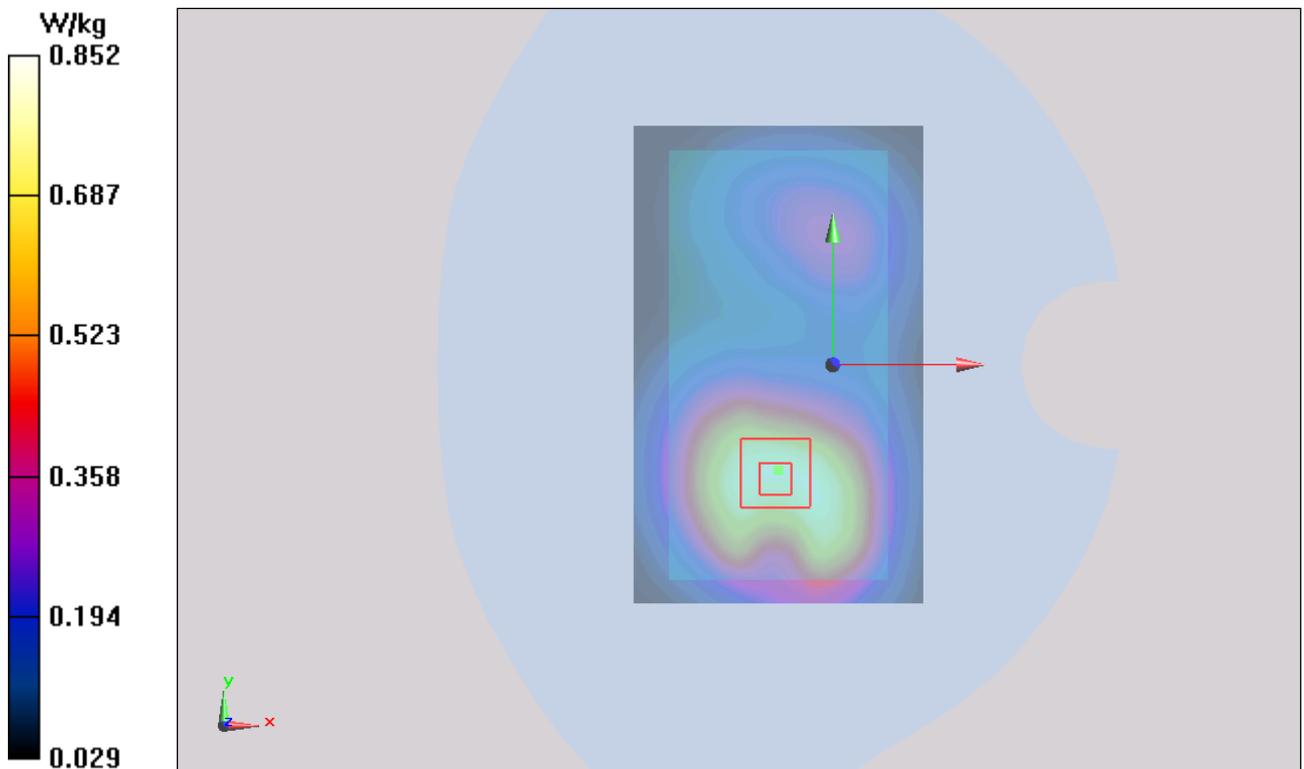Maximum value of SAR (measured) = 0.762 W/kg

Figure 131 Body, Back Side, UMTS Band IV Channel 1312

UMTS Band IV Front Side High

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1753 MHz; σ = 1.507 S/m; ε_r = 52.874; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Front Side High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.840 W/kg

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

Reference Value = 10.968 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.775 W/kg; SAR(10 g) = 0.478 W/kg

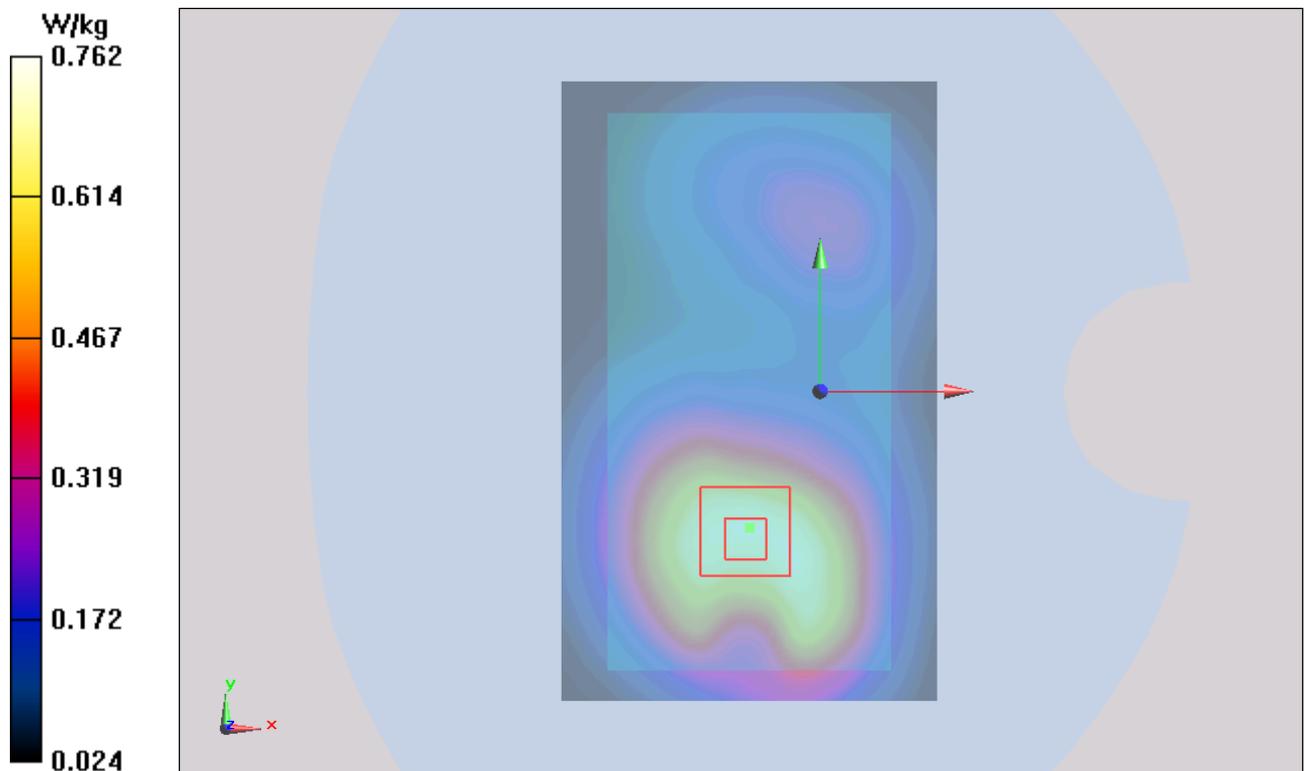Maximum value of SAR (measured) = 0.824 W/kg

Figure 132 Body, Front Side, UMTS Band IV Channel 1513

UMTS Band IV Front Side Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.489 S/m; $ε_r$ = 52.919; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Front Side Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.784 W/kg

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

Reference Value = 11.131 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.722 W/kg; SAR(10 g) = 0.447 W/kg

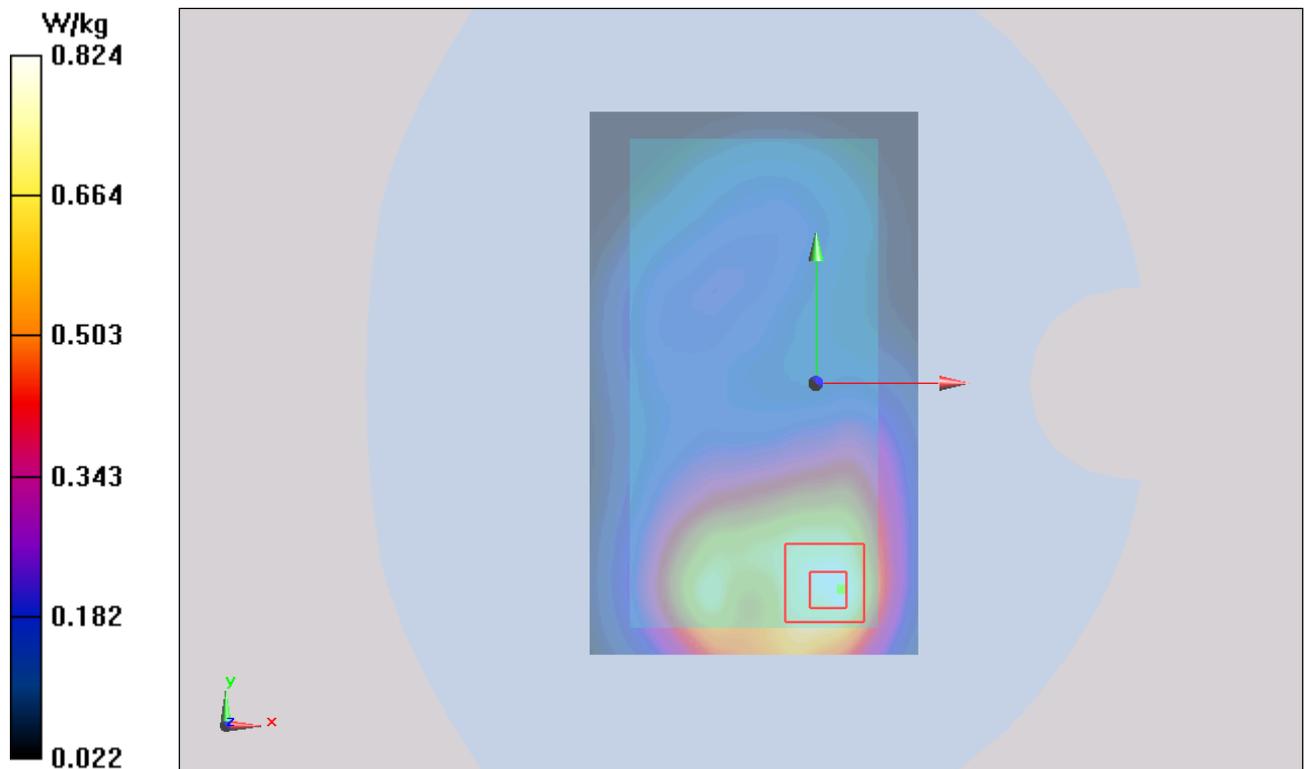Maximum value of SAR (measured) = 0.763 W/kg
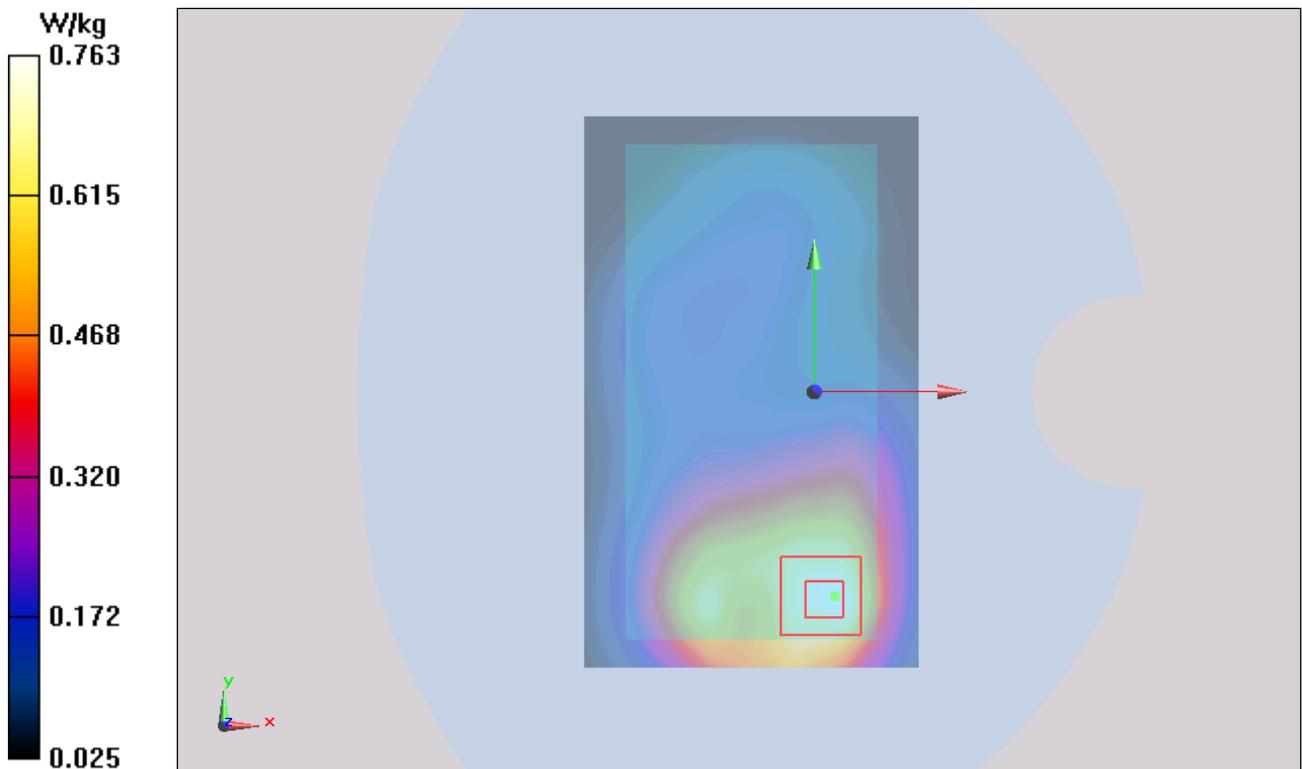
Figure 133 Body, Front Side, UMTS Band IV Channel 1413

UMTS Band IV Front Side Low

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1712.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.469 S/m; ε_r = 52.971; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃　　　　Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Front Side Low/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.678 W/kg

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

Reference Value = 10.713 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.934 W/kg

SAR(1 g) = 0.628 W/kg; SAR(10 g) = 0.391 W/kg

Maximum value of SAR (measured) = 0.664 W/kg
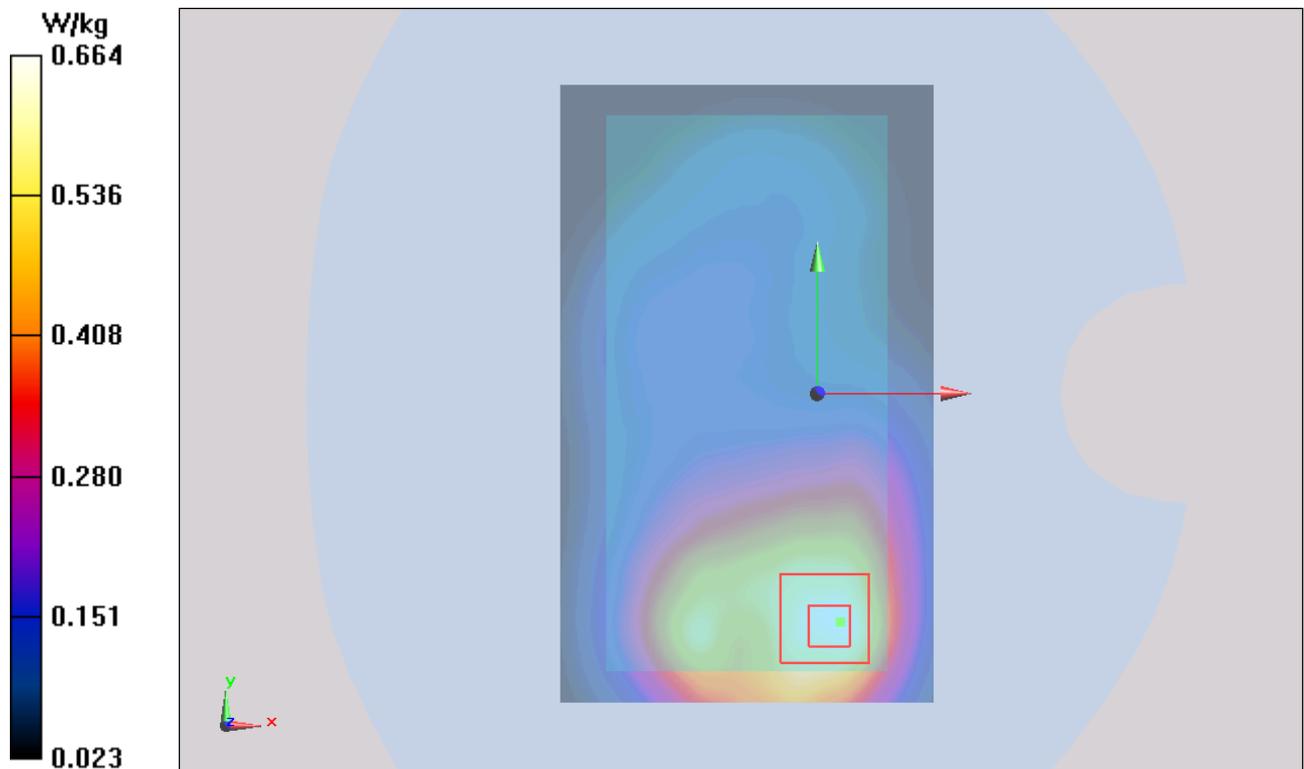
Figure 134 Body, Front Side, UMTS Band IV Channel 1312

UMTS Band IV Left Edge Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.489 S/m; ε_r = 52.919; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left Edge Middle/Area Scan (51x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.299 W/kg

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

Reference Value = 10.007 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.408 W/kg

SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.170 W/kg

Maximum value of SAR (measured) = 0.285 W/kg

Figure 135 Body, Left Edge, UMTS Band IV Channel 1413

UMTS Band IV Right Edge Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.489 S/m; ε_r = 52.919; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Right Edge Middle/Area Scan (51x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

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

Reference Value = 8.969 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.156 W/kg

SAR(1 g) = 0.105 W/kg; SAR(10 g) = 0.063 W/kg

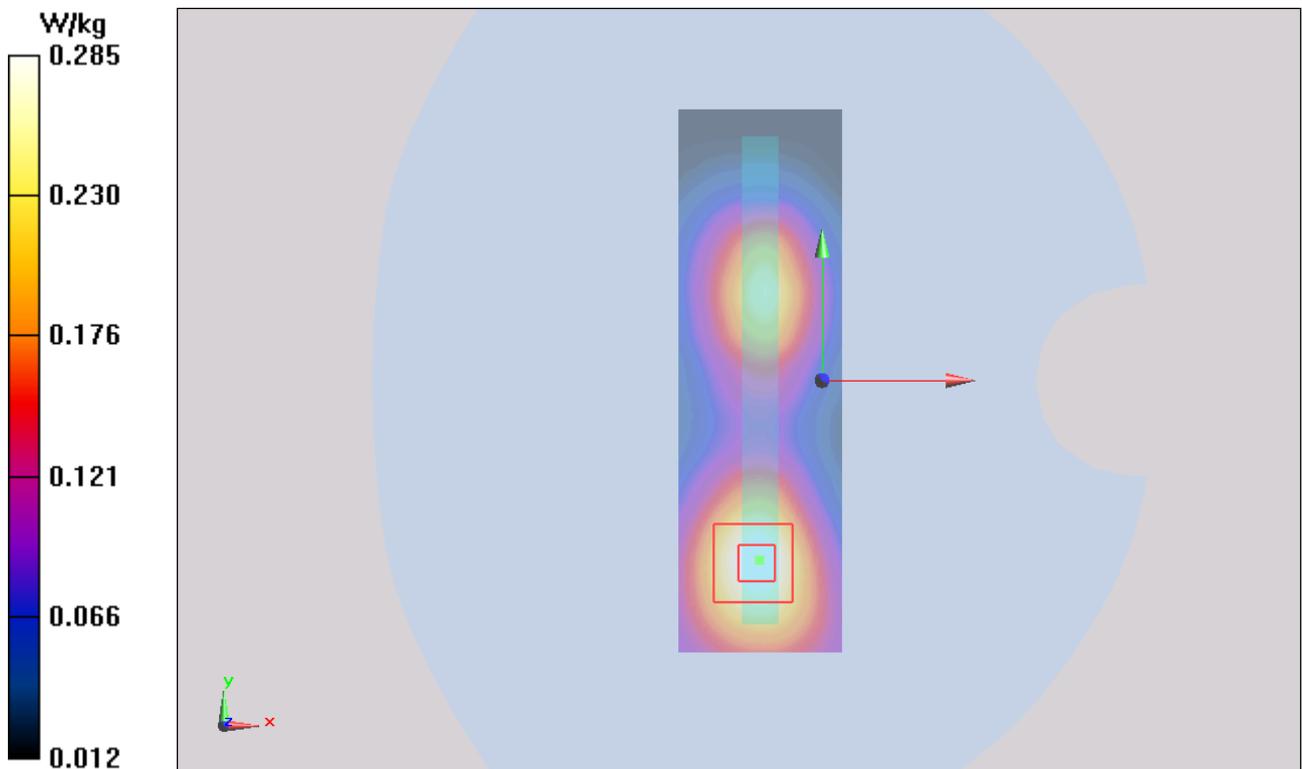Maximum value of SAR (measured) = 0.113 W/kg
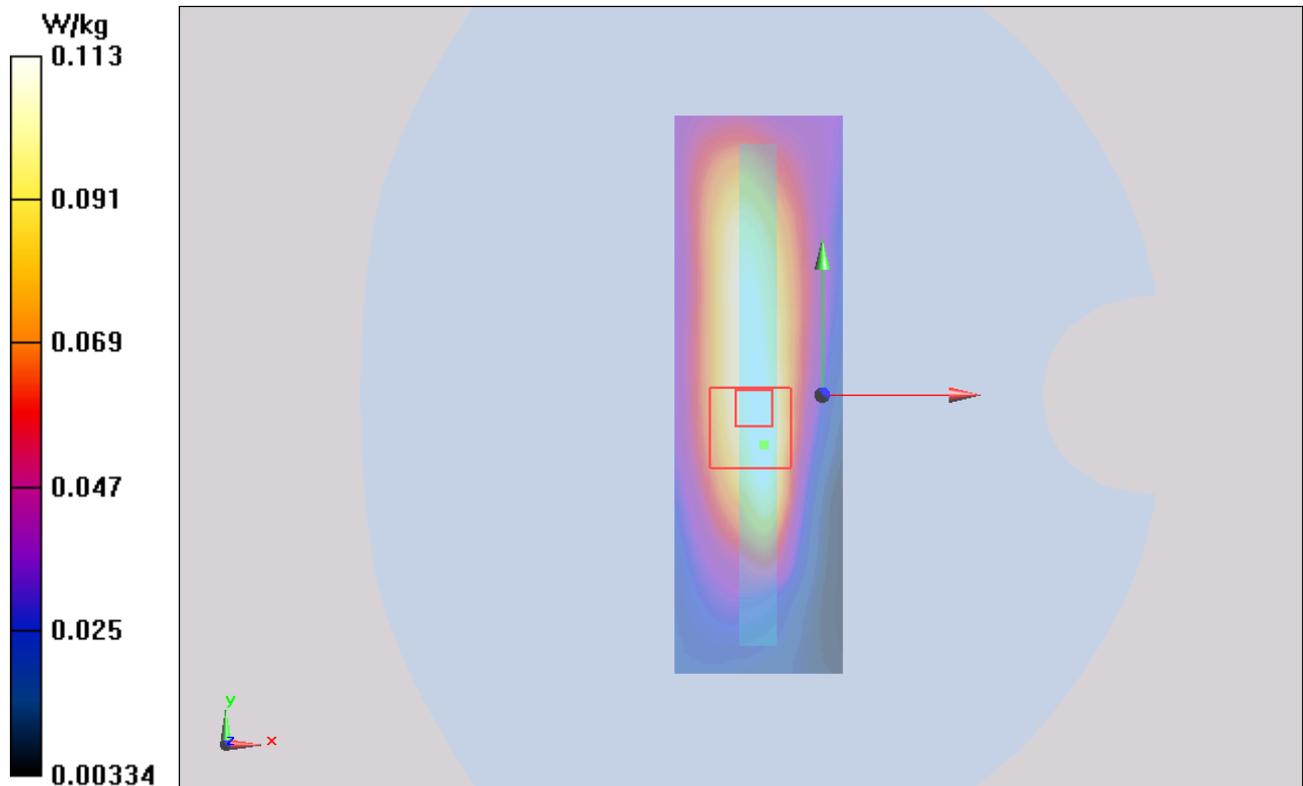
Figure 136 Body, Right Edge, UMTS Band IV Channel 1413

UMTS Band IV Bottom Edge Middle

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.489 S/m; ε_r = 52.919; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Bottom Edge Middle/Area Scan (51x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.637 W/kg

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

Reference Value = 20.300 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.933 W/kg

SAR(1 g) = 0.606 W/kg; SAR(10 g) = 0.345 W/kg

Maximum value of SAR (measured) = 0.604 W/kg

Figure 137 Body, Bottom Edge, UMTS Band IV Channel 1413

UMTS Band IV Back Side High (Battery 2)

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1753 MHz; σ = 1.507 S/m; $ε_r$ = 52.874; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side /High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.813 W/kg

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

Reference Value = 11.892 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.767 W/kg; SAR(10 g) = 0.484 W/kg

Maximum value of SAR (measured) = 0.834 W/kg

Figure 138 Body, Back Side, UMTS Band IV Channel 1513

UMTS Band IV Back Side High (Battery 3)

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1753 MHz; σ = 1.507 S/m; $ε_r$ = 52.874; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side /High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.851 W/kg

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

Reference Value = 12.247 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.793 W/kg; SAR(10 g) = 0.499 W/kg
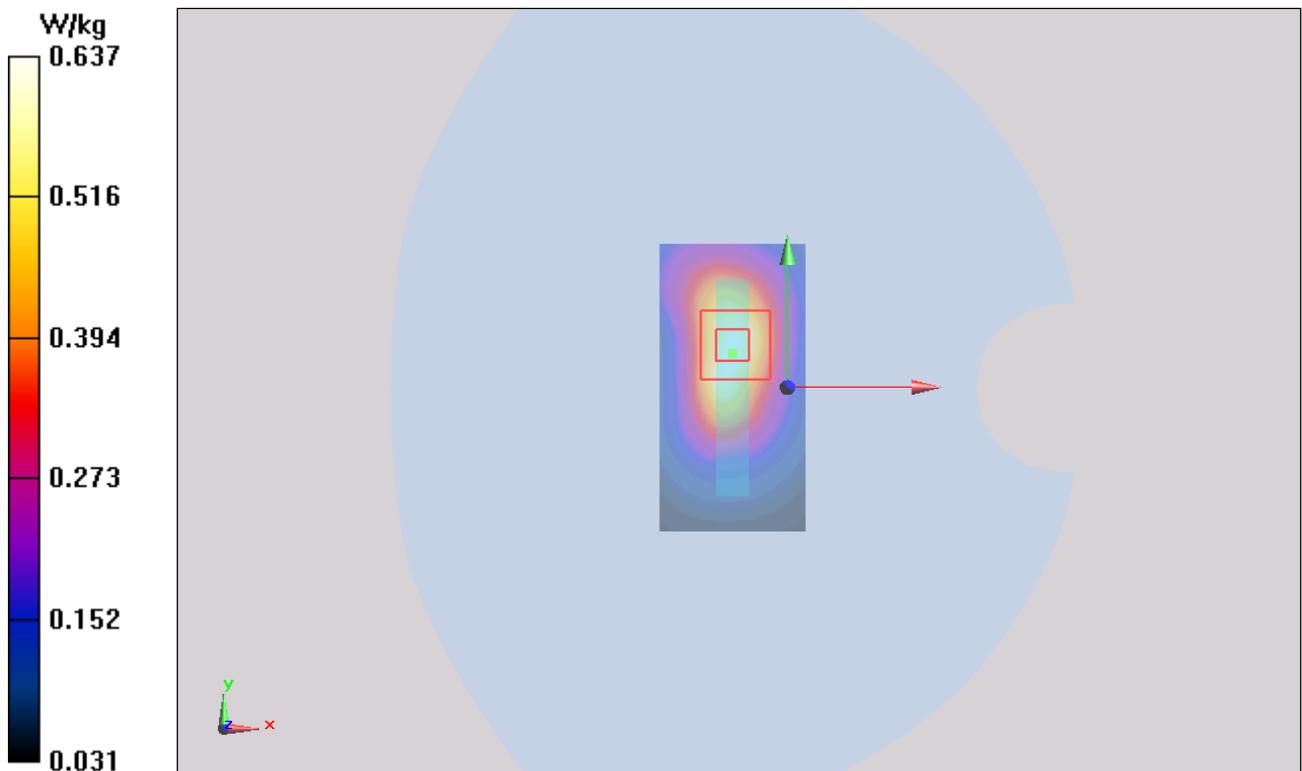
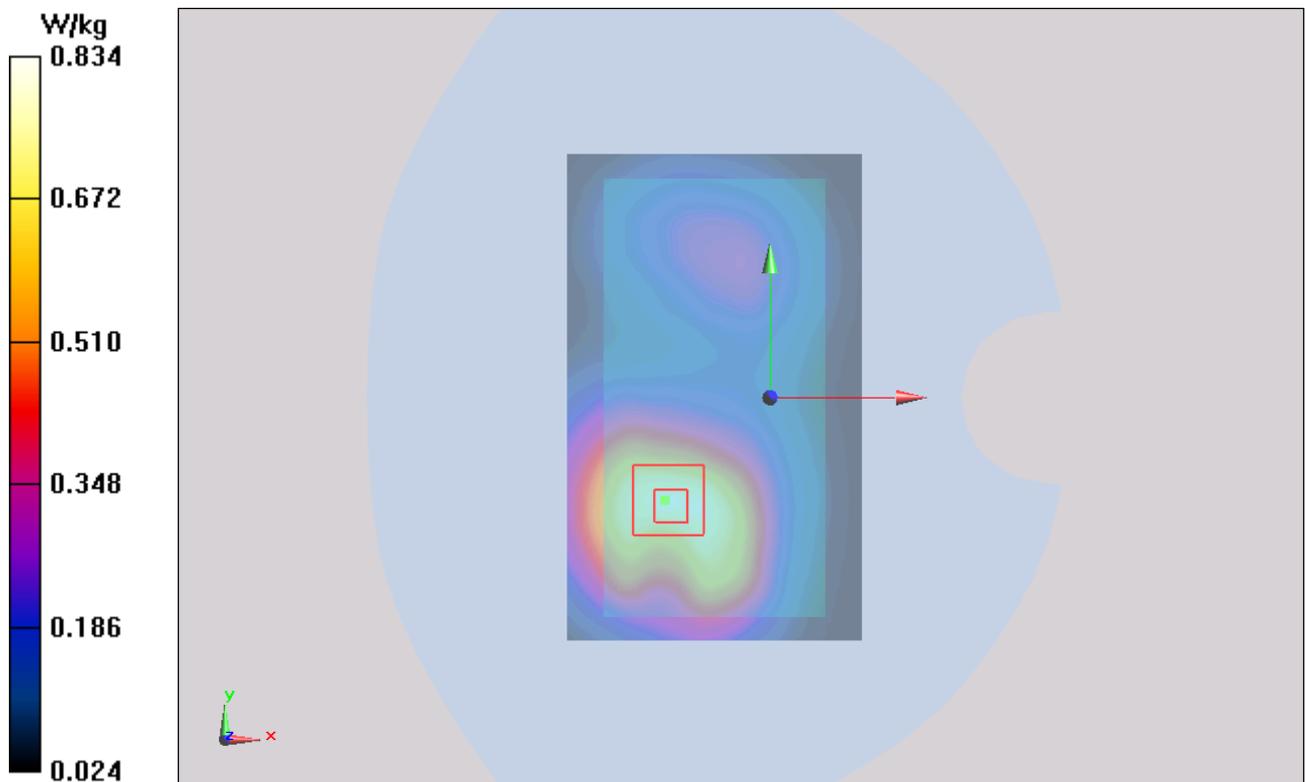Maximum value of SAR (measured) = 0.849 W/kg
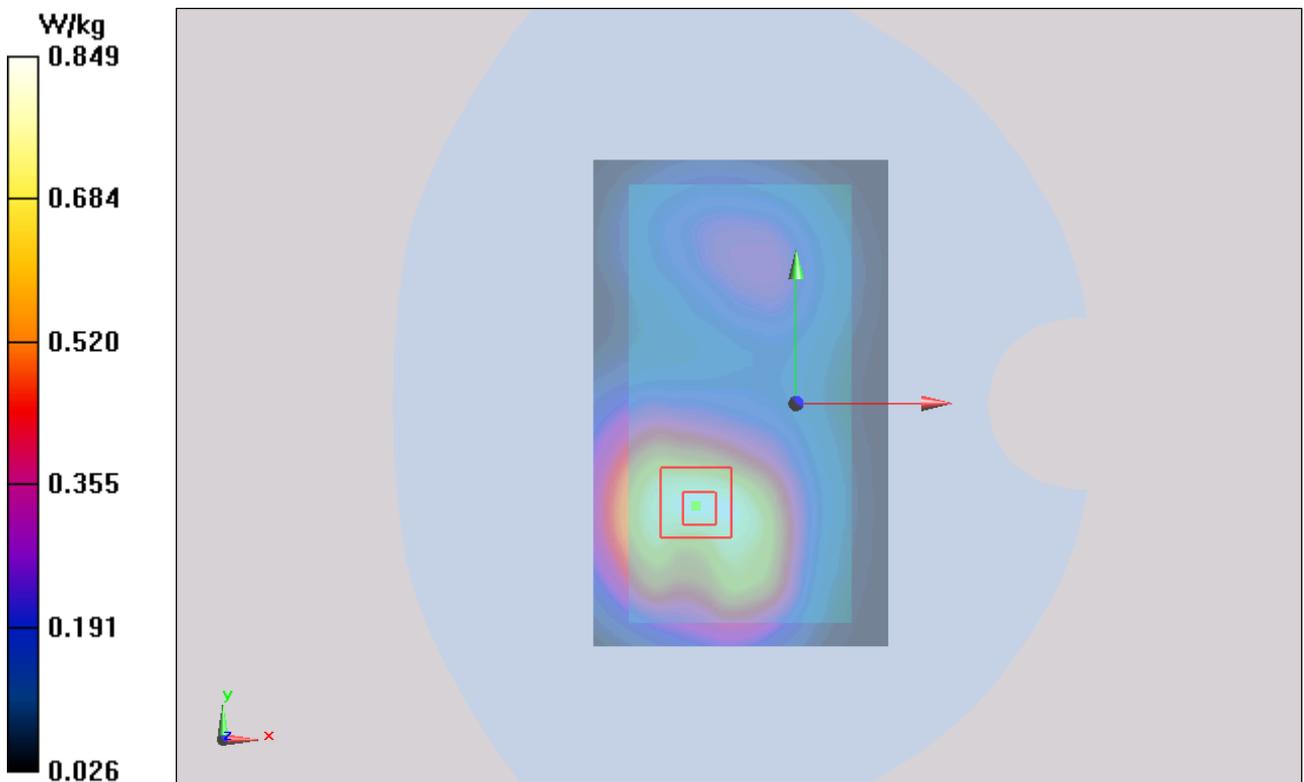
Figure 139 Body, Back Side, UMTS Band IV Channel 1513

UMTS Band IV Back Side High (Battery 4)

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1753 MHz; σ = 1.507 S/m; ε_r = 52.874; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side/High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.828 W/kg

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

Reference Value = 12.326 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.769 W/kg; SAR(10 g) = 0.486 W/kg

Maximum value of SAR (measured) = 0.794 W/kg
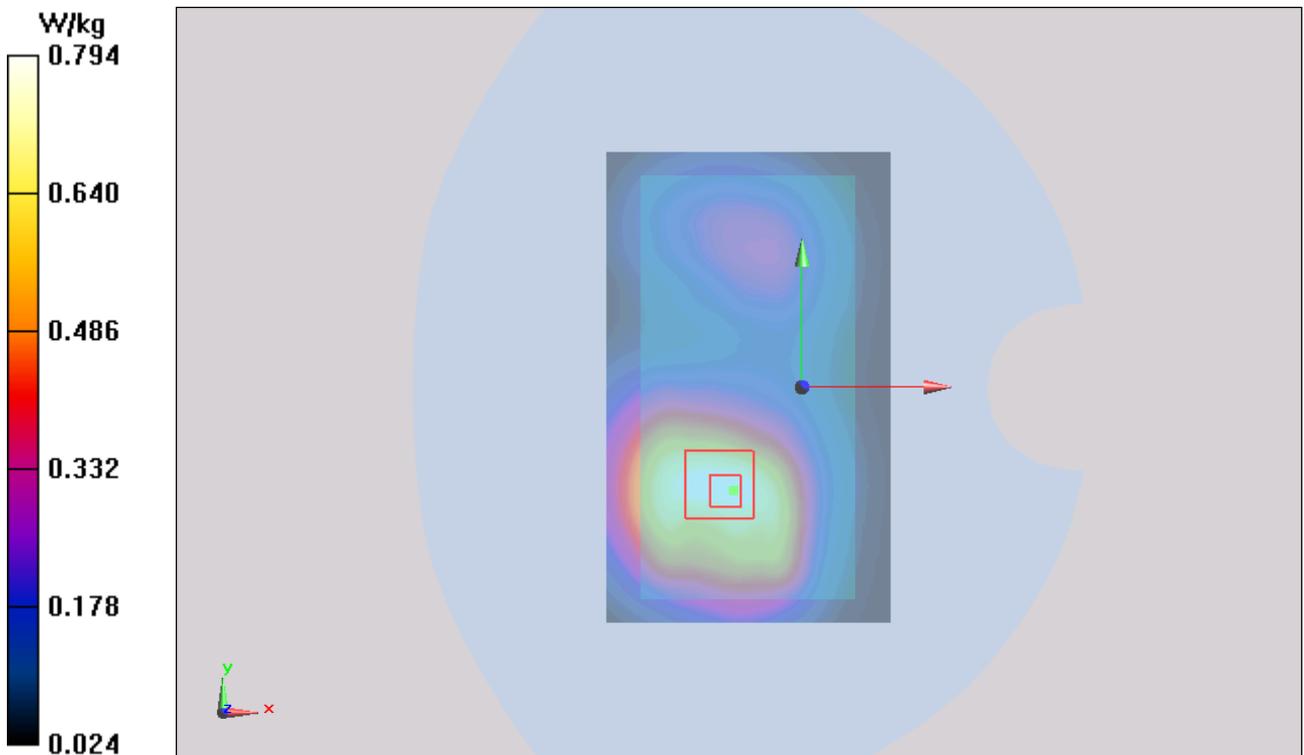
Figure 140 Body, Back Side, UMTS Band IV Channel 1513

UMTS Band IV Back Side High (1st Repeated SAR)

Date: 12/6/2014

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1753 MHz; σ = 1.507 S/m; ε_r = 52.874; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃　　　　Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.69, 7.69, 7.69); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side /High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.863 W/kg

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

Reference Value = 9.721 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.789 W/kg; SAR(10 g) = 0.498 W/kg

Maximum value of SAR (measured) = 0.823 W/kg
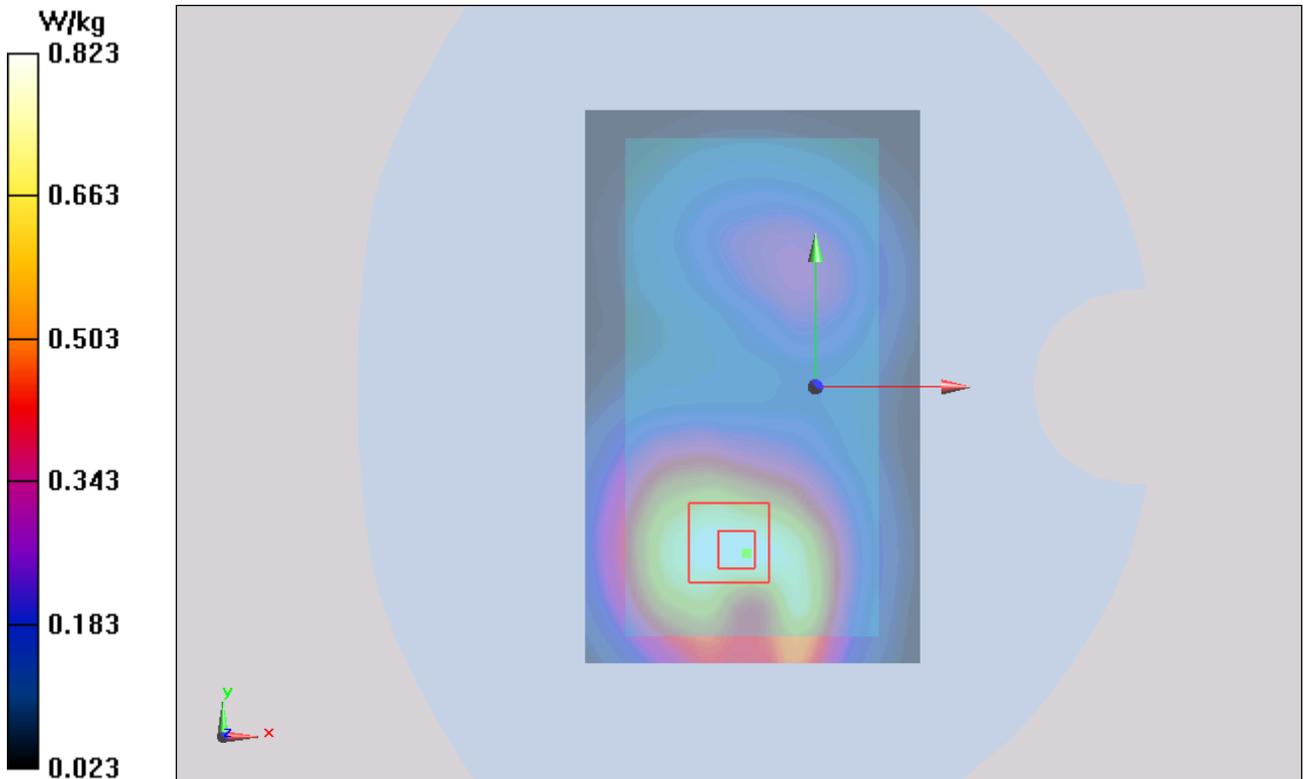
Figure 141 Body, Back Side, UMTS Band IV Channel 1513

UMTS Band V Left Cheek Middle

Date: 12/4/2014

Communication System: UID 0, WCDMA (0); Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 837 MHz; σ = 0.918 S/m; ε_r = 41.361; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(9.62, 9.62, 9.62); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.700 W/kg

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

Reference Value = 8.124 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.824 W/kg

SAR(1 g) = 0.671 W/kg; SAR(10 g) = 0.512 W/kg

Maximum value of SAR (measured) = 0.692 W/kg
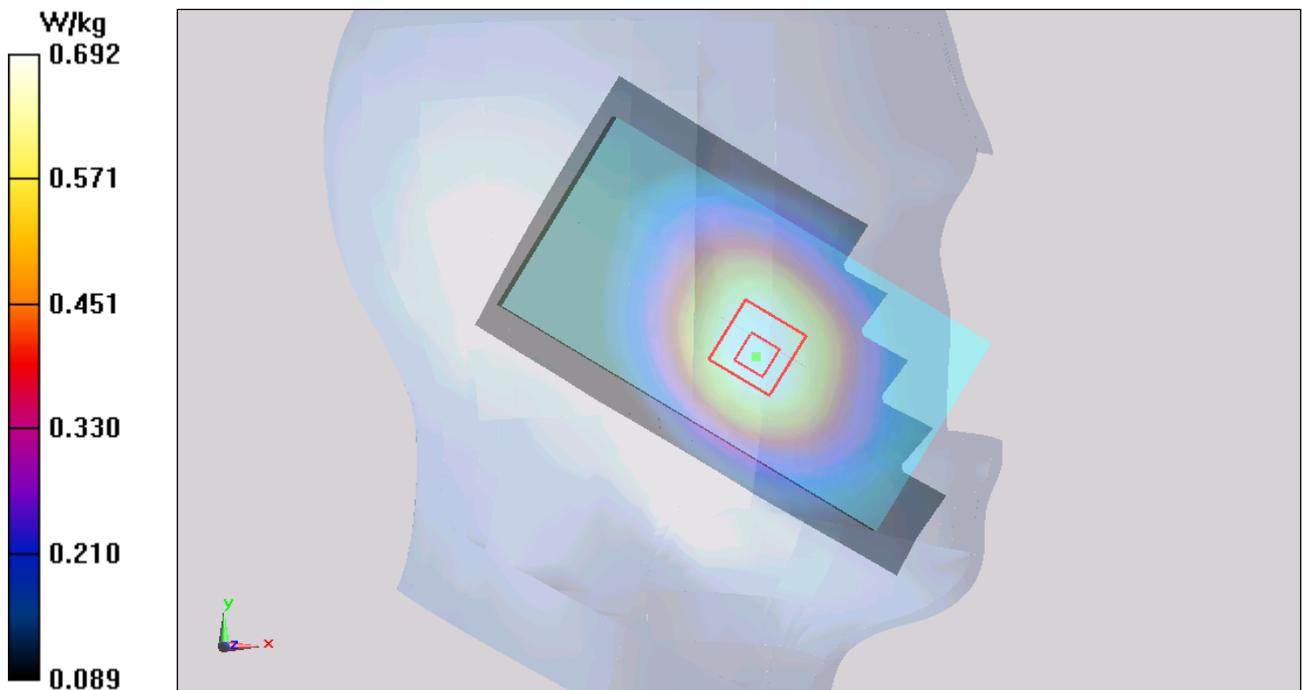
Figure 142 Left Hand Touch Cheek UMTS Band V Channel 4183

UMTS Band V Back Side High

Date: 12/4/2014

Communication System: UID 0, WCDMA (0); Frequency: 846.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 847 MHz; σ = 1.004 S/m; ε_r = 55.772; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 – SN3977; ConvF(9.74, 9.74, 9.74); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side /High/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.04 W/kg

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

Reference Value = 32.302 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.986 W/kg; SAR(10 g) = 0.747 W/kg

Maximum value of SAR (measured) = 1.02 W/kg
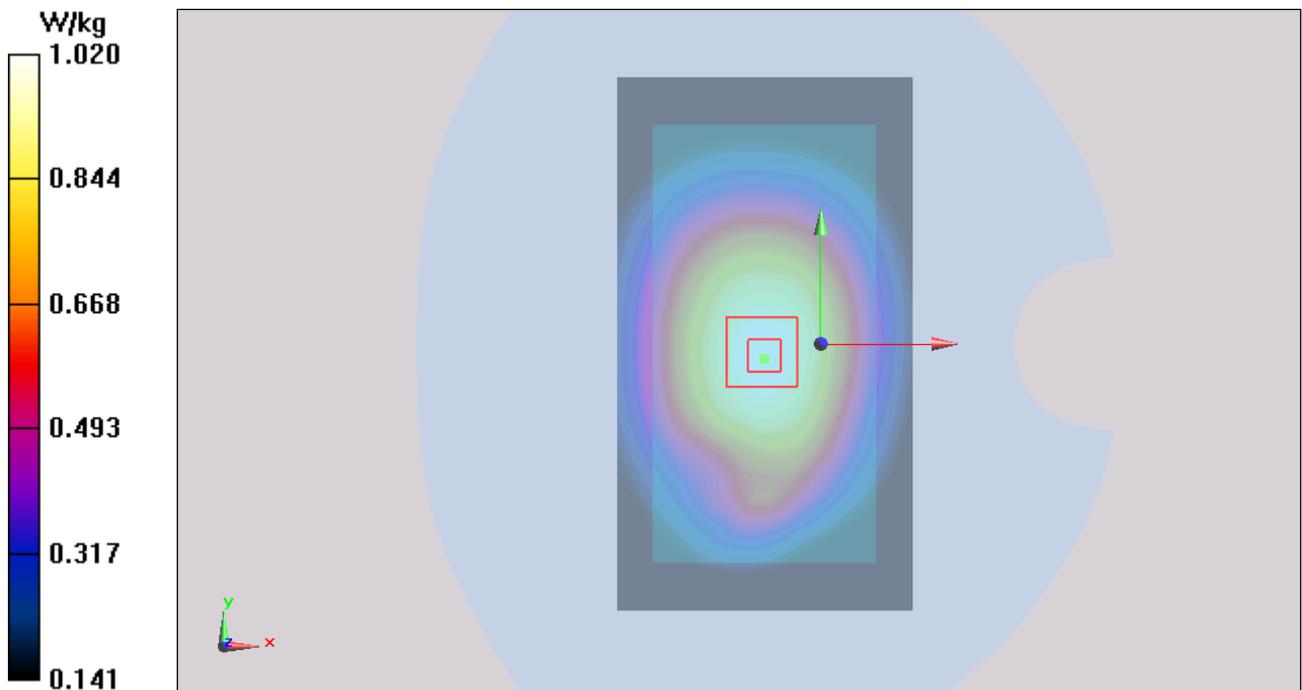
Figure 143 Body, Back Side, UMTS Band V Channel 4233

UMTS Band V Back Side High (Repeated SAR)

Date: 12/4/2014

Communication System: UID 0, WCDMA (0); Frequency: 846.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 847 MHz; σ = 1.004 S/m; ε_r = 55.772; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 – SN3977; ConvF(9.74, 9.74, 9.74); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side /High/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.920 W/kg

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

Reference Value = 29.940 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.874 W/kg; SAR(10 g) = 0.663 W/kg

Maximum value of SAR (measured) = 0.900 W/kg
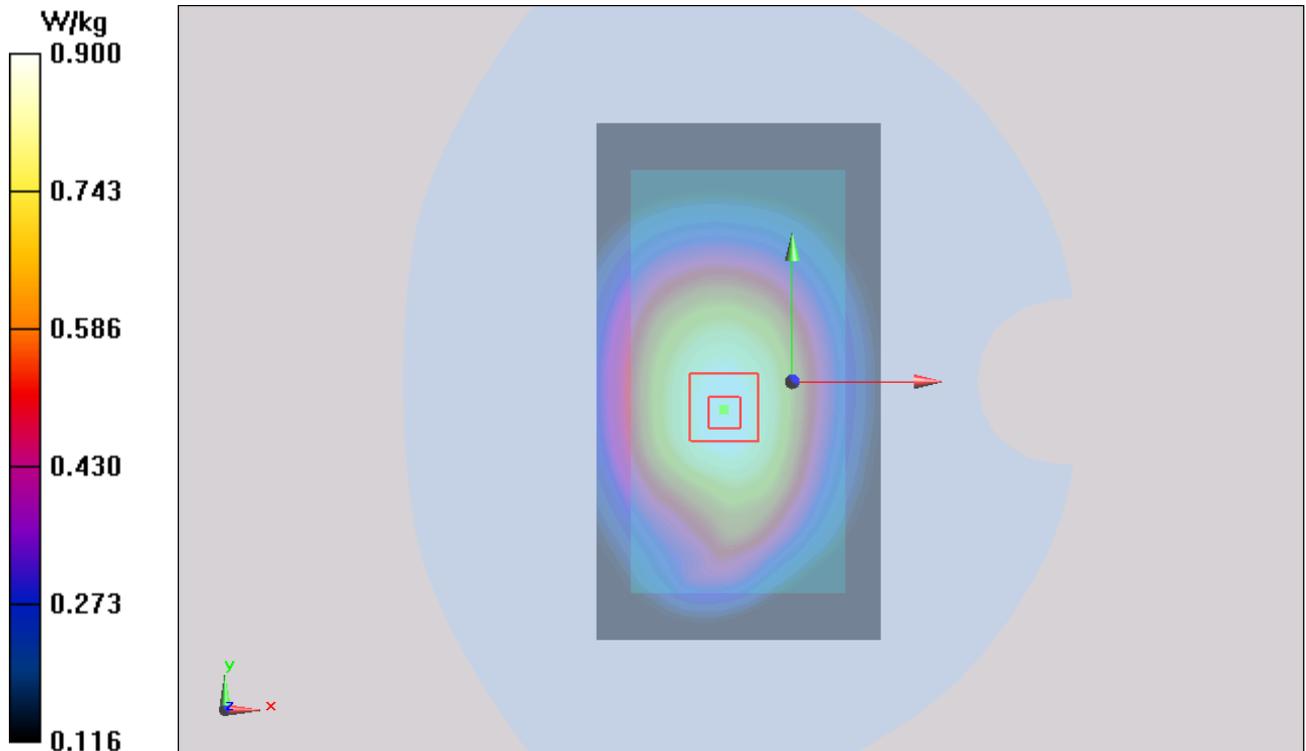
Figure 144 Body, Back Side, UMTS Band V Channel 4233

802.11b Left Cheek High

Date: 12/5/2014

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2462 MHz; σ = 1.824 S/m; ε_r = 38.584; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(7.24,7.24, 7.24); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Left/Cheek High/Area Scan (81x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.205 W/kg

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

Reference Value = 6.145 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.380 W/kg

SAR(1 g) = 0.167 W/kg; SAR(10 g) = 0.071 W/kg

Maximum value of SAR (measured) = 0.187 W/kg
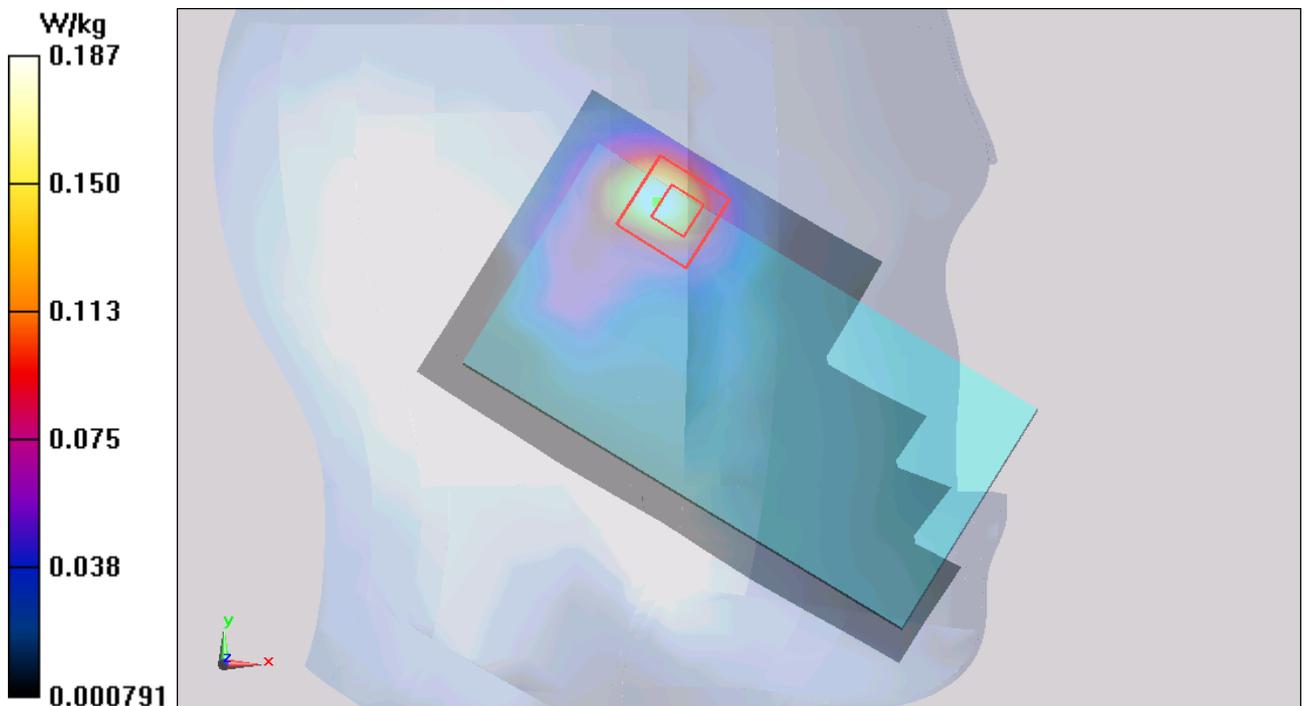
Figure 145 Left Hand Touch Cheek 802.11b Channel 11

802.11b Back Side High

Date: 12/5/2014

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2462 MHz; σ = 2.009 S/m; ε_r = 52.109; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3977; ConvF(6.97, 6.97, 6.97); Calibrated: 2/17/2014;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

Back Side High/Area Scan (81x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0814 W/kg

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

Reference Value = 3.854 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.129 W/kg

SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.043 W/kg

Maximum value of SAR (measured) = 0.0800 W/kg
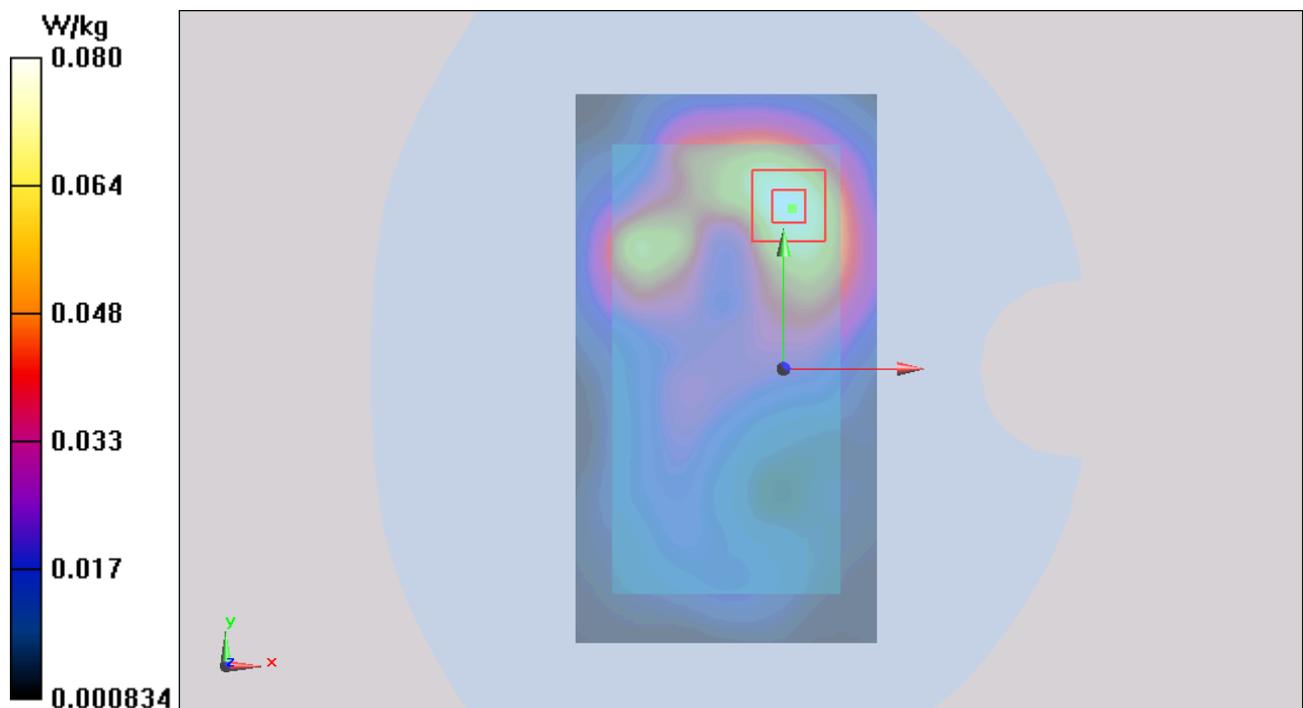
Figure 146 Body, Back Side, 802.11b Channel 11

ANNEX F: Probe Calibration Certificate(SN:3677)

TMC   In Collaboration with   **s p e a g**   **CALIBRATION LABORATORY**   **ilac-MRA**   **CNAS**   校 准   CNAS L0442

Add: No.52 Huayuanbei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079   Fax: +86-10-62304633-2504
E-mail: Info@emcite.com   Http://www.emcite.com

Client	TA-ShangHai	Certificate No:	J13-2-2971

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3677
Calibration Procedure(s)	TMC-OS-E-02-195 Calibration Procedures for Dosimetric E-field Probes
Calibration date:	November 28, 2013

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±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards		ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter	NRP2	101919	01-Jul-13 (TMC, No.JW13-044)	Jun-14
Power sensor	NRP-Z91	101547	01-Jul-13 (TMC, No.JW13-044)	Jun-14
Power sensor	NRP-Z91	101548	01-Jul-13 (TMC, No.JW13-044)	Jun-14
Reference10dBAttenuator		BT0520	12-Dec-12(TMC,No.JZ12-867)	Dec-14
Reference20dBAttenuator		BT0267	12-Dec-12(TMC,No.JZ12-866)	Dec-14
Reference Probe EX3DV4		SN 3846	03-Sep-13(SPEAG,No.EX3-3846_Sep13)	Sep-14
DAE4		SN 777	22-Feb-13 (SPEAG, DAE4-777_Feb13)	Feb -14
Secondary Standards		ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGeneratorMG3700A		6201052605	01-Jul-13 (TMC, No.JW13-045)	Jun-14
Network Analyzer E5071C		MY46110673	15-Feb-13 (TMC, No.JZ13-781)	Feb-14

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: November 29, 2013

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

Certificate No: J13-2-2971   Page 1 of 11

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CALIBRATION LABORATORY

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i θ=0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values. i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z* = NORMx,y,z* frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z;VRx,y,z:A,B,C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from±50MHz to±100MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

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Probe EX3DV4

SN: 3677

Calibrated: November 28, 2013

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

Certificate No: J13-2-2971   Page 3 of 11

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DASY – Parameters of Probe: EX3DV4 - SN: 3677

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm(μV/(V/m)^2)^A	0.38	0.44	0.38	±10.8%
DCP(mV)^B	99.8	100.9	101.9	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB$\sqrt{}\mu$V	C	D dB	VR mV	Unc^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	93.3	±2.6%
		Y	0.0	0.0	1.0		101.7	
		Z	0.0	0.0	1.0		92.1	

> 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%.

^{A} The uncertainties of Norm X, Y, Z do not affect the E^2-field uncertainty inside TSL (see Page 5 and Page 6).
^{B} Numerical linearization parameter: uncertainty not required.
^{E} Uncertainly is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

TMX

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DASY – Parameters of Probe: EX3DV4 - SN: 3677

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]^C	Relative Permittivity^F	Conductivity (S/m)^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.94	9.94	9.94	0.16	1.13	±12%
850	41.5	0.92	9.41	9.41	9.41	0.11	1.47	±12%
1750	40.1	1.37	8.22	8.22	8.22	0.14	2.11	±12%
1900	40.0	1.40	8.15	8.15	8.15	0.14	2.34	±12%
2100	39.8	1.49	7.87	7.87	7.87	0.13	3.21	±12%
2450	39.2	1.80	7.64	7.64	7.64	0.39	0.95	±12%
5200	36.0	4.66	5.73	5.73	5.73	0.95	0.62	±13%
5300	35.9	4.76	5.68	5.68	5.68	0.87	0.67	±13%
5500	35.6	4.96	5.62	5.62	5.62	0.97	0.62	±13%
5600	35.5	5.07	5.29	5.29	5.29	0.89	0.63	±13%
5800	35.3	5.27	5.29	5.29	5.29	1.02	0.61	±13%

^{C} Frequency validity of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
^{F} At frequency below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Certificate No: J13-2-2971   Page 5 of 11

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DASY – Parameters of Probe: EX3DV4 - SN: 3677

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]^C	Relative Permittivity^F	Conductivity (S/m)^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.72	9.72	9.72	0.11	1.97	±12%
850	55.2	0.99	9.51	9.51	9.51	0.15	1.55	±12%
1750	53.4	1.49	7.77	7.77	7.77	0.14	3.23	±12%
1900	53.3	1.52	7.63	7.63	7.63	0.15	2.81	±12%
2100	53.2	1.62	7.97	7.97	7.97	0.16	4.09	±12%
2450	52.7	1.95	7.61	7.61	7.61	0.45	0.92	±12%
5200	49.0	5.30	4.72	4.72	4.72	0.66	1.10	±13%
5300	48.9	5.42	4.67	4.67	4.67	0.64	1.19	±13%
5500	48.6	5.65	4.34	4.34	4.34	0.73	0.80	±13%
5600	48.5	5.77	4.29	4.29	4.29	0.74	0.81	±13%
5800	48.2	6.00	4.46	4.46	4.46	0.78	0.80	±13%

^{C} Frequency validity of ±100MHz only applies for DASY v4 4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
^{F} At frequency below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)
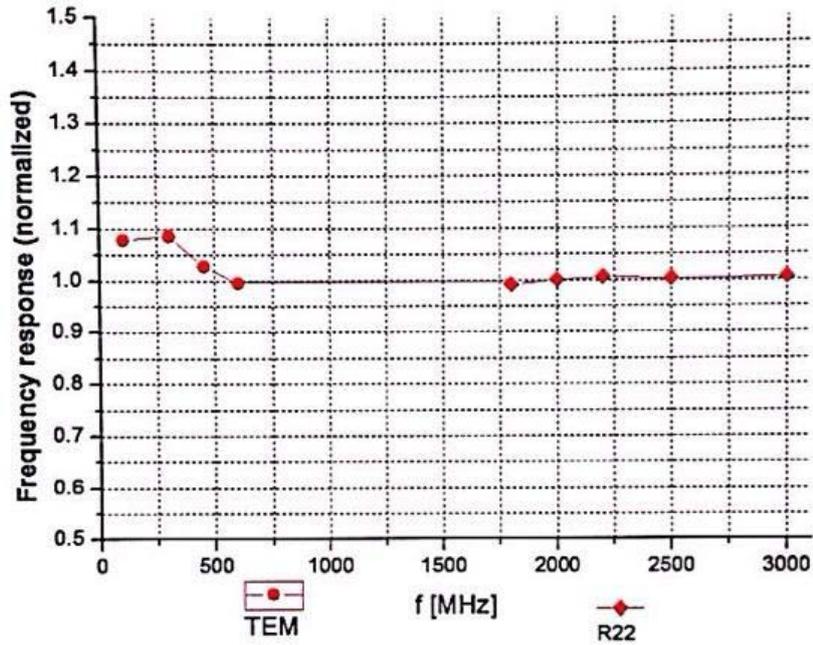
Uncertainty of Frequency Response of E-field: ±7.5% (k=2)

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Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM

f=1800 MHz, R22

Uncertainty of Axial Isotropy Assessment: ±0.9% (k=2)

Certificate No: J13-2-2971   Page 8 of 11

Dynamic Range f(SAR_head)
(TEM cell, f = 900 MHz)
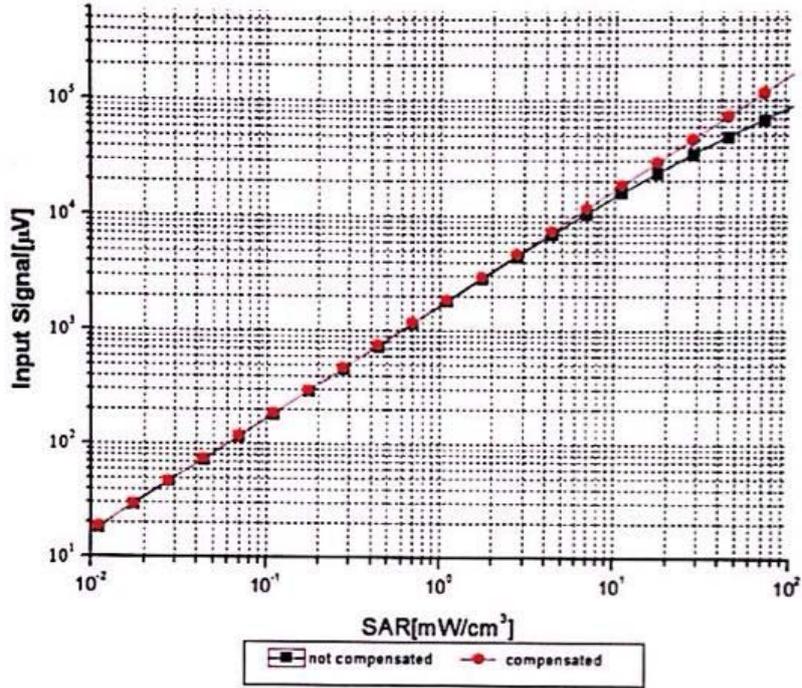
Uncertainty of Linearity Assessment: ±0.9% (k=2)

Conversion Factor Assessment

f=850 MHz, WGLS R9(H_convF)   f=2450 MHz, WGLS R26(H_convF)
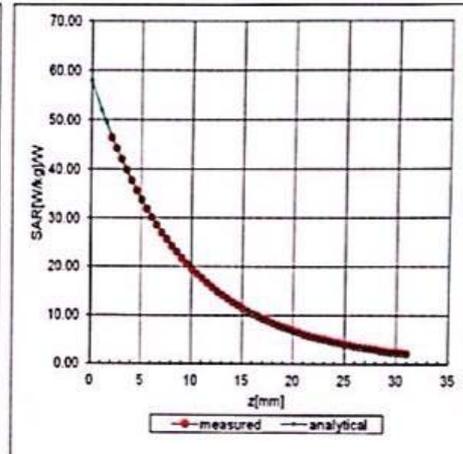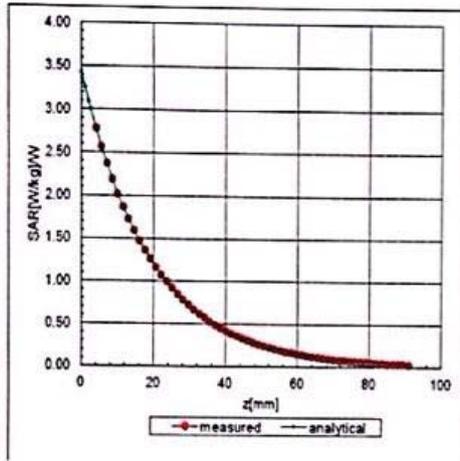
Deviation from Isotropy in Liquid
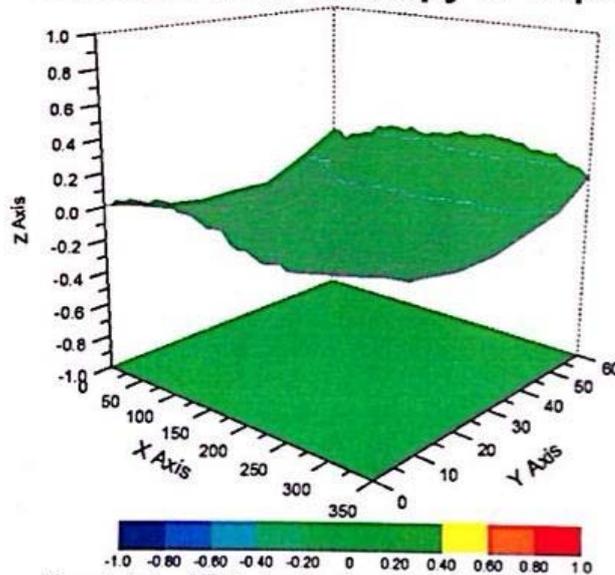
Uncertainty of Spherical Isotropy Assessment: ±2.8% (K=2)

Certificate No: J13-2-2971   Page 10 of 11

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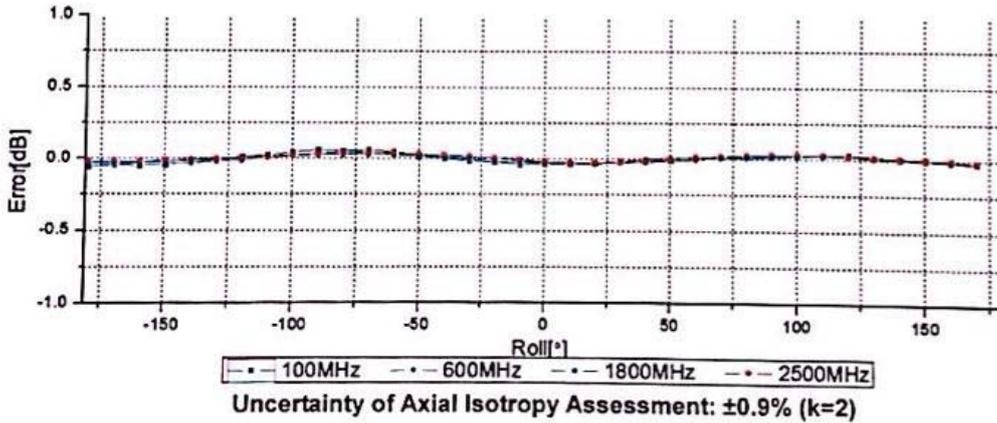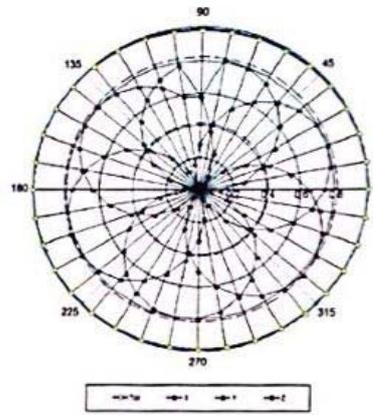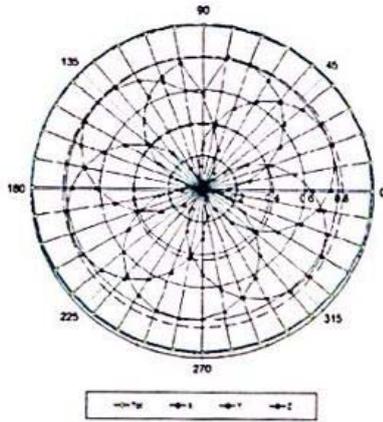## s p e a g
CALIBRATION LABORATORY

Add: No.52 Huayuanbei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079   Fax: +86-10-62304633-2504
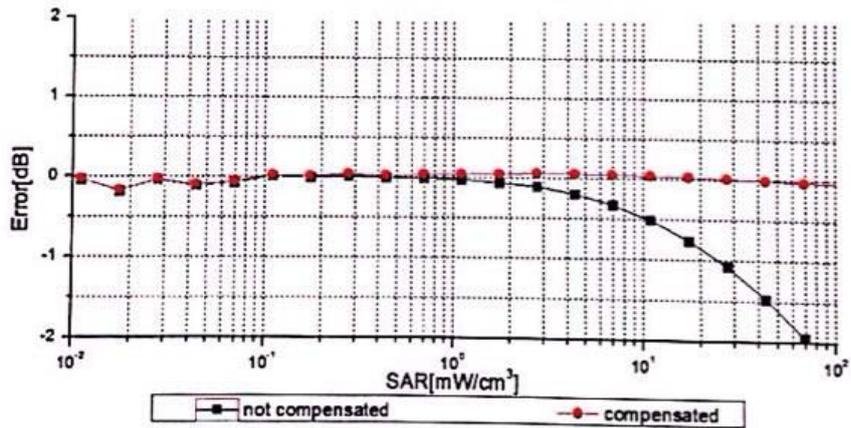E-mail: Info@emcite.com   Http://www.emcite.com

DASY - Parameters of Probe: EX3DV4 - SN: 3677

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	117
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	2mm

ANNEX G: Probe Calibration Certificate(SN:3977)

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

ilac-MRA

SWISS CALIBRATION

S C S Schweizerischer Kalibrierdienst
Service suisse d'étalonnage
Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client	**ATL (Auden)**	Certificate No: **EX3-3977_Feb14**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3977
Calibration procedure(s)	QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	February 17, 2014

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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	04-Apr-13 (No. 217-01733)	Apr-14
Power sensor E4412A	MY41498087	04-Apr-13 (No. 217-01733)	Apr-14
Reference 3 dB Attenuator	SN: S5054 (3c)	04-Apr-13 (No. 217-01737)	Apr-14
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-13 (No. 217-01735)	Apr-14
Reference 30 dB Attenuator	SN: S5129 (30b)	04-Apr-13 (No. 217-01738)	Apr-14
Reference Probe ES3DV2	SN: 3013	30-Dec-13 (No. ES3-3013_Dec13)	Dec-14
DAE4	SN: 660	13-Dec-13 (No. DAE4-660_Dec13)	Dec-14

Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-13)	In house check: Oct-14

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 19, 2014

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

S   Schweizerischer Kalibrierdienst
C   Service suisse d'étalonnage
    Servizio svizzero di taratura
S   Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)   **Accreditation No.: SCS 108**
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) 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

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization $\vartheta = 0$ (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).

- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.

- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.

- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics

- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z*: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.

- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.

- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.

- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

- *Connector Angle*: The angle is assessed using the information gained by determining the NORMx (no uncertainty required).

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Probe EX3DV4

SN:3977

| Manufactured: | November 5, 2013 |
| Calibrated: | February 17, 2014 |

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3977

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m)^2)^A	0.54	0.57	0.54	± 10.1 %
DCP (mV)^B	99.5	100.0	99.7	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB$\sqrt{\mu}$V	C	D dB	VR mV	Unc^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	133.3	±3.3 %
		Y	0.0	0.0	1.0		134.9	
		Z	0.0	0.0	1.0		146.5	

> 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%.

^{A} The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
^{B} Numerical linearization parameter: uncertainty not required.
^{E} Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3977

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unct. (k=2)
450	43.5	0.87	11.72	11.72	11.72	0.18	1.10	± 13.3 %
750	41.9	0.89	9.98	9.98	9.98	0.36	0.88	± 12.0 %
835	41.5	0.90	9.62	9.62	9.62	0.61	0.69	± 12.0 %
900	41.5	0.97	9.48	9.48	9.48	0.77	0.63	± 12.0 %
1750	40.1	1.37	8.14	8.14	8.14	0.78	0.60	± 12.0 %
1900	40.0	1.40	7.97	7.97	7.97	0.48	0.75	± 12.0 %
2000	40.0	1.40	7.93	7.93	7.93	0.69	0.63	± 12.0 %
2300	39.5	1.67	7.59	7.59	7.59	0.37	0.83	± 12.0 %
2450	39.2	1.80	7.24	7.24	7.24	0.27	1.10	± 12.0 %
2600	39.0	1.96	7.07	7.07	7.07	0.41	0.84	± 12.0 %
5200	36.0	4.66	5.09	5.09	5.09	0.35	1.80	± 13.1 %
5300	35.9	4.76	4.82	4.82	4.82	0.35	1.80	± 13.1 %
5500	35.6	4.96	4.76	4.76	4.76	0.35	1.80	± 13.1 %
5600	35.5	5.07	4.55	4.55	4.55	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.52	4.52	4.52	0.40	1.80	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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February 17, 2014

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3977

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unct. (k=2)
450	56.7	0.94	12.47	12.47	12.47	0.11	1.10	± 13.3 %
750	55.5	0.96	9.78	9.78	9.78	0.45	0.86	± 12.0 %
835	55.2	0.97	9.74	9.74	9.74	0.48	0.83	± 12.0 %
900	55.0	1.05	9.46	9.46	9.46	0.41	0.89	± 12.0 %
1750	53.4	1.49	7.69	7.69	7.69	0.41	0.88	± 12.0 %
1900	53.3	1.52	7.37	7.37	7.37	0.34	0.89	± 12.0 %
2000	53.3	1.52	7.41	7.41	7.41	0.24	1.14	± 12.0 %
2300	52.9	1.81	7.12	7.12	7.12	0.66	0.64	± 12.0 %
2450	52.7	1.95	6.97	6.97	6.97	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.68	6.68	6.68	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.50	4.50	4.50	0.45	1.90	± 13.1 %
5300	48.9	5.42	4.28	4.28	4.28	0.45	1.90	± 13.1 %
5500	48.6	5.65	4.02	4.02	4.02	0.45	1.90	± 13.1 %
5600	48.5	5.77	3.87	3.87	3.87	0.45	1.90	± 13.1 %
5800	48.2	6.00	4.12	4.12	4.12	0.50	1.90	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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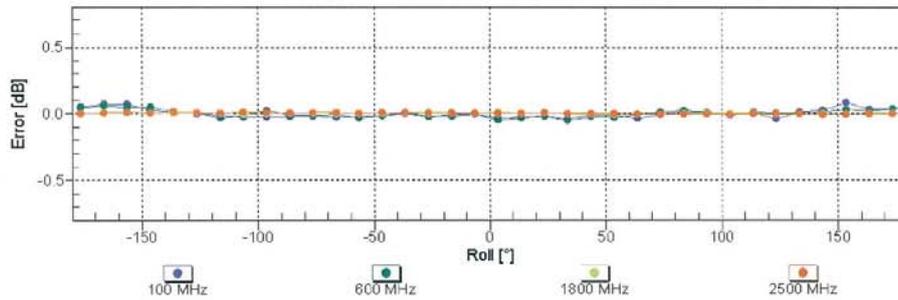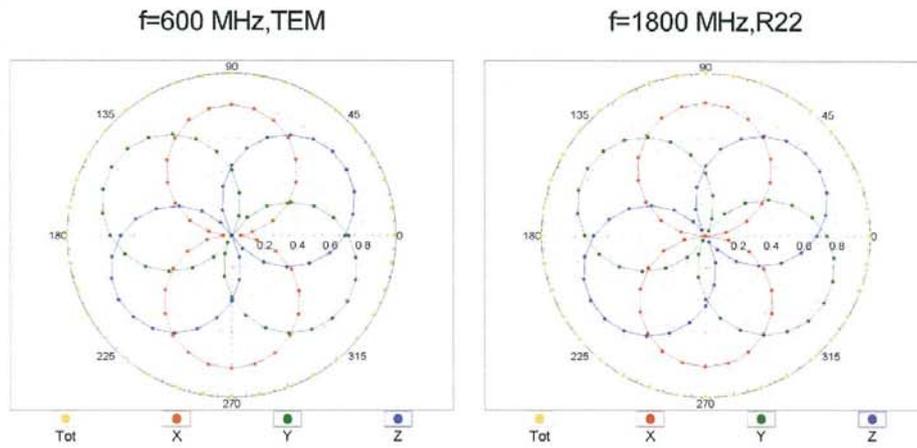## Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)
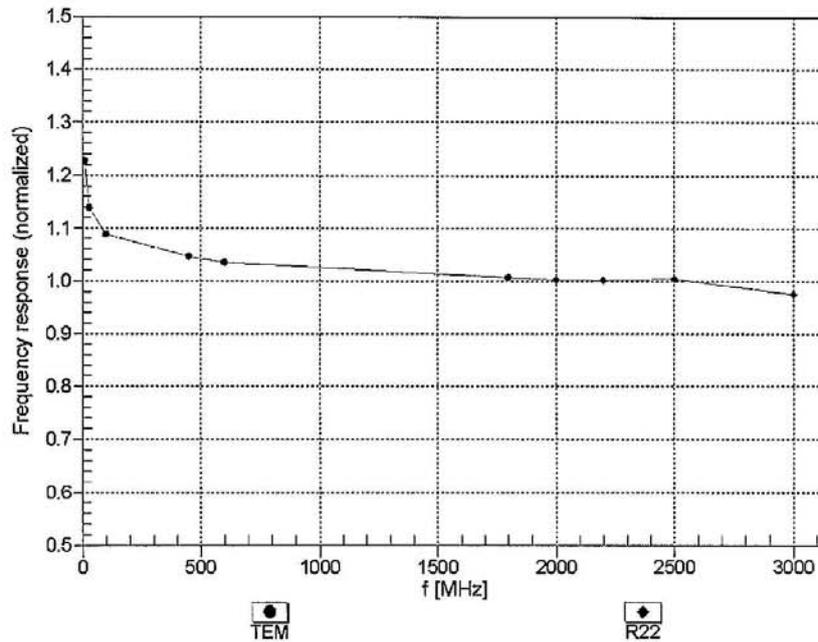
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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Receiving Pattern (φ), ϑ = 0°

f=600 MHz,TEM

| Tot | X | Y | Z |

f=1800 MHz,R22

| Tot | X | Y | Z |

| 100 MHz | 600 MHz | 1800 MHz | 2500 MHz |

Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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Dynamic Range f(SAR$_{head}$)
(TEM cell , f$_{eval}$= 1900 MHz)

not compensated

compensated

not compensated

compensated
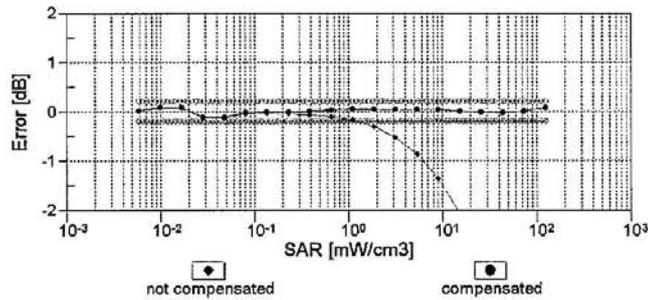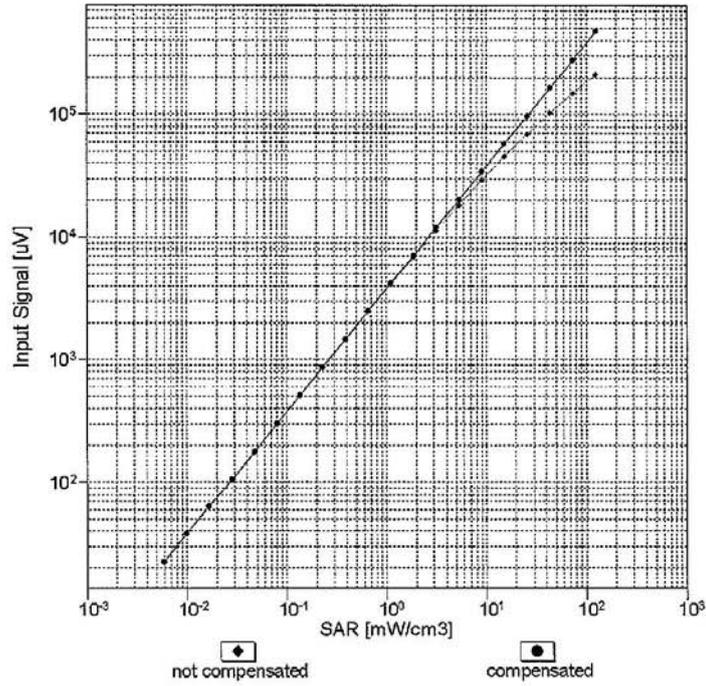
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

EX3DV4– SN:3977 | February 17, 2014

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF) | f = 1750 MHz,WGLS R22 (H_convF)
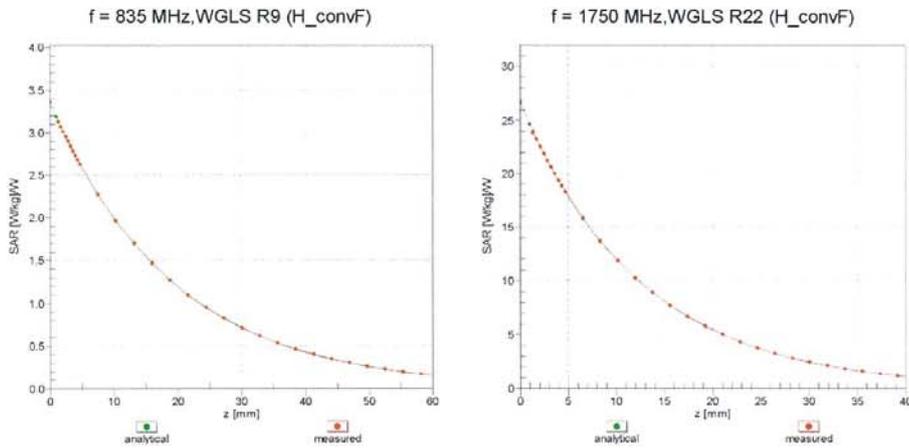
Deviation from Isotropy in Liquid
Error (φ, ϑ), f = 900 MHz
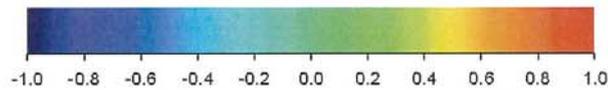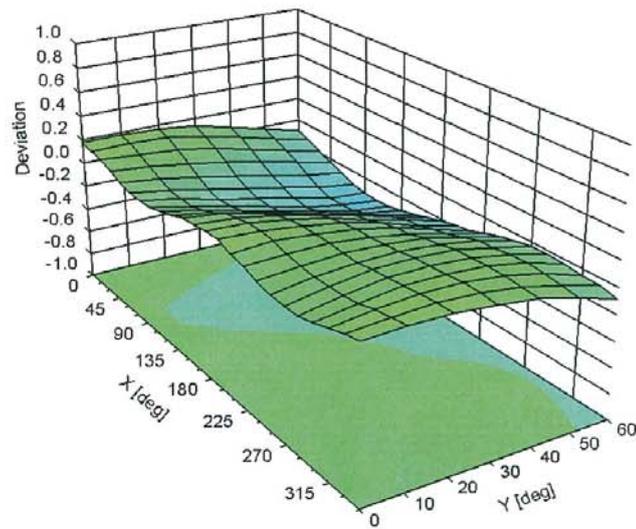
Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3977

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	23.6
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

ANNEX H: D835V2 Dipole Calibration Certificate(August 26,2011)

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

ilac-MRA

SWISS CALIBRATION

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
   Swiss Calibration Service

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client	**TA-Shanghai (Auden)**	Certificate No: **D835V2-4d020_Aug11**

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d020
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 26, 2011

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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 26, 2011

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

Certificate No: D835V2-4d020_Aug11   Page 1 of 8

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

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Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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Multilateral Agreement for the recognition of calibration certificates

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:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) 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.

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.1 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.34 mW /g ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.11 mW /g ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.4 ± 6 %	0.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.42 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.46 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.59 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.26 mW / g ± 16.5 % (k=2)