

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 137 of 254

UMTS Band II Front Side Middle (Battery 1, Distance 10mm)

Date/Time: 8/2/2013 3:51:28 PM

Communication System: WCDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 52.61$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.33, 7.33, 7.33); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.715 W/kg

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

Reference Value = 8.551 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.028 mW/g

SAR(1 g) = 0.640 mW/g; SAR(10 g) = 0.390 mW/g

Maximum value of SAR (measured) = 0.689 W/kg

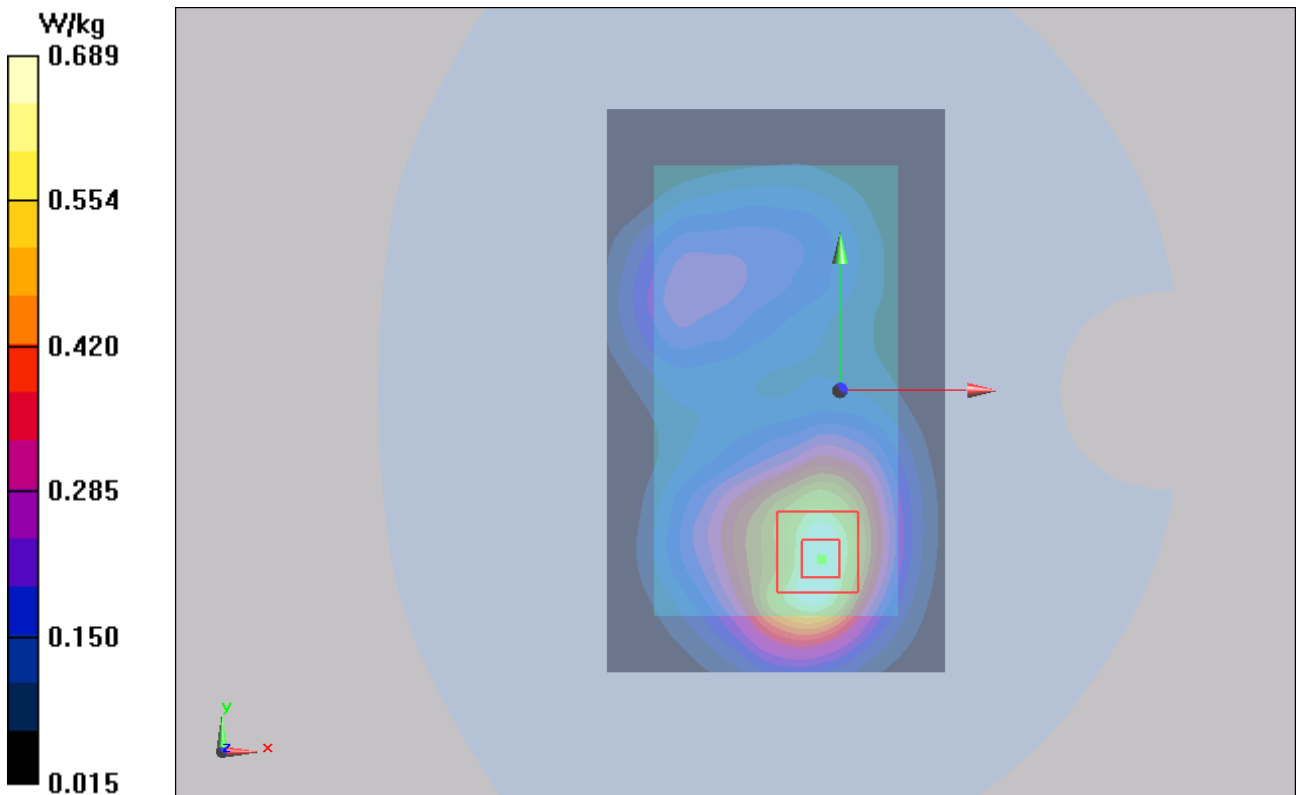


Figure 67 Body, Front Side, UMTS Band II Channel 9400

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 138 of 254

UMTS Band II Front Side Low (Battery 1, Distance 10mm)

Date/Time: 8/2/2013 9:35:34 AM

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

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.474$ mho/m; $\epsilon_r = 52.662$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.33, 7.33, 7.33); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side Low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.677 W/kg

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

Reference Value = 8.874 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.974 mW/g

SAR(1 g) = 0.609 mW/g; SAR(10 g) = 0.375 mW/g

Maximum value of SAR (measured) = 0.655 W/kg

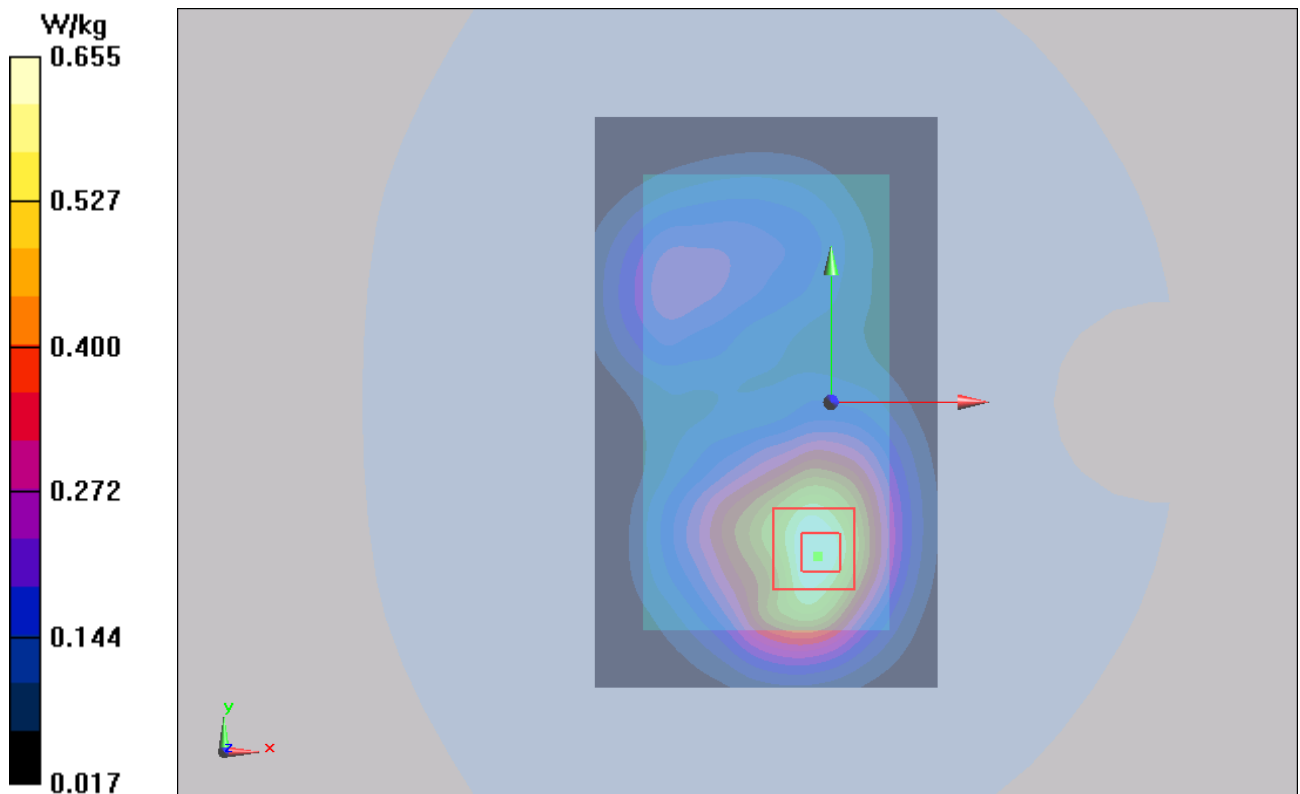


Figure 68 Body, Front Side, UMTS Band II Channel 9262

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 139 of 254

UMTS Band II Left Edge Middle (Battery 1, Distance 10mm)

Date/Time: 8/2/2013 12:09:29 PM

Communication System: WCDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 52.61$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.33, 7.33, 7.33); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Edge Middle/Area Scan (31x101x1): Interpolated grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.169 W/kg

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

Reference Value = 7.704 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.248 mW/g

SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.093 mW/g

Maximum value of SAR (measured) = 0.171 W/kg

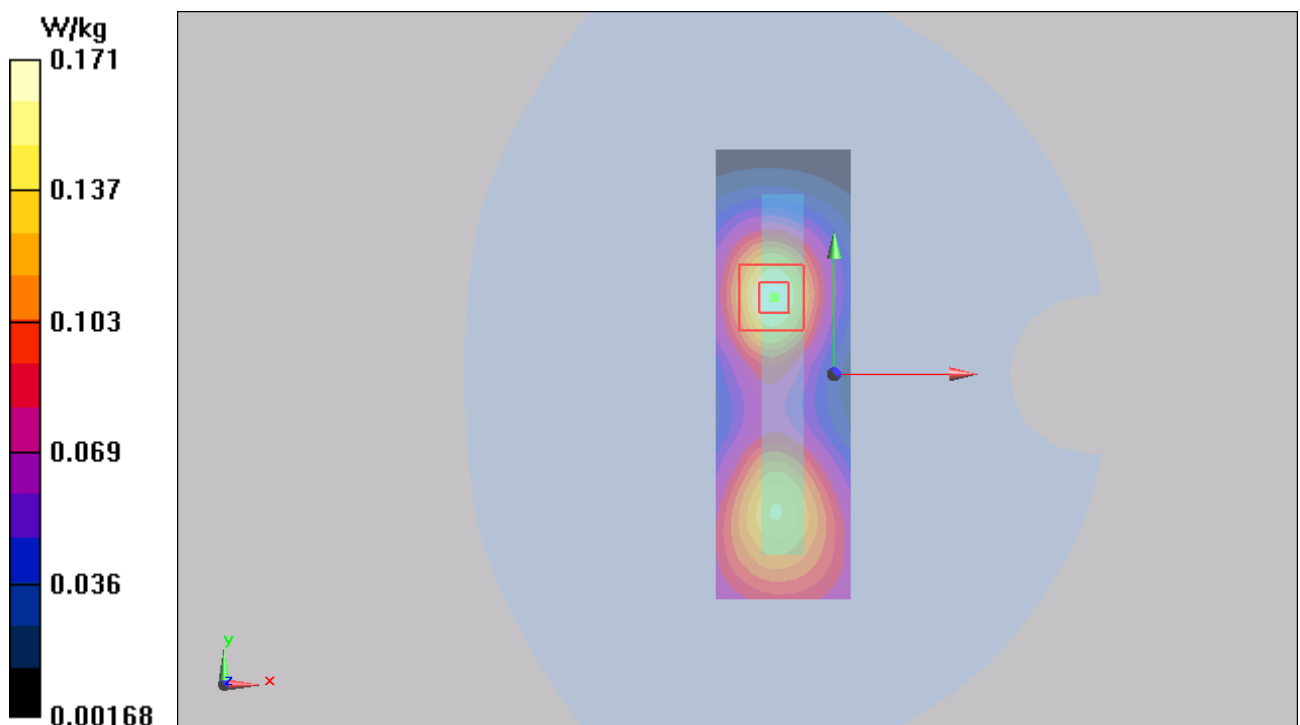


Figure 69 Body, Left Edge, UMTS Band II Channel 9400

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 140 of 254

UMTS Band II Right Edge Middle (Battery 1, Distance 10mm)

Date/Time: 8/2/2013 12:24:13 PM

Communication System: WCDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 52.61$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.33, 7.33, 7.33); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Edge Middle/Area Scan (31x101x1): Interpolated grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.216 W/kg

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

Reference Value = 9.171 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.304 mW/g

SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.113 mW/g

Maximum value of SAR (measured) = 0.208 W/kg

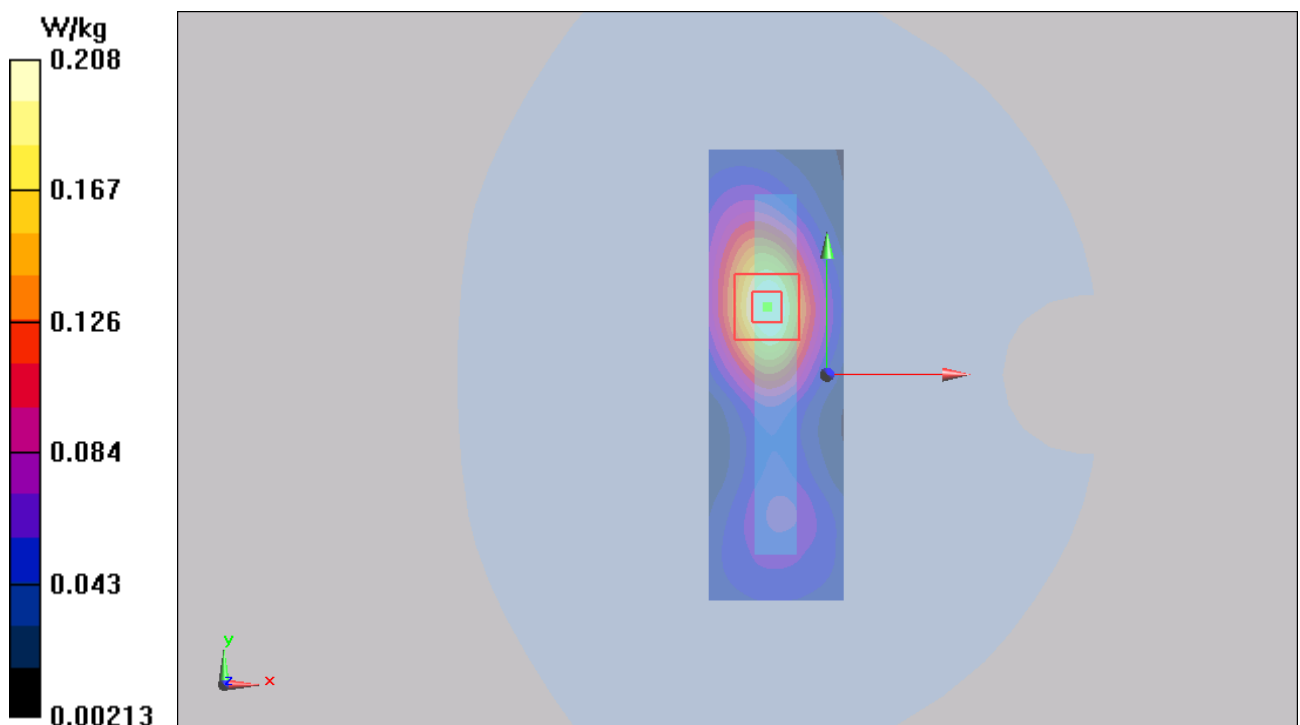


Figure 70 Body, Right Edge, UMTS Band II Channel 9400

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 141 of 254

UMTS Band II Bottom Edge Middle (Battery 1, Distance 10mm)

Date/Time: 8/2/2013 12:41:56 PM

Communication System: WCDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 52.61$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.33, 7.33, 7.33); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Bottom Edge Middle/Area Scan (31x61x1): Interpolated grid: dx=10mm, dy=10mm

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

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

Reference Value = 15.091 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.530 mW/g

SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.182 mW/g

Maximum value of SAR (measured) = 0.359 W/kg

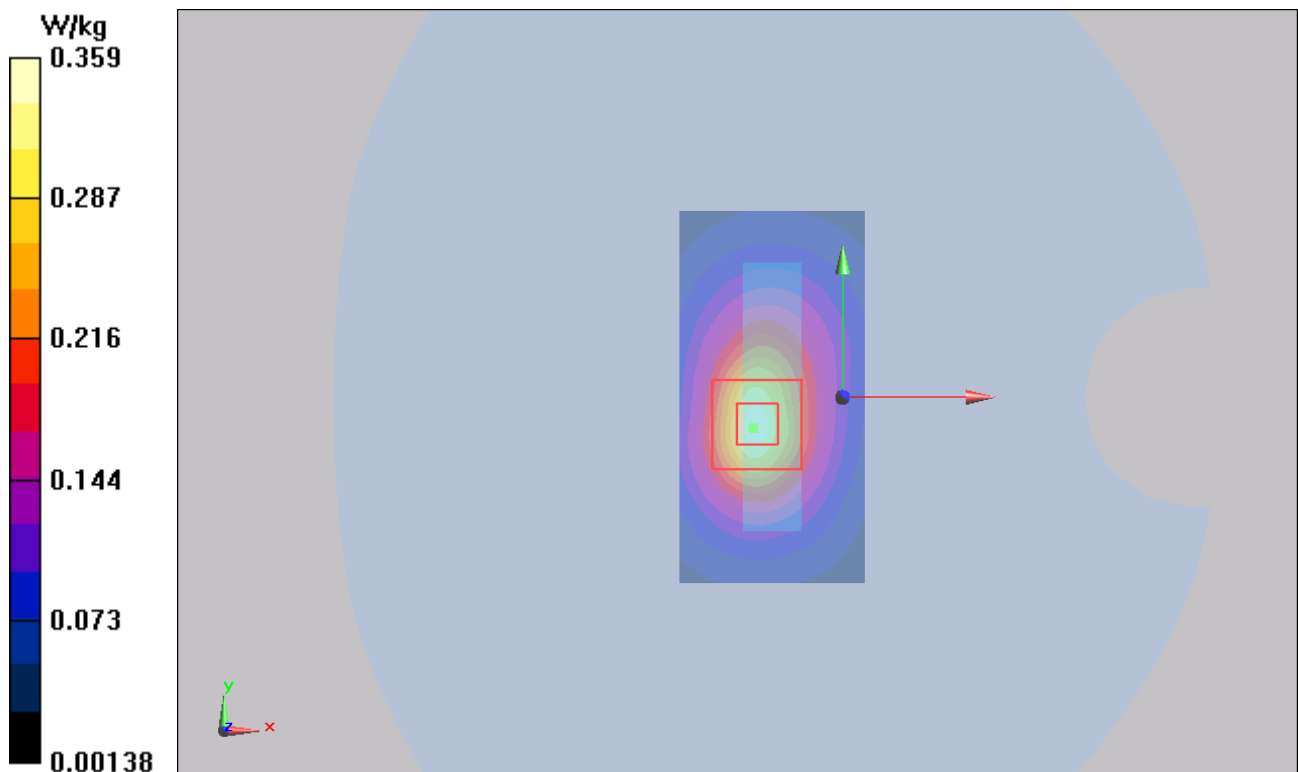


Figure 71 Body, Bottom Edge, UMTS Band II Channel 9400

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 142 of 254

UMTS Band II Back Side Middle (Battery 2, Distance 15mm)

Date/Time: 8/2/2013 5:19:15 PM

Communication System: WCDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 52.61$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.33, 7.33, 7.33); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.653 W/kg

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

Reference Value = 9.501 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.926 mW/g

SAR(1 g) = 0.596 mW/g; SAR(10 g) = 0.383 mW/g

Maximum value of SAR (measured) = 0.638 W/kg

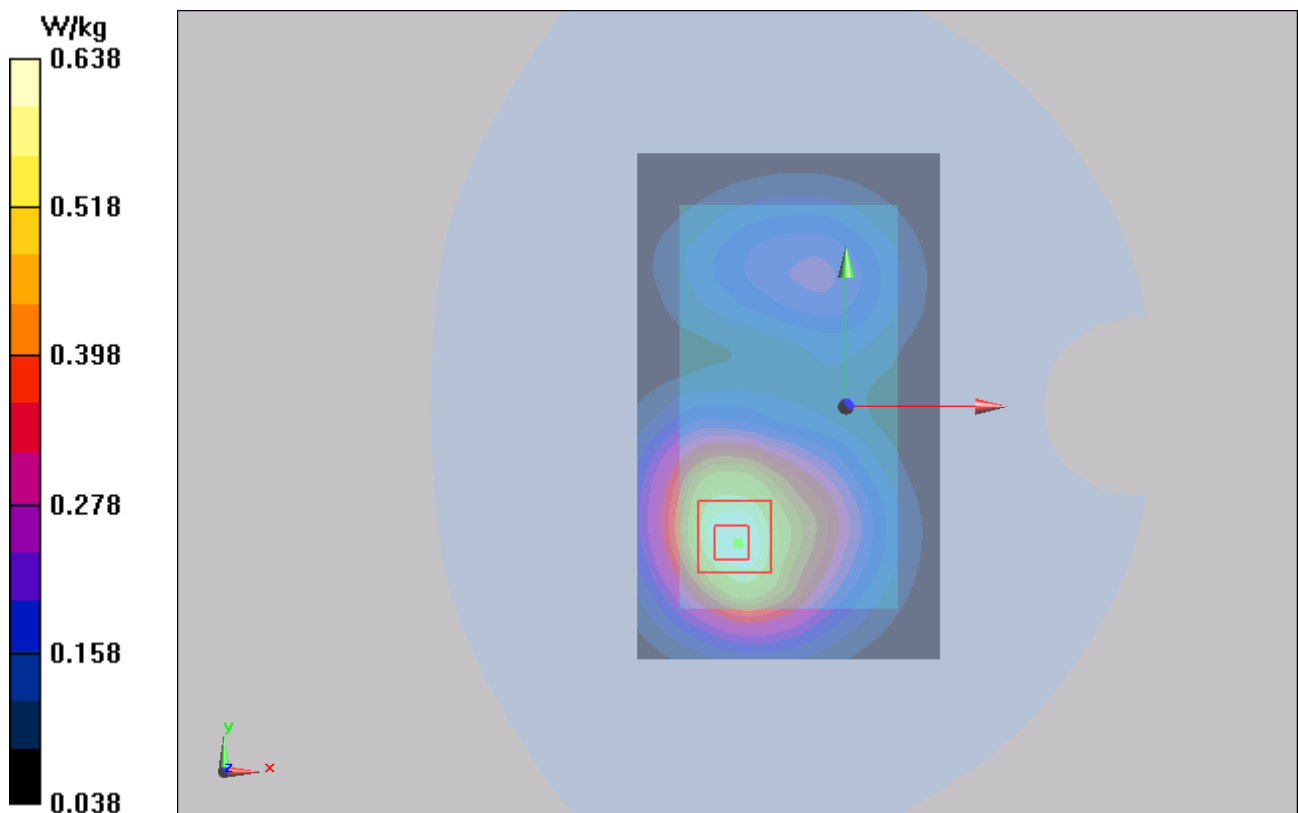


Figure 72 Body, Back Side, UMTS Band II Channel 9400

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 143 of 254

UMTS Band II Right Cheek Low (1st repeated SAR, Battery 1)

Date/Time: 8/2/2013 10:04:09 PM

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

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.407$ mho/m; $\epsilon_r = 38.501$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.63, 7.63, 7.63); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Cheek low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.27 W/kg

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

Reference Value = 11.846 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.801 mW/g

SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.732 mW/g

Maximum value of SAR (measured) = 1.31 W/kg

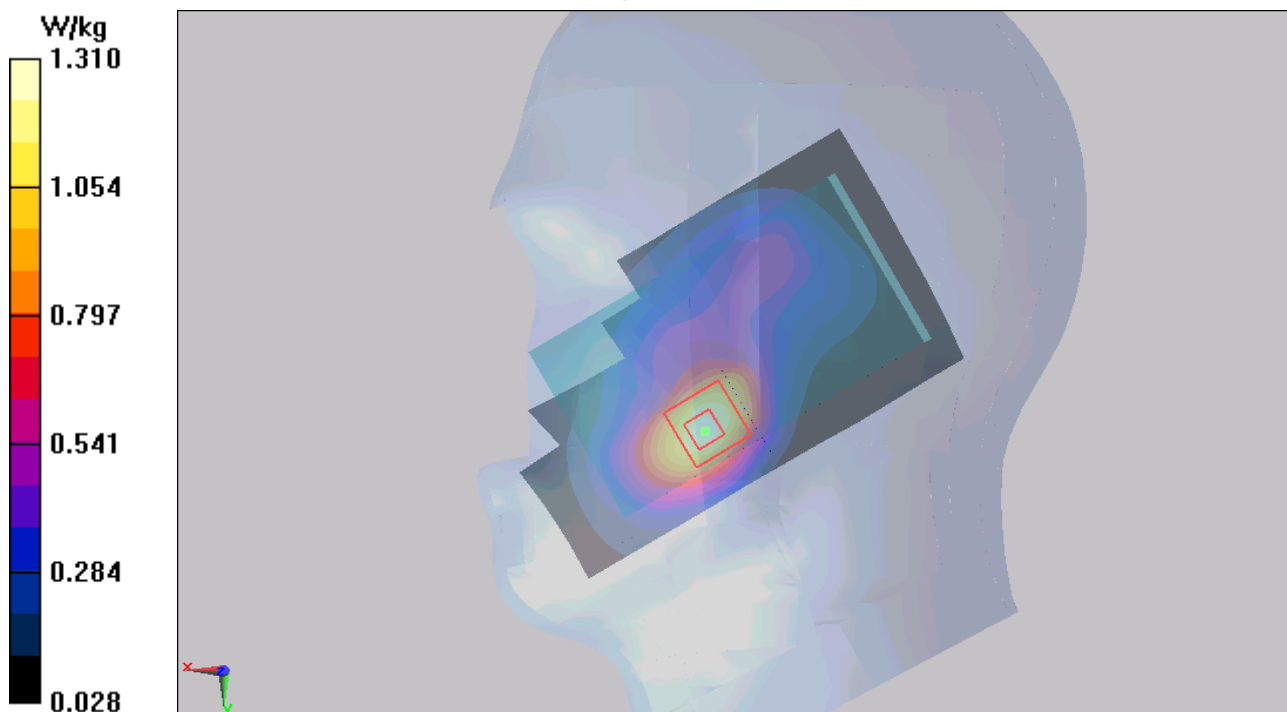


Figure 73 Body, Right Cheek, UMTS Band II Channel 9262

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 144 of 254

UMTS Band IV Left Cheek High (Battery 1)

Date/Time: 8/3/2013 10:09:08 AM

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

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.401$ mho/m; $\epsilon_r = 39.169$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Cheek High/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.09 W/kg

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

Reference Value = 10.997 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 2.088 mW/g

SAR(1 g) = 0.935 mW/g; SAR(10 g) = 0.542 mW/g

Maximum value of SAR (measured) = 0.953 W/kg

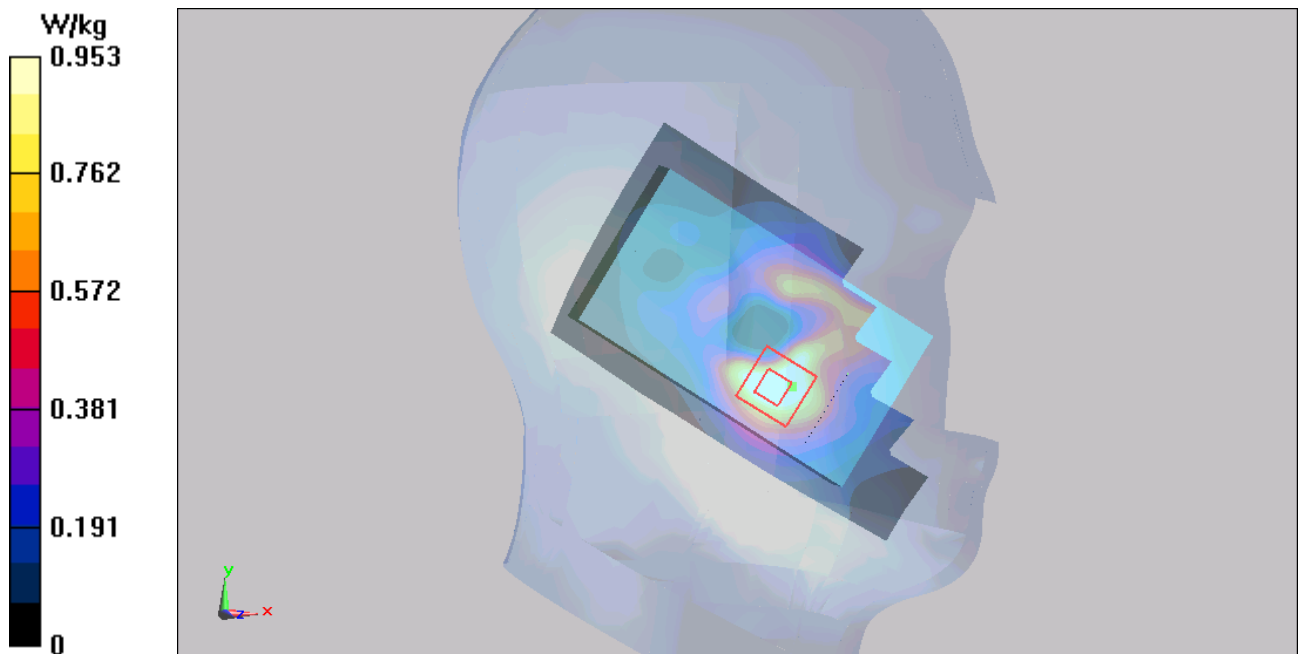


Figure 74 Left Hand Touch Cheek UMTS Band IV Channel 1513

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 145 of 254

UMTS Band IV Left Cheek Middle (Battery 1)

Date/Time: 8/3/2013 9:48:55 AM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.221$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.45 W/kg

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

Reference Value = 8.473 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 2.576 mW/g

SAR(1 g) = 0.947 mW/g; SAR(10 g) = 0.581 mW/g

Maximum value of SAR (measured) = 0.997 W/kg

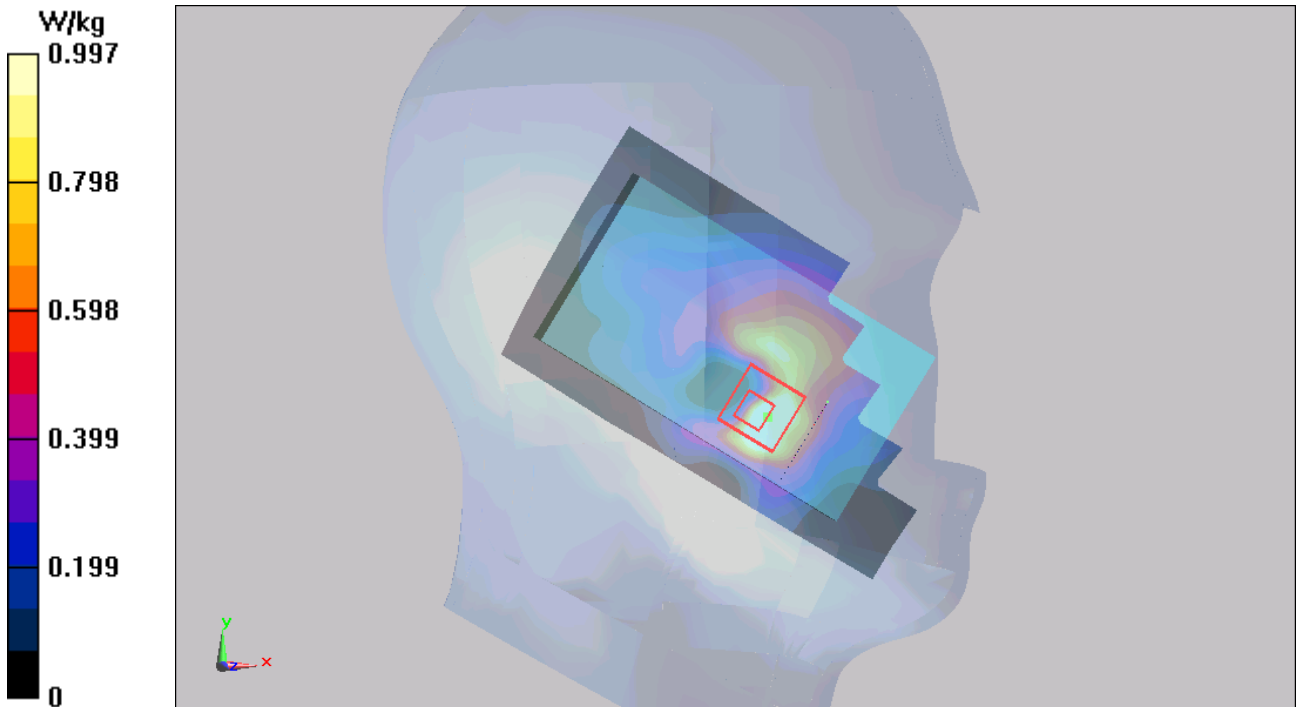


Figure 75 Left Hand Touch Cheek UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 146 of 254

UMTS Band IV Left Cheek Low (Battery 1)

Date/Time: 8/3/2013 1:06:16 PM

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.363$ mho/m; $\epsilon_r = 39.268$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Cheek Low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.894 W/kg

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

Reference Value = 11.948 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.161 mW/g

SAR(1 g) = 0.796 mW/g; SAR(10 g) = 0.509 mW/g

Maximum value of SAR (measured) = 0.846 W/kg

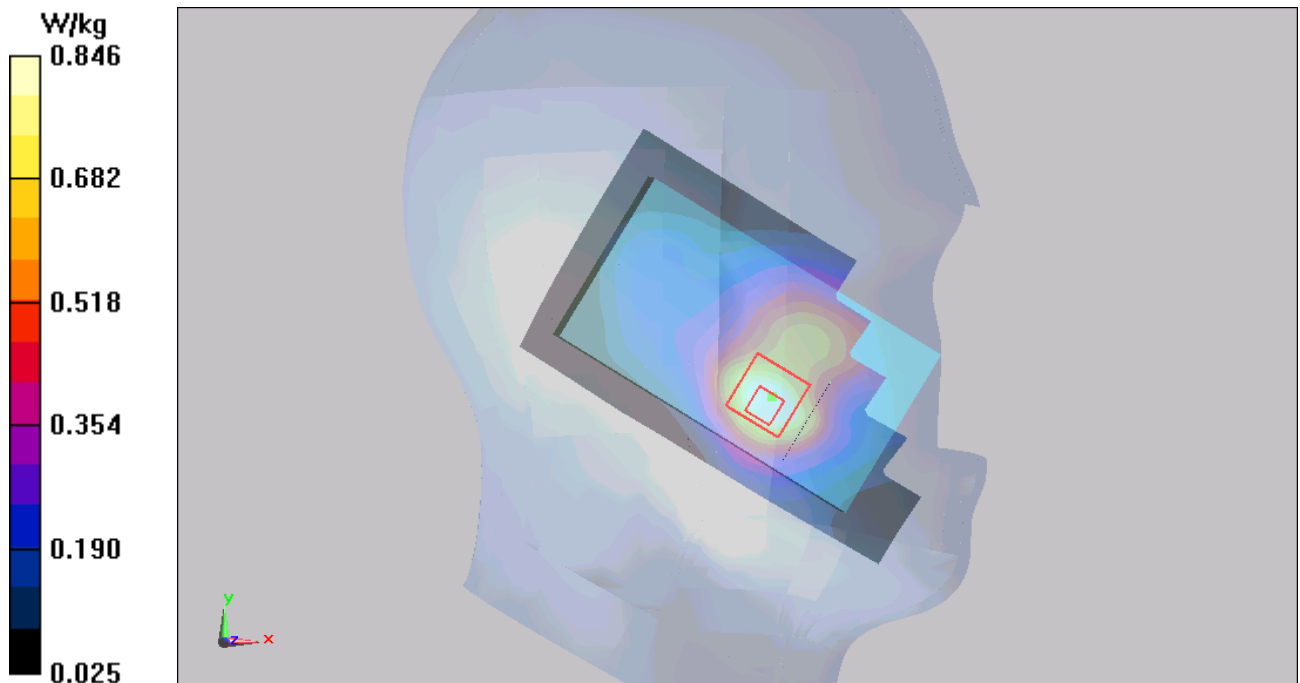


Figure 76 Left Hand Touch Cheek UMTS Band IV Channel 1312

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 147 of 254

UMTS Band IV Left Tilt Middle (Battery 1)

Date/Time: 8/3/2013 1:24:11 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.221$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Tilt Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.461 W/kg

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

Reference Value = 17.746 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.631 mW/g

SAR(1 g) = 0.407 mW/g; SAR(10 g) = 0.254 mW/g

Maximum value of SAR (measured) = 0.436 W/kg

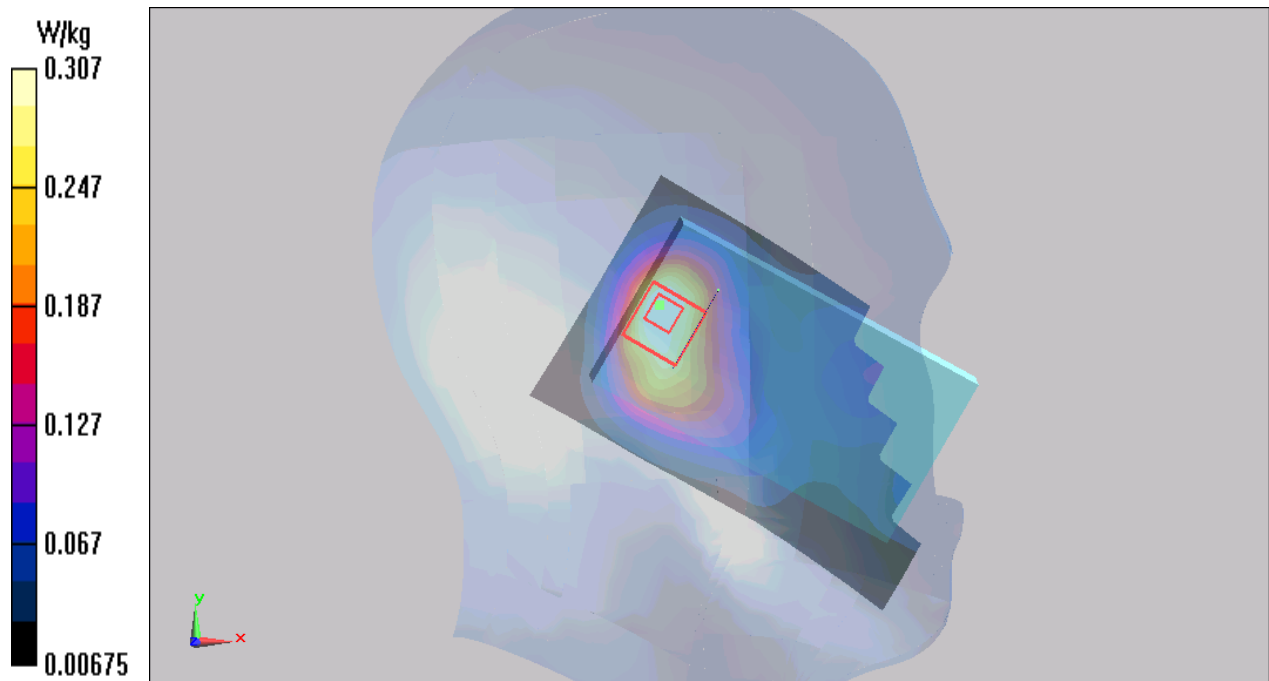


Figure 77 Left Hand Tilt 15° UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 148 of 254

UMTS Band IV Right Cheek High (Battery 1)

Date/Time: 8/3/2013 2:19:54 PM

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

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.401$ mho/m; $\epsilon_r = 39.169$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Cheek High/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

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

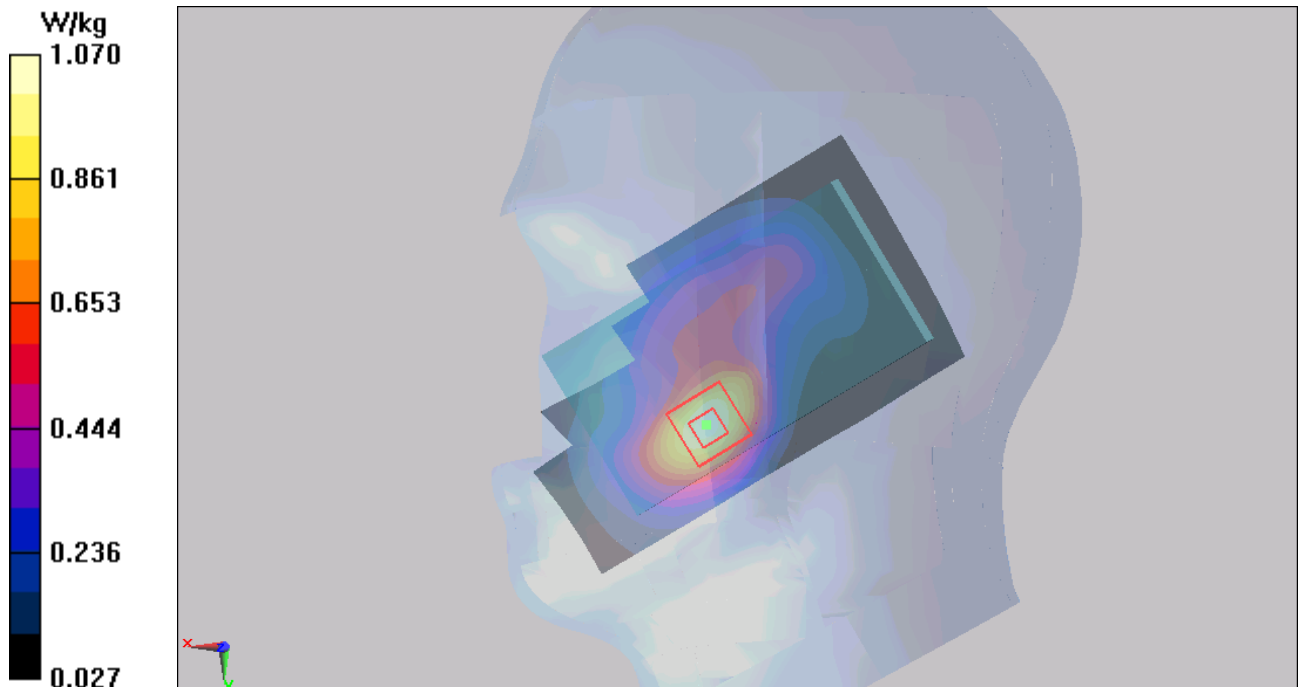
Right Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.284 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 1.477 mW/g

SAR(1 g) = 0.981 mW/g; SAR(10 g) = 0.601 mW/g

Maximum value of SAR (measured) = 1.07 W/kg



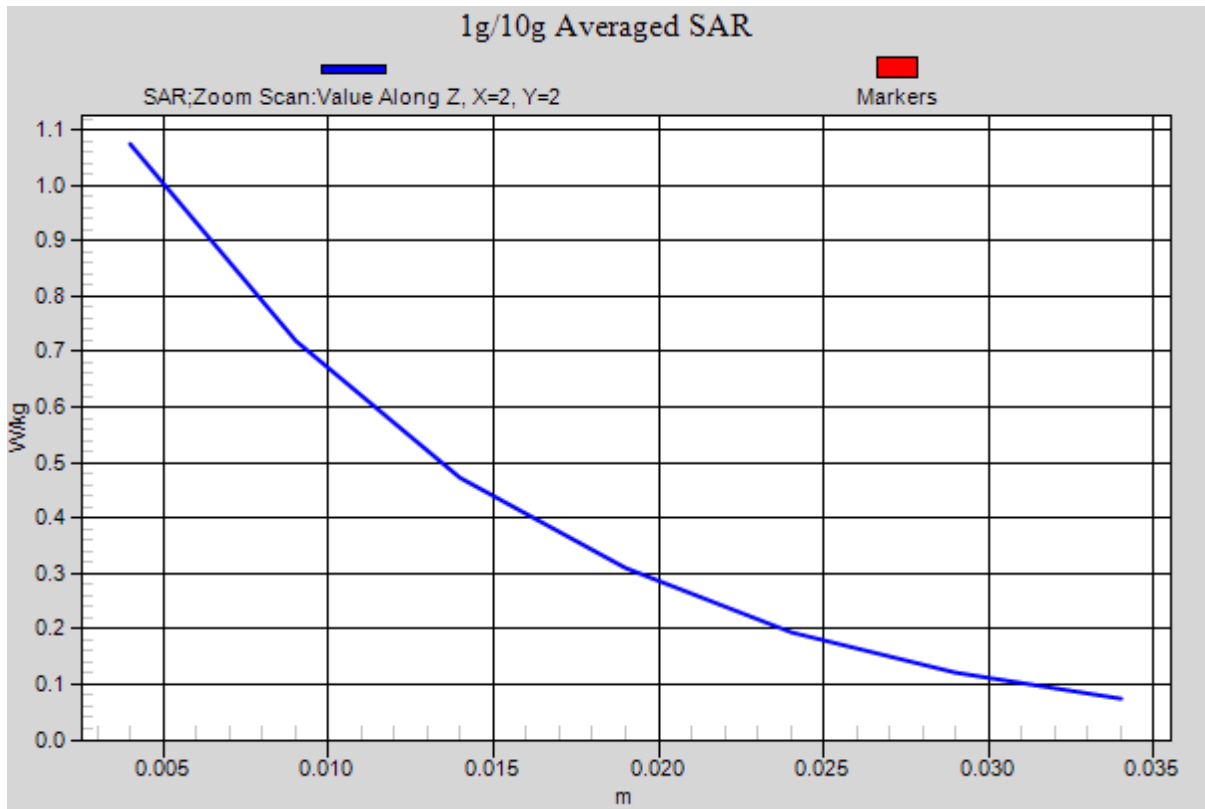


Figure 78 Right Hand Touch Cheek UMTS Band IV Channel 1513

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 150 of 254

UMTS Band IV Right Cheek Middle (Battery 1)

Date/Time: 8/3/2013 1:45:46 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.221$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.05 W/kg

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

Reference Value = 9.867 V/m; Power Drift = -0.190 dB

Peak SAR (extrapolated) = 1.500 mW/g

SAR(1 g) = 1 mW/g; SAR(10 g) = 0.617 mW/g

Maximum value of SAR (measured) = 1.10 W/kg

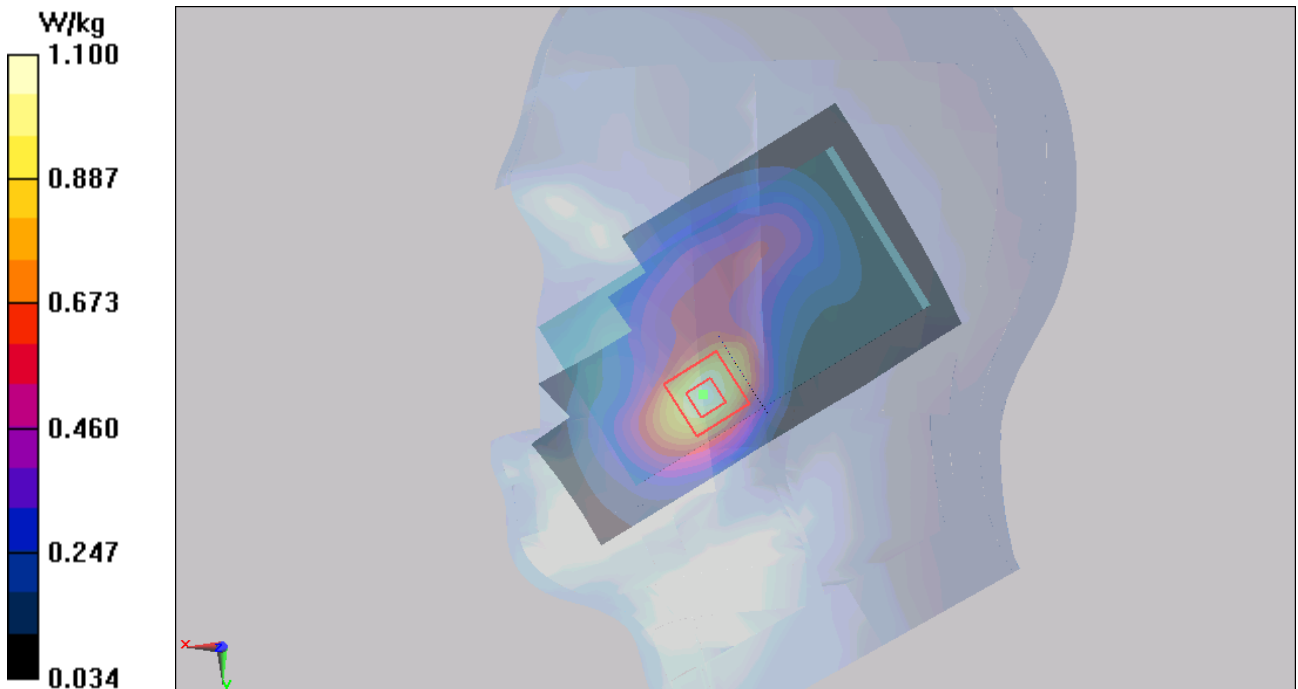


Figure 79 Right Hand Touch Cheek UMTS Band IV Channel 1413

UMTS Band IV Right Cheek Low (Battery 1)

Date/Time: 7/14/2013 6:53:23 PM

Date/Time: 8/3/2013 2:03:02 PM

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.363$ mho/m; $\epsilon_r = 39.268$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Cheek low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.01 W/kg

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

Reference Value = 9.296 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.413 mW/g

SAR(1 g) = 0.949 mW/g; SAR(10 g) = 0.584 mW/g

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

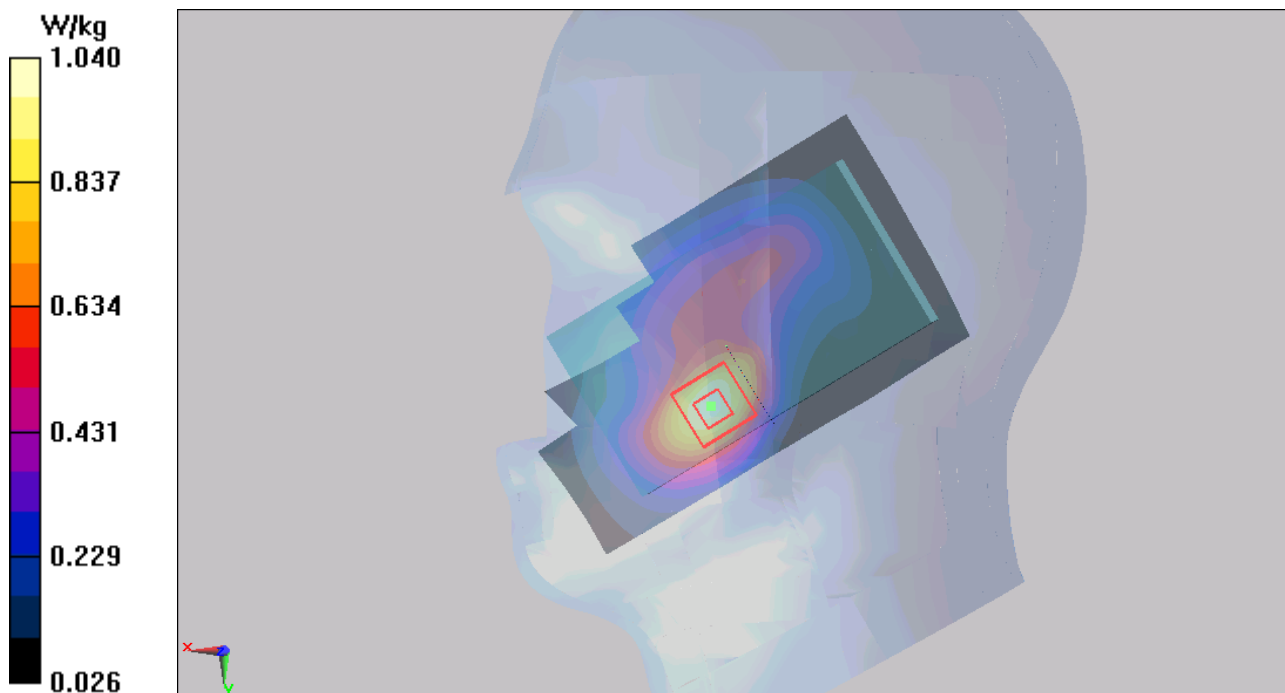


Figure 80 Right Hand Touch Cheek UMTS Band IV Channel 1312

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 152 of 254

UMTS Band IV Right Tilt Middle (Battery 1)

Date/Time: 8/3/2013 3:14:37 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.221$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Tilt Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.606 W/kg

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

Reference Value = 15.483 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.801 mW/g

SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.337 mW/g

Maximum value of SAR (measured) = 0.579 W/kg

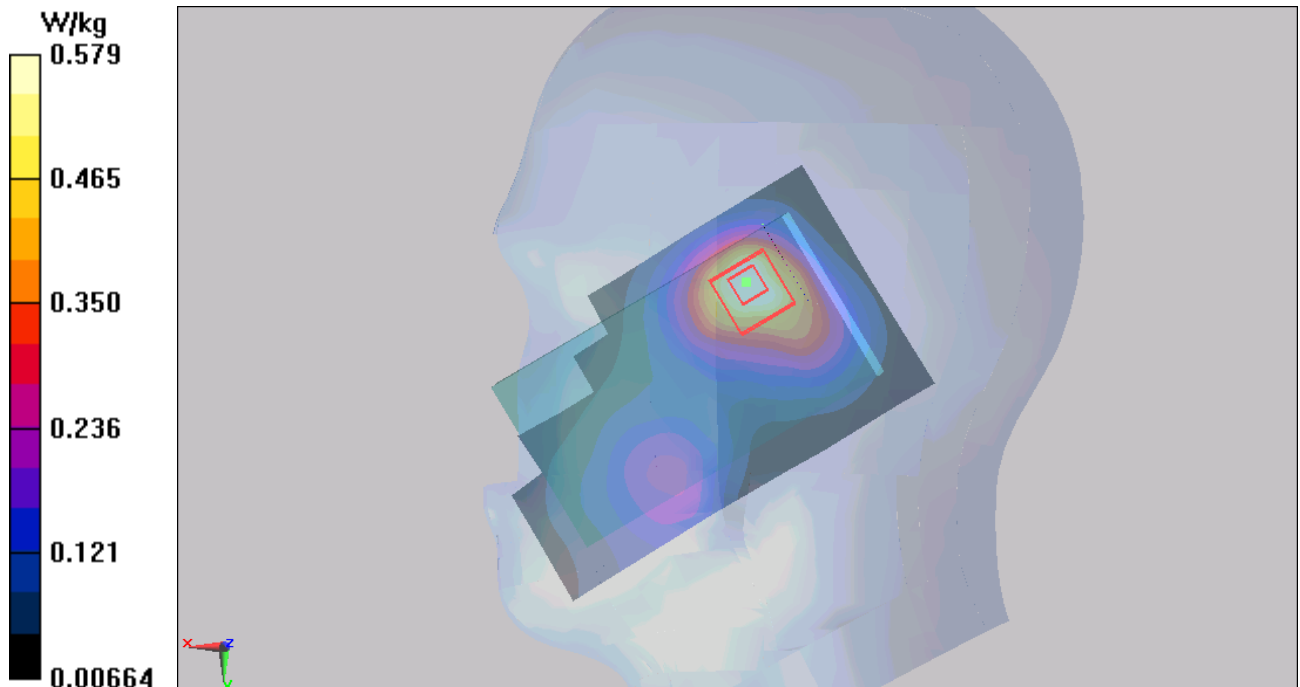


Figure 81 Right Hand Tilt 15° UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd.
Test Report

UMTS Band IV Right Cheek High (Battery 2)

Date/Time: 8/3/2013 10:26:29 PM

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

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.401$ mho/m; $\epsilon_r = 39.169$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY4 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Cheek High/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 1.11 W/kg

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

Reference Value = 9.539 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.609 mW/g

SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.643 mW/g

Maximum value of SAR (measured) = 1.15 W/kg

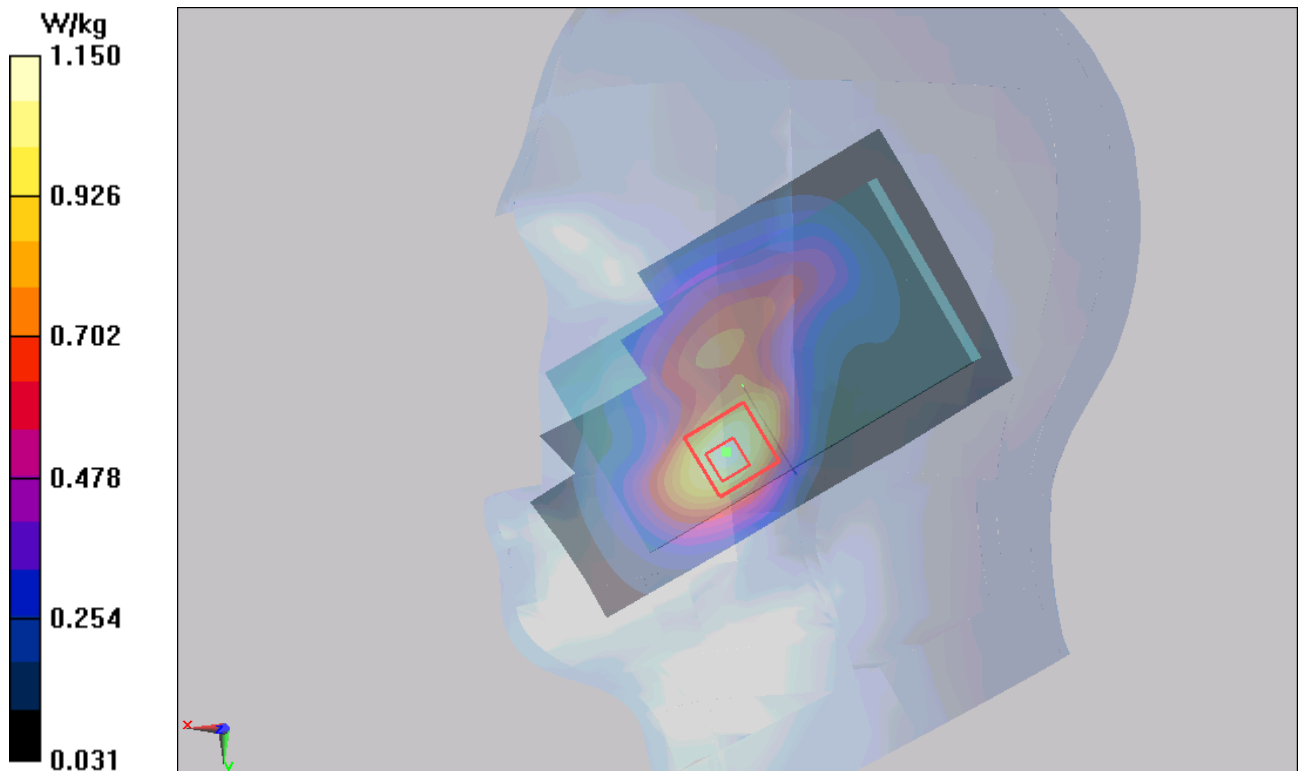


Figure 82 Right Hand Touch Cheek UMTS Band IV Channel 1513

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 154 of 254

UMTS Band IV Back Side High (Battery 1, Distance 15mm)

Date/Time: 8/4/2013 3:45:56 PM

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

Medium parameters used: $f = 1753$ MHz; $\sigma = 1.471$ mho/m; $\epsilon_r = 52.12$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side High/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.836 W/kg

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

Reference Value = 7.607 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.217 mW/g

SAR(1 g) = 0.768 mW/g; SAR(10 g) = 0.473 mW/g

Maximum value of SAR (measured) = 0.821 W/kg

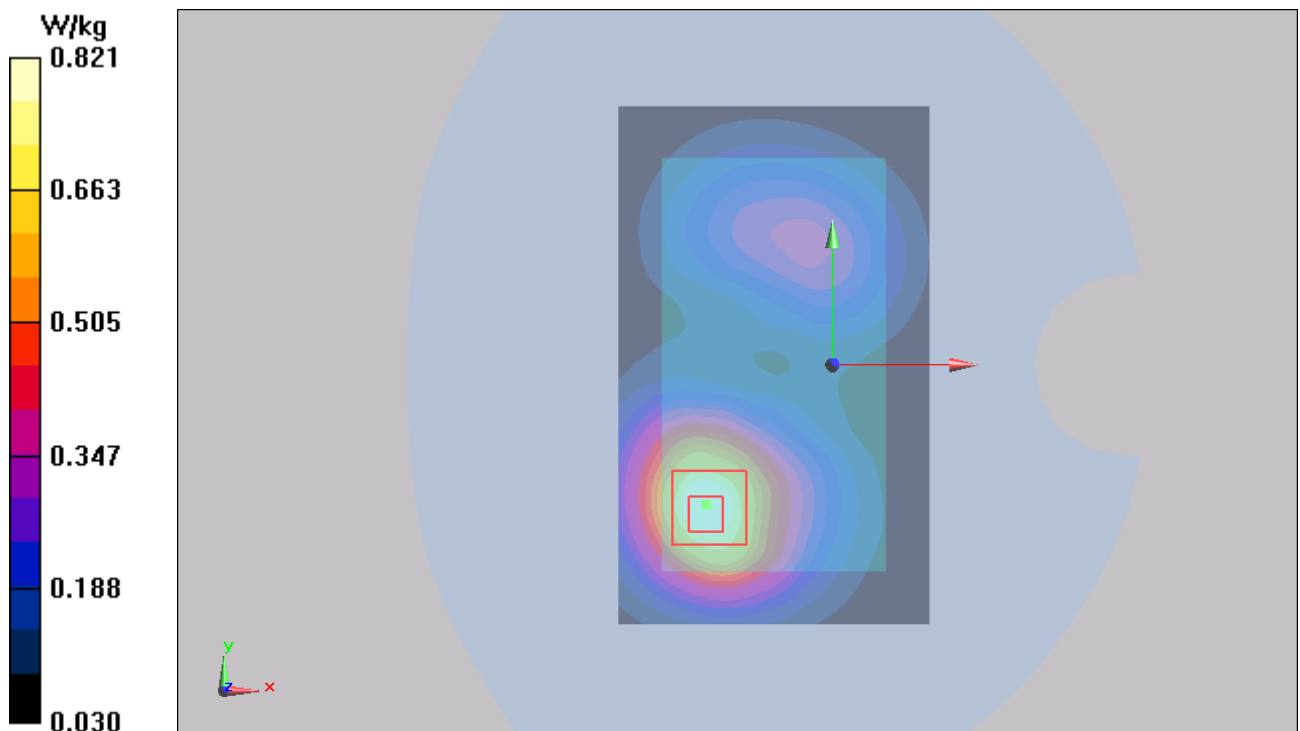


Figure 83 Body, Back Side, UMTS Band IV Channel 1513

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 155 of 254

UMTS Band IV Back Side Middle (Battery 1, Distance 15mm)

Date/Time: 8/4/2013 3:10:56 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1733$ MHz; $\sigma = 1.454$ mho/m; $\epsilon_r = 52.175$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.854 W/kg

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

Reference Value = 8.315 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.234 mW/g

SAR(1 g) = 0.784 mW/g; SAR(10 g) = 0.484 mW/g

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

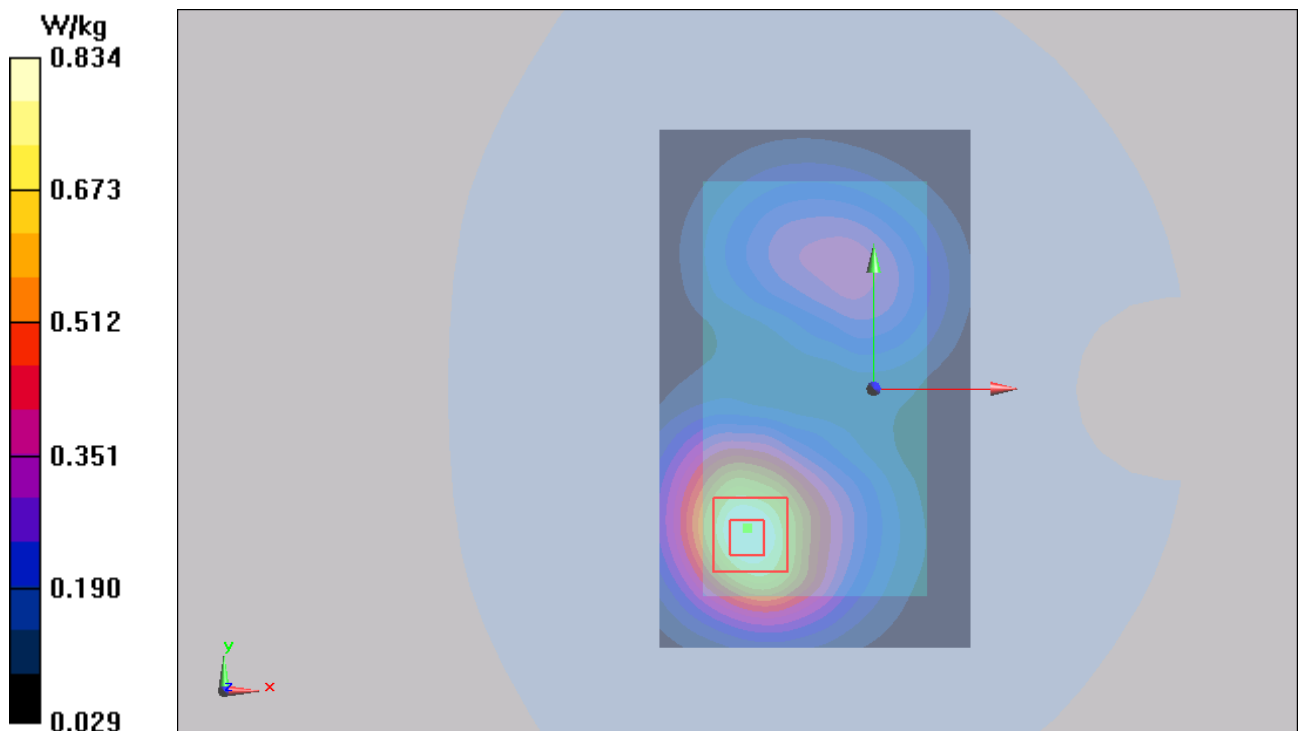


Figure 84 Body, Back Side, UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 156 of 254

UMTS Band IV Back Side Low (Battery 1, Distance 15mm)

Date/Time: 8/4/2013 3:28:37 PM

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.443$ mho/m; $\epsilon_r = 52.223$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side Low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.841 W/kg

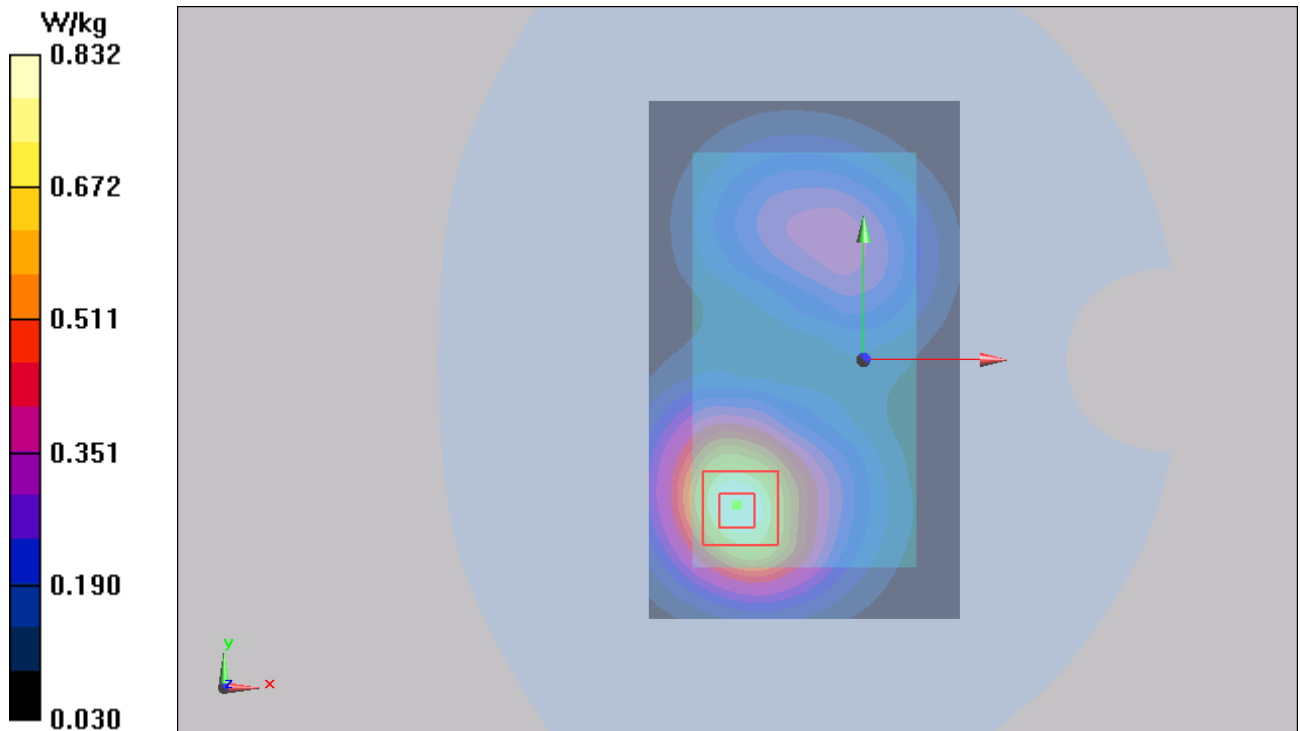
Back Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.775 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.220 mW/g

SAR(1 g) = 0.776 mW/g; SAR(10 g) = 0.477 mW/g

Maximum value of SAR (measured) = 0.832 W/kg



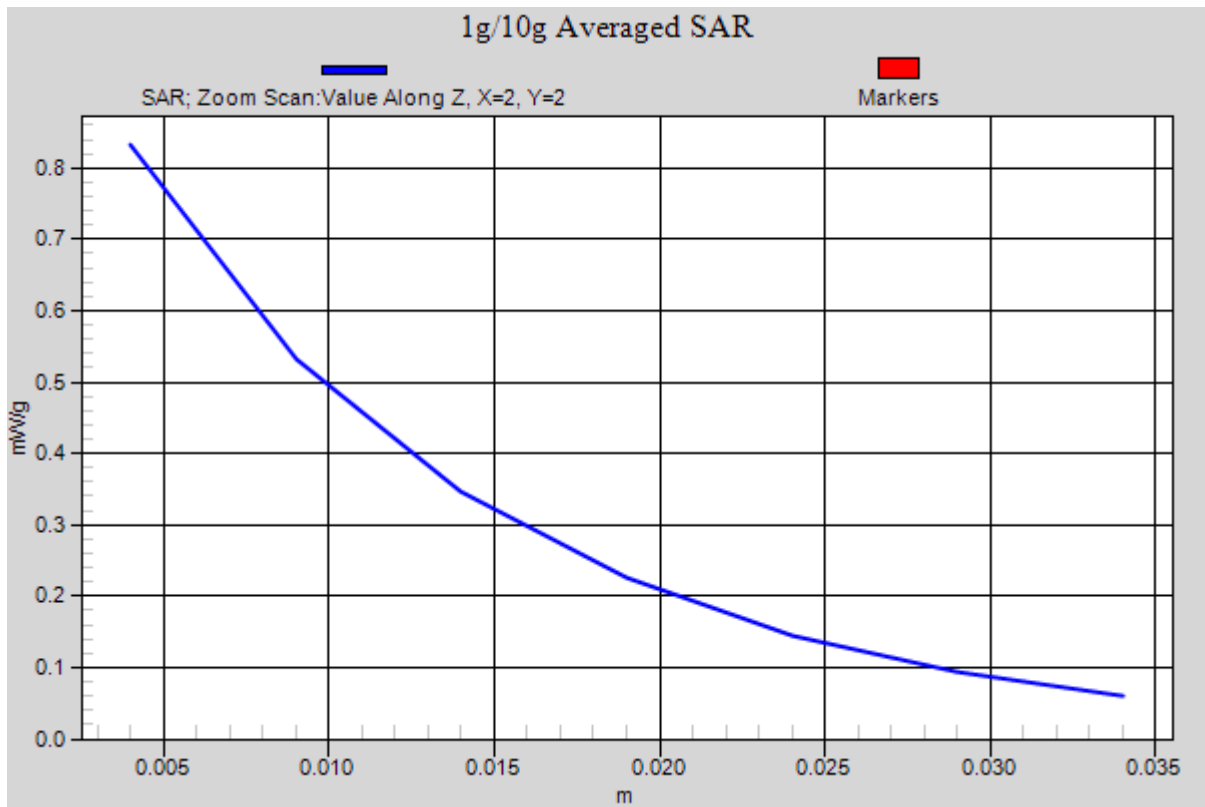


Figure 85 Body, Back Side, UMTS Band IV Channel 1312

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 158 of 254

UMTS Band IV Front Side High (Battery 1, Distance 15mm)

Date/Time: 8/4/2013 4:22:59 PM

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

Medium parameters used: $f = 1753$ MHz; $\sigma = 1.471$ mho/m; $\epsilon_r = 52.12$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side High/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.727 W/kg

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

Reference Value = 8.826 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.034 mW/g

SAR(1 g) = 0.665 mW/g; SAR(10 g) = 0.412 mW/g

Maximum value of SAR (measured) = 0.714 W/kg

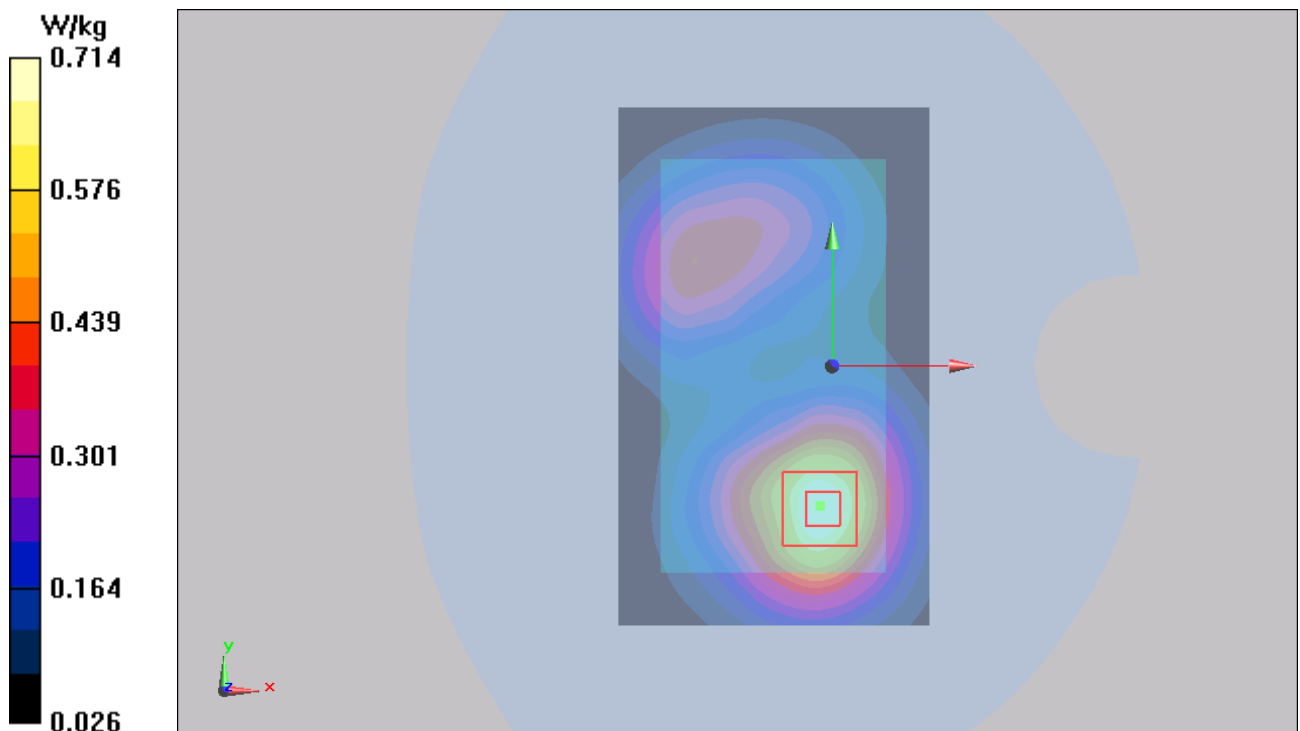


Figure 86 Body, Front Side, UMTS Band IV Channel 1513

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 159 of 254

UMTS Band IV Front Side Middle (Battery 1, Distance 15mm)

Date/Time: 8/4/2013 4:05:15 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1733$ MHz; $\sigma = 1.454$ mho/m; $\epsilon_r = 52.175$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.745 W/kg

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

Reference Value = 9.285 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.055 mW/g

SAR(1 g) = 0.680 mW/g; SAR(10 g) = 0.421 mW/g

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

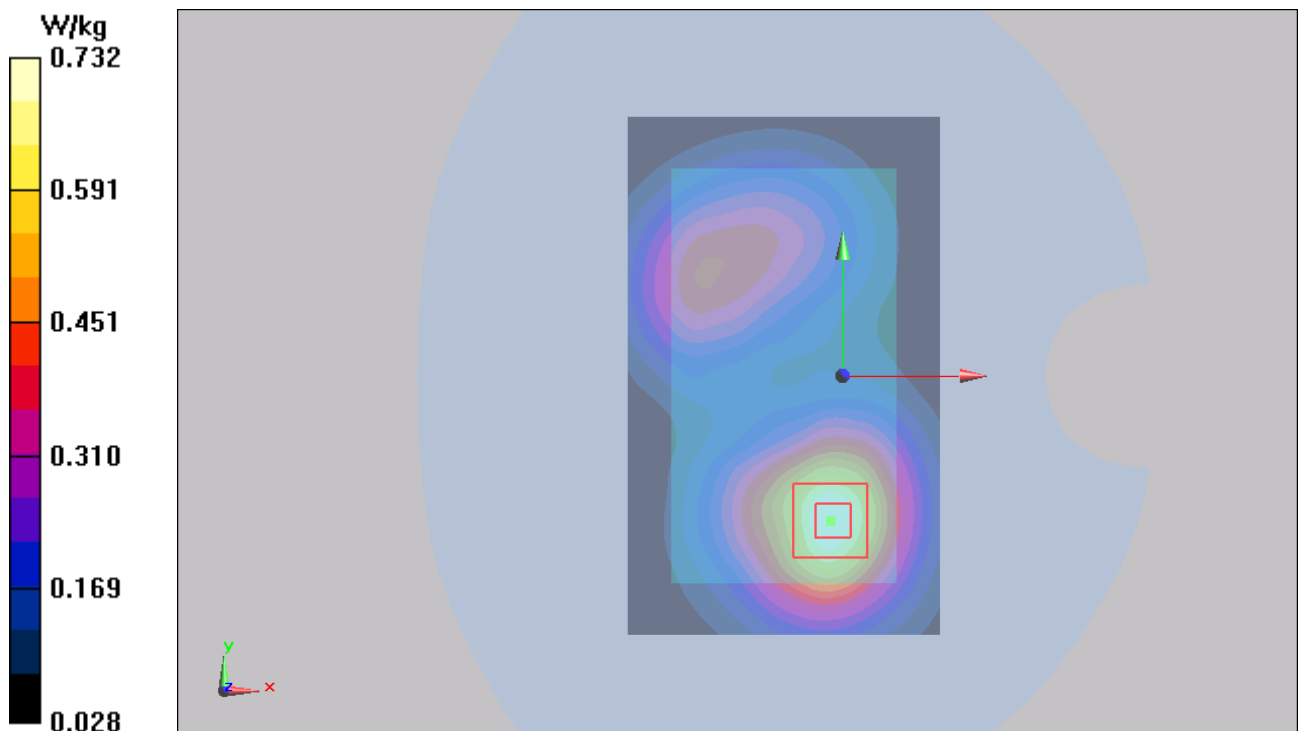


Figure 87 Body, Front Side, UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 160 of 254

UMTS Band IV Front Side Low (Battery 1, Distance 15mm)

Date/Time: 8/4/2013 4:43:14 PM

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.443$ mho/m; $\epsilon_r = 52.223$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side Low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.747 W/kg

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

Reference Value = 9.602 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.054 mW/g

SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.424 mW/g

Maximum value of SAR (measured) = 0.733 W/kg

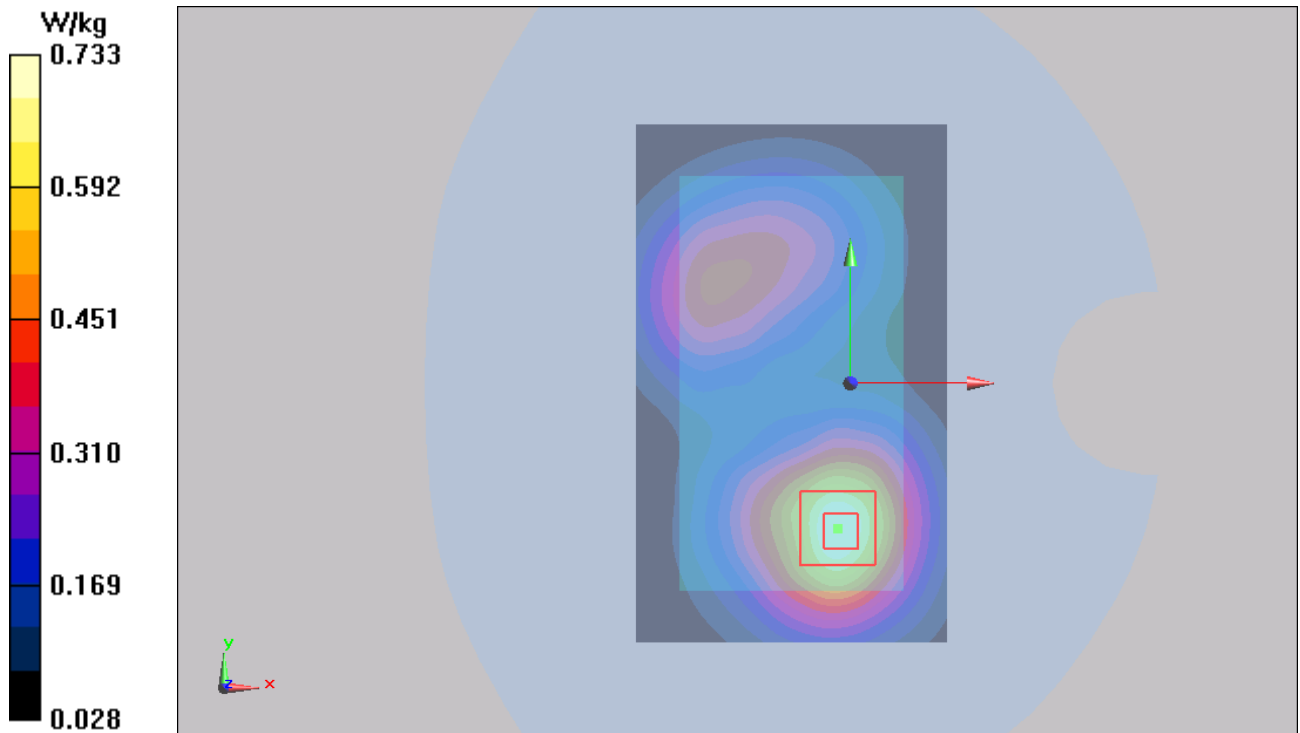


Figure 88 Body, Front Side, UMTS Band IV Channel 1312

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 161 of 254

UMTS Band IV Back Side High (Battery 1, Distance 10mm)

Date/Time: 8/4/2013 1:53:59 PM

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

Medium parameters used: $f = 1753$ MHz; $\sigma = 1.471$ mho/m; $\epsilon_r = 52.12$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side High/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.754 W/kg

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

Reference Value = 7.794 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.070 mW/g

SAR(1 g) = 0.662 mW/g; SAR(10 g) = 0.401 mW/g

Maximum value of SAR (measured) = 0.719 W/kg

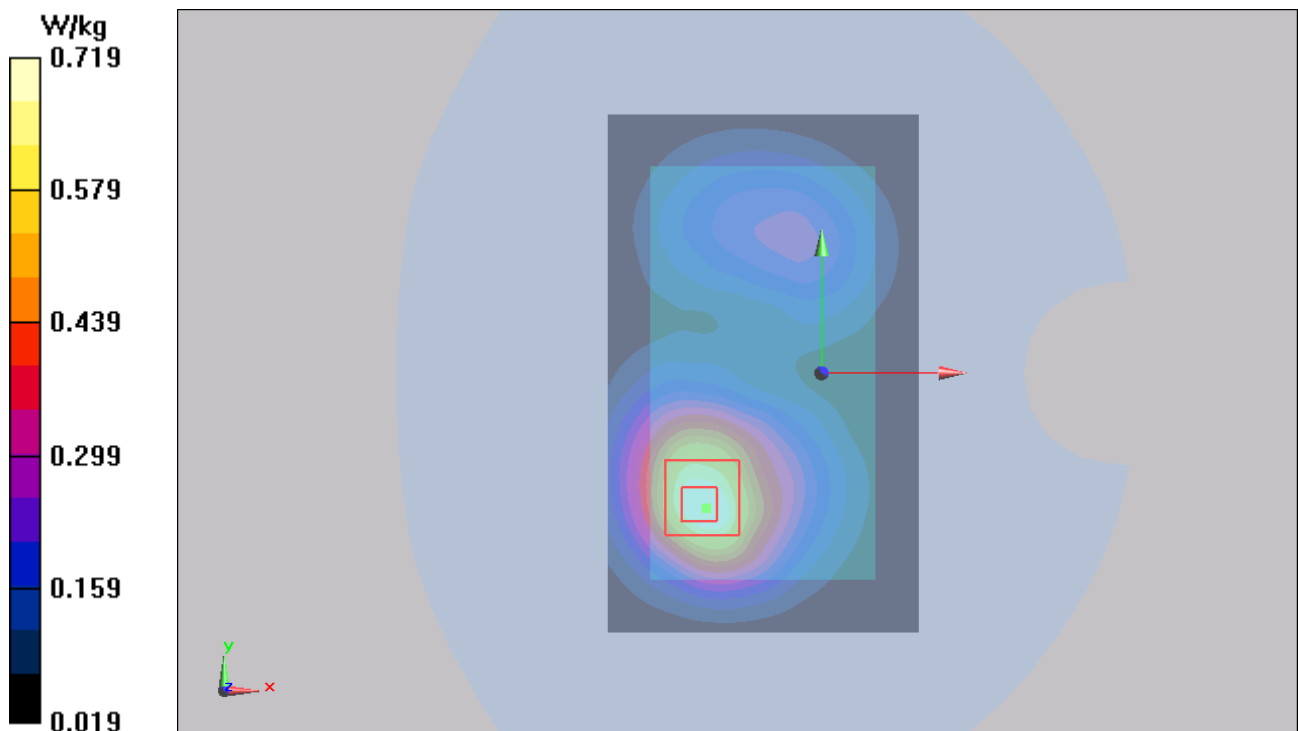


Figure 89 Body, Back Side, UMTS Band IV Channel 1513

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 162 of 254

UMTS Band IV Back Side Middle (Battery 1, Distance 10mm)

Date/Time: 8/4/2013 1:18:31 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1733$ MHz; $\sigma = 1.454$ mho/m; $\epsilon_r = 52.175$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.772 W/kg

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

Reference Value = 7.884 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.086 mW/g

SAR(1 g) = 0.676 mW/g; SAR(10 g) = 0.408 mW/g

Maximum value of SAR (measured) = 0.734 W/kg

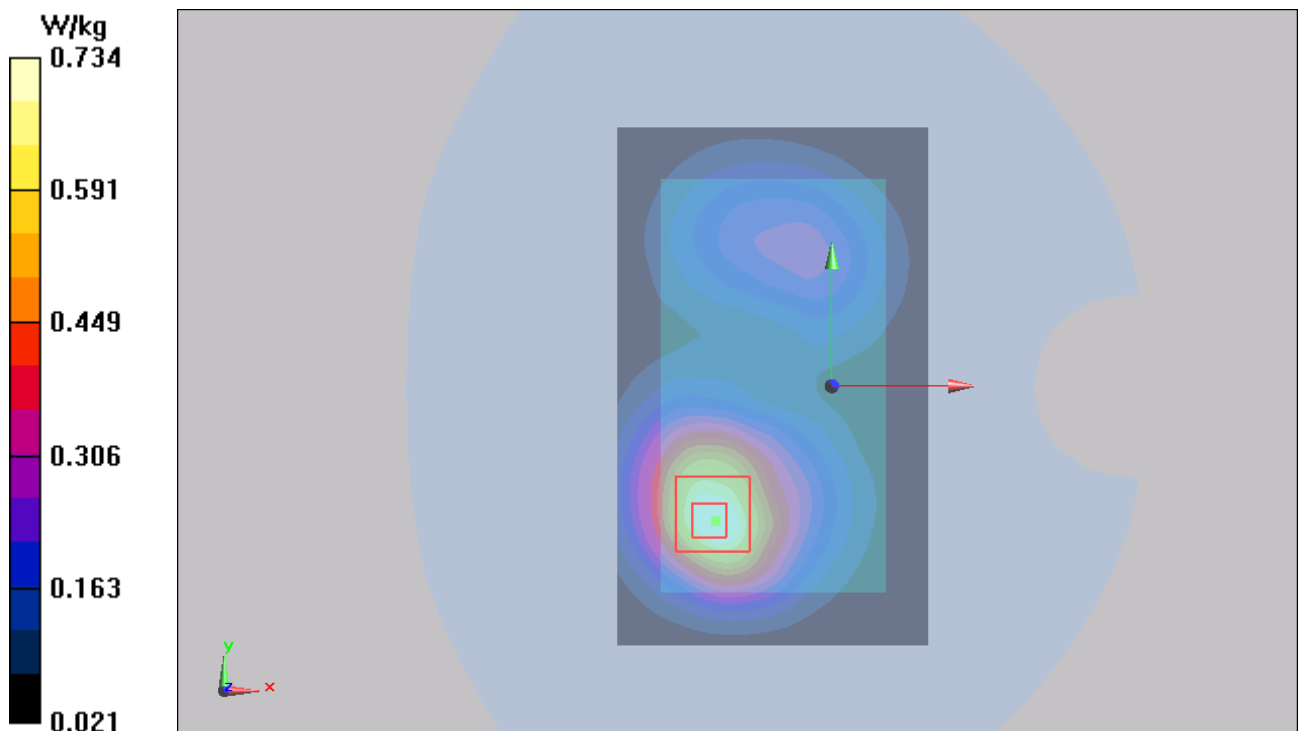


Figure 90 Body, Back Side, UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 163 of 254

UMTS Band IV Back Side Low (Battery 1, Distance 10mm)

Date/Time: 8/4/2013 1:36:22 PM

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.443$ mho/m; $\epsilon_r = 52.223$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side Low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.752 W/kg

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

Reference Value = 7.759 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.056 mW/g

SAR(1 g) = 0.657 mW/g; SAR(10 g) = 0.396 mW/g

Maximum value of SAR (measured) = 0.716 W/kg

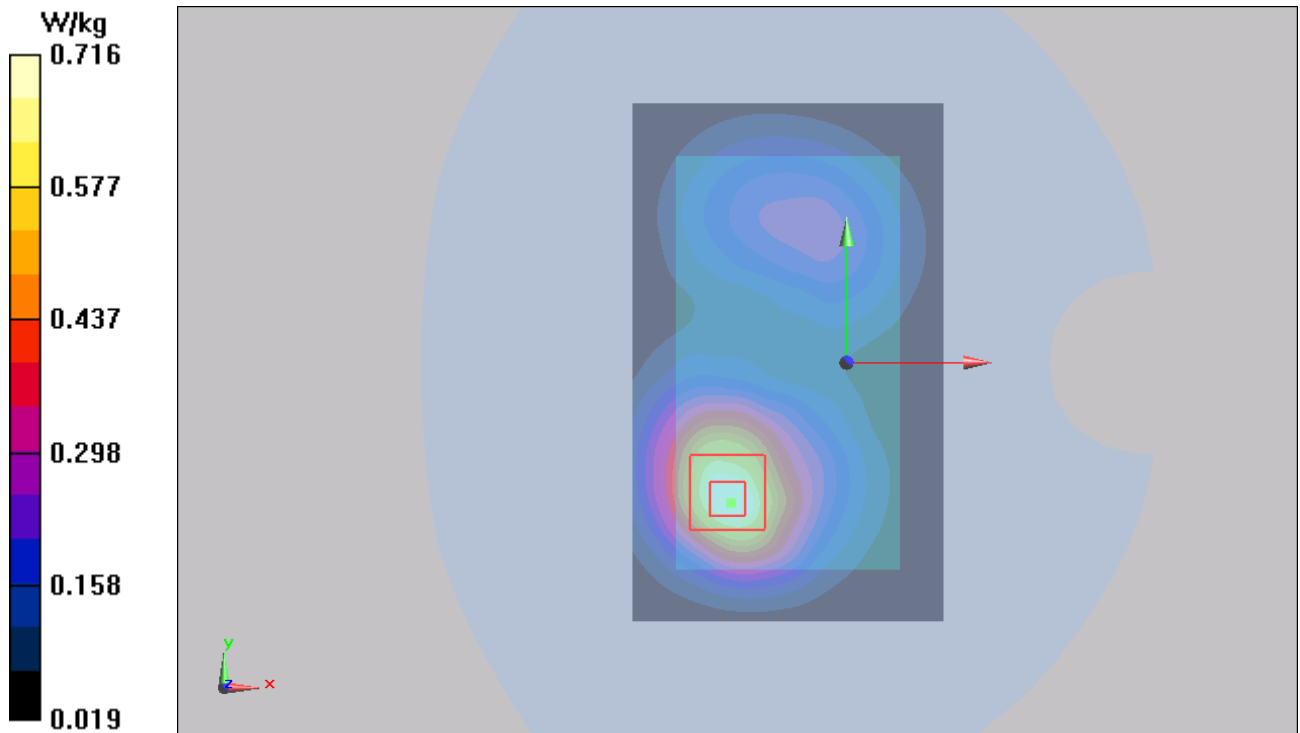


Figure 91 Body, Back Side, UMTS Band IV Channel 1312

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 164 of 254

UMTS Band IV Front Side High (Battery 1, Distance 10mm)

Date/Time: 8/4/2013 2:30:41 PM

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

Medium parameters used: $f = 1753$ MHz; $\sigma = 1.471$ mho/m; $\epsilon_r = 52.12$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side High/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.705 W/kg

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

Reference Value = 8.556 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.011 mW/g

SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.384 mW/g

Maximum value of SAR (measured) = 0.679 W/kg

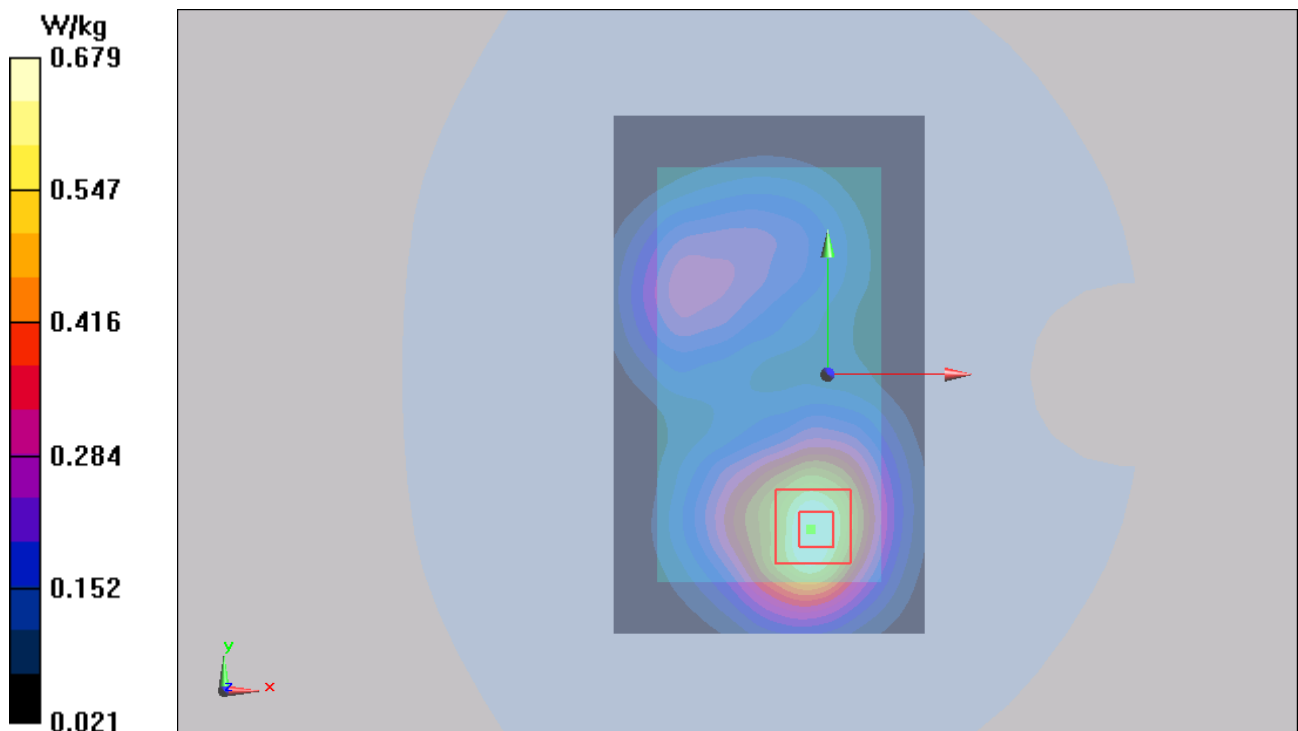


Figure 92 Body, Front Side, UMTS Band IV Channel 1513

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 165 of 254

UMTS Band IV Front Side Middle (Battery 1, Distance 10mm)

Date/Time: 8/4/2013 2:12:56 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1733$ MHz; $\sigma = 1.454$ mho/m; $\epsilon_r = 52.175$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.720 W/kg

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

Reference Value = 8.955 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.033 mW/g

SAR(1 g) = 0.650 mW/g; SAR(10 g) = 0.393 mW/g

Maximum value of SAR (measured) = 0.692 W/kg

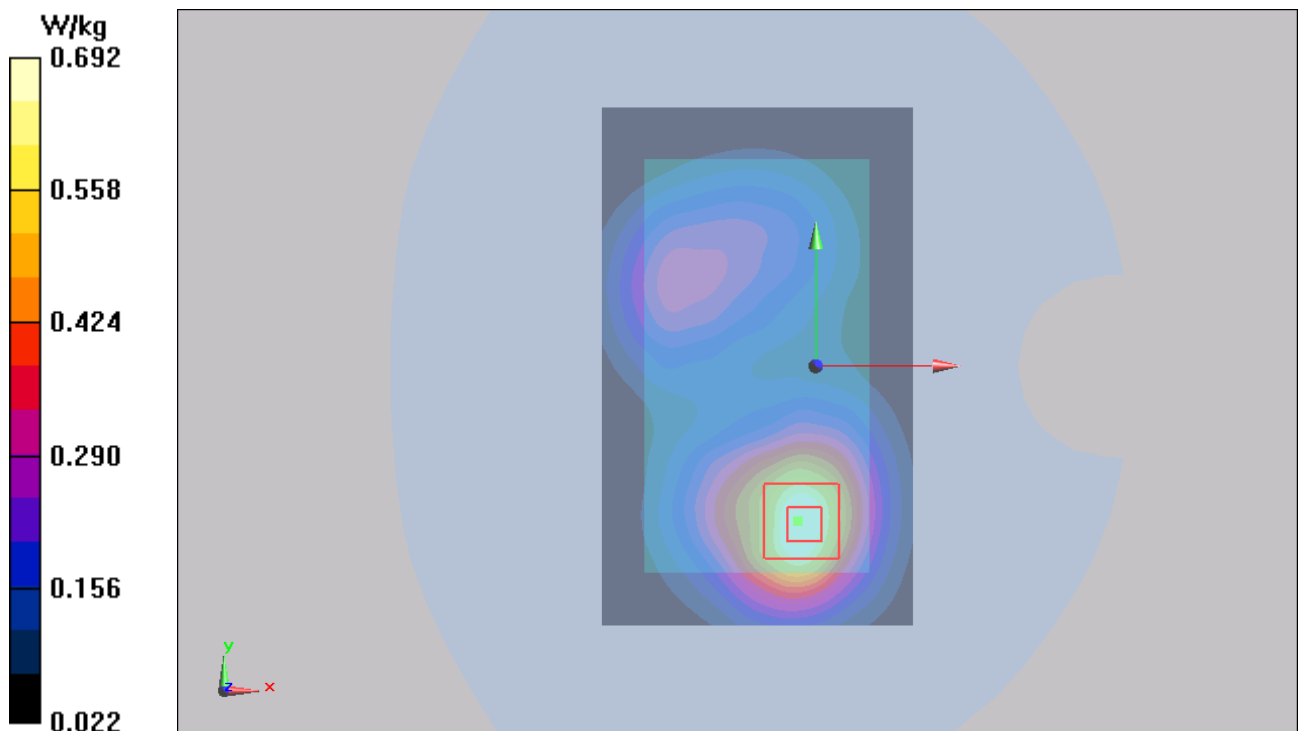


Figure 93 Body, Front Side, UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 166 of 254

UMTS Band IV Front Side Low (Battery 1, Distance 10mm)

Date/Time: 8/4/2013 2:48:09 PM

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.443$ mho/m; $\epsilon_r = 52.223$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side Low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.702 W/kg

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

Reference Value = 9.084 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.008 mW/g

SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.383 mW/g

Maximum value of SAR (measured) = 0.676 W/kg

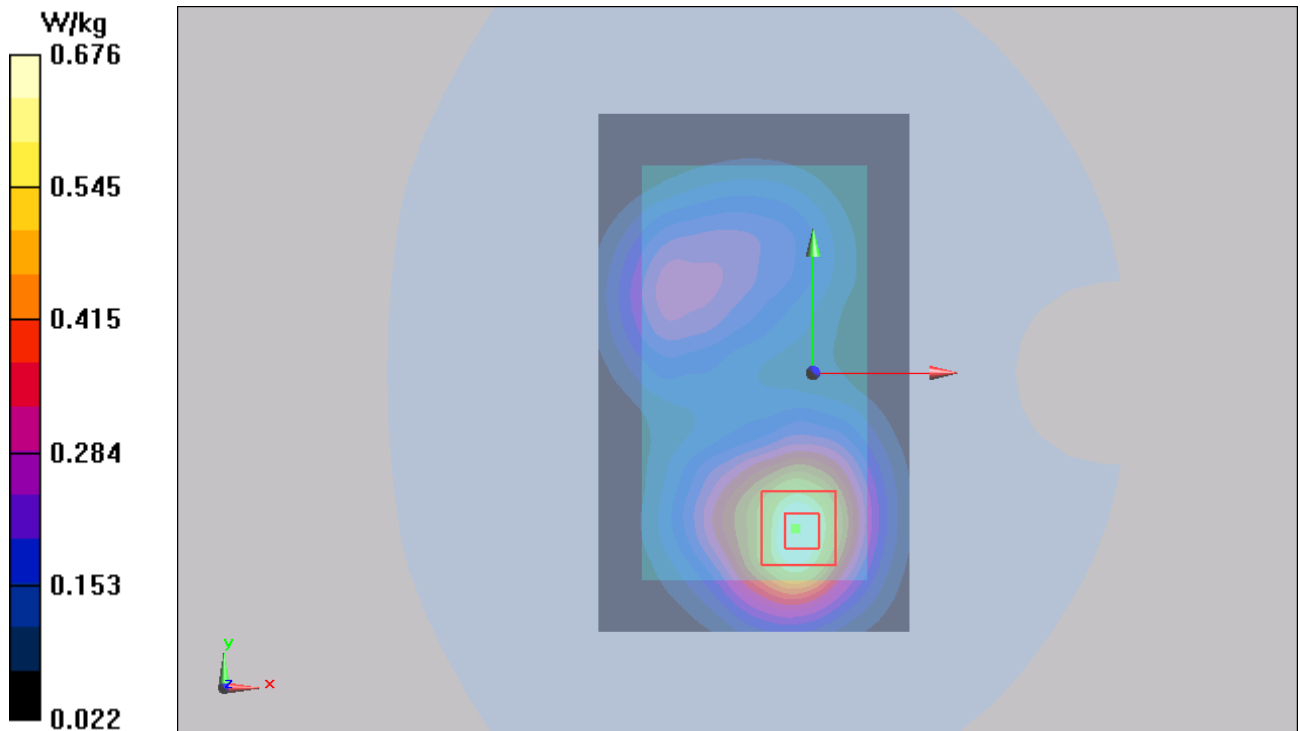


Figure 94 Body, Front Side, UMTS Band IV Channel 1312

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 167 of 254

UMTS Band IV Left Edge Middle (Battery 1, Distance 10mm)

Date/Time: 8/4/2013 5:19:42 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1733$ MHz; $\sigma = 1.454$ mho/m; $\epsilon_r = 52.175$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Edge Middle/Area Scan (31x101x1): Interpolated grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.177 W/kg

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

Reference Value = 7.793 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.253 mW/g

SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.096 mW/g

Maximum value of SAR (measured) = 0.175 W/kg

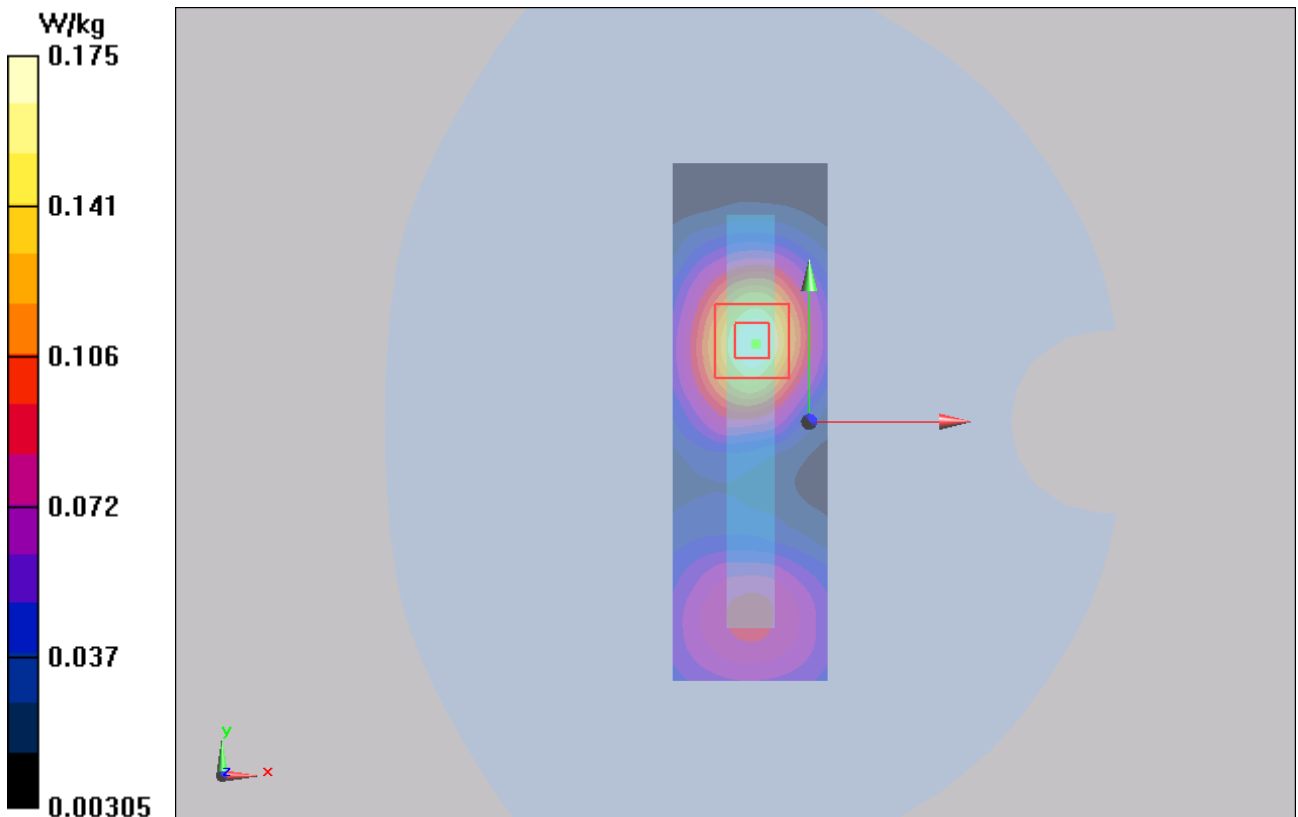


Figure 95 Body, Left Edge, UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 168 of 254

UMTS Band IV Right Edge Middle (Battery 1, Distance 10mm)

Date/Time: 8/4/2013 5:34:34 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1733$ MHz; $\sigma = 1.454$ mho/m; $\epsilon_r = 52.175$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Edge Middle/Area Scan (31x101x1): Interpolated grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.268 W/kg

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

Reference Value = 7.079 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.370 mW/g

SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.136 mW/g

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

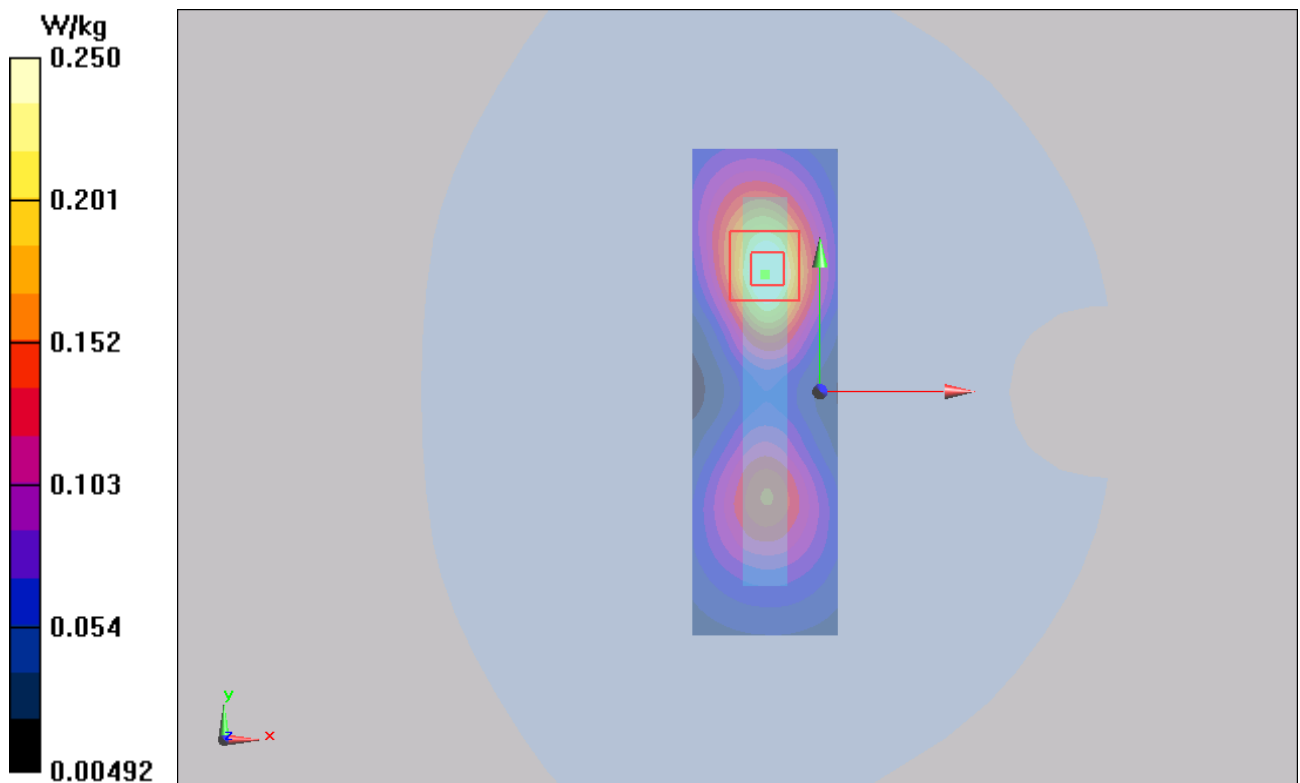


Figure 96 Body, Right Edge, UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 169 of 254

UMTS Band IV Bottom Edge Middle(Battery 1, Distance 10mm)

Date/Time: 8/4/2013 5:06:08 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1733$ MHz; $\sigma = 1.454$ mho/m; $\epsilon_r = 52.175$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Bottom Edge Middle/Area Scan (31x61x1): Interpolated grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.300 W/kg

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

Reference Value = 14.642 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.465 mW/g

SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.165 mW/g

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

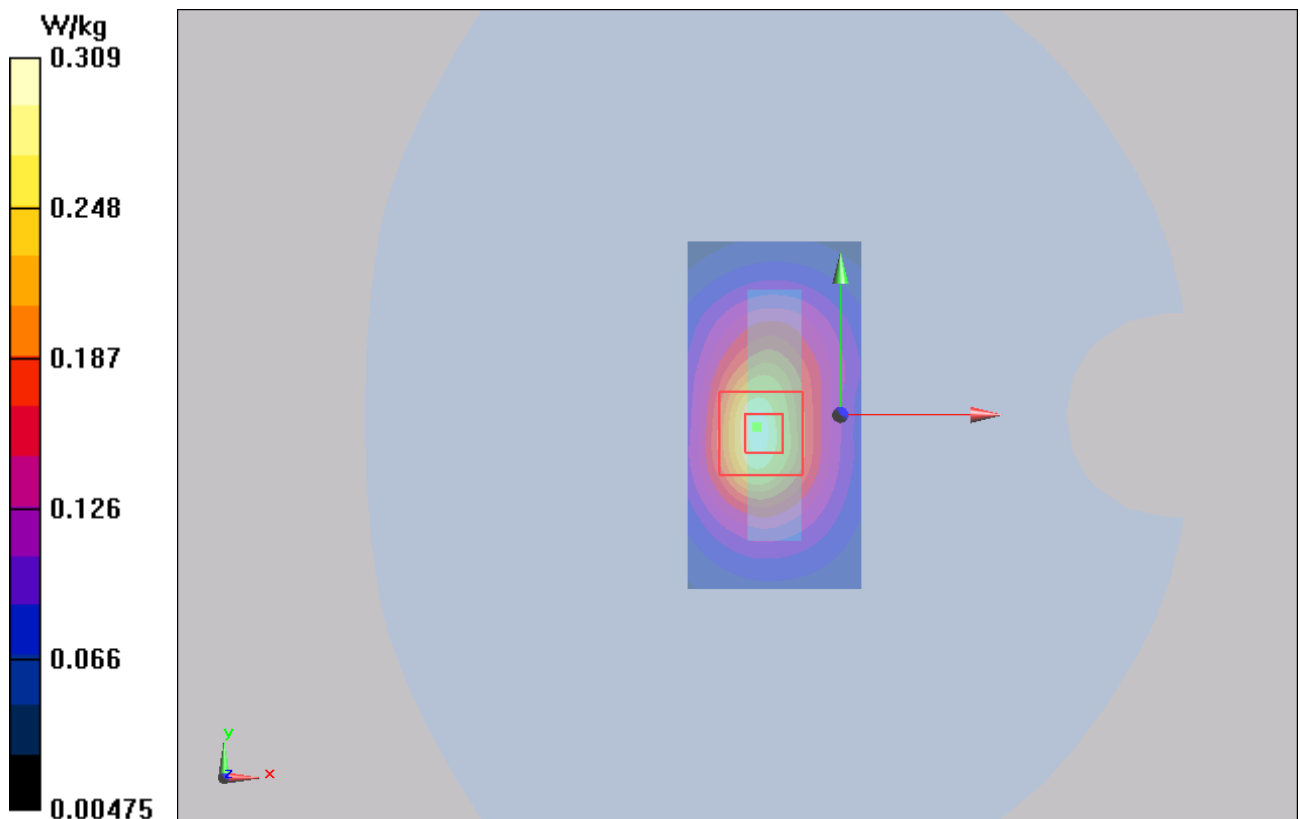


Figure 97 Body, Bottom Edge, UMTS Band IV Channel 1413

UMTS Band IV Back Side Low (Battery 2, Distance 15mm)

Date/Time: 8/4/2013 6:02:40 PM

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.443$ mho/m; $\epsilon_r = 52.223$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.82, 7.82, 7.82); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side Low/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.815 W/kg

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

Reference Value = 9.653 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 1.189 mW/g

SAR(1 g) = 0.765 mW/g; SAR(10 g) = 0.478 mW/g

Maximum value of SAR (measured) = 0.821 W/kg

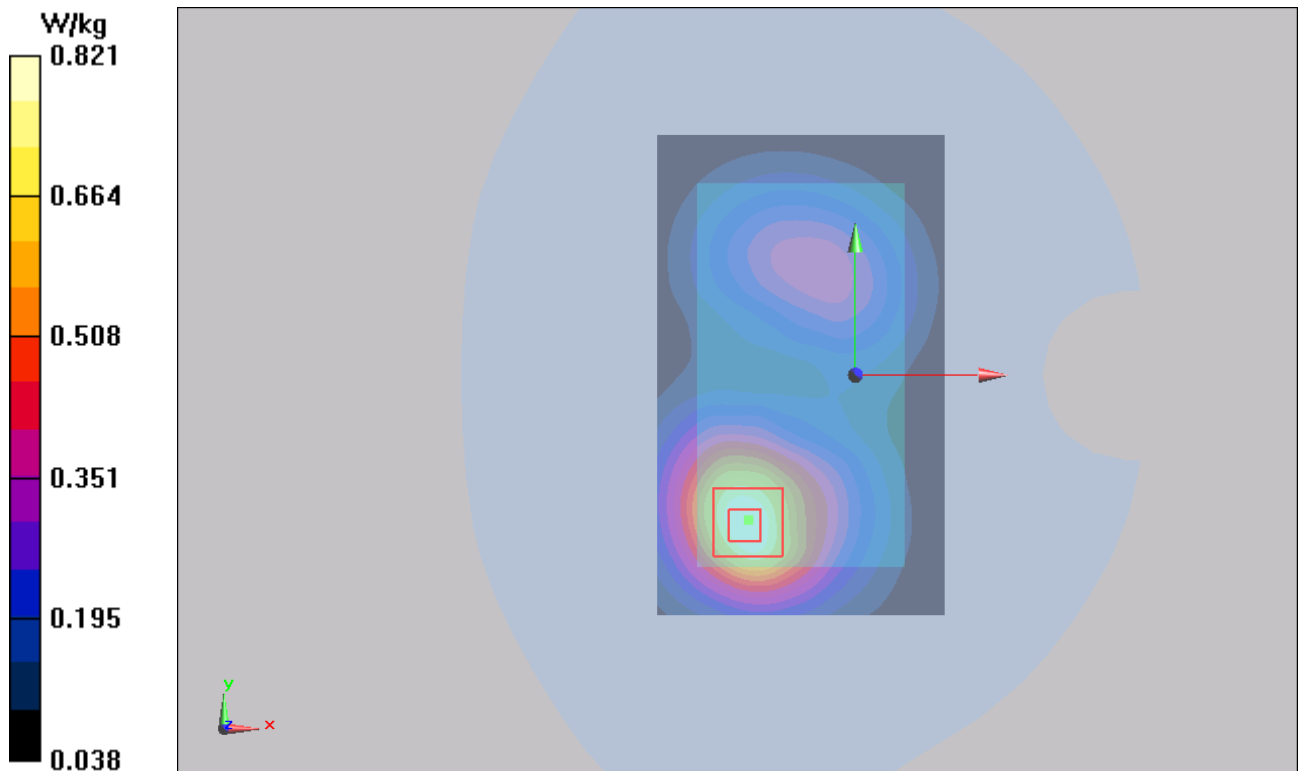


Figure 98 Body, Back Side, UMTS Band IV Channel 1312

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 171 of 254

UMTS Band IV Right Cheek Middle (1st repeated SAR, Battery 1, Distance 10mm)

Date/Time: 8/4/2013 5:47:43 PM

Communication System: WCDMA; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.221$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(7.86, 7.86, 7.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Cheek Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.06 W/kg

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

Reference Value = 9.586 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.496 mW/g

SAR(1 g) = 1.000 mW/g; SAR(10 g) = 0.615 mW/g

Maximum value of SAR (measured) = 1.10 W/kg

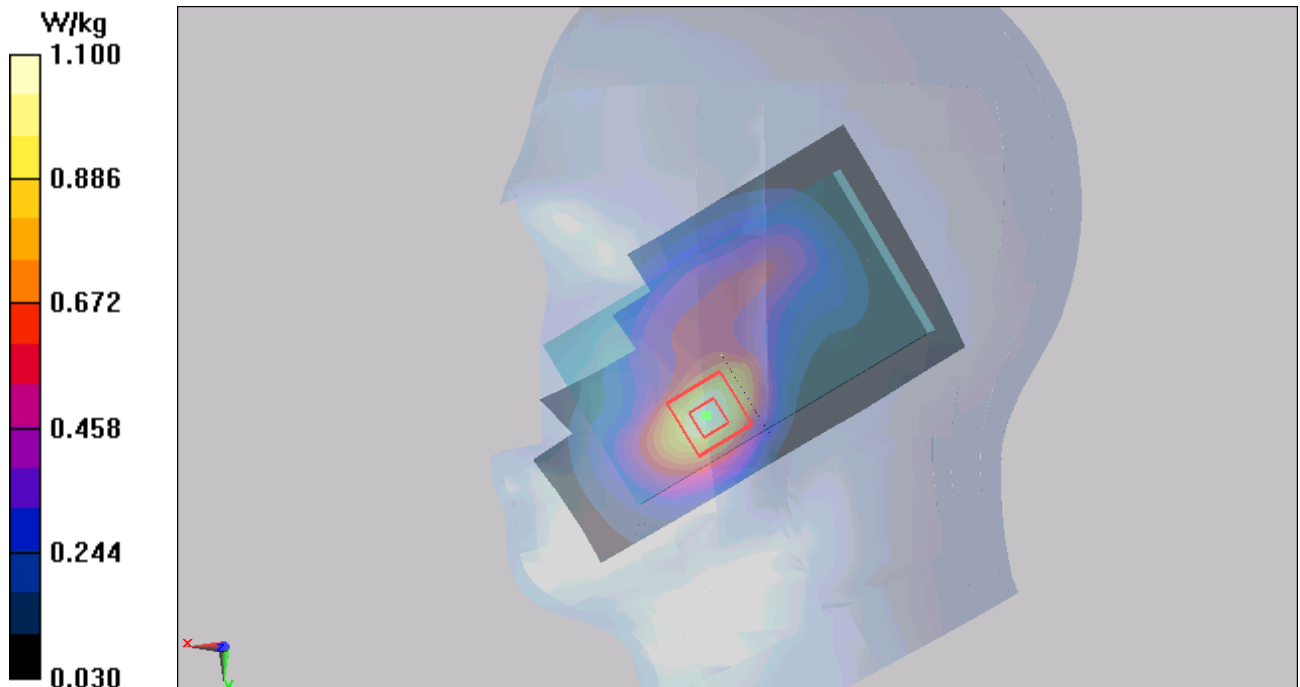


Figure 99 Body, Right Cheek, UMTS Band IV Channel 1413

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 172 of 254

UMTS Band V Left Cheek Middle(Battery 1)

Date/Time: 8/3/2013 7:35:01 PM

Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(8.95, 8.95, 8.95); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Left Cheek Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00569 mW/g

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

Reference Value = 0 V/m; Power Drift = 0.055 dB

Peak SAR (extrapolated) = 0.00657 W/kg

SAR(1 g) = 0.006 mW/g; SAR(10 g) = 0.004 mW/g

Maximum value of SAR (measured) = 0.006 mW/g

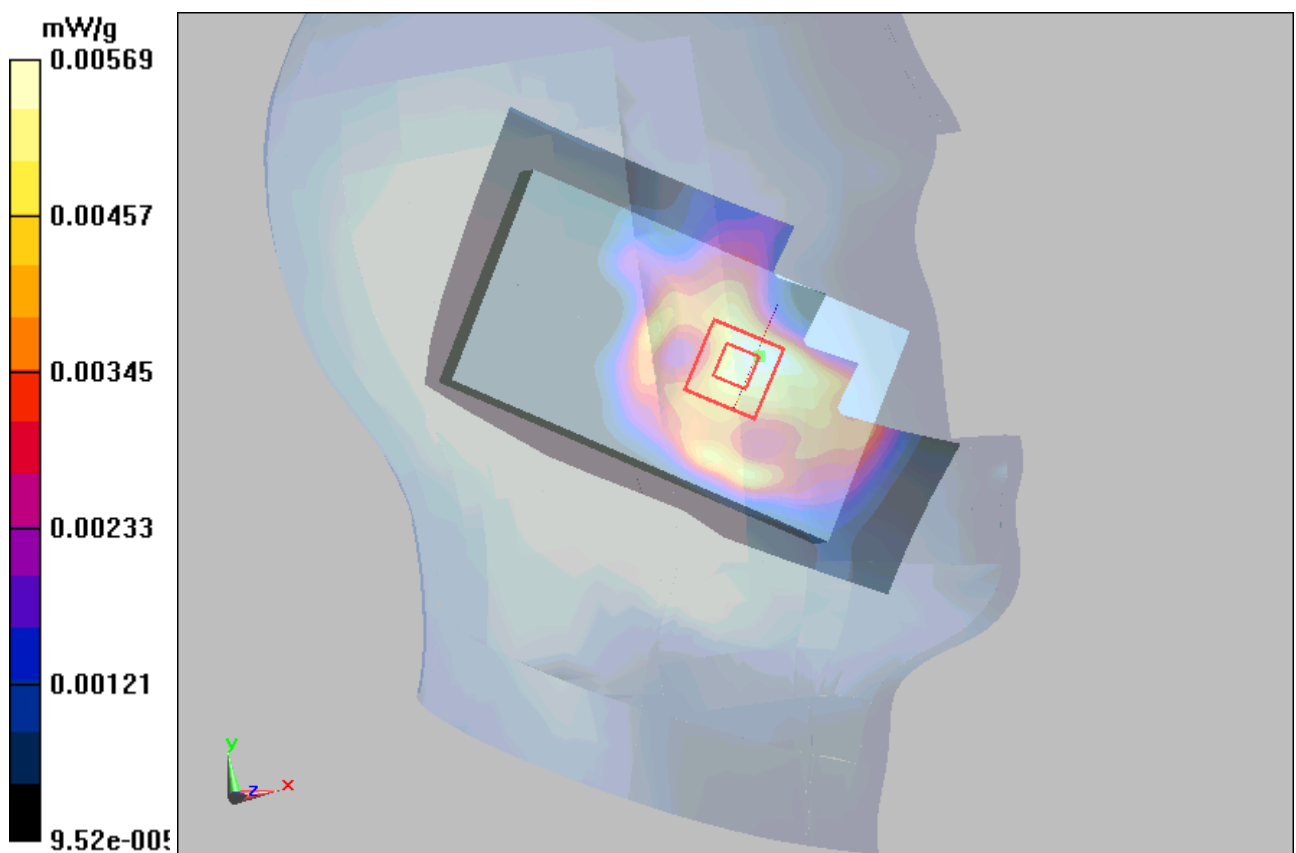


Figure 100 Left Hand Touch Cheek UMTS Band V Channel 4183

UMTS Band V Left Tilt Middle(Battery 1)

Date/Time: 8/3/2013 7:16:11 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(8.95, 8.95, 8.95); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Left Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00744 mW/g

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

Reference Value = 0.652 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 0.00603 W/kg

SAR(1 g) = 0.005 mW/g; SAR(10 g) = 0.004 mW/g

Maximum value of SAR (measured) = 0.005 mW/g

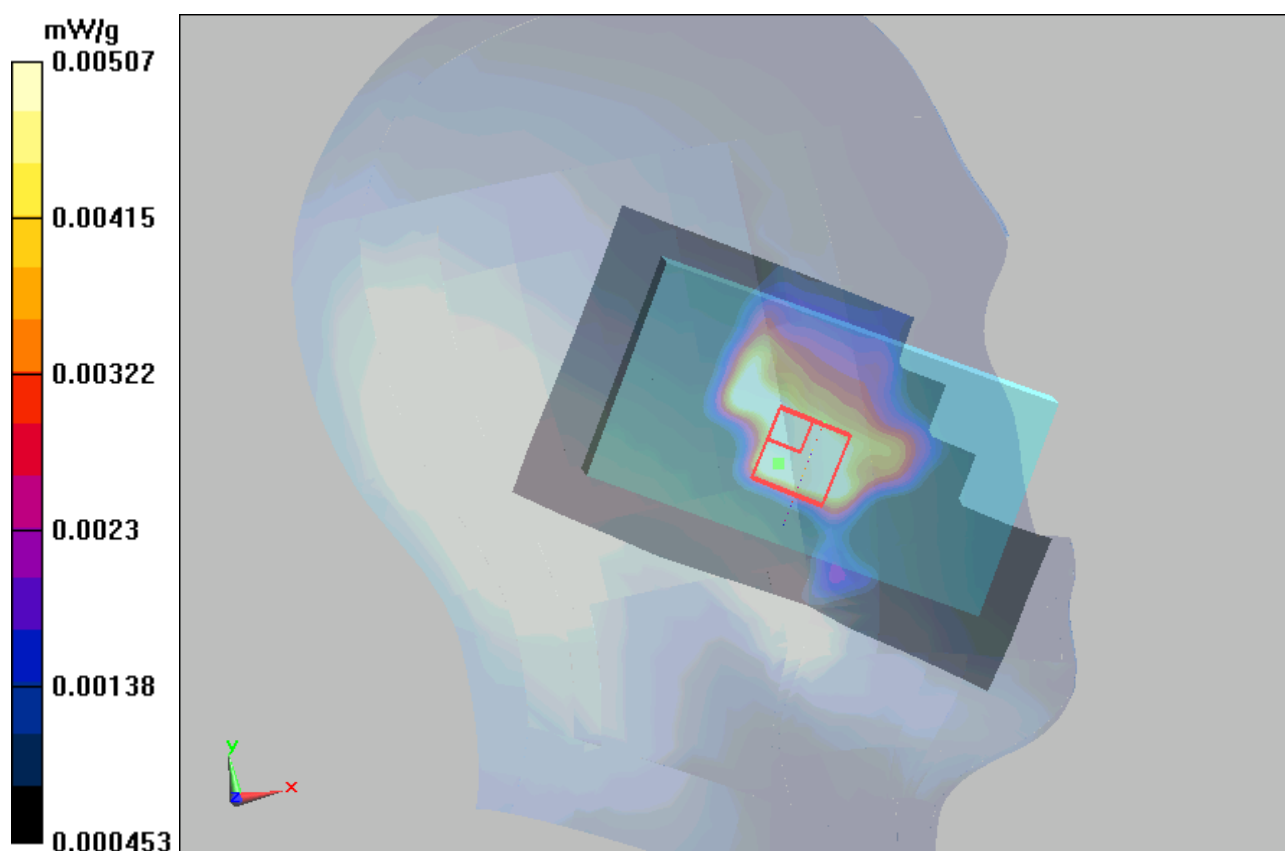


Figure 101 Left Hand Tilt 15° UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 174 of 254

UMTS Band V Right Cheek Middle(Battery 1)

Date/Time: 8/3/2013 6:56:24 PM

Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(8.95, 8.95, 8.95); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Right Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00794 mW/g

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

Reference Value = 0 V/m; Power Drift = 0. 102dB

Peak SAR (extrapolated) = 0.00724 W/kg

SAR(1 g) = 0.006 mW/g; SAR(10 g) = 0.004 mW/g

Maximum value of SAR (measured) = 0.006 mW/g

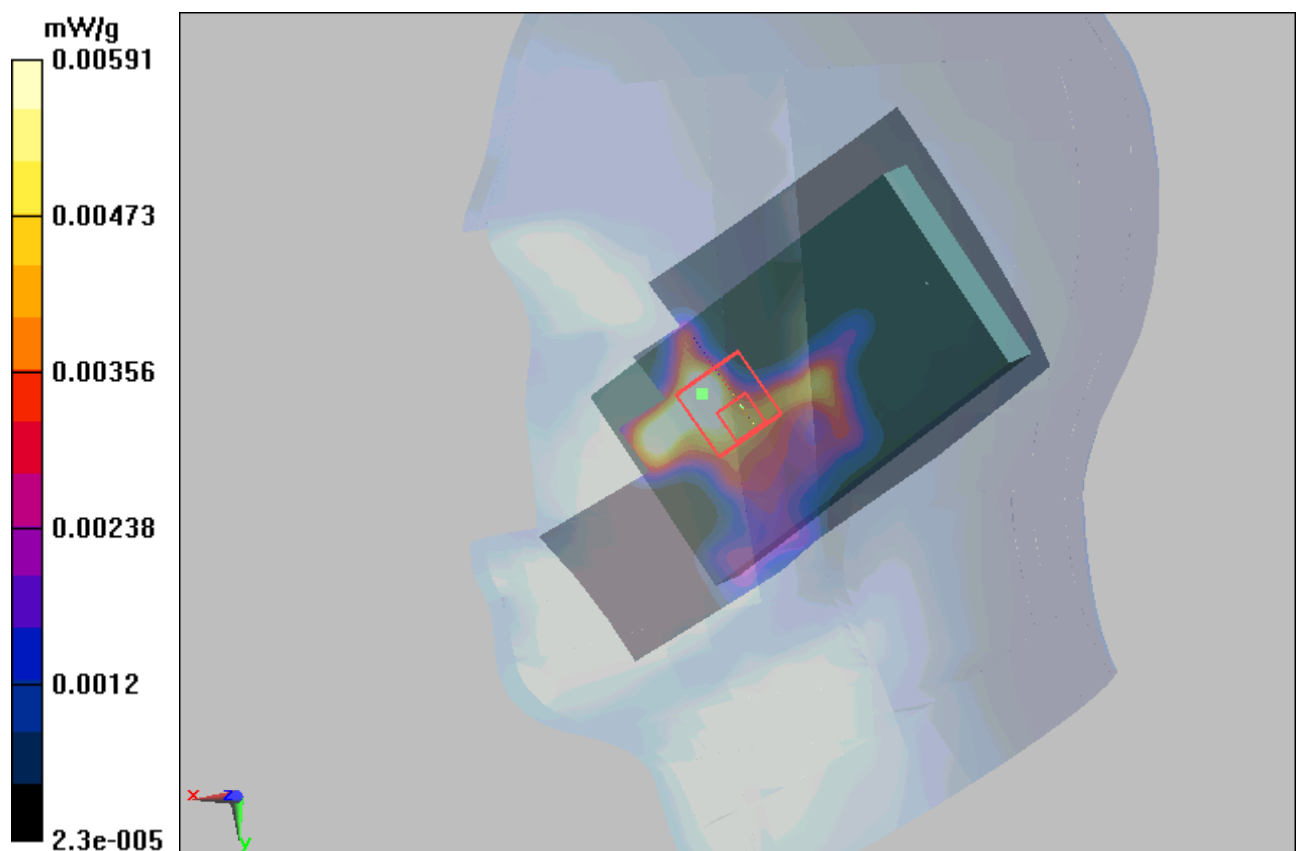


Figure 102 Right Hand Touch Cheek UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 175 of 254

UMTS Band V Right Tilt Middle(Battery 1)

Date/Time: 8/3/2013 6:36:49 PM

Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(8.95, 8.95, 8.95); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Right Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00818 mW/g

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

Reference Value = 1.01 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 0.0057 W/kg

SAR(1 g) = 0.004 mW/g; SAR(10 g) = 0.003 mW/g

Maximum value of SAR (measured) = 0.004 mW/g

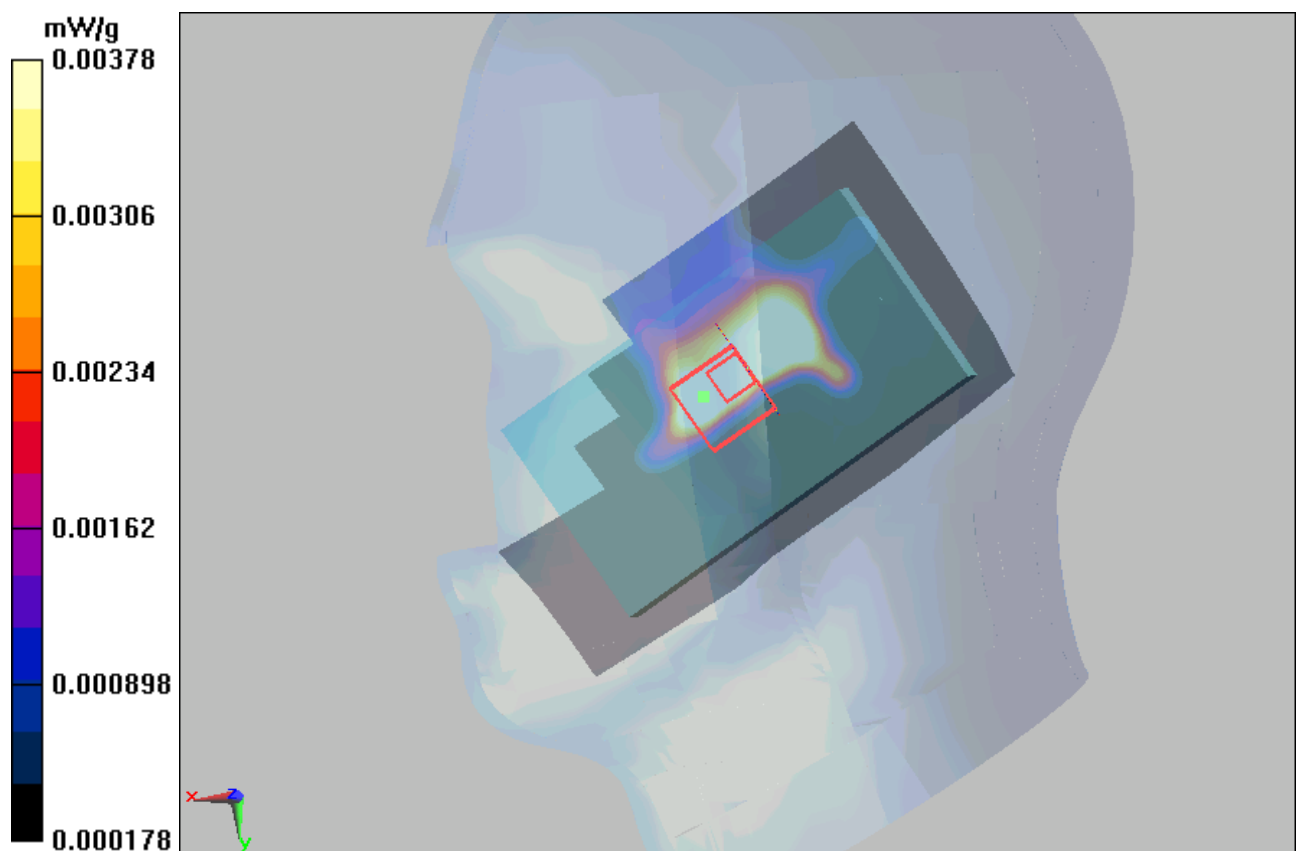


Figure 103 Right Hand Tilt 15° UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 176 of 254

UMTS Band V Right Cheek Middle (Battery 2)

Date/Time: 8/3/2013 6:10:13 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(8.95, 8.95, 8.95); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Right Cheek Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00789 mW/g

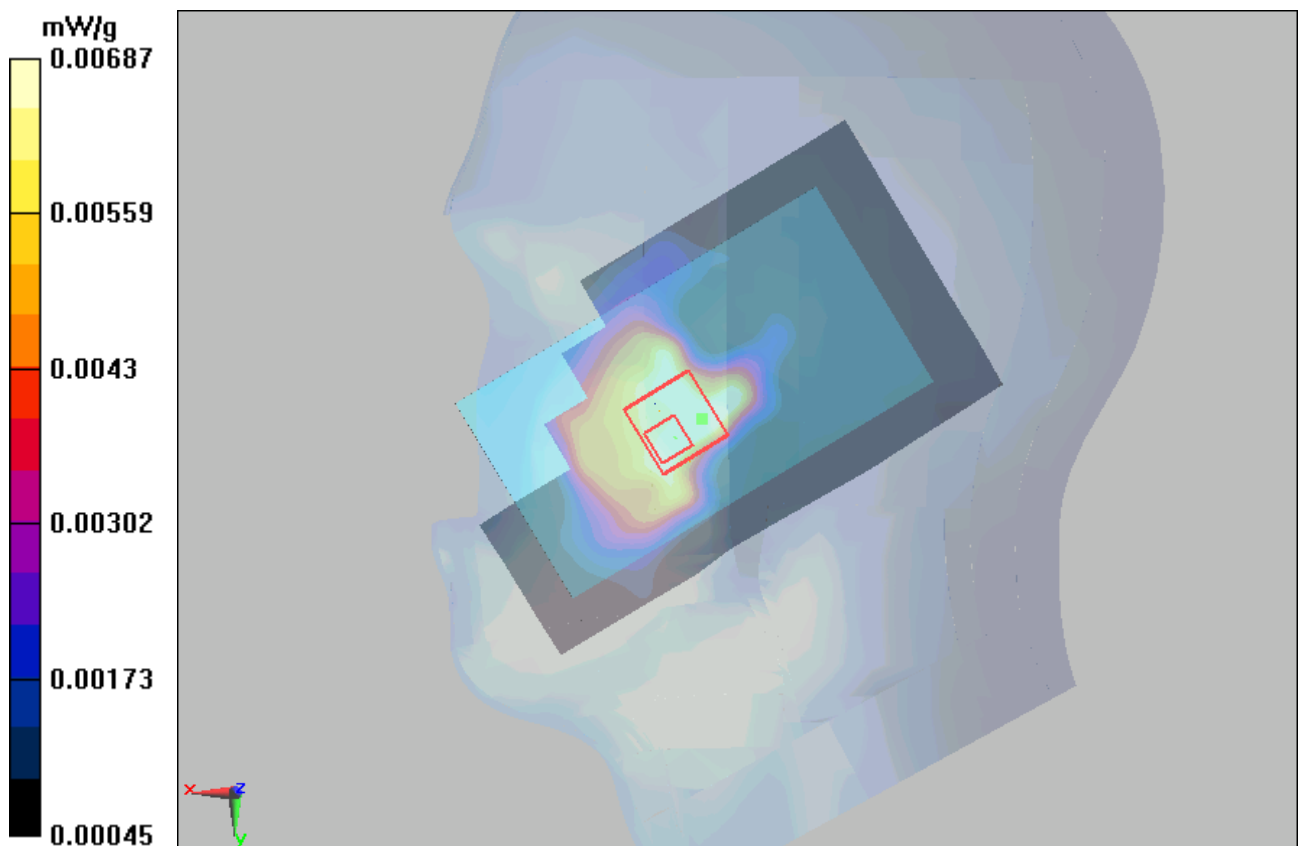
Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.00758 W/kg

SAR(1 g) = 0.007 mW/g; SAR(10 g) = 0.005 mW/g

Maximum value of SAR (measured) = 0.00687 mW/g



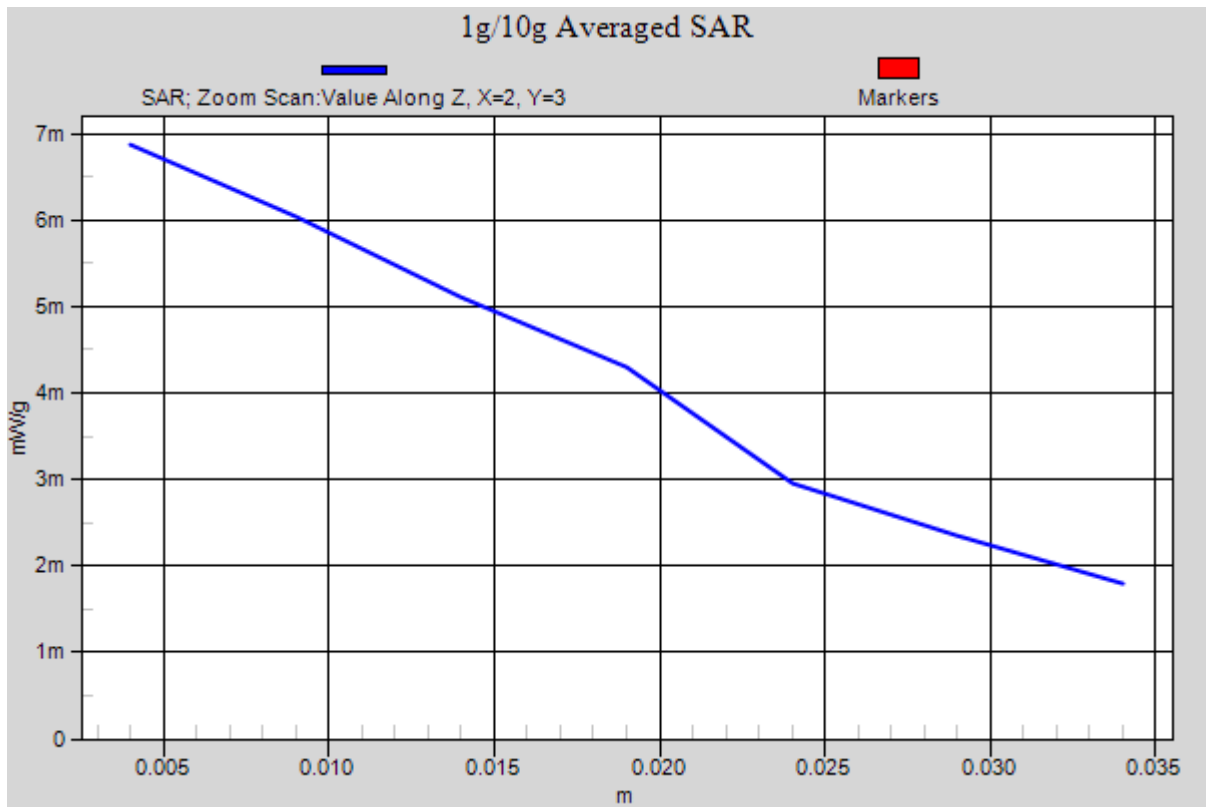


Figure 104 Right Touch Cheek UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 178 of 254

UMTS Band V Back Side Middle(Battery 1, Distance 10mm)

Date/Time: 8/10/2013 3:48:15 PM

Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(9.05, 9.05, 9.05); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.012 mW/g

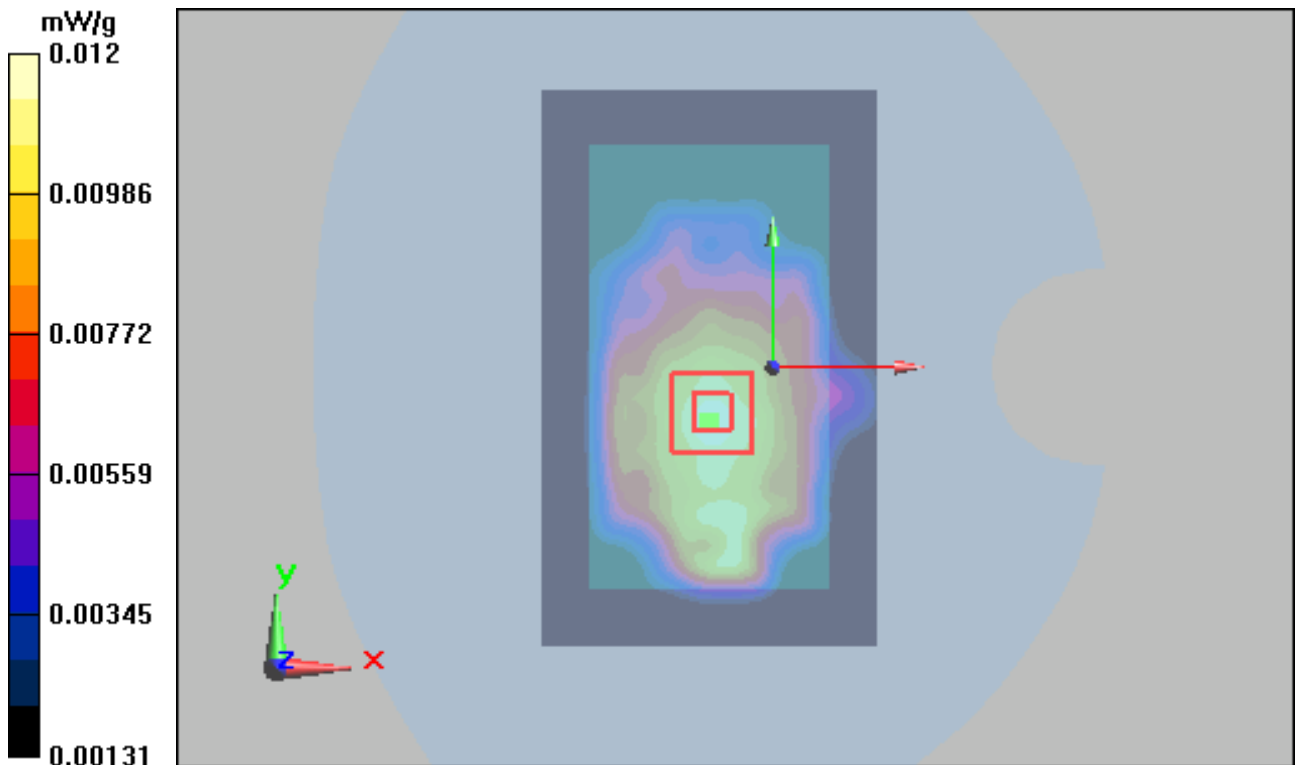
Back Side 1 Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.38 V/m; Power Drift = 0.067 dB

Peak SAR (extrapolated) = 0.013 W/kg

SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.009 mW/g

Maximum value of SAR (measured) = 0.012 mW/g



TA Technology (Shanghai) Co., Ltd.
Test Report

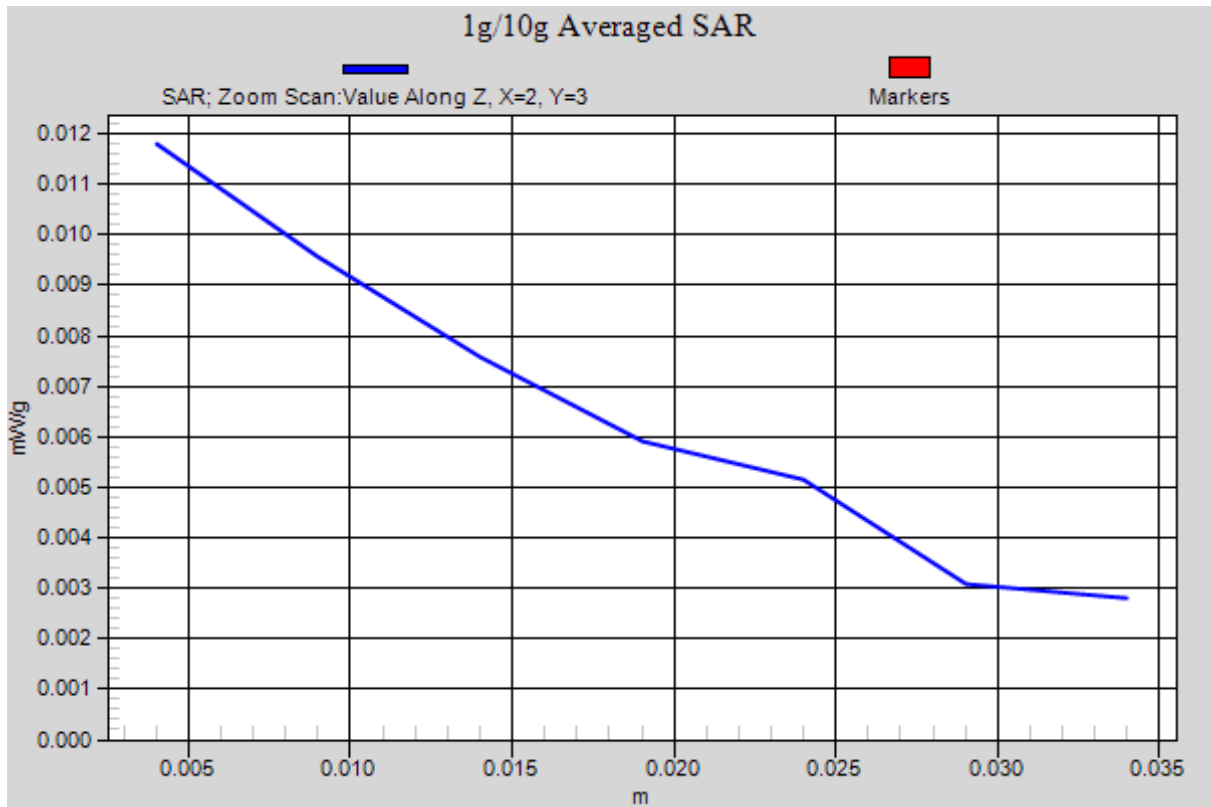


Figure 105 Body, Back Side, UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 180 of 254

UMTS Band V Front Side Middle(Battery 1, Distance 10mm)

Date/Time: 8/10/2013 4:10:08 PM

Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(9.05, 9.05, 9.05); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Front Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00901 mW/g

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

Reference Value = 2.95 V/m; Power Drift = 0.034 dB

Peak SAR (extrapolated) = 0.00957 W/kg

SAR(1 g) = 0.008 mW/g; SAR(10 g) = 0.006mW/g

Maximum value of SAR (measured) = 0.009 mW/g

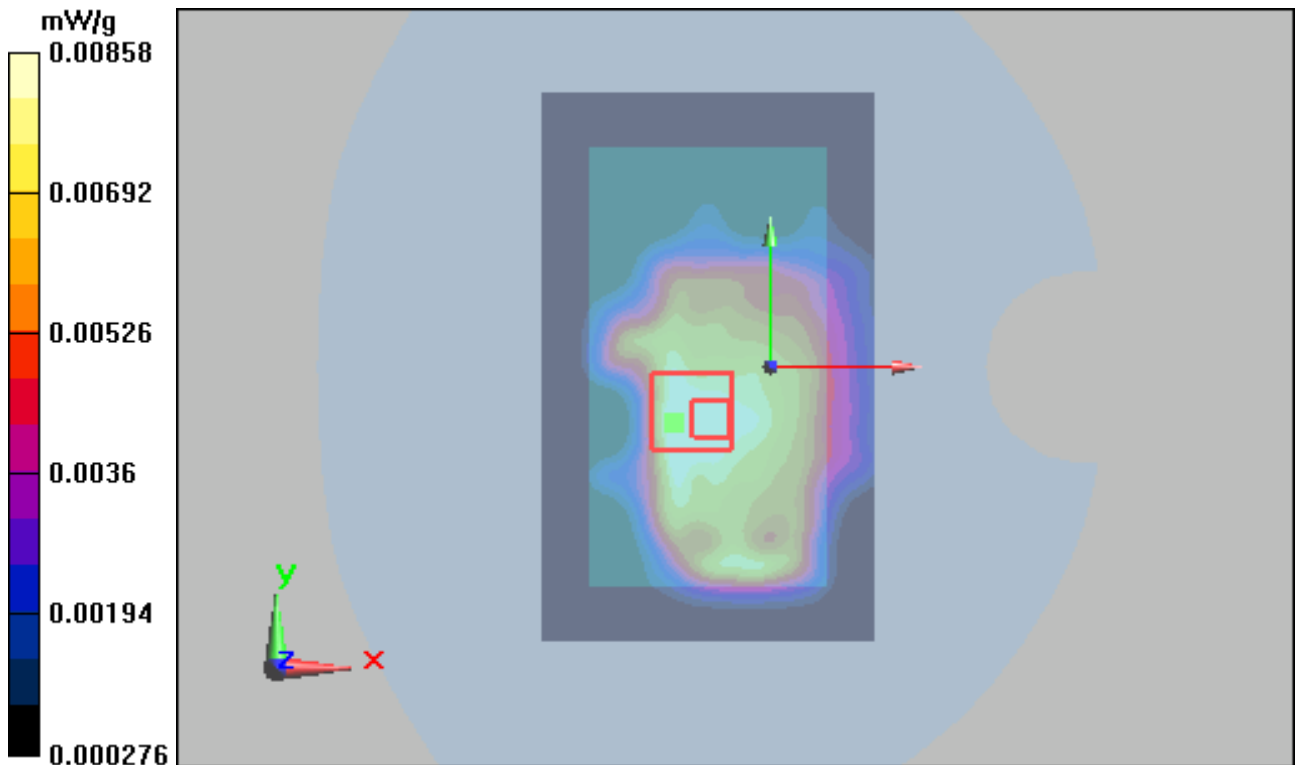


Figure 106 Body, Front Side, UMTS Band V Channel 4183

UMTS Band V Left Edge Middle(Battery 1, Distance 10mm)

Date/Time: 8/10/2013 5:18:06 PM

Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(9.05, 9.05, 9.05); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Left Edge Middle/Area Scan (41x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.00679 mW/g

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

Reference Value = 2.73 V/m; Power Drift = 0.091 dB

Peak SAR (extrapolated) = 0.007 W/kg

SAR(1 g) = 0.005 mW/g; SAR(10 g) = 0.003 mW/g

Maximum value of SAR (measured) = 0.006 mW/g

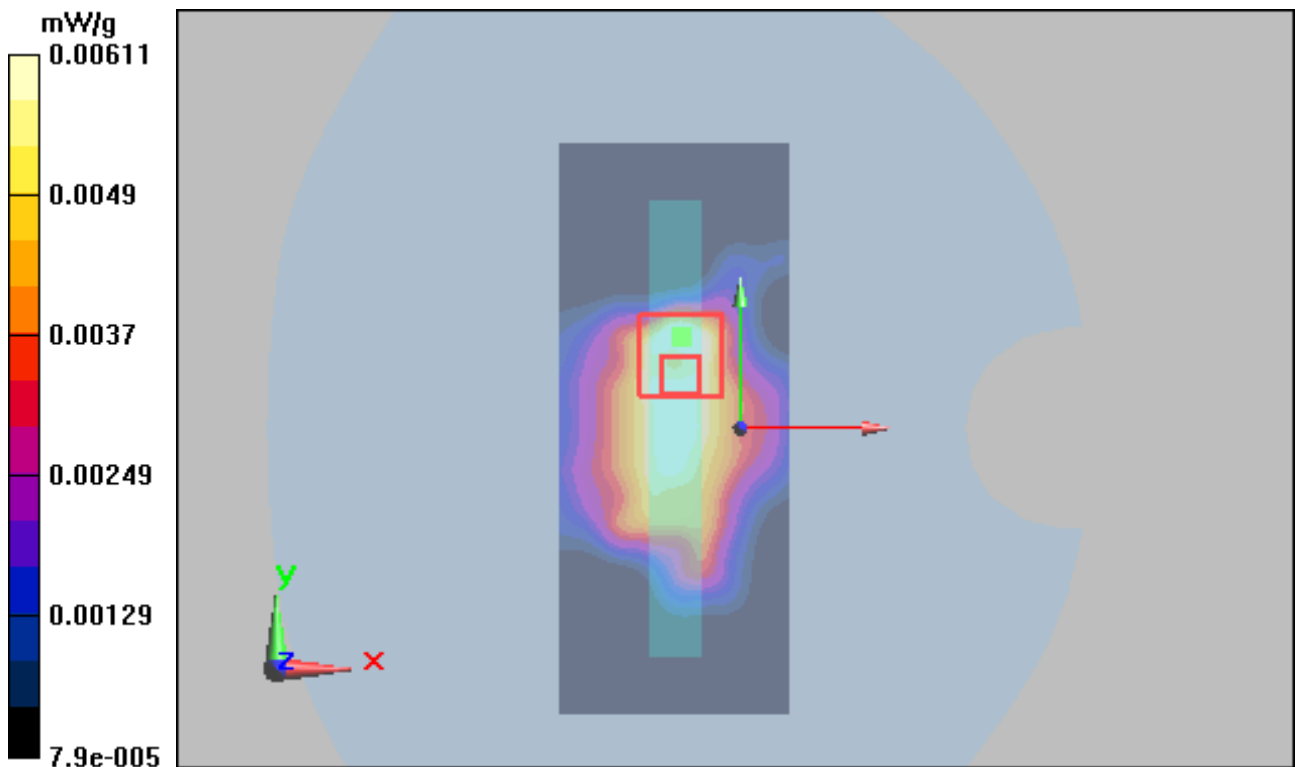


Figure 107 Body,Left Edge, UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd.
Test Report

UMTS Band V Right Edge Middle(Battery 1, Distance 10mm)

Date/Time: 8/10/2013 5:36:01 PM

Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(9.05, 9.05, 9.05); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Right Edge Middle/Area Scan (41x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.00672 mW/g

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

Reference Value = 2.41 V/m; Power Drift = -0.039dB

Peak SAR (extrapolated) = 0.00866 W/kg

SAR(1 g) = 0.007mW/g; SAR(10 g) = 0.005 mW/g

Maximum value of SAR (measured) = 0.008 mW/g

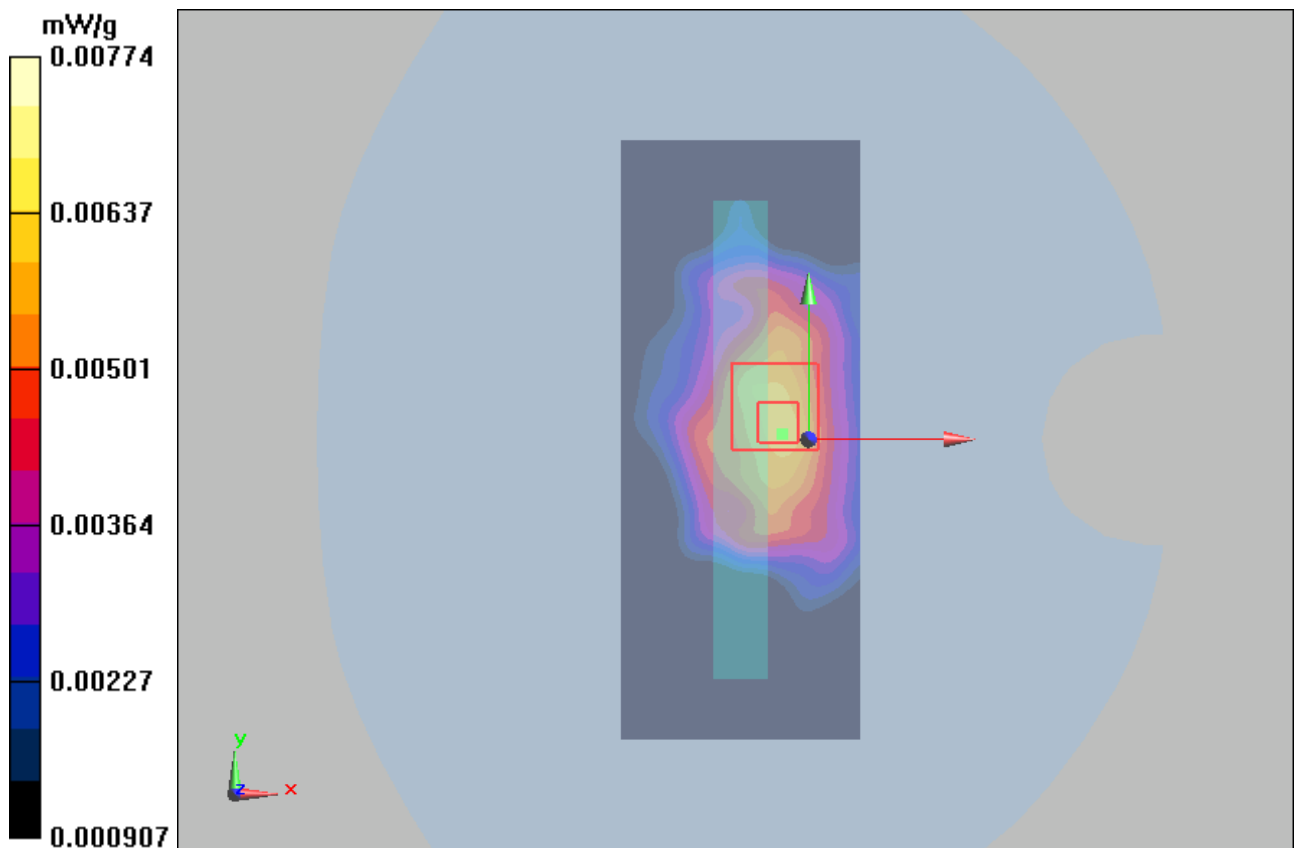


Figure 108 Body, Right Edge, UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 183 of 254

UMTS Band V Bottom Edge Middle(Battery 1, Distance 10mm)

Date/Time: 8/10/2013 6:25:44 PM

Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(9.05, 9.05, 9.05); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Bottom Edge Middle/Area Scan (41x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.00505 mW/g

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

Reference Value = 1.25 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 0.00544 W/kg

SAR(1 g) = 0.002mW/g; SAR(10 g) = 0.001 mW/g

Maximum value of SAR (measured) = 0.002 mW/g

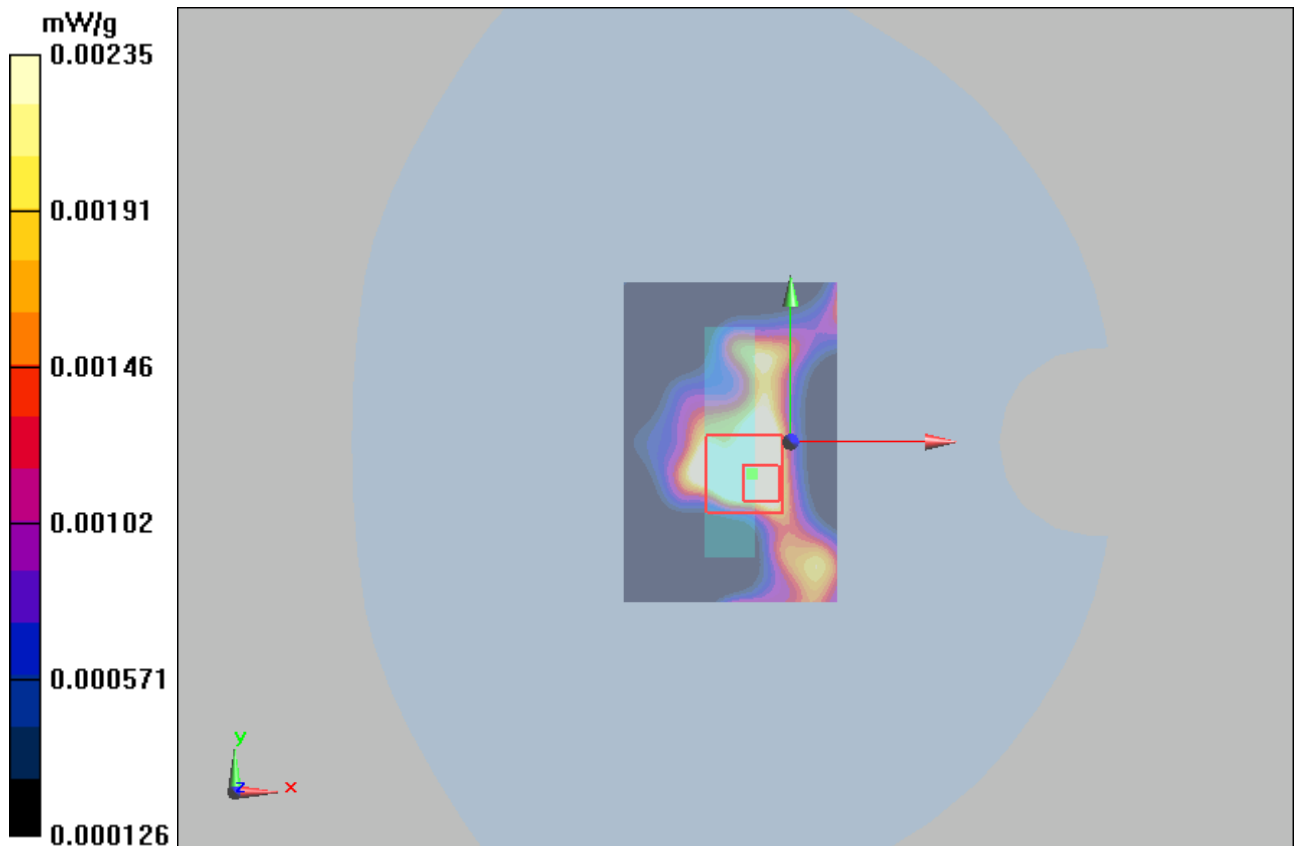


Figure 109 Body, Bottom Side, UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 184 of 254

UMTS Band V Back Side Middle (Battery 2, Distance 10mm)

Date/Time: 8/10/2013 2:56:22 PM

Communication System: WCDMA; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.001$ mho/m; $\epsilon_r = 55.318$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(9.05, 9.05, 9.05); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

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

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side Middle/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00660 W/kg

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

Reference Value = 2.159 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.00785 mW/g

SAR(1 g) = 0.005 mW/g; SAR(10 g) = 0.003 mW/g

Maximum value of SAR (measured) = 0.00498 W/kg

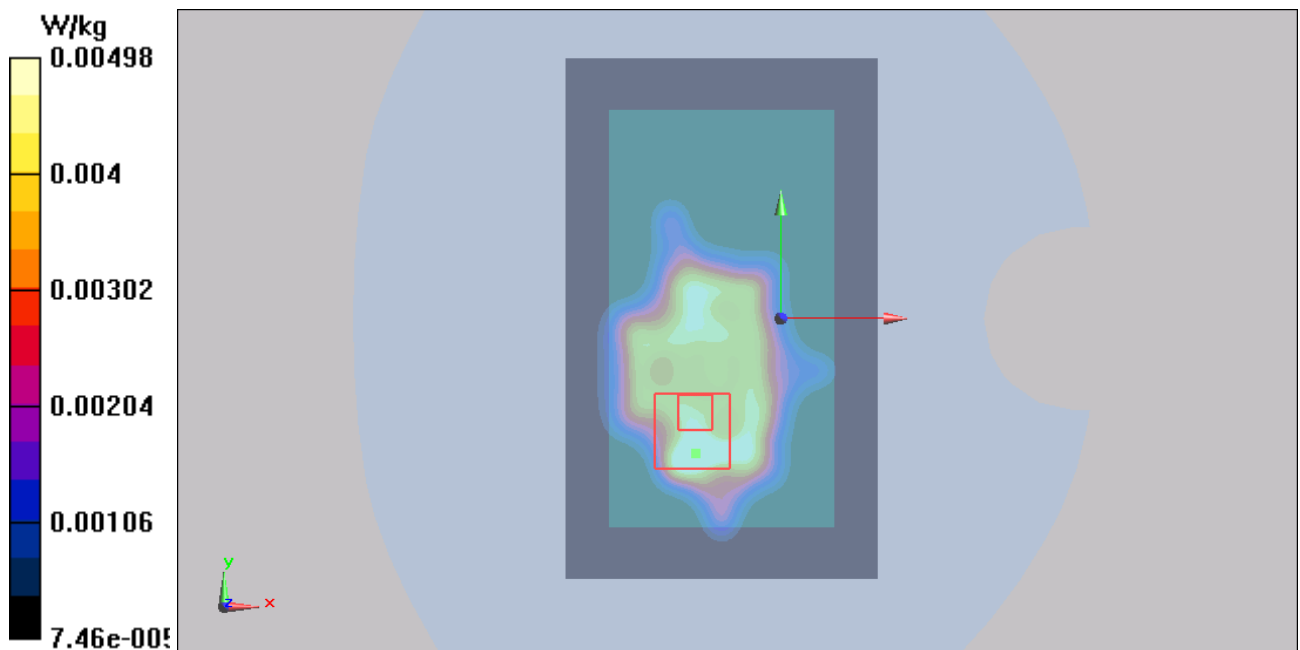


Figure 110 Body, Back Side, UMTS Band V Channel 4183

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 185 of 254

802.11b Left Cheek High(Battery 1)

Date/Time: 8/5/2013 9:48:48 AM

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.895$ mho/m; $\epsilon_r = 38.297$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.86, 6.86, 6.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Cheek High/Area Scan (61x101x1): Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.284 W/kg

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

Reference Value = 11.153 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.477 mW/g

SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.140 mW/g

Maximum value of SAR (measured) = 0.273 W/kg

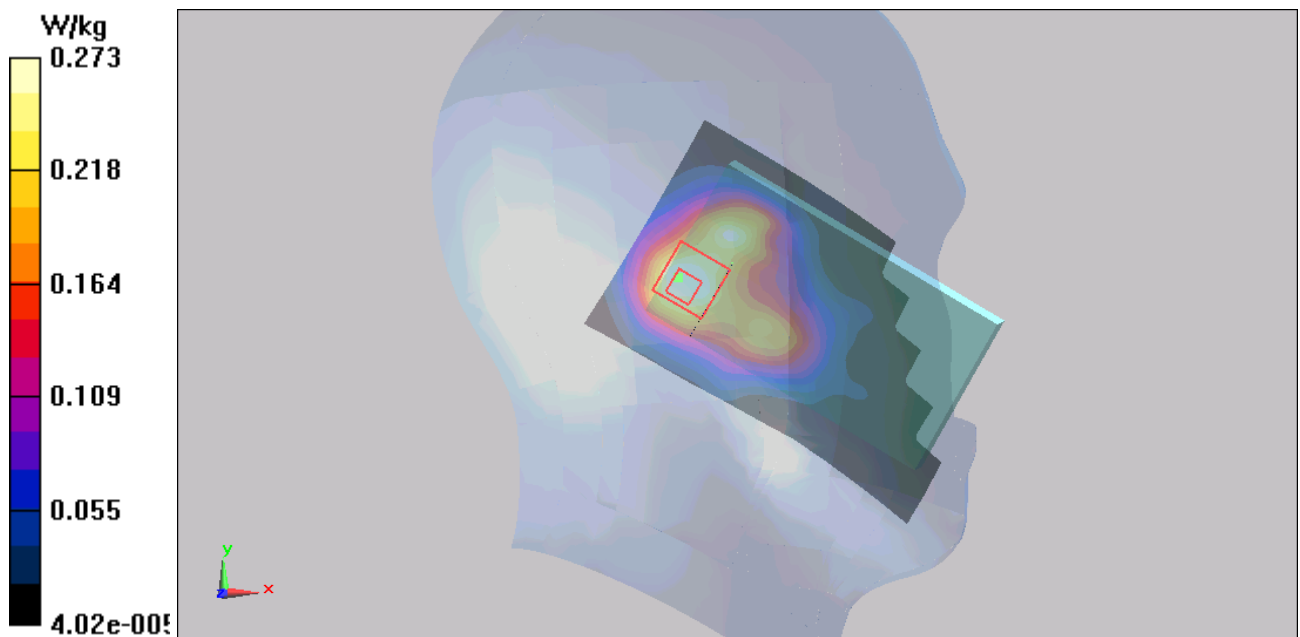


Figure 111 Left Hand Touch Cheek 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 186 of 254

802.11b Left Tilt High (Battery 1)

Date/Time: 8/5/2013 10:05:59 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.895$ mho/m; $\epsilon_r = 38.297$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.86, 6.86, 6.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Tilt High/Area Scan (61x101x1): Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.244 W/kg

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

Reference Value = 11.432 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.423 mW/g

SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.116 mW/g

Maximum value of SAR (measured) = 0.257 W/kg

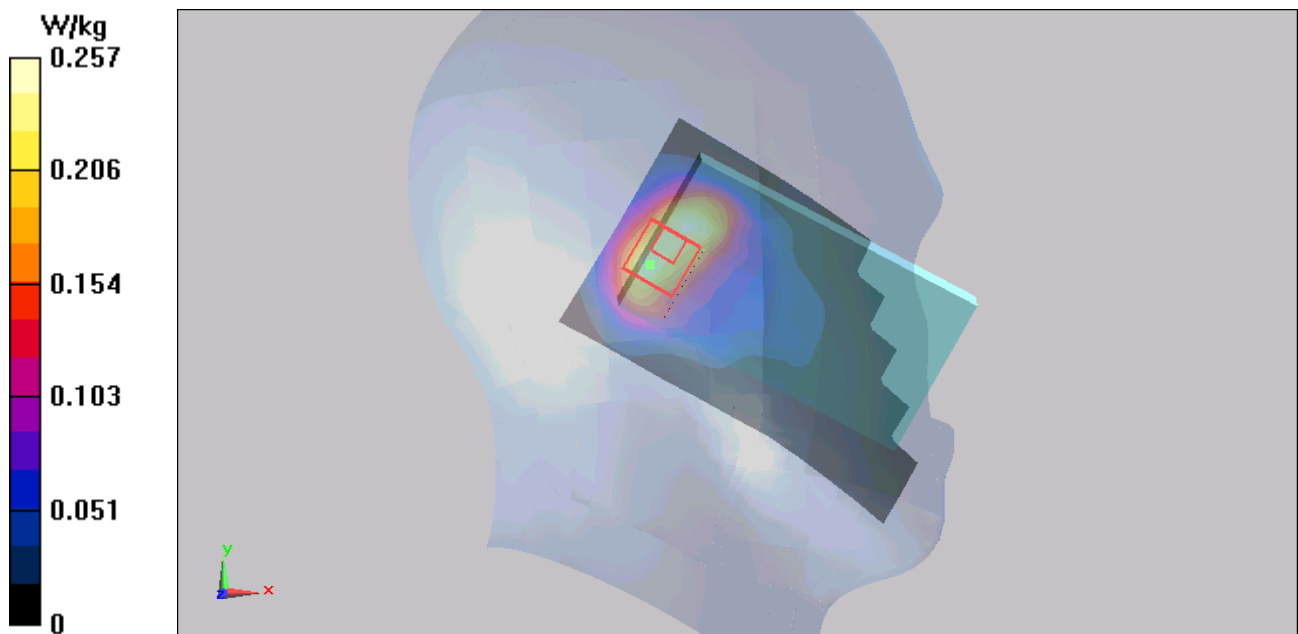


Figure 112 Left Hand Tilt 15° 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 187 of 254

802.11b Right Cheek High (Battery 1)

Date/Time: 8/5/2013 9:12:16 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.895$ mho/m; $\epsilon_r = 38.297$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.86, 6.86, 6.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Cheek High/Area Scan (61x101x1): Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.542 W/kg

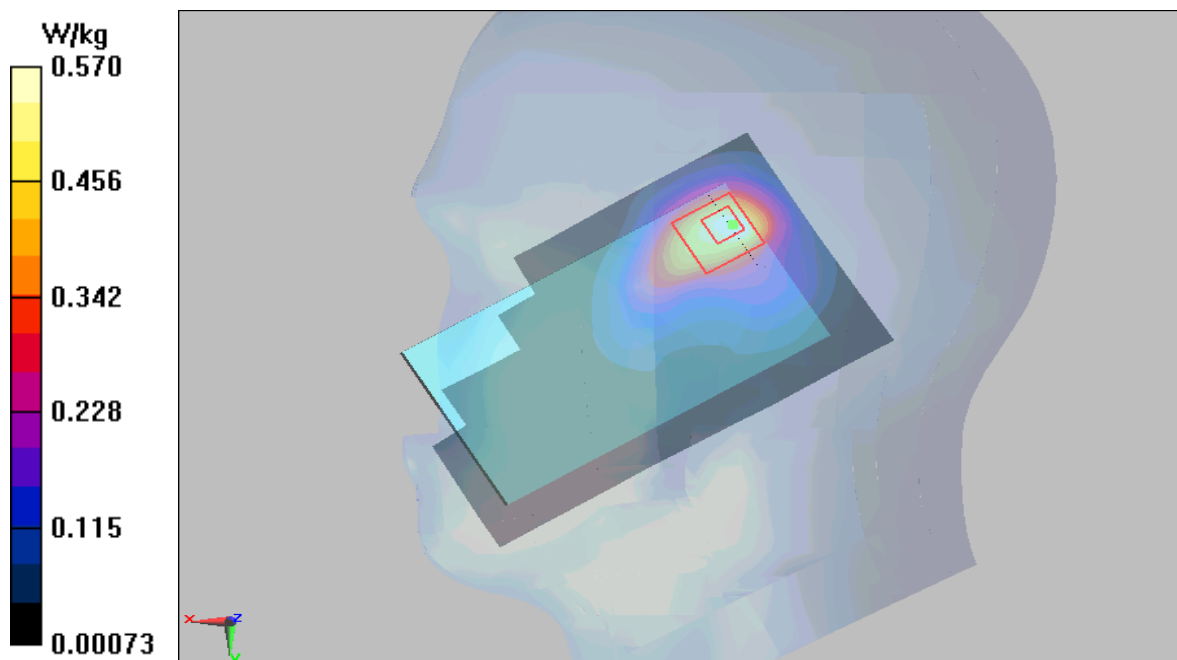
Right Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.258 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.110 mW/g

SAR(1 g) = 0.516 mW/g; SAR(10 g) = 0.252 mW/g

Maximum value of SAR (measured) = 0.570 W/kg



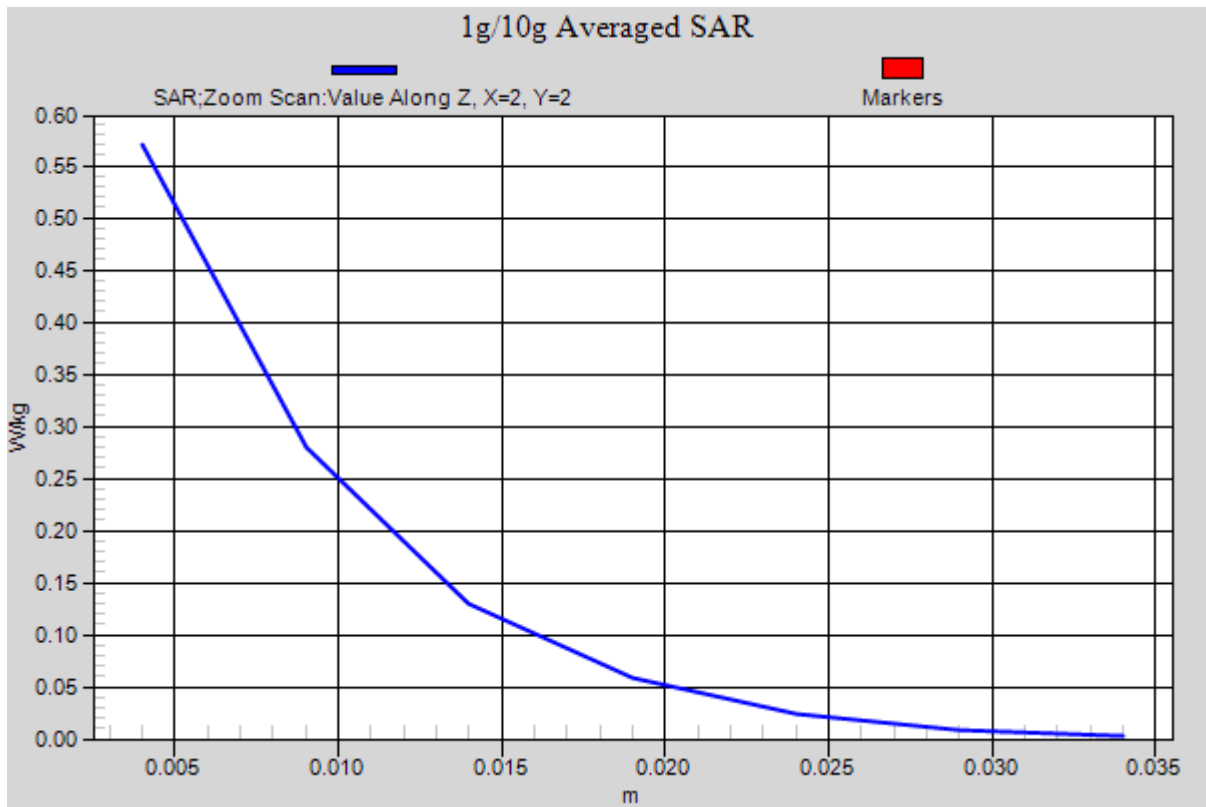


Figure 113 Right Hand Touch Cheek 802.11b Channel 11

802.11b Right Tilt High (Battery 1)

Date/Time: 8/5/2013 9:29:28 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.895$ mho/m; $\epsilon_r = 38.297$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.86, 6.86, 6.86); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Right Tilt High/Area Scan (61x101x1): Interpolated grid: dx=12mm, dy=12mm

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

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

Reference Value = 10.754 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.861 mW/g

SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.180 mW/g

Maximum value of SAR (measured) = 0.424 W/kg

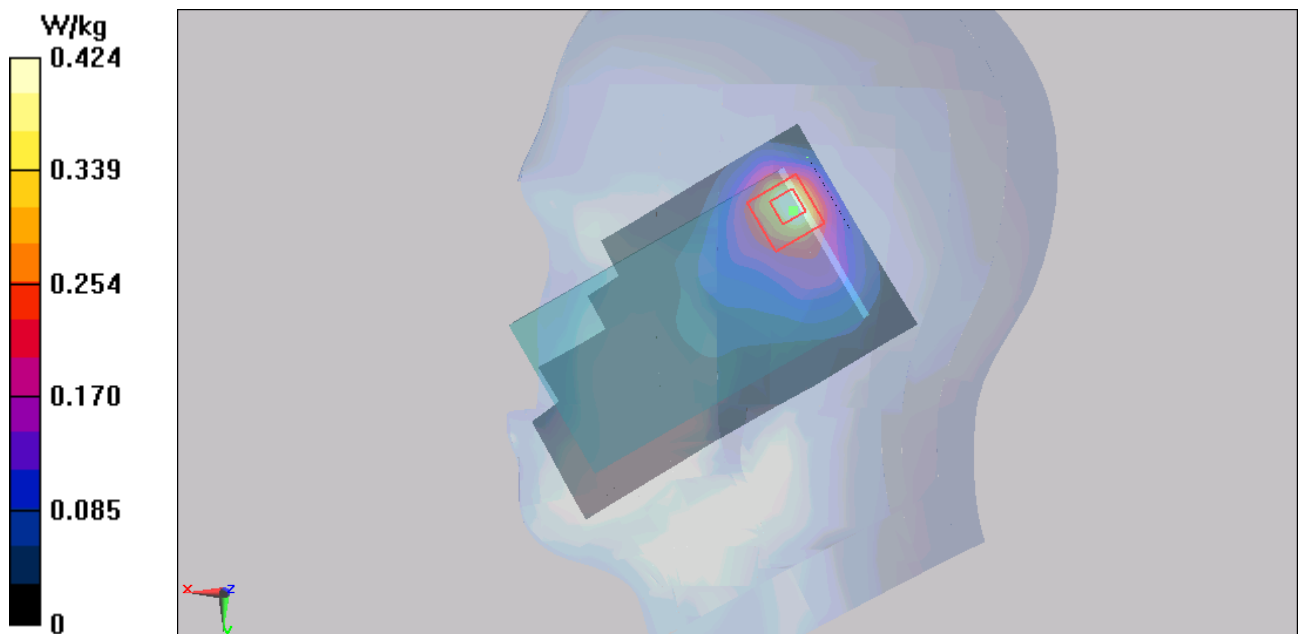


Figure 114 Right Hand Tilt 15° 802.11b Channel 11

802.11b Right Cheek High (Battery 2)

Date/Time: 8/5/2013 10:15:35 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.89$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.86, 6.86, 6.86); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, V52.8 Build 2; SEMCAD X Version 14.0 Build 59

Right Cheek High/Area Scan (61x101x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.569 mW/g

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

Reference Value = 10.8 V/m; Power Drift = -0.111 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.523 mW/g; SAR(10 g) = 0.257 mW/g

Maximum value of SAR (measured) = 0.561 mW/g

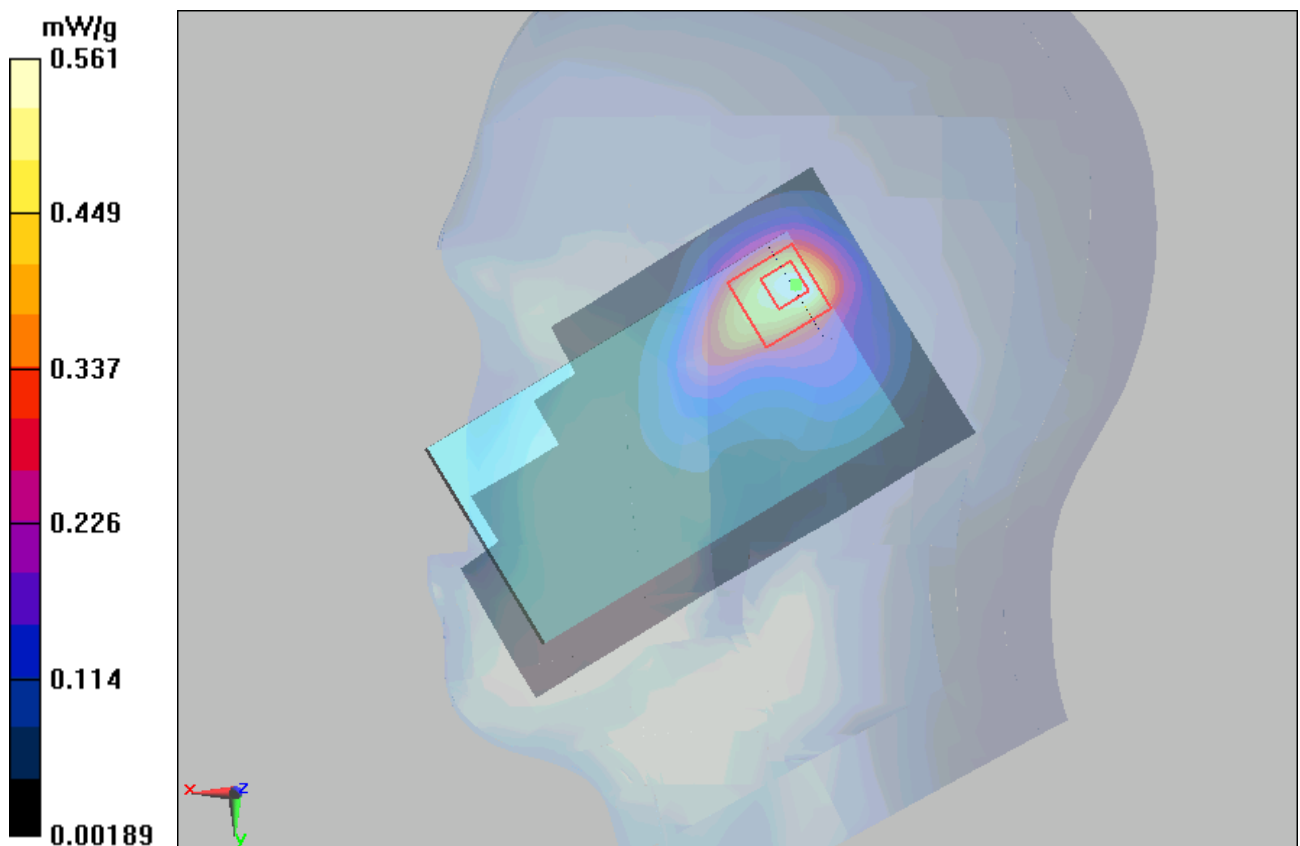


Figure 115 Right Hand Touch Cheek 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 191 of 254

802.11b Back Side High (Battery 1, Distance 15mm)

Date/Time: 8/5/2013 11:51:30 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.916$ mho/m; $\epsilon_r = 51.651$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.90, 6.90, 6.90); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side High/Area Scan (61x101x1): Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.0966 W/kg

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

Reference Value = 5.143 V/m; Power Drift = -0.100 dB

Peak SAR (extrapolated) = 0.176 mW/g

SAR(1 g) = 0.088 mW/g; SAR(10 g) = 0.047 mW/g

Maximum value of SAR (measured) = 0.0935 W/kg

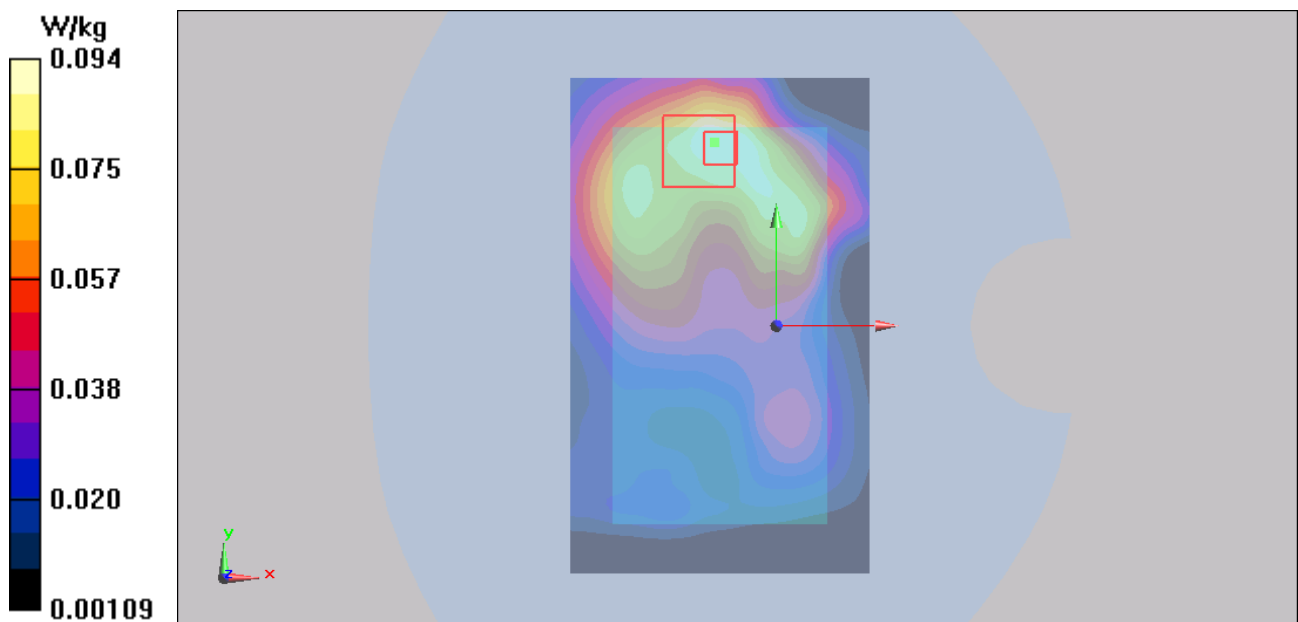


Figure 116 Body, Back Side, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 192 of 254

802.11b Front Side High (Battery 1, Distance 15mm)

Date/Time: 8/5/2013 12:10:13 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.916$ mho/m; $\epsilon_r = 51.651$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.90, 6.90, 6.90); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side High/Area Scan (61x101x1): Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.0813 W/kg

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

Reference Value = 5.002 V/m; Power Drift = 0.057 dB

Peak SAR (extrapolated) = 0.137 mW/g

SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.038 mW/g

Maximum value of SAR (measured) = 0.0774 W/kg

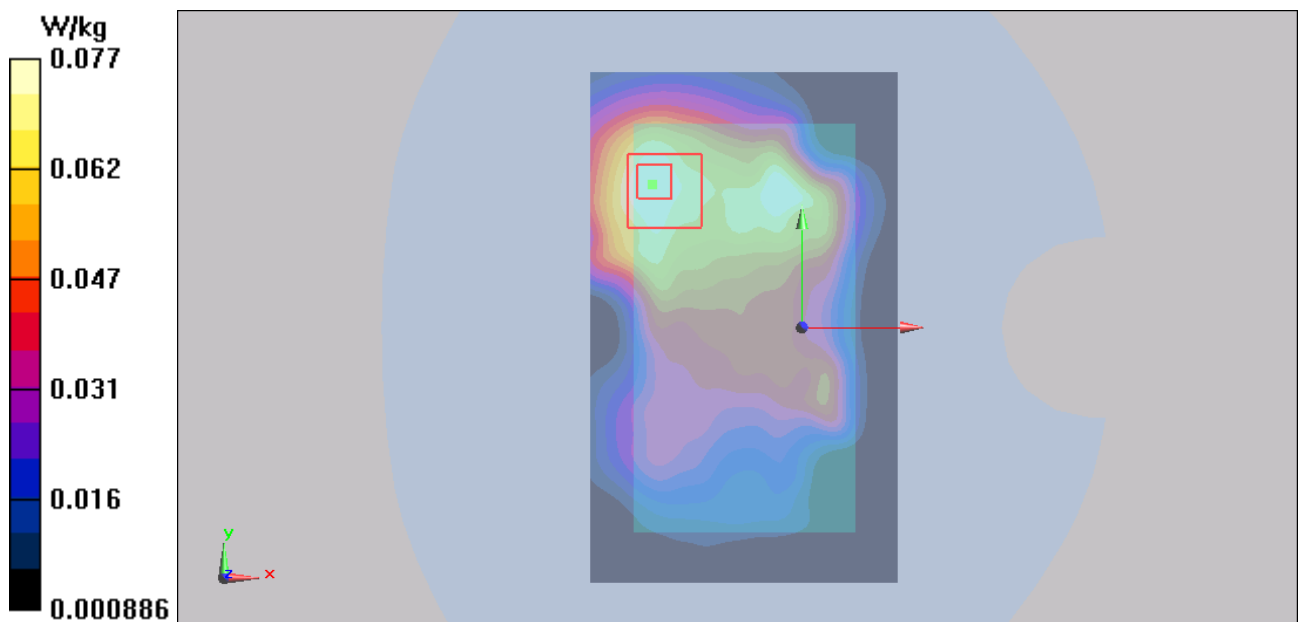


Figure 117 Body, Front Side, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 193 of 254

802.11b Back Side High (Battery 1, Distance 10mm)

Date/Time: 8/5/2013 12:24:49 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.916$ mho/m; $\epsilon_r = 51.651$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.90, 6.90, 6.90); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Back Side High/Area Scan (61x101x1): Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.206 W/kg

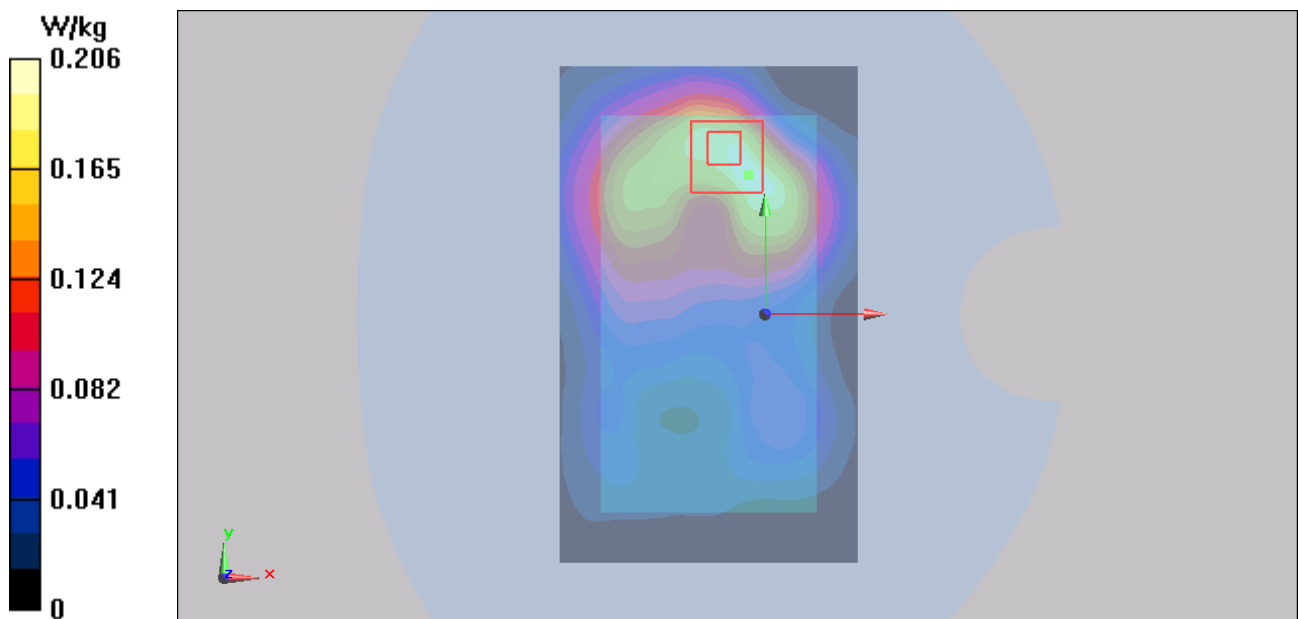
Back Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.695 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.407 mW/g

SAR(1 g) = 0.190 mW/g; SAR(10 g) = 0.098 mW/g

Maximum value of SAR (measured) = 0.206 W/kg



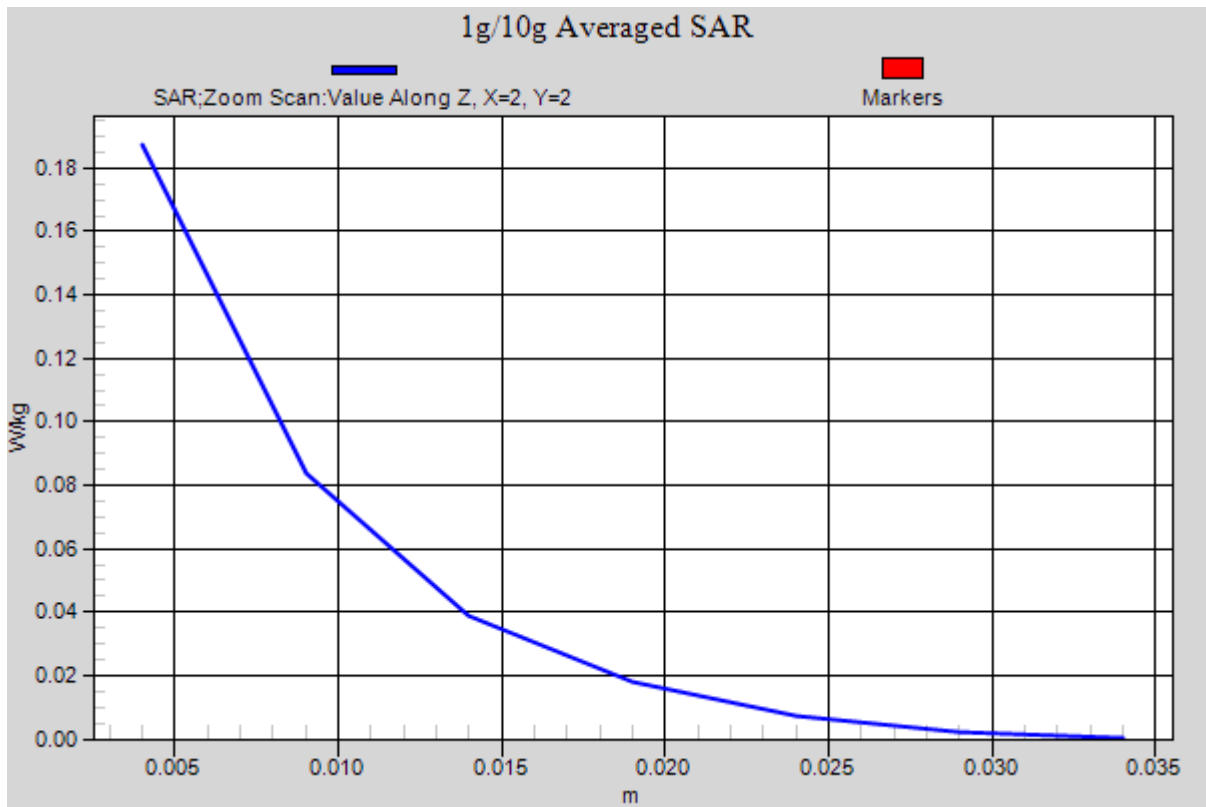


Figure 118 Body, Back Side, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 195 of 254

802.11b Front Side High (Battery 1, Distance 10mm)

Date/Time: 8/5/2013 12:43:53 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.916$ mho/m; $\epsilon_r = 51.651$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.90, 6.90, 6.90); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Front Side High/Area Scan (61x101x1): Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.140 W/kg

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

Reference Value = 6.268 V/m; Power Drift = -0.021 dB

Peak SAR (extrapolated) = 0.258 mW/g

SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.064 mW/g

Maximum value of SAR (measured) = 0.135 W/kg

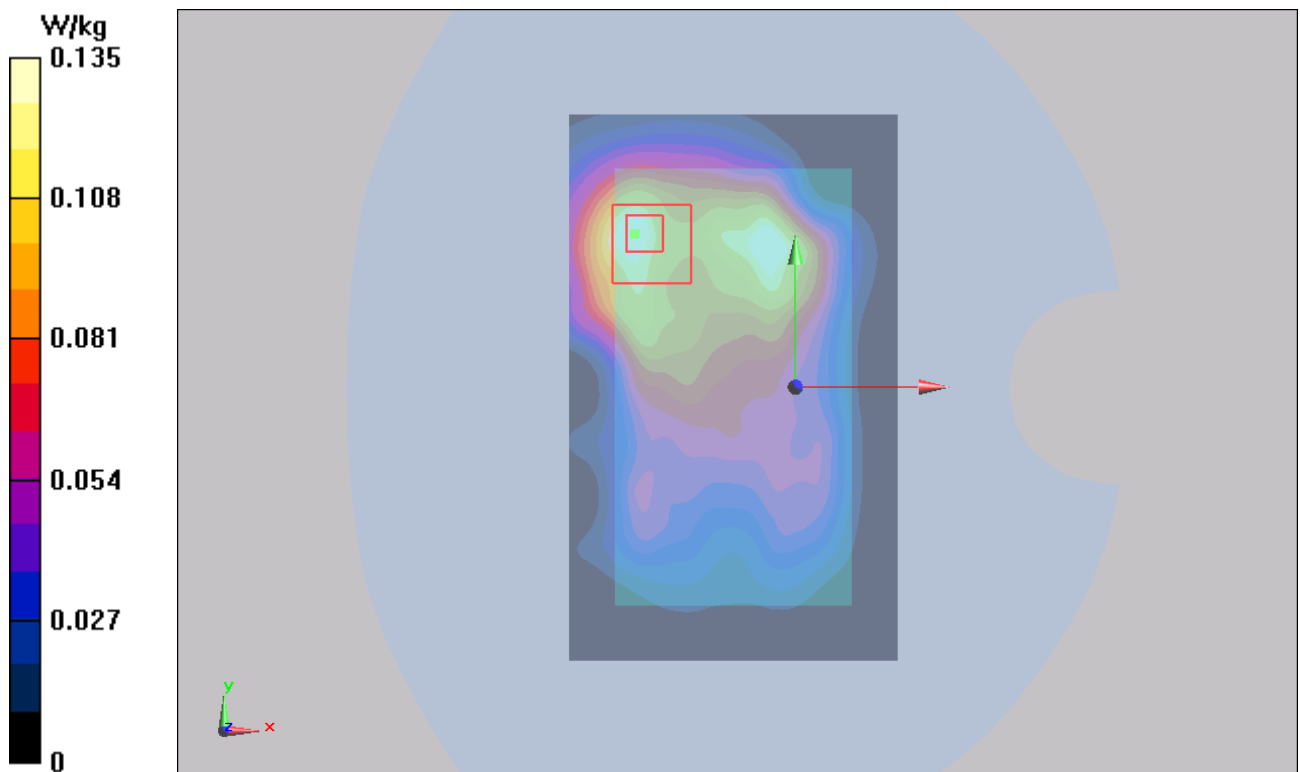


Figure 119 Body, Front Side, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 196 of 254

802.11b Left Edge High (Battery 1, Distance 10mm)

Date/Time: 8/5/2013 11:22:53 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.916$ mho/m; $\epsilon_r = 51.651$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.90, 6.90, 6.90); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Left Edge High/Area Scan (31x101x1): Interpolated grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.188 W/kg

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

Reference Value = 5.016 V/m; Power Drift = 0.055 dB

Peak SAR (extrapolated) = 0.305 mW/g

SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.079 mW/g

Maximum value of SAR (measured) = 0.173 W/kg

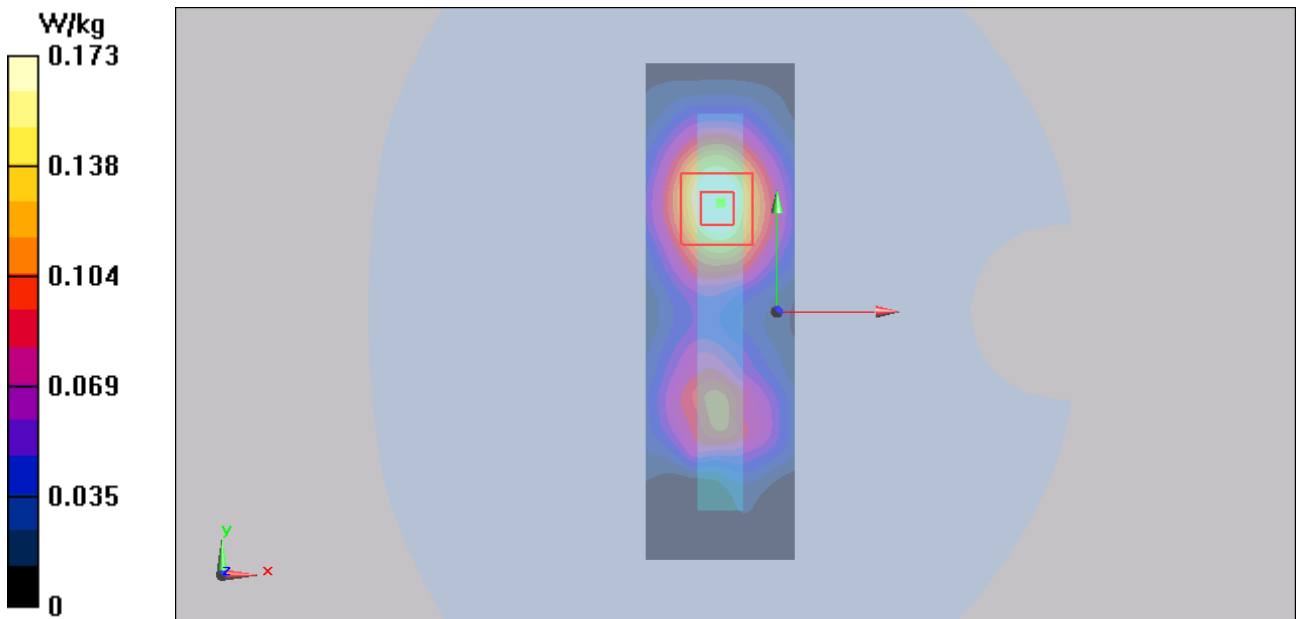


Figure 120 Body, Left Edge, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 197 of 254

802.11b Top Edge High (Battery 1, Distance 10mm)

Date/Time: 8/5/2013 11:37:47 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.916$ mho/m; $\epsilon_r = 51.651$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.90, 6.90, 6.90); Calibrated: 1/17/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Top Edge High/Area Scan (31x61x1): Interpolated grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.170 W/kg

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

Reference Value = 8.959 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.265 mW/g

SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.071 mW/g

Maximum value of SAR (measured) = 0.153 W/kg

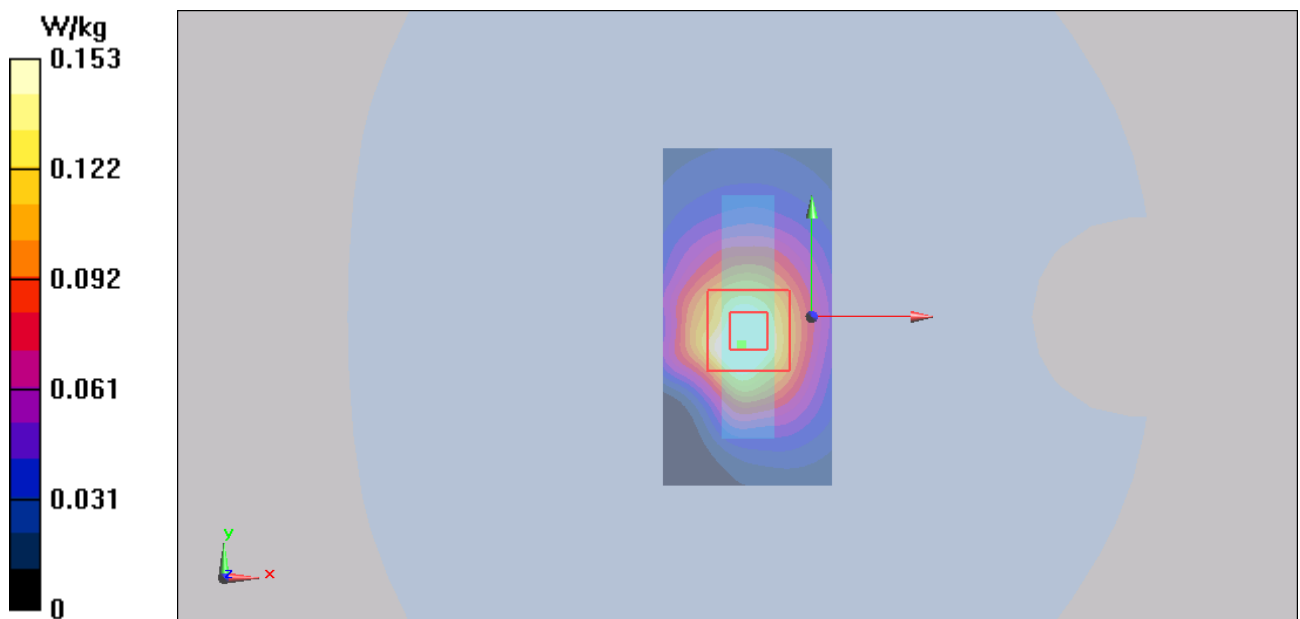


Figure 121 Body, Top Edge, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RXA1307-0086SAR01R2

Page 198 of 254

802.11b Back Side High (Battery 2, Distance 10mm)

Date/Time: 8/5/2013 12:59:40 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3753; ConvF(6.90, 6.90, 6.90); Calibrated: 1/17/2013

Electronics: DAE4 Sn1317; Calibrated: 1/25/2013

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, V52.8 Build 2; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x101x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.138 mW/g

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

Reference Value = 6.02 V/m; Power Drift = 0.111 dB

Peak SAR (extrapolated) = 0.296 W/kg

SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.073 mW/g

Maximum value of SAR (measured) = 0.139 mW/g

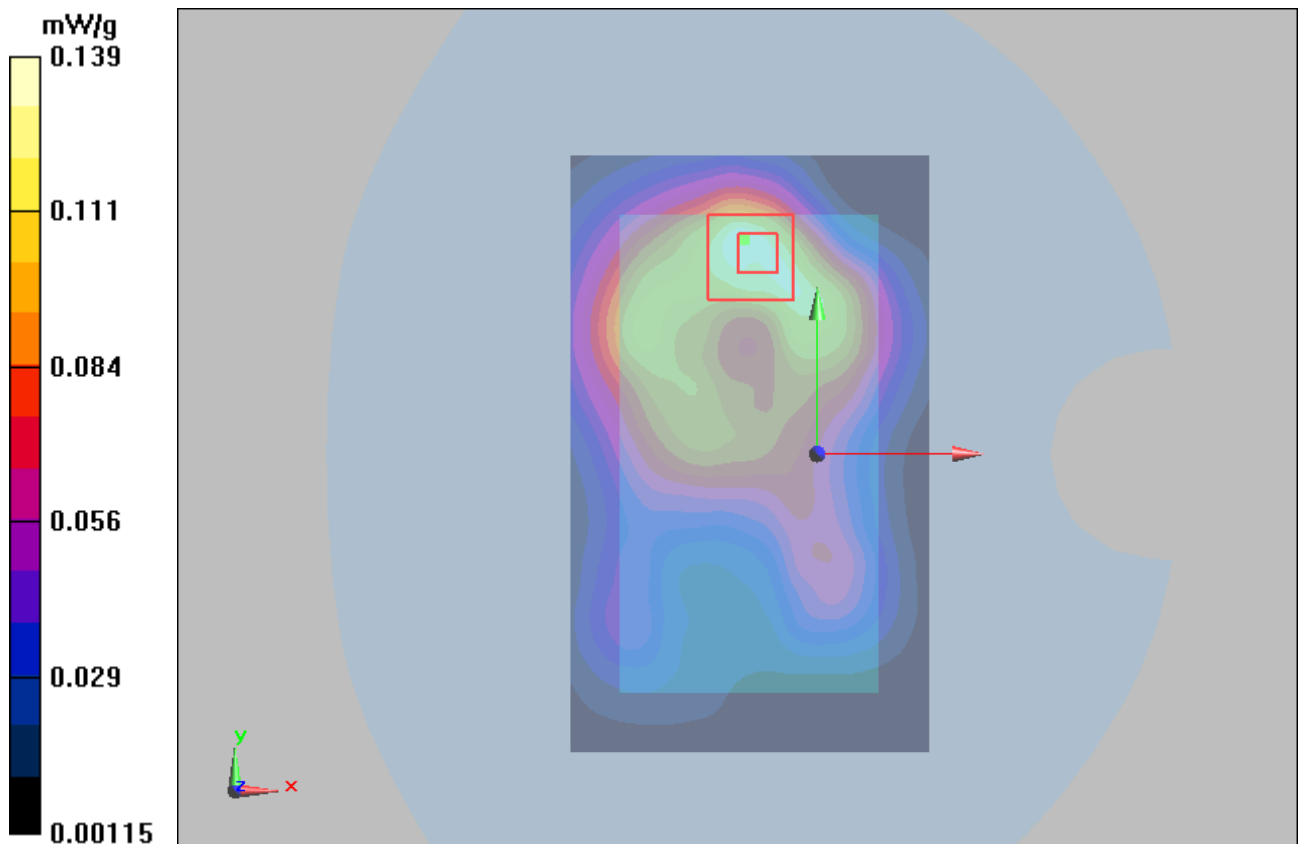


Figure 122 Body, Back Side, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd.

Test Report

ANNEX D: Probe Calibration Certificate

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



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S 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 **Auden**

Certificate No: **EX3-3753_Jan13**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3753**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes**

Calibration date: **January 17, 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)°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	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	28-Dec-12 (No. ES3-3013 Dec12)	Dec-13
DAE4	SN: 660	20-Jun-12 (No. DAE4-660_Jun12)	Jun-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

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

Issued: January 17, 2013

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

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1307-0086SAR01R2

Page 200 of 254

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,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

Calibration is Performed According to the Following Standards:

- 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
- 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:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,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.
- DCP_{x,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
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,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 $f \leq 800$ 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 NORM_{x,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.

EX3DV4 – SN:3753

January 17, 2013

Probe EX3DV4

SN:3753

Manufactured: March 16, 2010
Calibrated: January 17, 2013

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

TA Technology (Shanghai) Co., Ltd.

Test Report

EX3DV4- SN:3753

January 17, 2013

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3753

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.47	0.31	0.45	$\pm 10.1\%$
DCP (mV) ^B	101.8	102.3	102.3	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	163.7	$\pm 3.5\%$
		Y	0.0	0.0	1.0		168.5	
		Z	0.0	0.0	1.0		159.9	

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 E²-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.

TA Technology (Shanghai) Co., Ltd.

Test Report

EX3DV4- SN:3753

January 17, 2013

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3753

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	9.46	9.46	9.46	0.45	0.83	± 12.0 %
835	41.5	0.90	8.95	8.95	8.95	0.26	1.19	± 12.0 %
1750	40.1	1.37	7.86	7.86	7.86	0.52	0.79	± 12.0 %
1900	40.0	1.40	7.63	7.63	7.63	0.54	0.73	± 12.0 %
2000	40.0	1.40	7.50	7.50	7.50	0.53	0.77	± 12.0 %
2450	39.2	1.80	6.86	6.86	6.86	0.44	0.80	± 12.0 %
5200	36.0	4.66	4.65	4.65	4.65	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.48	4.48	4.48	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.46	4.46	4.46	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.51	4.51	4.51	0.35	1.80	± 13.1 %
5800	35.3	5.27	4.36	4.36	4.36	0.45	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.

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Test Report

EX3DV4- SN:3753

January 17, 2013

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3753

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	9.25	9.25	9.25	0.54	0.75	± 12.0 %
835	55.2	0.97	9.05	9.05	9.05	0.68	0.68	± 12.0 %
1750	53.4	1.49	7.82	7.82	7.82	0.50	0.84	± 12.0 %
1900	53.3	1.52	7.33	7.33	7.33	0.31	1.01	± 12.0 %
2000	53.3	1.52	7.43	7.43	7.43	0.57	0.73	± 12.0 %
2300	52.9	1.81	7.07	7.07	7.07	0.74	0.64	± 12.0 %
2450	52.7	1.95	6.90	6.90	6.90	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.66	6.66	6.66	0.80	0.50	± 12.0 %
3500	51.3	3.31	6.30	6.30	6.30	0.38	1.11	± 13.1 %
5200	49.0	5.30	4.38	4.38	4.38	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.13	4.13	4.13	0.50	1.90	± 13.1 %
5500	48.6	5.65	4.09	4.09	4.09	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.10	4.10	4.10	0.45	1.90	± 13.1 %
5800	48.2	6.00	4.02	4.02	4.02	0.55	1.90	± 13.1 %

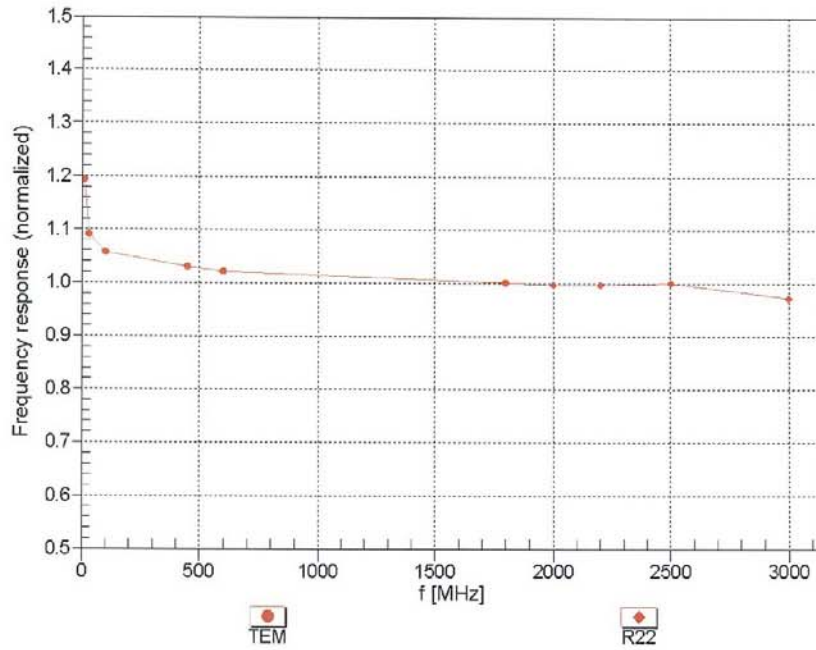
^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^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.

EX3DV4-SN:3753

January 17, 2013

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)

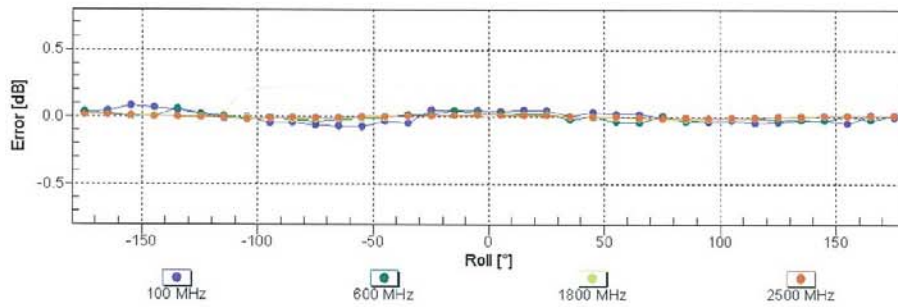
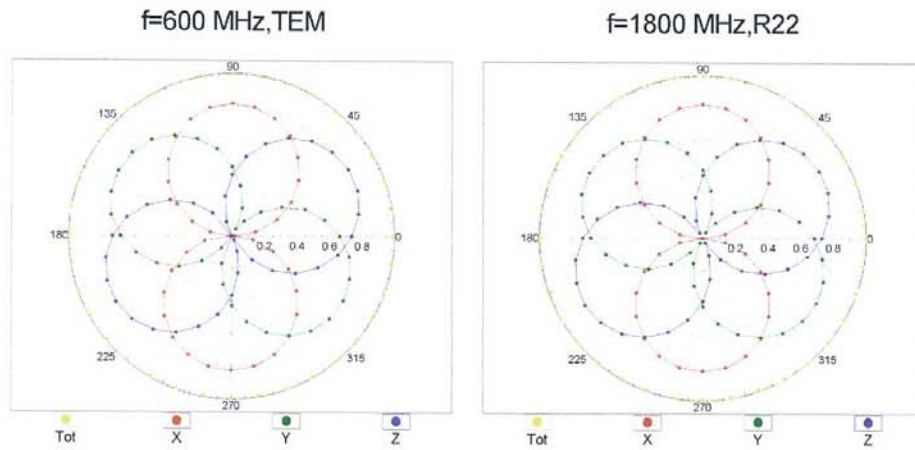


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

EX3DV4-SN:3753

January 17, 2013

Receiving Pattern (ϕ), $\vartheta = 0^\circ$

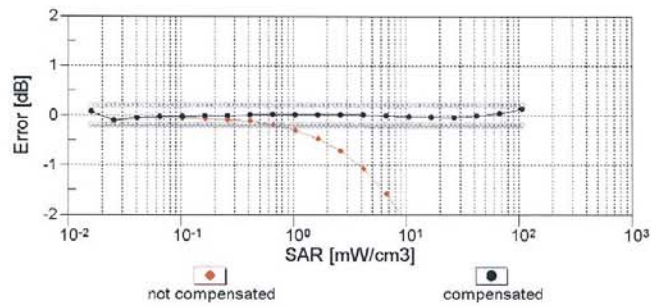
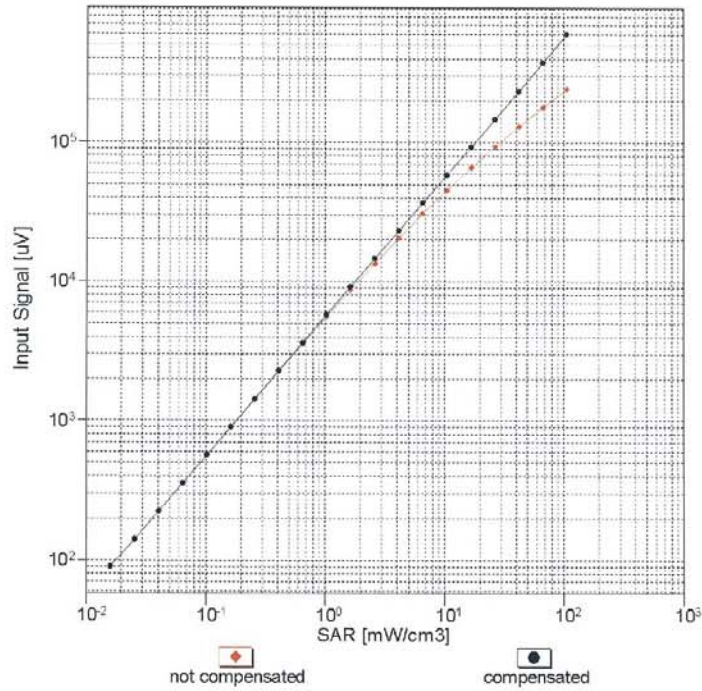


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

EX3DV4- SN:3753

January 17, 2013

Dynamic Range $f(SAR_{head})$
(TEM cell , $f = 900$ MHz)

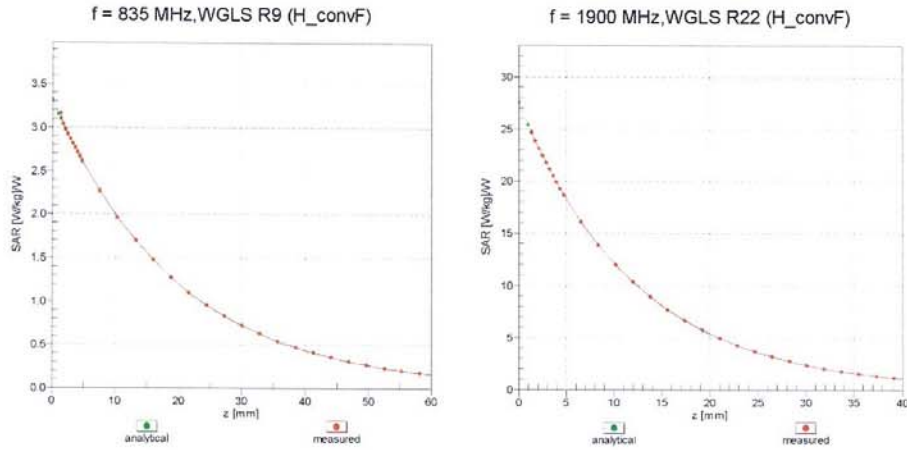


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

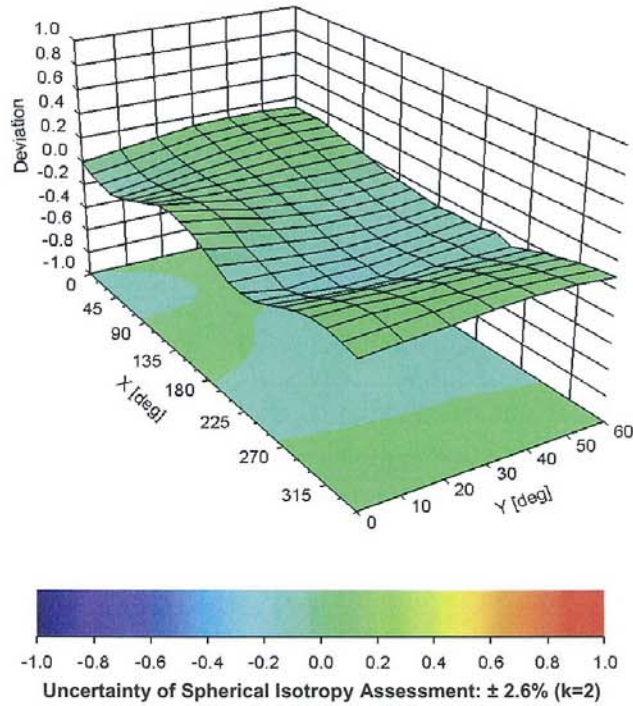
EX3DV4- SN:3753

January 17, 2013

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, ϑ), f = 900 MHz



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Test Report

Report No.: RXA1307-0086SAR01R2

Page 209 of 254

EX3DV4- SN:3753

January 17, 2013

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3753

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	55.2
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

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1307-0086SAR01R2

Page 210 of 254

ANNEX E: D835V2 Dipole Calibration Certificate

**Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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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		
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p>			
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
Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature
Issued: August 26, 2011			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

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Test Report

Report No.: RXA1307-0086SAR01R2

Page 211 of 254

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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "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
- 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
- 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:

- 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.

TA Technology (Shanghai) Co., Ltd.

Test Report

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 cm ³ (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 cm ³ (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 cm ³ (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 cm ³ (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)

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1307-0086SAR01R2

Page 213 of 254

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.9 Ω - 3.1 $j\Omega$
Return Loss	- 27.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.7 Ω - 5.4 $j\Omega$
Return Loss	- 25.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.391 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.

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	April 22, 2004

DASY5 Validation Report for Head TSL

Date: 25.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

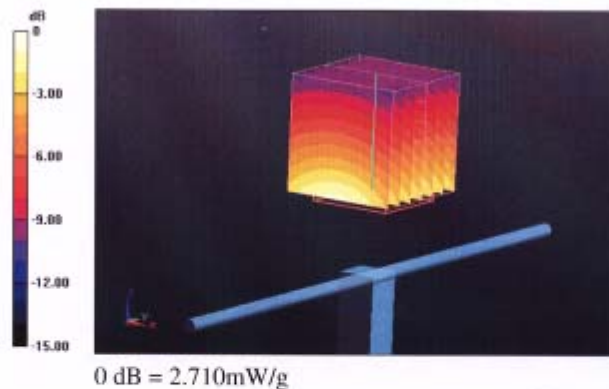
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.930 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.421 W/kg

SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.52 mW/g

Maximum value of SAR (measured) = 2.708 mW/g

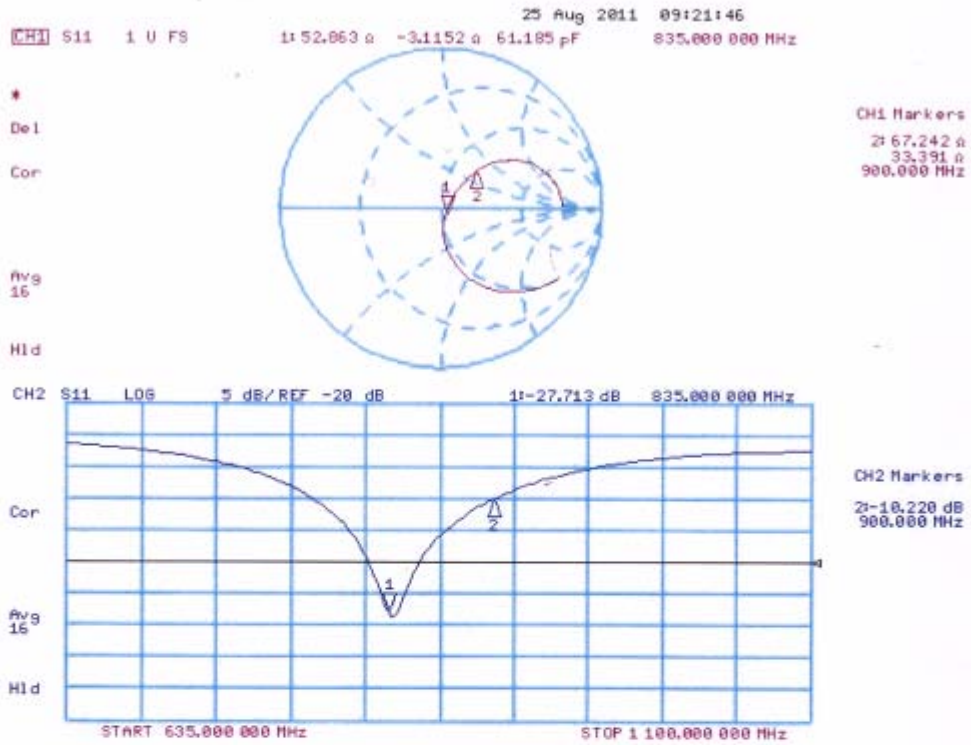


TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 215 of 254

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 26.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $\sigma = 0.99$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

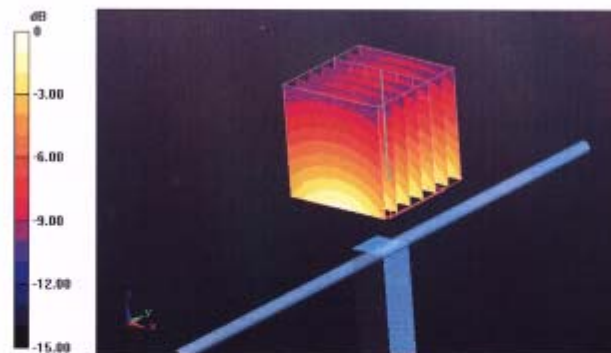
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.406 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.509 W/kg

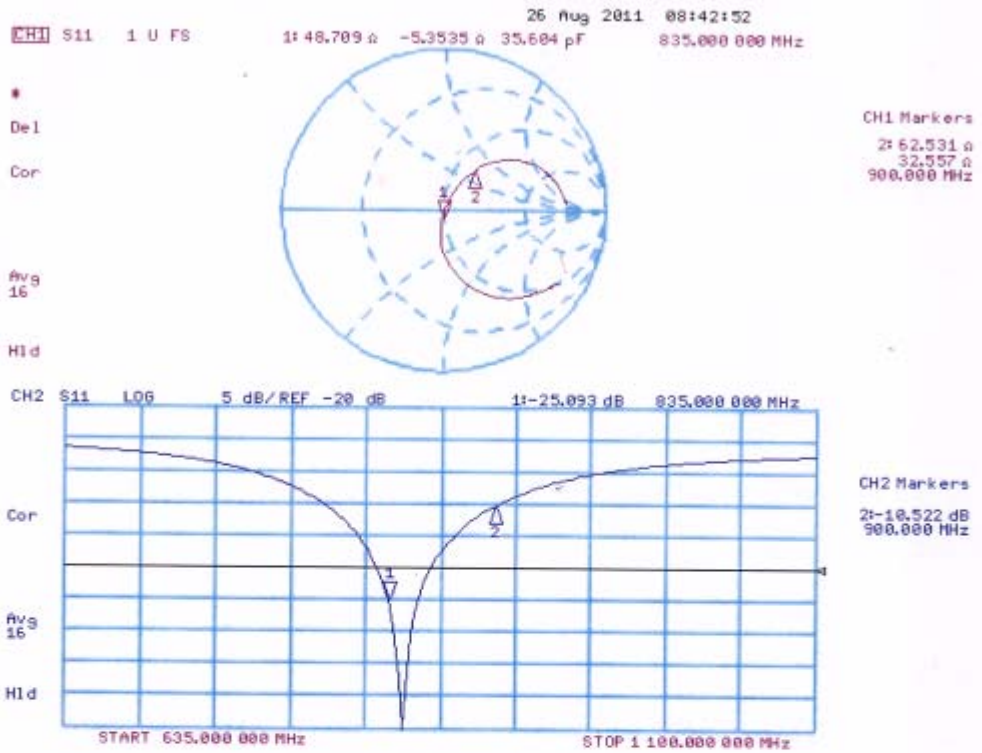
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.827 mW/g



0 dB = 2.830mW/g

Impedance Measurement Plot for Body TSL



TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1307-0086SAR01R2

Page 218 of 254

ANNEX F: D1750V2 Dipole Calibration Certificate

**Calibration Laboratory of
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Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **D1750V2-1023_Jun12**

CALIBRATION CERTIFICATE

Object **D1750V2 - SN: 1023**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **June 20, 2012**

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	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-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-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 20, 2012

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

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1307-0086SAR01R2

Page 219 of 254

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "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
- 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
- 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:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

TA Technology (Shanghai) Co., Ltd.

Test Report

Measurement Conditions

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

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.1 ± 6 %	1.35 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	8.87 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	35.8 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.76 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	19.2 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	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.5 ± 6 %	1.47 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.22 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	37.0 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.97 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	19.9 mW / g ± 16.5 % (k=2)

TA Technology (Shanghai) Co., Ltd.

Test Report

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.9 Ω - 0.3 j Ω
Return Loss	- 51.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.1 Ω + 0.2 j Ω
Return Loss	- 27.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.218 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	August 20, 2009

DASY5 Validation Report for Head TSL

Date: 20.06.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1023

Communication System: CW; Frequency: 1750 MHz

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 40.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.22, 5.22, 5.22); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

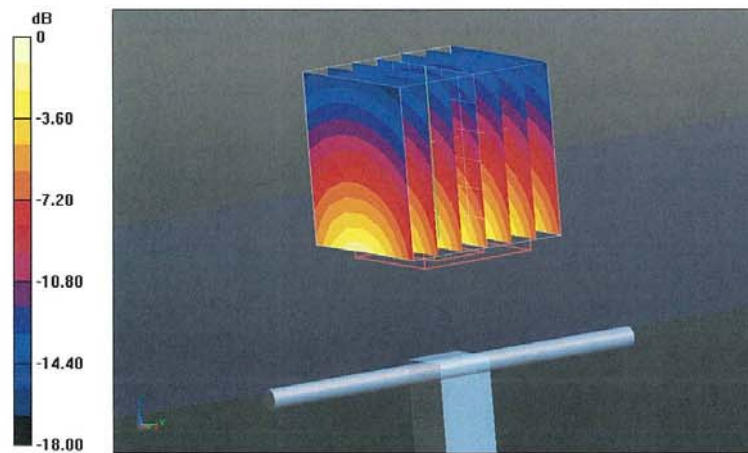
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.248 V/m; Power Drift = 0.06 dB

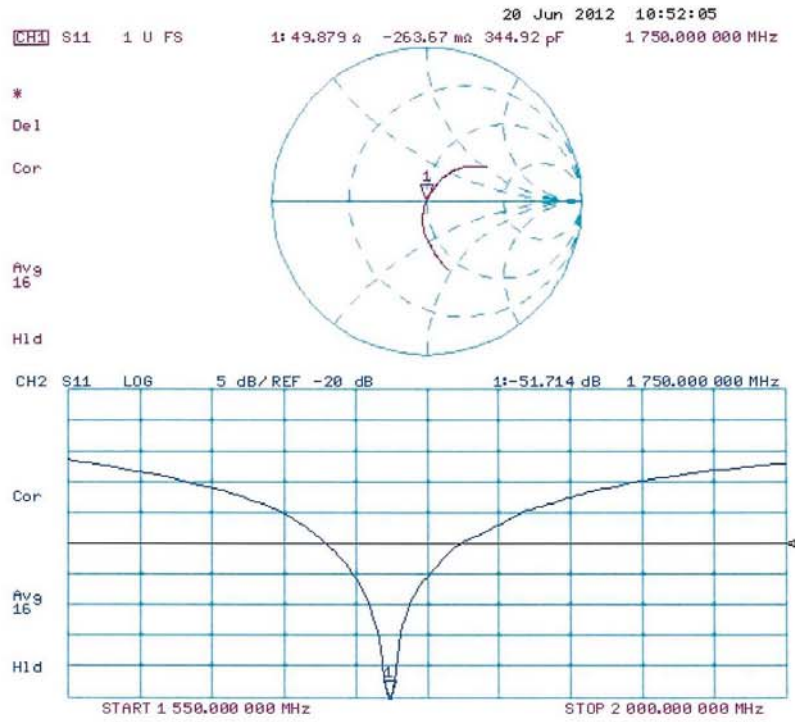
Peak SAR (extrapolated) = 15.623 mW/g

SAR(1 g) = 8.87 mW/g; SAR(10 g) = 4.76 mW/g

Maximum value of SAR (measured) = 10.9 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 20.06.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1023

Communication System: CW; Frequency: 1750 MHz

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.85, 4.85, 4.85); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

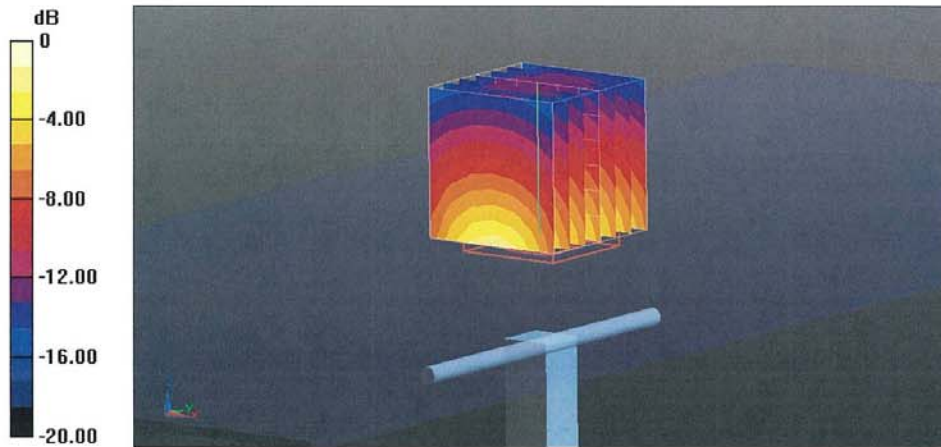
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.628 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 15.781 mW/g

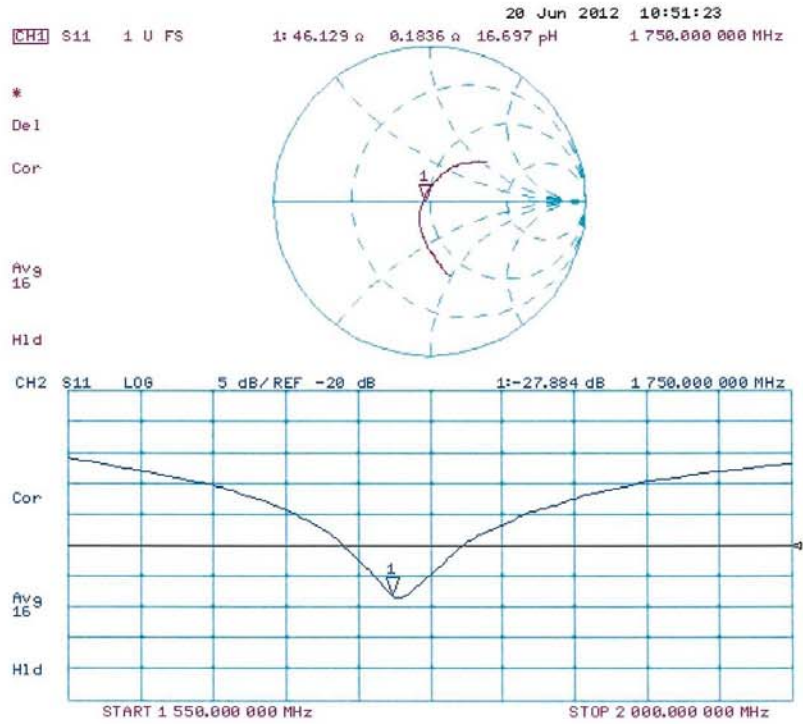
SAR(1 g) = 9.22 mW/g; SAR(10 g) = 4.97 mW/g

Maximum value of SAR (measured) = 11.6 mW/g



0 dB = 11.6 mW/g = 21.29 dB mW/g

Impedance Measurement Plot for Body TSL



TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1307-0086SAR01R2

Page 226 of 254

ANNEX G: D1900V2 Dipole Calibration Certificate

**Calibration Laboratory of
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Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **TA-Shanghai (Auden)**

Certificate No: **D1900V2-5d060_Aug11**

CALIBRATION CERTIFICATE																																															
Object	D1900V2 - SN: 5d060																																														
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz																																														
Calibration date:	August 31, 2011																																														
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Primary Standards</th> <th style="width: 15%;">ID #</th> <th style="width: 30%;">Cal Date (Certificate No.)</th> <th style="width: 25%;">Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM-442A</td> <td>GB37480704</td> <td>06-Oct-10 (No. 217-01266)</td> <td>Oct-11</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292783</td> <td>06-Oct-10 (No. 217-01266)</td> <td>Oct-11</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: S5086 (20b)</td> <td>29-Mar-11 (No. 217-01367)</td> <td>Apr-12</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 5047.2 / 06327</td> <td>29-Mar-11 (No. 217-01371)</td> <td>Apr-12</td> </tr> <tr> <td>Reference Probe ES3DV3</td> <td>SN: 3205</td> <td>29-Apr-11 (No. ES3-3205_Apr11)</td> <td>Apr-12</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>04-Jul-11 (No. DAE4-601_Jul11)</td> <td>Jul-12</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Secondary Standards</th> <th style="width: 15%;">ID #</th> <th style="width: 30%;">Check Date (in house)</th> <th style="width: 25%;">Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>RF generator R&S SMT-06</td> <td>100005</td> <td>04-Aug-99 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-01 (in house check Oct-10)</td> <td>In house check: Oct-11</td> </tr> </tbody> </table>				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
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Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11																																												
Calibrated by:	Name Dimce Iliev	Function Laboratory Technician	Signature 																																												
Approved by:	Name Katja Pokovic	Technical Manager																																													
			Issued: August 31, 2011																																												
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TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1307-0086SAR01R2

Page 227 of 254

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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "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
- 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
- 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:

- 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.

TA Technology (Shanghai) Co., Ltd.

Test Report

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	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.5 ± 6 %	1.42 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.2 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	40.3 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	21.1 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	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	1.57 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	41.7 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.55 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	22.0 mW / g ± 16.5 % (k=2)

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1307-0086SAR01R2

Page 229 of 254

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.6 Ω + 7.5 j Ω
Return Loss	- 22.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.3 Ω + 7.9 j Ω
Return Loss	- 21.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.194 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.

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	December 10, 2004

DASY5 Validation Report for Head TSL

Date: 30.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.42$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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

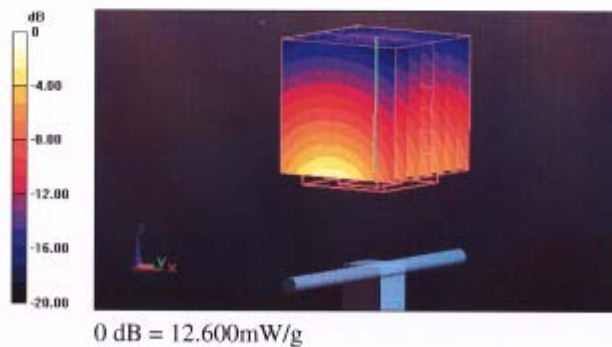
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.636 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 18.535 W/kg

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.3 mW/g

Maximum value of SAR (measured) = 12.600 mW/g

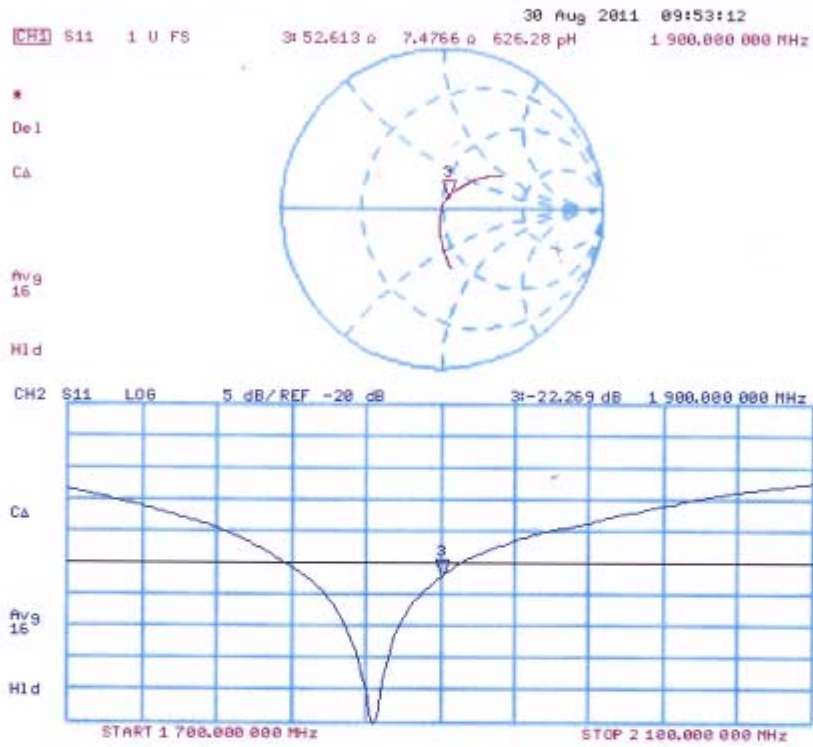


TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 231 of 254

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 31.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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

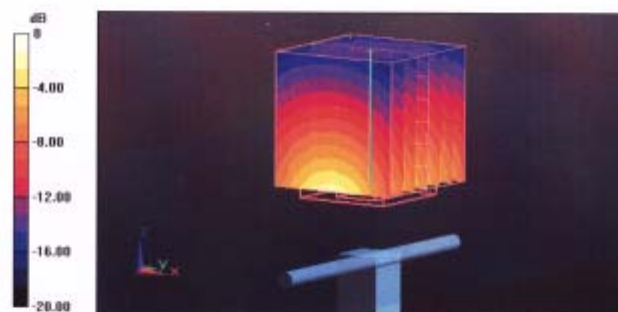
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.435 V/m; Power Drift = -0.0099 dB

Peak SAR (extrapolated) = 18.663 W/kg

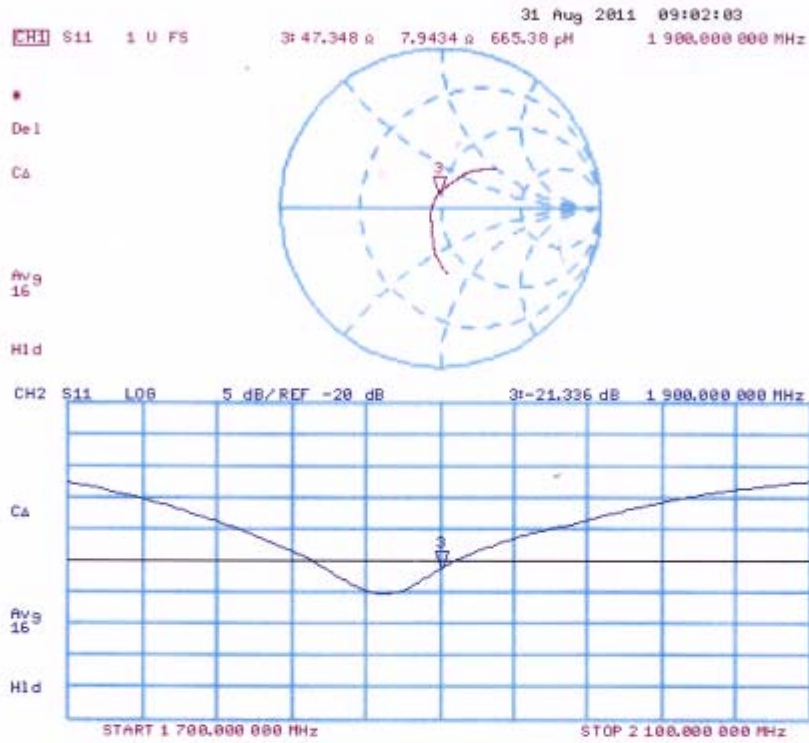
SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.55 mW/g

Maximum value of SAR (measured) = 13.397 mW/g



0 dB = 13.400mW/g

Impedance Measurement Plot for Body TSL



TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 234 of 254

ANNEX H: D2450V2 Dipole Calibration Certificate

**Calibration Laboratory of
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Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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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 **TA-Shanghai (Auden)**

Certificate No: **D2450V2-786_Aug11**

CALIBRATION CERTIFICATE

Object: **D2450V2 - SN: 786**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **August 29, 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

Calibrated by:	Name Dimce Iliev	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Technical Manager	

Issued: August 29, 2011

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Test Report

Report No.: RXA1307-0086SAR01R2

Page 235 of 254

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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "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
- 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
- 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:

- 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.

TA Technology (Shanghai) Co., Ltd.

Test Report

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	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.4 ± 6 %	1.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.7 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	53.8 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.41 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	25.4 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	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.8 ± 6 %	2.02 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	51.7 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.10 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	24.2 mW / g ± 16.5 % (k=2)

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Test Report

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.0 Ω + 2.4 $j\Omega$
Return Loss	- 25.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.4 Ω + 3.5 $j\Omega$
Return Loss	- 29.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.154 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.

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	May 06, 2005

DASY5 Validation Report for Head TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.85$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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

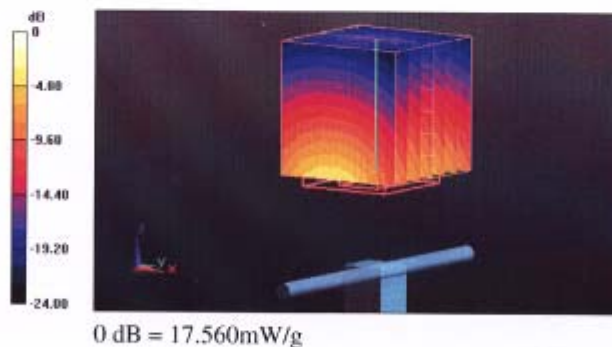
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.5 V/m; Power Drift = 0.06 dB

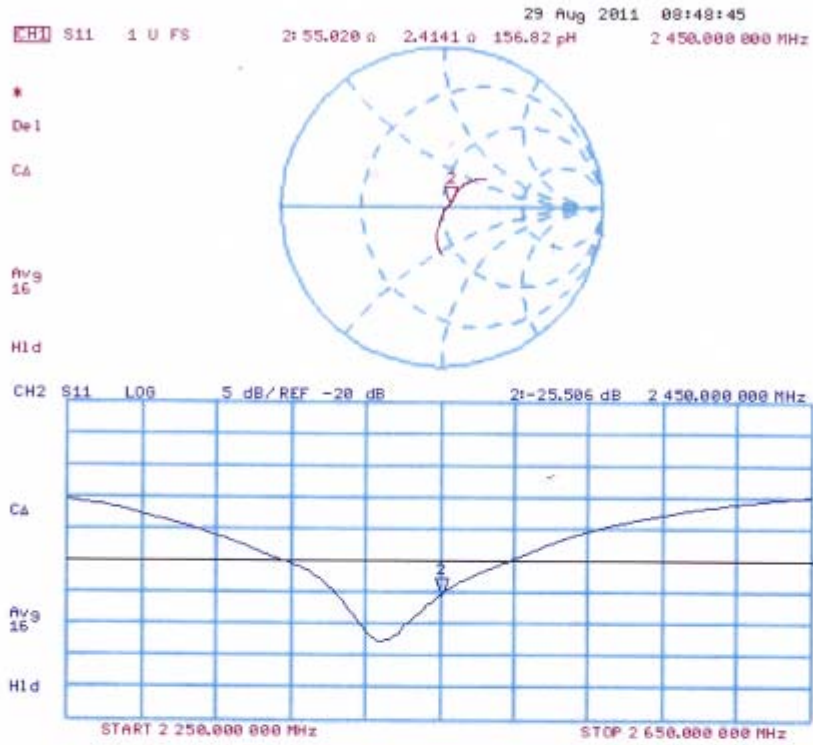
Peak SAR (extrapolated) = 28.303 W/kg

SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.41 mW/g

Maximum value of SAR (measured) = 17.561 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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

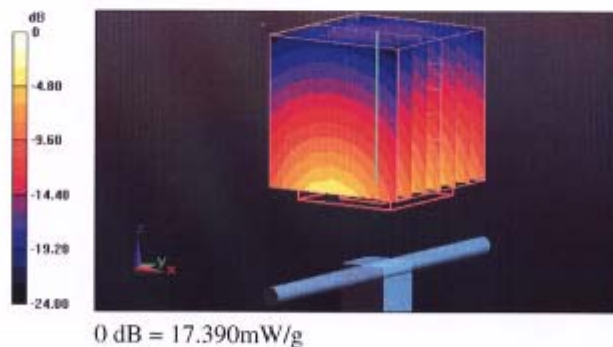
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.118 V/m; Power Drift = 0.0072 dB

Peak SAR (extrapolated) = 27.129 W/kg

SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.1 mW/g

Maximum value of SAR (measured) = 17.387 mW/g

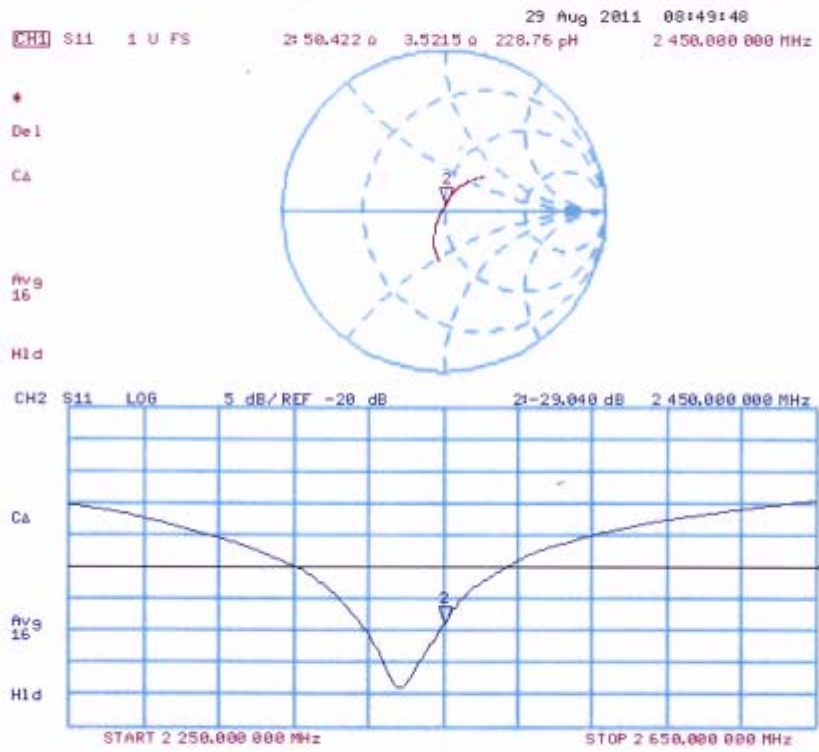


TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 241 of 254

Impedance Measurement Plot for Body TSL



TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1307-0086SAR01R2

Page 242 of 254

ANNEX I: DAE4 Calibration Certificate

**Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Client **TA Shanghai (Auden)**

Certificate No: **DAE4-1317_Jan13**

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BJ - SN: 1317**

Calibration procedure(s) **QA CAL-06.v25
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **January 25, 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)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	02-Oct-12 (No:12728)	Oct-13
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	07-Jan-13 (in house check)	In house check: Jan-14
Calibrator Box V2.1	SE UMS 006 AA 1002	07-Jan-13 (in house check)	In house check: Jan-14

	Name	Function	Signature
Calibrated by:	R. Mayoraz	Technician	<i>R. Mayoraz</i>
Approved by:	Fin Bomholt	Deputy Technical Manager	<i>Fin Bomholt</i>

Issued: January 25, 2013

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Test Report

Report No.: RXA1307-0086SAR01R2

Page 243 of 254

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Accreditation No.: **SCS 108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

TA Technology (Shanghai) Co., Ltd.
Test Report

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.011 \pm 0.02% (k=2)	404.006 \pm 0.02% (k=2)	403.901 \pm 0.02% (k=2)
Low Range	3.98819 \pm 1.55% (k=2)	3.99805 \pm 1.55% (k=2)	3.98192 \pm 1.55% (k=2)

Connector Angle

Connector Angle to be used in DASY system	117 $^{\circ}$ \pm 1 $^{\circ}$
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TA Technology (Shanghai) Co., Ltd.

Test Report

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199994.16	-0.78	-0.00
Channel X	+ Input	20000.75	0.37	0.00
Channel X	- Input	-19997.98	2.89	-0.01
Channel Y	+ Input	199995.20	0.02	0.00
Channel Y	+ Input	19999.08	-1.15	-0.01
Channel Y	- Input	-20002.66	-1.68	0.01
Channel Z	+ Input	199994.67	-0.43	-0.00
Channel Z	+ Input	19997.92	-2.31	-0.01
Channel Z	- Input	-20000.66	0.26	-0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.23	0.59	0.03
Channel X	+ Input	201.53	0.55	0.28
Channel X	- Input	-198.20	0.62	-0.31
Channel Y	+ Input	2000.33	-0.29	-0.01
Channel Y	+ Input	200.43	-0.68	-0.34
Channel Y	- Input	-199.64	-0.69	0.35
Channel Z	+ Input	2000.78	0.22	0.01
Channel Z	+ Input	200.32	-0.69	-0.34
Channel Z	- Input	-199.27	-0.35	0.18

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-23.69	-25.75
	- 200	28.59	26.45
Channel Y	200	-1.44	-1.70
	- 200	-0.06	-0.16
Channel Z	200	-10.76	-11.18
	- 200	9.82	9.91

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	1.52	-4.72
Channel Y	200	8.54	-	4.31
Channel Z	200	10.79	5.34	-

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Test Report

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16104	15986
Channel Y	16111	15993
Channel Z	16217	16069

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	1.28	0.53	2.45	0.33
Channel Y	-1.29	-2.89	0.51	0.58
Channel Z	-0.39	-1.47	1.06	0.37

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

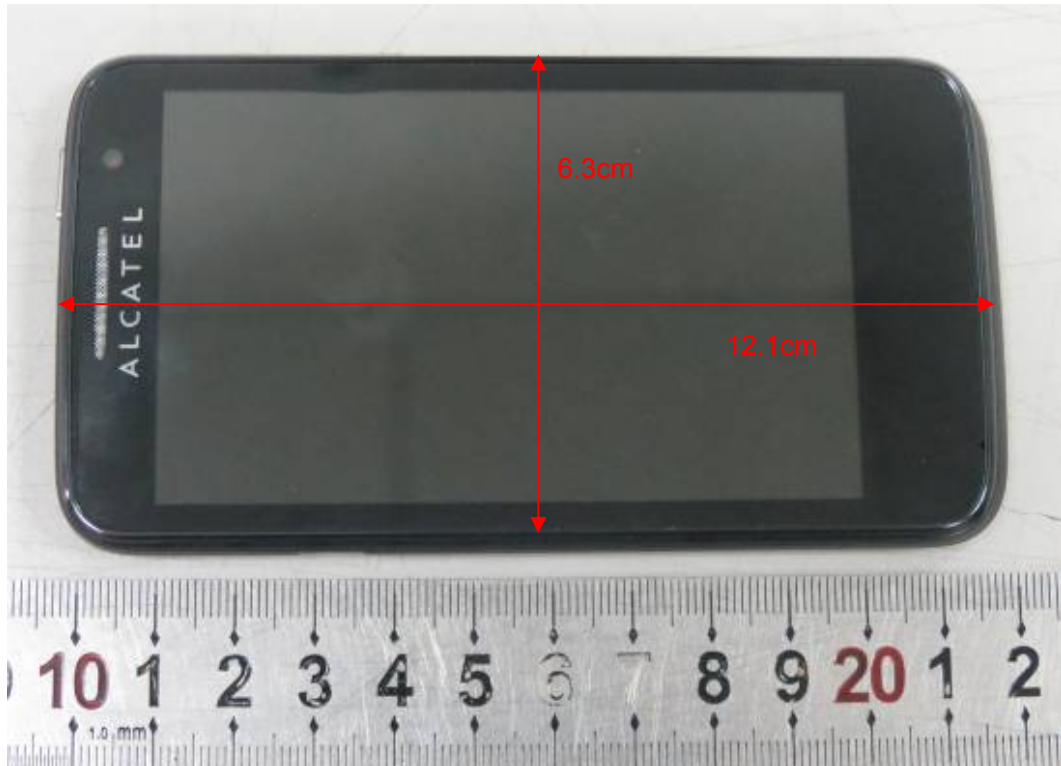
8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

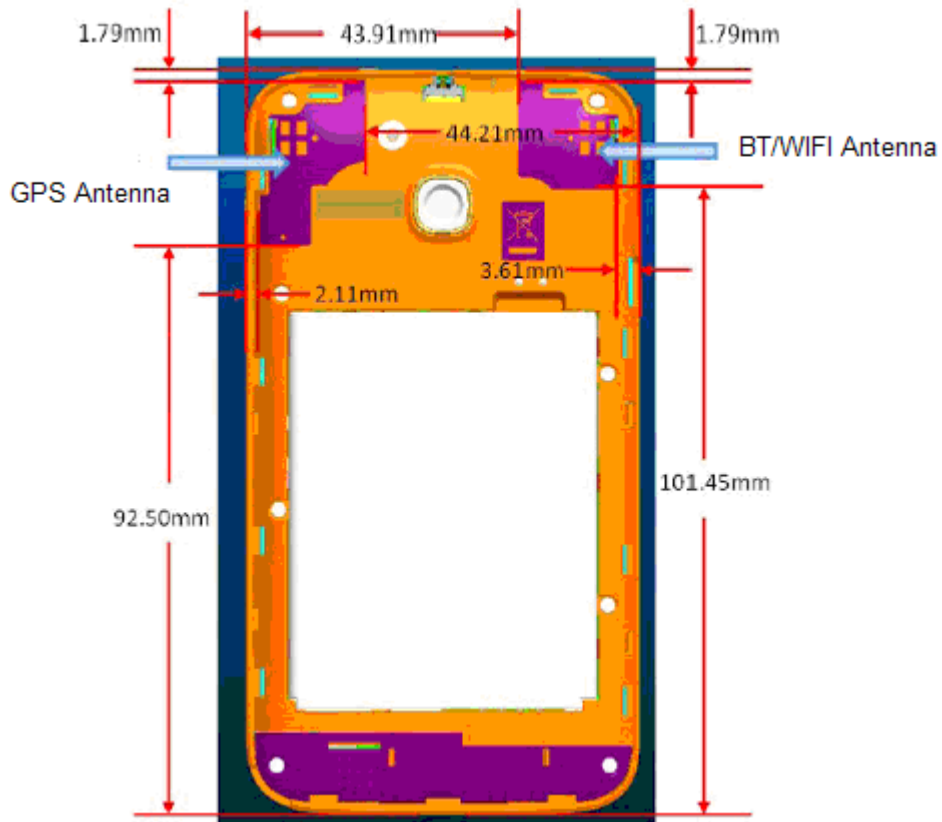
ANNEX J: The EUT Appearances and Test Configuration



a: EUT



b: Battery



c: Back View

Picture 10: Constituents of EUT