

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

Report No.: RXA1312-0223SAR01R1

Page 82 of 162

GSM 1900 Right Cheek Middle

Date/Time: 1/5/2014 1:52:48 AM

Communication System: GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.413$ mho/m; $\epsilon_r = 39.689$; $\rho = 1000$ 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 Middle /Area Scan (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.151 W/kg

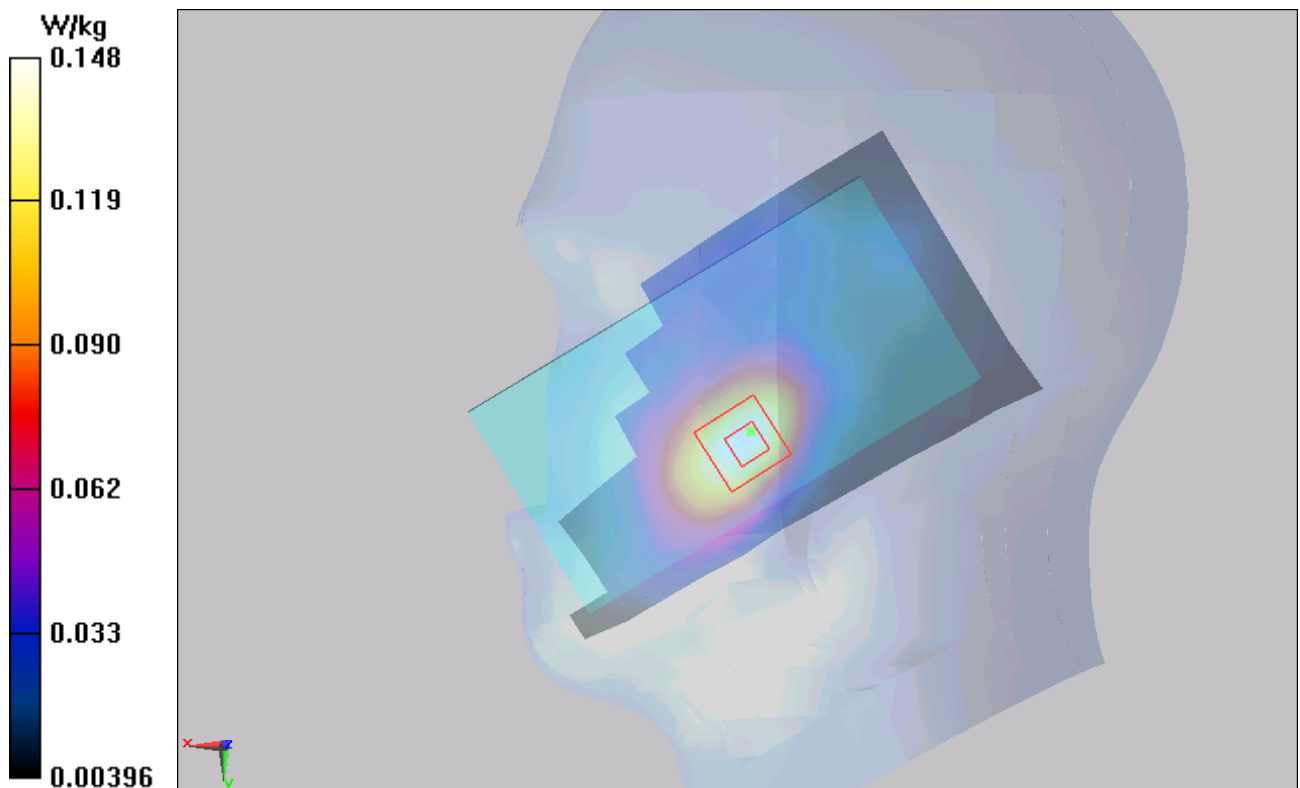
Right Cheek Middle /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.253 V/m; Power Drift = 0.157 dB

Peak SAR (extrapolated) = 0.208 mW/g

SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.083 mW/g

Maximum value of SAR (measured) = 0.148 W/kg



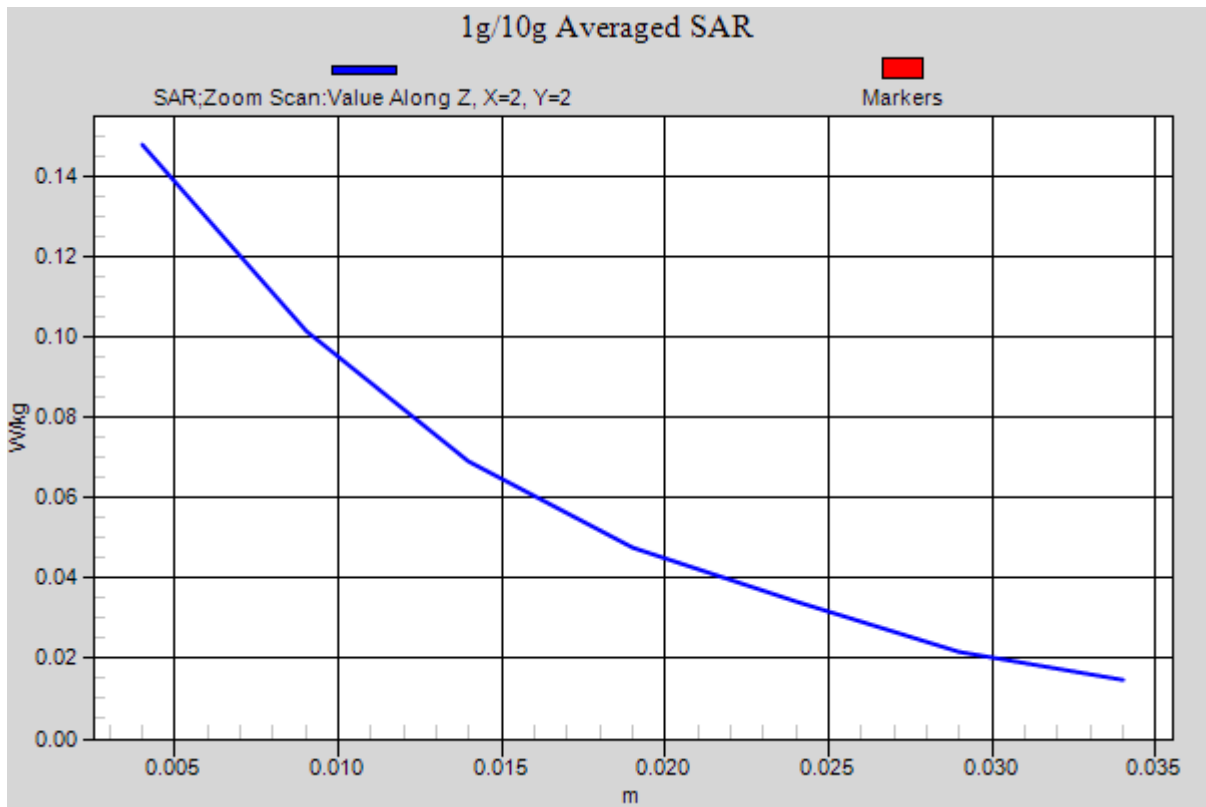


Figure 39 Right Hand Touch Cheek GSM 1900 Channel 661

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

Report No.: RXA1312-0223SAR01R1

Page 84 of 162

GSM 1900 Right Cheek Low

Date/Time: 1/4/2014 10:32:12 PM

Communication System: GSM; Frequency: 1850.2 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.386$ mho/m; $\epsilon_r = 39.813$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.136 W/kg

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

Reference Value = 3.444 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 0.193 mW/g

SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.079 mW/g

Maximum value of SAR (measured) = 0.135 W/kg

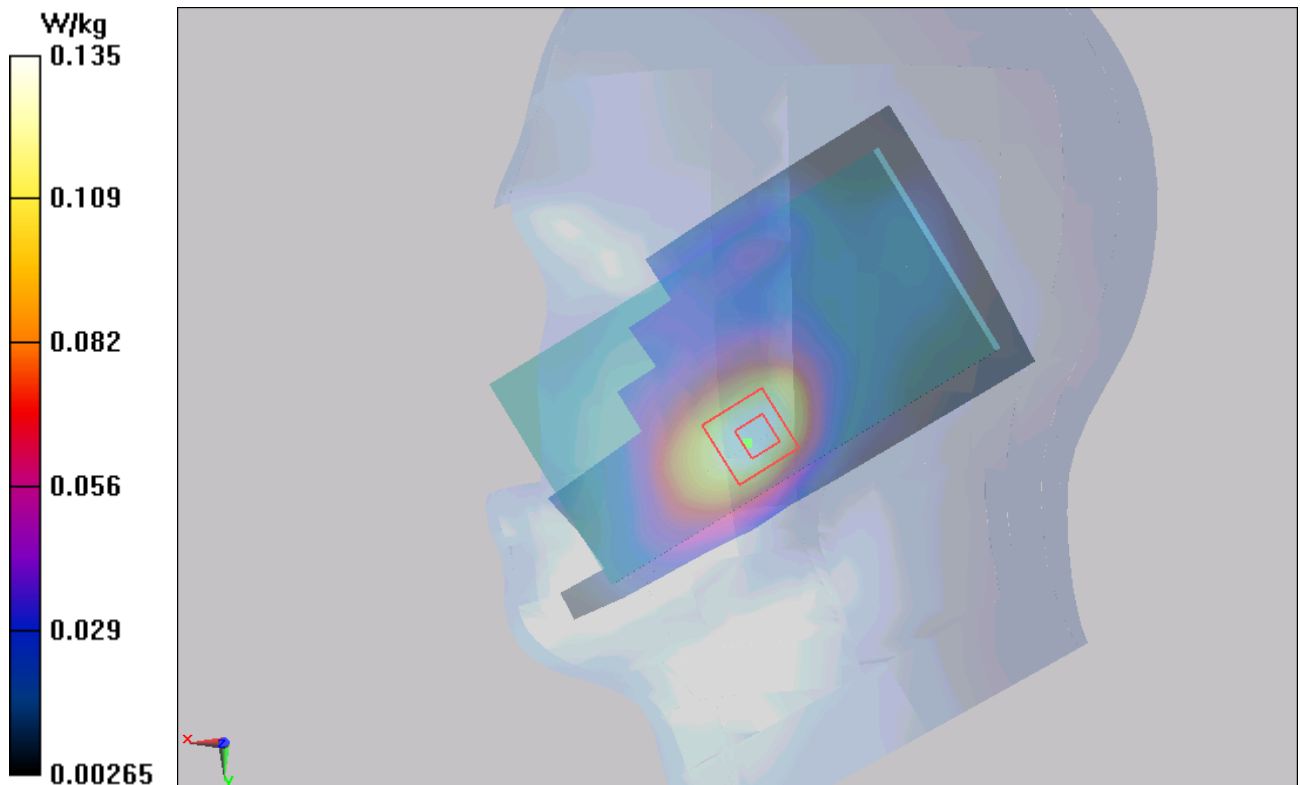


Figure 40 Right Hand Touch Cheek GSM 1900 Channel 512

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

Report No.: RXA1312-0223SAR01R1

Page 85 of 162

GSM 1900 Right Tilt High

Date/Time: 1/4/2014 11:22:56 PM

Communication System: GSM; Frequency: 1909.8 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.607$; $\rho = 1000$ 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 Tilt High /Area Scan (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.0651 W/kg

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

Reference Value = 4.247 V/m; Power Drift = 0.052 dB

Peak SAR (extrapolated) = 0.074 mW/g

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.0475 W/kg

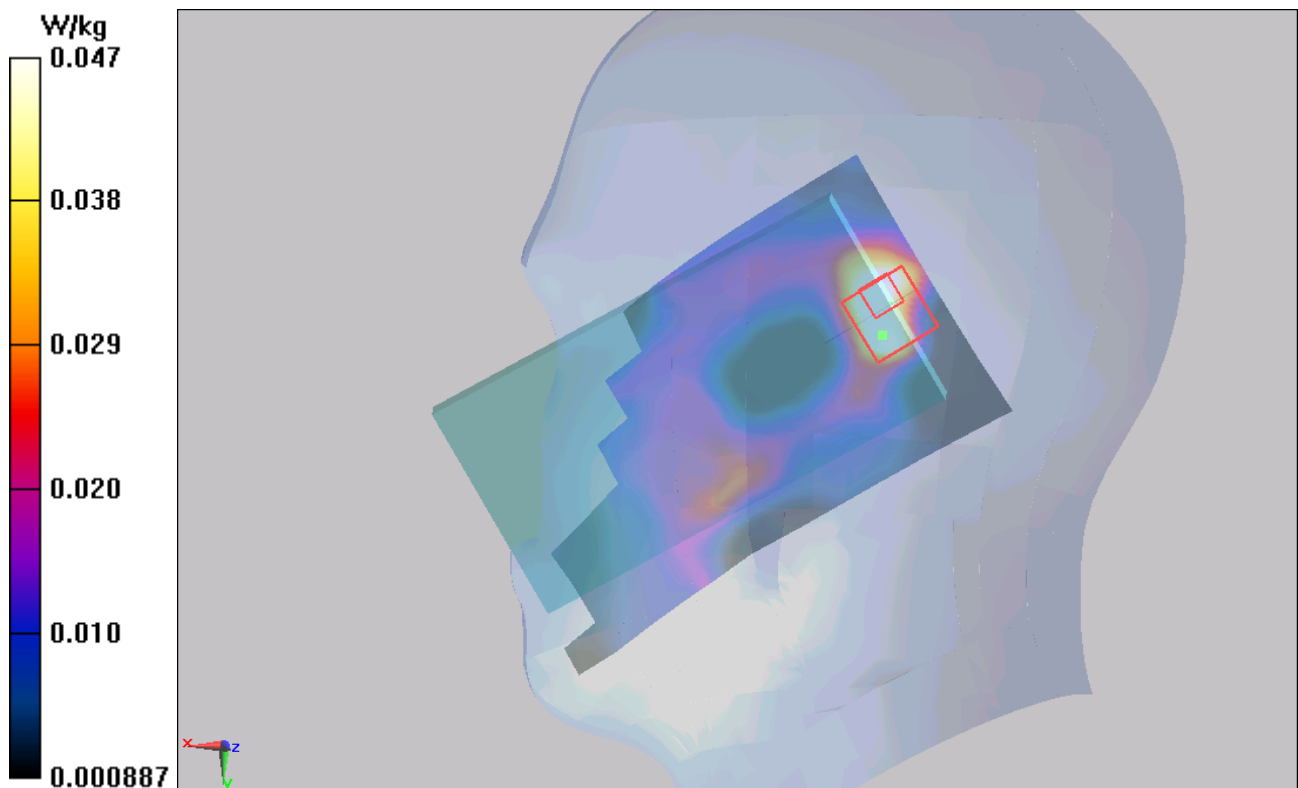


Figure 41 Right Hand Tilt 15° GSM 1900 Channel 810

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

Report No.: RXA1312-0223SAR01R1

Page 86 of 162

GSM 1900 Right Tilt Middle

Date/Time: 1/4/2014 11:05:52 PM

Communication System: GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.413$ mho/m; $\epsilon_r = 39.689$; $\rho = 1000$ 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 Tilt Middle /Area Scan (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.0447 W/kg

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

Reference Value = 4.315 V/m; Power Drift = 0.052 dB

Peak SAR (extrapolated) = 0.073 mW/g

SAR(1 g) = 0.043 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.0472 W/kg

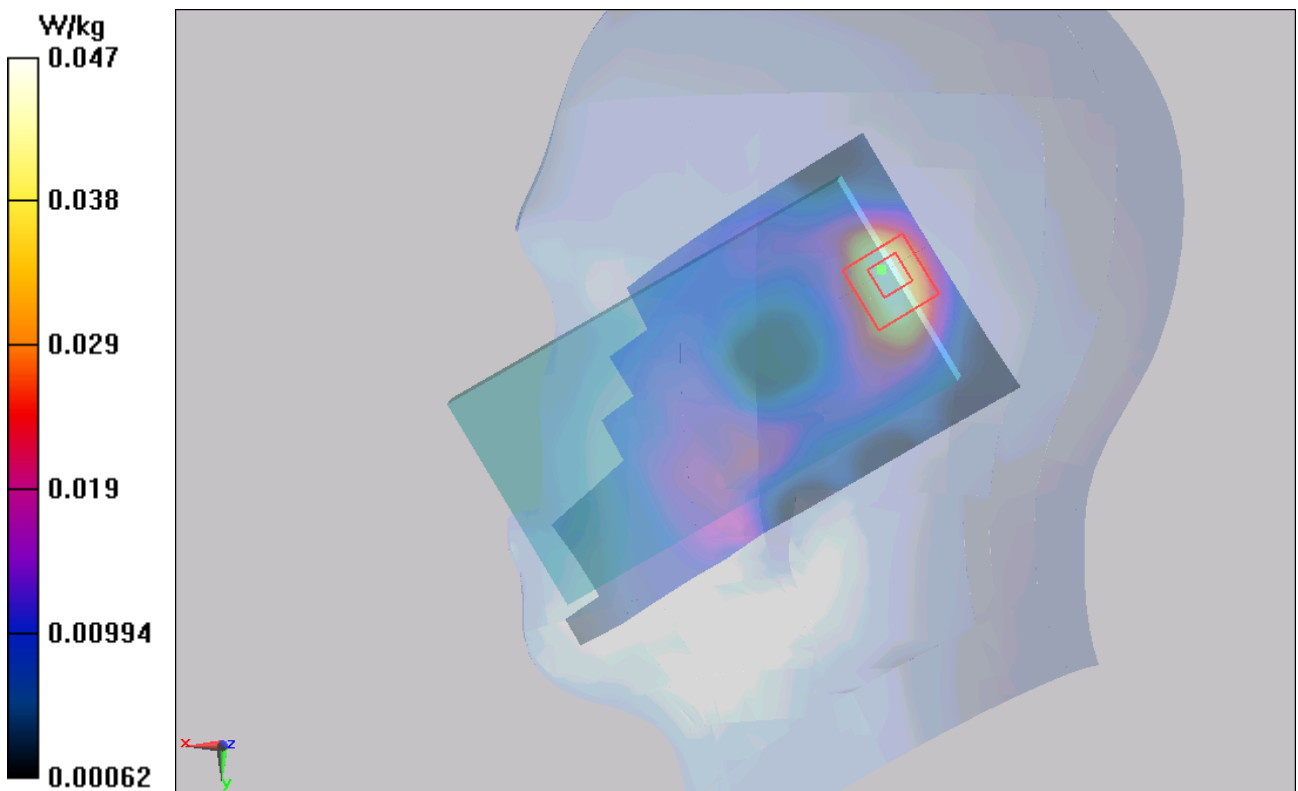


Figure 42 Right Hand Tilt 15° GSM 1900 Channel 661

GSM 1900 Right Tilt Low

Date/Time: 1/4/2014 10:49:04 PM

Communication System: GSM; Frequency: 1850.2 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.386$ mho/m; $\epsilon_r = 39.813$; $\rho = 1000$ 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 Tilt Low /Area Scan (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.0462 W/kg

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

Reference Value = 4.713 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.073 mW/g

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.0468 W/kg

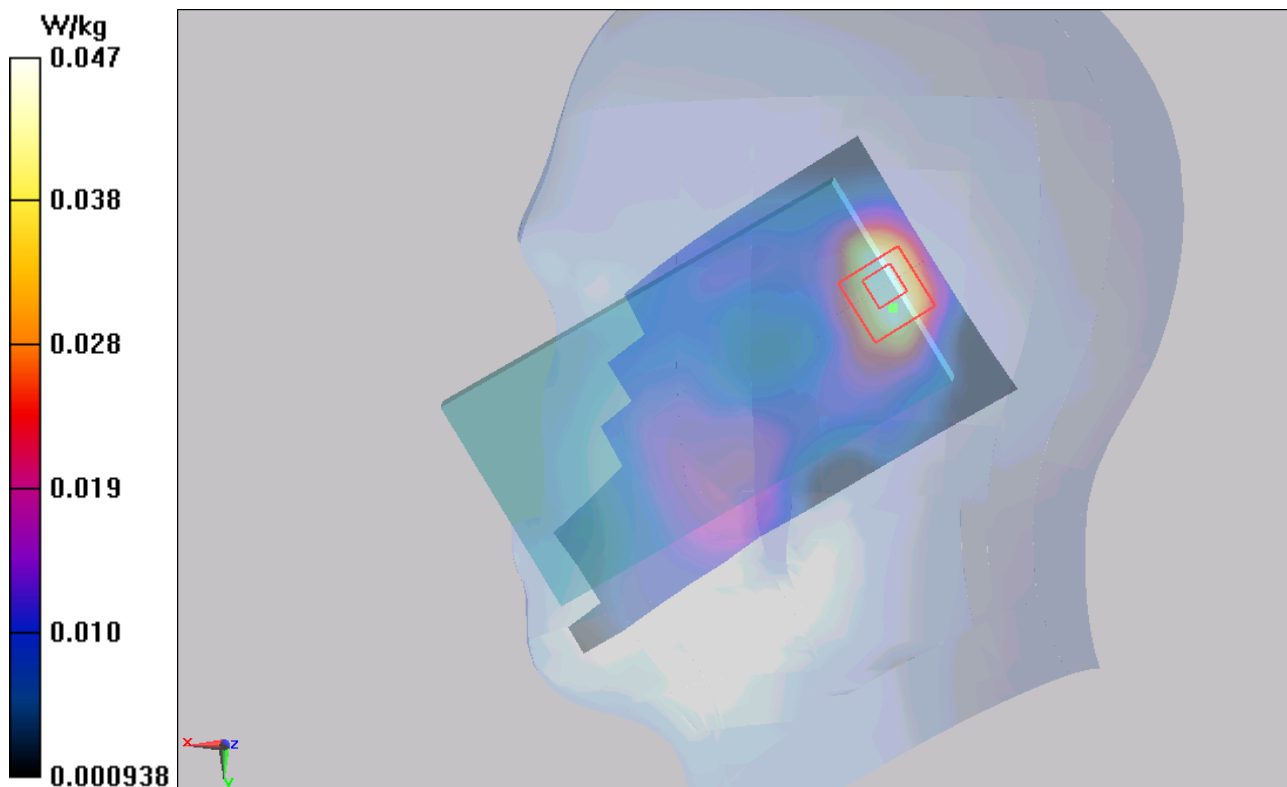


Figure 43 Right Hand Tilt 15° GSM 1900 Channel 512

GSM 1900 Right Cheek Middle (Battery 2)

Date/Time: 1/4/2014 1:21:49 AM

Communication System: GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.413$ mho/m; $\epsilon_r = 39.689$; $\rho = 1000$ 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 Middle /Area Scan (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

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

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

Reference Value = 2.574 V/m; Power Drift = -0.149 dB

Peak SAR (extrapolated) = 0.193 mW/g

SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.078 mW/g

Maximum value of SAR (measured) = 0.134 W/kg

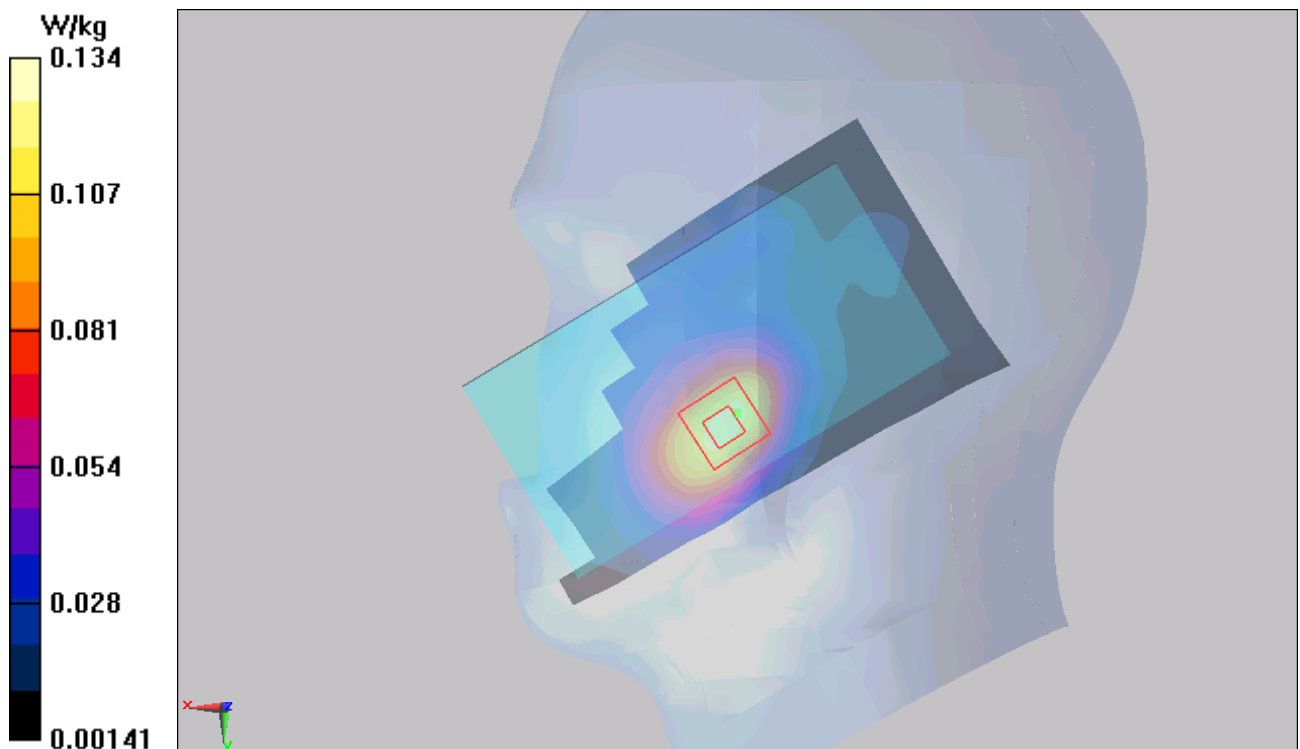


Figure 44 Right Hand Touch Cheek GSM 1900 Channel 661

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

Report No.: RXA1312-0223SAR01R1

Page 89 of 162

GSM 1900 GPRS (3Txslots) Back Side Middle

Date/Time: 1/5/2014 3:50:42 PM

Communication System: GPRS 3TX; Frequency: 1880 MHz; Duty Cycle: 1:2.76694

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.504$ mho/m; $\epsilon_r = 53.137$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.410 W/kg

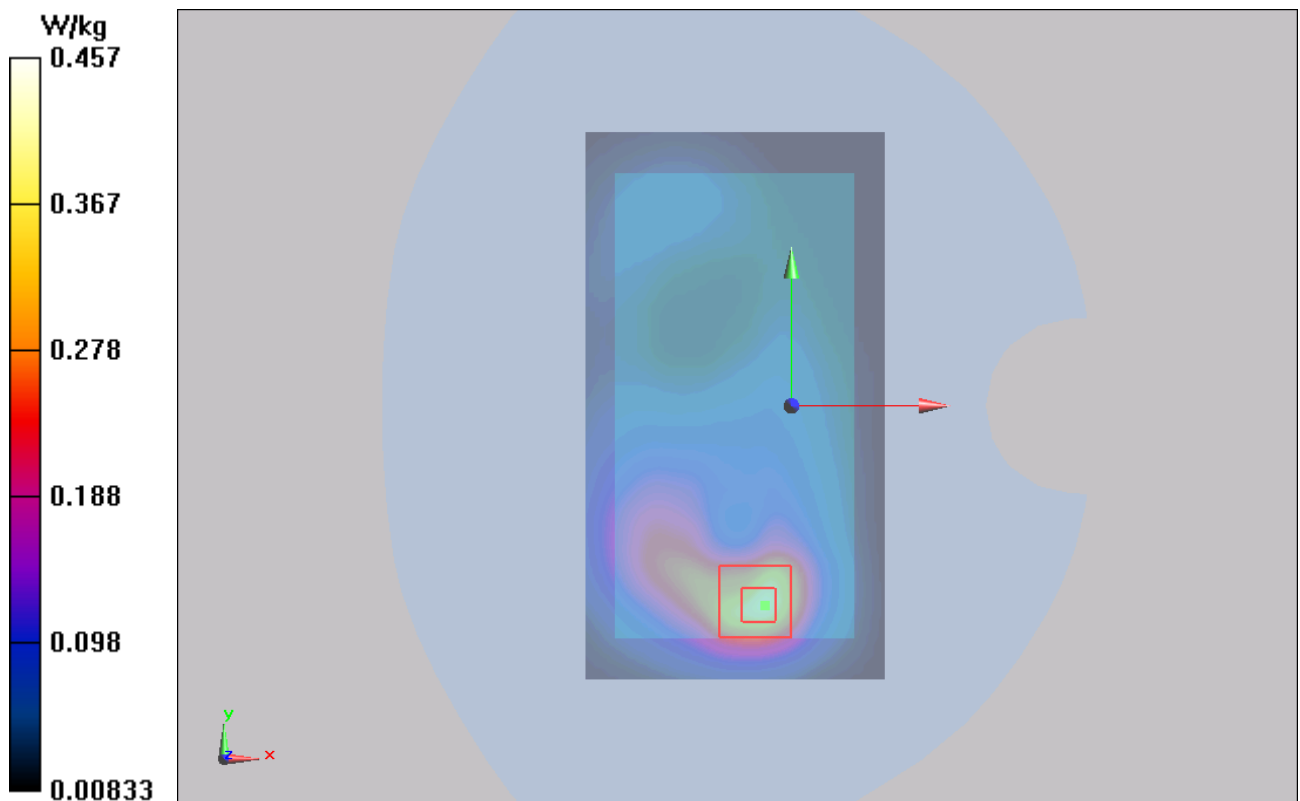
Back Side Middle /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.548 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.702 mW/g

SAR(1 g) = 0.397 mW/g; SAR(10 g) = 0.210 mW/g

Maximum value of SAR (measured) = 0.457 W/kg



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

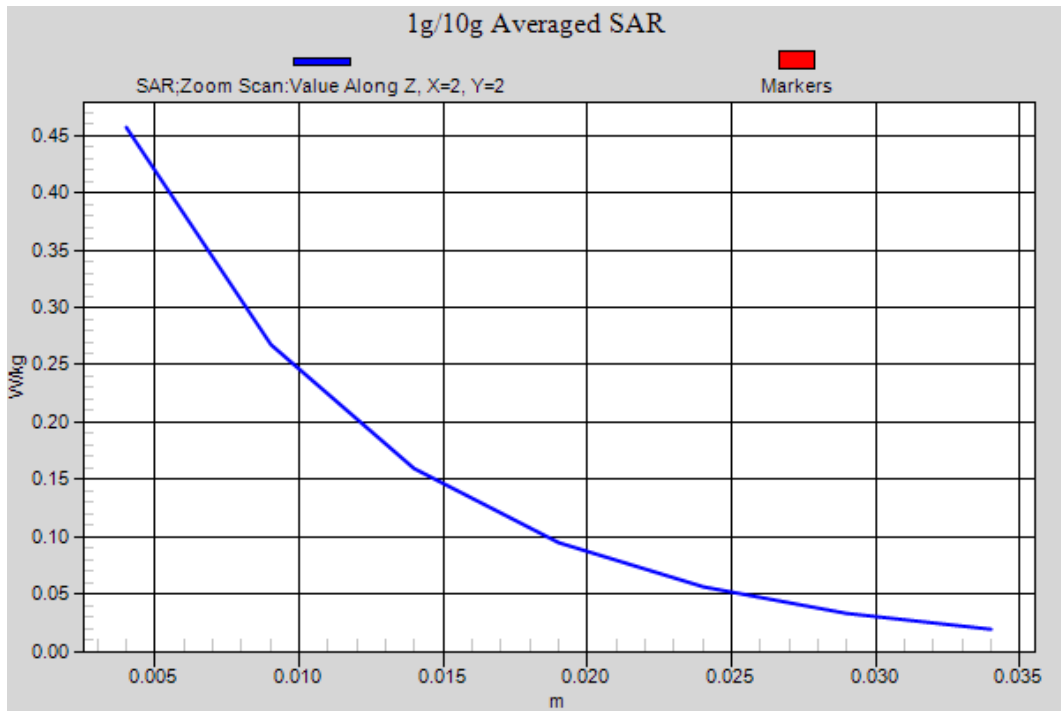


Figure 45 Body, Back Side, GSM 1900 GPRS (3Txslots) Channel 661

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

Report No.: RXA1312-0223SAR01R1

Page 91 of 162

GSM 1900 GPRS (3Txslots) Front Side Middle

Date/Time: 1/5/2014 3:31:45 PM

Communication System: GPRS 3TX; Frequency: 1880 MHz; Duty Cycle: 1:2.76694

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.504$ mho/m; $\epsilon_r = 53.137$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.230 W/kg

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

Reference Value = 4.753 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 0.333 mW/g

SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.135 mW/g

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

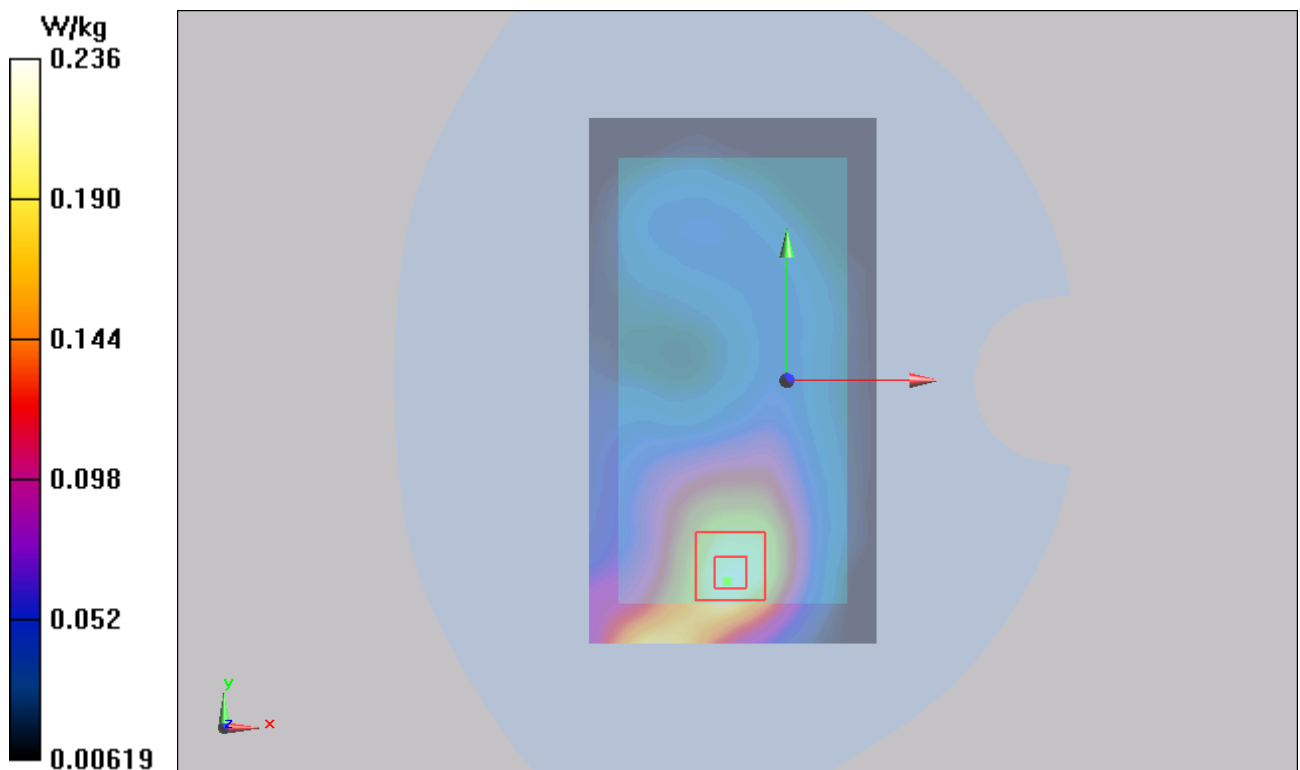


Figure 46 Body, Front Side, GSM 1900 GPRS (3Txslots) Channel 661

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

Report No.: RXA1312-0223SAR01R1

Page 92 of 162

GSM 1900 GPRS (3Txslots) Left Edge Middle

Date/Time: 1/5/2014 4:39:22 PM

Communication System: GPRS 3TX; Frequency: 1880 MHz; Duty Cycle: 1:2.76694

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.504$ mho/m; $\epsilon_r = 53.137$; $\rho = 1000$ 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 (31x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.0878 W/kg

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

Reference Value = 3.763 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.135 mW/g

SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.047 mW/g

Maximum value of SAR (measured) = 0.0910 W/kg

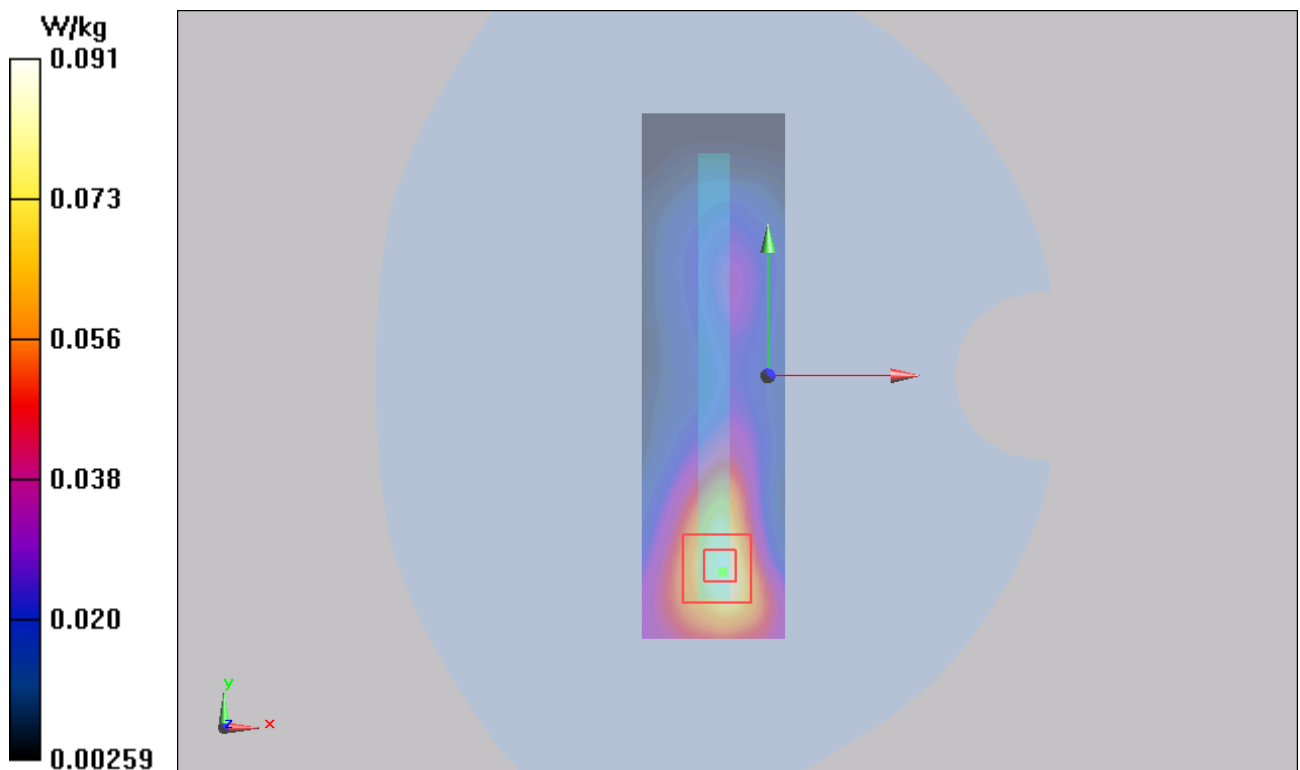


Figure 47 Body, Left Edge, GSM 1900 GPRS (3Txslots) Channel 661

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

Report No.: RXA1312-0223SAR01R1

Page 93 of 162

GSM 1900 GPRS (3Txslots) Right Edge Middle

Date/Time: 1/5/2014 4:56:52 PM

Communication System: GPRS 3TX; Frequency: 1880 MHz; Duty Cycle: 1:2.76694

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.504$ mho/m; $\epsilon_r = 53.137$; $\rho = 1000$ 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 (31x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.0619 W/kg

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

Reference Value = 5.146 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.088 mW/g

SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.037 mW/g

Maximum value of SAR (measured) = 0.0634 W/kg

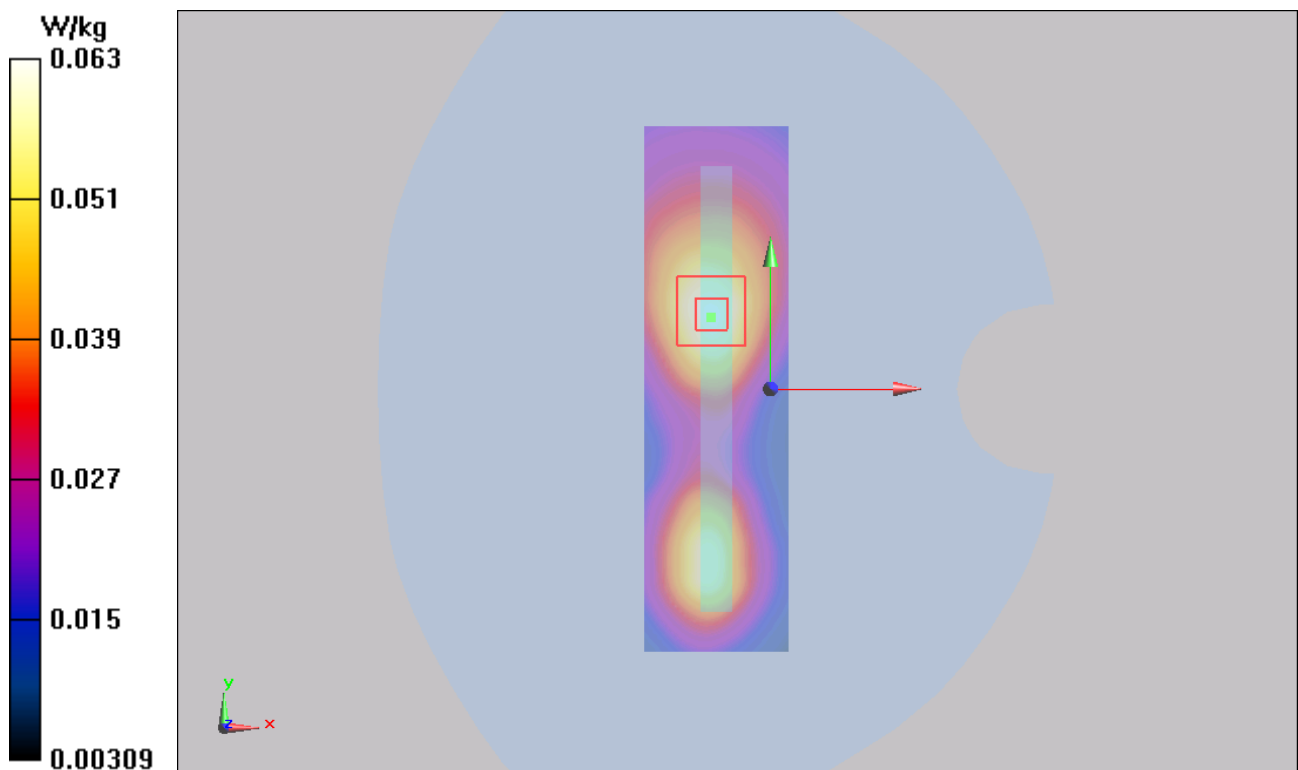


Figure 48 Body, Right Edge, GSM 1900 GPRS (3Txslots) Channel 661

GSM 1900 GPRS (3Txslots) Bottom Edge Middle

Date/Time: 1/5/2014 5:56:14 PM

Communication System: GPRS 3TX; Frequency: 1880 MHz; Duty Cycle: 1:2.76694

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.504$ mho/m; $\epsilon_r = 53.137$; $\rho = 1000$ 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 (31x71x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.312 W/kg

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

Reference Value = 13.483 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 0.466 mW/g

SAR(1 g) = 0.269 mW/g; SAR(10 g) = 0.145 mW/g

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

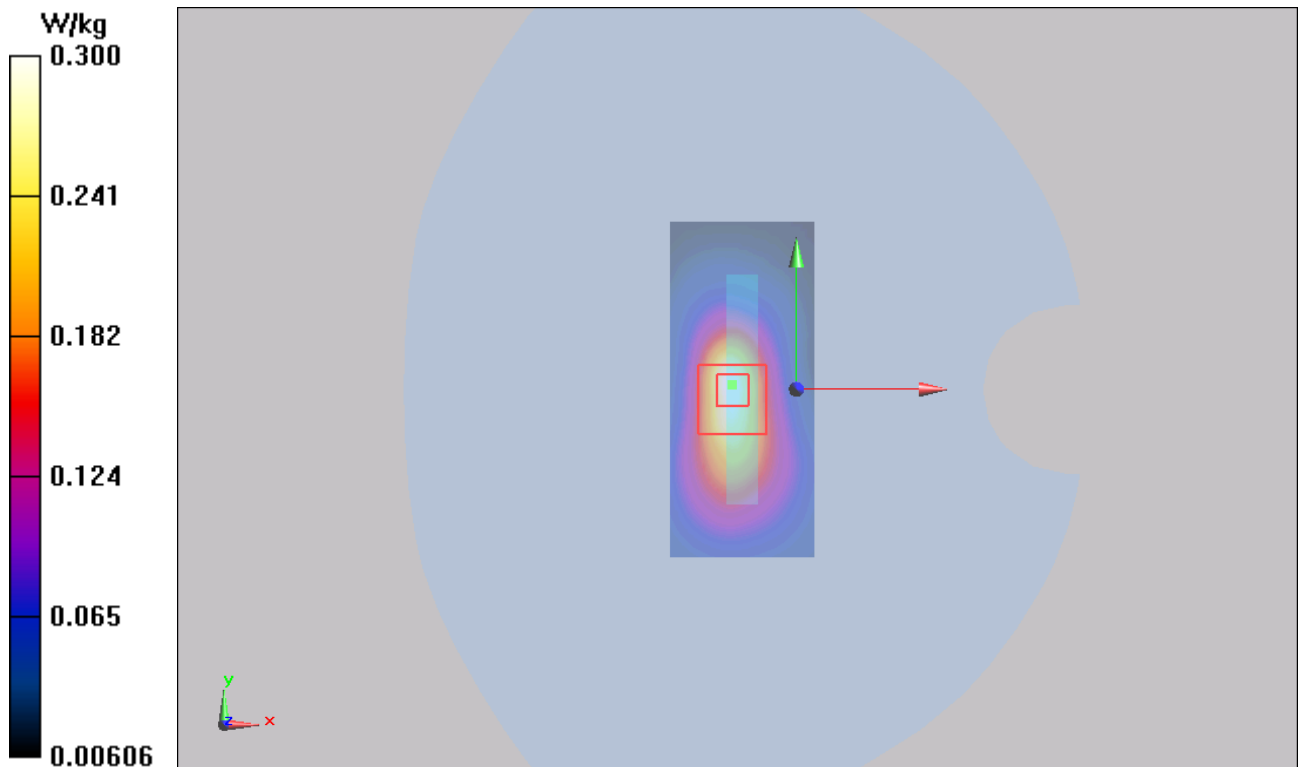


Figure 49 Body, Bottom Edge, GSM 1900 GPRS (3Txslots) Channel 661

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

Report No.: RXA1312-0223SAR01R1

Page 95 of 162

GSM 1900 GPRS (3Txslots) Back Side Middle (Battery 2)

Date/Time: 1/5/2014 6:11:41 PM

Communication System: GPRS 3TX; Frequency: 1880 MHz; Duty Cycle: 1:2.76694

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.504$ mho/m; $\epsilon_r = 53.137$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=15 mm, dy=15 mm

Maximum value of SAR (interpolated) = 0.443 W/kg

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

Reference Value = 6.211 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.676 mW/g

SAR(1 g) = 0.386 mW/g; SAR(10 g) = 0.206 mW/g

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

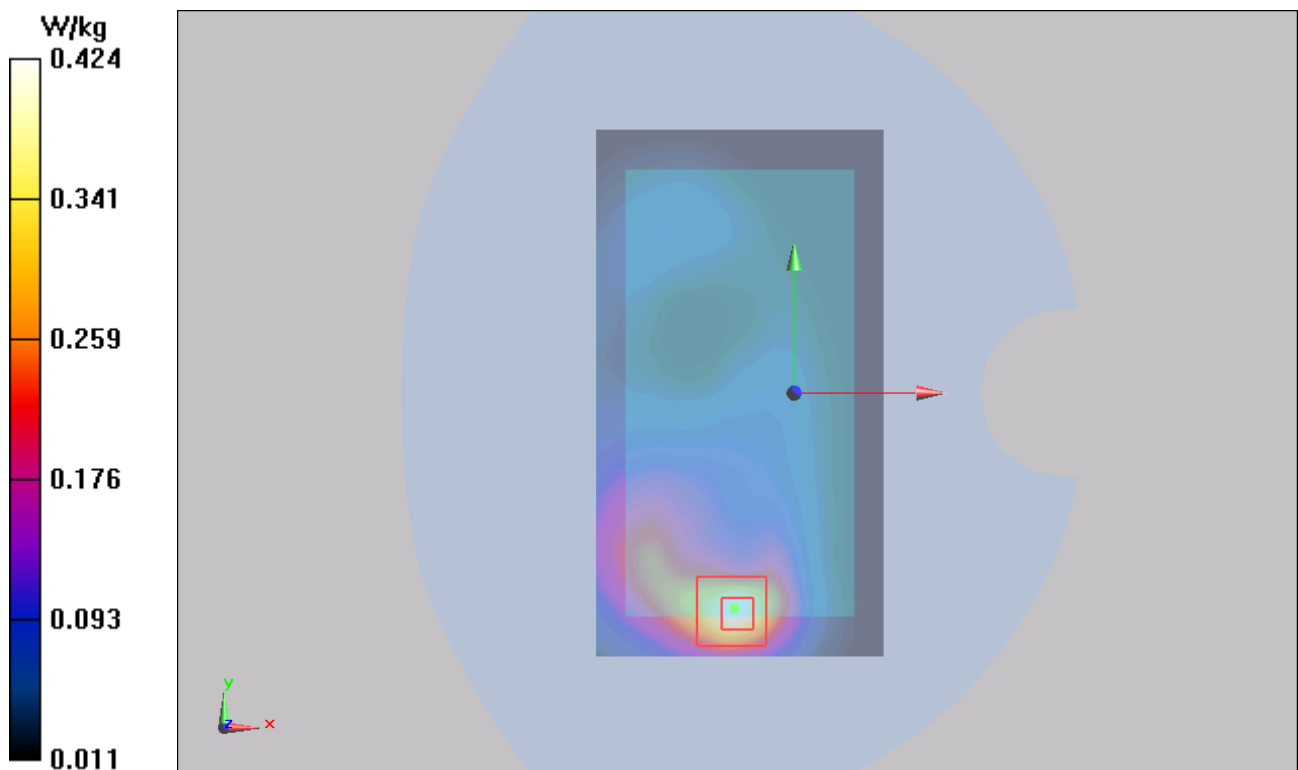


Figure 50 Body, Back Side, GSM 1900 GPRS (3Txslots) Channel 661

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

Report No.: RXA1312-0223SAR01R1

Page 96 of 162

802.11b Left Cheek High

Date/Time: 1/3/2014 9:02:00 PM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.818$ mho/m; $\epsilon_r = 39.076$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.407 W/kg

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

Reference Value = 6.124 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.730 mW/g

SAR(1 g) = 0.330 mW/g; SAR(10 g) = 0.155 mW/g

Maximum value of SAR (measured) = 0.383 W/kg

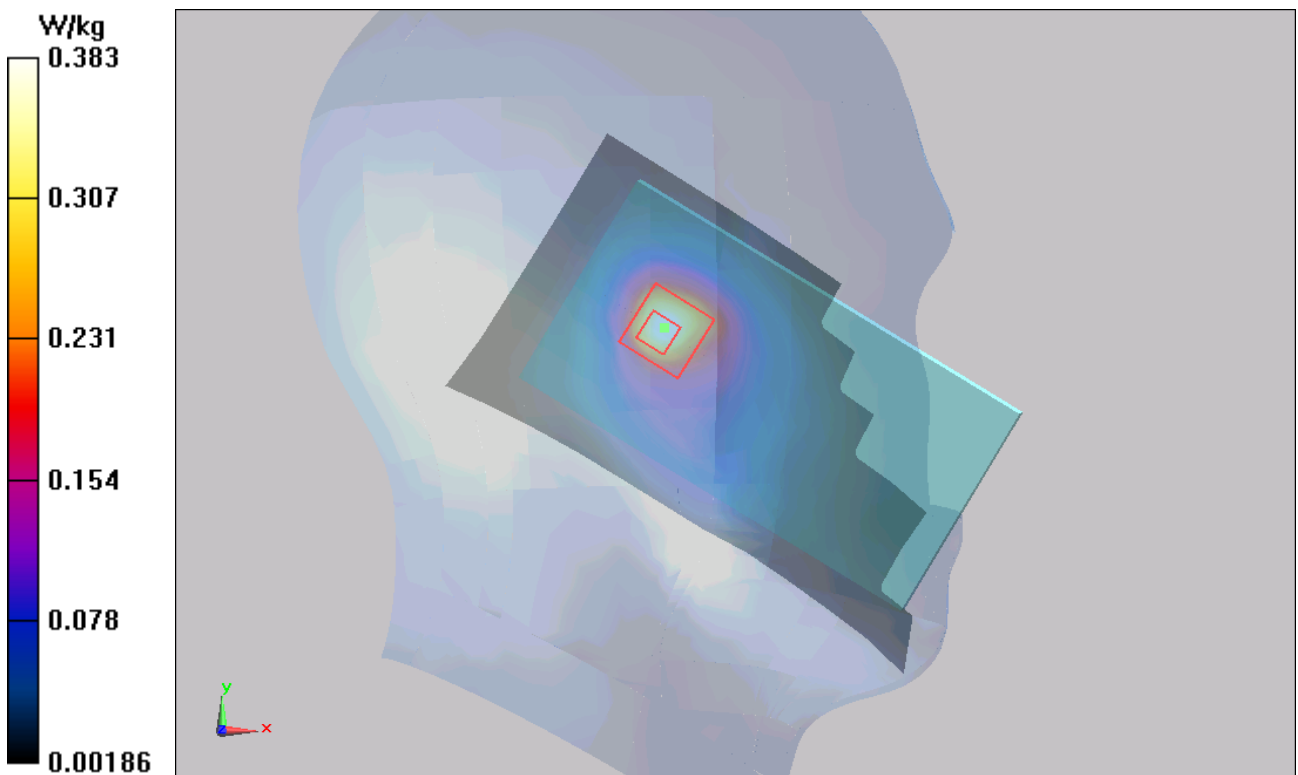


Figure 51 Left Hand Touch Cheek 802.11b Channel 11

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

Report No.: RXA1312-0223SAR01R1

Page 97 of 162

802.11b Left Cheek Middle

Date/Time: 1/3/2014 8:43:32 PM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.787$ mho/m; $\epsilon_r = 39.199$; $\rho = 1000$ 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 Middle /Area Scan (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.295 W/kg

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

Reference Value = 5.040 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.529 mW/g

SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.113 mW/g

Maximum value of SAR (measured) = 0.274 W/kg

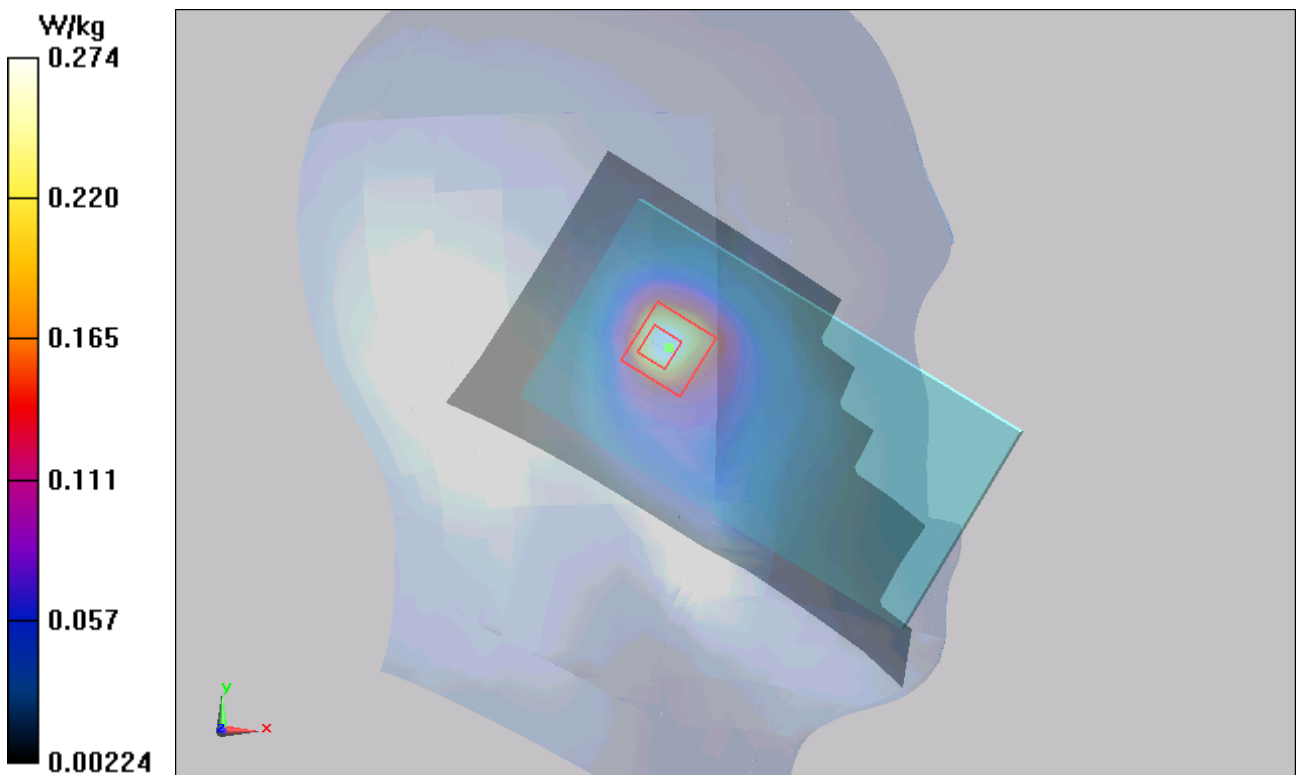


Figure 52 Left Hand Touch Cheek 802.11b Channel 6

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

Report No.: RXA1312-0223SAR01R1

Page 98 of 162

802.11b Left Cheek Low

Date/Time: 1/3/2014 8:25:04 PM

Communication System: 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.759$ mho/m; $\epsilon_r = 39.353$; $\rho = 1000$ 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 Low /Area Scan (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.198 W/kg

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

Reference Value = 4.091 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.347 mW/g

SAR(1 g) = 0.159 mW/g; SAR(10 g) = 0.075 mW/g

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

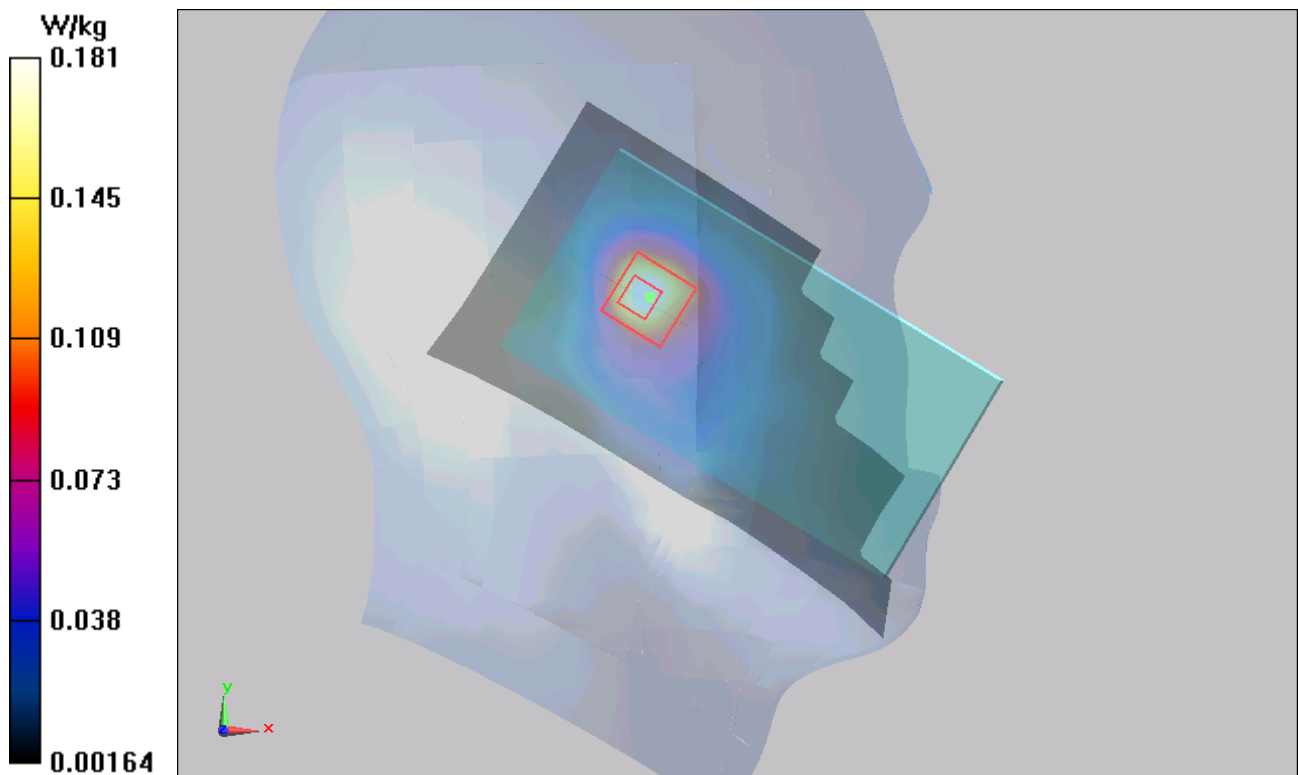


Figure 53 Left Hand Touch Cheek 802.11b Channel 1

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

Report No.: RXA1312-0223SAR01R1

Page 99 of 162

802.11b Left Tilt High

Date/Time: 1/3/2014 7:49:09 PM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.818$ mho/m; $\epsilon_r = 39.076$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

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

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

Reference Value = 5.599 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.326 mW/g

SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.082 mW/g

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

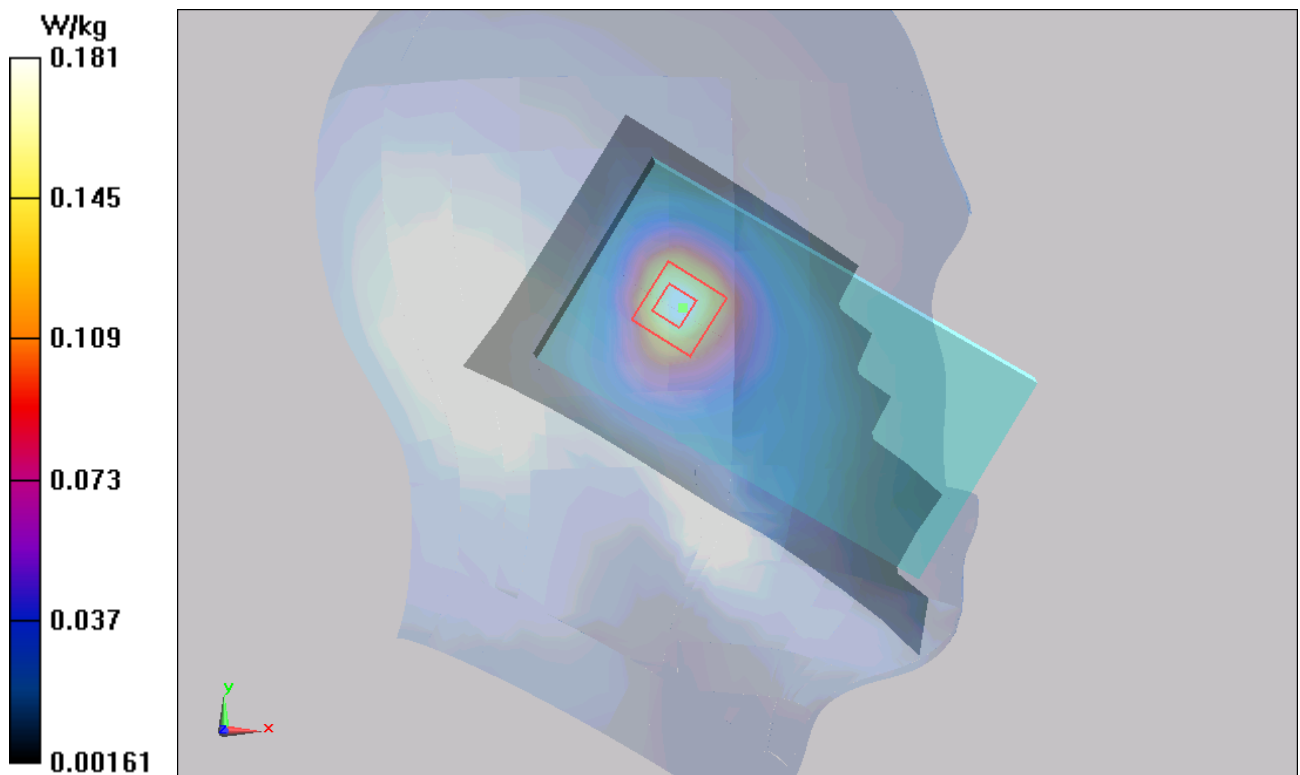


Figure 54 Left Hand Tilt 15° 802.11b Channel 11

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

Report No.: RXA1312-0223SAR01R1

Page 100 of 162

802.11b Left Tilt Middle

Date/Time: 1/3/2014 7:29:23 PM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.787$ mho/m; $\epsilon_r = 39.199$; $\rho = 1000$ 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 Middle /Area Scan (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.137 W/kg

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

Reference Value = 4.520 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 0.238 mW/g

SAR(1 g) = 0.117 mW/g; SAR(10 g) = 0.059 mW/g

Maximum value of SAR (measured) = 0.129 W/kg

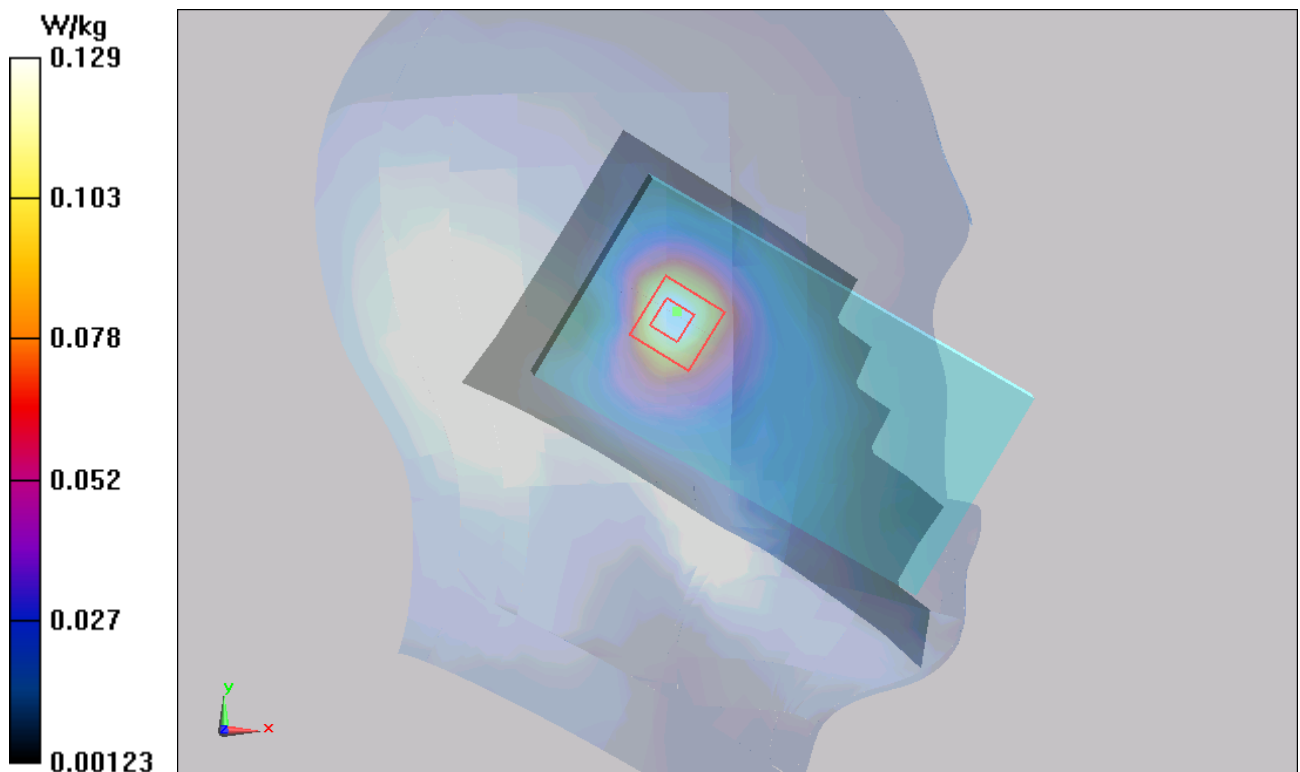


Figure 55 Left Hand Tilt 15° 802.11b Channel 6

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

Report No.: RXA1312-0223SAR01R1

Page 101 of 162

802.11b Left Tilt Low

Date/Time: 1/3/2014 8:07:12 PM

Communication System: 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.759$ mho/m; $\epsilon_r = 39.353$; $\rho = 1000$ 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 Low /Area Scan (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.0925 W/kg

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

Reference Value = 3.785 V/m; Power Drift = -0.030 dB

Peak SAR (extrapolated) = 0.159 mW/g

SAR(1 g) = 0.078 mW/g; SAR(10 g) = 0.039 mW/g

Maximum value of SAR (measured) = 0.0829 W/kg

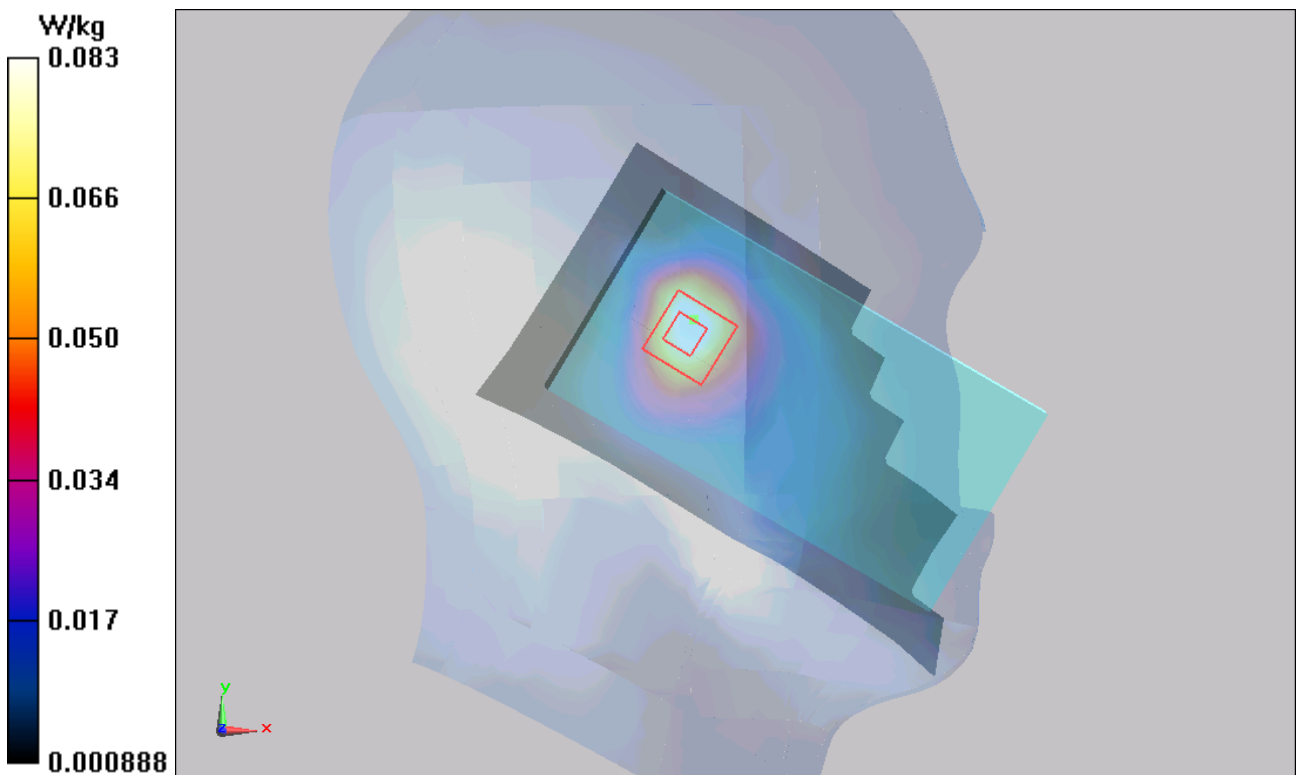


Figure 56 Left Hand Tilt 15° 802.11b Channel 1

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

Report No.: RXA1312-0223SAR01R1

Page 102 of 162

802.11b Right Cheek High

Date/Time: 1/3/2014 9:55:44 PM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.818$ mho/m; $\epsilon_r = 39.076$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.322 W/kg

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

Reference Value = 10.678 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.570 mW/g

SAR(1 g) = 0.263 mW/g; SAR(10 g) = 0.130 mW/g

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

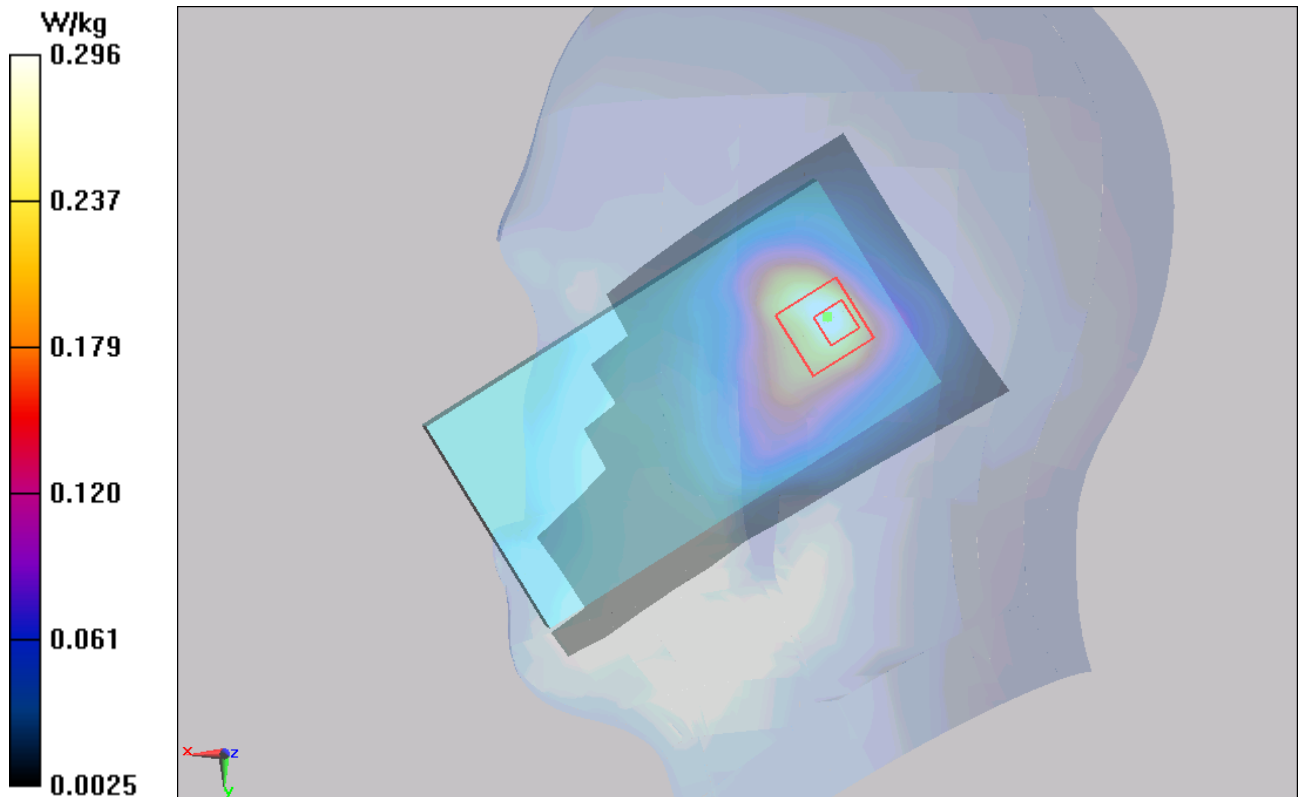


Figure 57 Right Hand Touch Cheek 802.11b Channel 11

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

Report No.: RXA1312-0223SAR01R1

Page 103 of 162

802.11b Right Cheek Middle

Date/Time: 1/3/2014 9:37:56 PM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.787$ mho/m; $\epsilon_r = 39.199$; $\rho = 1000$ 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 Middle /Area Scan (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.218 W/kg

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

Reference Value = 8.807 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.385 mW/g

SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.090 mW/g

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

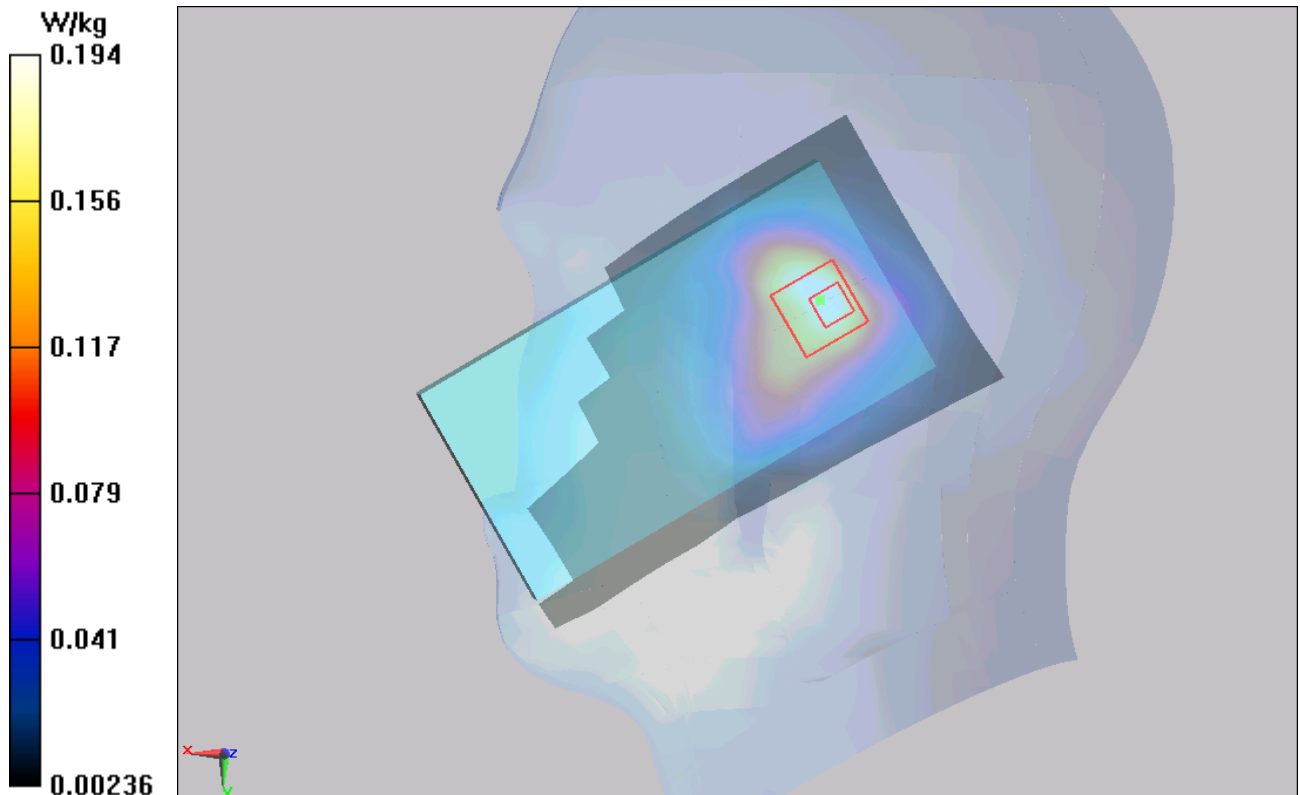


Figure 58 Right Hand Touch Cheek 802.11b Channel 6

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

Report No.: RXA1312-0223SAR01R1

Page 104 of 162

802.11b Right Cheek Low

Date/Time: 1/3/2014 10:14:13 PM

Communication System: 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.759$ mho/m; $\epsilon_r = 39.353$; $\rho = 1000$ 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 Low /Area Scan (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.151 W/kg

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

Reference Value = 7.284 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.260 mW/g

SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.064 mW/g

Maximum value of SAR (measured) = 0.143 W/kg

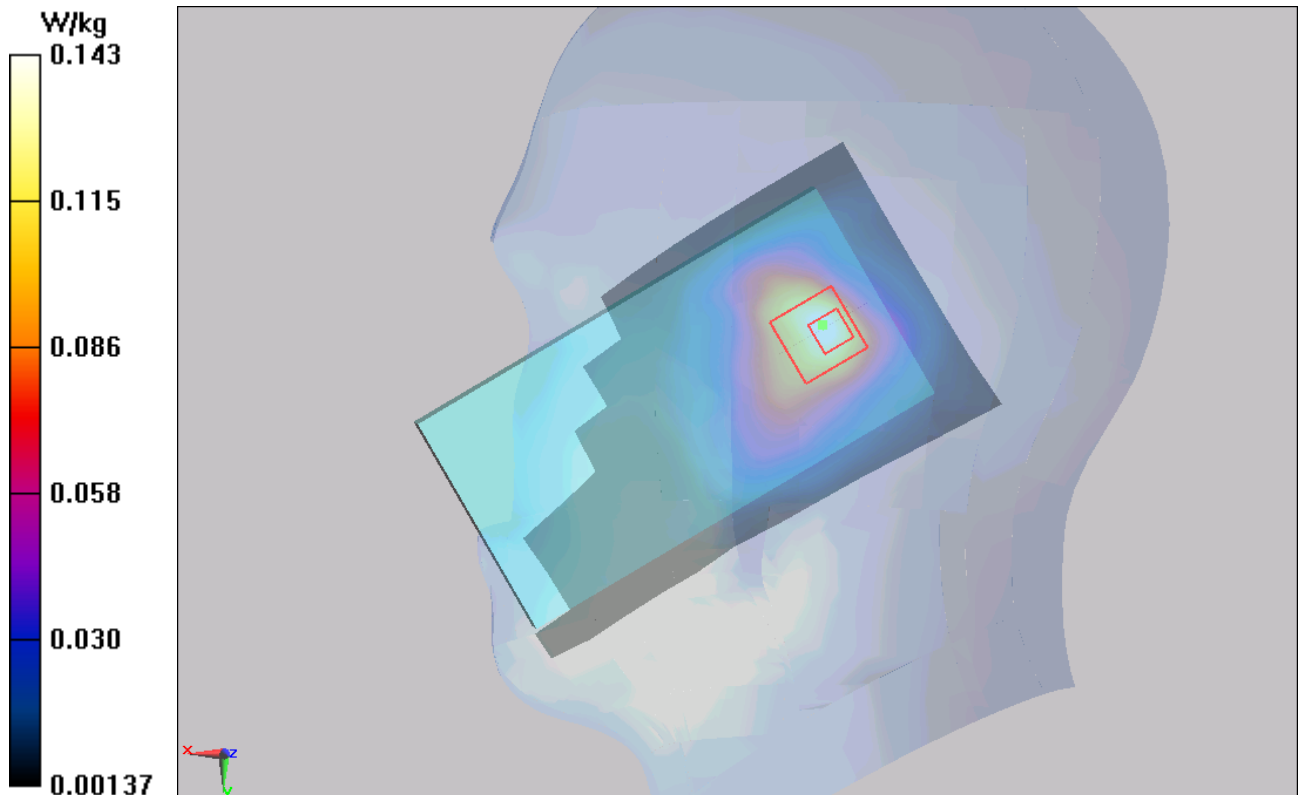


Figure 59 Right Hand Touch Cheek 802.11b Channel 1

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

Report No.: RXA1312-0223SAR01R1

Page 105 of 162

802.11b Right Tilt High

Date/Time: 1/3/2014 11:32:25 PM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.818$ mho/m; $\epsilon_r = 39.076$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.210 W/kg

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

Reference Value = 10.065 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.372 mW/g

SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.098 mW/g

Maximum value of SAR (measured) = 0.203 W/kg

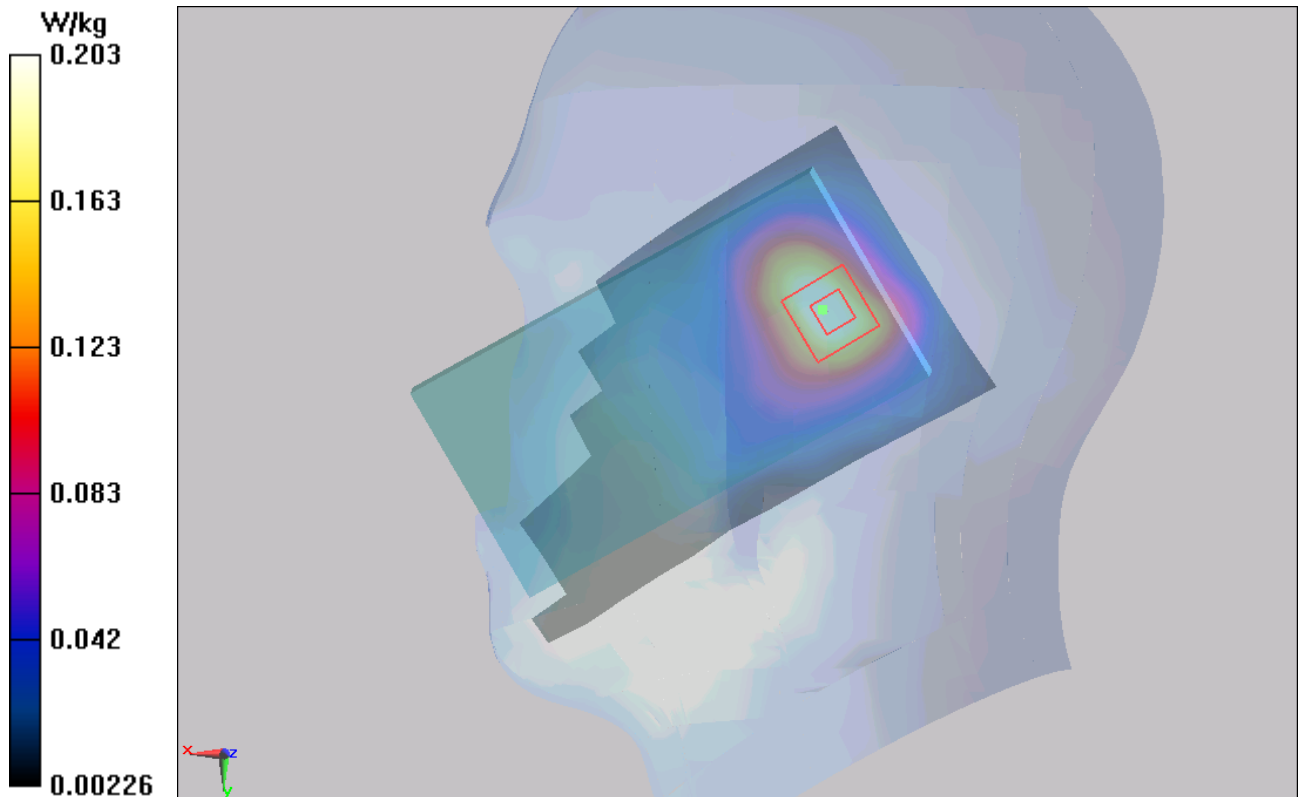


Figure 60 Right Hand Tilt 15° 802.11b Channel 11

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

Report No.: RXA1312-0223SAR01R1

Page 106 of 162

802.11b Right Tilt Middle

Date/Time: 1/3/2014 11:11:12 PM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.787$ mho/m; $\epsilon_r = 39.199$; $\rho = 1000$ 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 Middle /Area Scan (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.176 W/kg

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

Reference Value = 9.220 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.302 mW/g

SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.081 mW/g

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

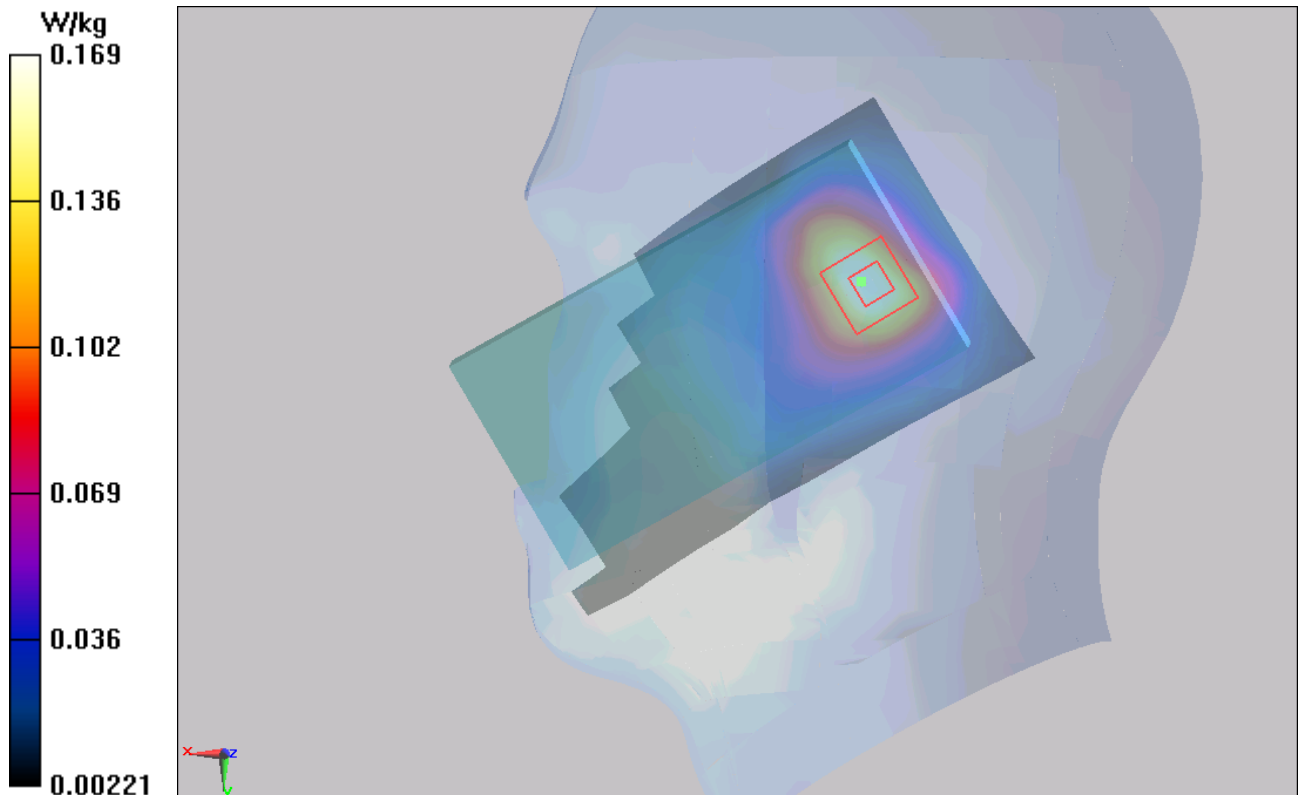


Figure 61 Right Hand Tilt 15° 802.11b Channel 6

802.11b Right Tilt Low

Date/Time: 1/3/2014 10:53:37 PM

Communication System: 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.759$ mho/m; $\epsilon_r = 39.353$; $\rho = 1000$ 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 Low /Area Scan (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

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

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

Reference Value = 7.765 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.211 mW/g

SAR(1 g) = 0.108 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.116 W/kg

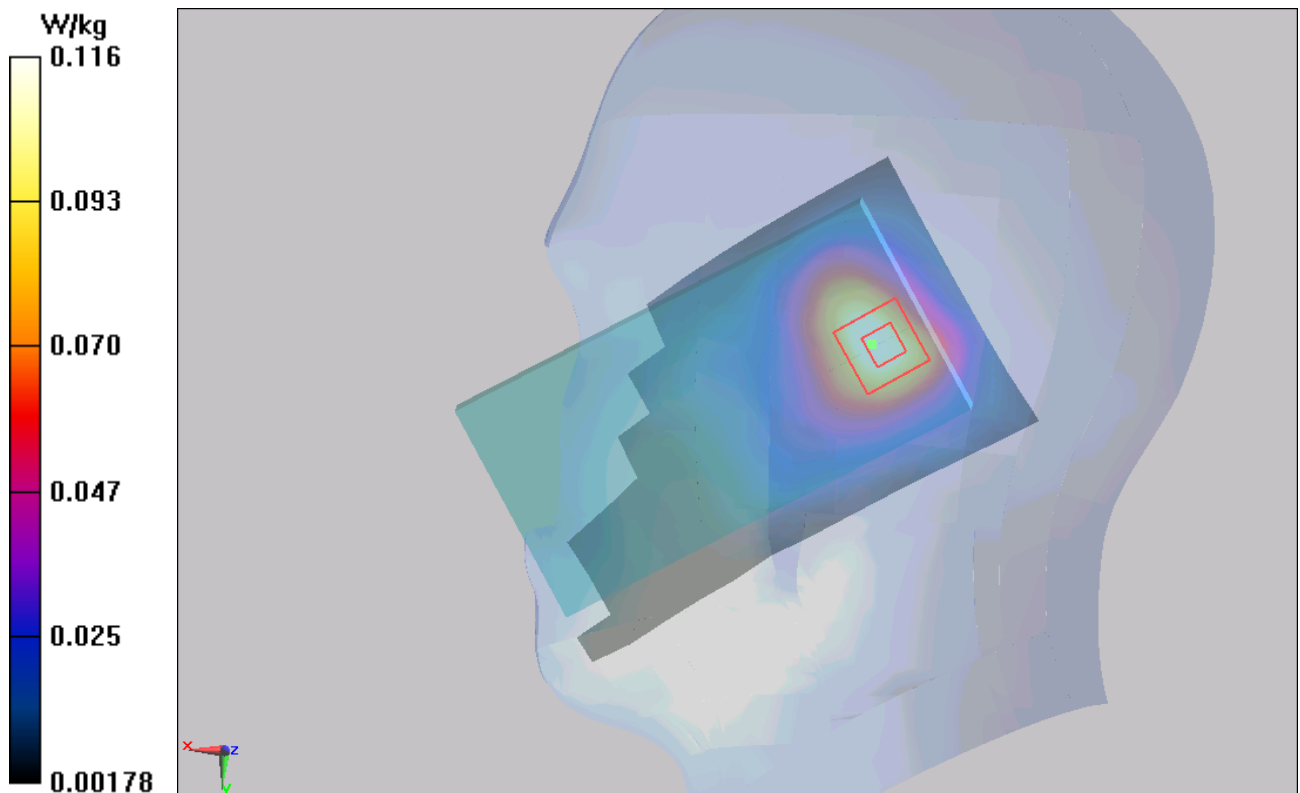


Figure 62 Right Hand Tilt 15° 802.11b Channel 1

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

Report No.: RXA1312-0223SAR01R1

Page 108 of 162

802.11b Left Cheek High (Battery 2)

Date/Time: 1/4/2014 12:23:08 AM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.818$ mho/m; $\epsilon_r = 39.076$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

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

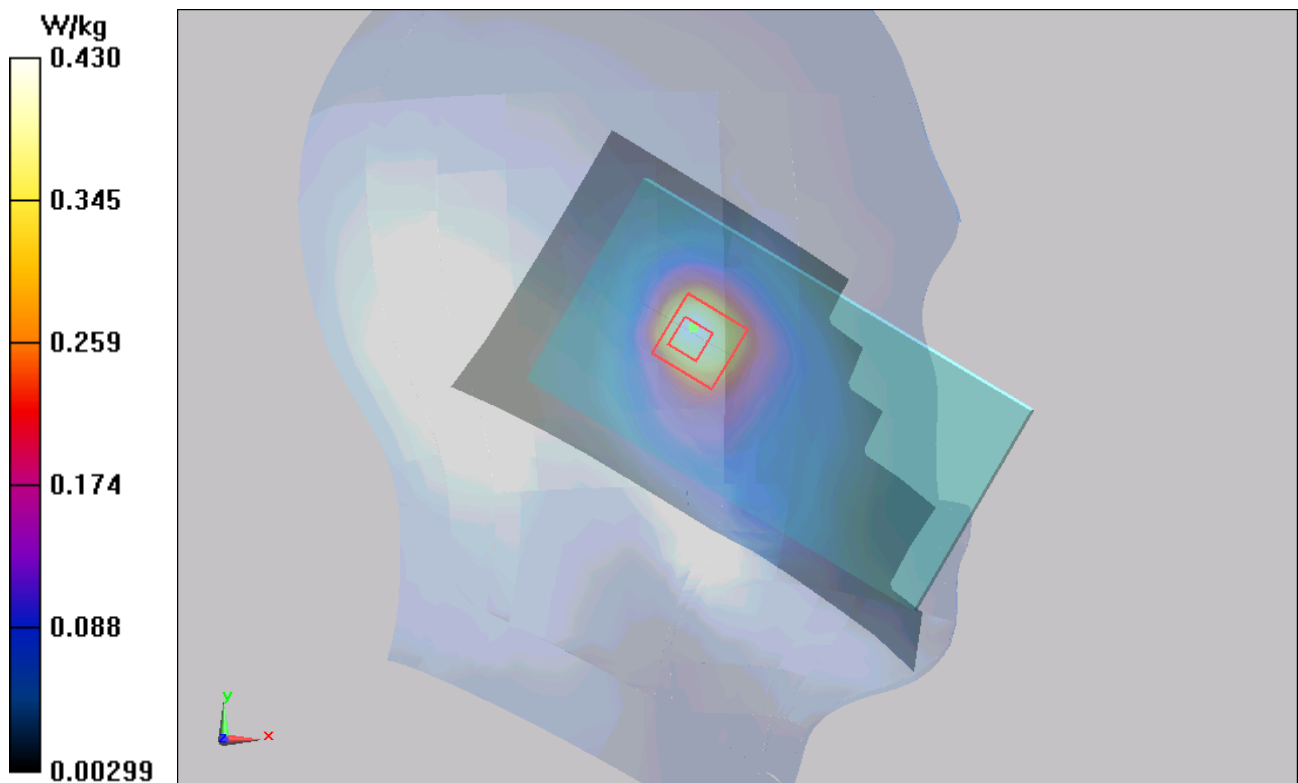
Left Cheek High /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.248 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 0.811 mW/g

SAR(1 g) = 0.387 mW/g; SAR(10 g) = 0.190 mW/g

Maximum value of SAR (measured) = 0.430 W/kg



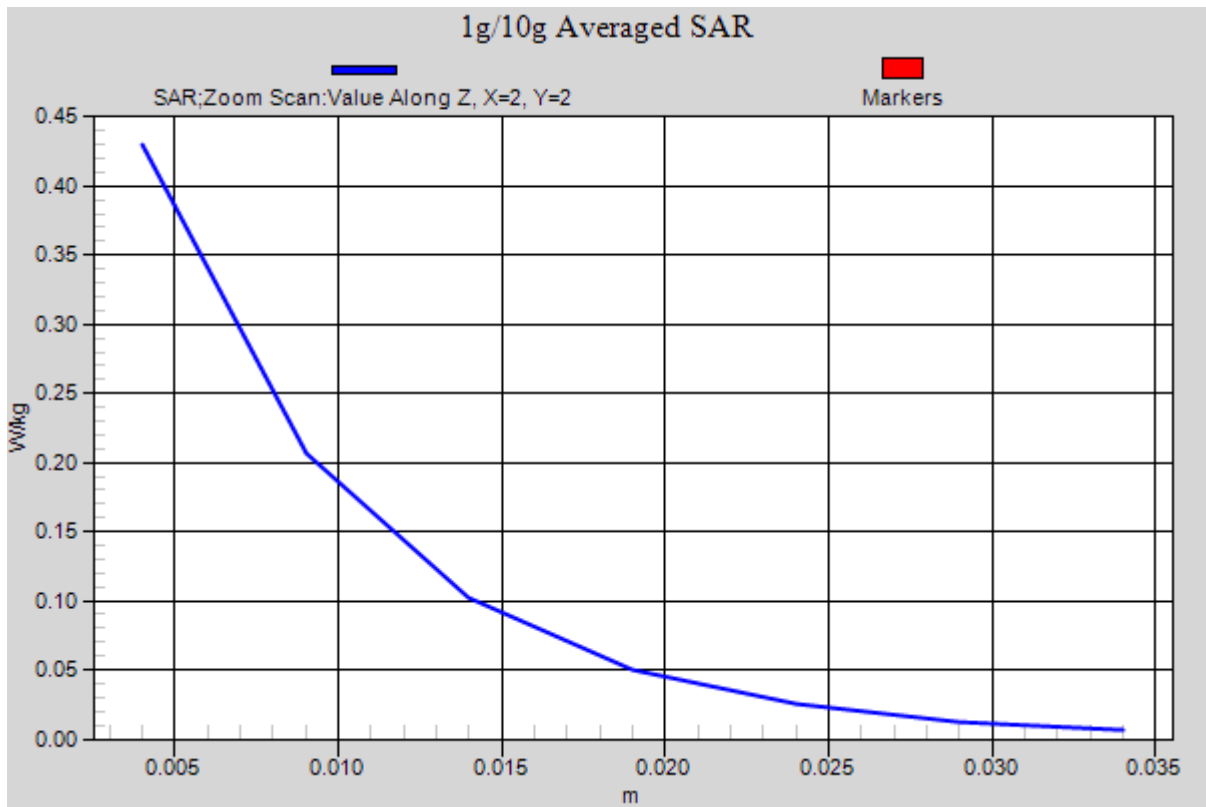


Figure 63 Left Hand Touch Cheek 802.11b Channel 11

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

Report No.: RXA1312-0223SAR01R1

Page 110 of 162

802.11b Back Side High

Date/Time: 1/4/2014 9:23:31 AM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 2.009$ mho/m; $\epsilon_r = 52.109$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

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

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

Reference Value = 1.364 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.284 mW/g

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.073 mW/g

Maximum value of SAR (measured) = 0.150 W/kg

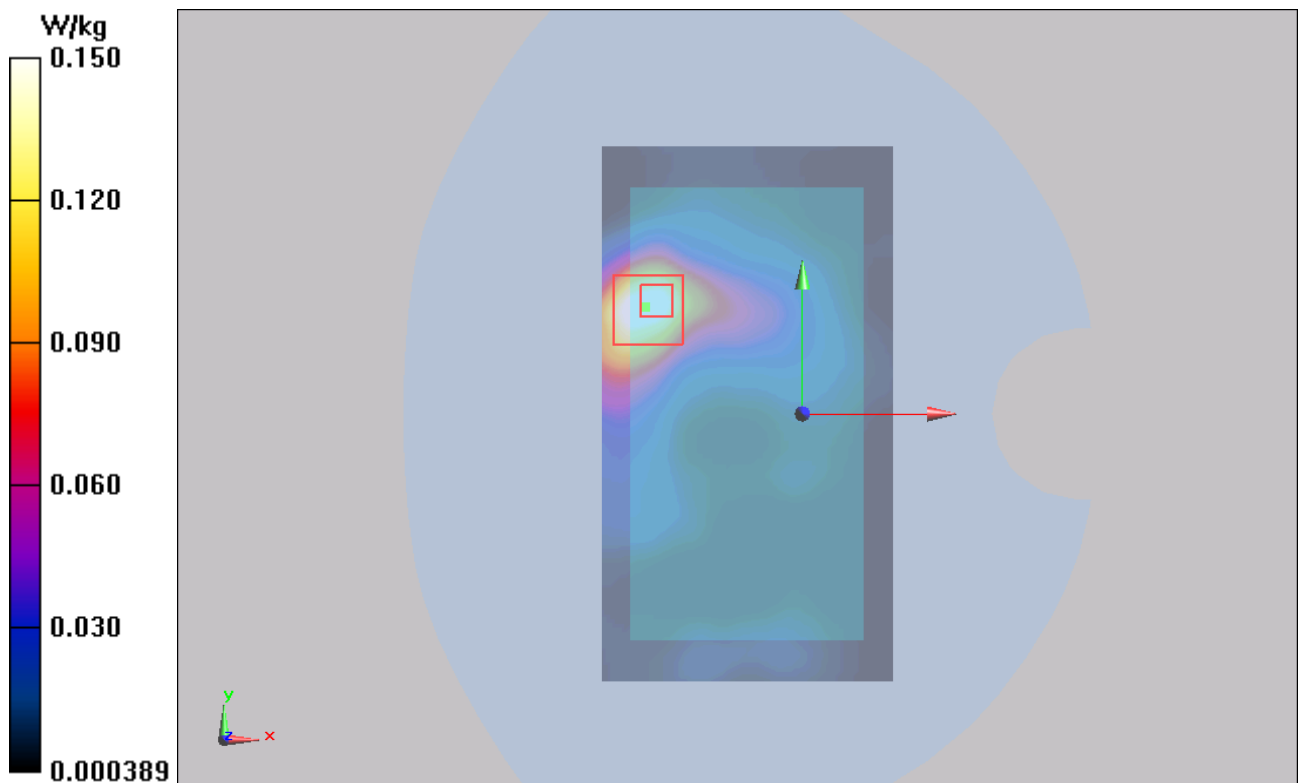


Figure 64 Body, Back Side, 802.11b Channel 11

802.11b Front Side High

Date/Time: 1/4/2014 9:02:56 AM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 2.009$ mho/m; $\epsilon_r = 52.109$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.0808 W/kg

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

Reference Value = 4.049 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.118 mW/g

SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.0760 W/kg

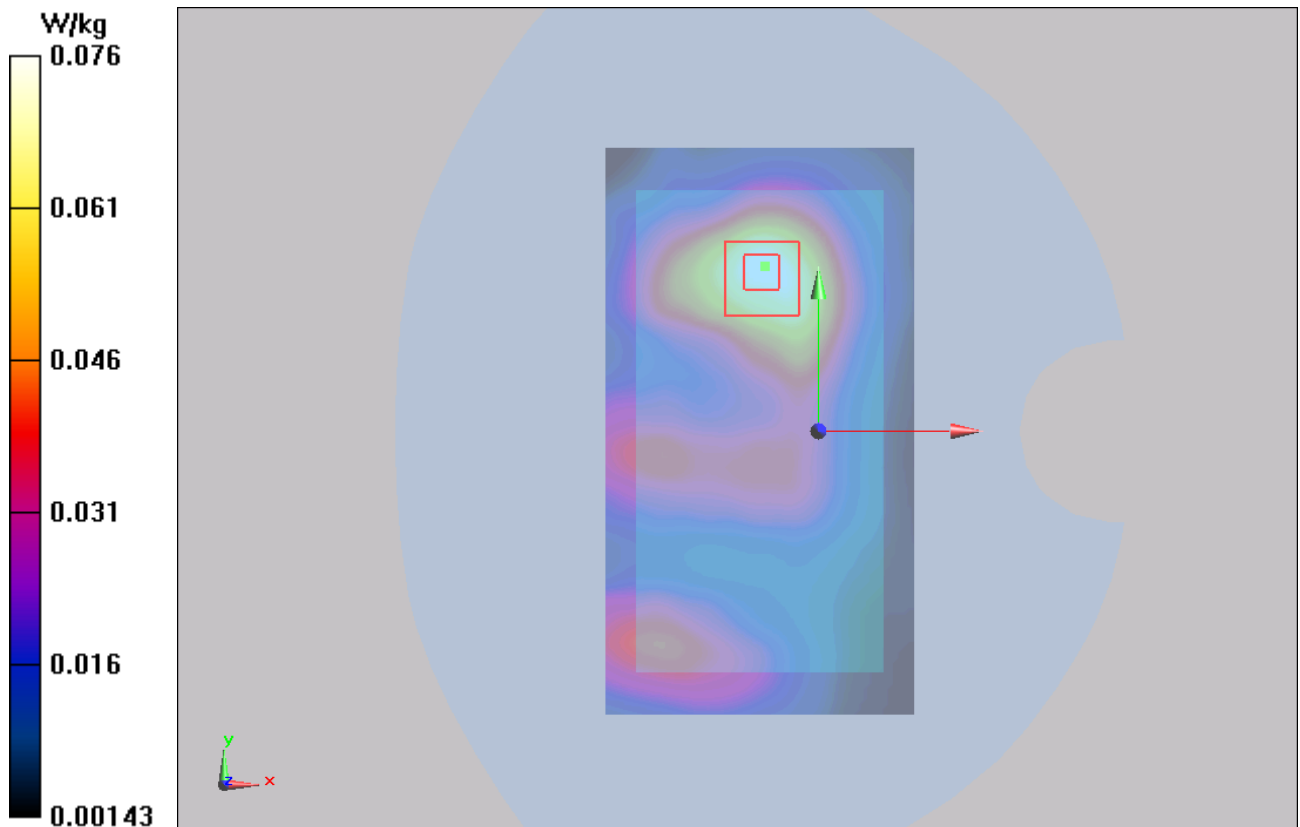


Figure 65 Body, Front Side, 802.11b Channel 11

802.11b Right Edge High

Date/Time: 1/4/2014 8:19:45 AM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 2.009$ mho/m; $\epsilon_r = 52.109$; $\rho = 1000$ 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)

Right Edge High /Area Scan (31x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.0476 W/kg

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

Reference Value = 3.342 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.073 mW/g

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.0473 W/kg

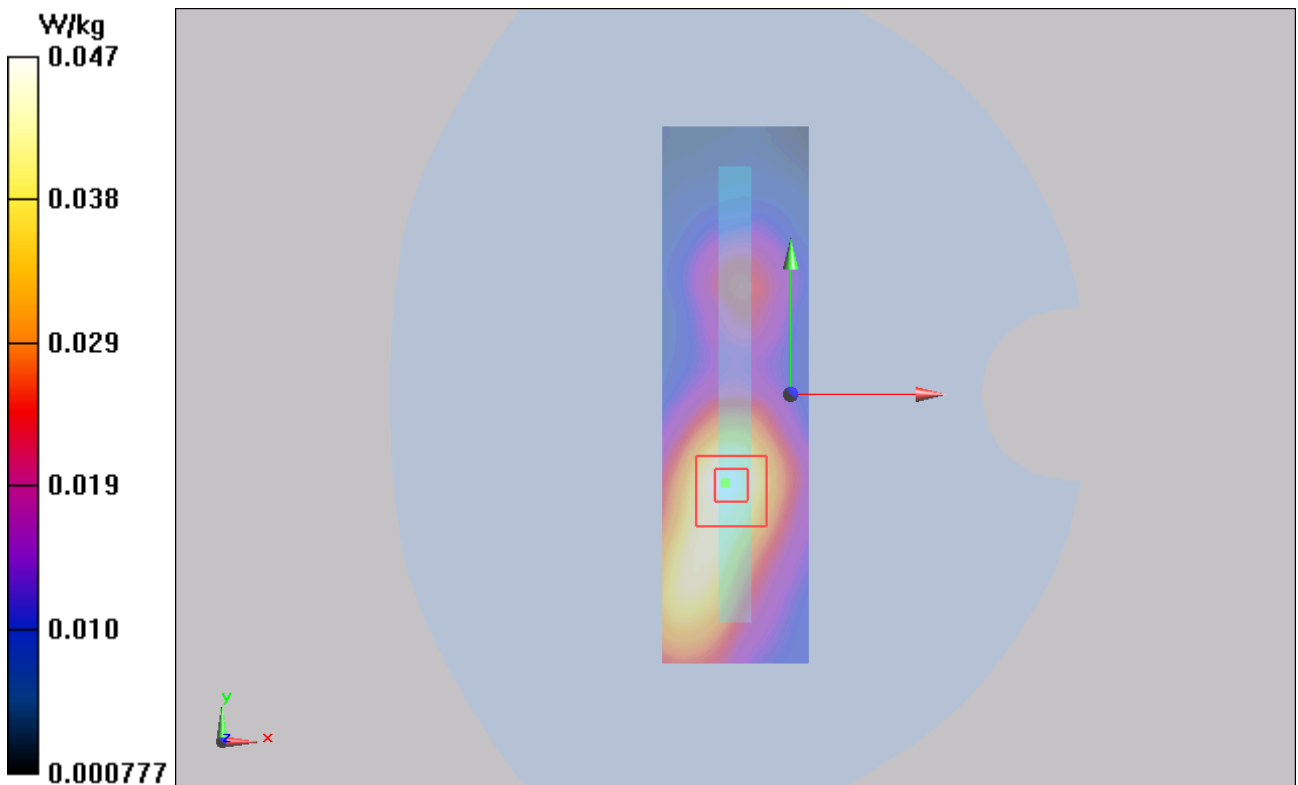


Figure 66 Body, Right Edge, 802.11b Channel 11

802.11b Top Edge High

Date/Time: 1/4/2014 8:47:38 AM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 2.009$ mho/m; $\epsilon_r = 52.109$; $\rho = 1000$ 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 (31x71x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.103 W/kg

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

Reference Value = 7.287 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.192 mW/g

SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.051 mW/g

Maximum value of SAR (measured) = 0.108 W/kg

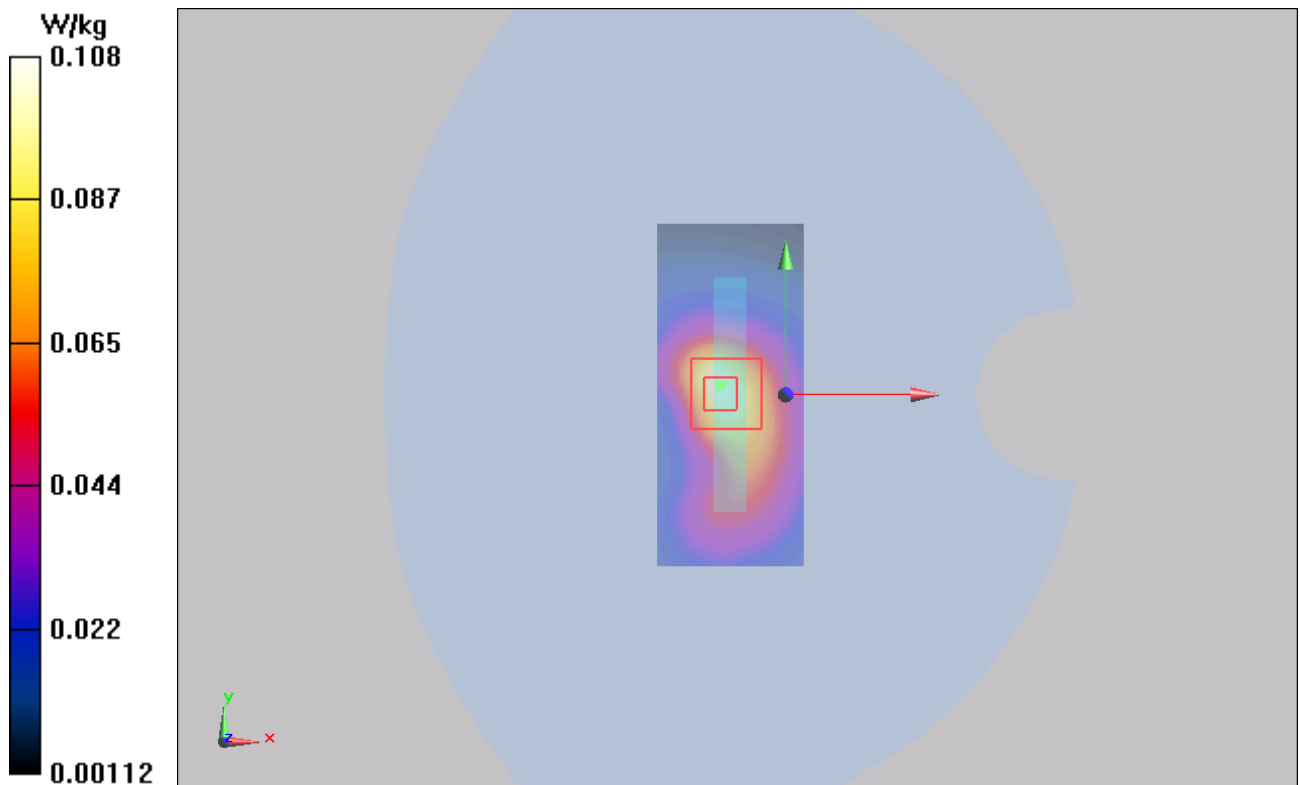


Figure 67 Body, Top Edge, 802.11b Channel 11

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

Report No.: RXA1312-0223SAR01R1

Page 114 of 162

802.11b Back Side High (Battery 2)

Date/Time: 1/4/2014 9:42:09 AM

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

Medium parameters used: $f = 2462$ MHz; $\sigma = 2.009$ mho/m; $\epsilon_r = 52.109$; $\rho = 1000$ 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 (61x111x1): Interpolated grid: dx=10 mm, dy=10 mm

Maximum value of SAR (interpolated) = 0.166 W/kg

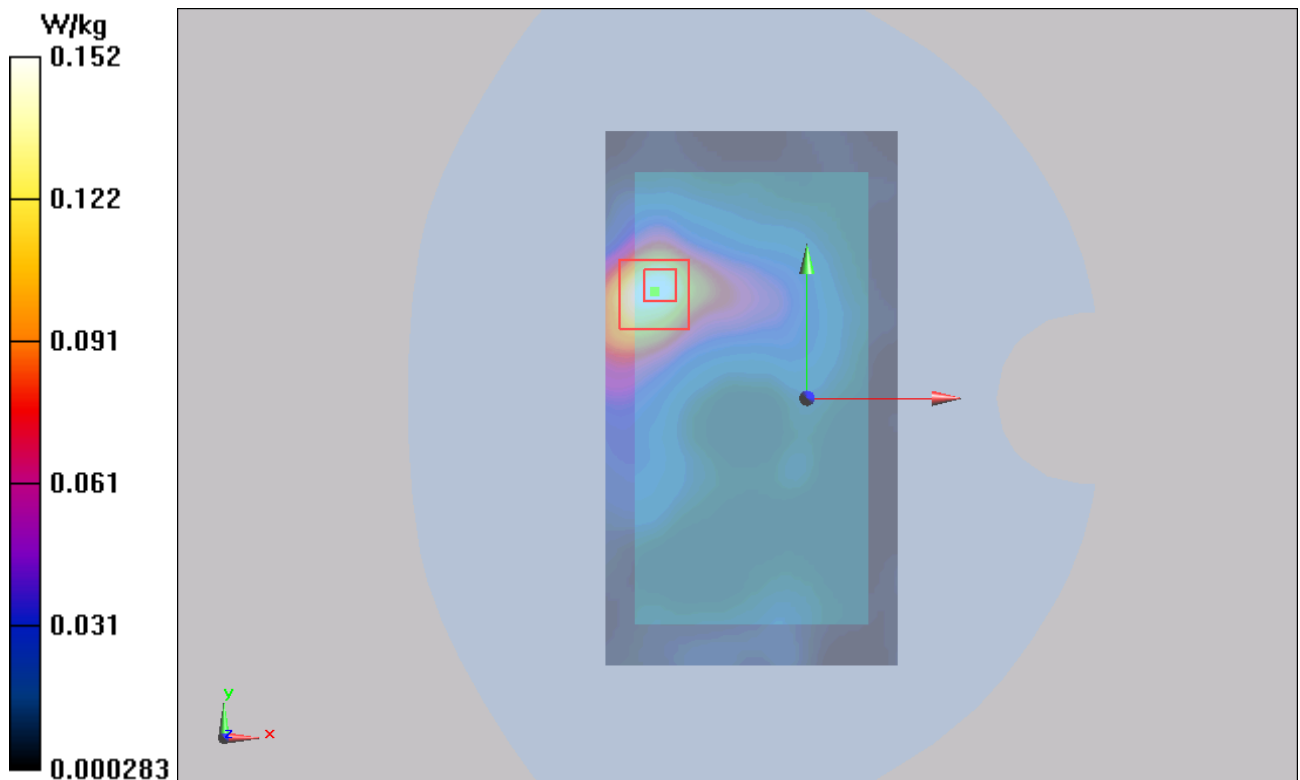
Back Side High /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.885 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 0.282 mW/g

SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.074 mW/g

Maximum value of SAR (measured) = 0.152 W/kg



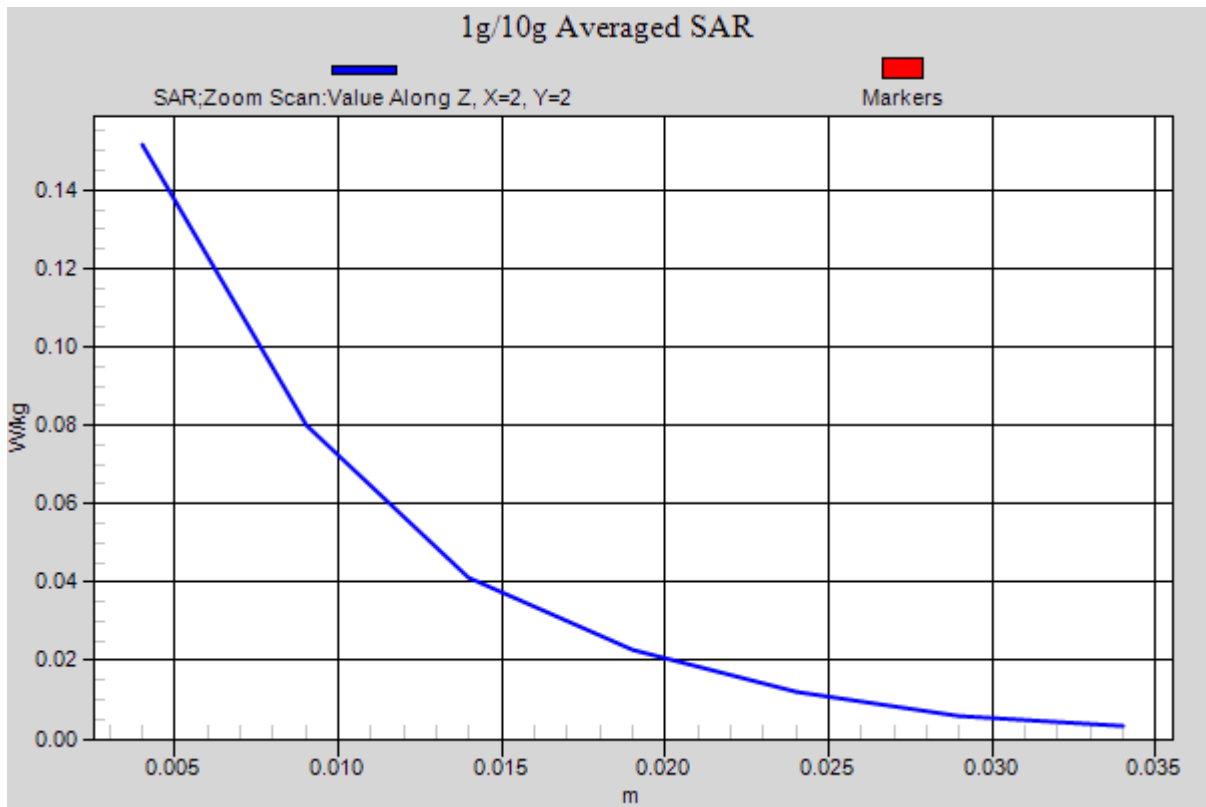


Figure 68 Body, Back Side, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1312-0223SAR01R1

Page 116 of 162

ANNEX D: Probe Calibration Certificate

**Calibration Laboratory of
Schmid & Partner
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 **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 |
| <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 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 |
| <p>This calibration certificate shall not be reproduced except in full without written approval of the laboratory.</p> | | | |

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Test Report

Report No.: RXA1312-0223SAR01R1

Page 117 of 162

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**

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 E^2 -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

Report No.: RXA1312-0223SAR01R1

Page 119 of 162

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 | ± 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 | ±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.

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Test Report

Report No.: RXA1312-0223SAR01R1

Page 120 of 162

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.

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1312-0223SAR01R1

Page 121 of 162

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 % |

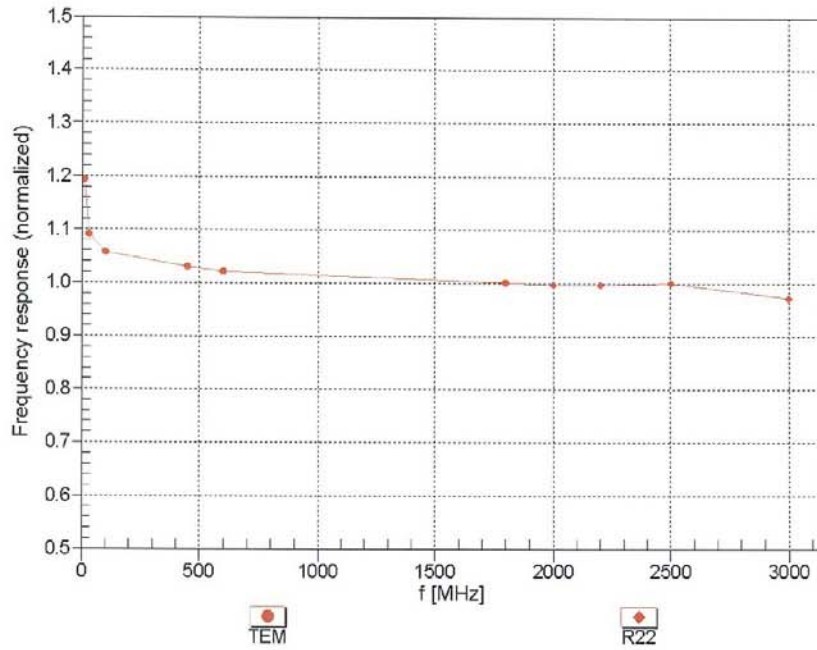
^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^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)

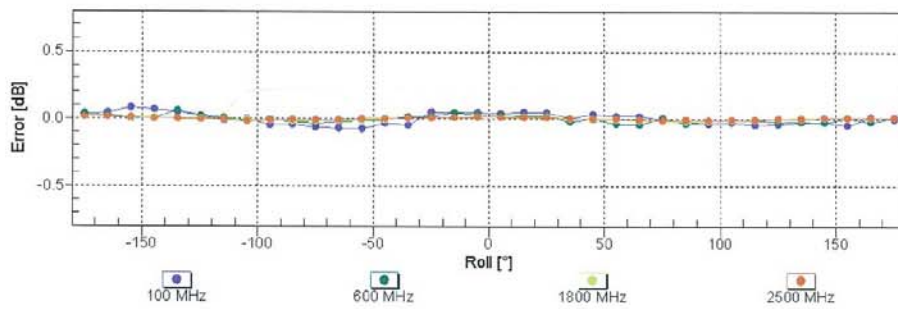
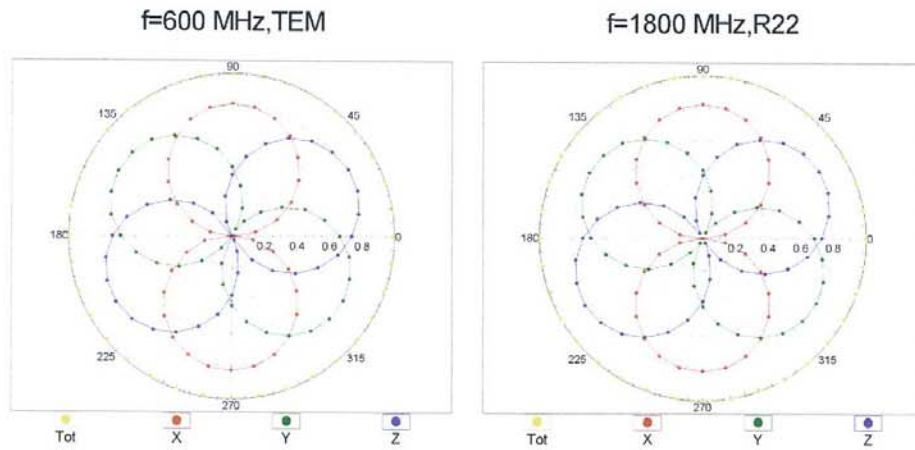


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

EX3DV4-SN:3753

January 17, 2013

Receiving Pattern (ϕ), $\vartheta = 0^\circ$

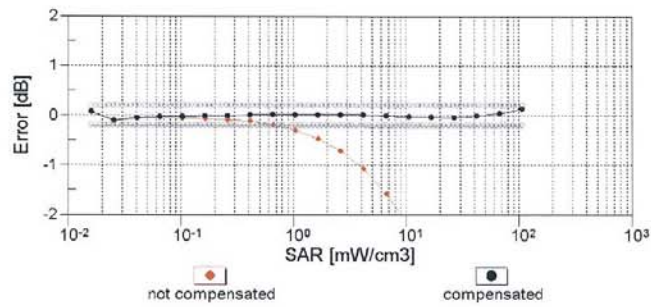
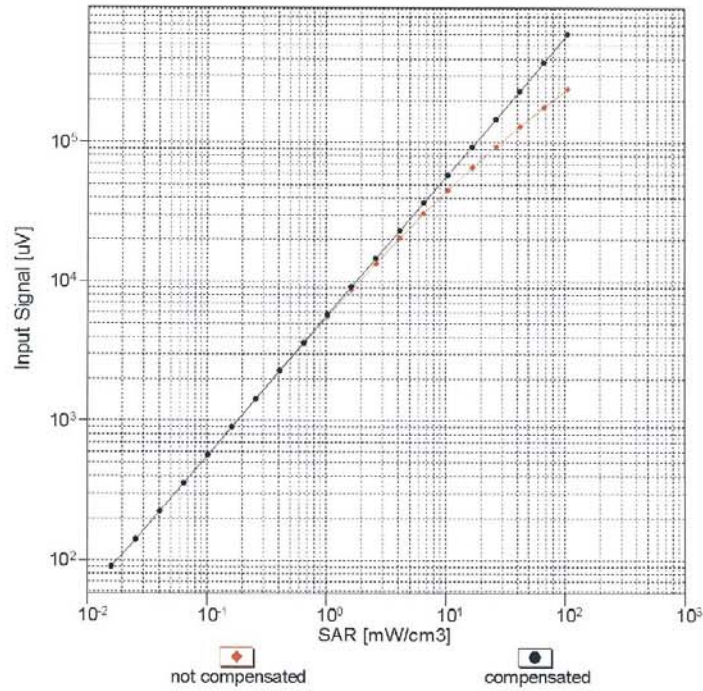


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

EX3DV4- SN:3753

January 17, 2013

Dynamic Range $f(SAR_{head})$
(TEM cell , $f = 900$ MHz)

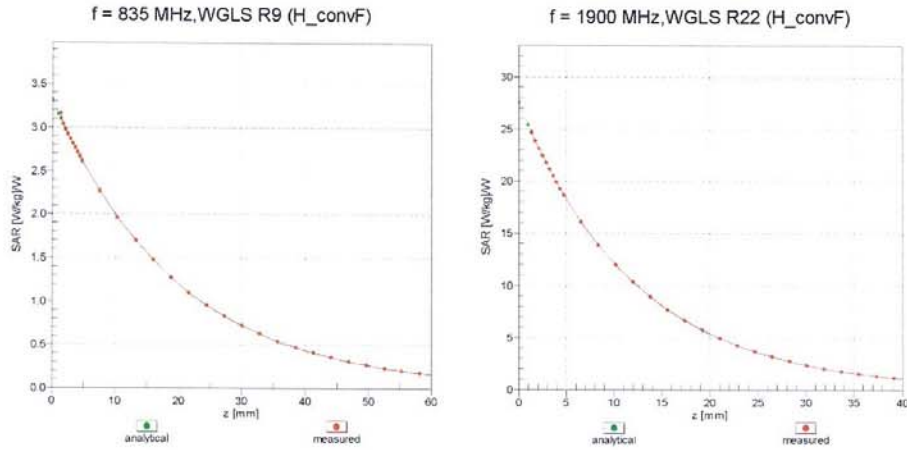


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

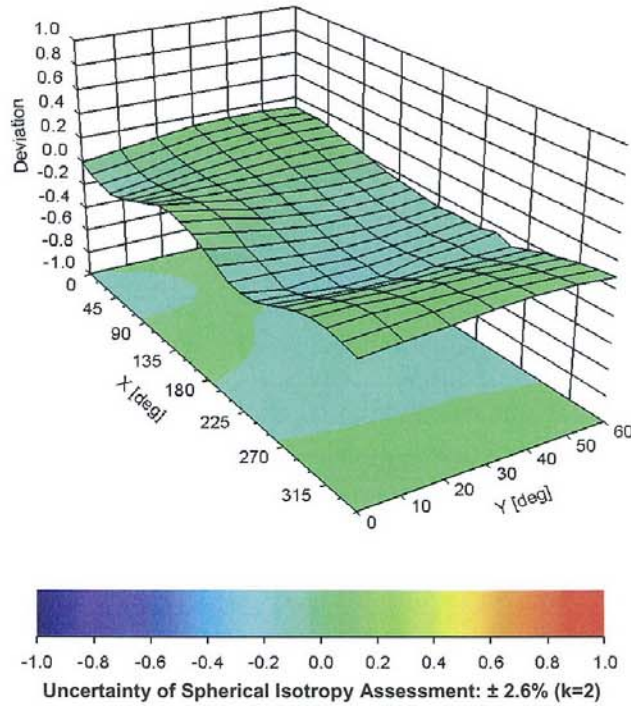
EX3DV4- SN:3753

January 17, 2013

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, ϑ), f = 900 MHz



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

Report No.: RXA1312-0223SAR01R1

Page 126 of 162

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.: RXA1312-0223SAR01R1

Page 127 of 162

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**

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 | 100006 | 04-Aug-99 (in house check Oct-09) | In house check: Oct-11 |
| Network Analyzer HP 8753E | US37390585 S4206 | 18-Oct-01 (in house check Oct-10) | In house check: Oct-11 |

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

Issued: August 26, 2011

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Report No.: RXA1312-0223SAR01R1

Page 128 of 162

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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.

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

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

Body TSL parameters

The following parameters and calculations were applied.

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

SAR result with Body TSL

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

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

TA Technology (Shanghai) Co., Ltd.

Test Report

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:

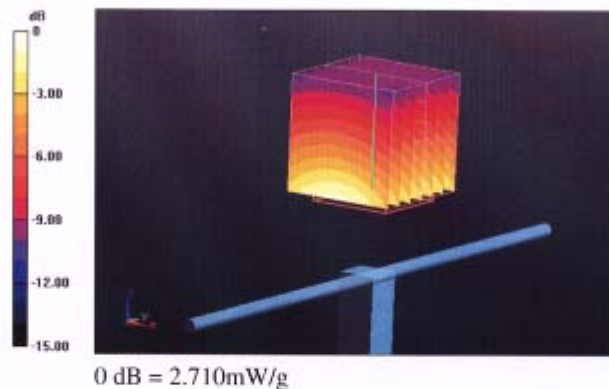
Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

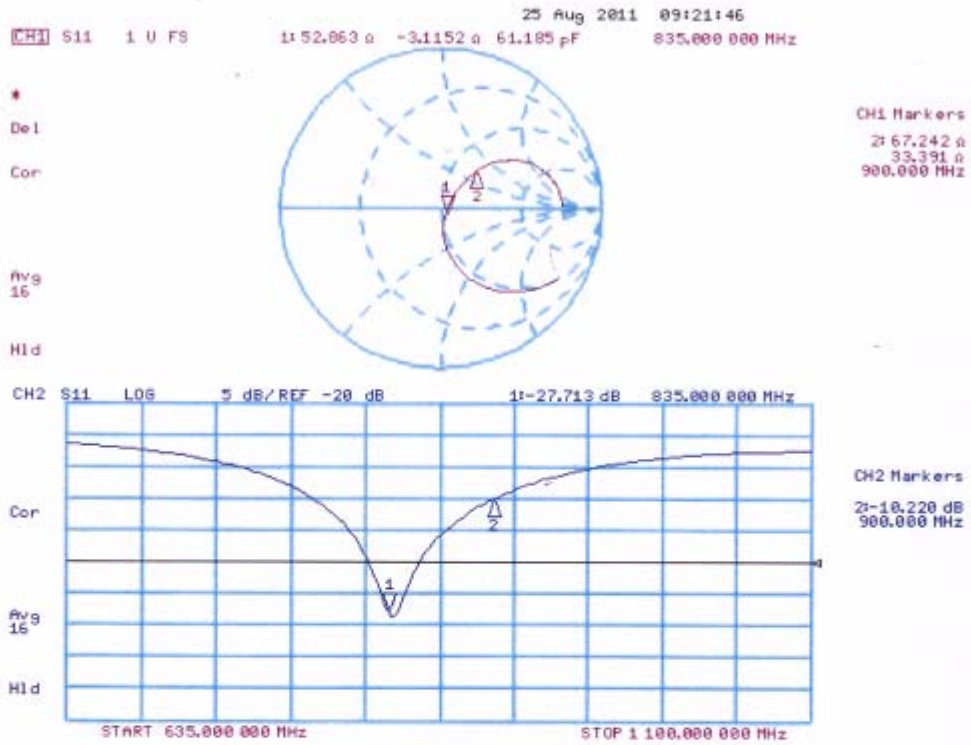


TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1312-0223SAR01R1

Page 132 of 162

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:

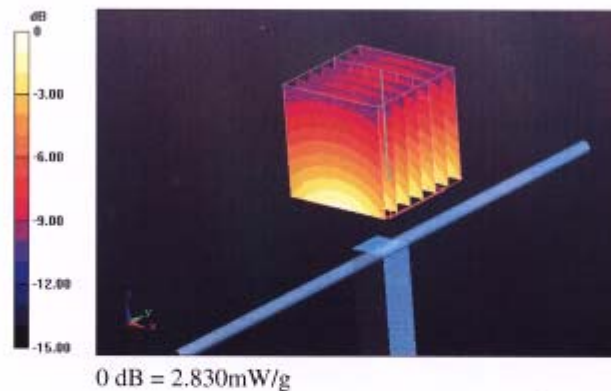
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.406 V/m; Power Drift = 0.02 dB

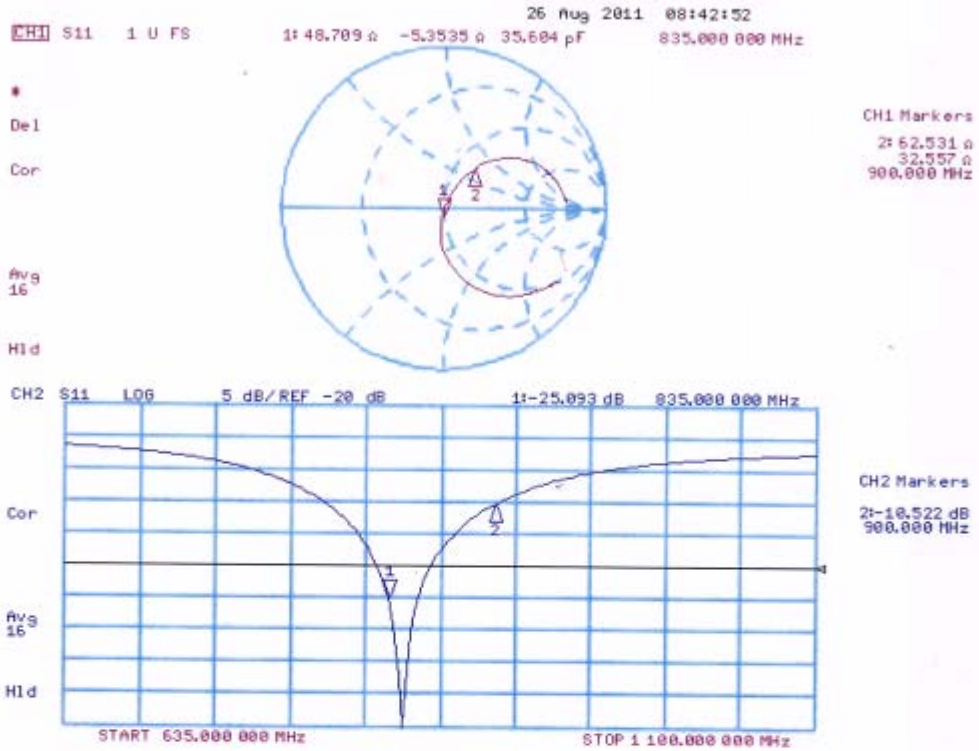
Peak SAR (extrapolated) = 3.509 W/kg

SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.827 mW/g



Impedance Measurement Plot for Body TSL



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

Report No.: RXA1312-0223SAR01R1

Page 135 of 162

ANNEX F: D1900V2 Dipole Calibration Certificate

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



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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 **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**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter EPM-442A | GB37480704 | 06-Oct-10 (No. 217-01266) | Oct-11 |
| Power sensor HP 8481A | US37292783 | 06-Oct-10 (No. 217-01266) | Oct-11 |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 29-Mar-11 (No. 217-01367) | Apr-12 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 29-Mar-11 (No. 217-01371) | Apr-12 |
| Reference Probe ES3DV3 | SN: 3205 | 29-Apr-11 (No. ES3-3205_Apr11) | Apr-12 |
| DAE4 | SN: 601 | 04-Jul-11 (No. DAE4-601_Jul11) | Jul-12 |
| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
| Power sensor HP 8481A | MY41092317 | 18-Oct-02 (in house check Oct-09) | In house check: Oct-11 |
| RF generator R&S SMT-06 | 100005 | 04-Aug-99 (in house check Oct-09) | In house check: Oct-11 |
| Network Analyzer HP 8753E | US37390585 S4206 | 18-Oct-01 (in house check Oct-10) | In house check: Oct-11 |

| | | | |
|----------------|---------------|-----------------------|-----------|
| | Name | Function | Signature |
| Calibrated by: | Dimce Iliev | Laboratory Technician | |
| Approved by: | Katja Pokovic | Technical Manager | |

Issued: August 31, 2011

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.: RXA1312-0223SAR01R1

Page 136 of 162

**Calibration Laboratory of
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Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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S Swiss Calibration Service

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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**

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

Report No.: RXA1312-0223SAR01R1

Page 137 of 162

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 \pm 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 \pm 0.2) °C | 39.5 \pm 6 % | 1.42 mho/m \pm 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 \pm 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 \pm 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 \pm 0.2) °C | 53.9 \pm 6 % | 1.57 mho/m \pm 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 \pm 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 \pm 16.5 % (k=2) |

TA Technology (Shanghai) Co., Ltd.

Test Report

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:

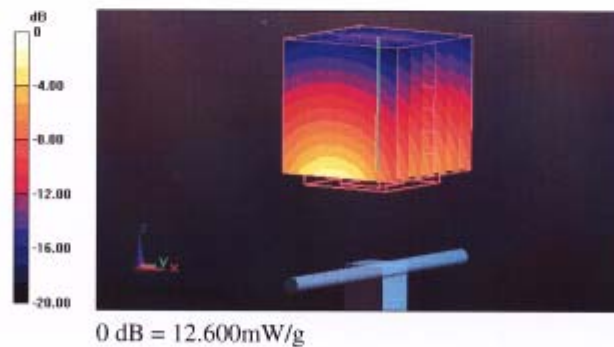
Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

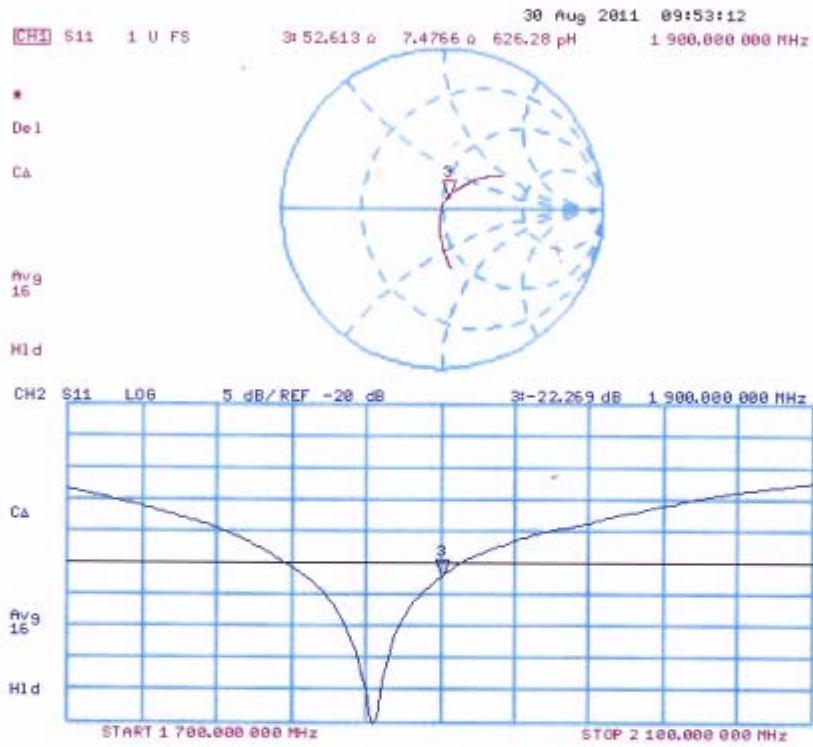


TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1312-0223SAR01R1

Page 140 of 162

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:

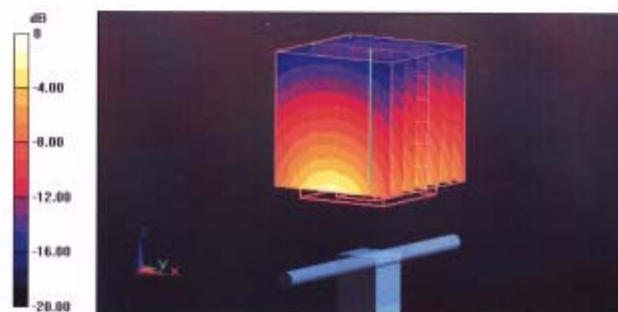
Measurement grid: dx=5mm, dy=5mm, dz=5mm

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



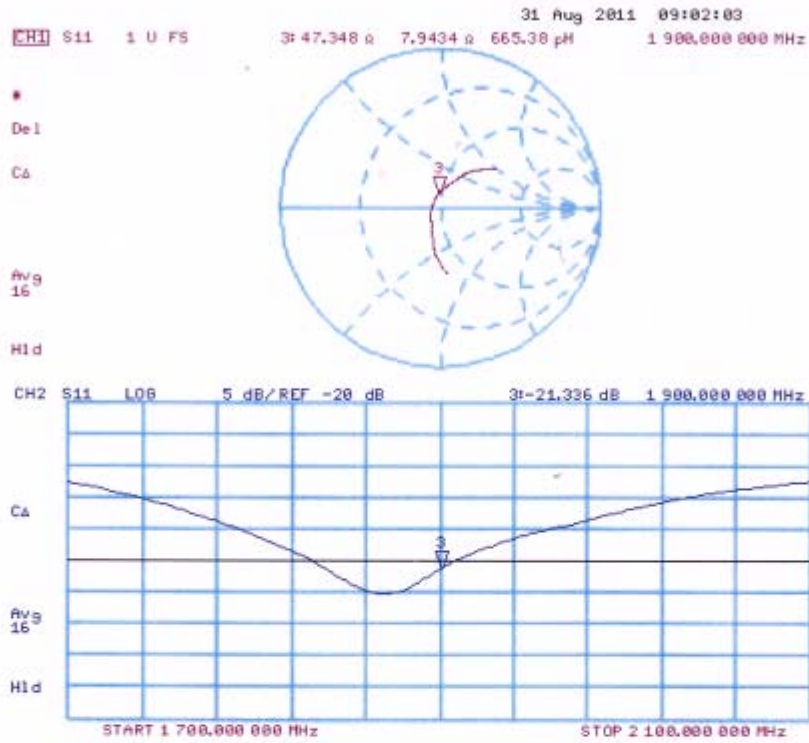
0 dB = 13.400mW/g

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

Report No.: RXA1312-0223SAR01R1

Page 142 of 162

Impedance Measurement Plot for Body TSL



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

Report No.: RXA1312-0223SAR01R1

Page 143 of 162

ANNEX G: D2450V2 Dipole Calibration Certificate

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



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 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 |

| | | | |
|----------------|---------------|-----------------------|-----------|
| | Name | Function | Signature |
| Calibrated by: | Dirce Iliev | Laboratory Technician | |
| Approved by: | Katja Pokovic | Technical Manager | |

Issued: August 29, 2011

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TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1312-0223SAR01R1

Page 144 of 162

**Calibration Laboratory of
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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.

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) |

TA Technology (Shanghai) Co., Ltd.

Test Report

Appendix

Antenna Parameters with Head TSL

| | |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $55.0 \Omega + 2.4 j\Omega$ |
| Return Loss | - 25.5 dB |

Antenna Parameters with Body TSL

| | |
|--------------------------------------|-----------------------------|
| Impedance, transformed to feed point | $50.4 \Omega + 3.5 j\Omega$ |
| 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:

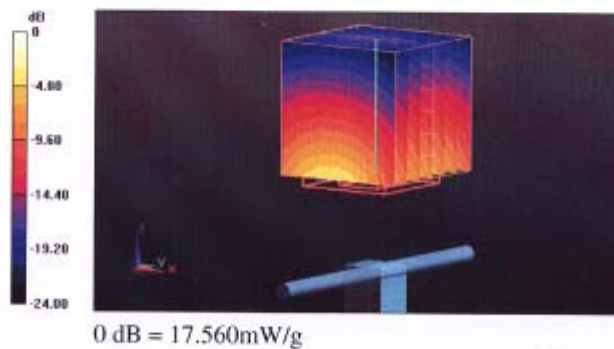
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.5 V/m; Power Drift = 0.06 dB

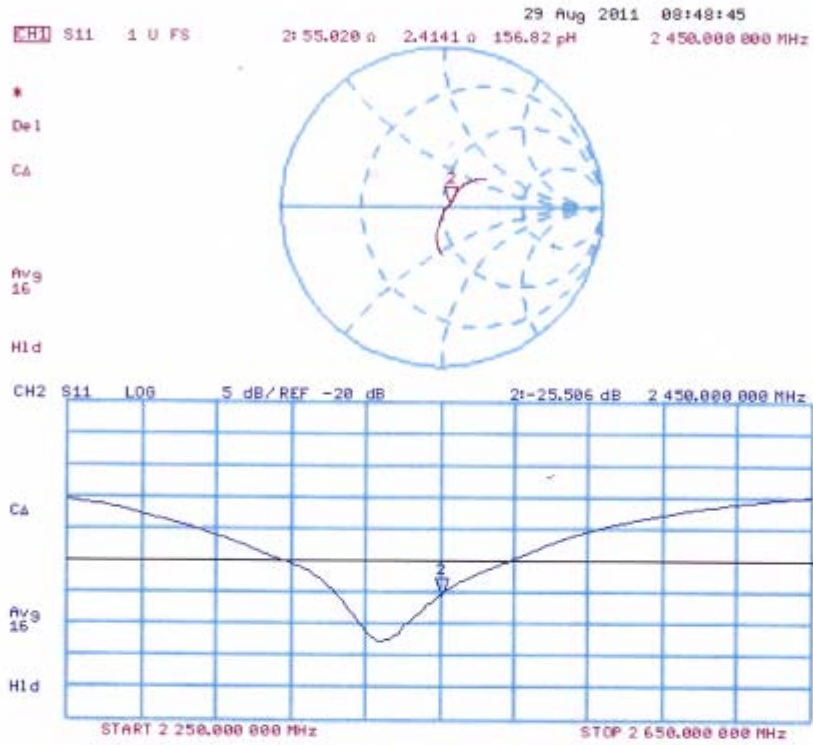
Peak SAR (extrapolated) = 28.303 W/kg

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:

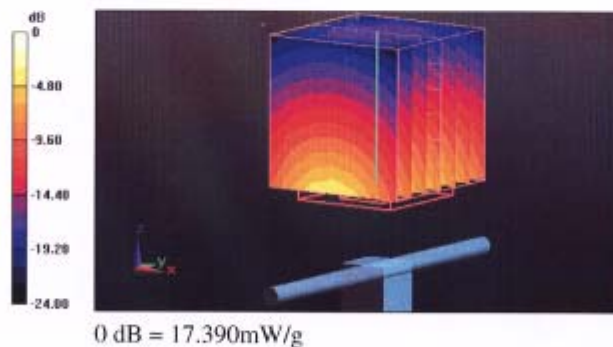
Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

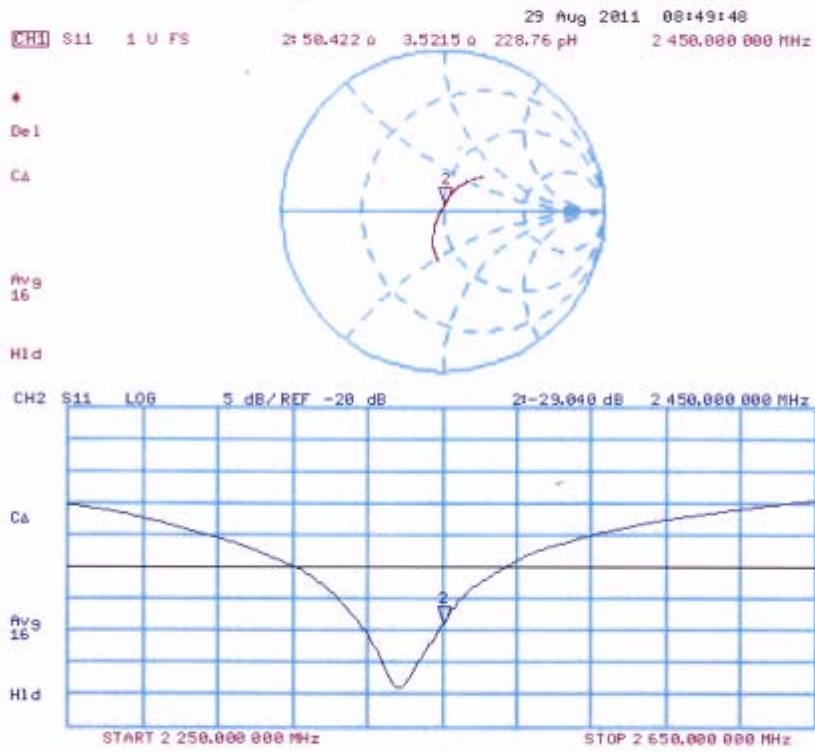


TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RXA1312-0223SAR01R1

Page 150 of 162

Impedance Measurement Plot for Body TSL



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

Report No.: RXA1312-0223SAR01R1

Page 151 of 162

ANNEX H: DAE4 Calibration Certificate

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
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**

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

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.: RXA1312-0223SAR01R1

Page 152 of 162

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



S Schweizerischer Kalibrierdienst
S Service suisse d'étalonnage
C Servizio svizzero di taratura
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Multilateral Agreement for the recognition of calibration certificates

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 $^{\circ}$ |
|---|-----------------------------------|

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 | - |

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RXA1312-0223SAR01R1

Page 155 of 162

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 |

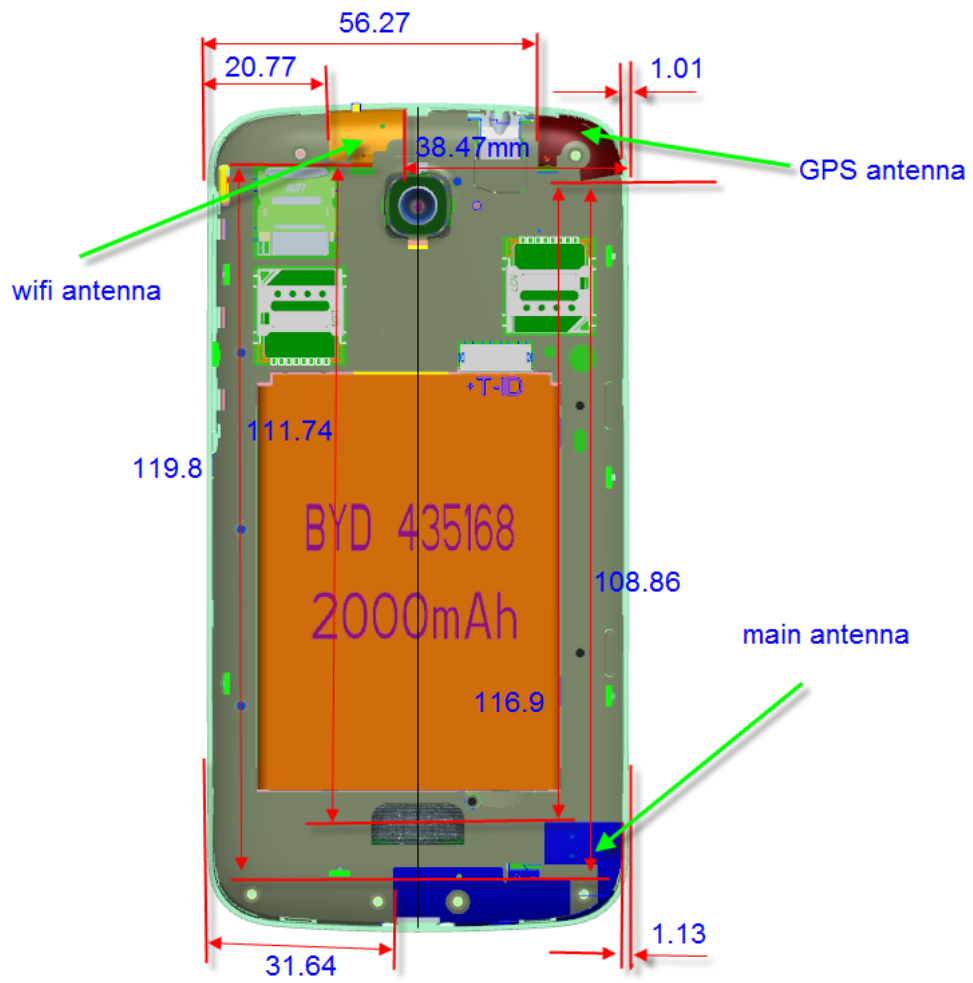
ANNEX I: The EUT Appearances and Test Configuration



a: EUT



b: Back View



c: Antenna

Picture 8: Constituents of EUT



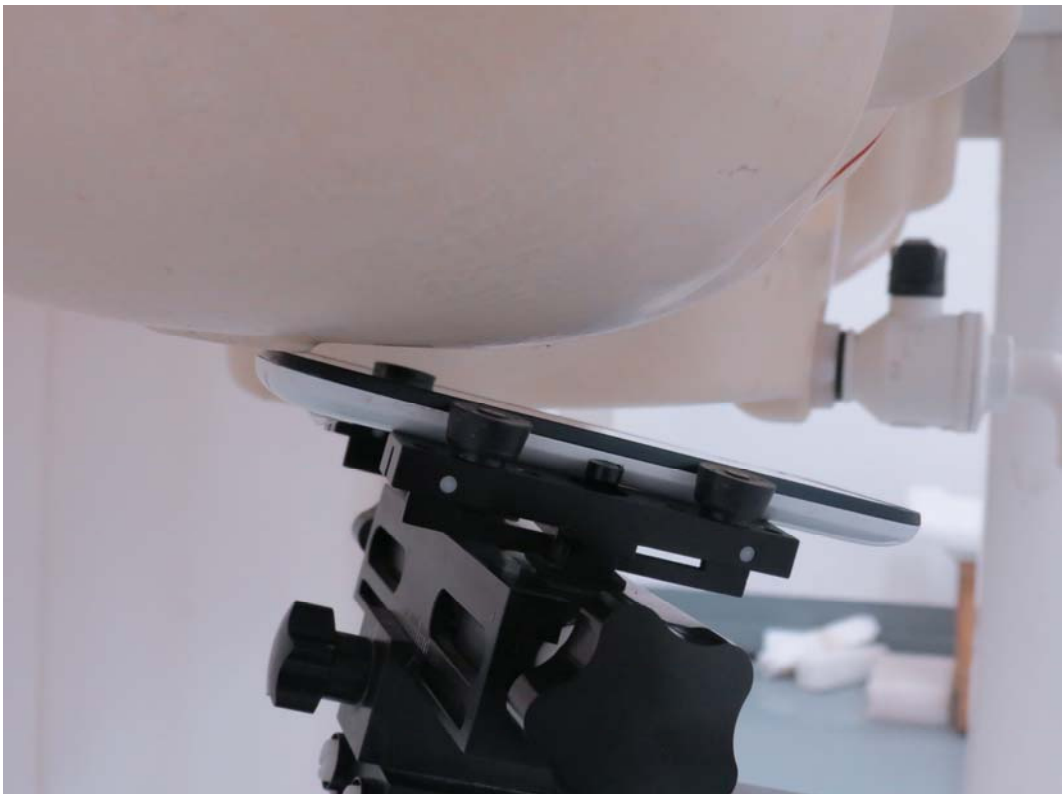
Picture 9: Left Hand Touch Cheek Position



Picture 10: Left Hand Tilt 15 Degree Position



Picture 11: Right Hand Touch Cheek Position



Picture 12: Right Hand Tilt 15 Degree Position



Picture 13: Back Side, the distance from handset to the bottom of the Phantom is 10mm



Picture 14: Front Side, the distance from handset to the bottom of the Phantom is 10mm



Picture 15: Left Edge, the distance from handset to the bottom of the Phantom is 10mm



Picture 16: Right Edge, the distance from handset to the bottom of the Phantom is 10mm



Picture 17: Top Edge, the distance from handset to the bottom of the Phantom is 10mm



Picture 18: Bottom Edge, the distance from handset to the bottom of the Phantom is 10mm