WCDMA850 Body Toward Ground Low

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 826.4 MHz; σ = 0.994 S/m; εr = 55.147; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band V; Frequency: 826.4 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06); Calibrated: 7/24/2012
Low Toward Ground WCDMA850MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
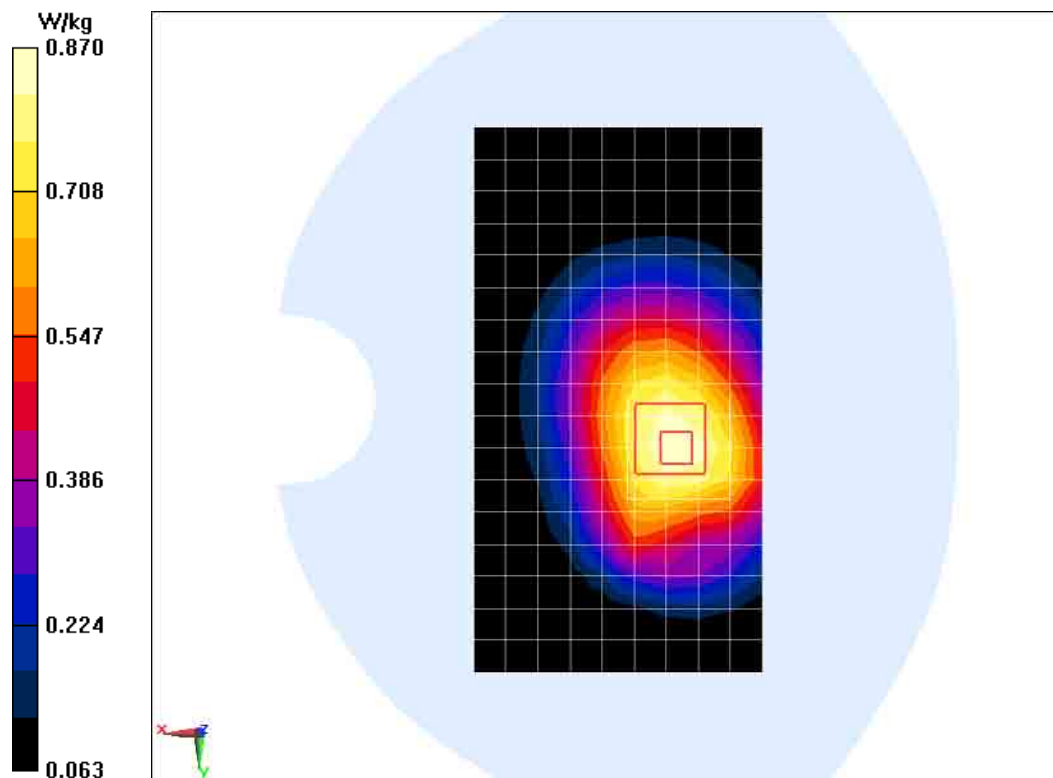Maximum value of SAR (measured) = 0.870 W/kg
Low Toward Ground WCDMA850MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.666 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.754 W/kg; SAR(10 g) = 0.611 W/kg
Maximum value of SAR (measured) = 0.870 W/kg

WCDMA850 Body Toward Ground High With Headset

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 847 MHz; σ = 1.012 S/m; εr = 55.214; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band V; Frequency: 846.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06); Calibrated: 7/24/2012
High Toward Ground WCDMA850MHz With Headset/Area Scan (10x18x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.824 W/kg
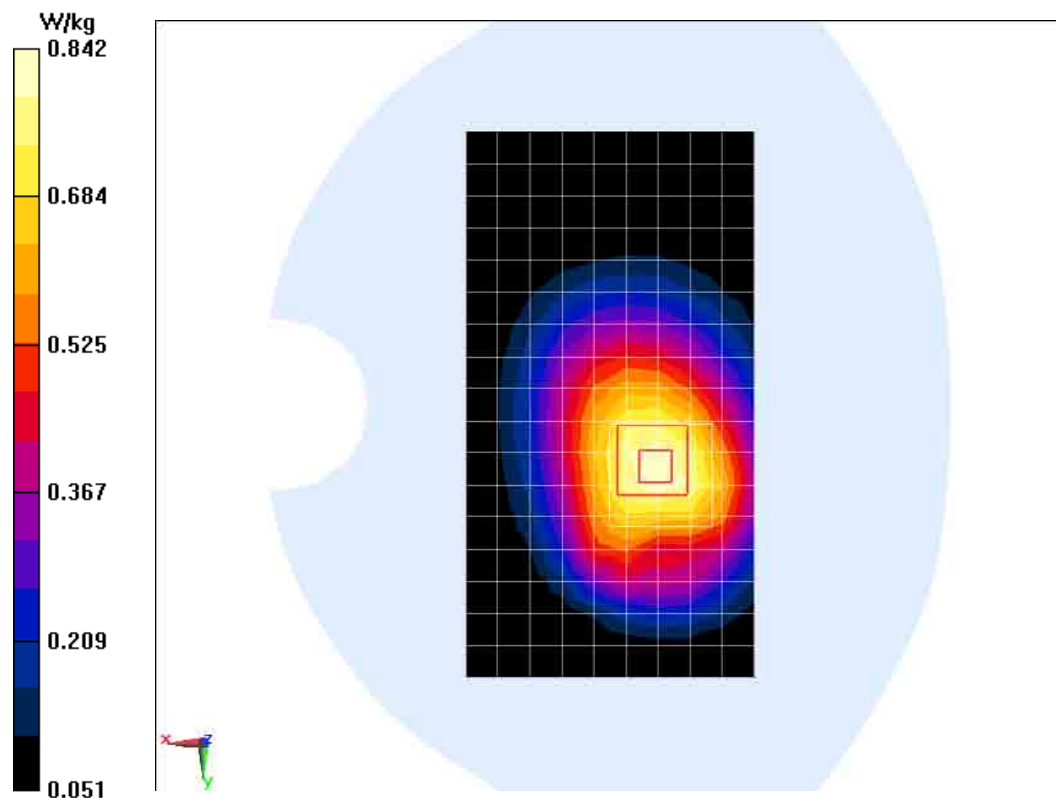**High Toward Ground WCDMA850MHz With Headset/Zoom Scan (5x5x7)/Cube 0:**
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.578 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.798 W/kg; SAR(10 g) = 0.582 W/kg
Maximum value of SAR (measured) = 0.842 W/kg

WCDMA1900 Left Cheek Middle

Date/Time: 1/18/2013
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.442 S/m; εr = 40.614; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃　　Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.1, 5.1, 5.1); Calibrated: 7/24/2012
Middle Cheek Left WCDMA1900MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
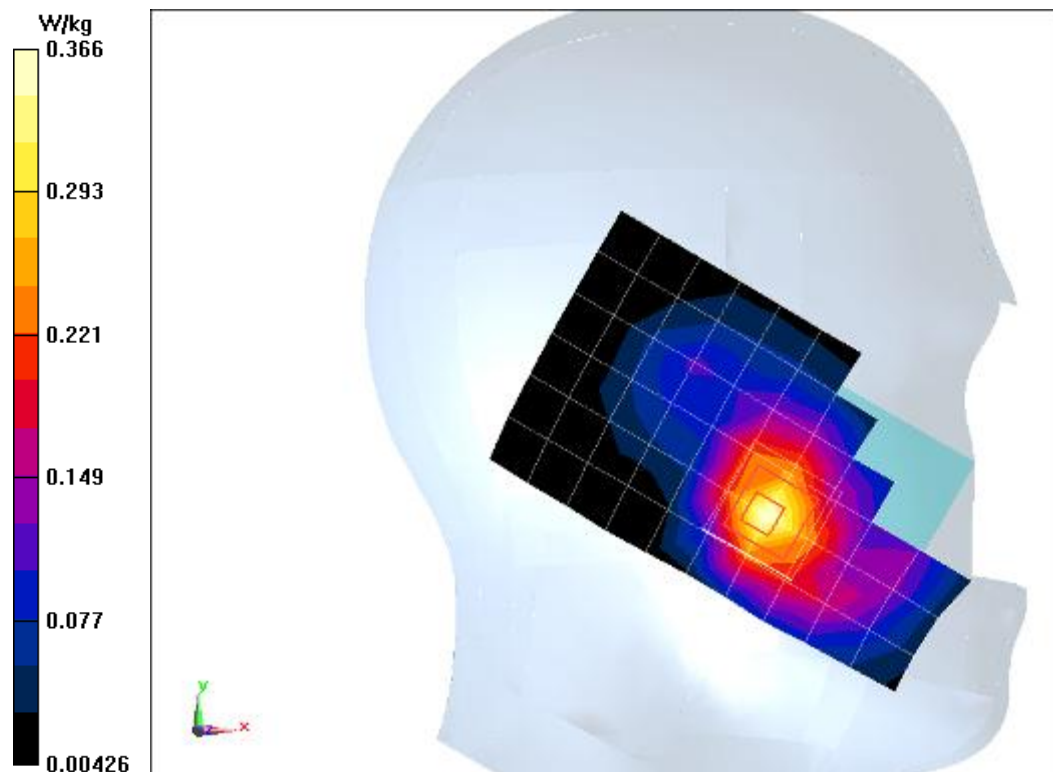Maximum value of SAR (measured) = 0.376 W/kg
Middle Cheek Left WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.386 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.542 W/kg
SAR(1 g) = 0.344 W/kg; SAR(10 g) = 0.201 W/kg
Maximum value of SAR (measured) = 0.366 W/kg

WCDMA1900 Left Tilt Middle

Date/Time: 1/18/2013
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.442 S/m; εr = 40.614; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.1, 5.1, 5.1); Calibrated: 7/24/2012
Middle Tilt Left WCDMA1900MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
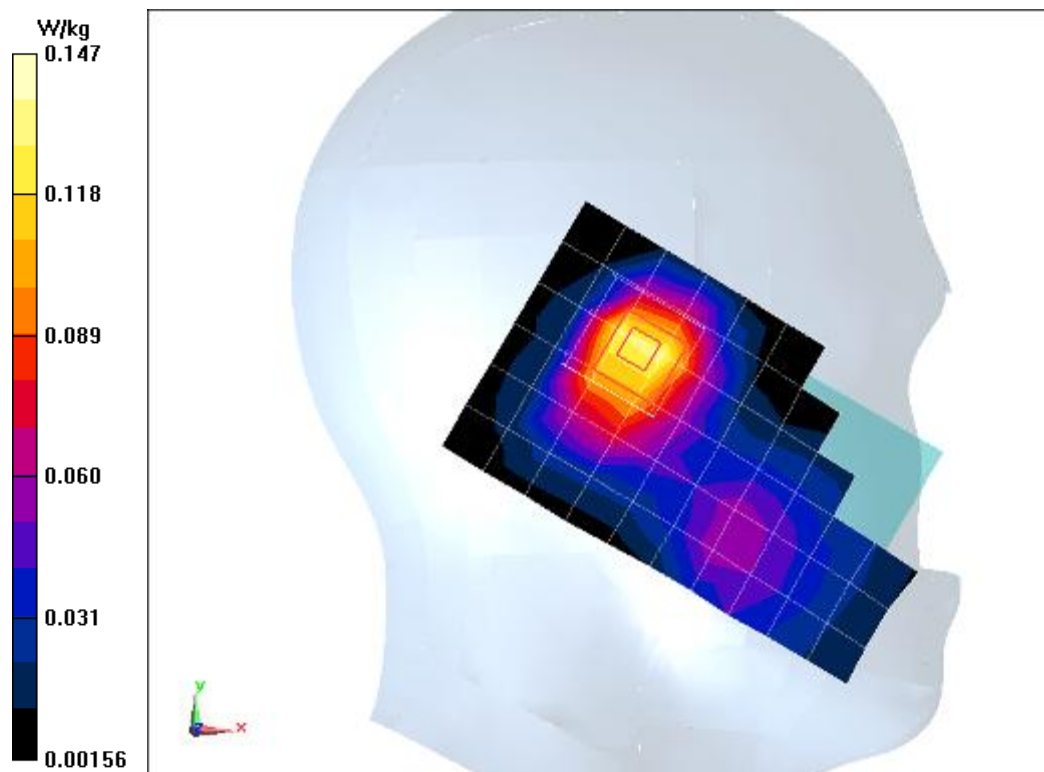Maximum value of SAR (measured) = 0.133 W/kg
Middle Tilt Left WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.775 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.214 W/kg
SAR(1 g) = 0.136 W/kg; SAR(10 g) = 0.082 W/kg
Maximum value of SAR (measured) = 0.147 W/kg

WCDMA1900 Right Cheek Middle

Date/Time: 1/18/2013
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.442 S/m; εr = 40.614; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.1, 5.1, 5.1); Calibrated: 7/24/2012
Middle Cheek Right WCDMA1900MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
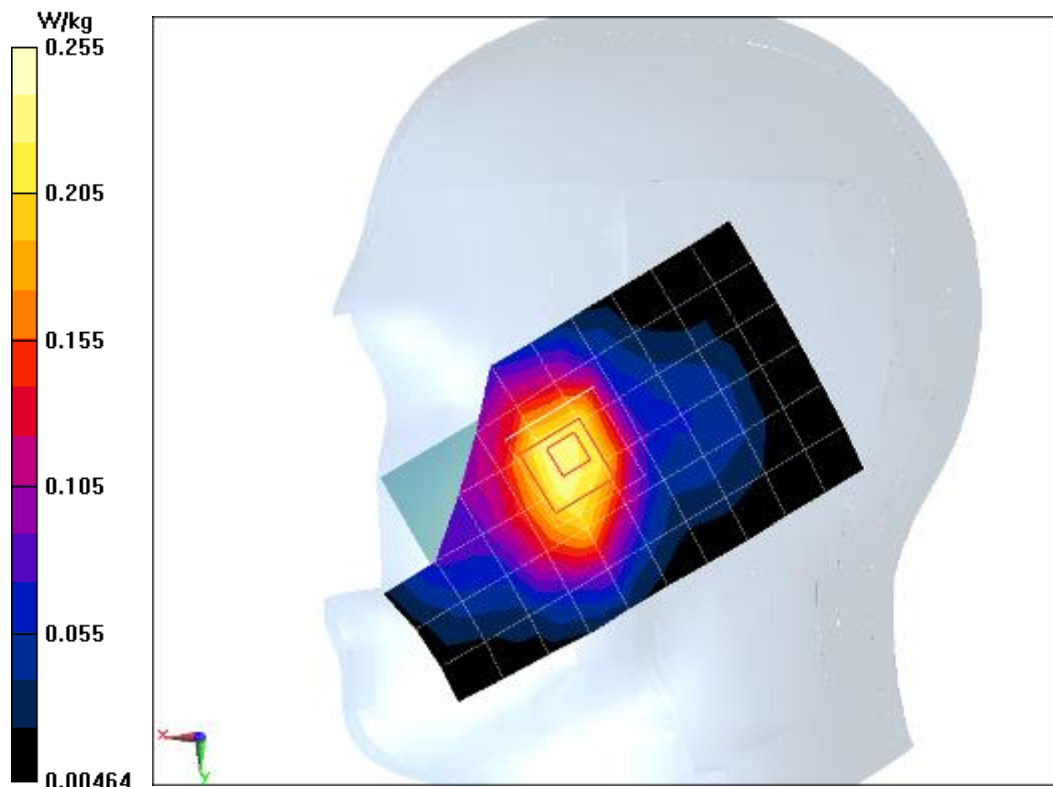Maximum value of SAR (measured) = 0.236 W/kg
Middle Cheek Right WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.385 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.366 W/kg
SAR(1 g) = 0.238 W/kg; SAR(10 g) = 0.149 W/kg
Maximum value of SAR (measured) = 0.255 W/kg

WCDMA1900 Right Tilt Middle

Date/Time: 1/18/2013
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.442 S/m; εr = 40.614; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.1, 5.1, 5.1); Calibrated: 7/24/2012
Middle Tilt Right WCDMA1900MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
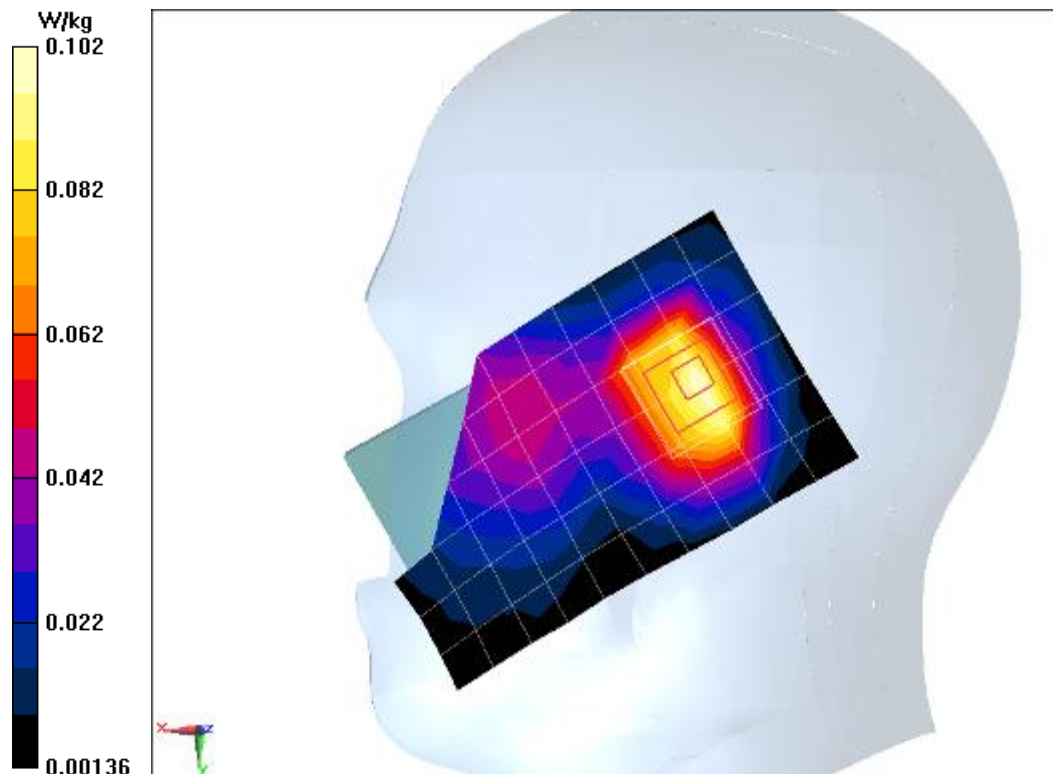Maximum value of SAR (measured) = 0.102 W/kg
Middle Tilt Right WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.367 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.144 W/kg
SAR(1 g) = 0.096 W/kg; SAR(10 g) = 0.061 W/kg
Maximum value of SAR (measured) = 0.102 W/kg

WCDMA1900 Left Cheek High

Date/Time: 1/18/2013
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1908 MHz; σ = 1.467 S/m; εr = 40.502; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.1, 5.1, 5.1); Calibrated: 7/24/2012
High Cheek Left WCDMA1900MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
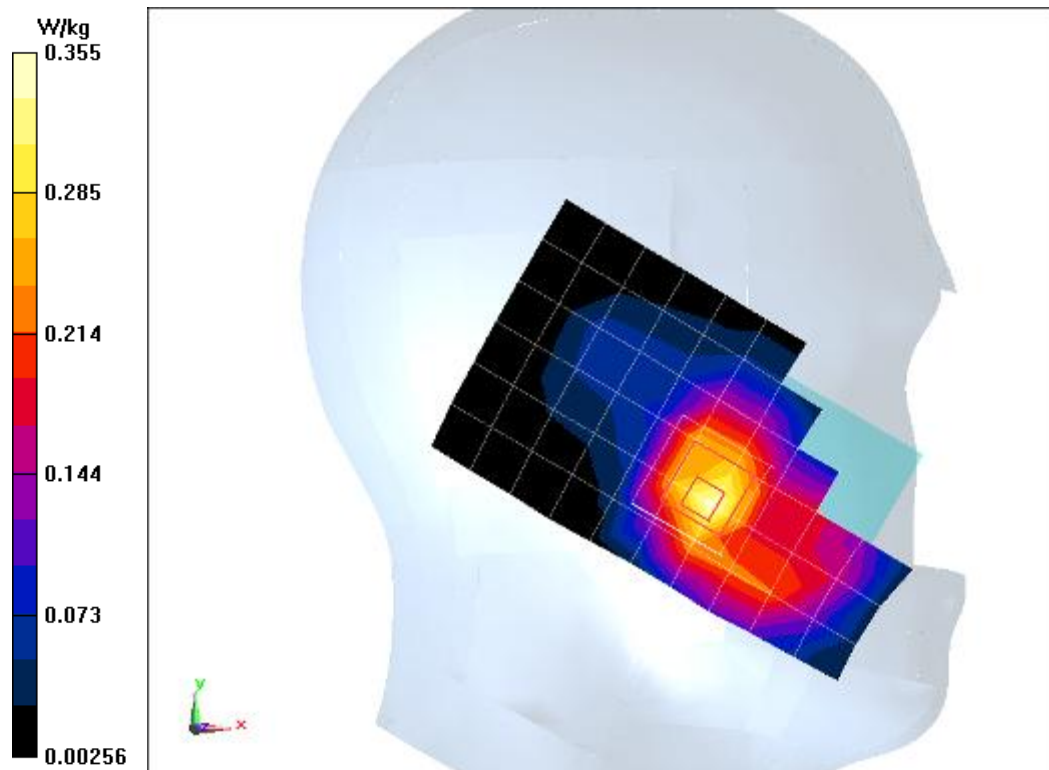Maximum value of SAR (measured) = 0.354 W/kg
High Cheek Left WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.412 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.516 W/kg
SAR(1 g) = 0.334 W/kg; SAR(10 g) = 0.202 W/kg
Maximum value of SAR (measured) = 0.355 W/kg

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WCDMA1900 Left Cheek Low

Date/Time: 1/18/2013

Electronics: DAE4 Sn1244

Medium: Head 1900MHz

Medium parameters used: f = 1852.4 MHz; σ = 1.418 S/m; εr = 40.782; ρ = 1000 kg/m3

Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃

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

Probe: ES3DV3 - SN3252ConvF(5.1, 5.1, 5.1); Calibrated: 7/24/2012

Low Cheek Left WCDMA1900MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

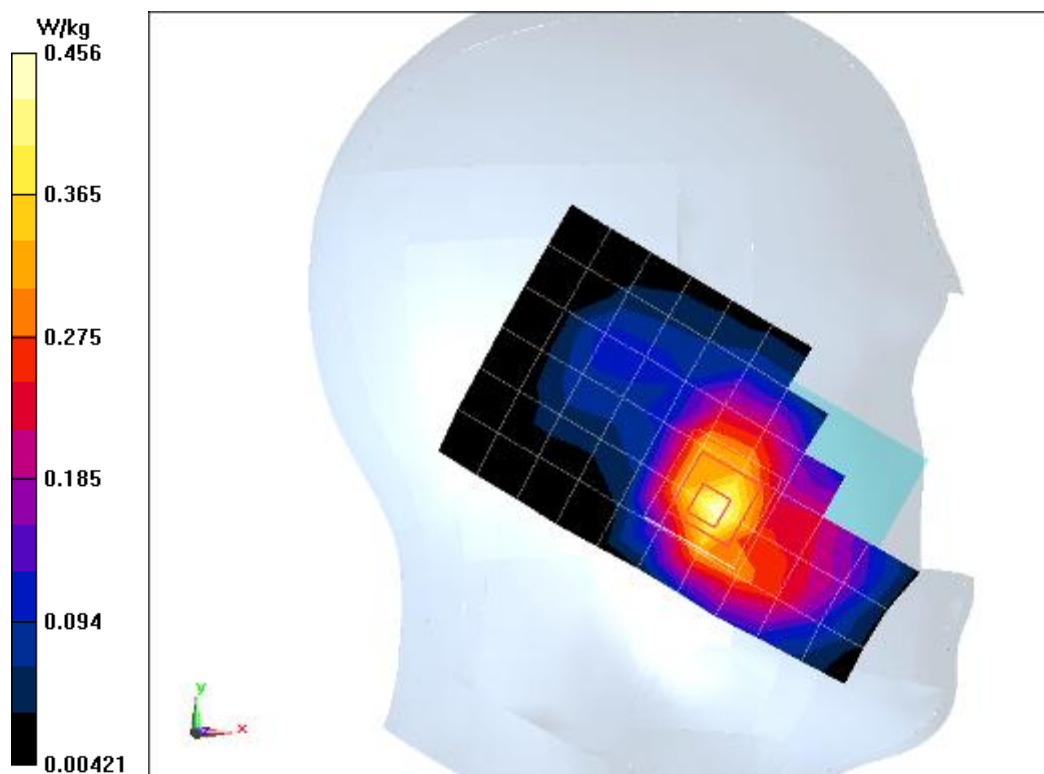Maximum value of SAR (measured) = 0.457 W/kg

Low Cheek Left WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
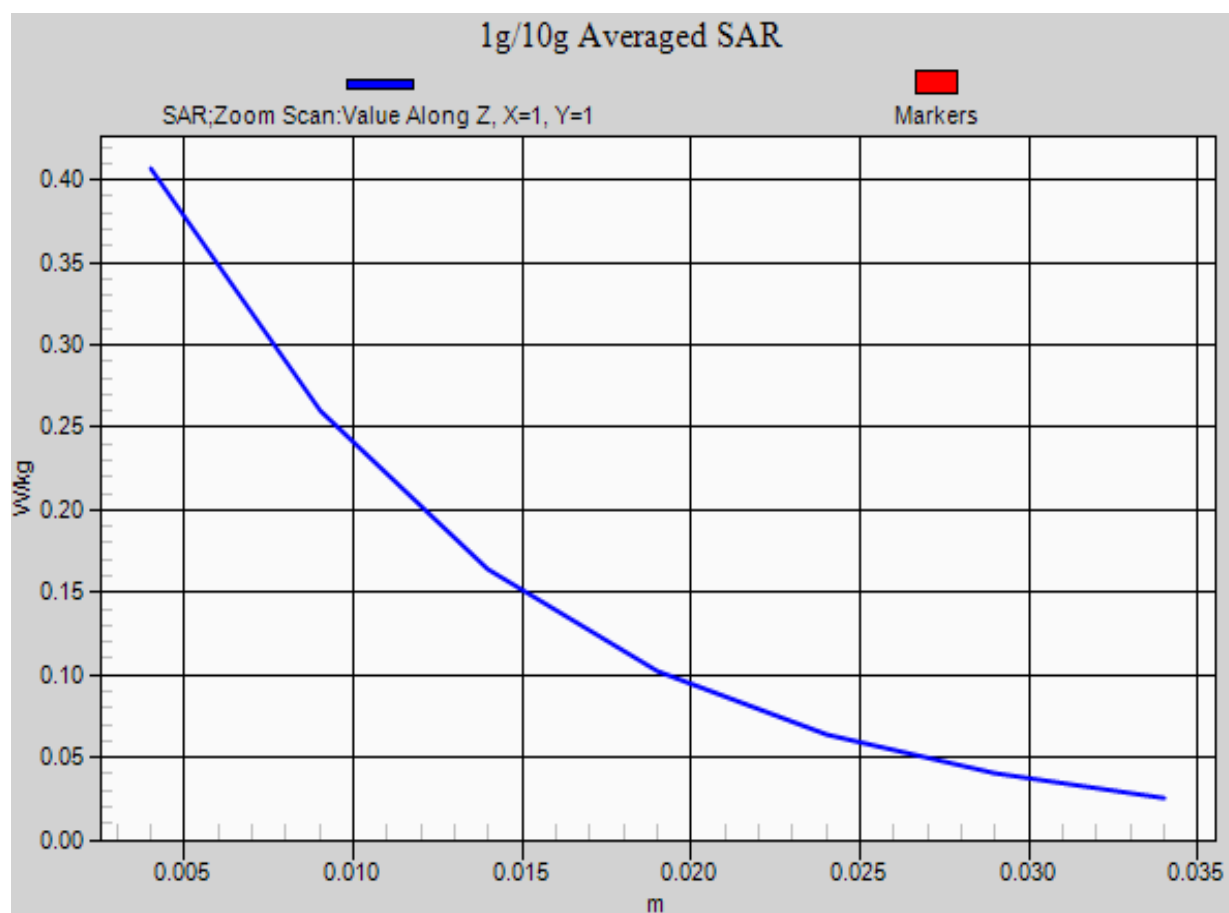
Reference Value = 7.264 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.660 W/kg

SAR(1 g) = 0.428 W/kg; SAR(10 g) = 0.259 W/kg

Maximum value of SAR (measured) = 0.456 W/kg

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WCDMA1900 Body Toward Ground Middle

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.504 S/m; εr = 53.319; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Middle Toward Ground WCDMA1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
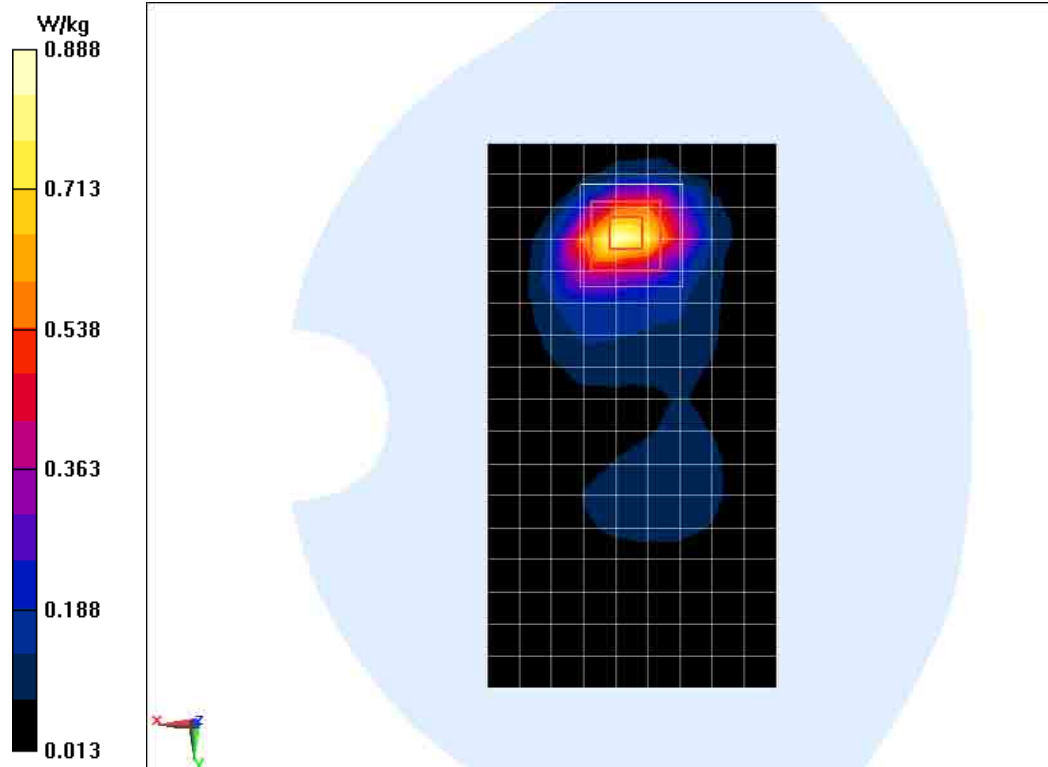Maximum value of SAR (measured) = 0.871 W/kg
Middle Toward Ground WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.528 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.795 W/kg; SAR(10 g) = 0.402 W/kg
Maximum value of SAR (measured) = 0.888 W/kg

WCDMA1900 Body Toward Phantom Middle

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.504 S/m; εr = 53.319; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Middle Toward Phantom WCDMA1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
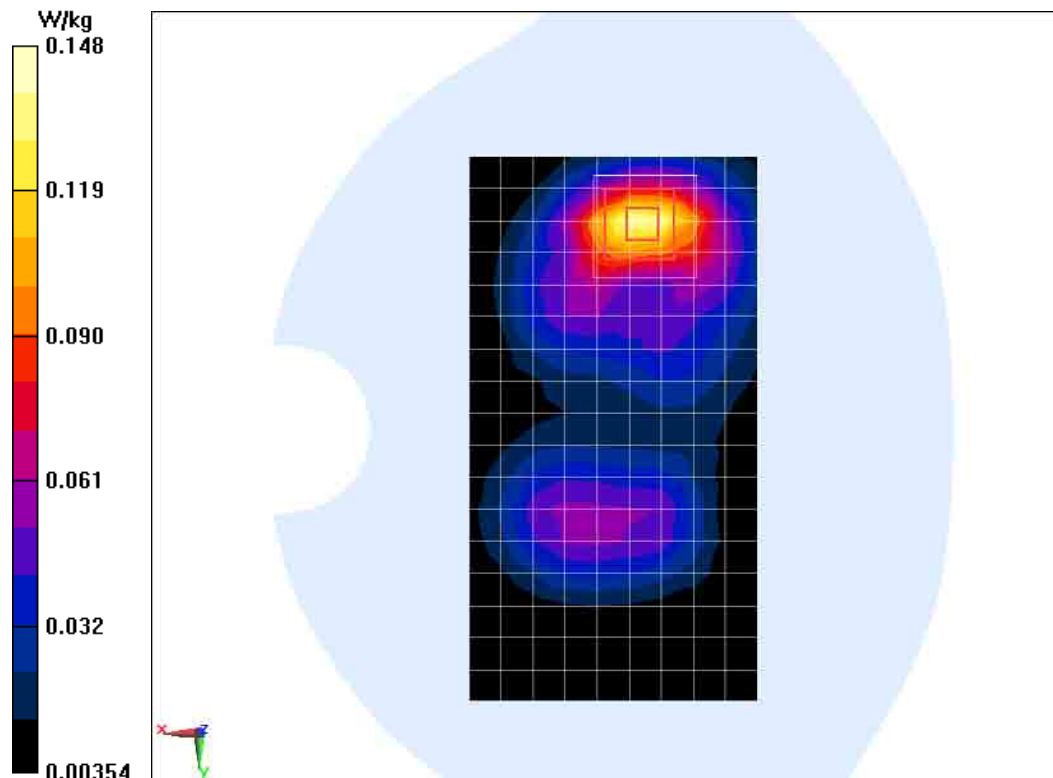Maximum value of SAR (measured) = 0.141 W/kg
Middle Toward Phantom WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.524 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.235 W/kg
SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.071 W/kg
Maximum value of SAR (measured) = 0.148 W/kg

WCDMA1900 Body Left Middle

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.504 S/m; εr = 53.319; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Middle Left WCDMA1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
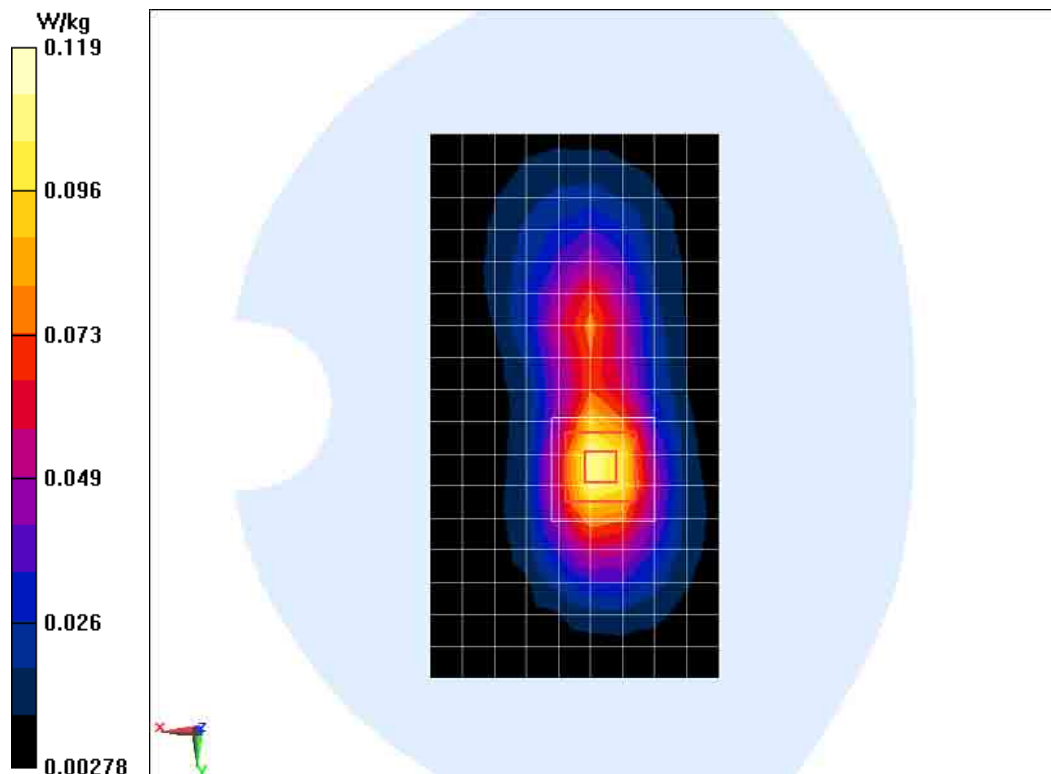Maximum value of SAR (measured) = 0.112 W/kg
Middle Left WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.786 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.183 W/kg
SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.061 W/kg
Maximum value of SAR (measured) = 0.119 W/kg

WCDMA1900 Body Right Middle

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.504 S/m; εr = 53.319; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Middle Right WCDMA1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
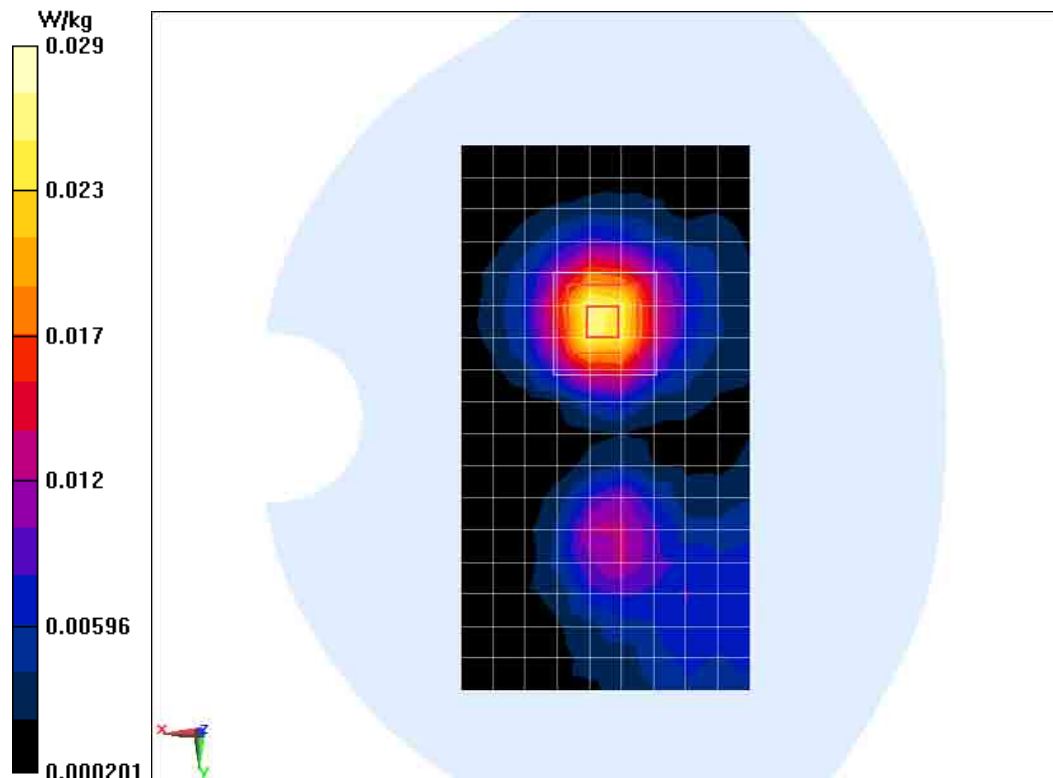Maximum value of SAR (measured) = 0.0264 W/kg
Middle Right WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.510 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.0450 W/kg
SAR(1 g) = 0.026 W/kg; SAR(10 g) = 0.015 W/kg
Maximum value of SAR (measured) = 0.0290 W/kg

WCDMA1900 Body Bottom Middle

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.504 S/m; εr = 53.319; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Middle Bottom WCDMA1900MHz/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm
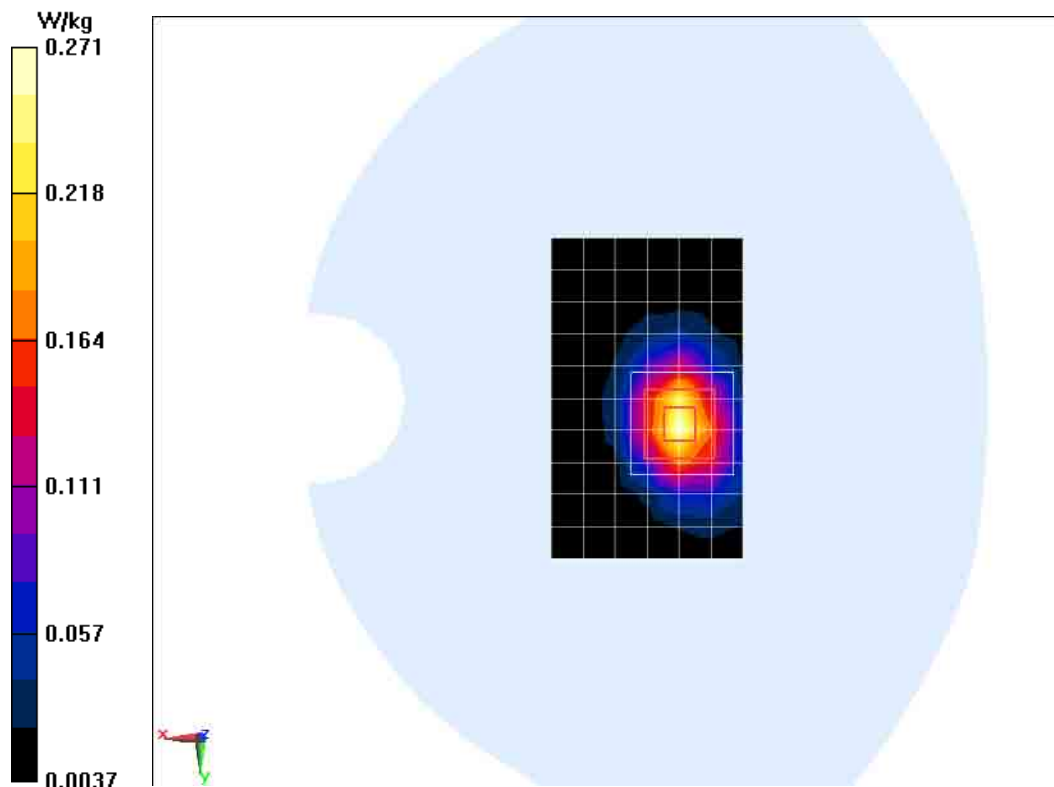Maximum value of SAR (measured) = 0.271 W/kg
Middle Bottom WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.509 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.424 W/kg
SAR(1 g) = 0.244 W/kg; SAR(10 g) = 0.127 W/kg
Maximum value of SAR (measured) = 0.271 W/kg

WCDMA1900 Body Toward Ground High

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1908 MHz; σ = 1.532 S/m; εr = 53.199; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
High Toward Ground WCDMA1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
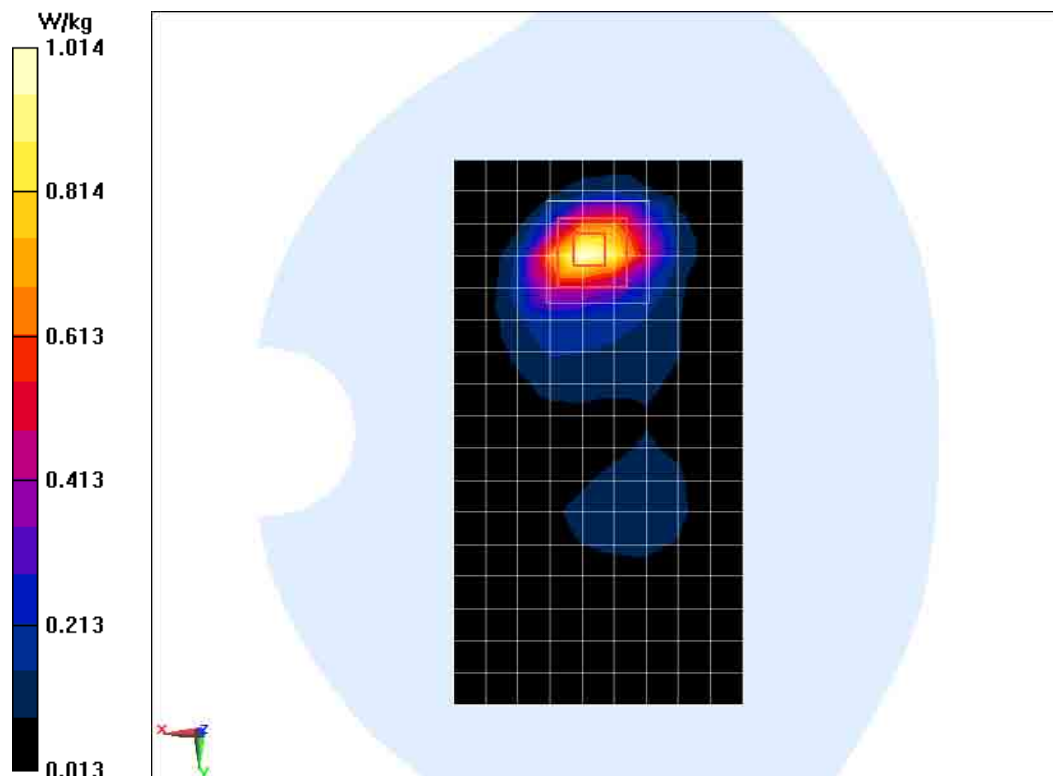Maximum value of SAR (measured) = 1.03 W/kg
High Toward Ground WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
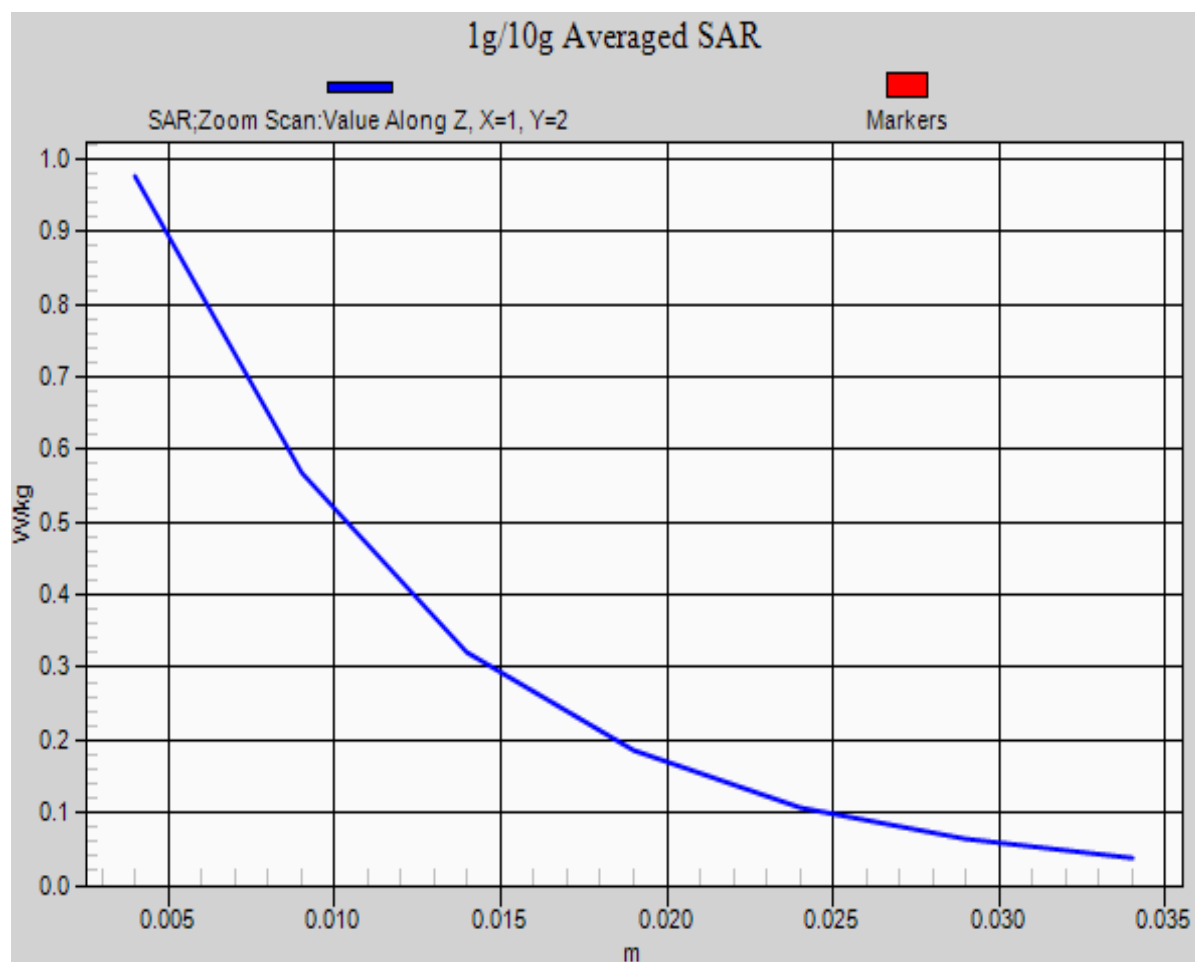Reference Value = 6.520 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.913 W/kg; SAR(10 g) = 0.456 W/kg
Maximum value of SAR (measured) = 1.01 W/kg

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1g/10g Averaged SAR

SAR;Zoom Scan:Value Along Z, X=1, Y=2   Markers

WCDMA1900 Body Toward Ground Low

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1852.4 MHz; σ = 1.477 S/m; εr = 53.431; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1852.4 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Low Toward Ground WCDMA1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
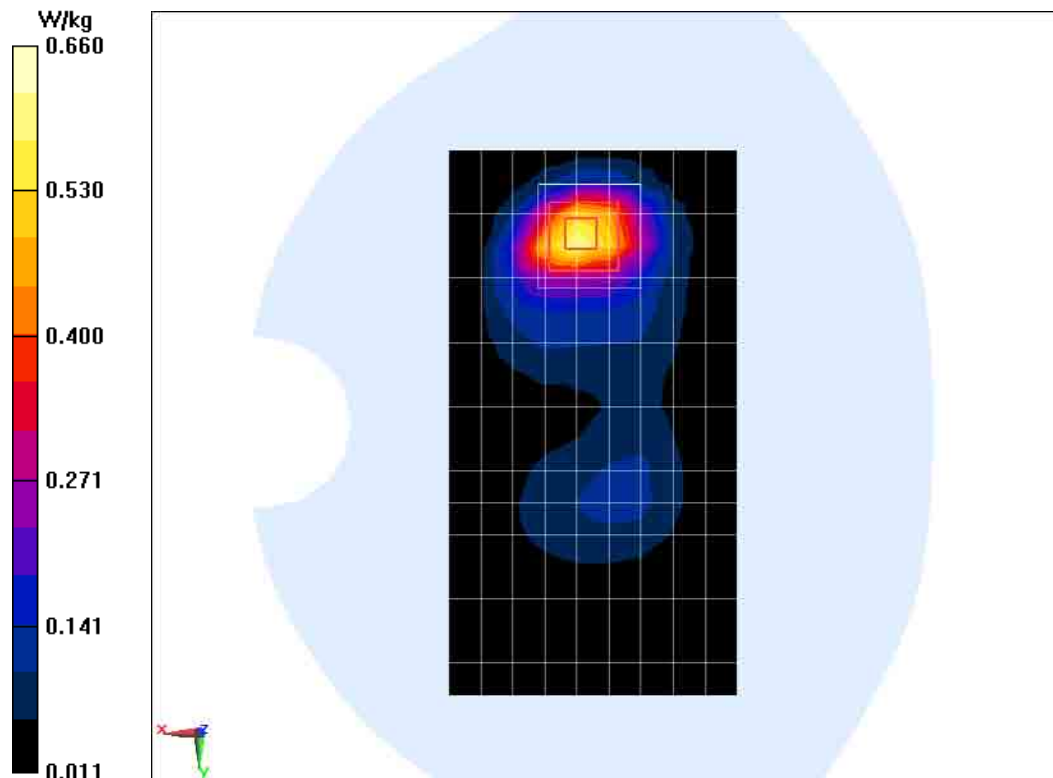Maximum value of SAR (measured) = 0.621 W/kg
Low Toward Ground WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.376 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.595 W/kg; SAR(10 g) = 0.312 W/kg
Maximum value of SAR (measured) = 0.660 W/kg

WCDMA1900 Body Toward Ground High With Headset

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1908 MHz; σ = 1.532 S/m; εr = 53.199; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA band II; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
High Toward Ground WCDMA1900MHz With Headset/Area Scan (10x18x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.787 W/kg
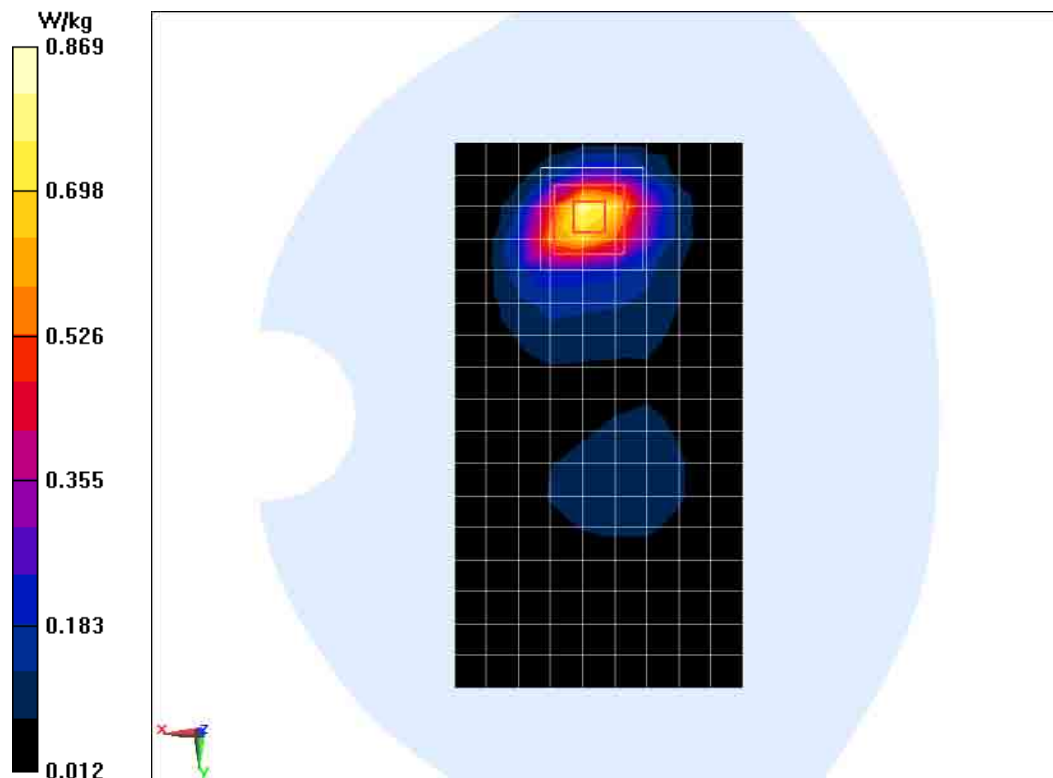**High Toward Ground WCDMA1900MHz With Headset/Zoom Scan (5x5x7)/Cube 0:**
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.589 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.768 W/kg; SAR(10 g) = 0.391 W/kg
Maximum value of SAR (measured) = 0.869 W/kg

802.11b Left Cheek Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Head 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.787 S/m; εr = 39.087; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(6.74, 6.74, 6.74); Calibrated: 8/17/2012
Low Cheek Left WiFi2450MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
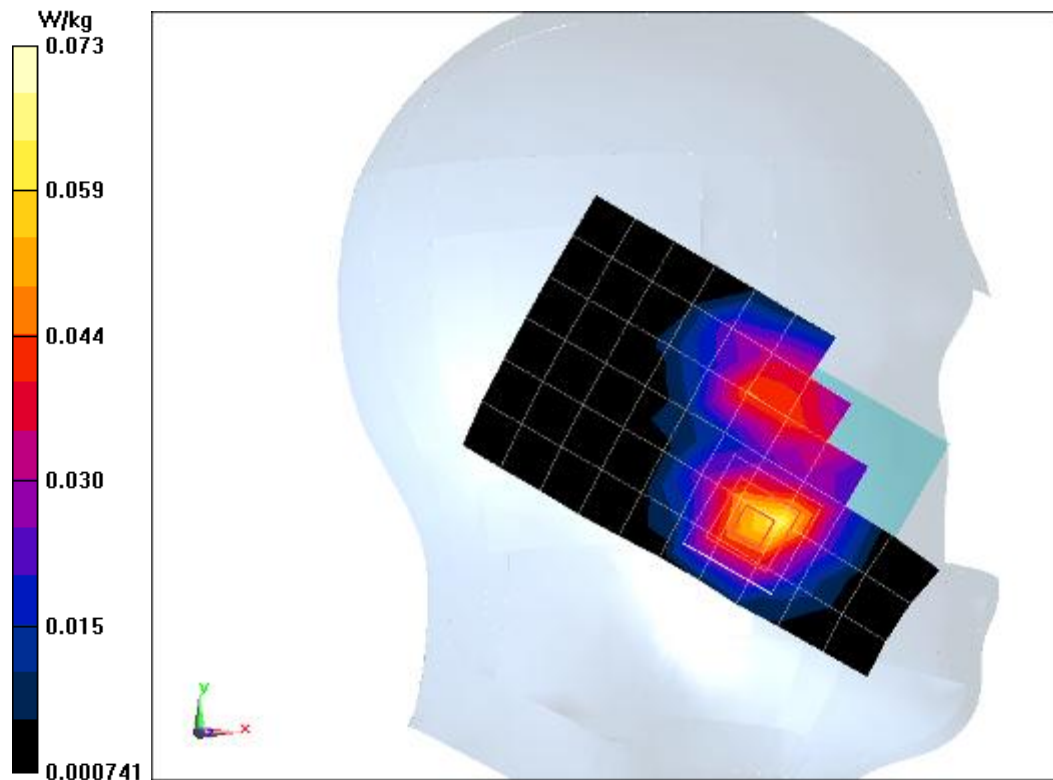Maximum value of SAR (measured) = 0.0644 W/kg
Low Cheek Left WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.879 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.115 W/kg
SAR(1 g) = 0.063 W/kg; SAR(10 g) = 0.031 W/kg
Maximum value of SAR (measured) = 0.0734 W/kg

802.11b Left Tilt Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Head 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.787 S/m; εr = 39.087; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(6.74, 6.74, 6.74); Calibrated: 8/17/2012
Low Tilt Left WiFi2450MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
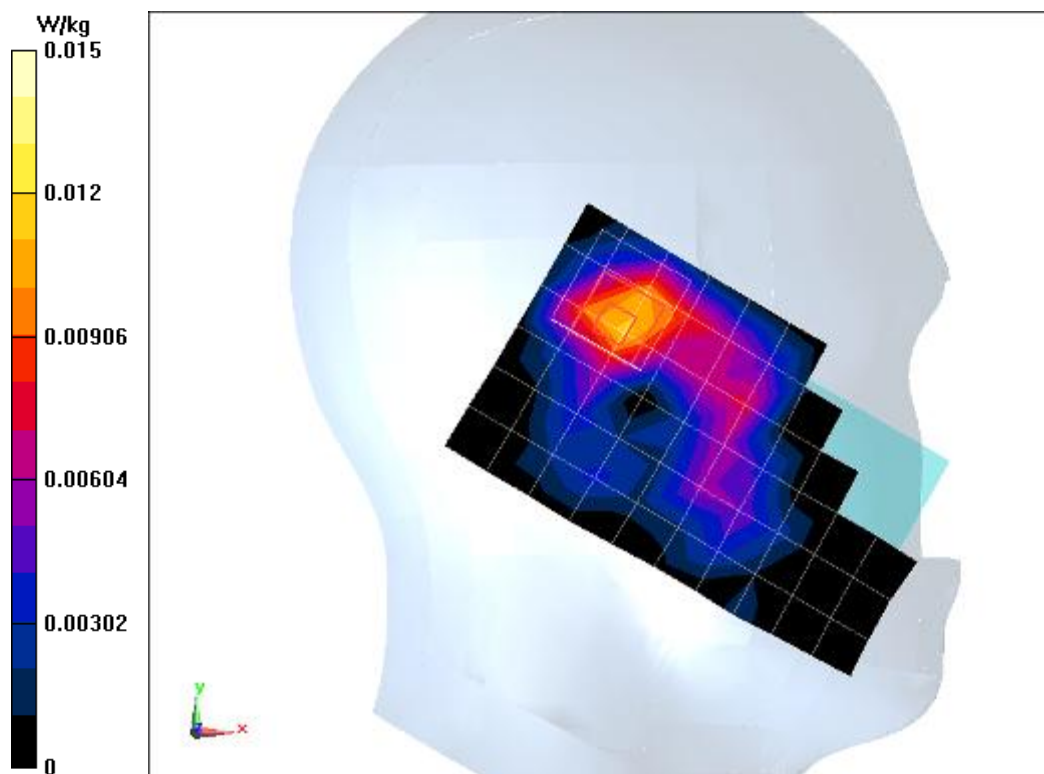Maximum value of SAR (measured) = 0.0173 W/kg
Low Tilt Left WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.601 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0650 W/kg
SAR(1 g) = 0.016 W/kg; SAR(10 g) = 0.00657 W/kg
Maximum value of SAR (measured) = 0.0151 W/kg

802.11b Right Cheek Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Head 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.787 S/m; εr = 39.087; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(6.74, 6.74, 6.74); Calibrated: 8/17/2012
Low Cheek Right WiFi2450MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
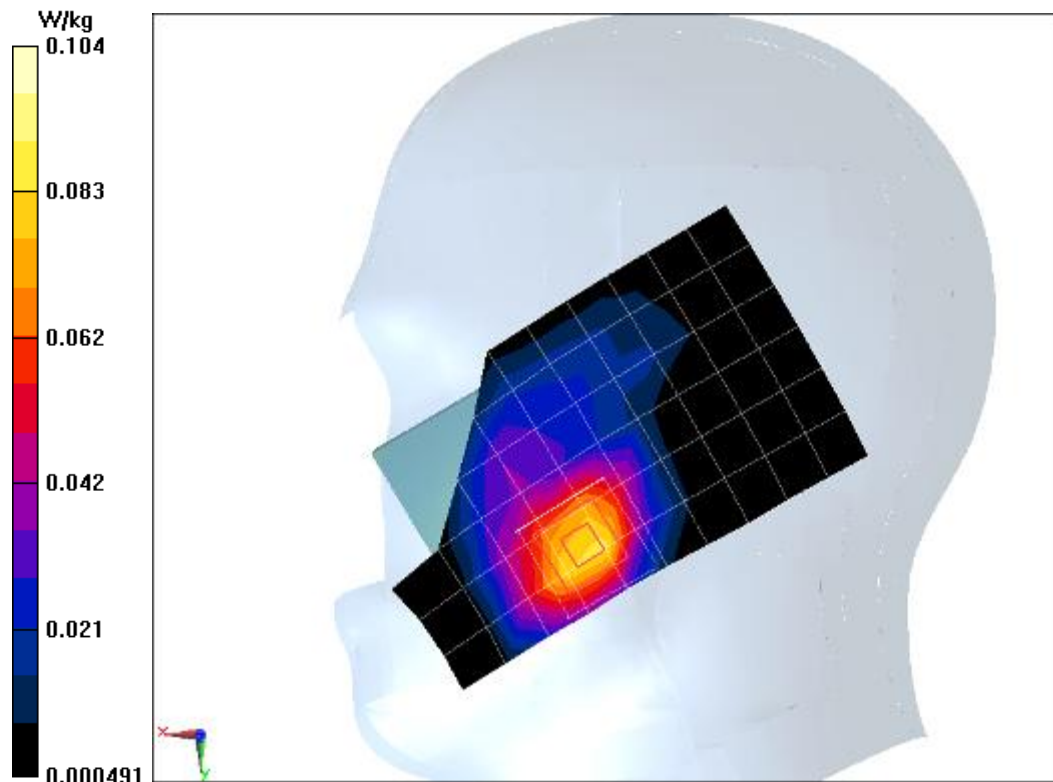Maximum value of SAR (measured) = 0.0865 W/kg
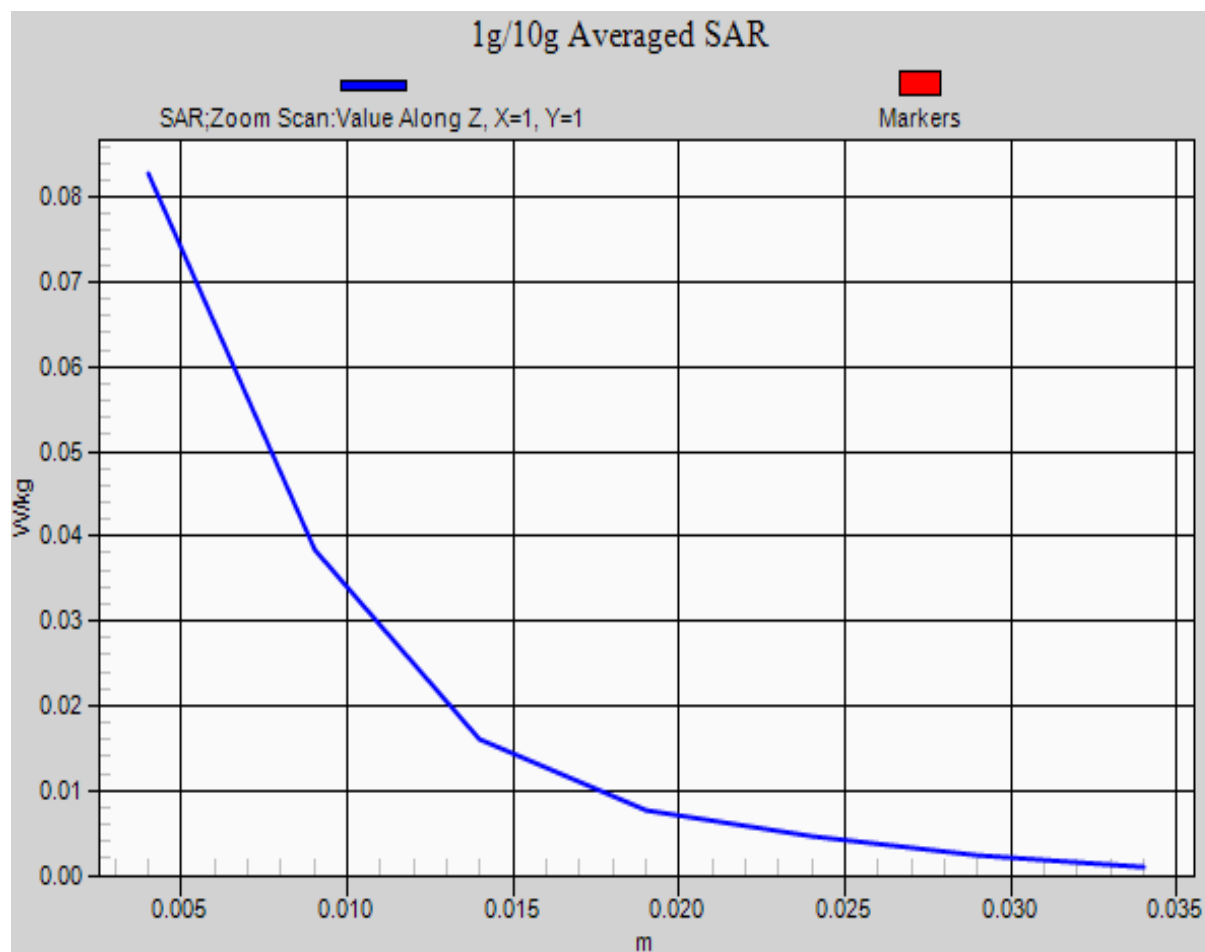**Low Cheek Right WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.218 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.197 W/kg
SAR(1 g) = 0.093 W/kg; SAR(10 g) = 0.046 W/kg
Maximum value of SAR (measured) = 0.104 W/kg

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802.11b Right Tilt Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Head 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.787 S/m; εr = 39.087; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(6.74, 6.74, 6.74); Calibrated: 8/17/2012
Low Tilt Right WiFi2450MHz/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm
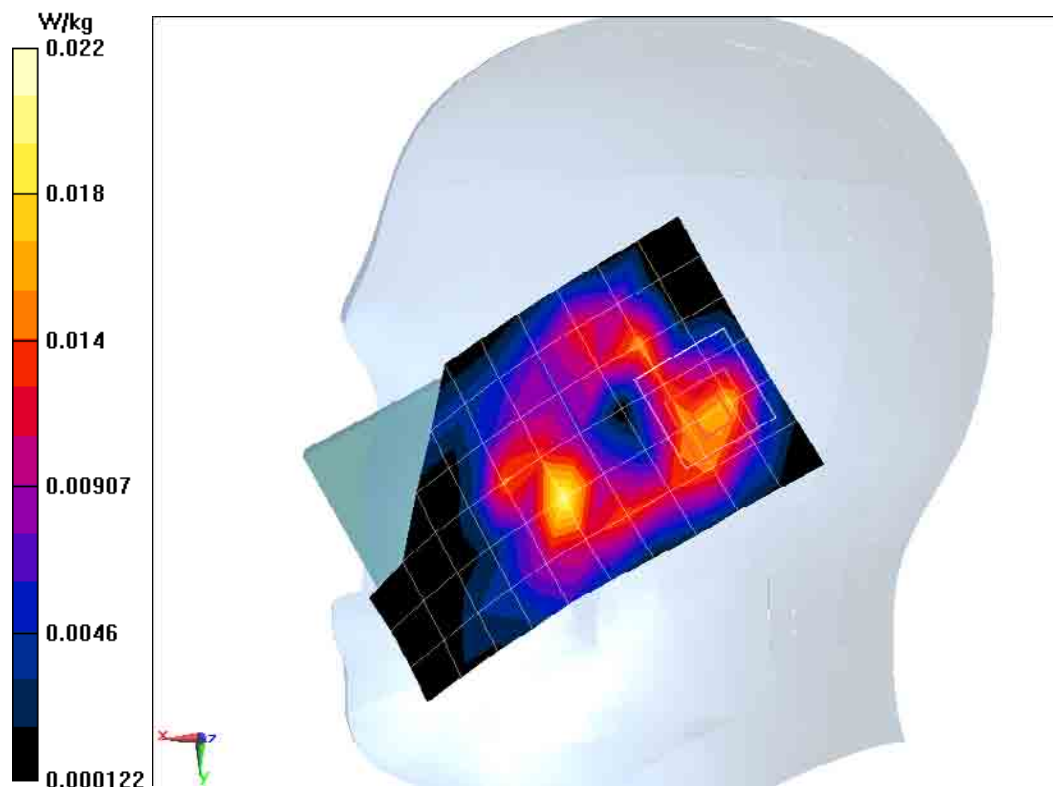Maximum value of SAR (measured) = 0.0137 W/kg
Low Tilt Right WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.694 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.0460 W/kg
SAR(1 g) = 0.019 W/kg; SAR(10 g) = 0.00984 W/kg
Maximum value of SAR (measured) = 0.0225 W/kg

802.11b Body Toward Ground Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Body 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.869 S/m; εr = 53.925; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.25, 7.25, 7.25); Calibrated: 8/17/2012
Low Toward Ground WiFi2450MHz/Area Scan (14x21x1): Measurement grid: dx=10mm, dy=10mm
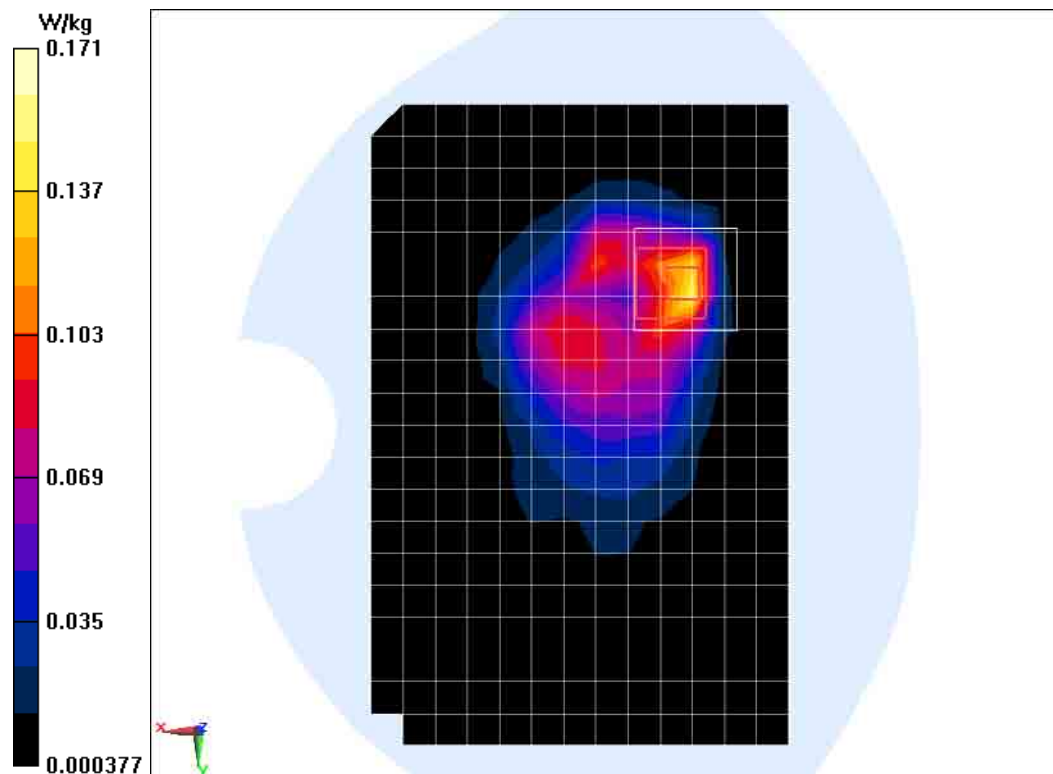Maximum value of SAR (measured) = 0.148 W/kg
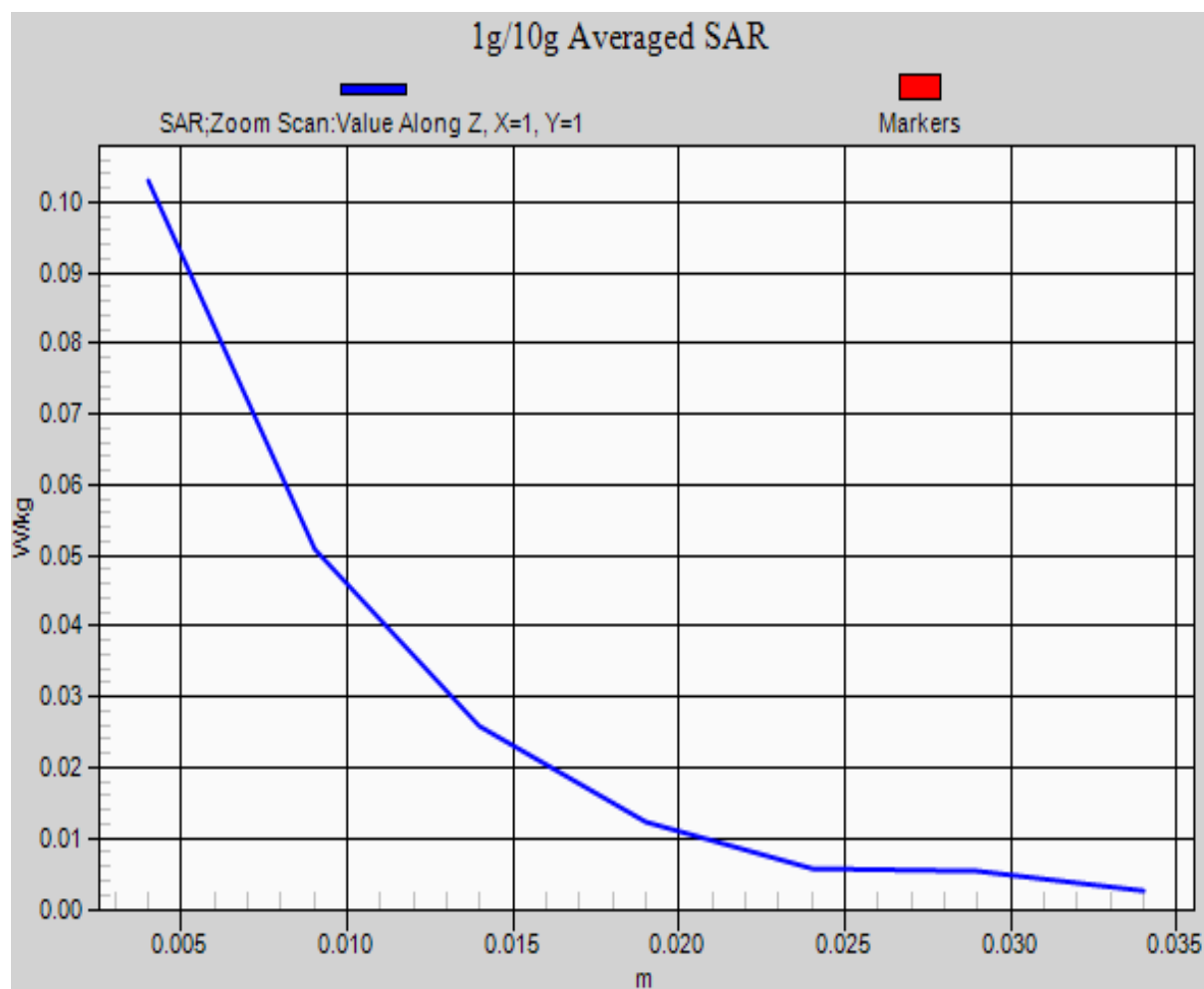**Low Toward Ground WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.479 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.295 W/kg
SAR(1 g) = 0.138 W/kg; SAR(10 g) = 0.062 W/kg
Maximum value of SAR (measured) = 0.171 W/kg

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802.11b Body Toward Phantom Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Body 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.869 S/m; εr = 53.925; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.25, 7.25, 7.25); Calibrated: 8/17/2012
Low Phantom WiFi2450MHz/Area Scan (14x21x1): Measurement grid: dx=10mm, dy=10mm
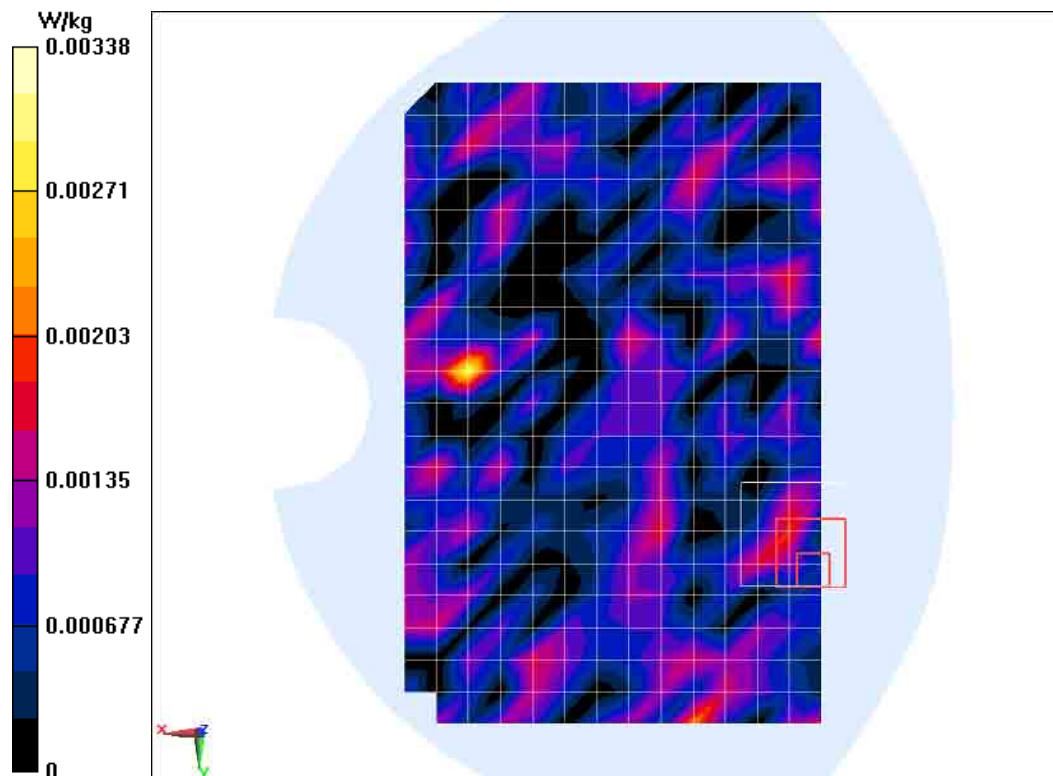Maximum value of SAR (measured) = 0.00303 W/kg
Low Phantom WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.685 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.00355 W/kg
SAR(1 g) = 0.000786 W/kg; SAR(10 g) = 0.000138 W/kg
Maximum value of SAR (measured) = 0.00338 W/kg

802.11b Body Left Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Body 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.869 S/m; εr = 53.925; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.25, 7.25, 7.25); Calibrated: 8/17/2012
Low Left WiFi2450MHz/Area Scan (6x17x1): Measurement grid: dx=10mm, dy=10mm
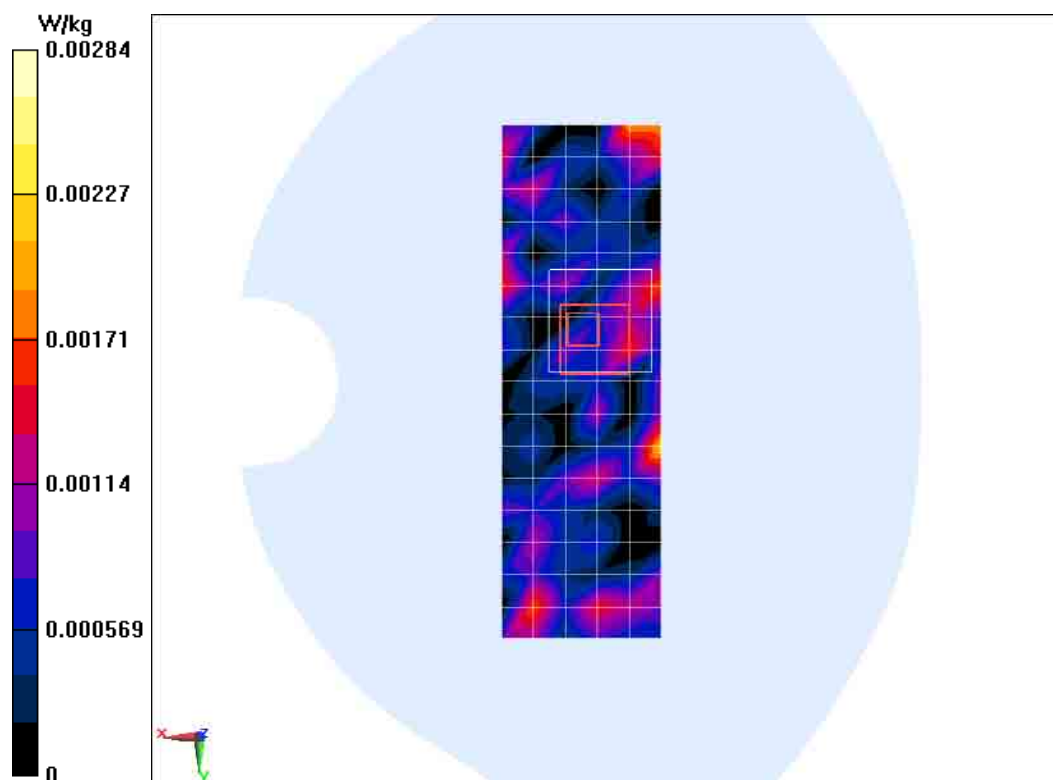Maximum value of SAR (measured) = 0.00223 W/kg
Low Left WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.866 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.00285 W/kg
SAR(1 g) = 0.00114 W/kg; SAR(10 g) = 0.000285 W/kg
Maximum value of SAR (measured) = 0.00284 W/kg

802.11b Body Right Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Body 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.869 mho/m; εr = 53.925; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃　　　Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.25, 7.25, 7.25); Calibrated: 8/17/2012
Low Right WiFi2450MHz/Area Scan (6x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.00191 W/kg
Low Right WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.823 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.00272 mW/g
SAR(1 g) = 0.000179 mW/g; SAR(10 g) = 0.0000241 mW/g
Maximum value of SAR (measured) = 0.00284 W/kg

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802.11b Body Top Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Body 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.869 mho/m; εr = 53.925; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃　　　Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.25, 7.25, 7.25); Calibrated: 8/17/2012
Low Top WiFi2450MHz/Area Scan (6x15x1): Measurement grid: dx=10mm, dy=10mm
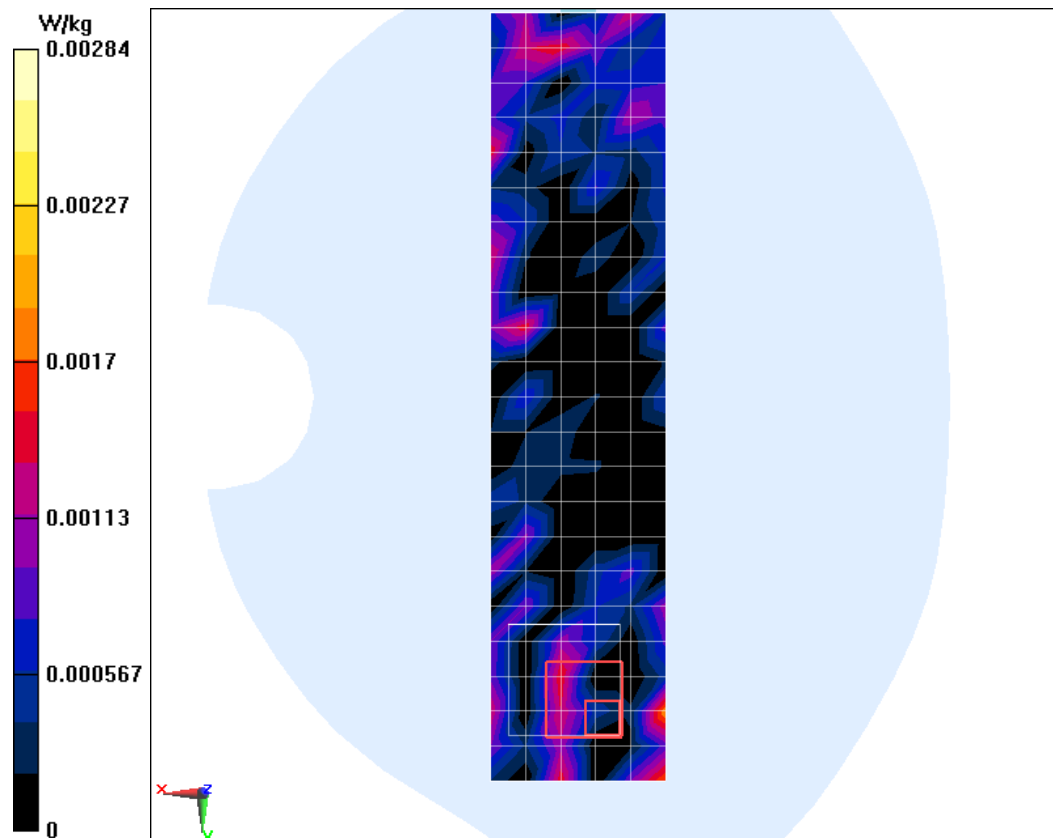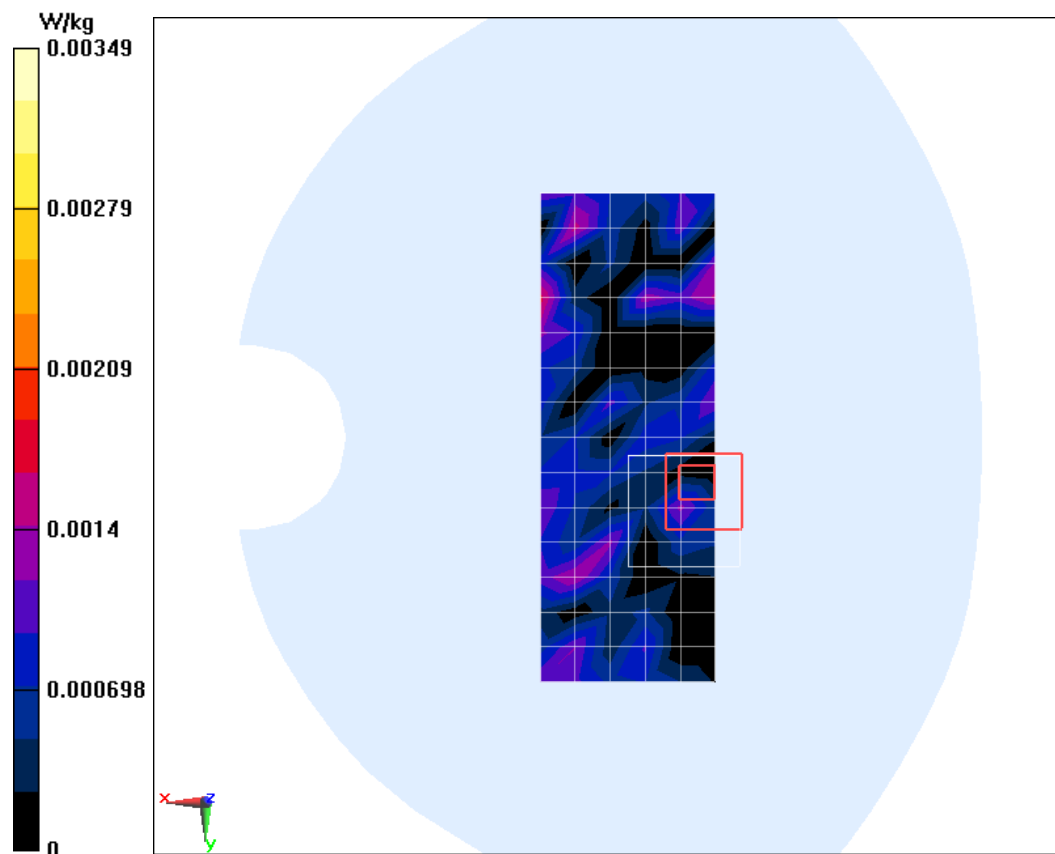Maximum value of SAR (measured) = 0.00175 W/kg
Low Top WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.813 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.00358 mW/g
SAR(1 g) = 0.000655 mW/g; SAR(10 g) = 0.000229 mW/g
Maximum value of SAR (measured) = 0.00349 W/kg

802.11b Body Bottom Low

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Body 2450MHz
Medium parameters used: f = 2412 MHz; σ = 1.869 S/m; εr = 53.925; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WiFi 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.25, 7.25, 7.25); Calibrated: 8/17/2012
Low Bottom WiFi2450MHz/Area Scan (6x15x1): Measurement grid: dx=10mm, dy=10mm
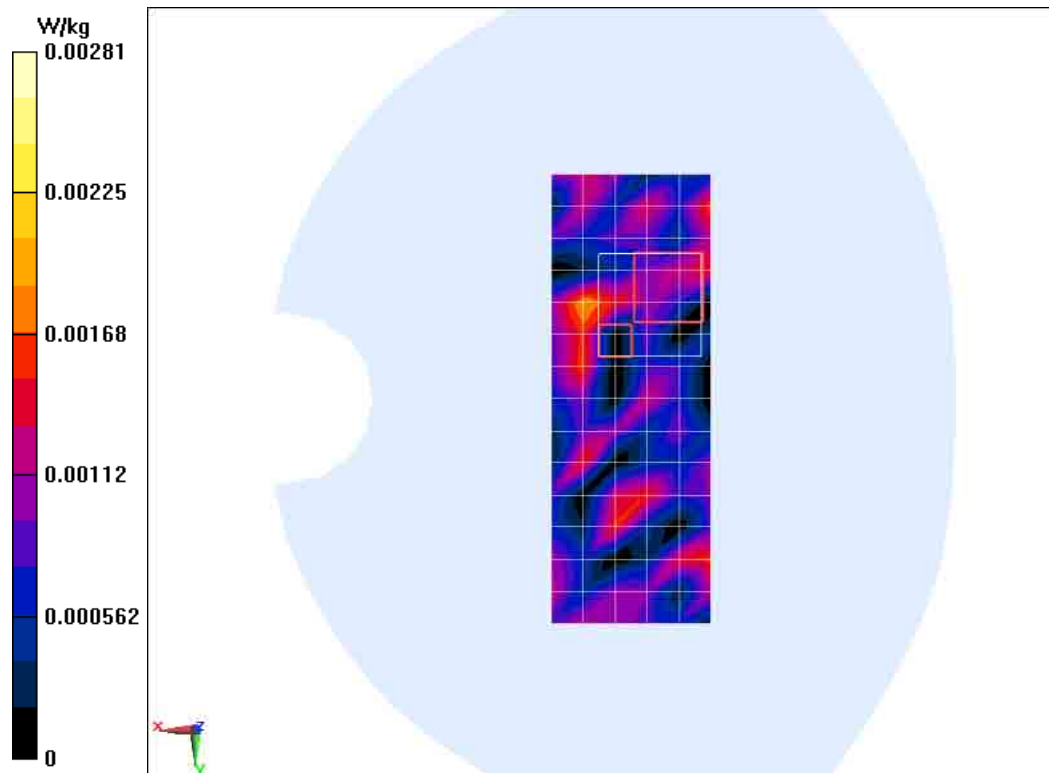Maximum value of SAR (measured) = 0.00193 W/kg
Low Bottom WiFi2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.905 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.00336 W/kg
SAR(1 g) = 0.00026 W/kg; SAR(10 g) = 0.000054 W/kg
Maximum value of SAR (measured) = 0.00281 W/kg

GSM835 Body Toward Ground GPRS 4TS High

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 849 MHz; σ = 1.015 S/m; εr = 55.205; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: GSM 835MHz GPRS 4TS; Frequency: 848.8 MHz; Duty Cycle: 1:2
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06); Calibrated: 7/24/2012
High Toward Ground GPRS 4TS 835MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
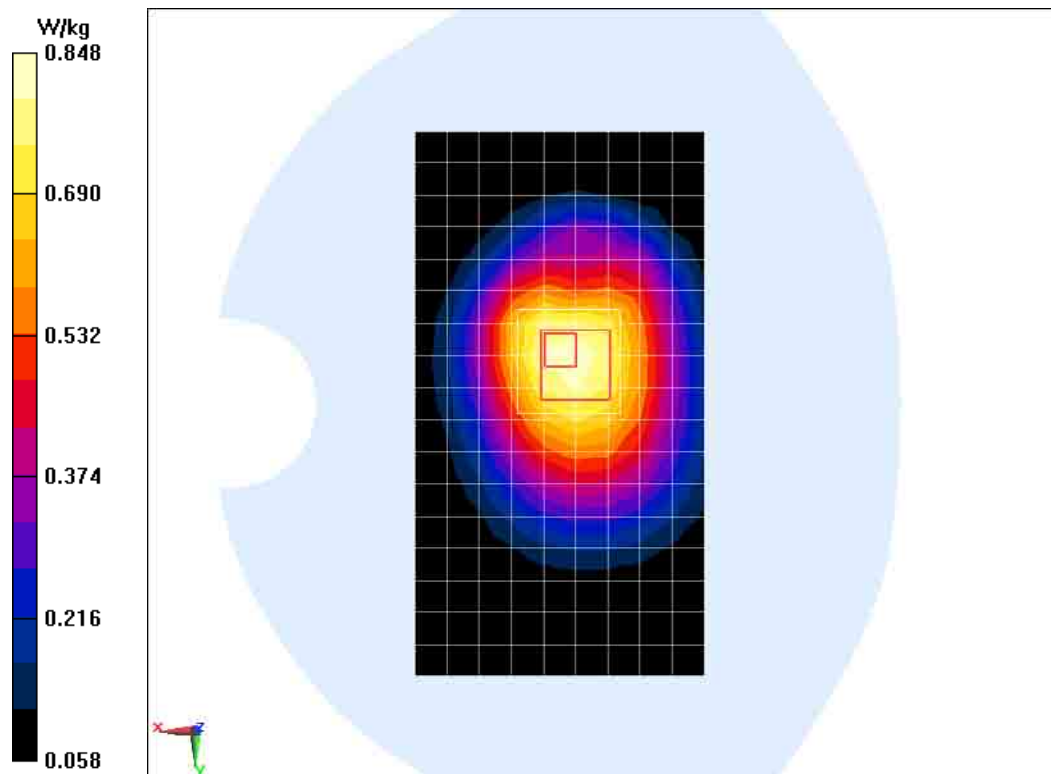Maximum value of SAR (measured) = 0.847 W/kg
High Toward Ground GPRS 4TS 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.450 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 0.815 W/kg; SAR(10 g) = 0.579 W/kg
Maximum value of SAR (measured) = 0.848 W/kg

GSM835 Body Toward Ground High With Headset

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 849 MHz; σ = 1.015 S/m; εr = 55.205; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: GSM 835MHz; Frequency: 848.8 MHz; Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06); Calibrated: 7/24/2012
High Toward Ground GSM835MHz With Headset/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.760 W/kg
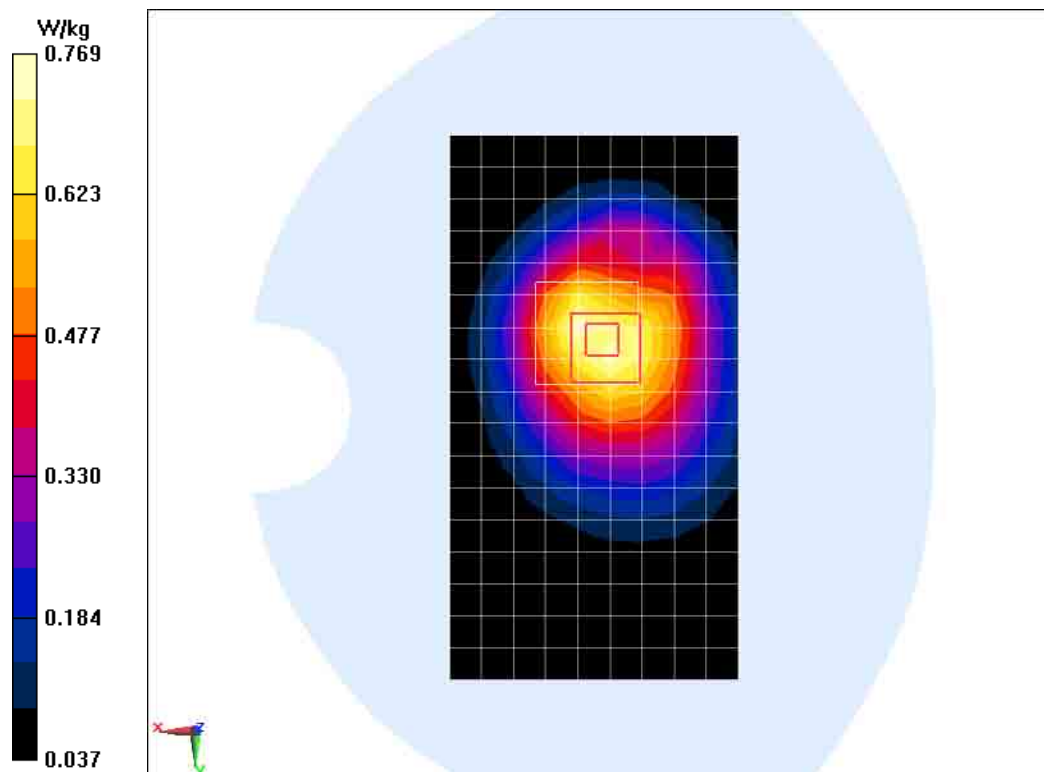**High Toward Ground GSM835MHz With Headset/Zoom Scan (5x5x7)/Cube 0:**
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.316 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.725 W/kg; SAR(10 g) = 0.502 W/kg
Maximum value of SAR (measured) = 0.769 W/kg

GSM1900 Body Toward Ground GPRS 4TS Middle

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.475 S/m; ε_r = 53.44; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃　　　Liquid Temperature:22.5 ℃
Communication System: GSM 1900MHz GPRS 4TS; Frequency: 1850.2 MHz; Duty Cycle: 1:2
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Middle Toward Ground GPRS 4TS 1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.582 W/kg
Middle Toward Ground GPRS 4TS 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.596 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.602 W/kg; SAR(10 g) = 0.305 W/kg
Maximum value of SAR (measured) = 0.686 W/kg

GSM1900 Body Toward Ground GPRS 4TS High

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1910 MHz; σ = 1.534 S/m; εr = 53.187; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: GSM 1900MHz GPRS 4TS; Frequency: 1909.8 MHz; Duty Cycle: 1:2
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
High Toward Ground GPRS 4TS 1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
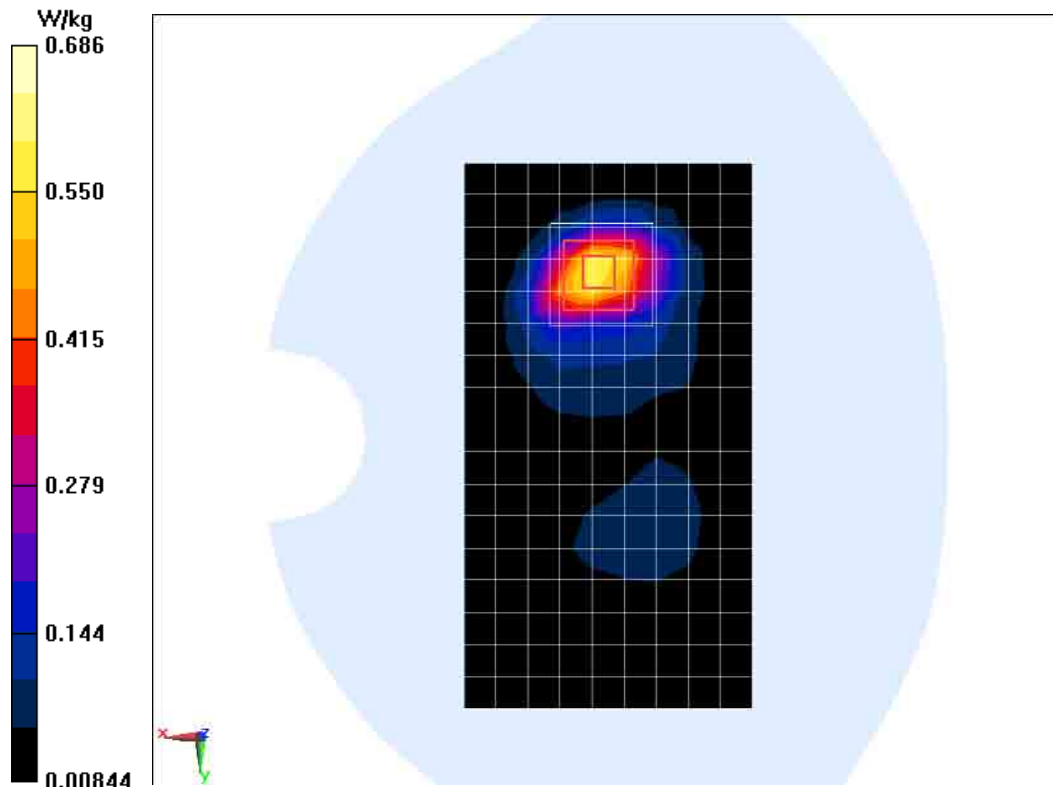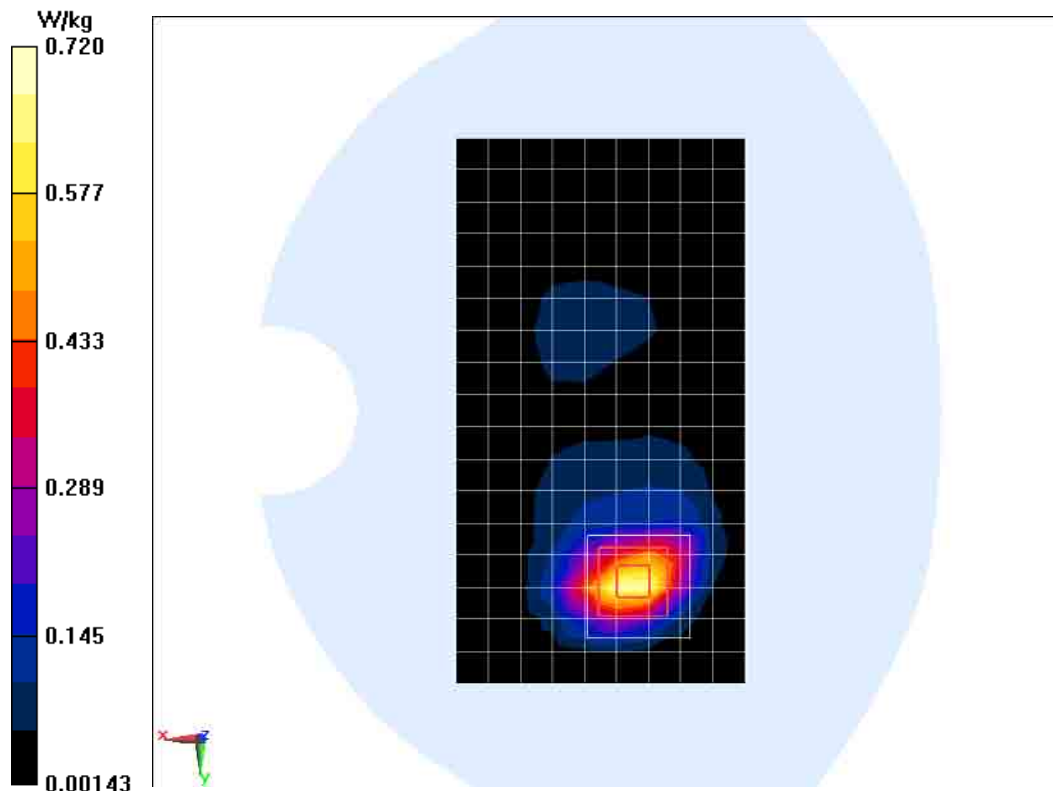Maximum value of SAR (measured) = 0.680 W/kg
High Toward Ground GPRS 4TS 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.261 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.646 W/kg; SAR(10 g) = 0.314 W/kg
Maximum value of SAR (measured) = 0.720 W/kg

GSM1900 Body Toward Ground GPRS 4TS Low

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.475 S/m; εr = 53.44; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: GSM 1900MHz GPRS 4TS; Frequency: 1850.2 MHz; Duty Cycle: 1:2
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Low Toward Ground GPRS 4TS 1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
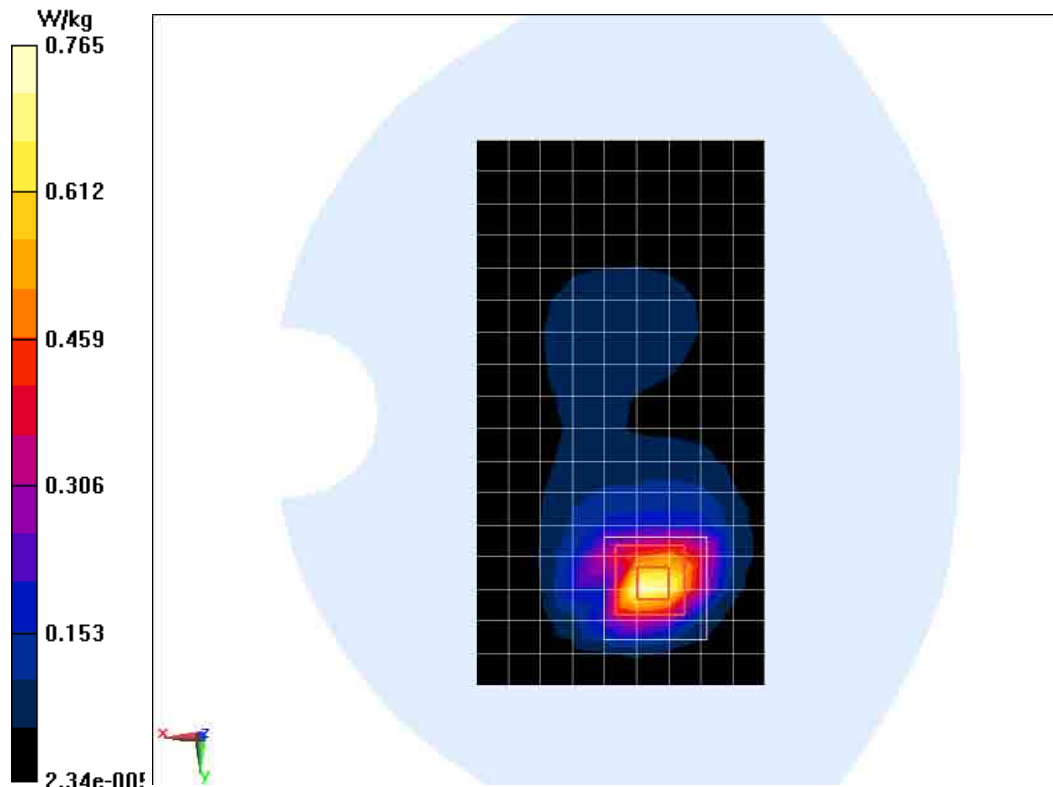Maximum value of SAR (measured) = 0.743 W/kg
Low Toward Ground GPRS 4TS 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.207 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.682 W/kg; SAR(10 g) = 0.353 W/kg
Maximum value of SAR (measured) = 0.765 W/kg

WCDMA850 Body Toward Ground Middle

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 837 MHz; σ = 1.001 S/m; εr = 55.152; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06); Calibrated: 7/24/2012
Middle Toward Ground WCDMA850MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.814 W/kg
Middle Toward Ground WCDMA850MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.369 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.775 W/kg; SAR(10 g) = 0.572 W/kg
Maximum value of SAR (measured) = 0.816 W/kg

WCDMA850 Body Toward Ground High

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 847 MHz; σ = 1.012 S/m; εr = 55.214; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA Band V; Frequency: 846.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06); Calibrated: 7/24/2012
High Toward Ground WCDMA850MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
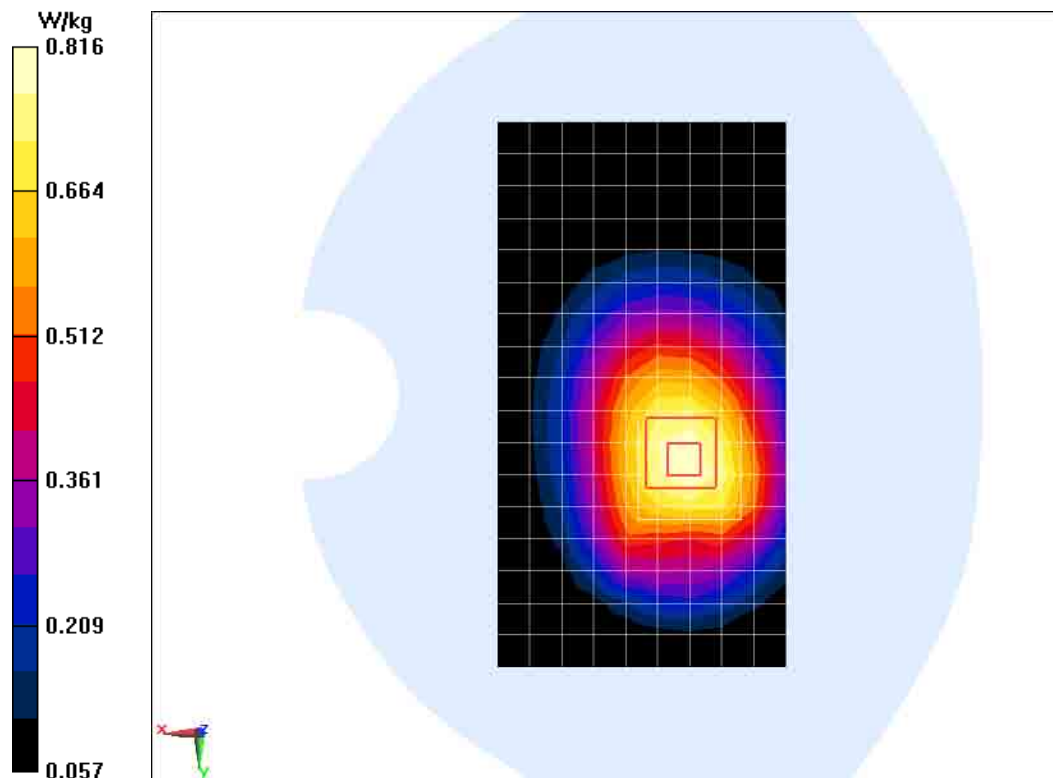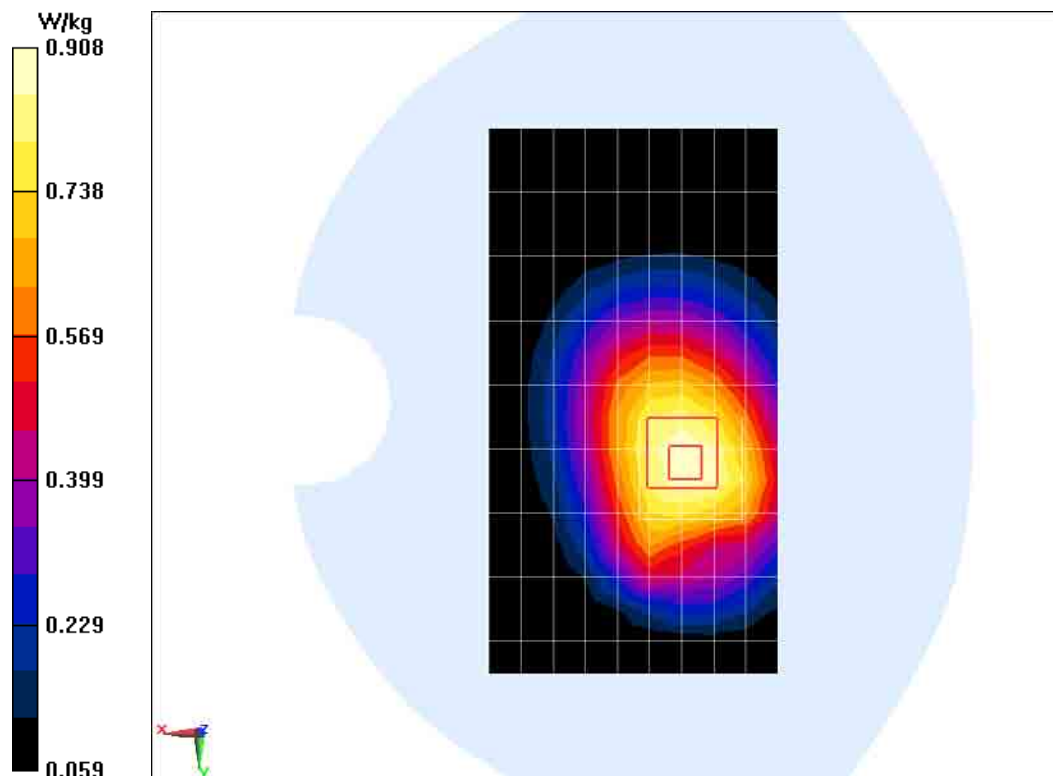Maximum value of SAR (measured) = 0.905 W/kg
High Toward Ground WCDMA850MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.935 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.862 W/kg; SAR(10 g) = 0.638 W/kg
Maximum value of SAR (measured) = 0.908 W/kg

WCDMA850 Body Toward Ground Low

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 826.4 MHz; σ = 0.994 S/m; εr = 55.147; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA Band V; Frequency: 826.4 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06); Calibrated: 7/24/2012
Low Toward Ground WCDMA850MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
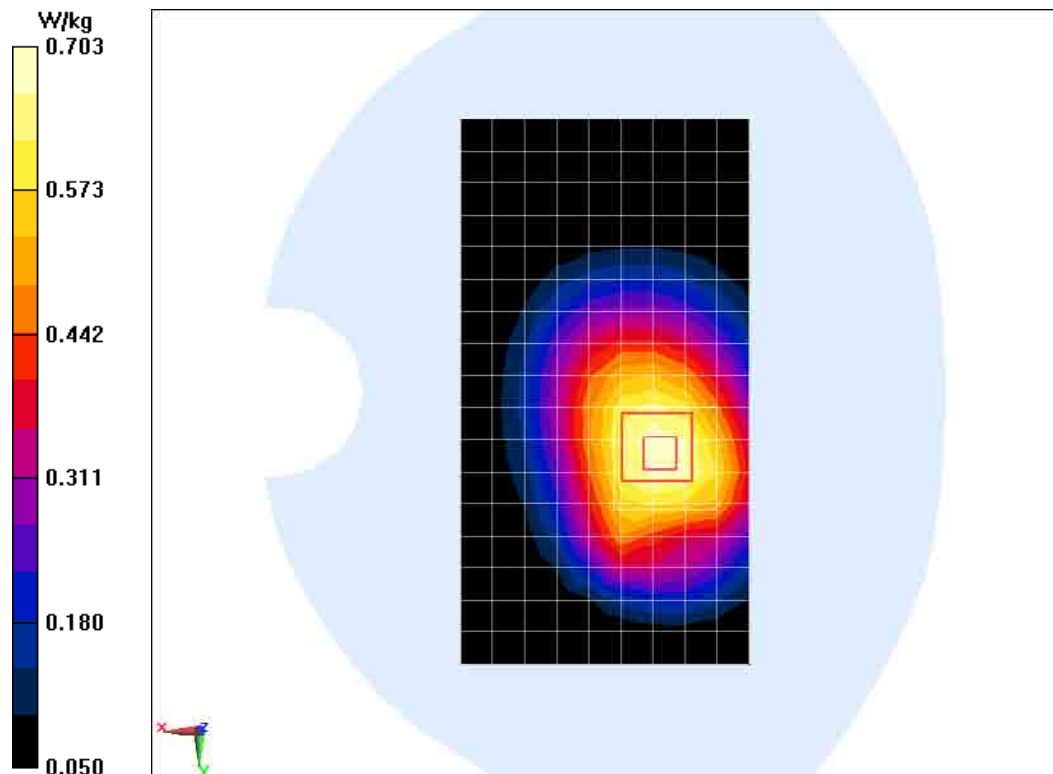Maximum value of SAR (measured) = 0.688 W/kg
Low Toward Ground WCDMA850MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.433 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.848 W/kg
SAR(1 g) = 0.682 W/kg; SAR(10 g) = 0.495 W/kg
Maximum value of SAR (measured) = 0.703 W/kg

WCDMA850 Body Toward Ground High With Headset

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 835MHz
Medium parameters used: f = 847 MHz; σ = 1.012 S/m; εr = 55.214; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA Band V; Frequency: 846.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06); Calibrated: 7/24/2012
High Toward Ground WCDMA850MHz With Headset/Area Scan (10x18x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.809 W/kg
High Toward Ground WCDMA850MHz With Headset/Zoom Scan (5x5x7)/Cube 0:
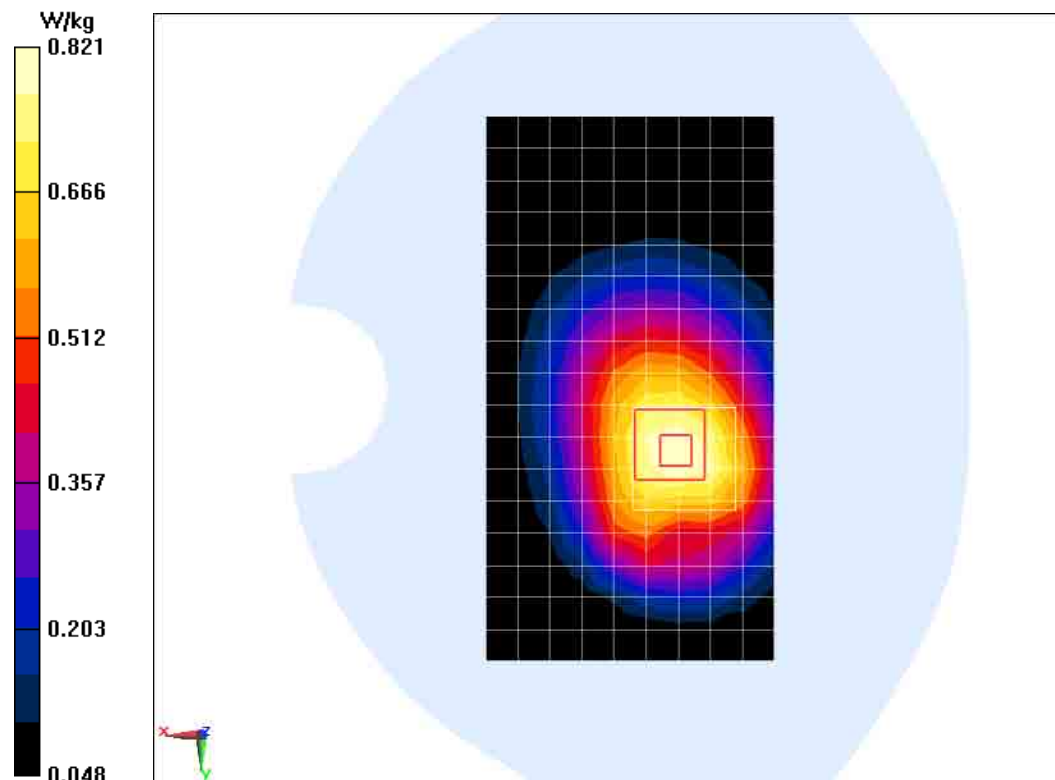Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.472 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.780 W/kg; SAR(10 g) = 0.569 W/kg
Maximum value of SAR (measured) = 0.821 W/kg

WCDMA1900 Body Toward Ground Middle

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1880 MHz; σ = 1.504 S/m; εr = 53.319; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA Band II ; Frequency: 1880 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
Middle Toward Ground WCDMA1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.887 W/kg
Middle Toward Ground WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.284 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 0.794 W/kg; SAR(10 g) = 0.401 W/kg
Maximum value of SAR (measured) = 0.890 W/kg

WCDMA1900 Body Toward Ground High

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1908 MHz; σ = 1.532 S/m; εr = 53.199; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA Band II; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
High Toward Ground WCDMA1900MHz/Area Scan (10x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.02 W/kg
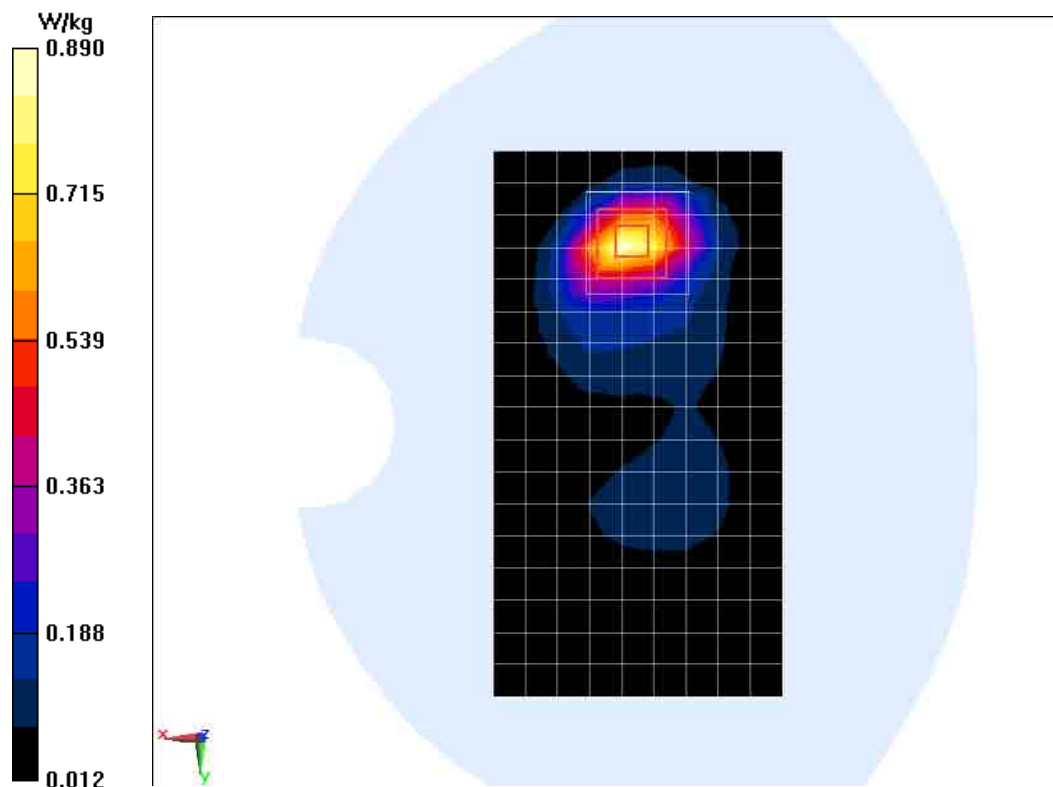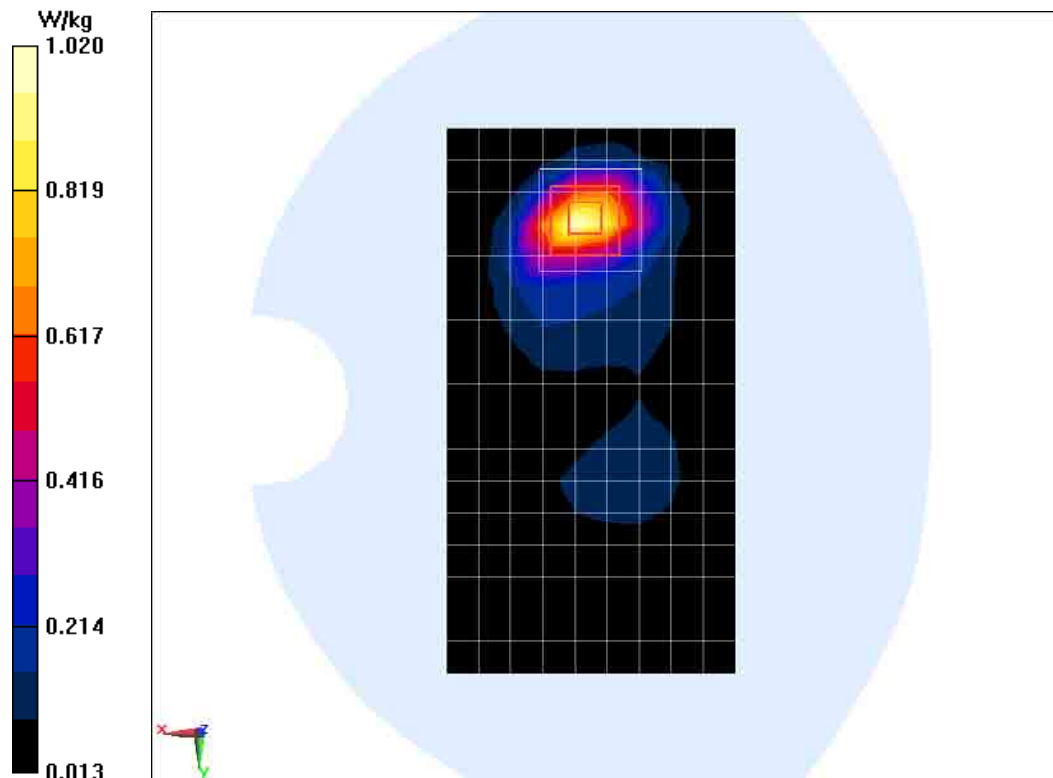**High Toward Ground WCDMA1900MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.476 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.68 W/kg
SAR(1 g) = 0.912 W/kg; SAR(10 g) = 0.455 W/kg
Maximum value of SAR (measured) = 1.020 W/kg

WCDMA1900 Body Toward Ground High With Headset

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900MHz
Medium parameters used: f = 1908 MHz; σ = 1.532 S/m; εr = 53.199; ρ = 1000 kg/m3
Ambient Temperature:22.5 ℃   Liquid Temperature:22.5 ℃
Communication System: WCDMA Band II; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64); Calibrated: 7/24/2012
High Toward Ground WCDMA1900MHz With Headset/Area Scan (10x18x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.792 W/kg
High Toward Ground WCDMA1900MHz With Headset/Zoom Scan (5x5x7)/Cube 0:
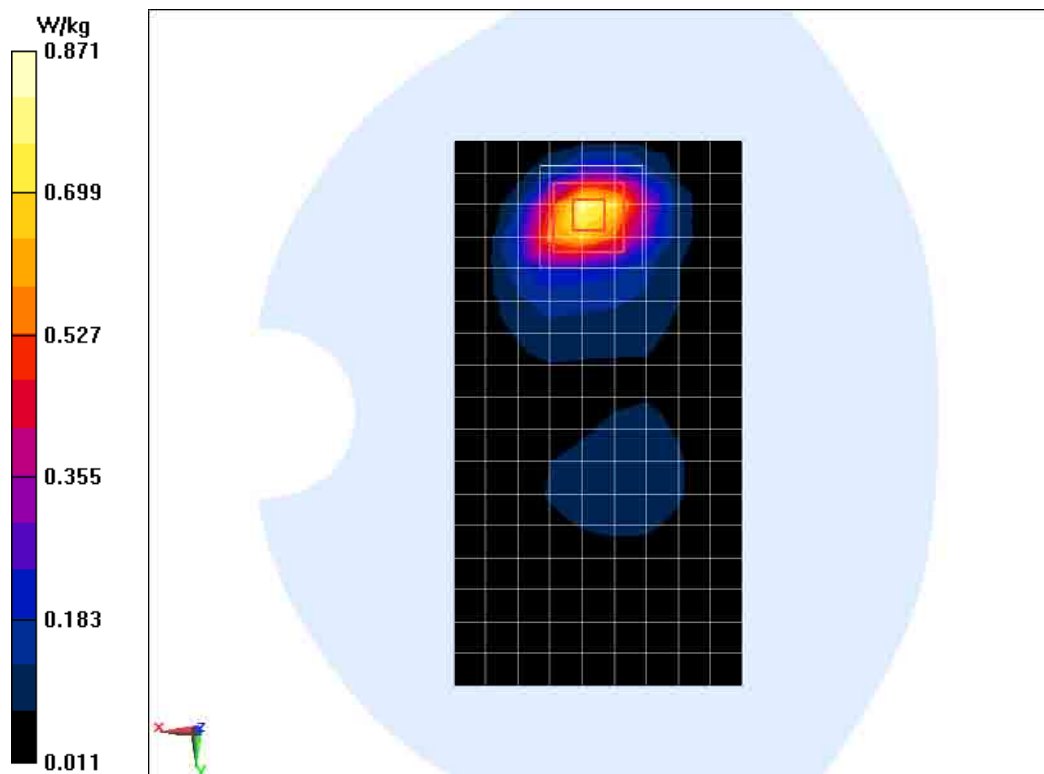Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.503 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.768 W/kg; SAR(10 g) = 0.391 W/kg
Maximum value of SAR (measured) = 0.871 W/kg

ANNEX B   SYSTEM VALIDATION RESULTS

835MHz-Head

Date/Time: 1/18/2013
Electronics: DAE4 Sn1244
Medium: Head 850MHz
Medium parameters used: f = 835 MHz; σ = 0.909 mho/m; εr = 40.67; ρ = 1000 kg/m3
Ambient Temperature:22.5°C   Liquid Temperature:22.5°C
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.09, 6.09, 6.09)

System Validation/Area Scan(101x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.153 mW/g

System Validation/Zoom Scan(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.235 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.857 mW/g
SAR(1 g) = 2.35 mW/g; SAR(10 g) = 1.55 mW/g
Maximum value of SAR (measured) = 3.254 mW/g

835MHz-Body

Date/Time: 1/21/2013
Electronics: DAE4 Sn1244
Medium: Body 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.999 mho/m; εr = 55.15; ρ = 1000 kg/m3
Ambient Temperature:22.5° C   Liquid Temperature:22.5° C
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(6.06, 6.06, 6.06)

System Validation/Area Scan(101x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.849 mW/g

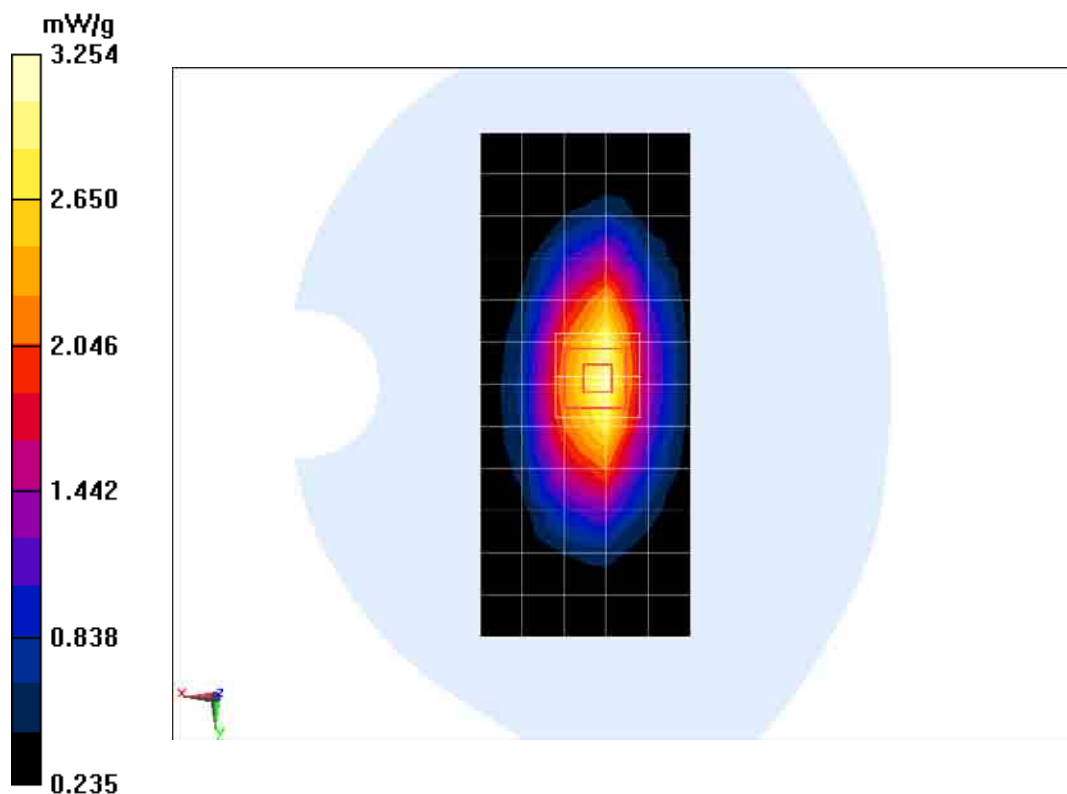**System Validation/Zoom Scan(7x7x7)/Cube 0:**Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.728 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 3.871 mW/g
SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 3.302 mW/g

1900MHz-Head

Date/Time: 1/18/2013
Electronics: DAE4 Sn1244
Medium: Head 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.459 mho/m; εr = 40.531; ρ = 1000 kg/m3
Ambient Temperature:22.5°C   Liquid Temperature:22.5°C
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(5.1, 5.1, 5.1)

System Validation/Area Scan(101x101x1): Measurement grid: dx=15mm, dy=15mm
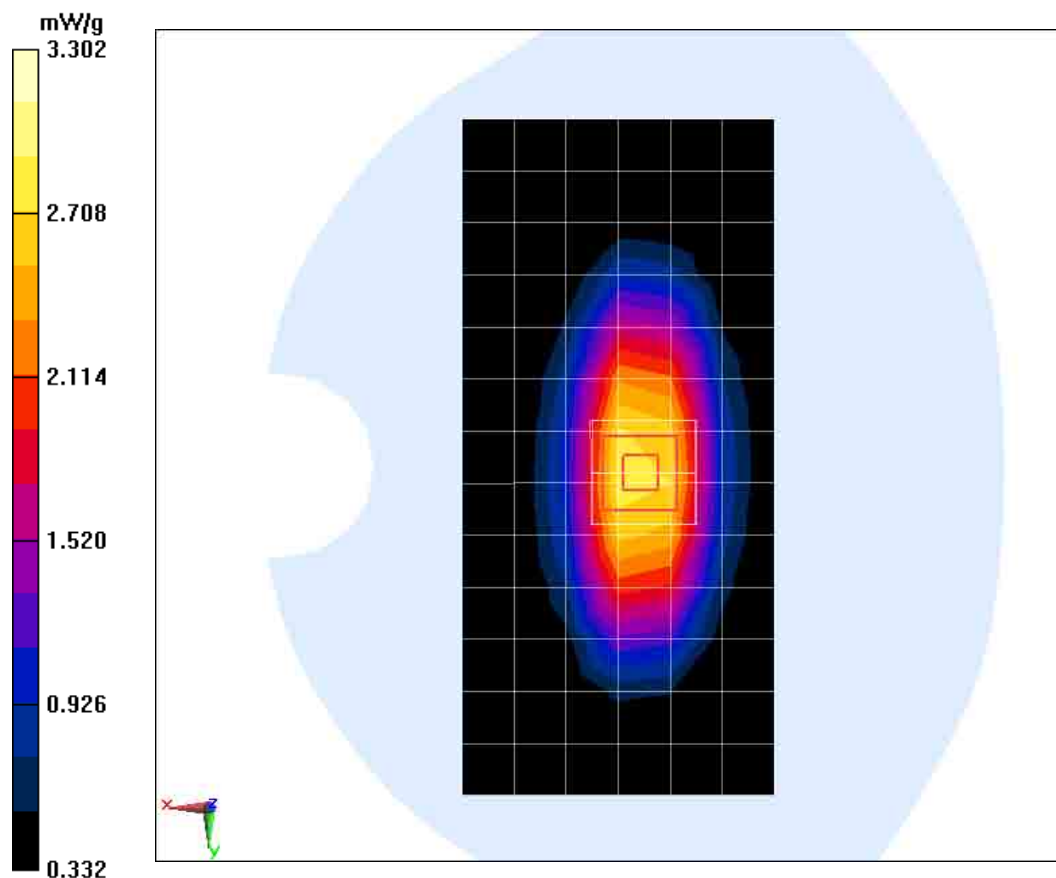Maximum value of SAR (measured) = 12.141 mW/g

System Validation/Zoom Scan(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.766 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 17.602 mW/g
SAR(1 g) = 9.52 mW/g; SAR(10 g) = 4.87 mW/g
Maximum value of SAR (measured) = 13.479 mW/g

1900MHz-Body

Date/Time: 1/22/2013
Electronics: DAE4 Sn1244
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.524 mho/m; εr = 53.237; ρ = 1000 kg/m3
Ambient Temperature:22.5°C   Liquid Temperature:22.5°C
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Probe: ES3DV3 - SN3252ConvF(4.64, 4.64, 4.64)

System Validation/Area Scan(101x101x1): Measurement grid: dx=15mm, dy=15mm
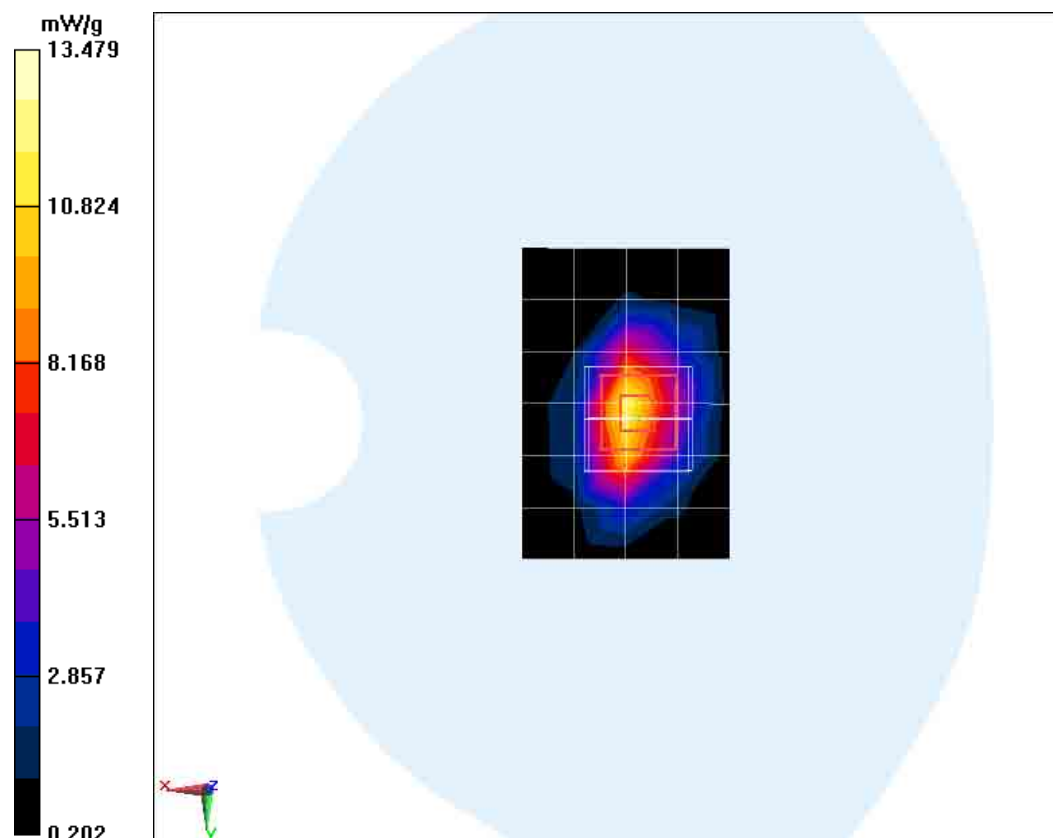Maximum value of SAR (measured) = 9.585 mW/g

System Validation/Zoom Scan(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.021 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 18.419 mW/g
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.47 mW/g
Maximum value of SAR (measured) = 14.687 mW/g

2450MHz-Head

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Head 2450MHz
Medium parameters used: f = 2450 MHz; σ = 1.824 mho/m; εr = 38.87; ρ = 1000 kg/m3
Ambien Temperature:22.5°C   Liquid Temperature:22.5°C
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(6.74, 6.74, 6.74)

System Validation/ Area Scan (101x101x1): Measurement grid: dx=15mm, dy=15mm
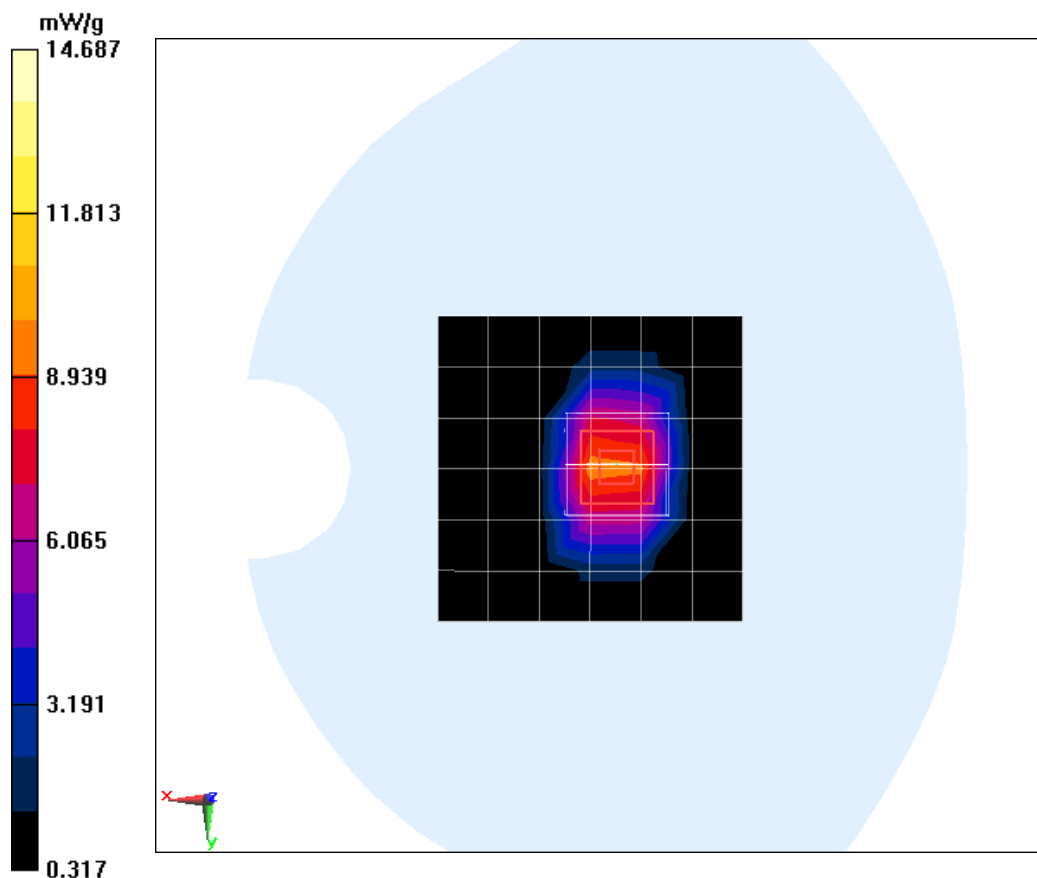Maximum value of SAR (measured) = 12.79 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.872 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 17.651 mW/g
SAR(1 g) = 12.76 mW/g; SAR(10 g) = 5.93 mW/g
Maximum value of SAR (measured) = 13.563 mW/g

2450MHz-Body

Date/Time: 1/30/2013
Electronics: DAE4 Sn1244
Medium: Body 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.918 mho/m; εr = 53.946; ρ = 1000 kg/m3
Ambien Temperature:22.5°C   Liquid Temperature:22.5°C
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Probe: EX3DV4 - SN3754ConvF(7.25, 7.25, 7.25)

System Validation/ Area Scan (101x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 11.758 mW/g

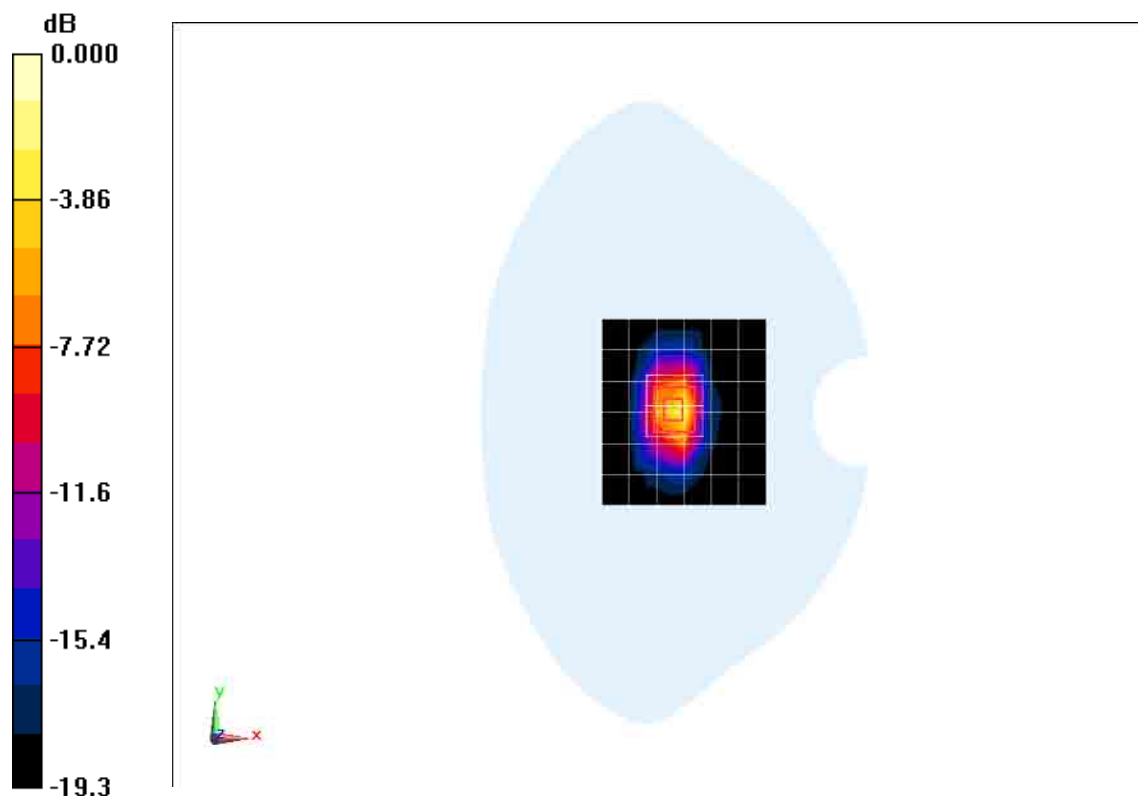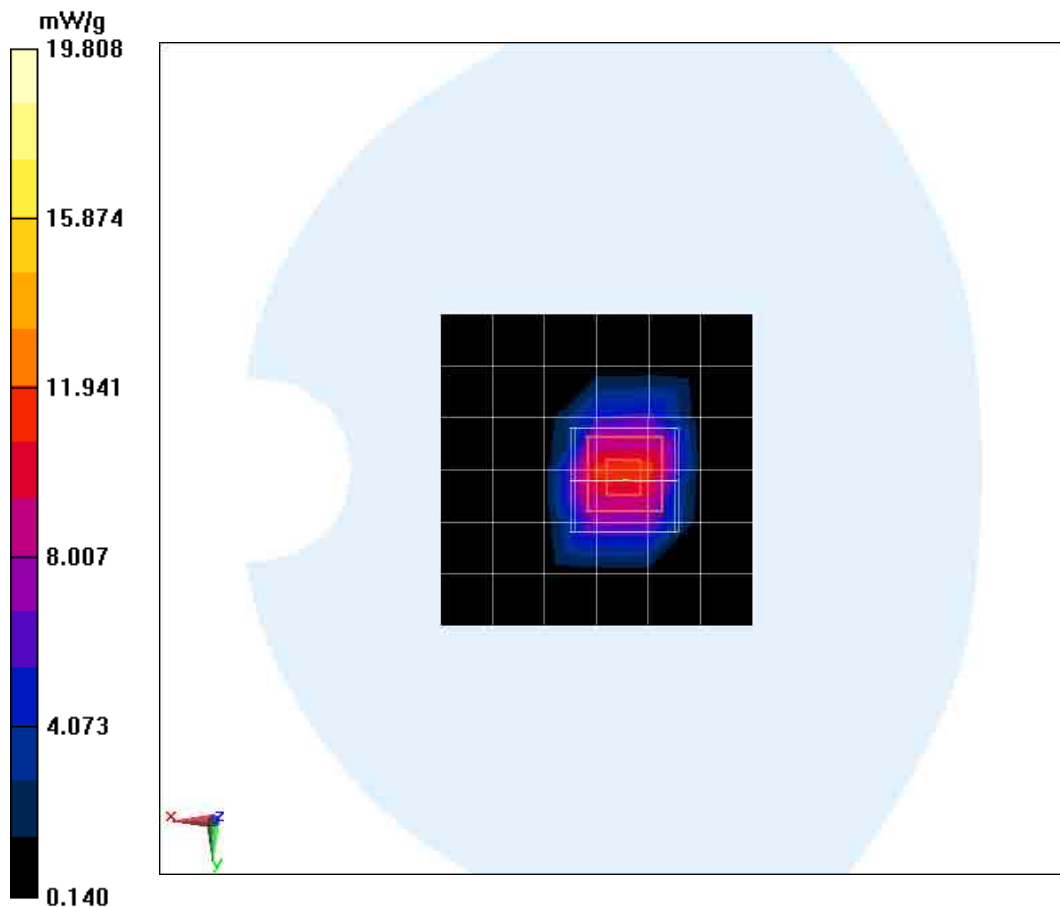**System Validation/Zoom Scan (7x7x7)/Cube 0:**Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.005 V/m; Power Drift = 0.26 dB
Peak SAR (extrapolated) = 26.396 mW/g
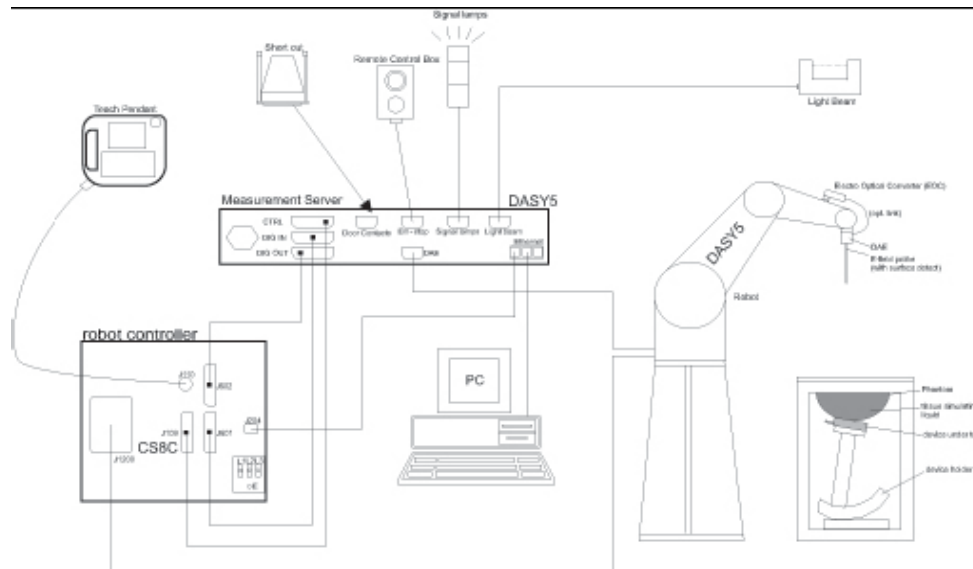SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.16 mW/g
Maximum value of SAR (measured) = 19.808 mW/g

ANNEX C   SAR Measurement Setup

C.1 Measurement Set-up

The DASY5 system for performing compliance tests is illustrated above graphically. This system consists of the following items:

Picture C.1 SAR Lab Test Measurement Set-up

- A standard high precision 6-axis robot (Stäubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as
- warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

C.2 DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY5 software reads the reflection durning a software approach and looks for the maximum using 2nd ord curve fitting. The approach is stopped at reaching the maximum.

Probe Specifications:

Model: ES3DV3, EX3DV4
Frequency 2.0GHz — 3.0GHz(EX3DV4)
Range: 700MHz — 2.0GHz(ES3DV3)
Calibration: In head and body simulating tissue at Frequencies from 835 up to 2450MHz
Linearity: ± 0.2 dB(2.0GHz — 3.0GHz) for EX3DV4 ± 0.2 dB(700MHz — 2.0GHz) for ES3DV3

Picture C.2 Near-field Probe

Dynamic Range: 10 mW/kg — 100W/kg
Probe Length: 330 mm
Probe Tip
Length: 20 mm
Body Diameter: 12 mm
Tip Diameter: 2.5 mm (3.9 mm for ES3DV3)
Tip-Center: 1 mm (2.0mm for ES3DV3)
Application: SAR Dosimetry Testing
Compliance tests of mobile phones
Dosimetry in strong gradient fields

Picture C.3 E-field Probe

C.3 E-field Probe Calibration

Each E-Probe/Probe Amplifier combination has unique calibration parameters. A TEM cell calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm^2) using an RF Signal generator, TEM cell, and RF Power Meter.

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and inn a waveguide or other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/ cm^2.·

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where:

Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

ΔT = Temperature increase due to RF exposure.

$$SAR = \frac{|E|^2 \cdot \sigma}{\rho}$$

Where:

σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

C.4 Other Test Equipment

C.4.1 Data Acquisition Electronics(DAE)

The data acquisition electronics consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

PictureC.4: DAE

C.4.2 Robot

The SPEAG DASY system uses the high precision robots (DASY5: RX90L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version from Stäubli is used. The Stäubli robot series have many features that are important for our application:

➢ High precision (repeatability 0.02mm)
➢ High reliability (industrial design)
➢ Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
➢ Jerk-free straight movements (brushless synchron motors; no stepper motors)
➢ Low ELF interference (motor control fields shielded via the closed metallic construction shields)

Picture C.5 DASY 5

C.4.3 Measurement Server

The Measurement server is based on a PC/104 CPU broad with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5: 128MB), RAM (DASY5: 128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O broad, which is directly connected to the PC/104 bus of the CPU broad.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.

Picture C.6 Server for DASY 5

C.4.4 Device Holder for Phantom

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ±20%. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε =3 and loss tangent δ =0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin-SAM and ELI phantoms.

Picture C.7: Device Holder
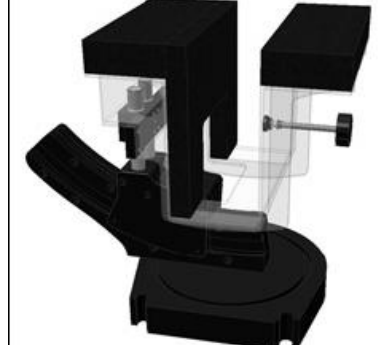
Picture C.8: Laptop Extension Kit

C.4.5 Phantom

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to
Represent the 90th percentile of the population. The phantom enables the dissymmetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

Shell Thickness: 2 ± 0. 2 mm
 Filling Volume: Approx. 25 liters
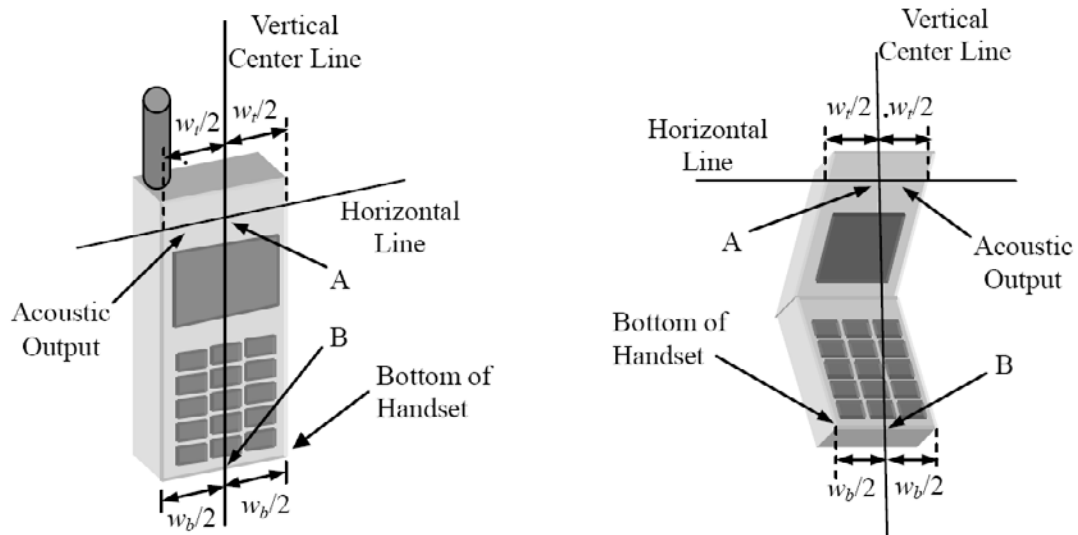 Dimensions: 810 x l000 x 500 mm (H x L x W)
 Available: Special

Picture C.9: SAM Twin Phantom

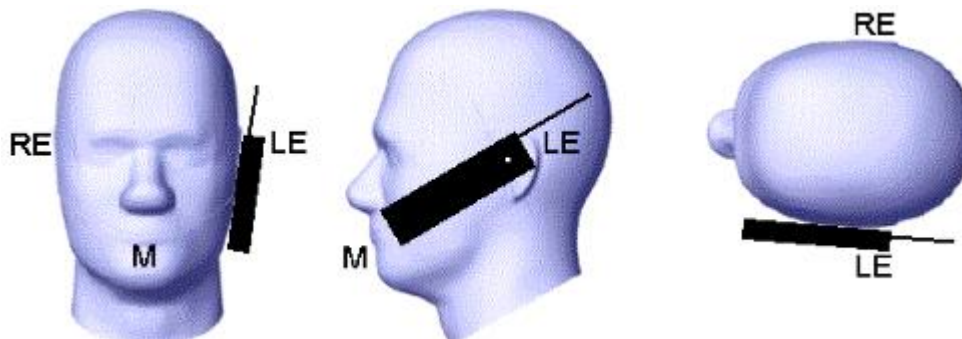## ANNEX D   Position of the wireless device in relation to the phantom

D.1 General considerations

This standard specifies two handset test positions against the head phantom – the "cheek" position and the "tilt" position.


w_t	Width of the handset at the level of the acoustic
w_b	Width of the bottom of the handset
A	Midpoint of the width w_t of the handset at the level of the acoustic output
B	Midpoint of the width w_b of the bottom of the handset

Picture D.1-a Typical "fixed" case handset   Picture D.1-b Typical "clam-shell" case handset


Picture D.2 Cheek position of the wireless device on the left side of SAM
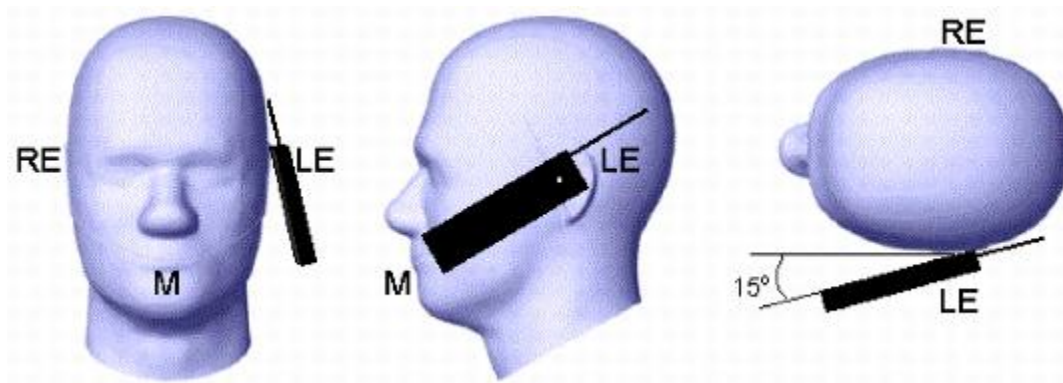
Picture D.3 Tilt position of the wireless device on the left side of SAM

D.2 Body-worn device

A typical example of a body-worn device is a mobile phone, wireless enabled PDA or other battery operated wireless device with the ability to transmit while mounted on a person's body using a carry accessory approved by the wireless device manufacturer.
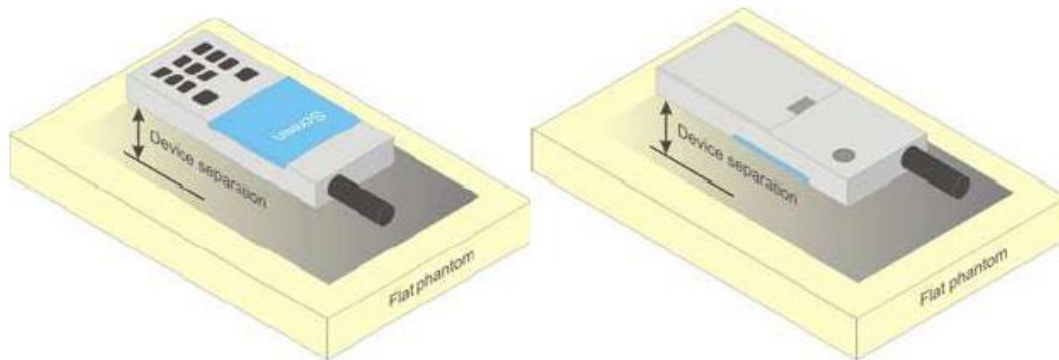

Picture D.4 Test positions for body-worn devices

D.3 Desktop device

A typical example of a desktop device is a wireless enabled desktop computer placed on a table or desk when used.

The DUT shall be positioned at the distance and in the orientation to the phantom that corresponds to the intended use as specified by the manufacturer in the user instructions. For devices that employ an external antenna with variable positions, tests shall be performed for all antenna positions specified. Picture 8.5 show positions for desktop device SAR tests. If the intended use is not specified, the device shall be tested directly against the flat phantom.
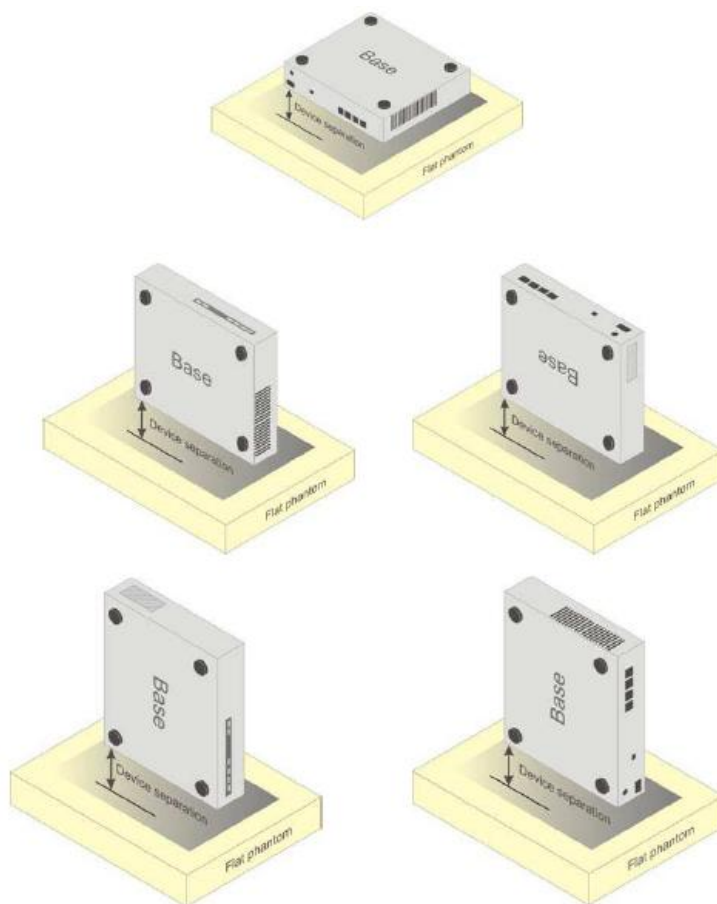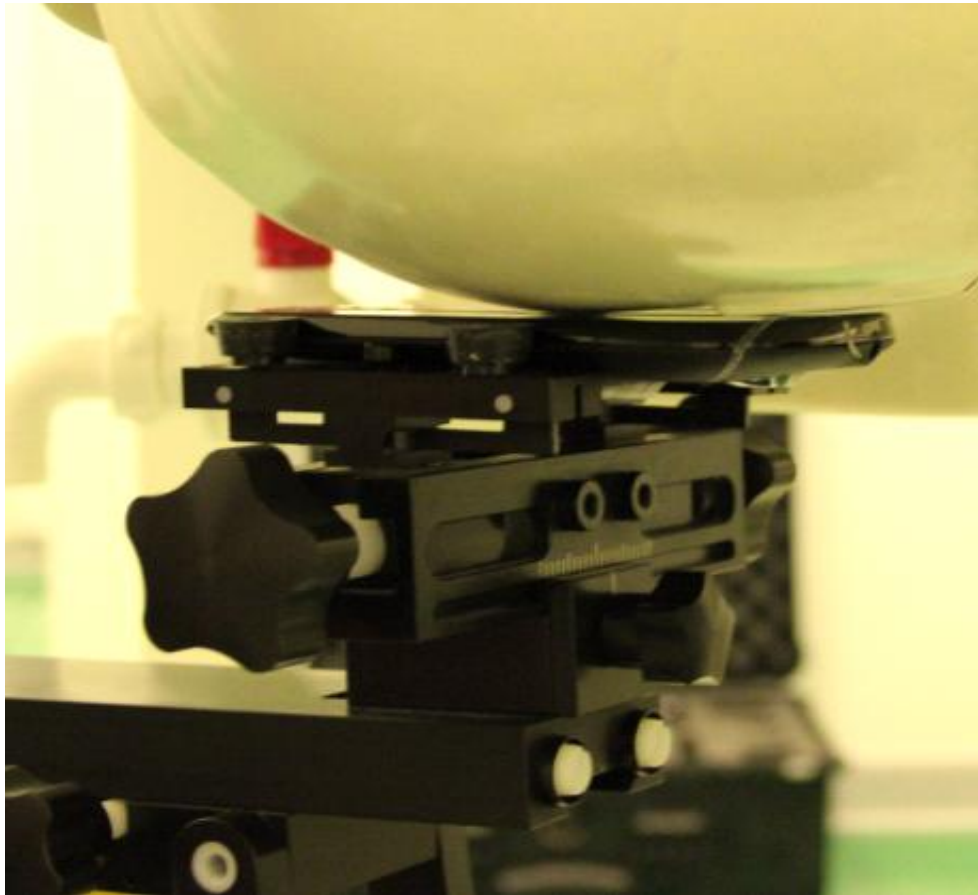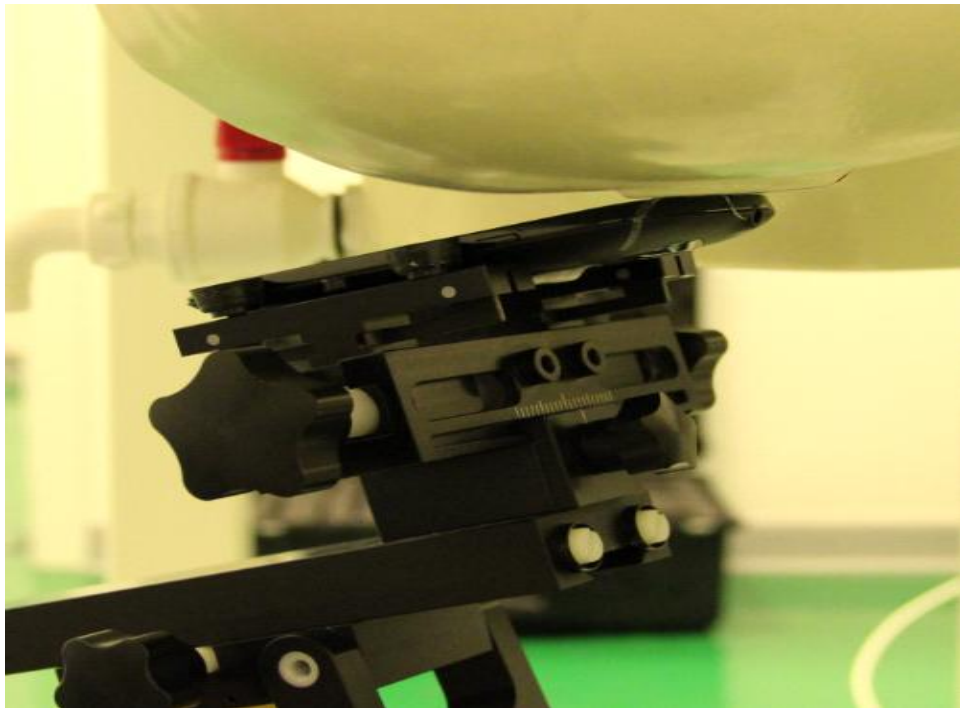
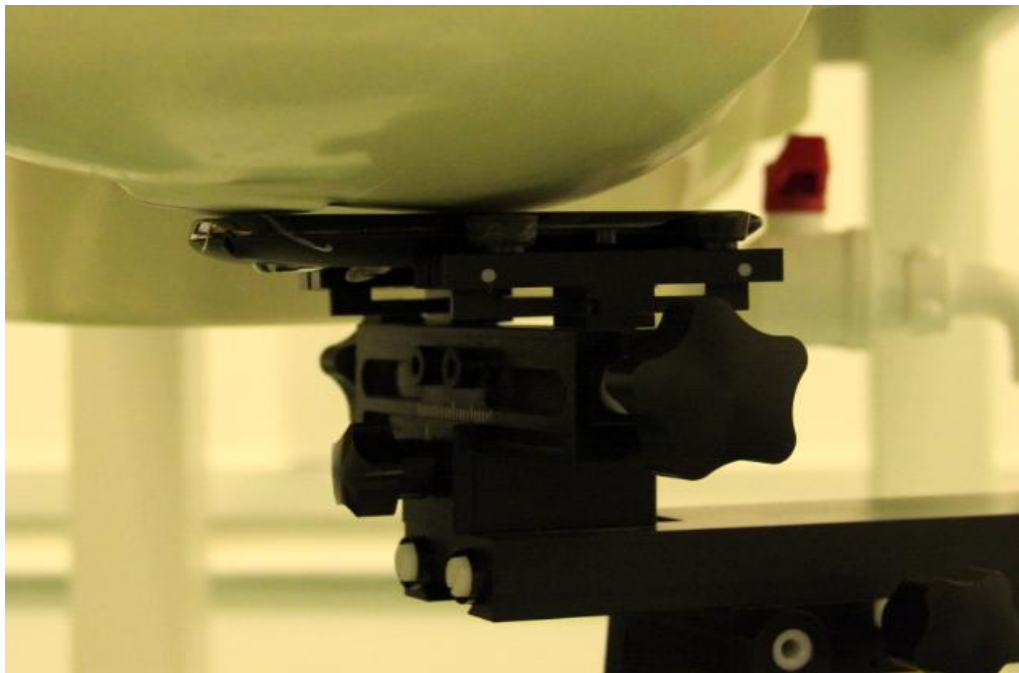**Picture D.5 Test positions for desktop devices**

D.4 DUT Setup Photos

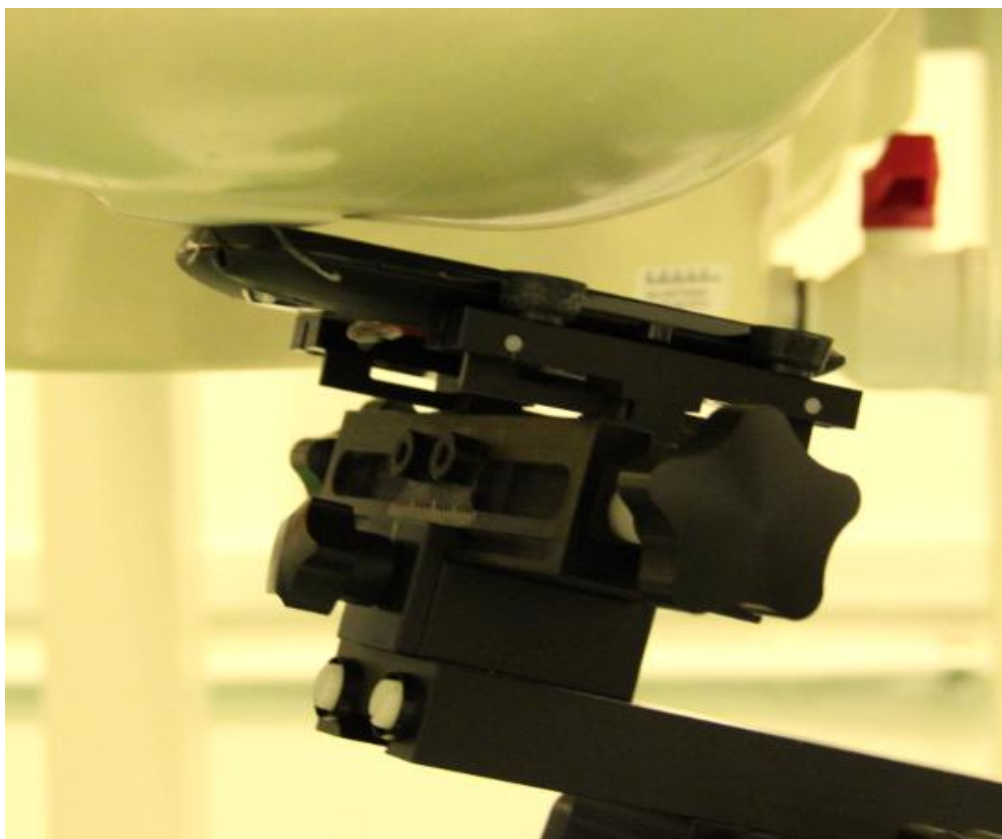**Picture D.6 DSY5 system Set-up**

Picture D.7 Left Head Touch Cheek Position

Picture D.8 Left Head Tilt 15° Position

Picture D.9 Rightt Head Touch Cheek Position

Picture D.10 Right Head Tilt 15° Position