

Test Report S/N:	012005ALH-T612-S90F
Test Date(s):	January 25, 27-28, 2005
Test Type:	FCC SAR Evaluation

APPENDIX A - SAR MEASUREMENT DATA

Date Tested: 01/25/05

Face-Held SAR - Low Band - Radio Transceiver - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Ambient Temp: 23.3 °C; Fluid Temp: 21.4 °C; Barometric Pressure: 102.3 kPa; Humidity: 30%

Communication System: FM Transmit
 Frequency: 898.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.54 dBm (Conducted)
 7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)
 Medium: HSL900 ($\sigma = 0.98$ mho/m; $\epsilon_r = 41.7$; $\rho = 1000$ kg/m³)

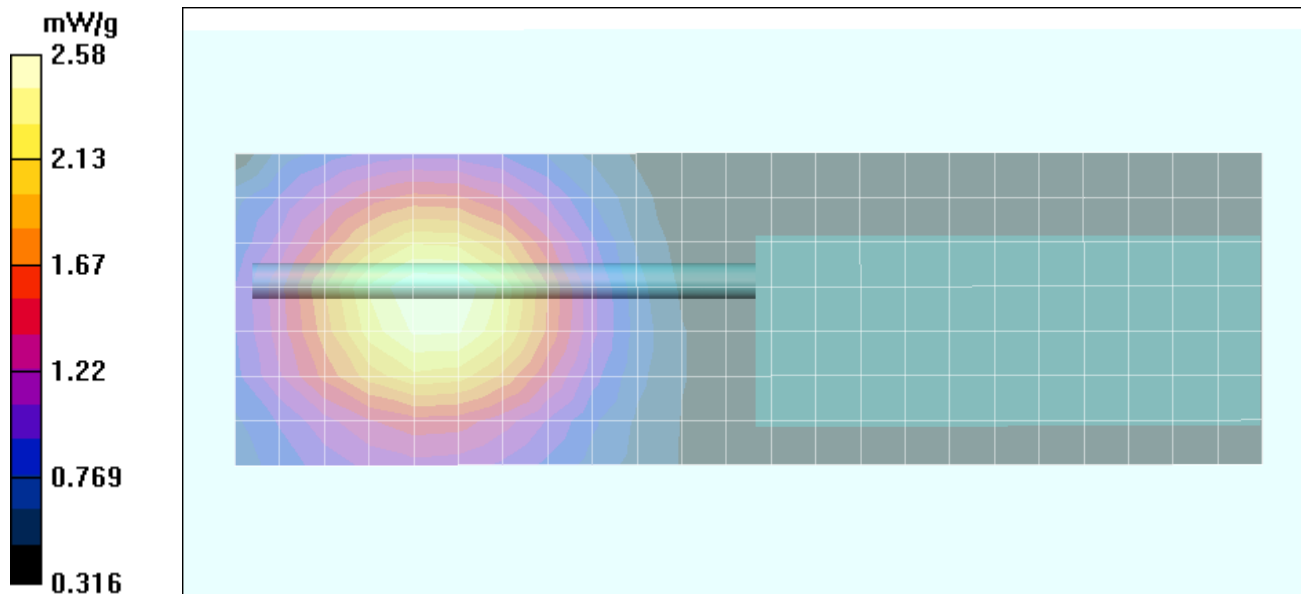
- Probe: ET3DV6 - SN1387; ConvF(6.71, 6.71, 6.71); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Face-Held - 2.5 cm Separation Distance - Mid Channel/Area Scan (8x24x1):

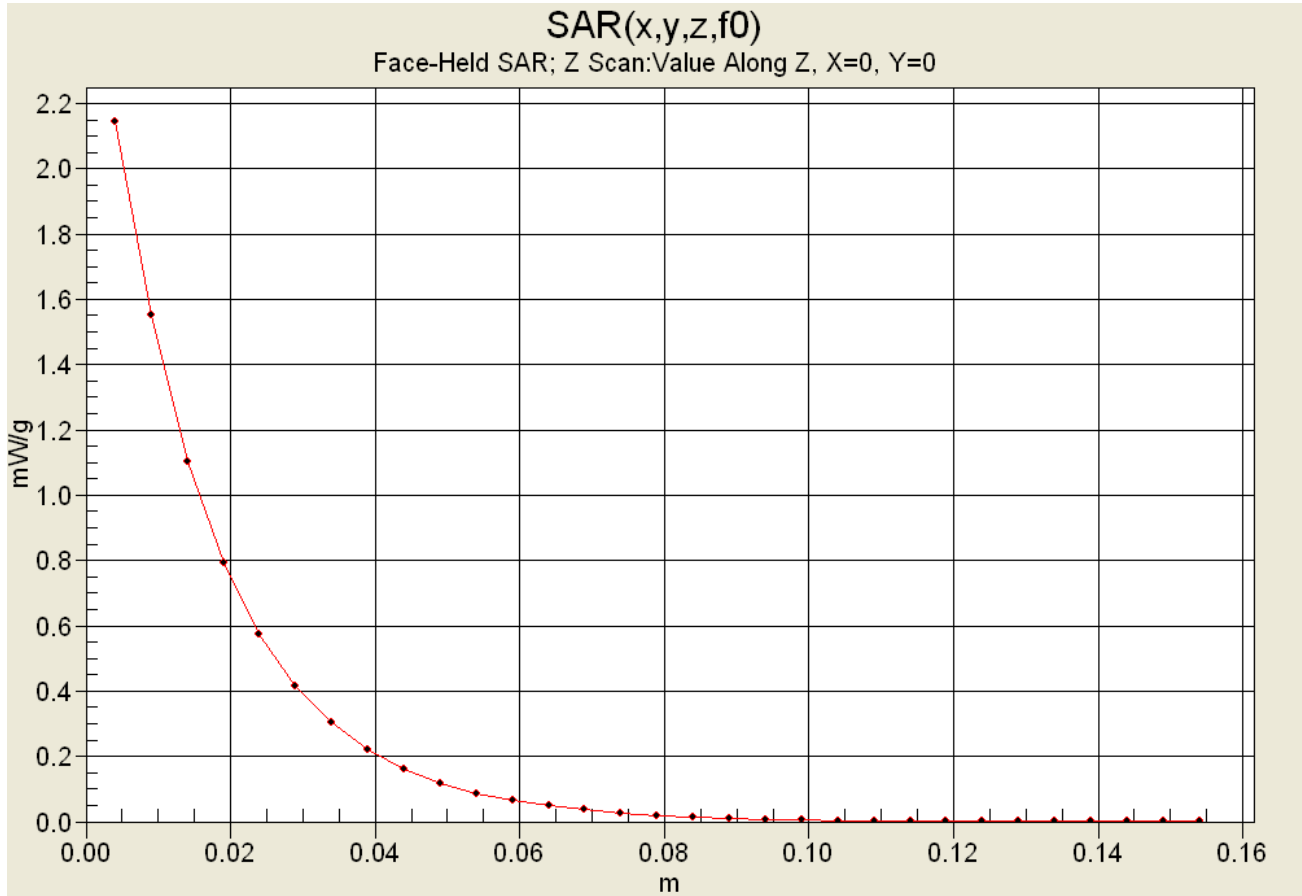
Measurement grid: dx=15mm, dy=15mm

Face-Held - 2.5 cm Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 9.02 V/m; Power Drift = -0.960 dB
 Peak SAR (extrapolated) = 3.2 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.74 mW/g



Z-Axis Scan



Date Tested: 01/25/05

Face-Held SAR - Low Band - Radio Transceiver - Alkaline Battery Pack (Duracell Procell)

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Ambient Temp: 23.3 °C; Fluid Temp: 21.4 °C; Barometric Pressure: 102.3 kPa; Humidity: 30%

Communication System: FM Transmit
 Frequency: 898.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.55 dBm (Conducted)
 9V AA Alkaline Duracell ProCell Battery Pack (Battery Case P/N: 250-5100-280)
 Medium: HSL900 ($\sigma = 0.98$ mho/m; $\epsilon_r = 41.7$; $\rho = 1000$ kg/m³)

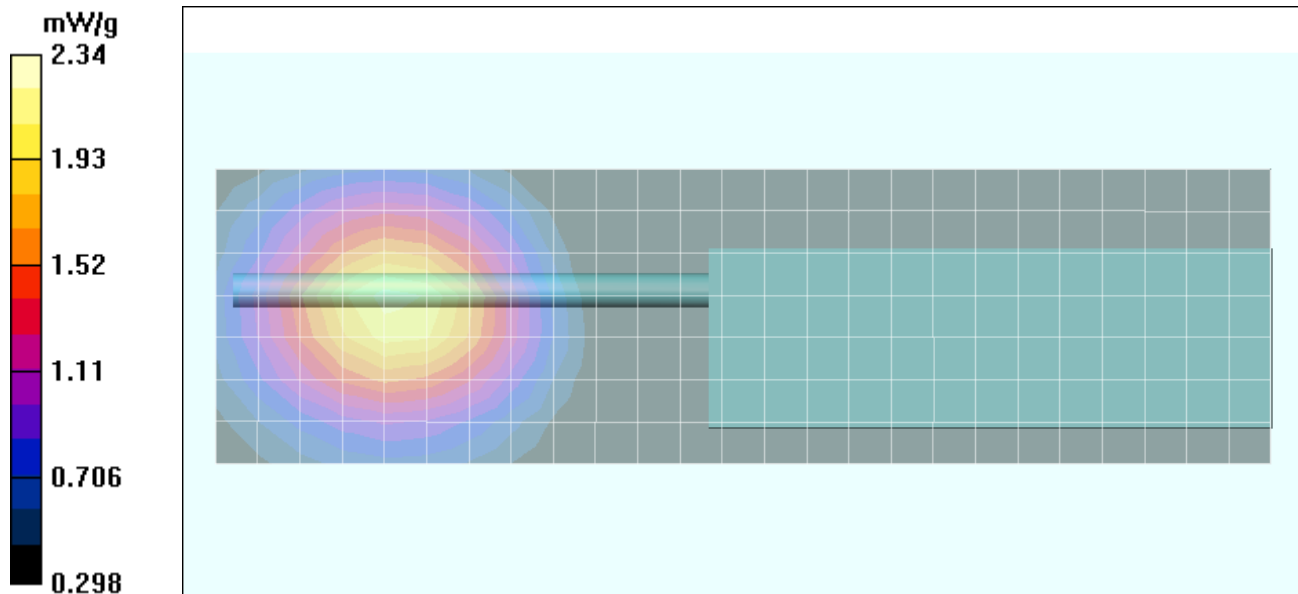
- Probe: ET3DV6 - SN1387; ConvF(6.71, 6.71, 6.71); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Face-Held - 2.5 cm Separation Distance - Mid Channel/Area Scan (8x26x1):

Measurement grid: dx=15mm, dy=15mm

Face-Held - 2.5 cm Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 8.08 V/m; Power Drift = -0.737 dB
 Peak SAR (extrapolated) = 2.91 W/kg
SAR(1 g) = 2.20 mW/g; SAR(10 g) = 1.58 mW/g



Date Tested: 01/25/05

Face-Held SAR - Low Band - Speaker-Microphone with Antenna - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Speaker-Microphone with Antenna; P/N: 589-0015-058

Ambient Temp: 23.3 °C; Fluid Temp: 21.4 °C; Barometric Pressure: 102.3 kPa; Humidity: 30%

Communication System: FM Transmit

Frequency: 898.0125 MHz; Duty Cycle: 1:1

RF Output Power: 34.58 dBm (Conducted)

7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)

Medium: HSL900 ($\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 41.7$; $\rho = 1000 \text{ kg/m}^3$)

- Probe: ET3DV6 - SN1387; ConvF(6.71, 6.71, 6.71); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Face-Held - 2.5 cm Separation Distance - Mid Channel/Area Scan (8x19x1):

Measurement grid: dx=15mm, dy=15mm

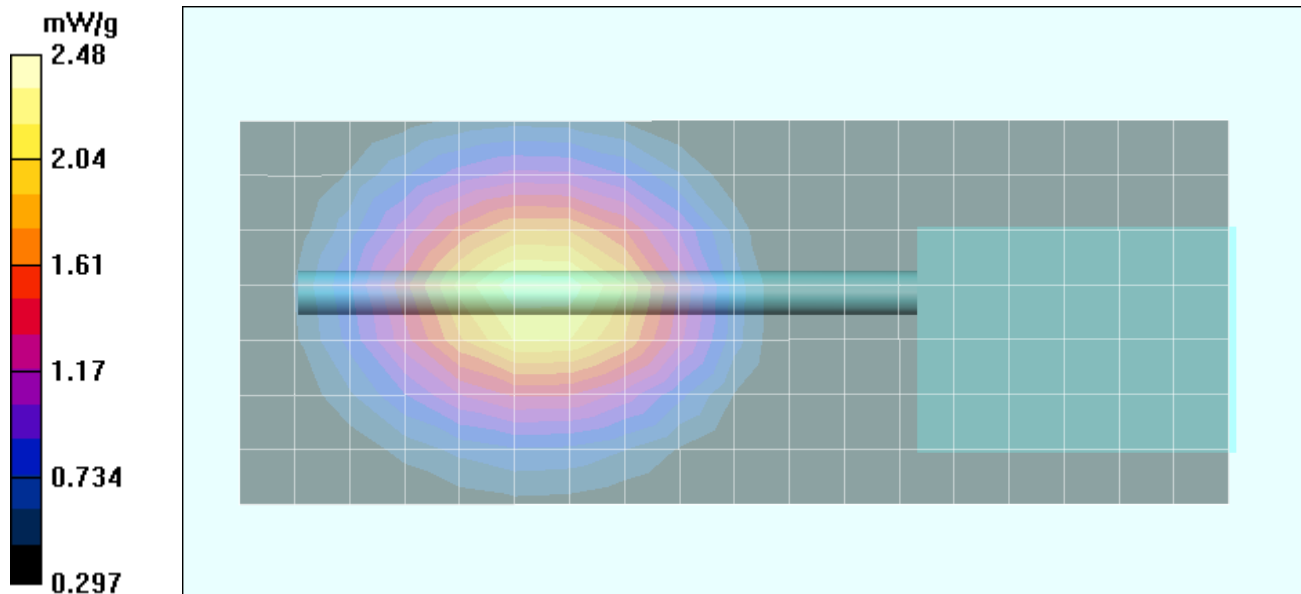
Face-Held - 2.5 cm Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.54 V/m; Power Drift = -0.0866 dB

Peak SAR (extrapolated) = 3.12 W/kg

SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.66 mW/g



Date Tested: 01/25/05

Face-Held SAR - High Band - Radio Transceiver - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Ambient Temp: 23.4 °C; Fluid Temp: 21.7 °C; Barometric Pressure: 102.3 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around

Frequency: 937.0125 MHz; Duty Cycle: 1:1

RF Output Power: 34.70 dBm (Conducted)

7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)

Medium: HSL938 ($\sigma = 1.01$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³)

- Probe: ET3DV6 - SN1387; ConvF(6.71, 6.71, 6.71); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Face-Held - 2.5 cm Separation Distance - Mid Channel/Area Scan (8x24x1):

Measurement grid: dx=15mm, dy=15mm

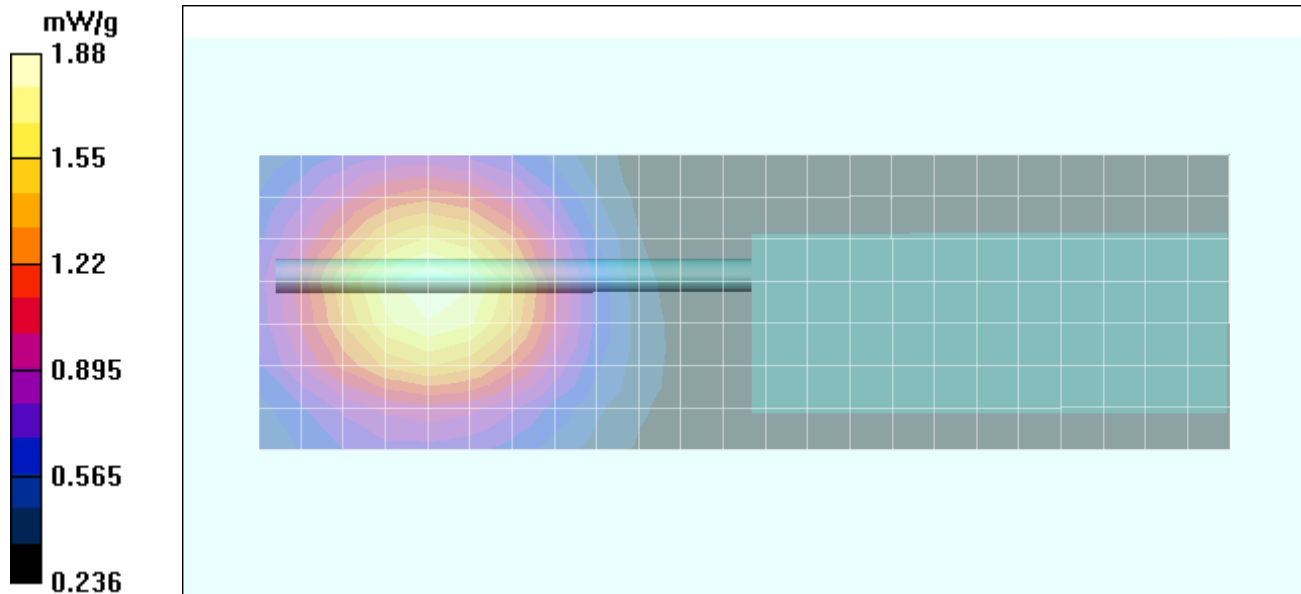
Face-Held - 2.5 cm Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.5 V/m; Power Drift = -1.29 dB

Peak SAR (extrapolated) = 2.35 W/kg

SAR(1 g) = 1.78 mW/g; SAR(10 g) = 1.28 mW/g



Date Tested: 01/25/05

Face-Held SAR - High Band - Radio Transceiver - Alkaline Battery Pack (Duracell Procell)

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Ambient Temp: 23.4 °C; Fluid Temp: 21.7 °C; Barometric Pressure: 102.3 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.82 dBm (Conducted)
 RF Output Power: 34.85 dBm (Conducted) 2nd Maximum
 9V AA Alkaline Duracell ProCell Battery Pack (Battery Case P/N: 250-5100-280)
 Medium: HSL938 ($\sigma = 1.01$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³)

- Probe: ET3DV6 - SN1387; ConvF(6.71, 6.71, 6.71); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Face-Held - 2.5 cm Separation Distance - Mid Channel/Area Scan (8x26x1):

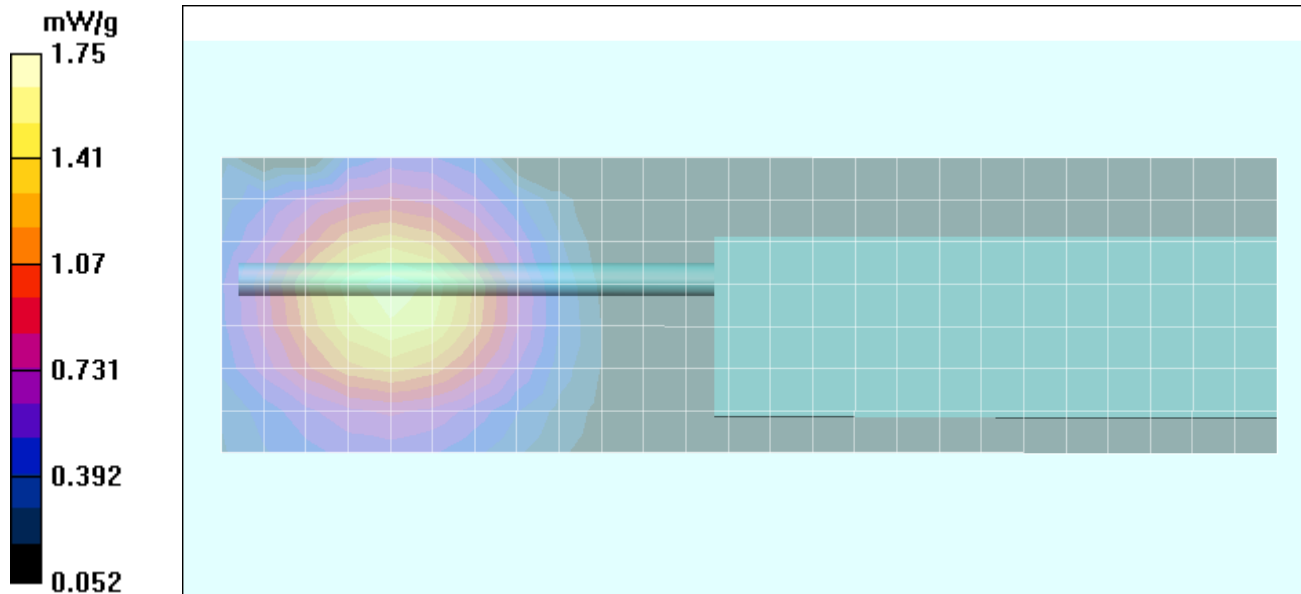
Measurement grid: dx=15mm, dy=15mm

Face-Held - 2.5 cm Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 10.4 V/m; Power Drift = -1.84 dB
 Peak SAR (extrapolated) = 2.5 W/kg
SAR(1 g) = 1.82 mW/g; SAR(10 g) = 1.28 mW/g

Face-Held - 2.5 cm Separation Distance - Mid Channel/Zoom Scan 2 (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 9.97 V/m; Power Drift = -1.61 dB
 Peak SAR (extrapolated) = 2.26 W/kg
SAR(1 g) = 1.49 mW/g; SAR(10 g) = 0.920 mW/g



Date Tested: 01/25/05

Face-Held SAR - High Band - Speaker-Microphone with Antenna - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Speaker-Microphone with Antenna; P/N: 589-0015-058

Ambient Temp: 23.4 °C; Fluid Temp: 21.7 °C; Barometric Pressure: 102.3 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.50 dBm (Conducted)
 7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)
 Medium: HSL938 ($\sigma = 1.01$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³)

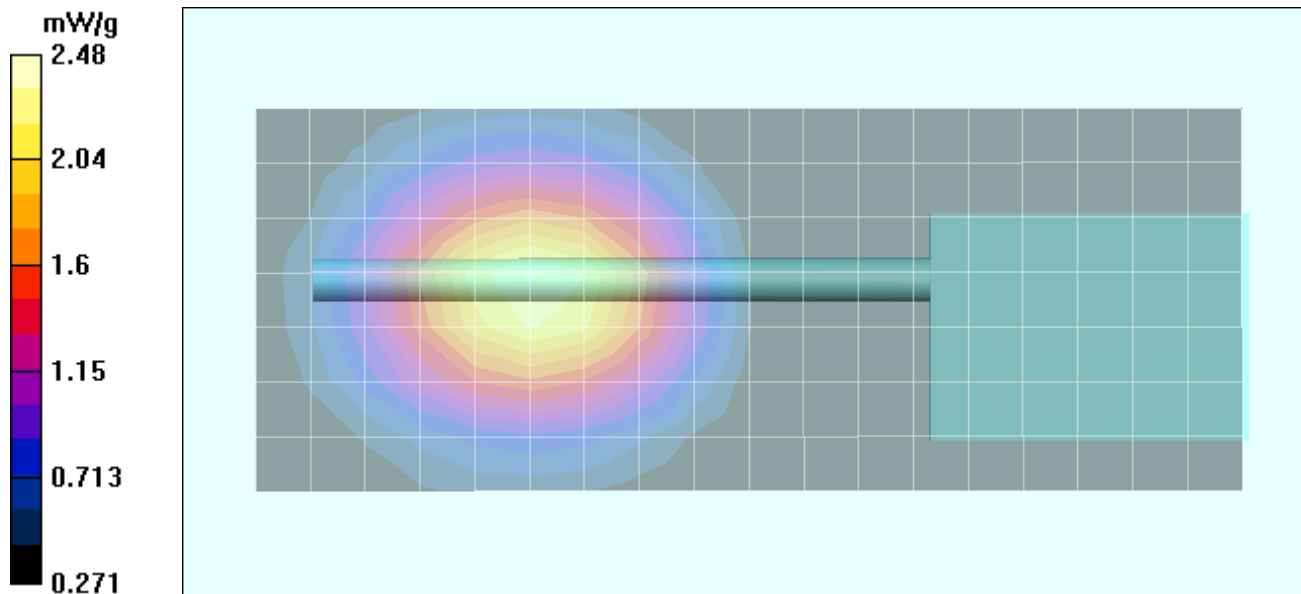
- Probe: ET3DV6 - SN1387; ConvF(6.71, 6.71, 6.71); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Face-Held - 2.5 cm Separation Distance - Mid Channel/Area Scan (8x19x1):

Measurement grid: dx=15mm, dy=15mm

Face-Held - 2.5 cm Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 17.1 V/m; Power Drift = -1.32 dB
 Peak SAR (extrapolated) = 3.13 W/kg
SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.65 mW/g



Date Tested: 01/25/05

Face-Held SAR - High Band - Speaker-Microphone with Antenna - External Power to NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Speaker-Microphone with Antenna; P/N: 589-0015-058

Ambient Temp: 23.4 °C; Fluid Temp: 21.7 °C; Barometric Pressure: 102.3 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.53 dBm (Conducted)
 8.0V External Power to NiMH Battery Pack (P/N: 587-5100-360)
 Medium: HSL938 ($\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 40.5$; $\rho = 1000 \text{ kg/m}^3$)

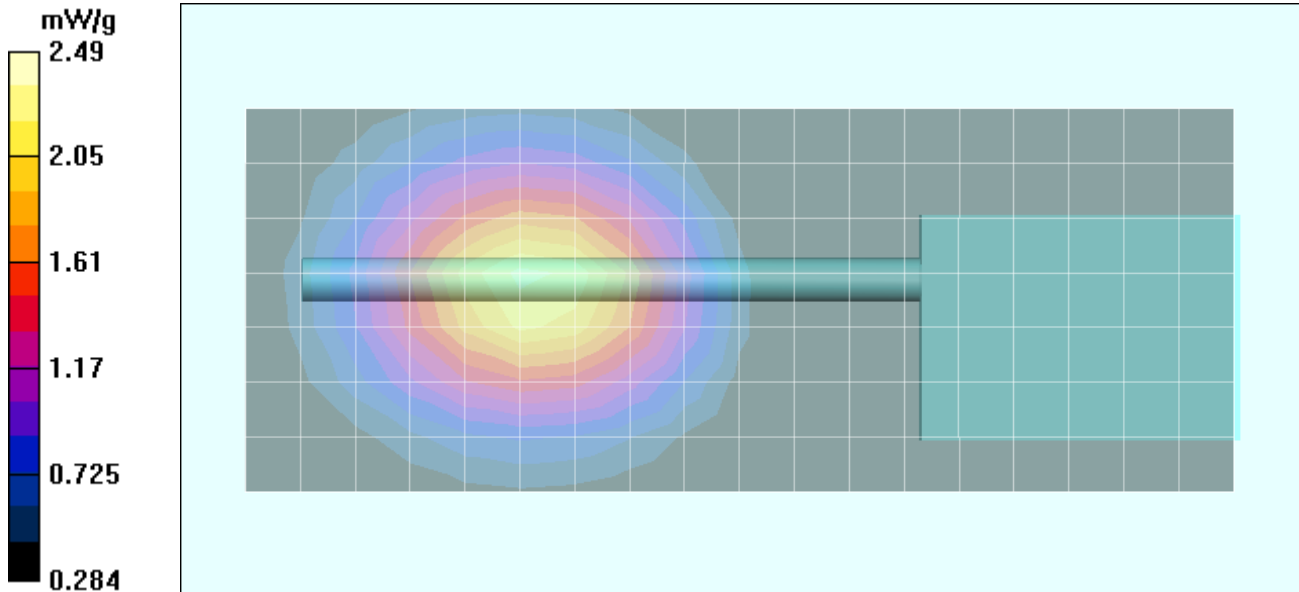
- Probe: ET3DV6 - SN1387; ConvF(6.71, 6.71, 6.71); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Face-Held - 2.5 cm Separation Distance - Mid Channel/Area Scan (8x19x1):

Measurement grid: dx=15mm, dy=15mm

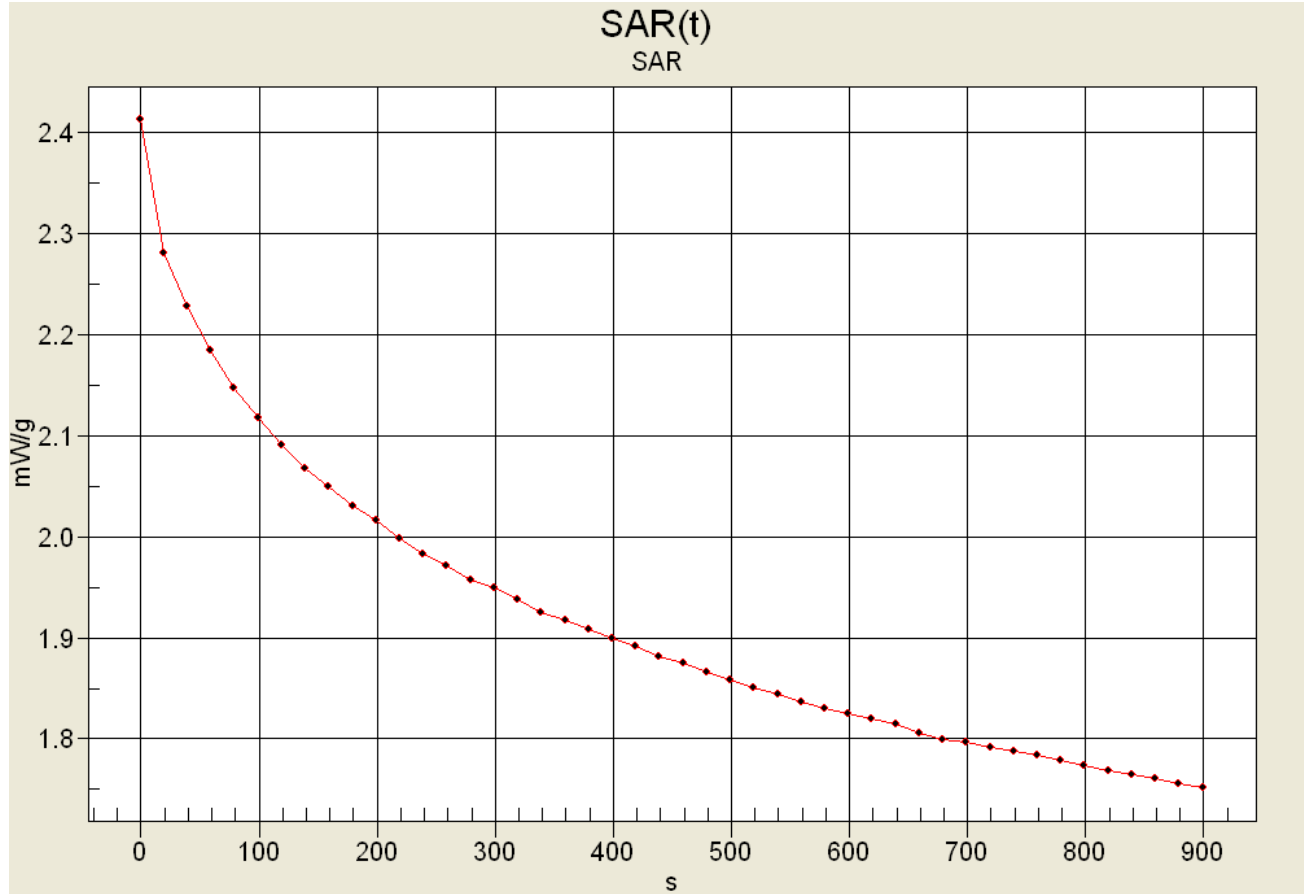
Face-Held - 2.5 cm Separation Distance - Mid Channel /Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 19.2 V/m; Power Drift = -0.875 dB
 Peak SAR (extrapolated) = 3.15 W/kg
SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.64 mW/g



SAR-versus-Time Power Drift Evaluation

Face-Held with Speaker-Microphone-Antenna
 8V External Power to NiMH Battery Pack
 High Band - Mid Channel - 937.0125 MHz



High SAR: 2.41251 mW/g
 Low SAR: 1.75212 mW/g (-1.39 dB)
 SAR after 340s: 1.92564 mW/g (-0.979 dB)
 (340s = Zoom Scan Duration)
 (900s = Area Scan Duration)

Date Tested: 01/27/05

Body-Worn SAR - Low Band - Radio Transceiver - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Speaker-Microphone (P/N: 589-0015-057)

Ambient Temp: 22.8 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

Communication System: FM Transmit
 Frequency: 898.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.56 dBm (Conducted)
 7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)
 Medium: M900 ($\sigma = 1.05 \text{ mho/m}$; $\epsilon_r = 52.5$; $\rho = 1000 \text{ kg/m}^3$)

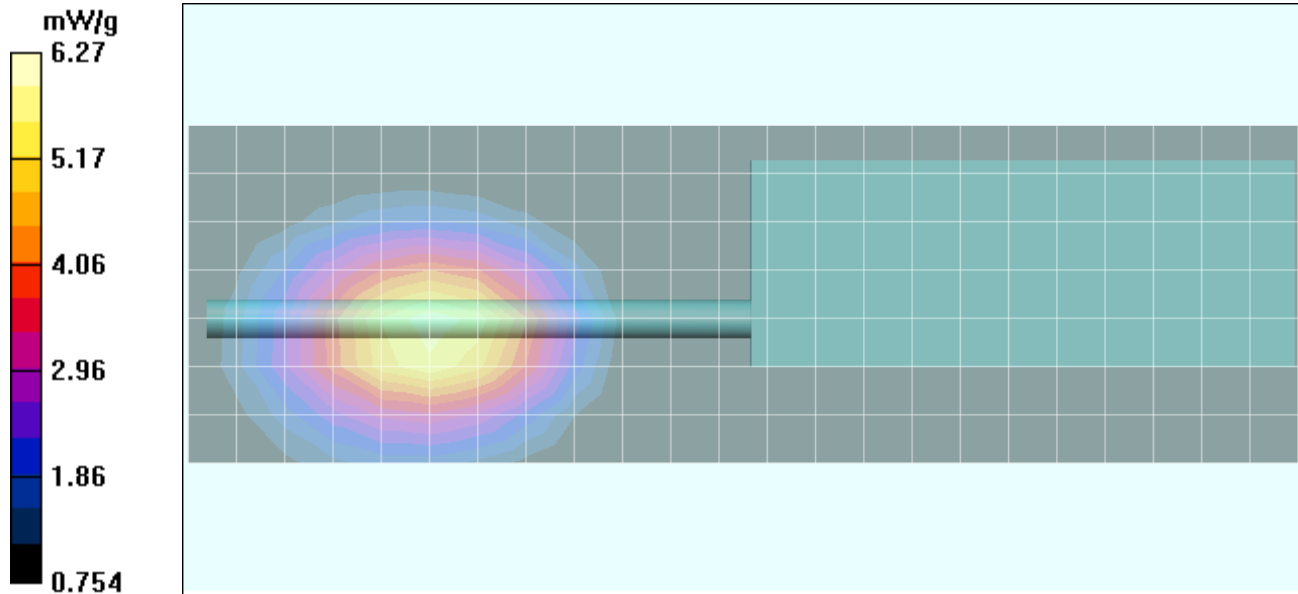
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DAS4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x24x1):

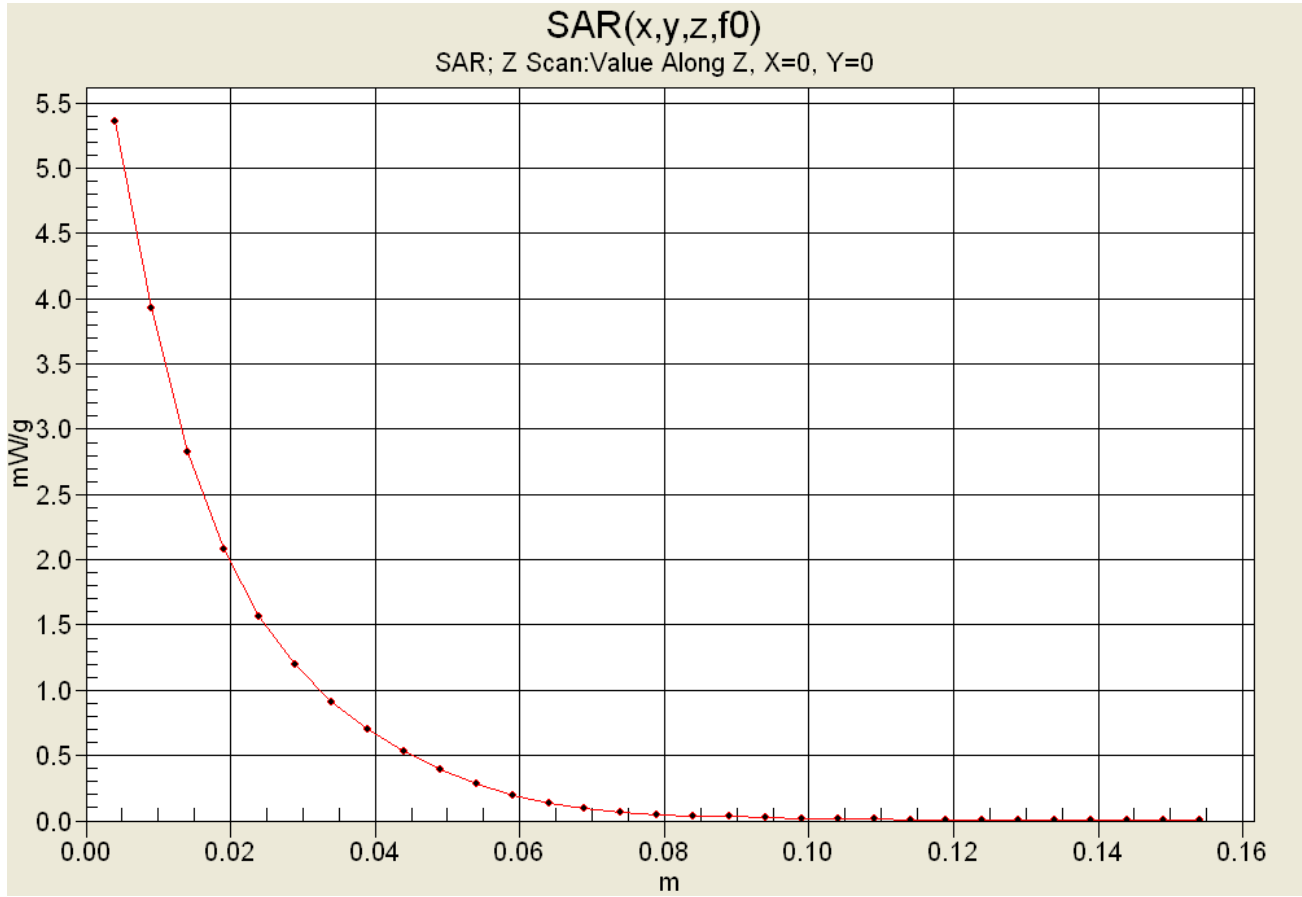
Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 20.2 V/m; Power Drift = -0.768 dB
 Peak SAR (extrapolated) = 7.83 W/kg
SAR(1 g) = 5.88 mW/g; SAR(10 g) = 4.13 mW/g



Z-Axis Scan



Date Tested: 01/27/05

Body-Worn SAR - Low Band - Radio Transceiver - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Boom-Microphone Headset (P/N: 589-0015-059)

Ambient Temp: 22.8 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

Communication System: FM Transmit
 Frequency: 898.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.58 dBm (Conducted)
 7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)
 Medium: M900 ($\sigma = 1.05 \text{ mho/m}$; $\epsilon_r = 52.5$; $\rho = 1000 \text{ kg/m}^3$)

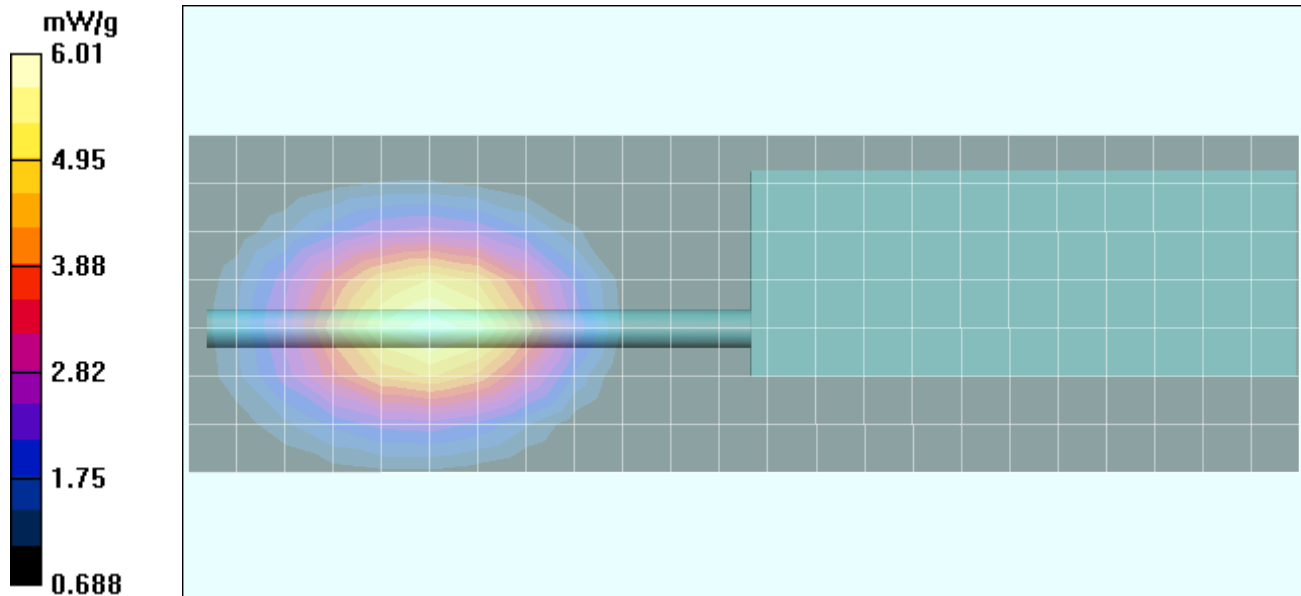
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DAS4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x24x1):

Measurement grid: dx=15mm, dy=15mm

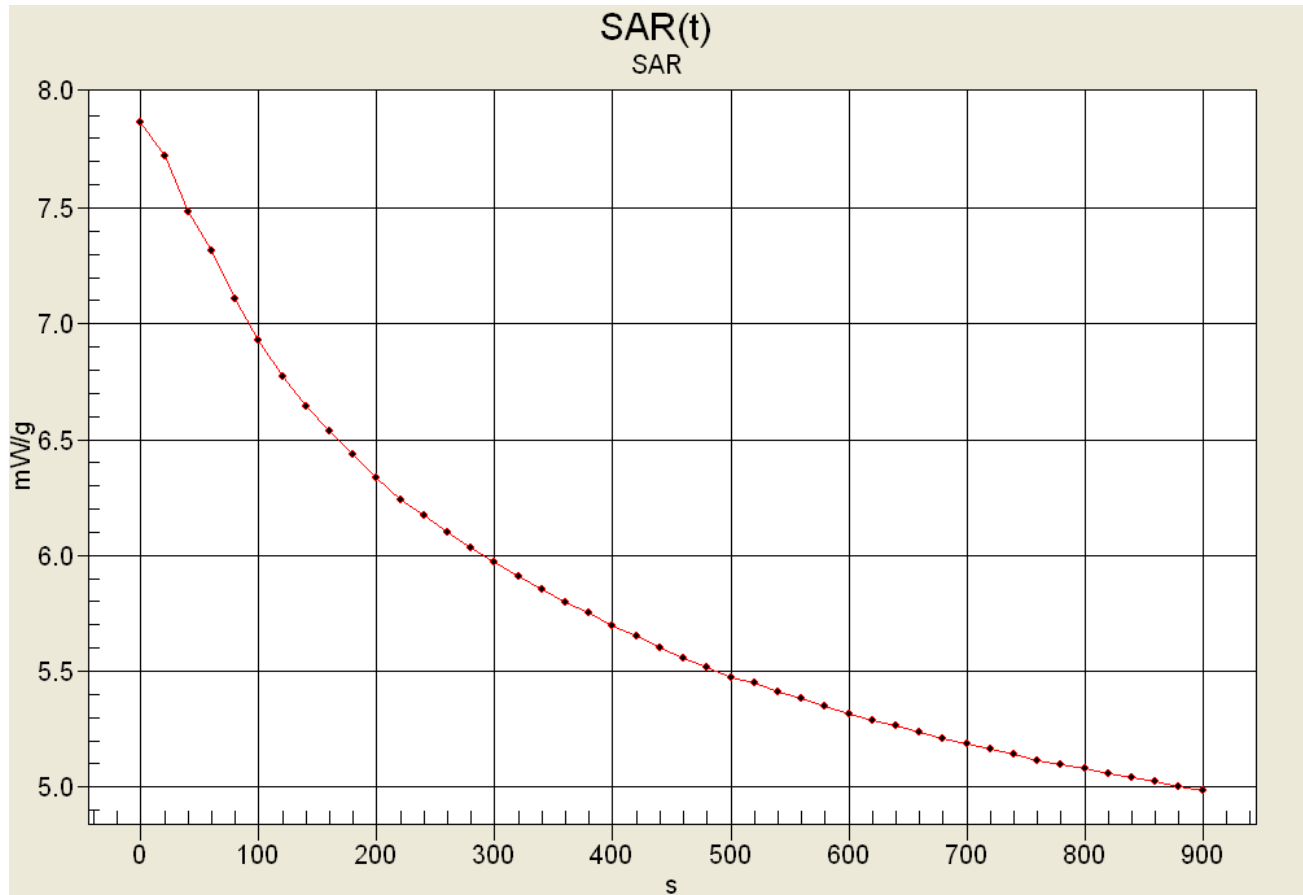
Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 20.8 V/m; Power Drift = -1.06 dB
 Peak SAR (extrapolated) = 7.53 W/kg
SAR(1 g) = 5.68 mW/g; SAR(10 g) = 4.04 mW/g



SAR-versus-Time Power Drift Evaluation

Body-Worn Configuration
 with Headset & Belt-Clip
 7.5V NiMH Battery Pack
 Low Band Mid Channel - 898.0125 MHz



High SAR: 7.86801 mW/g
 Low SAR: 4.98641 mW/g (-1.981 dB)
 SAR after 340s: 5.85479 mW/g (-1.284 dB)
 (340s = Zoom Scan Duration)
 (900s = Area Scan Duration)

Date Tested: 01/27/05

Body-Worn SAR - Low Band - Radio Transceiver - Alkaline Battery Pack (Duracell Procell)

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Speaker-Microphone (P/N: 589-0015-057)

Ambient Temp: 22.8 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

Communication System: FM Transmit
 Frequency: 898.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.56 dBm (Conducted)
 9V AA Alkaline Duracell ProCell Battery Pack (Battery Case P/N: 250-5100-280)
 Medium: M900 ($\sigma = 1.05 \text{ mho/m}$; $\epsilon_r = 52.5$; $\rho = 1000 \text{ kg/m}^3$)

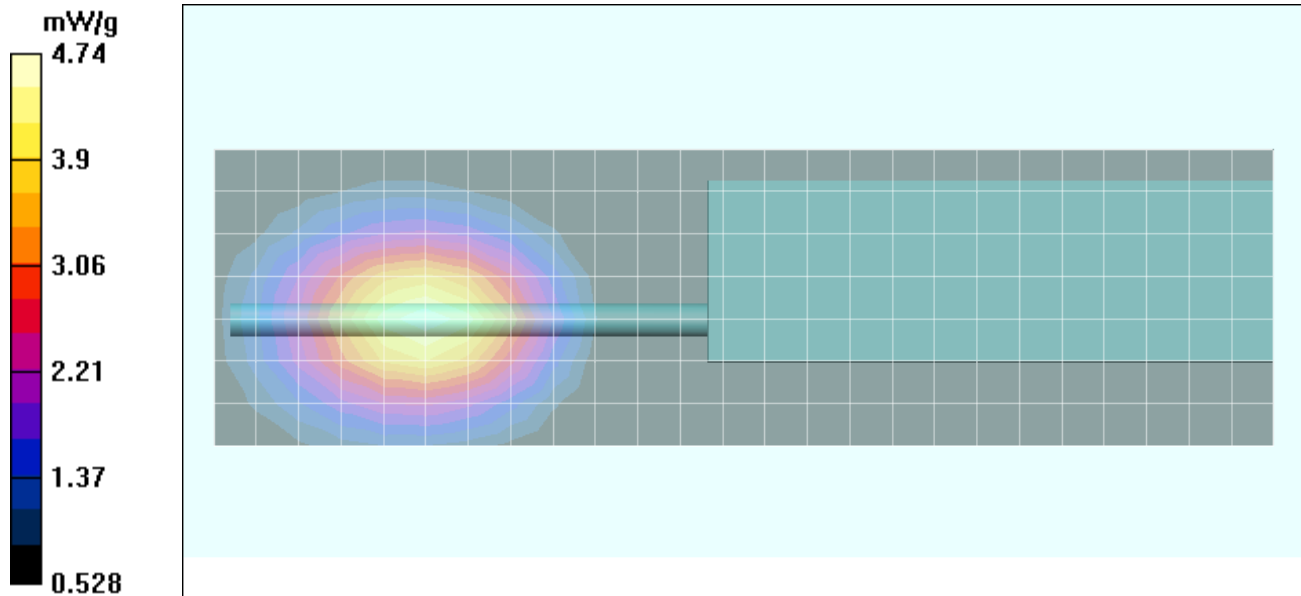
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x26x1):

Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 15.7 V/m; Power Drift = -0.833 dB
 Peak SAR (extrapolated) = 5.95 W/kg
SAR(1 g) = 4.44 mW/g; SAR(10 g) = 3.13 mW/g



Date Tested: 01/27/05

Body-Worn SAR - Low Band - Radio Transceiver - Alkaline Battery Pack (Duracell Procell)

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Boom-Microphone Headset (P/N: 589-0015-059)

Ambient Temp: 22.8 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

Communication System: FM Transmit
 Frequency: 898.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.56 dBm (Conducted)
 9V AA Alkaline Duracell ProCell Battery Pack (Battery Case P/N: 250-5100-280)
 Medium: M900 ($\sigma = 1.05 \text{ mho/m}$; $\epsilon_r = 52.5$; $\rho = 1000 \text{ kg/m}^3$)

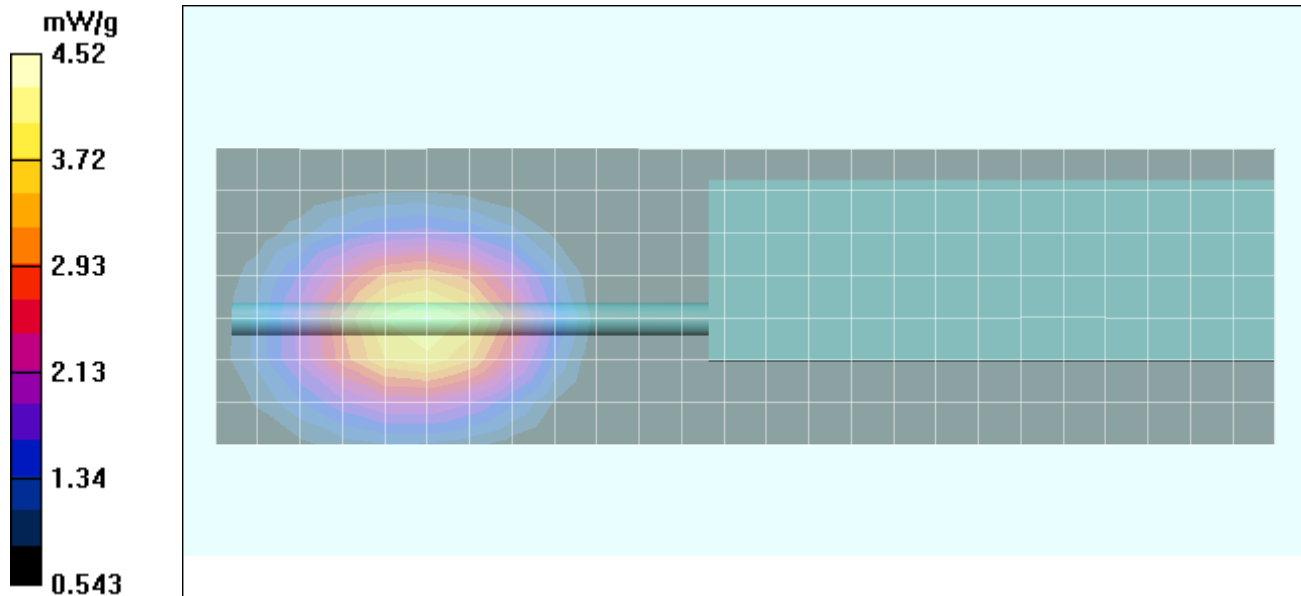
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x26x1):

Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 14.1 V/m; Power Drift = -0.655 dB
 Peak SAR (extrapolated) = 5.63 W/kg
SAR(1 g) = 4.21 mW/g; SAR(10 g) = 2.95 mW/g



Date Tested: 01/27/05

Body-Worn SAR - Low Band - Speaker-Microphone with Antenna - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Speaker-Microphone with Antenna; P/N: 589-0015-058

Body-Worn Accessories: Lapel-Clip

Ambient Temp: 22.8 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.6 kPa; Humidity: 30%

Communication System: FM Transmit
 Frequency: 898.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.59 dBm (Conducted)
 7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)
 Medium: M900 ($\sigma = 1.05 \text{ mho/m}$; $\epsilon_r = 52.5$; $\rho = 1000 \text{ kg/m}^3$)

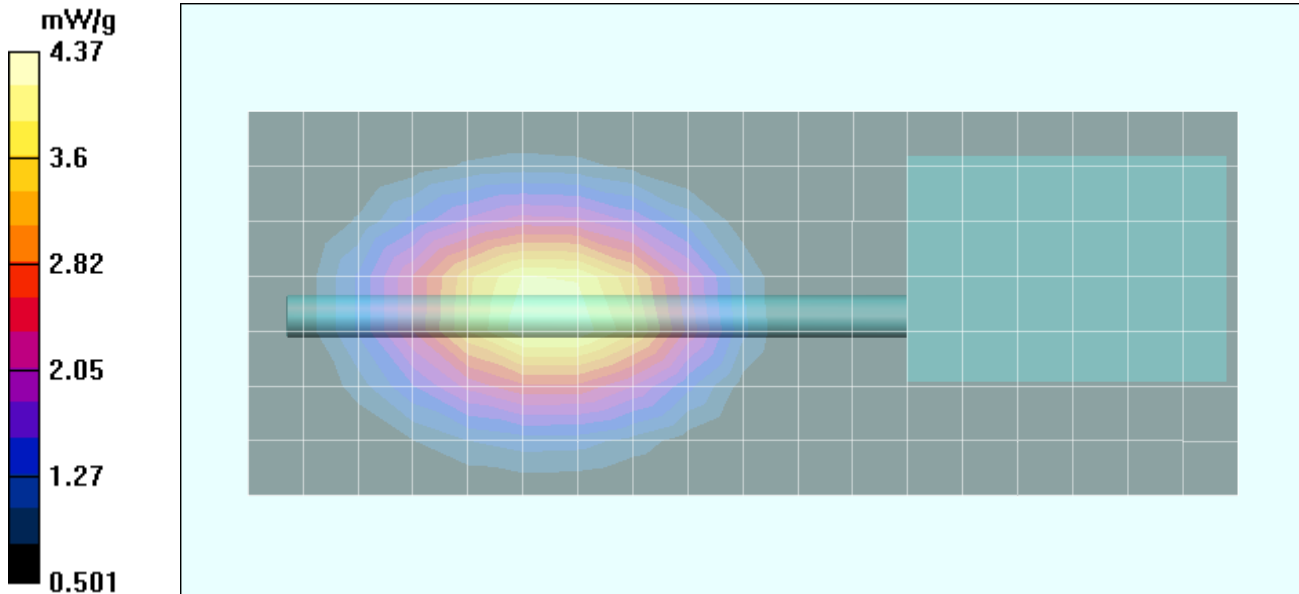
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DAS4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.2 cm Lapel-Clip Separation Distance - Mid Channel/Area Scan (8x19x1):

Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.2 cm Lapel-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 17.7 V/m; Power Drift = -0.168 dB
 Peak SAR (extrapolated) = 5.45 W/kg
SAR(1 g) = 4.09 mW/g; SAR(10 g) = 2.87 mW/g



Date Tested: 01/27/05

Body-Worn SAR - High Band - Radio Transceiver - Alkaline Battery Pack (Duracell Procell)

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Speaker-Microphone (P/N: 589-0015-057)

Ambient Temp: 23.7 °C; Fluid Temp: 21.4 °C; Barometric Pressure: 101.7 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.96 dBm (Conducted)
 9V AA Alkaline Duracell ProCell Battery Pack (Battery Case P/N: 250-5100-280)
 Medium: M938 ($\sigma = 1.11 \text{ mho/m}$; $\epsilon_r = 53.1$; $\rho = 1000 \text{ kg/m}^3$)

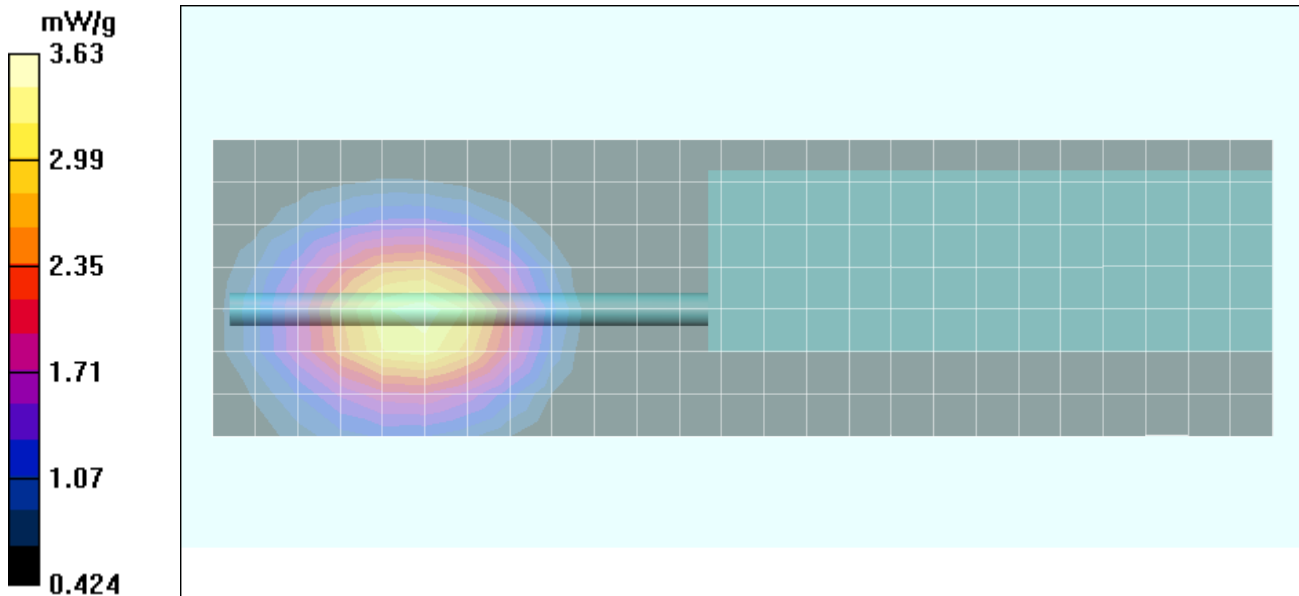
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x26x1):

Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 19.4 V/m; Power Drift = -1.72 dB
 Peak SAR (extrapolated) = 4.57 W/kg
SAR(1 g) = 3.41 mW/g; SAR(10 g) = 2.42 mW/g



Date Tested: 01/27/05

Body-Worn SAR - High Band - Radio Transceiver - Alkaline Battery Pack (Duracell Procell)

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Boom-Microphone Headset (P/N: 589-0015-059)

Ambient Temp: 23.7 °C; Fluid Temp: 21.4 °C; Barometric Pressure: 101.7 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.95 dBm (Conducted)
 9V AA Alkaline Duracell ProCell Battery Pack (Battery Case P/N: 250-5100-280)
 Medium: M938 ($\sigma = 1.11 \text{ mho/m}$; $\epsilon_r = 53.1$; $\rho = 1000 \text{ kg/m}^3$)

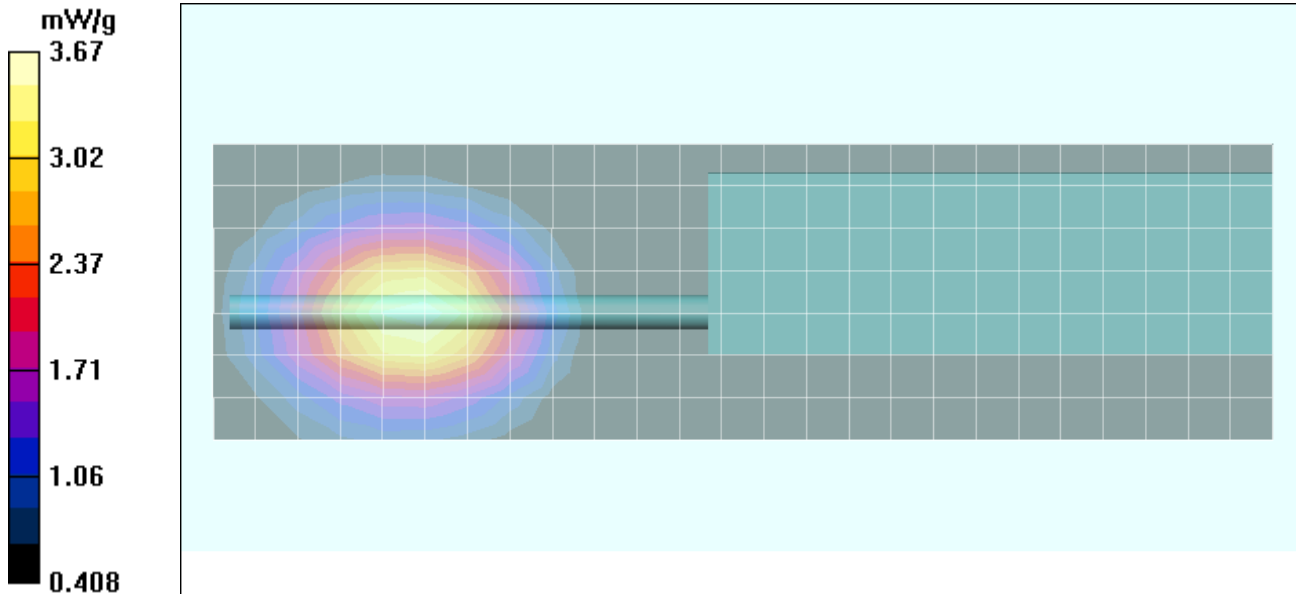
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x26x1):

Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 18.8 V/m; Power Drift = -1.81 dB
 Peak SAR (extrapolated) = 4.65 W/kg
SAR(1 g) = 3.49 mW/g; SAR(10 g) = 2.48 mW/g



Date Tested: 01/27/05

Body-Worn SAR - High Band - Speaker-Microphone with Antenna - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Speaker-Microphone with Antenna; P/N: 589-0015-058

Body-Worn Accessories: Lapel-Clip

Ambient Temp: 23.7 °C; Fluid Temp: 21.4 °C; Barometric Pressure: 101.7 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.67 dBm (Conducted)
 7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)
 Medium: M938 ($\sigma = 1.11 \text{ mho/m}$; $\epsilon_r = 53.1$; $\rho = 1000 \text{ kg/m}^3$)

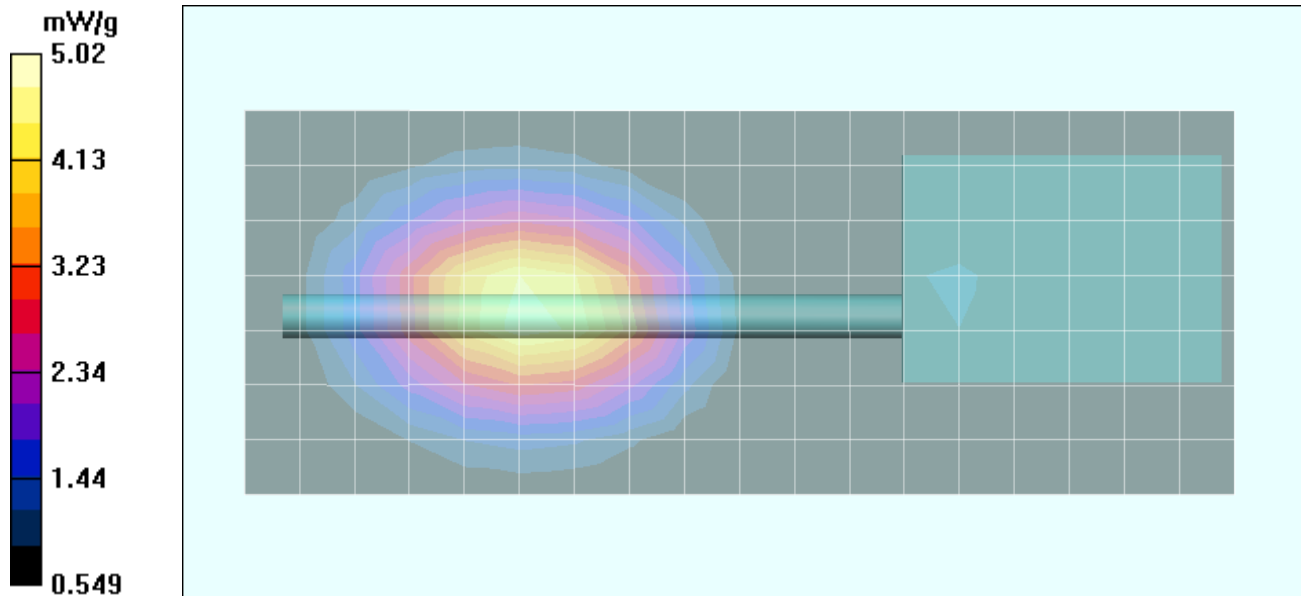
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DAS4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.2 cm Lapel-Clip Separation Distance - Mid Channel/Area Scan (8x19x1):

Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.2 cm Lapel-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 31.1 V/m; Power Drift = -1.28 dB
 Peak SAR (extrapolated) = 6.32 W/kg
SAR(1 g) = 4.73 mW/g; SAR(10 g) = 3.32 mW/g



Date Tested: 01/28/05

Body-Worn SAR - High Band - Radio Transceiver - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Boom-Microphone Headset (P/N: 589-0015-059)

Ambient Temp: 23.0 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.8 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.47 dBm (Conducted)
 7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)
 Medium: M938 ($\sigma = 1.09 \text{ mho/m}$; $\epsilon_r = 52.2$; $\rho = 1000 \text{ kg/m}^3$)

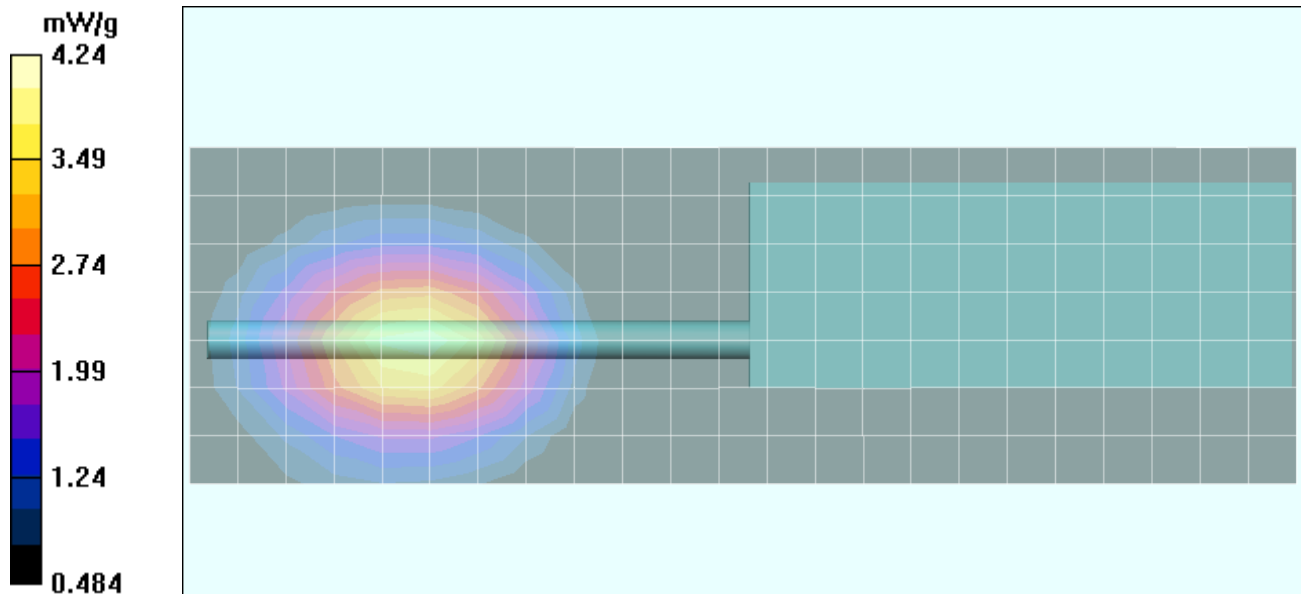
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x24x1):

Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 23.7 V/m; Power Drift = -1.32 dB
 Peak SAR (extrapolated) = 5.27 W/kg
SAR(1 g) = 3.95 mW/g; SAR(10 g) = 2.78 mW/g



Date Tested: 01/28/05

Body-Worn SAR - High Band - Radio Transceiver - NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Speaker-Microphone (P/N: 589-0015-057)

Ambient Temp: 23.0 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.8 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.60 dBm (Conducted)
 7.5V 3600mAh NiMH Battery Pack (P/N: 587-5100-360)
 Medium: M938 ($\sigma = 1.09$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³)

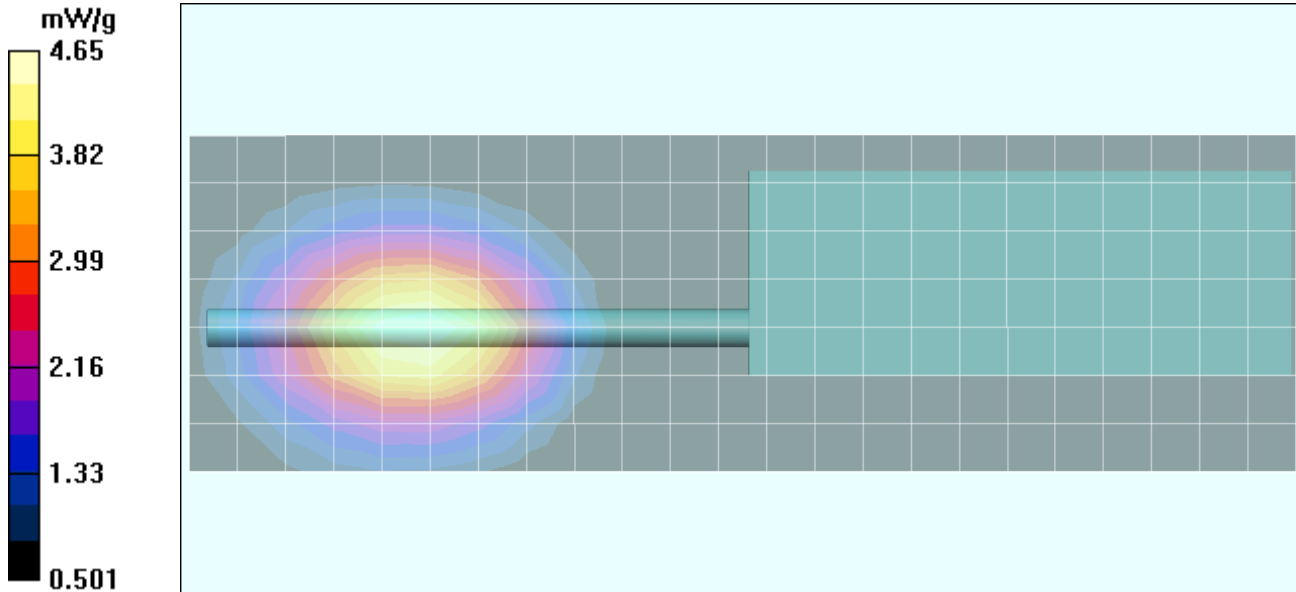
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x24x1):

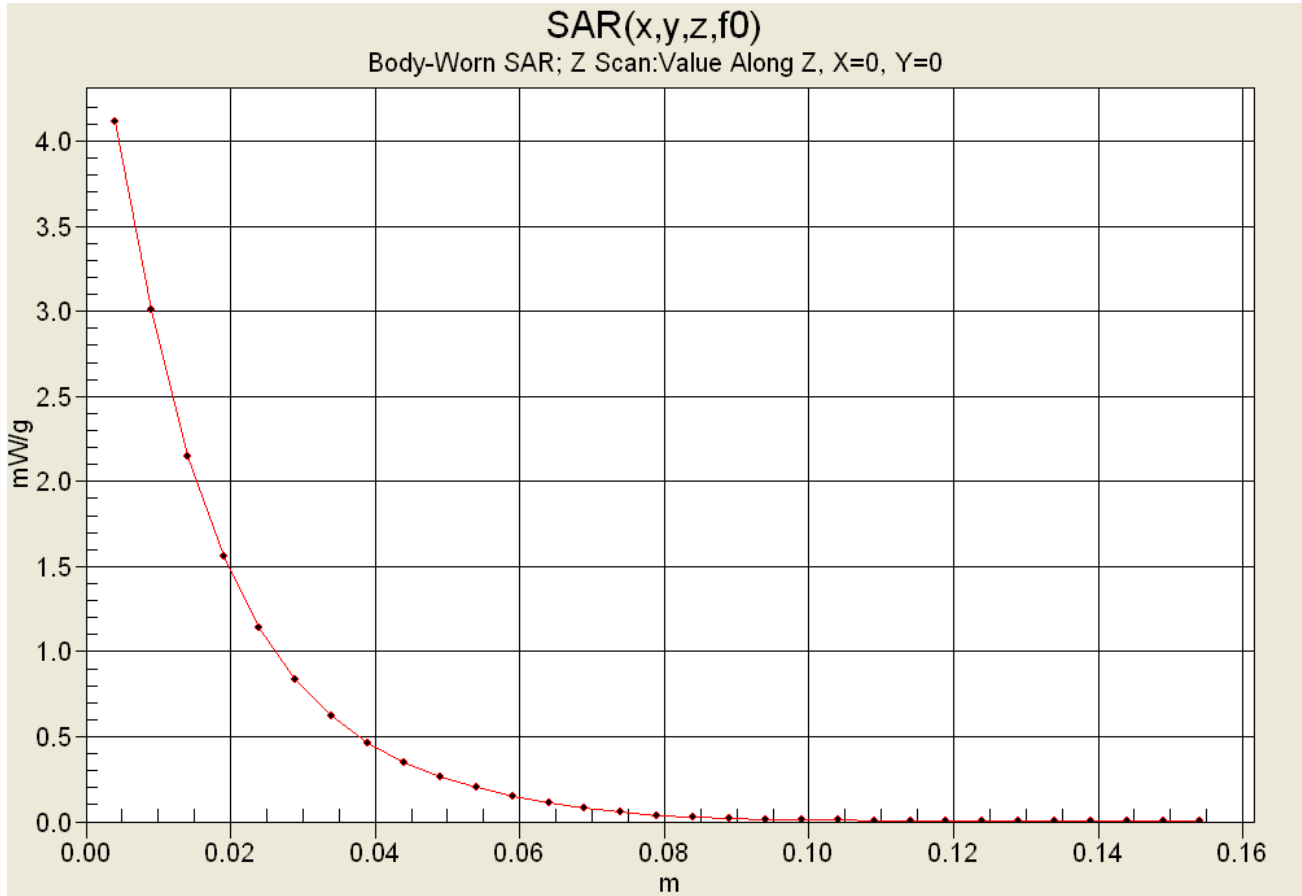
Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 24.7 V/m; Power Drift = -1.45 dB
 Peak SAR (extrapolated) = 5.9 W/kg
SAR(1 g) = 4.40 mW/g; SAR(10 g) = 3.11 mW/g



Z-Axis Scan



Date Tested: 01/28/05

Body-Worn SAR - Low Band - Radio Transceiver - Alkaline Battery Pack (Energizer E91)

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Speaker-Microphone (P/N: 589-0015-057)

Ambient Temp: 23.0 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.8 kPa; Humidity: 30%

Communication System: FM Transmit
 Frequency: 898.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.57 dBm (Conducted)
 9V AA Alkaline Energizer E91 Battery Pack (Battery Case P/N: 250-5100-280)
 Medium: M900 ($\sigma = 1.06 \text{ mho/m}$; $\epsilon_r = 53.0$; $\rho = 1000 \text{ kg/m}^3$)

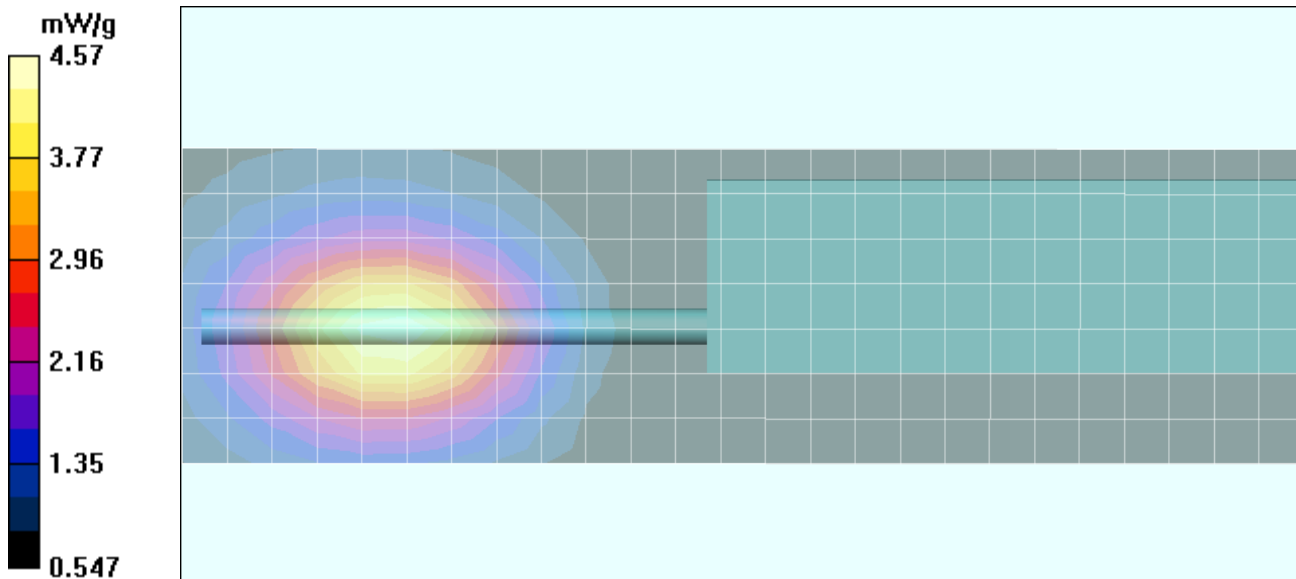
- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x26x1):

Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 16.7 V/m; Power Drift = -0.814 dB
 Peak SAR (extrapolated) = 5.69 W/kg
SAR(1 g) = 4.28 mW/g; SAR(10 g) = 3.04 mW/g



Date Tested: 01/28/05

Body-Worn SAR - High Band - Radio Transceiver - External Power to NiMH Battery

DUT: EF Johnson Model: 5191; Type: Portable FM PTT Radio Transceiver; Serial: PK#9

Body-Worn Accessories: Belt-Clip (P/N: 585-5100-128), Speaker-Microphone (P/N: 589-0015-057)

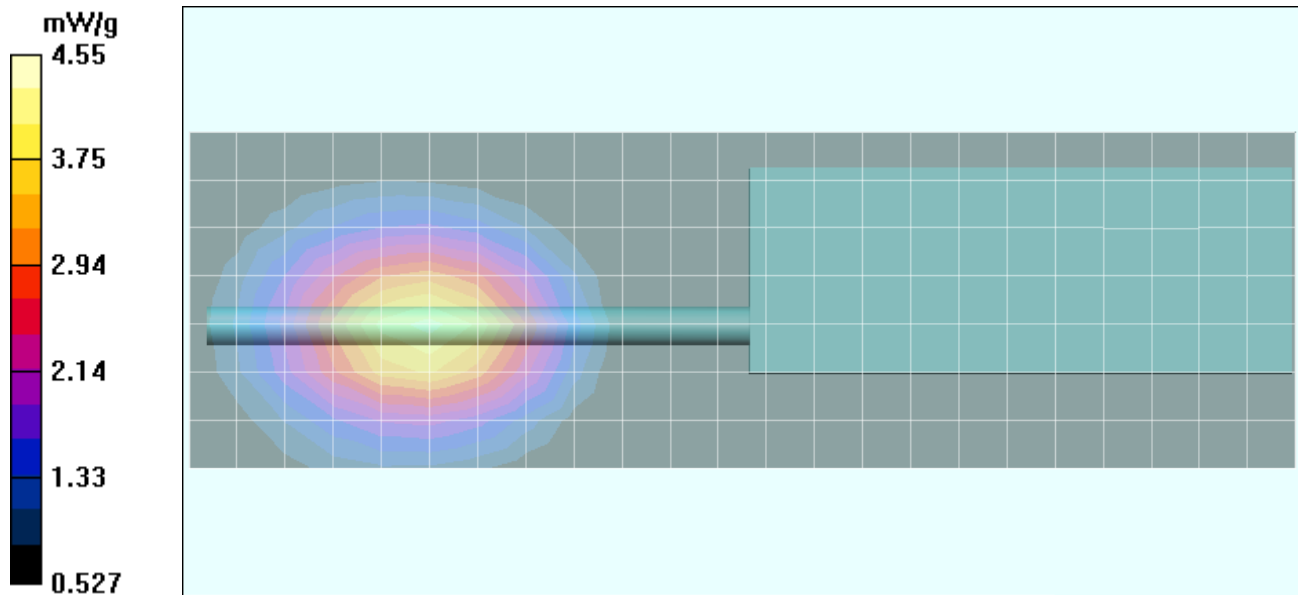
Ambient Temp: 23.0 °C; Fluid Temp: 21.6 °C; Barometric Pressure: 101.8 kPa; Humidity: 30%

Communication System: FM Transmit Talk-Around
 Frequency: 937.0125 MHz; Duty Cycle: 1:1
 RF Output Power: 34.55 dBm (Conducted)
 8.0V External Power to NiMH Battery Pack (P/N: 587-5100-360)
 Medium: M938 ($\sigma = 1.09 \text{ mho/m}$; $\epsilon_r = 52.2$; $\rho = 1000 \text{ kg/m}^3$)

- Probe: ET3DV6 - SN1387; ConvF(6.24, 6.24, 6.24); Calibrated: 18/03/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn353; Calibrated: 06/07/2004
- Phantom: Planar; Type: Plexiglas; Serial: 161
- Measurement SW: DASY4, V4.3 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 127

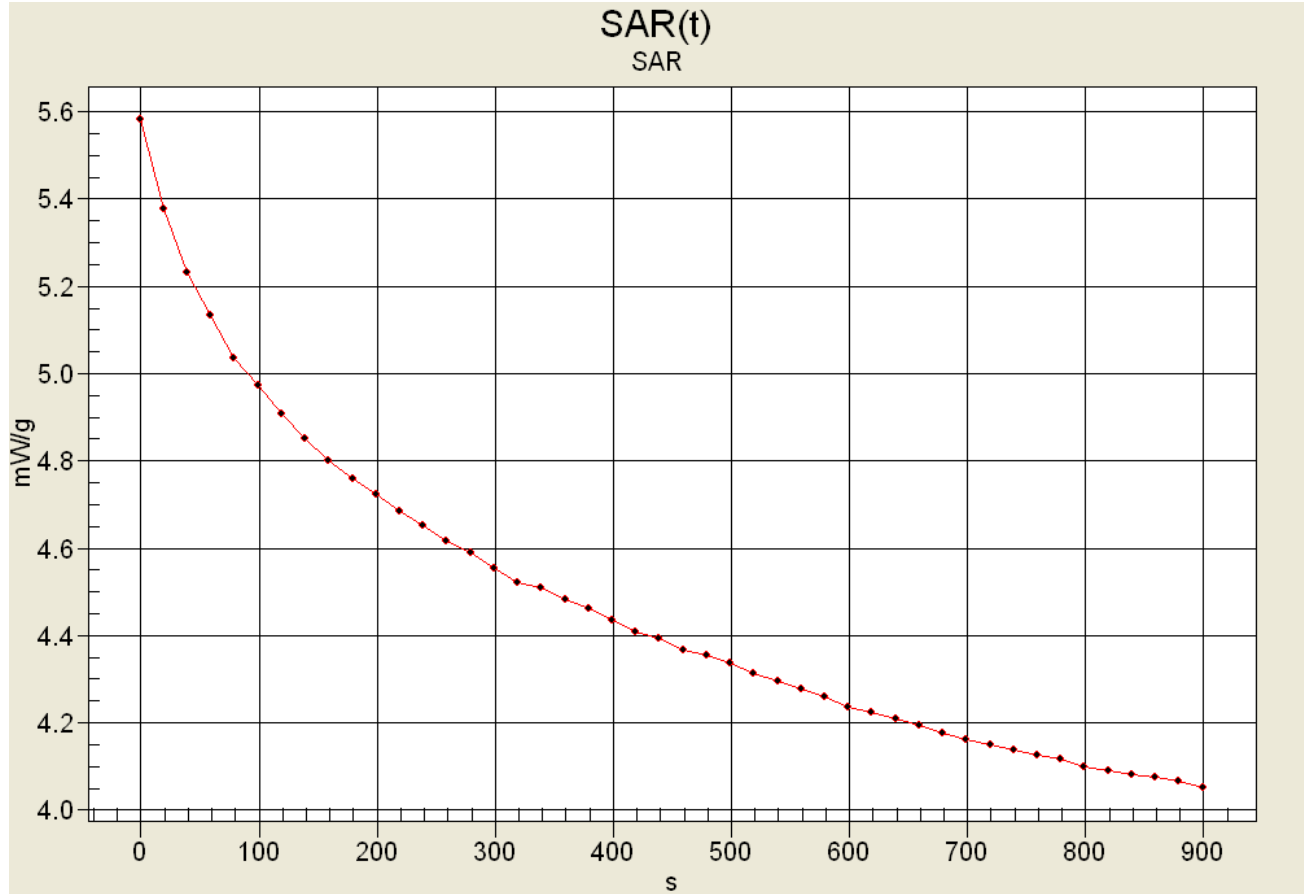
Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Area Scan (8x24x1):
 Measurement grid: dx=15mm, dy=15mm

Body-Worn - 1.3 cm Belt-Clip Separation Distance - Mid Channel/Zoom Scan (5x5x7)/Cube 0:
 Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 24.6 V/m; Power Drift = -0.794 dB
 Peak SAR (extrapolated) = 5.74 W/kg
SAR(1 g) = 4.28 mW/g; SAR(10 g) = 3 mW/g



SAR-versus-Time Power Evaluation

Body-Worn with Speaker-Microphone
 8V External Power to NiMH Battery Pack
 High Band - Mid Channel - 937.0125 MHz



High SAR: 5.58179 mW/g
 Low SAR: 4.05245 mW/g (-1.391 dB)
 SAR after 340s: 4.50857 mW/g (-0.9273 dB)
 (340s = Zoom Scan Duration)
 (900s = Area Scan Duration)