
 RESEARCH IN MOTION	Document Appendices for BlackBerry Wireless Handheld Model No. RAO30GN SAR Compliance Test Report		Page 1(21)
	Author Data Daoud Attayi	Dates of Test May 26 – 27, Oct. 08 - 09, 2003	Test Report No RIM-0071-0310-03

APPENDIX A: SAR DISTRIBUTION COMPARISON FOR THE ACCURACY VERIFICATION

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Date/Time: 10/09/03 09:39:32

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.3 (°C); Liquid Temperature: 22.1 (°C)

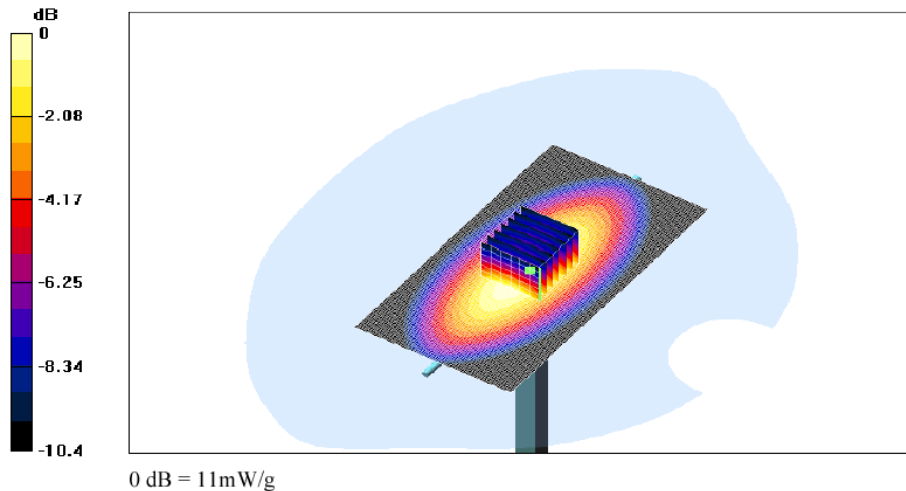
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:446
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 MHz Head ($\sigma = 0.91$ mho/m, $\epsilon_r = 41.96$, $\rho = 1000$ kg/m³)
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(6.6, 6.6, 6.6); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (81x151x1): Measurement grid: dx=10mm, dy=10mm
Reference Value = 117.0 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 11.1 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 14.6 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 6.66 mW/g
Reference Value = 117.0 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 11 mW/g



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05/26/03

Dipole 1900 MHz

SAM 1; Flat

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 1.0; Head 1900 MHz: $\sigma = 1.52 \text{ mho/m}$ $\epsilon_r = 38.4$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 86.9 mW/g, SAR (1g): 44.3 mW/g, SAR (10g): 22.3 mW/g, (Worst-case extrapolation)

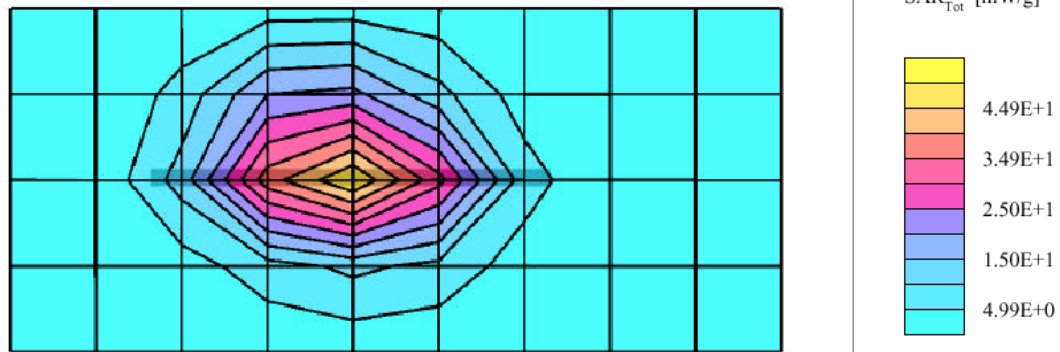
Penetration depth: 7.6 (7.1, 8.8) [mm]


Powerdrift: -0.02 dB

Date tested: May 26, 2003


Ambient temperature: 24.3 (°C)

Liquid temperature: 22.3 (°C)



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APPENDIX B: SAR DISTRIBUTION PLOTS FOR HEAD CONFIGURATION

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Date/Time: 10/09/03 10:35:16

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.4 (°C); Liquid Temperature: 23.0 (°C)

DUT: BlackBerry Wireless Handheld Model RAO30GN; Type: Sample ; Configuration: Touch left

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3

Medium: 835 MHz Head ($\sigma = 0.91$ mho/m, $\epsilon_r = 41.96$, $\rho = 1000$ kg/m³)

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(6.6, 6.6, 6.6); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm

Reference Value = 14.7 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.262 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

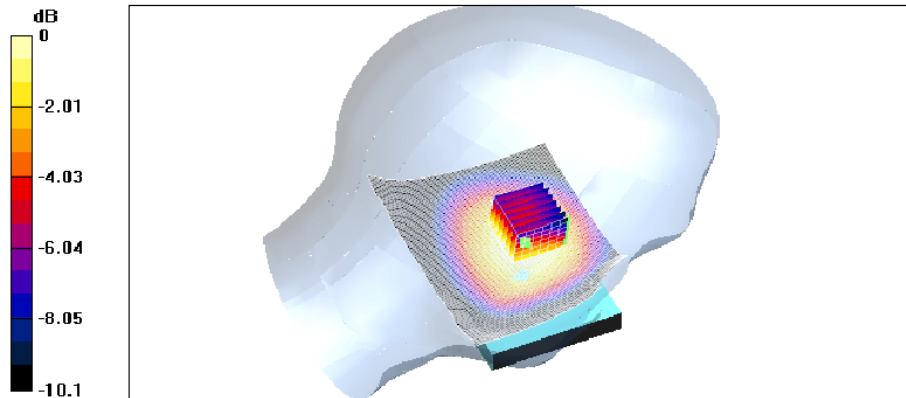
Peak SAR (extrapolated) = 0.303 W/kg

SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.184 mW/g

Reference Value = 14.7 V/m


Power Drift = -0.1 dB

Maximum value of SAR = 0.256 mW/g



0 dB = 0.256mW/g

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Date/Time: 10/09/03 11:13:38

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.5 (°C); Liquid Temperature: 23.1 (°C)

DUT: BlackBerry Wireless Handheld Model RAO30GN; Type: Sample ; Configuration: Tilted left

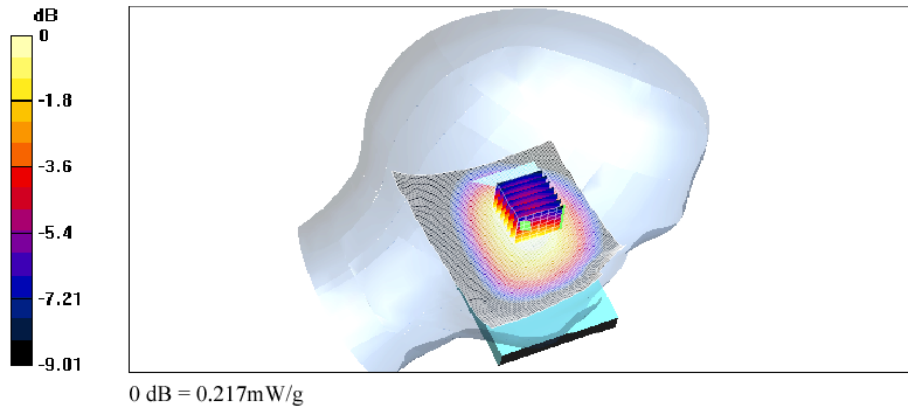
Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3
 Medium: 835 MHz Head ($\sigma = 0.91$ mho/m, $\epsilon_r = 41.96$, $\rho = 1000$ kg/m³)
 Phantom section: Left Section

DASY4 Configuration:


- Probe: ET3DV6 - SN1644; ConvF(6.6, 6.6, 6.6); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm
 Reference Value = 15 V/m
 Power Drift = 0.03 dB
 Maximum value of SAR = 0.219 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Peak SAR (extrapolated) = 0.256 W/kg
 SAR(1 g) = 0.208 mW/g; SAR(10 g) = 0.155 mW/g
 Reference Value = 15 V/m
 Power Drift = 0.03 dB
 Maximum value of SAR = 0.217 mW/g



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Date/Time: 10/09/03 11:57:01

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.5 (°C); Liquid Temperature: 23.1 (°C)

DUT: BlackBerry Wireless Handheld Model RAO30GN; Type: Sample; Configuration:

Touch right

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3

Medium: 835 MHz Head ($\sigma = 0.91$ mho/m, $\epsilon_r = 41.96$, $\rho = 1000$ kg/m³)

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(6.6, 6.6, 6.6); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm

Reference Value = 14.3 V/m

Power Drift = -0.03 dB

Maximum value of SAR = 0.249 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

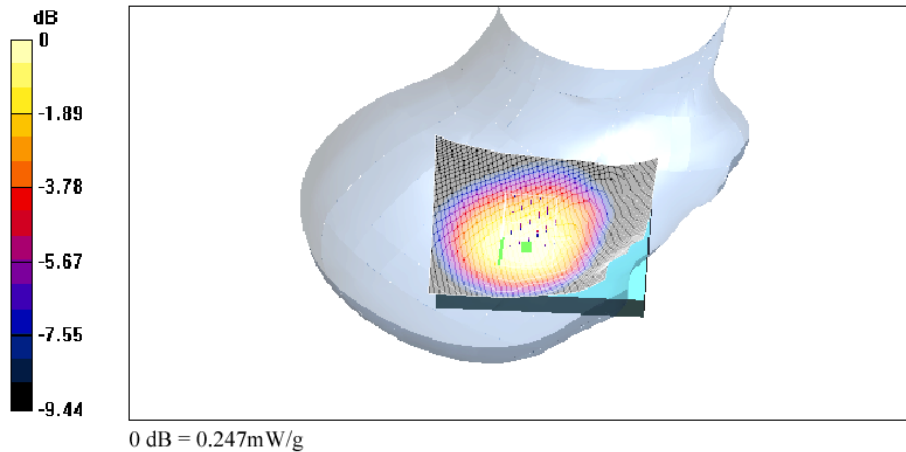
Peak SAR (extrapolated) = 0.293 W/kg

SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.173 mW/g


Reference Value = 14.3 V/m

Power Drift = -0.03 dB

Maximum value of SAR = 0.247 mW/g



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Date/Time: 10/09/03 13:16:23

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.5 (°C); Liquid Temperature: 23.0 (°C)

DUT: BlackBerry Wireless Handheld Model RAO30GN; Type: Sample; Configuration: Tilted right

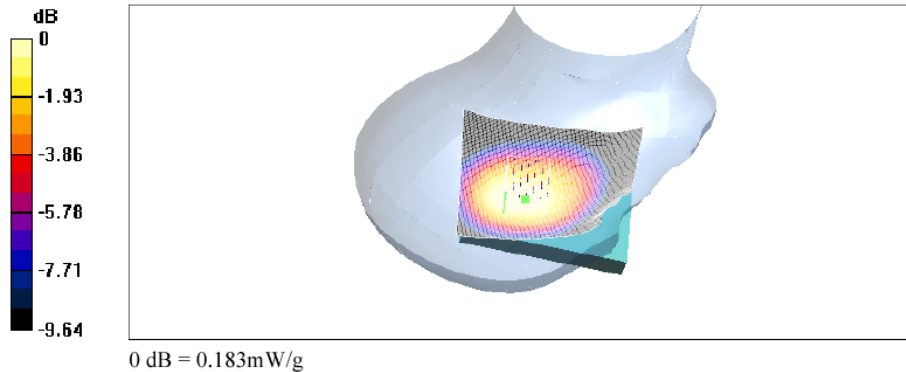
Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3
Medium: 835 MHz Head ($\sigma = 0.91$ mho/m, $\epsilon_r = 41.96$, $\rho = 1000$ kg/m³)
Phantom section: Right Section

DASY4 Configuration:


- Probe: ET3DV6 - SN1644; ConvF(6.6, 6.6, 6.6); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm
Reference Value = 13.9 V/m
Power Drift = 0.003 dB
Maximum value of SAR = 0.184 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 0.221 W/kg
SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.127 mW/g
Reference Value = 13.9 V/m
Power Drift = 0.003 dB
Maximum value of SAR = 0.183 mW/g



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05/27/03

BlackBerry Wireless Handheld Model No. RAO30GN

SAM 1; Left Hand

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 8.0; Head 1900 MHz: $\sigma = 1.52$ mho/m $\epsilon_r = 38.4$ $\rho = 1.00$ g/cm³

Cube 5x5x7: Peak: 0.246 mW/g, SAR (1g): 0.138 mW/g, SAR (10g): 0.0797 mW/g, (Worst-case extrapolation)

Penetration depth: 9.3 (8.2, 11.0) [mm]

Powerdrift: -0.83 dB

Date tested: May 27, 2003

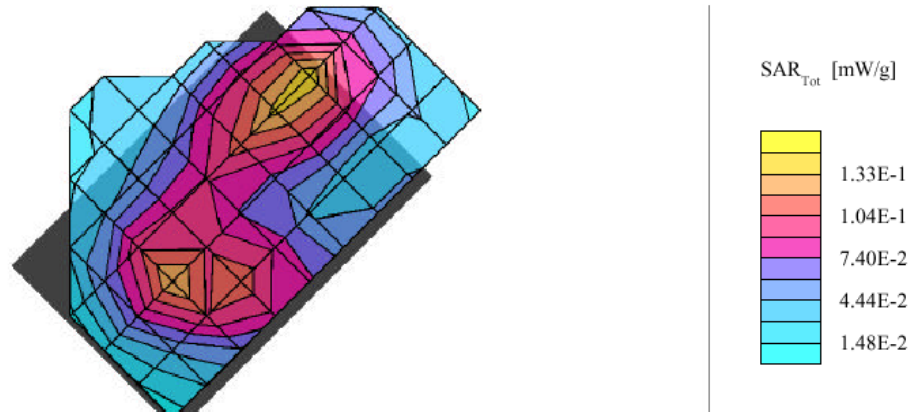
Ambient temperature: 24.4 (°C)

Liquid temperature: 23.3 (°C)

Band: GSM 1900

Frequency: 1880 MHz

Configuration: Left side of head touch position



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05/27/03

BlackBerry Wireless Handheld Model No. RAO30GN

SAM 1; Left Hand

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 8.0; Head 1900 MHz: $\sigma = 1.52 \text{ mho/m}$ $\epsilon_r = 38.4$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.330 mW/g, SAR (1g): 0.188 mW/g, SAR (10g): 0.107 mW/g, (Worst-case extrapolation)

Penetration depth: 9.3 (8.4, 10.8) [mm]

Powerdrift: 1.40 dB

Date tested: May 27, 2003

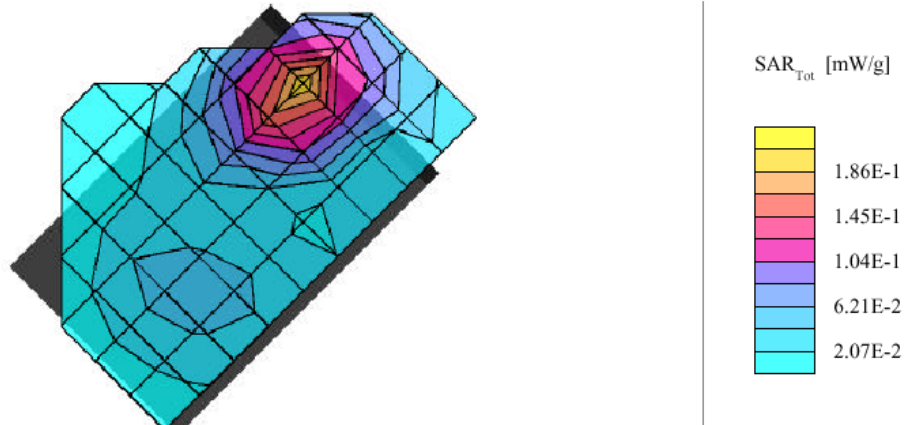
Ambient temperature: 24.4 (°C)


Liquid temperature: 23.3 (°C)

Band: GSM 1900

Frequency: 1880 MHz

Configuration: Left side of head tilt position



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05/26/03

BlackBerry Wireless Handheld Model No. RAO30GN

SAM 1; Right Hand

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 8.0; Head 1900 MHz: $\sigma = 1.52 \text{ mho/m}$ $\epsilon_r = 38.4$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.340 mW/g, SAR (1g): 0.193 mW/g, SAR (10g): 0.113 mW/g * Max outside, (Worst-case extrapolation)

Penetration depth: 9.4 (8.3, 11.0) [mm]

Powerdrift: 0.49 dB

Date tested: May 26, 2003

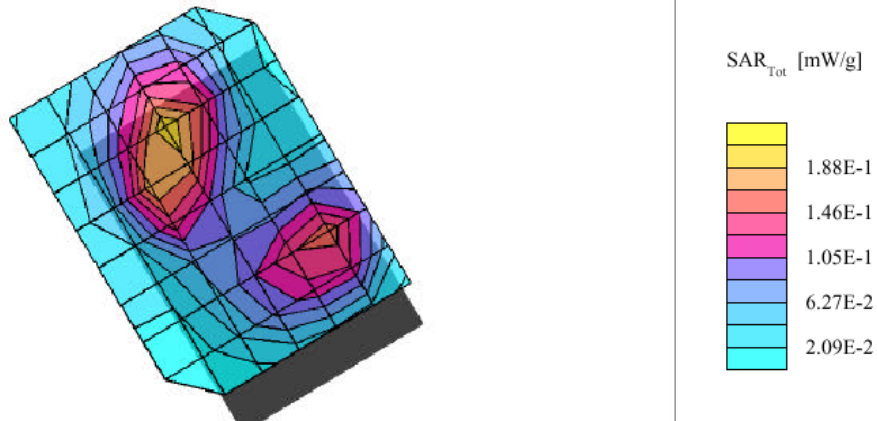
Ambient temperature: 24.5 (°C)

Liquid temperature: 23.4 (°C)

Band: GSM 1900

Frequency: 1880 MHz

Configuration: Right side of head touch position



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05/26/03

BlackBerry Wireless Handheld Model No. RAO30GN

SAM 1; Right Hand

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 8.0; Head 1900 MHz: $\sigma = 1.52 \text{ mho/m}$ $\epsilon_r = 38.4$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.418 mW/g, SAR (1g): 0.234 mW/g, SAR (10g): 0.132 mW/g, (Worst-case extrapolation)

Penetration depth: 9.3 (8.4, 10.7) [mm]

Powerdrift: 0.13 dB

Date tested: May 26, 2003

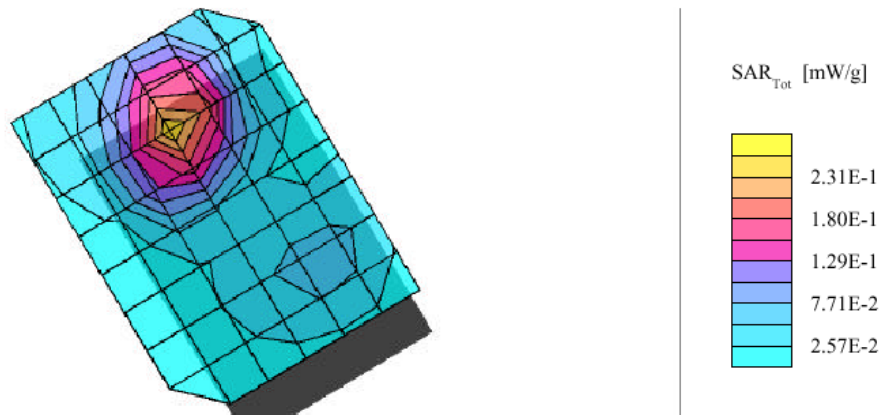
Ambient temperature: 24.5 (°C)


Liquid temperature: 23.4 (°C)

Band: GSM 1900


Frequency: 1880 MHz

Configuration: Right side of head tilt position



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APPENDIX C: SAR DISTRIBUTION PLOTS FOR BODY-WORN CONFIGURATION

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Date/Time: 10/09/03 14:11:53

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.6 (°C); Liquid Temperature: 23.0 (°C)

DUT: BlackBerry Wireless Handheld Model RAO30GN; Type: Sample; Configuration: Body-worn with holster

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3

Medium: M 835 ($\sigma = 0.97$ mho/m, $\epsilon_r = 53.37$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(6.4, 6.4, 6.4); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm

Reference Value = 15.3 V/m

Power Drift = -0.08 dB

Maximum value of SAR = 0.216 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

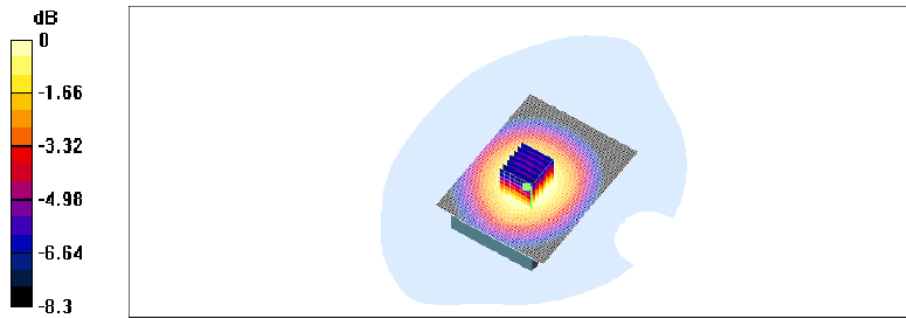
Peak SAR (extrapolated) = 0.255 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.155 mW/g

Reference Value = 15.3 V/m


Power Drift = -0.08 dB

Maximum value of SAR = 0.215 mW/g



0 dB = 0.215mW/g

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Date/Time: 10/09/03 14:59:32

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.6 (°C); Liquid Temperature: 23.0 (°C)

DUT: BlackBerry Wireless Handheld Model RAO30GN; Type: Sample; Configuration: Body-worn with holster and headset

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3

Medium: M 835 ($\sigma = 0.97$ mho/m, $\epsilon_r = 53.37$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(6.4, 6.4, 6.4); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm

Reference Value = 12.3 V/m

Power Drift = 0.005 dB

Maximum value of SAR = 0.149 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

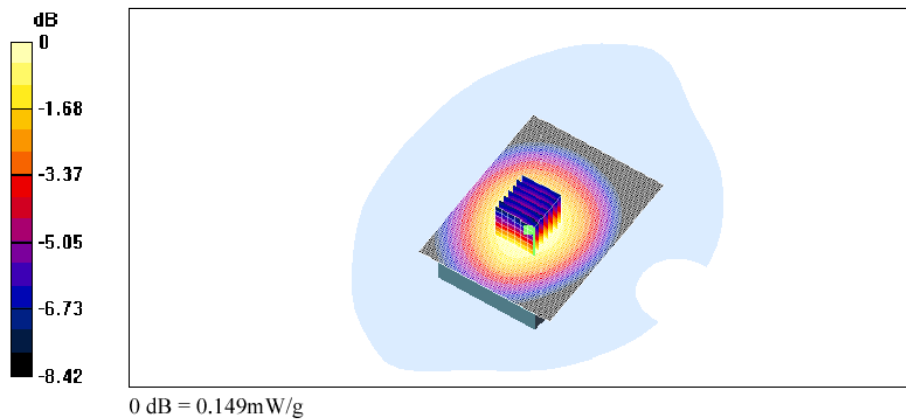
Peak SAR (extrapolated) = 0.177 W/kg

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.106 mW/g


Reference Value = 12.3 V/m

Power Drift = 0.005 dB

Maximum value of SAR = 0.149 mW/g



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Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.5 (°C); Liquid Temperature: 22.9 (°C)

DUT: BlackBerry Wireless Handheld Model RAO30GN; Type: Sample; Configuration: Body-worn with leather swivel holster

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3

Medium: M 835 ($\sigma = 0.97$ mho/m, $\epsilon_r = 53.37$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(6.4, 6.4, 6.4); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm

Reference Value = 16.2 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.241 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

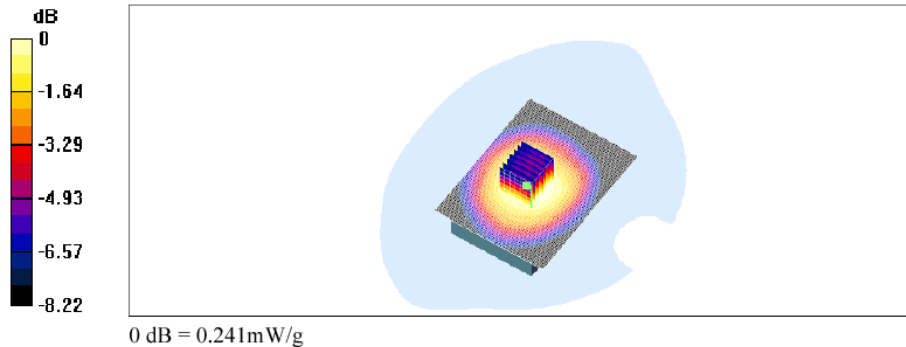
Peak SAR (extrapolated) = 0.285 W/kg

SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.177 mW/g


Reference Value = 16.2 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.241 mW/g



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Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.5 (°C); Liquid Temperature: 22.9 (°C)

DUT: BlackBerry Wireless Handheld Model RAO30GN; Type: Sample; Configuration: Body-worn with leather swivel holster and headset

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3

Medium: M 835 ($\sigma = 0.97$ mho/m, $\epsilon_r = 53.37$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(6.4, 6.4, 6.4); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

Unnamed procedure/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm

Reference Value = 14.1 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.206 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

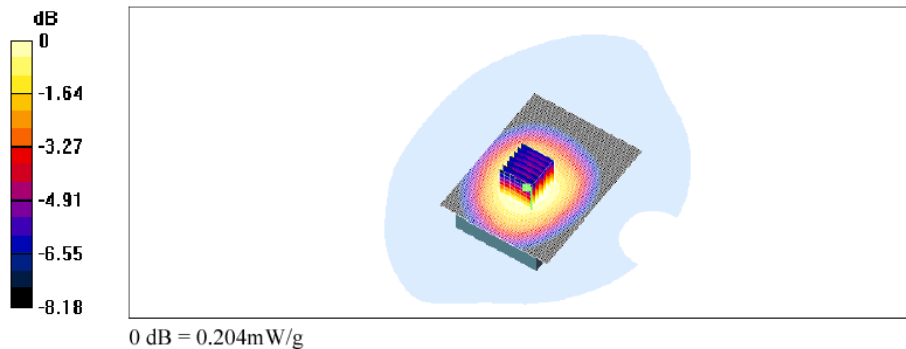
Peak SAR (extrapolated) = 0.241 W/kg

SAR(1 g) = 0.195 mW/g; SAR(10 g) = 0.149 mW/g


Reference Value = 14.1 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.204 mW/g



file://C:\Program%20Files\DASY4\Print_Templates\Body%20worn%20with%20leather... 14/10/2003

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Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	May 26 – 27, Oct. 08 - 09, 2003	RIM-0071-0310-03	L6ARAO30GN

05/27/03

BlackBerry Wireless Handheld Model No. RAO30GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(4.80,4.80,4.80); Crest factor: 8.0; Muscle 1900 MHz: $\sigma = 1.49 \text{ mho/m}$ $\epsilon_r = 52.8$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.189 mW/g, SAR (1g): 0.108 mW/g, SAR (10g): 0.0650 mW/g, (Worst-case extrapolation)

Penetration depth: 10.6 (8.9, 12.9) [mm]

Powerdrift: -0.01 dB

Date tested: May 27, 2003

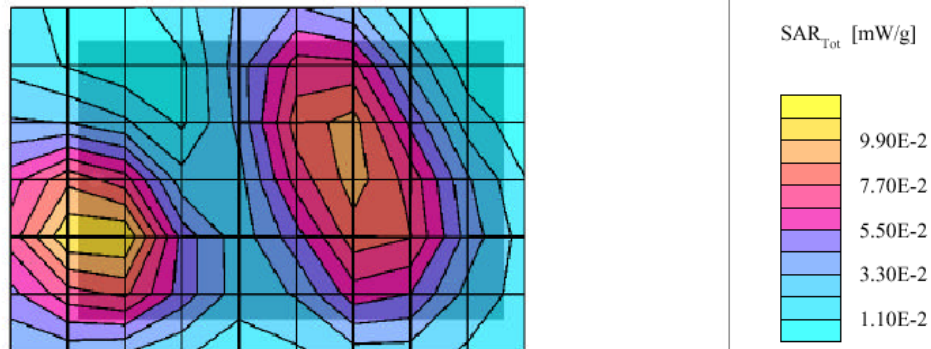
Ambient temperature: 24.4 (°C)

Liquid temperature: 23.3 (°C)

Band: GSM 1900

Frequency: 1880 MHz

Configuration: Body-worn with holster



Author Data Daoud Attayi	Dates of Test May 26 – 27, Oct. 08 - 09, 2003	Test Report No RIM-0071-0310-03	FCC ID: L6ARAO30GN
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05/27/03

BlackBerry Wireless Handheld Model No. RAO30GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(4.80,4.80,4.80); Crest factor: 8.0; Muscle 1900 MHz: $\sigma = 1.49 \text{ mho/m}$ $\epsilon_r = 52.8$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.154 mW/g, SAR (1g): 0.0883 mW/g, SAR (10g): 0.0537 mW/g, (Worst-case extrapolation)

Penetration depth: 10.7 (8.8, 13.3) [mm]

Powerdrift: 0.22 dB

Date tested: May 27, 2003

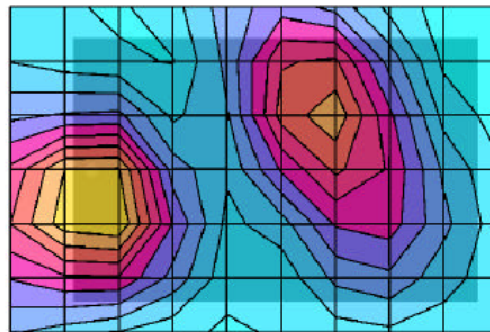
Ambient temperature: 24.4 (°C)

Liquid temperature: 23.3 (°C)

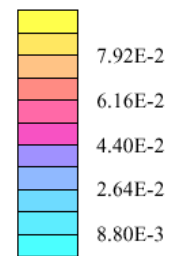
Band: GSM 1900


Frequency: 1880 MHz

Configuration: Body-worn with holster and headset



SAR_{Tot} [mW/g]



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05/27/03

BlackBerry Wireless Handheld Model No. RAO30GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(4.80,4.80,4.80); Crest factor: 8.0; Muscle 1900 MHz: $\sigma = 1.49 \text{ mho/m}$ $\epsilon_r = 52.8$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.145 mW/g, SAR (1g): 0.0865 mW/g, SAR (10g): 0.0527 mW/g, (Worst-case extrapolation)

Penetration depth: 10.7 (9.6, 12.3) [mm]

Powerdrift: -0.01 dB

Date tested: May 27, 2003

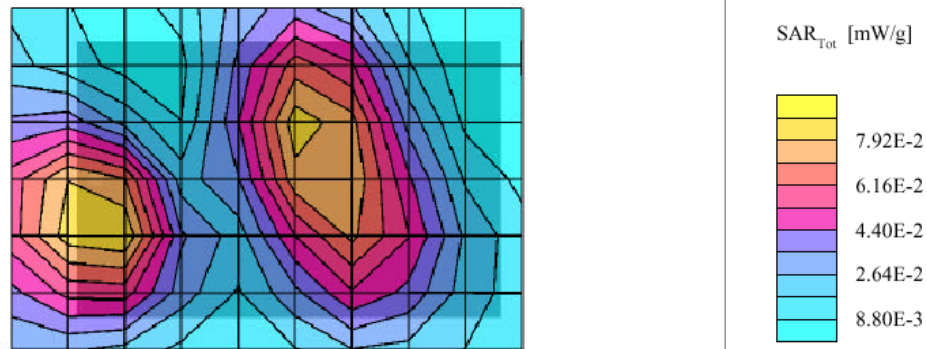
Ambient temperature: 24.4 (°C)


Liquid temperature: 23.2 (°C)

Band: GSM 1900

Frequency: 1880 MHz

Configuration: Body-worn with leather holster



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BlackBerry Wireless Handheld Model No. RAO30GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(4.80,4.80,4.80); Crest factor: 8.0; Muscle 1900 MHz: $\sigma = 1.49 \text{ mho/m}$ $\epsilon_r = 52.8$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.119 mW/g, SAR (1g): 0.0718 mW/g, SAR (10g): 0.0447 mW/g, (Worst-case extrapolation)

Penetration depth: 11.3 (9.7, 13.3) [mm]

Powerdrift: 0.06 dB

Date tested: May 27, 2003

Ambient temperature: 24.5 (°C)

Liquid temperature: 23.2 (°C)

Band: GSM 1900

Frequency: 1880 MHz

Configuration: Body-worn with leather holster and headset

