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	<b>Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN</b>		<b>1(1)</b>
Author Data	Dates of Test	Test Report No	FCC ID
<b>Daoud Attayi</b>	<b>Sep. 23 - 30, 2003</b>	<b>RIM-0054-0309-07</b>	<b>L6AR6030GN</b>

APPENDIX A: SAR DISTRIBUTION COMPARISON FOR THE ACCURACY VERIFICATION

Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/29/03 13:14:58

Test Laboratory: Research In Motion Limited  
 Ambient Temperature: 24.6 (°C); Liquid Temperature: 22.2 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1  
 Medium: 835 MHz Head ( $\sigma = 0.89$  mho/m,  $\epsilon_r = 41.29$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: Flat Section

DASY4 Configuration:

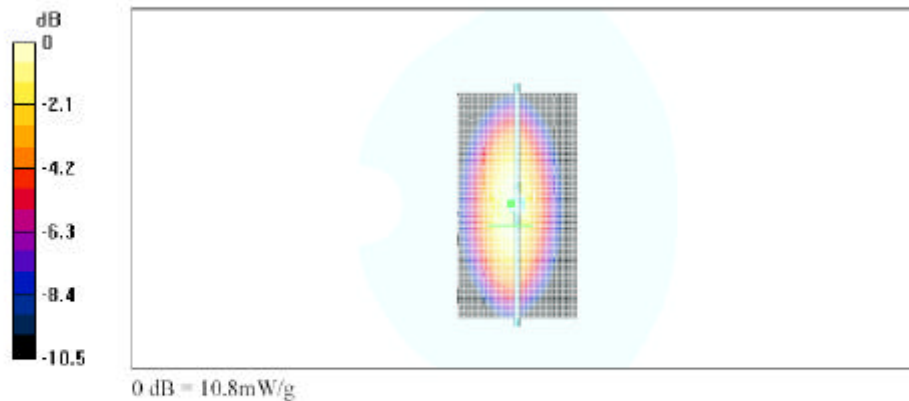
- Probe: ET3DV6 - SN1644; ConvF(6.6, 6.6, 6.6); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6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

**Unnamed procedure/Area Scan (81x151x1):** Measurement grid: dx=10mm, dy=10mm

Reference Value = 113.8 V/m  
 Power Drift = 0.004 dB  
 Maximum value of SAR = 10.7 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 mW/g; SAR(10 g) = 6.52 mW/g  
 Reference Value = 113.8 V/m  
 Power Drift = 0.004 dB  
 Maximum value of SAR = 10.8 mW/g



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Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/24/03 11:31:08

Test Laboratory: Research In Motion Limited  
 Ambient Temperature: 23.9 (°C)      Liquid Temperature: 23.2 (°C)

**Diploe 1900MHz; Type: D1900V2; Serial: D1900V2 - SN:545**

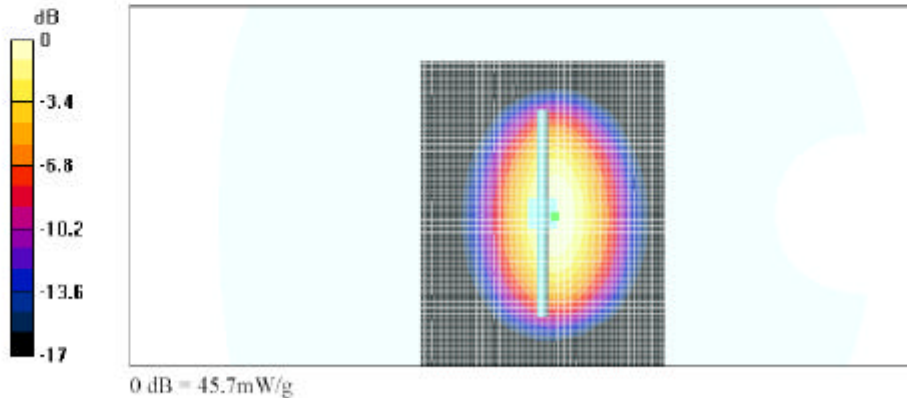
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1  
 Medium: HSL1900 ( $\sigma = 1.46$  mho/m,  $\epsilon_r = 39.92$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 Phantom section: Flat Section

DASY4 Configuration:


- Probe: ET3DV6 - SN1644; ConvF(5.4, 5.4, 5.4); 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 (81x101x1):** Measurement grid: dx=10mm, dy=10mm  
 Reference Value = 177.0 V/m  
 Power Drift = -0.03 dB  
 Maximum value of SAR = 46.2 mW/g

**Unnamed procedure/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Peak SAR (extrapolated) = 73.1 W/kg  
 SAR(1 g) = 40.9 mW/g; SAR(10 g) = 21.2 mW/g  
 Reference Value = 177.0 V/m  
 Power Drift = -0.03 dB  
 Maximum value of SAR = 45.7 mW/g



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	Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>

APPENDIX B: SAR DISTRIBUTION PLOTS FOR HEAD CONFIGURATION

Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/29/03 14:45:08

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.6 (°C); Liquid Temperature: 22.2 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Touch left side of head**

Communication System: GSM 835; Frequency: 836.8 MHz; Duty Cycle: 1:8.3

Medium: 835 MHz Head ( $\sigma = 0.89$  mho/m,  $\epsilon_r = 41.29$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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 (101x121x1):** Measurement grid: dx=10mm, dy=10mm

Reference Value = 7.31 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.56 mW/g

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

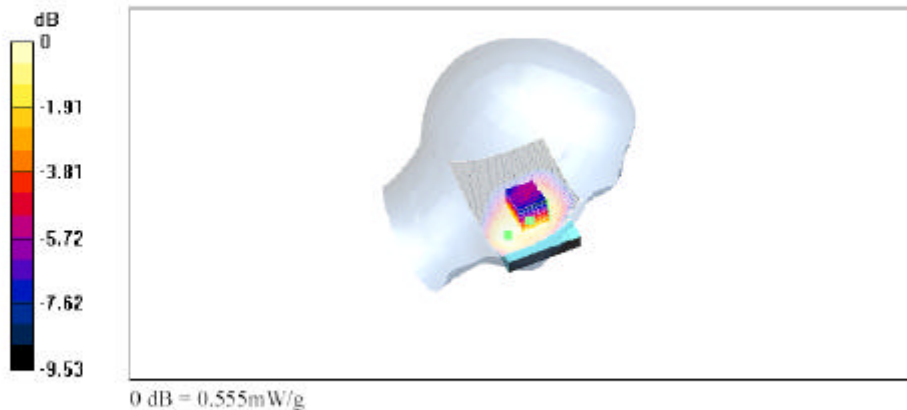
Peak SAR (extrapolated) = 0.655 W/kg

SAR(1 g) = 0.527 mW/g; SAR(10 g) = 0.394 mW/g

Reference Value = 7.31 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.555 mW/g



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Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/29/03 15:58:10

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.6 (°C); Liquid Temperature: 22.2 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Tilted left side of head**

Communication System: GSM 835; Frequency: 836.8 MHz; Duty Cycle: 1:8.3

Medium: 835 MHz Head ( $\sigma = 0.89 \text{ mho/m}$ ,  $\epsilon_r = 41.29$ ,  $\rho = 1000 \text{ kg/m}^3$ )

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 (101x121x1):** Measurement grid: dx=10mm, dy=10mm

Reference Value = 9.02 V/m

Power Drift = -0.05 dB

Maximum value of SAR = 0.299 mW/g

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

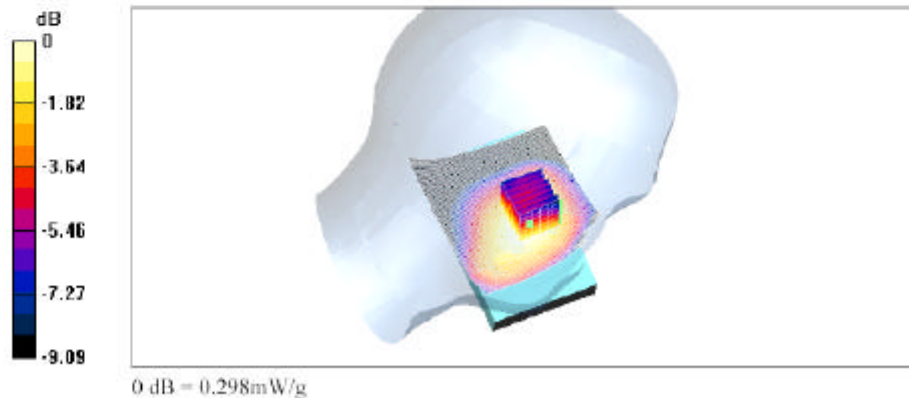
Peak SAR (extrapolated) = 0.363 W/kg

SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.217 mW/g

Reference Value = 9.02 V/m

Power Drift = -0.05 dB

Maximum value of SAR = 0.298 mW/g



Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/29/03 16:40:53

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.5 (°C); Liquid Temperature: 22.1 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Touch right side of head**

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

Medium: 835 MHz Head ( $\sigma = 0.89$  mho/m,  $\epsilon_r = 41.29$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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 = 7.86 V/m

Power Drift = -0.2 dB

Maximum value of SAR = 0.405 mW/g

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

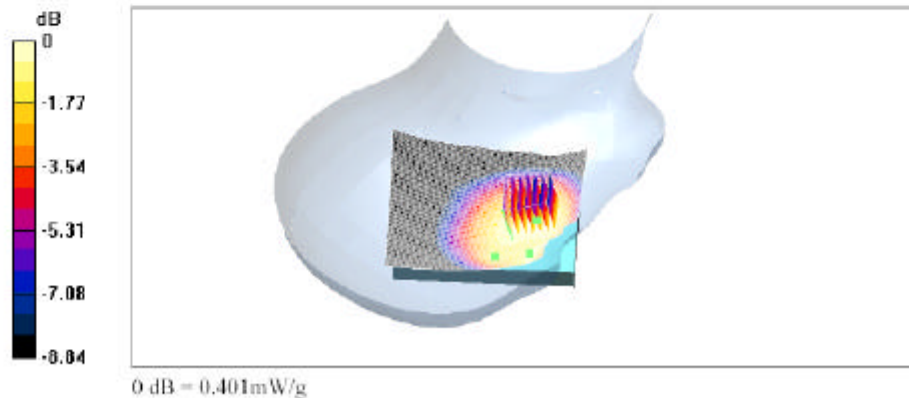
Peak SAR (extrapolated) = 0.482 W/kg

SAR(1 g) = 0.382 mW/g; SAR(10 g) = 0.289 mW/g

Reference Value = 7.86 V/m

Power Drift = -0.2 dB

Maximum value of SAR = 0.401 mW/g



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Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/29/03 17:17:30

Test Laboratory: Research In Motion Limited

Ambient Temperature: 24.5 (°C); Liquid Temperature: 22.1 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Tilted right side of head**

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

Medium: 835 MHz Head ( $\sigma = 0.89$  mho/m,  $\epsilon_r = 41.29$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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 = 10.8 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.281 mW/g

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

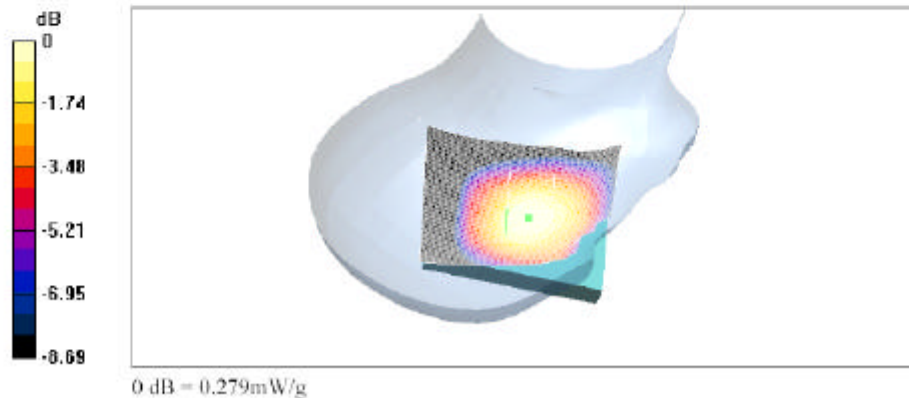
Peak SAR (extrapolated) = 0.348 W/kg

SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.206 mW/g

Reference Value = 10.8 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.279 mW/g



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Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/24/03 13:51:31

Test Laboratory: Research In Motion Limited

Ambient Temperature: 23.9 (°C); Liquid Temperature: 23.4 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Touch left side of head**

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: HSL1900 ( $\sigma = 1.46$  mho/m,  $v_p = 39.92$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(5.4, 5.4, 5.4); 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 (101x121x1):** Measurement grid: dx=10mm, dy=10mm

Reference Value = 16.1 V/m

Power Drift = -0.04 dB

Maximum value of SAR = 1.76 mW/g

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

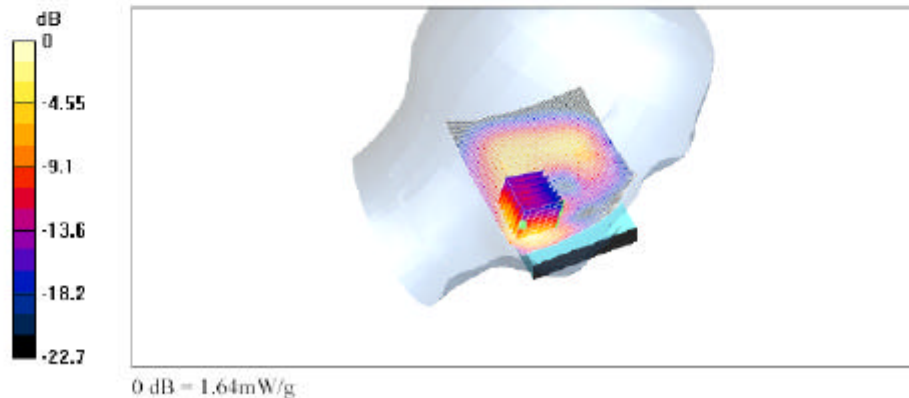
Peak SAR (extrapolated) = 3.18 W/kg

SAR(1 g) = 1.44 mW/g; SAR(10 g) = 0.635 mW/g

Reference Value = 16.1 V/m

Power Drift = -0.04 dB

Maximum value of SAR = 1.64 mW/g



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Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/24/03 14:43:17

Test Laboratory: Research In Motion Limited

Ambient Temperature: 23.9 (°C); Liquid Temperature: 23.4 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Tilted left side of head**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900 ( $\sigma = 1.46$  mho/m,  $\epsilon_r = 39.92$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(5.4, 5.4, 5.4); 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 (101x121x1):** Measurement grid: dx=10mm, dy=10mm

Reference Value = 14.4 V/m

Power Drift = -0.2 dB

Maximum value of SAR = 0.38 mW/g

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

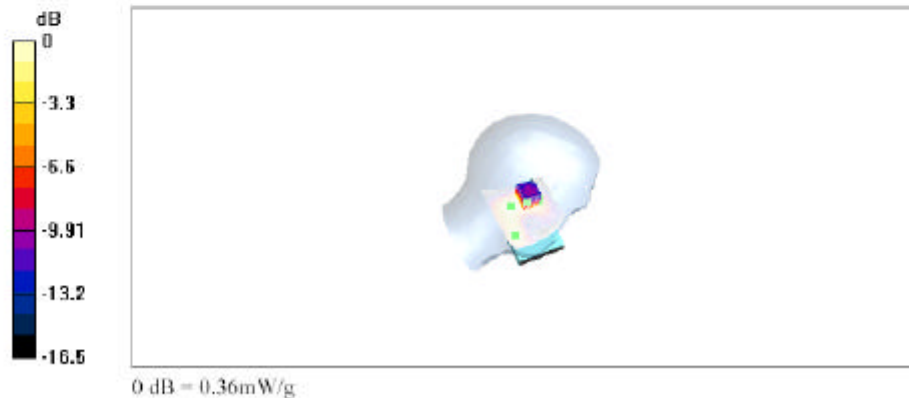
Peak SAR (extrapolated) = 0.544 W/kg

SAR(1 g) = 0.336 mW/g; SAR(10 g) = 0.192 mW/g

Reference Value = 14.4 V/m

Power Drift = -0.2 dB

Maximum value of SAR = 0.36 mW/g



Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/24/03 18:08:43

Test Laboratory: Research In Motion Limited

Ambient Temperature: 23.1 (°C); Liquid Temperature: 22.8 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Touch right side of head**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900 ( $\sigma = 1.46$  mho/m,  $v_p = 39.92$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(5.4, 5.4, 5.4); 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 (101x121x1):** Measurement grid: dx=10mm, dy=10mm

Reference Value = 9.8 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.916 mW/g

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

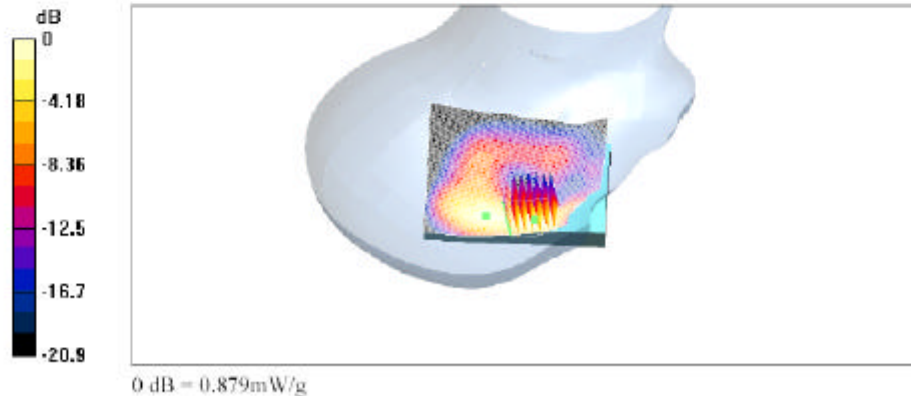
Peak SAR (extrapolated) = 1.56 W/kg

SAR(1 g) = 0.78 mW/g; SAR(10 g) = 0.385 mW/g


Reference Value = 9.8 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.879 mW/g



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<b>Daoud Attayi</b>	<b>Sep. 23 - 30, 2003</b>	<b>RIM-0054-0309-07</b>	<b>L6AR6030GN</b>

Date/Time: 09/24/03 15:56:45

Test Laboratory: Research In Motion Limited

Ambient Temperature: 23.1 (°C); Liquid Temperature: 22.8 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Tilted right side of head**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900 ( $\sigma = 1.46$  mho/m,  $v_p = 39.92$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1644; ConvF(5.4, 5.4, 5.4); 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 (101x121x1):** Measurement grid: dx=10mm, dy=10mm

Reference Value = 11.6 V/m

Power Drift = -0.2 dB

Maximum value of SAR = 0.557 mW/g

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

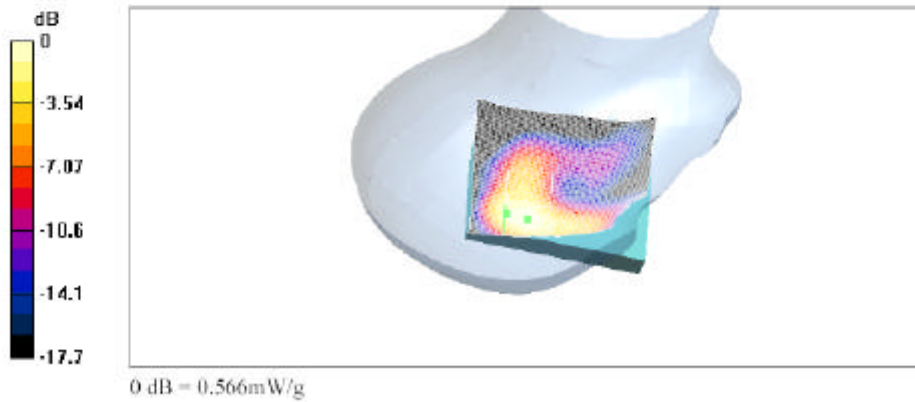
Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.536 mW/g; SAR(10 g) = 0.283 mW/g


Reference Value = 11.6 V/m

Power Drift = -0.2 dB


Maximum value of SAR = 0.566 mW/g



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	Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>

APPENDIX C: SAR DISTRIBUTION PLOTS FOR BODY-WORN CONFIGURATION

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<b>Daoud Attayi</b>	<b>Sep. 23 - 30, 2003</b>	<b>RIM-0054-0309-07</b>	<b>L6AR6030GN</b>

Date/Time: 09/30/03 10:56:56

Test Laboratory: Research In Motion Limited  
Ambient Temperature: 24.6 (°C); Liquid Temperature: 22.1 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

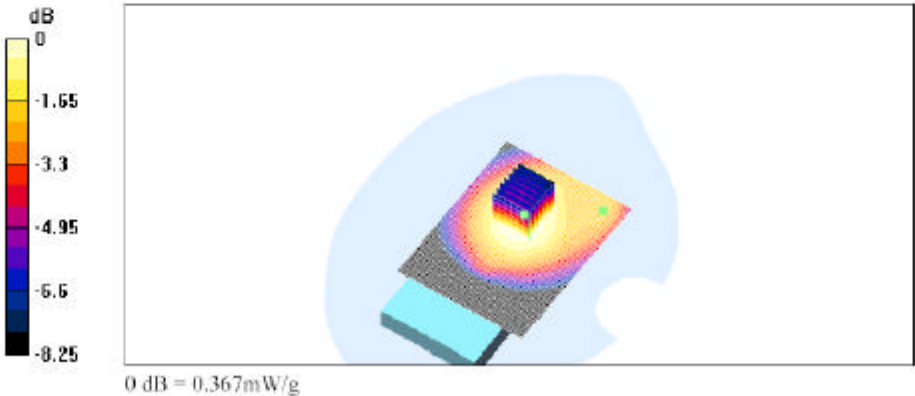
**Configuration: Body worn with holster**

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3  
Medium: M 835 ( $\sigma = 0.97$  mho/m,  $\epsilon_r = 53.15$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
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 = 19.4 V/m  
Power Drift = -0.2 dB  
Maximum value of SAR = 0.373 mW/g

**Unnamed procedure/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Peak SAR (extrapolated) = 0.44 W/kg  
SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.264 mW/g  
Reference Value = 19.4 V/m  
Power Drift = -0.2 dB  
Maximum value of SAR = 0.367 mW/g



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Author Data <b>Daoud Attayi</b>	Dates of Test <b>Sep. 23 - 30, 2003</b>	Test Report No <b>RIM-0054-0309-07</b>	FCC ID <b>L6AR6030GN</b>
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Date/Time: 09/30/03 12:10:00

Test Laboratory: Research In Motion Limited  
 Ambient Temperature: 24.5 (°C); Liquid Temperature: 22.2 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

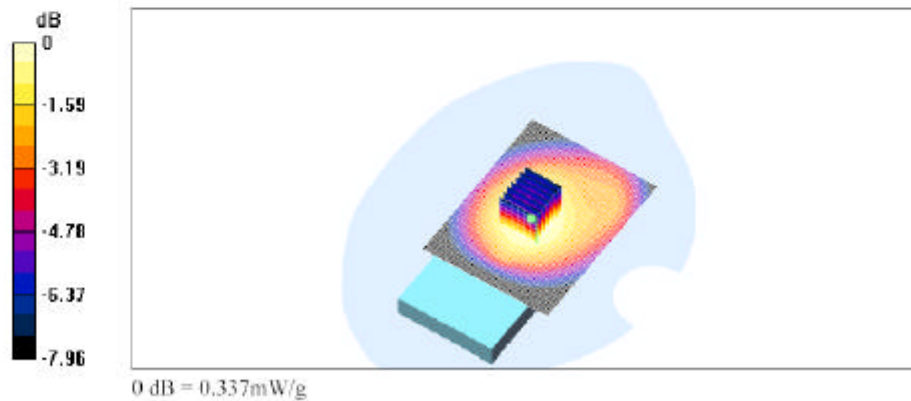
**Configuration: Body worn with leather swivel holster**

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3  
 Medium: M 835 ( $\sigma = 0.97$  mho/m,  $\epsilon_r = 53.15$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
 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 = 19.5 V/m  
 Power Drift = -0.05 dB  
 Maximum value of SAR = 0.341 mW/g

**Unnamed procedure/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Peak SAR (extrapolated) = 0.398 W/kg  
 SAR(1 g) = 0.321 mW/g; SAR(10 g) = 0.24 mW/g  
 Reference Value = 19.5 V/m  
 Power Drift = -0.05 dB  
 Maximum value of SAR = 0.337 mW/g



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Daoud Attayi	Sep. 23 - 30, 2003	RIM-0054-0309-07	L6AR6030GN

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Date/Time: 09/30/03 13:50:58

Test Laboratory: Research In Motion Limited  
Ambient Temperature: 24.6 (°C); Liquid Temperature: 21.9 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Body worn with folding leather case**

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3  
Medium: M 835 ( $\sigma = 0.97 \text{ mho/m}$ ,  $\epsilon_r = 53.15$ ,  $\rho = 1000 \text{ kg/m}^3$ )  
Phantom section: Flat Section

DASY4 Configuration:

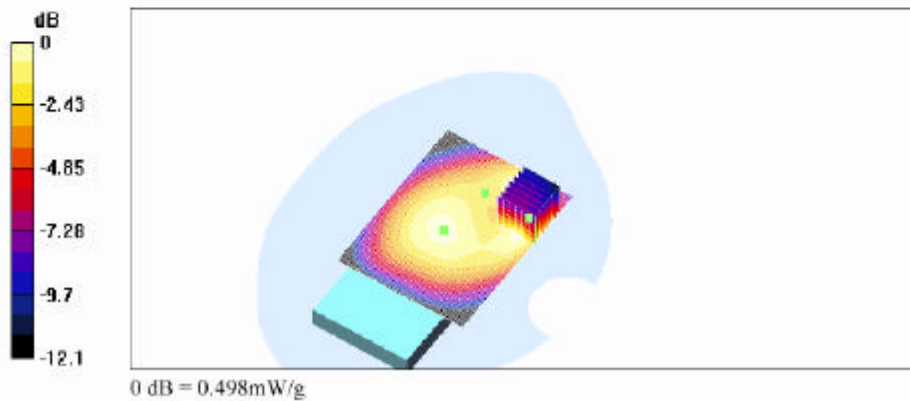
- Probe: ET3DV6 - SN1644; ConvF(6.4, 6.4, 6.4); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6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

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


Reference Value = 21.9 V/m  
Power Drift = -0.04 dB  
Maximum value of SAR = 0.498 mW/g

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

Peak SAR (extrapolated) = 0.678 W/kg  
SAR(1 g) = 0.46 mW/g; SAR(10 g) = 0.299 mW/g  
Reference Value = 21.9 V/m  
Power Drift = -0.04 dB  
Maximum value of SAR = 0.498 mW/g



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Date/Time: 09/30/03 15:36:00

Test Laboratory: Research In Motion Limited  
Ambient Temperature: 24.8 (°C); Liquid Temperature: 22.0 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

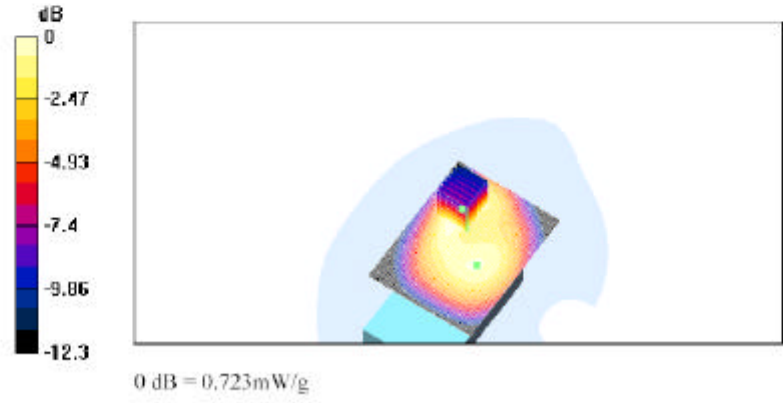
**Configuration: Body worn with folding leather case (back side)**

Communication System: GSM 850; Frequency: 836.8 MHz; Duty Cycle: 1:8.3  
Medium: M 835 ( $\sigma = 0.97$  mho/m,  $\epsilon_r = 53.15$ ,  $\rho = 1000$  kg/m<sup>3</sup>)  
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 = 25.8 V/m  
Power Drift = 0.02 dB  
Maximum value of SAR = 0.715 mW/g

**Unnamed procedure/Zoom Scan (7x7x7)/Cube 0;** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Peak SAR (extrapolated) = 1.05 W/kg  
SAR(1 g) = 0.664 mW/g; SAR(10 g) = 0.418 mW/g  
Reference Value = 25.8 V/m  
Power Drift = 0.02 dB  
Maximum value of SAR = 0.723 mW/g



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Daoud Attayi	Sep. 23 - 30, 2003	RIM-0054-0309-07	L6AR6030GN

Date/Time: 09/25/03 13:42:54

Test Laboratory: Research In Motion Limited  
Ambient Temperature: 24.2 (°C); Liquid Temperature: 22.0 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Body worn with holster**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium: M1900 ( $\sigma = 1.53 \text{ mho/m}$ ,  $\epsilon_r = 51.02$ ,  $\rho = 1000 \text{ kg/m}^3$ )  
Phantom section: Flat Section

DASY4 Configuration:

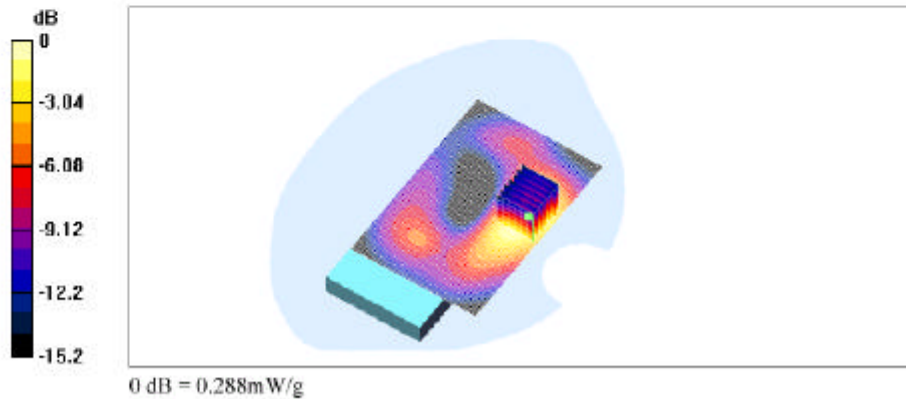
- Probe: ET3DV6 - SN1644; ConvF(5.1, 5.1, 5.1); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

**Unnamed procedure/Area Scan (101x151x1):** Measurement grid: dx=10mm, dy=10mm


Reference Value = 2.4 V/m  
Power Drift = -0.09 dB  
Maximum value of SAR = 0.301 mW/g

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

Peak SAR (extrapolated) = 0.429 W/kg  
SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.157 mW/g  
Reference Value = 2.4 V/m  
Power Drift = -0.09 dB  
Maximum value of SAR = 0.288 mW/g



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<b>Daoud Attayi</b>	<b>Sep. 23 - 30, 2003</b>	<b>RIM-0054-0309-07</b>	<b>L6AR6030GN</b>

Date/Time: 09/25/03 17:43:56

Test Laboratory: Research In Motion Limited  
Ambient Temperature: 24.2 (°C); Liquid Temperature: 22.0 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Body worn with leather swivel holster**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium: M1900 ( $\sigma = 1.53 \text{ mho/m}$ ,  $\epsilon_r = 51.02$ ,  $\rho = 1000 \text{ kg/m}^3$ )  
Phantom section: Flat Section

DASY4 Configuration:

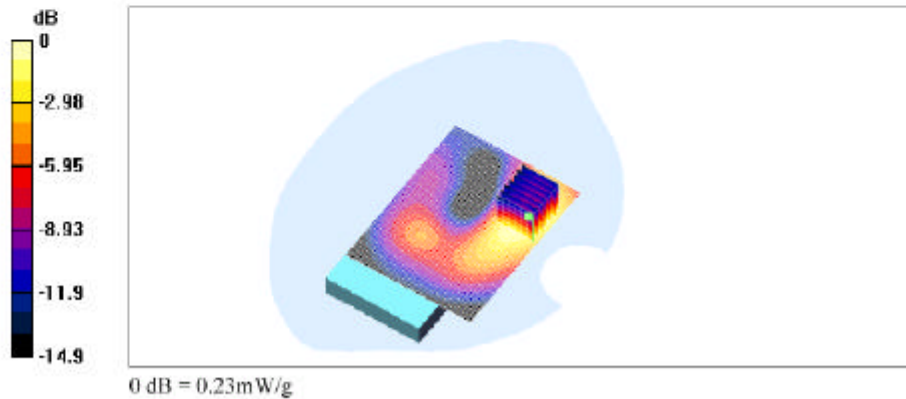
- Probe: ET3DV6 - SN1644; ConvF(5.1, 5.1, 5.1); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

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

Reference Value = 2.84 V/m  
Power Drift = -0.08 dB  
Maximum value of SAR = 0.237 mW/g


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

Peak SAR (extrapolated) = 0.344 W/kg  
SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.128 mW/g  
Reference Value = 2.84 V/m  
Power Drift = -0.08 dB  
Maximum value of SAR = 0.23 mW/g



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Daoud Attayi	Sep. 23 - 30, 2003	RIM-0054-0309-07	L6AR6030GN

Date/Time: 09/26/03 10:51:08

Test Laboratory: Research In Motion Limited  
Ambient Temperature: 24.6 (°C); Liquid Temperature: 23.2 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

**Configuration: Body worn with folding leather case**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium: M1900 ( $\sigma = 1.53 \text{ mho/m}$ ,  $\epsilon_r = 51.02$ ,  $\rho = 1000 \text{ kg/m}^3$ )  
Phantom section: Flat Section

DASY4 Configuration:

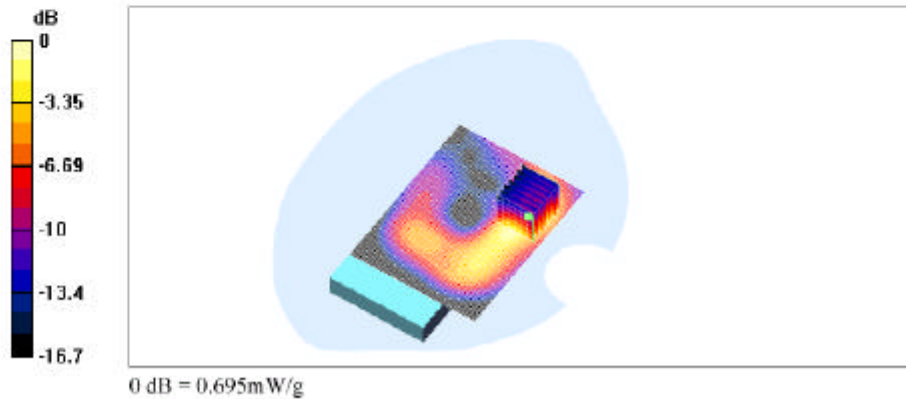
- Probe: ET3DV6 - SN1644; ConvF(5.1, 5.1, 5.1); Calibrated: 21/10/2002
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 19/08/2003
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

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


Reference Value = 3.67 V/m  
Power Drift = -0.09 dB  
Maximum value of SAR = 0.707 mW/g

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

Peak SAR (extrapolated) = 1.12 W/kg  
SAR(1 g) = 0.627 mW/g; SAR(10 g) = 0.334 mW/g  
Reference Value = 3.67 V/m  
Power Drift = -0.09 dB  
Maximum value of SAR = 0.695 mW/g



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<b>Daoud Attayi</b>	<b>Sep. 23 - 30, 2003</b>	<b>RIM-0054-0309-07</b>	<b>L6AR6030GN</b>

Date/Time: 09/26/03 12:45:01

Test Laboratory: Research In Motion Limited  
 Ambient Temperature: 24.5 (°C); Liquid Temperature: 23.0 (°C)

**DUT: BlackBerry Wireless Handheld Model R6030GN; Type: Sample ; Serial: 205NA-303X6**

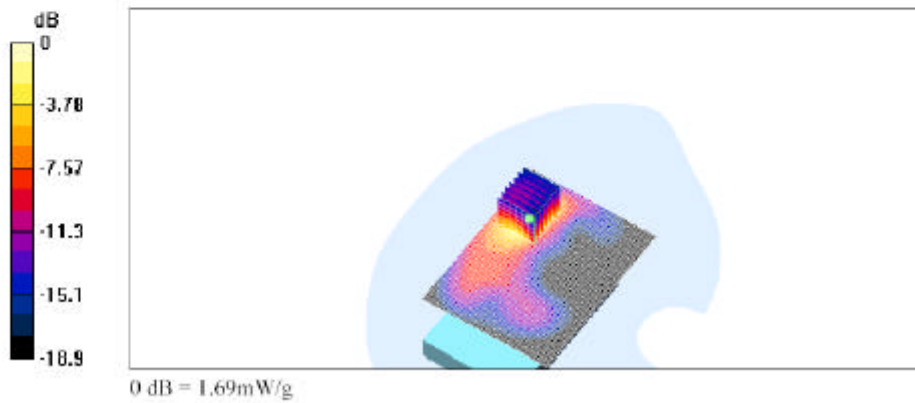
**Configuration: Body worn with folding leather case (back side)**

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
 Medium: M1900 ( $\sigma = 1.53 \text{ mho/m}$ ,  $\epsilon_p = 51.02$ ,  $\rho = 1000 \text{ kg/m}^3$ )  
 Phantom section: Flat Section


DASY4 Configuration:  
 - Probe: ET3DV6 - SN1644; ConvF(5.1, 5.1, 5.1); 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 = 4.07 V/m  
 Power Drift = -0.1 dB  
 Maximum value of SAR = 1.71 mW/g

**Unnamed procedure/Zoom Scan (7x7x7)/Cube 0;** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Peak SAR (extrapolated) = 2.89 W/kg  
 SAR(1 g) = 1.51 mW/g; SAR(10 g) = 0.743 mW/g  
 Reference Value = 4.07 V/m  
 Power Drift = -0.1 dB  
 Maximum value of SAR = 1.69 mW/g




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APPENDIX D: PROBE & DIPOLE CALIBRATION DATA



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## Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

### Calibration Certificate

#### Dosimetric E-Field Probe

Type:

**ET3DV6**

Serial Number:

**1644**

Place of Calibration:

**Zurich**

Date of Calibration:

**October 21, 2002**

Calibration Interval:

**12 months**

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.


Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:

*D. Vetter*

Approved by:

*Daoud Attayi*

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<b>Daoud Attayi</b>	<b>Sep. 23 - 30, 2003</b>	<b>RIM-0054-0309-07</b>	<b>L6AR6030GN</b>

**Schmid & Partner  
Engineering AG**

Zeughausstrasse 43, 8004 Zurich, Switzerland, Telephone +41 1 245 97 00, Fax +41 1 245 97 79

# Probe ET3DV6

## SN:1644

**Manufactured:**            November 7, 2001  
**Last calibration:**        November 26, 2001  
**Recalibrated:**            October 21, 2002

**Calibrated for DASY Systems**

(Note: non-compatible with DASY2 system!)

ET3DV6 SN:1644

October 21, 2002

## DASY - Parameters of Probe: ET3DV6 SN:1644

### Sensitivity in Free Space

NormX 1.73  $\mu\text{V}/(\text{V}/\text{m})^2$   
NormY 1.88  $\mu\text{V}/(\text{V}/\text{m})^2$   
NormZ 1.83  $\mu\text{V}/(\text{V}/\text{m})^2$

### Diode Compression

DCP X 95 mV  
DCP Y 95 mV  
DCP Z 95 mV

### Sensitivity in Tissue Simulating Liquid

Head	900 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.97 \pm 5\%$ mho/m
Head	835 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.90 \pm 5\%$ mho/m
	ConvF X	6.6 $\pm 9.5\%$ (k=2)	Boundary effect:
	ConvF Y	6.6 $\pm 9.5\%$ (k=2)	Alpha 0.32
	ConvF Z	6.6 $\pm 9.5\%$ (k=2)	Depth 2.91
Head	1800 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\%$ mho/m
Head	1900 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\%$ mho/m
	ConvF X	5.4 $\pm 9.5\%$ (k=2)	Boundary effect:
	ConvF Y	5.4 $\pm 9.5\%$ (k=2)	Alpha 0.49
	ConvF Z	5.4 $\pm 9.5\%$ (k=2)	Depth 2.47

### Boundary Effect

Head	900 MHz	Typical SAR gradient: 5 % per mm	
	Probe Tip to Boundary	1 mm	2 mm
	SAR <sub>be</sub> [%] Without Correction Algorithm	10.4	6.1
	SAR <sub>be</sub> [%] With Correction Algorithm	0.5	0.6
Head	1800 MHz	Typical SAR gradient: 10 % per mm	
	Probe Tip to Boundary	1 mm	2 mm
	SAR <sub>be</sub> [%] Without Correction Algorithm	12.2	8.0
	SAR <sub>be</sub> [%] With Correction Algorithm	0.1	0.1

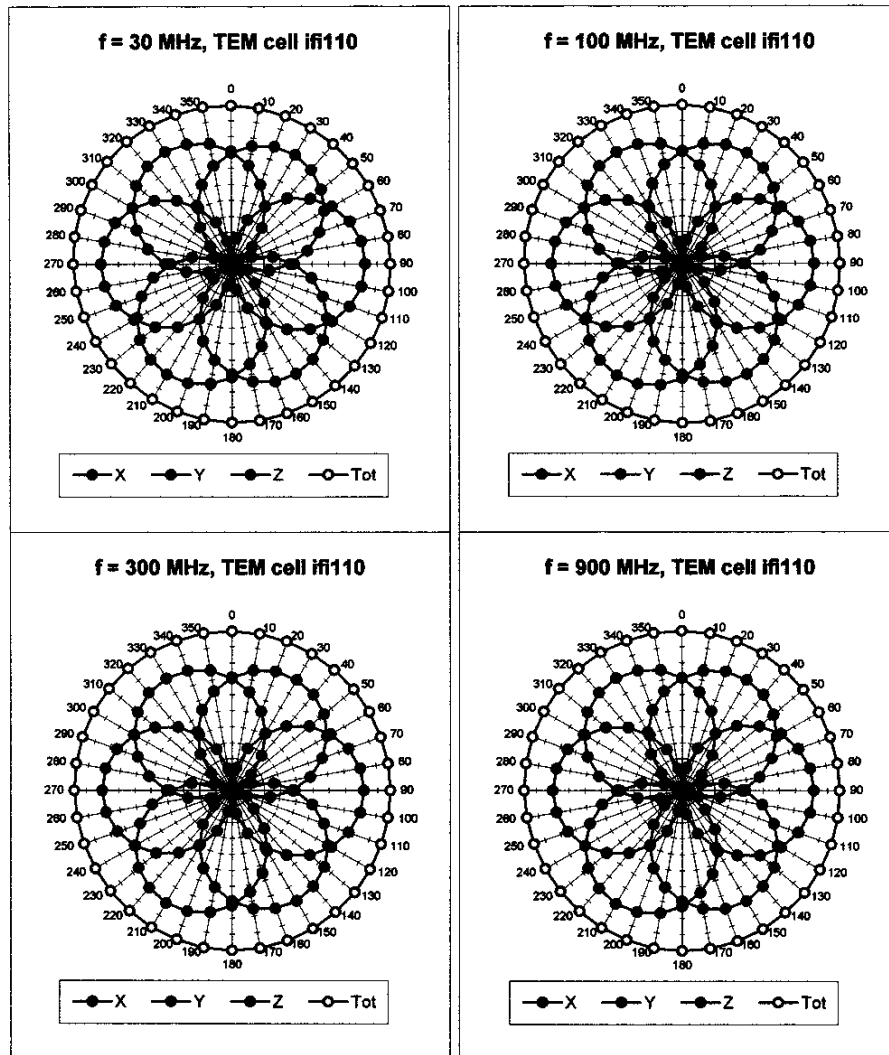
### Sensor Offset

Probe Tip to Sensor Center 2.7 mm  
Optical Surface Detection 1.4  $\pm$  0.2 mm

**ET3DV6 SN:1644**

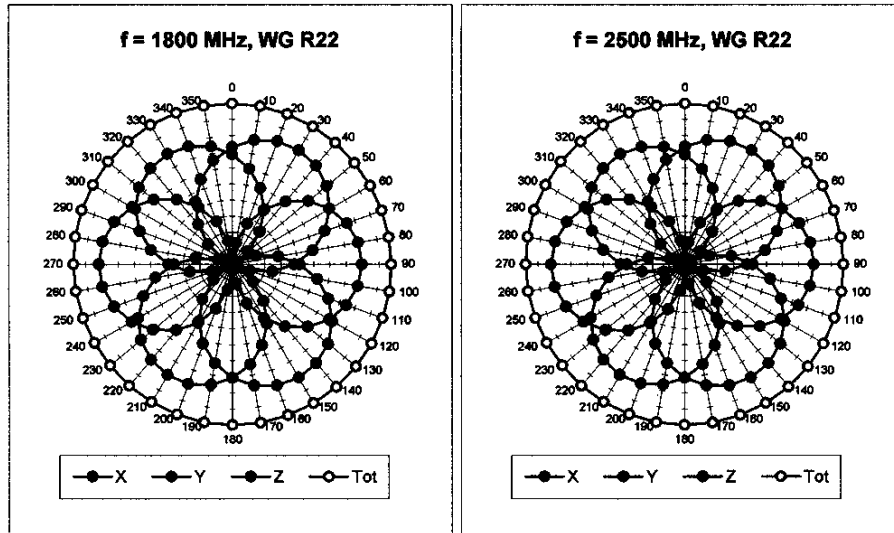
**October 21, 2002**

**Receiving Pattern ( $\phi$ ),  $\theta = 0^\circ$**

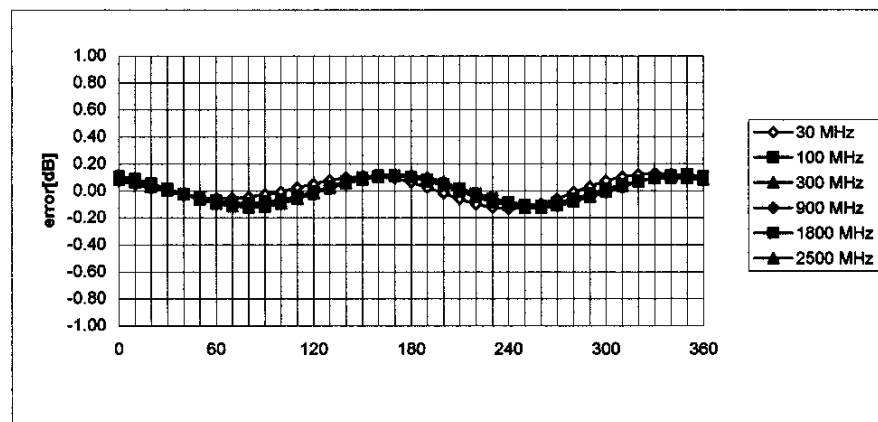


**ET3DV6 SN:1644**

**October 21, 2002**



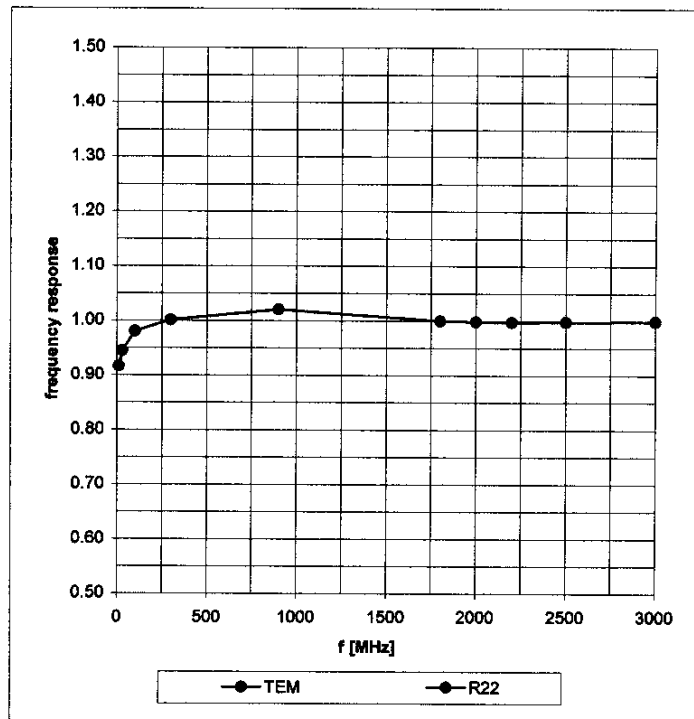
**Isotropy Error ( $\phi$ ),  $\theta = 0^\circ$**



**ET3DV6 SN:1644**

**October 21, 2002**

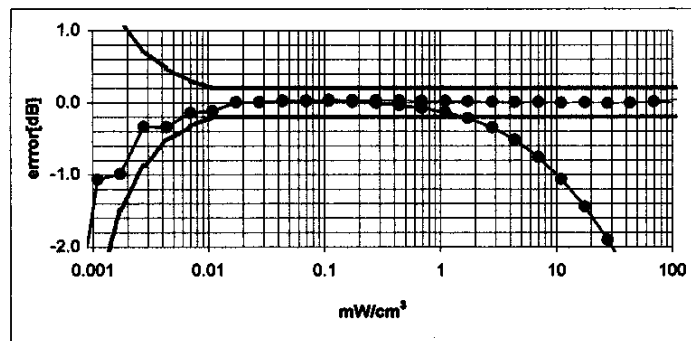
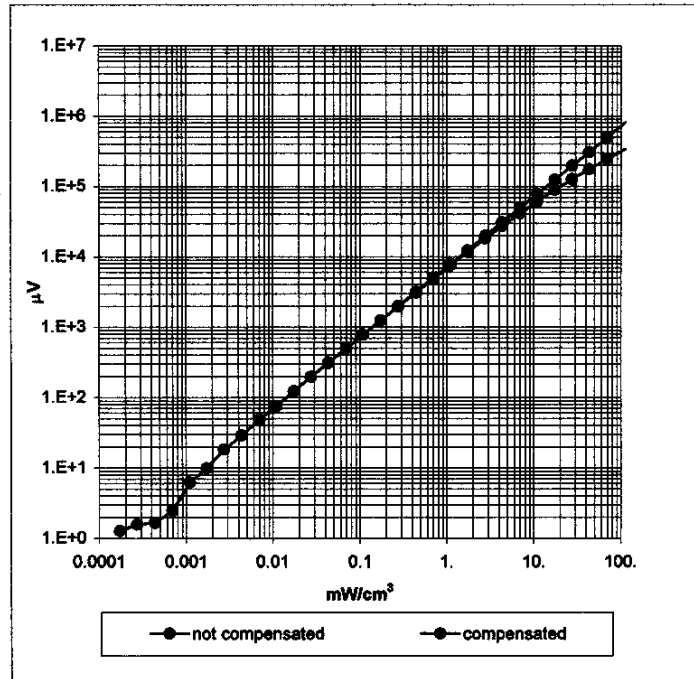
**Frequency Response of E-Field**  
 ( TEM-Cell:ifi110, Waveguide R22)



ET3DV6 SN:1644

October 21, 2002

### Dynamic Range f(SAR<sub>brain</sub>) ( Waveguide R22 )

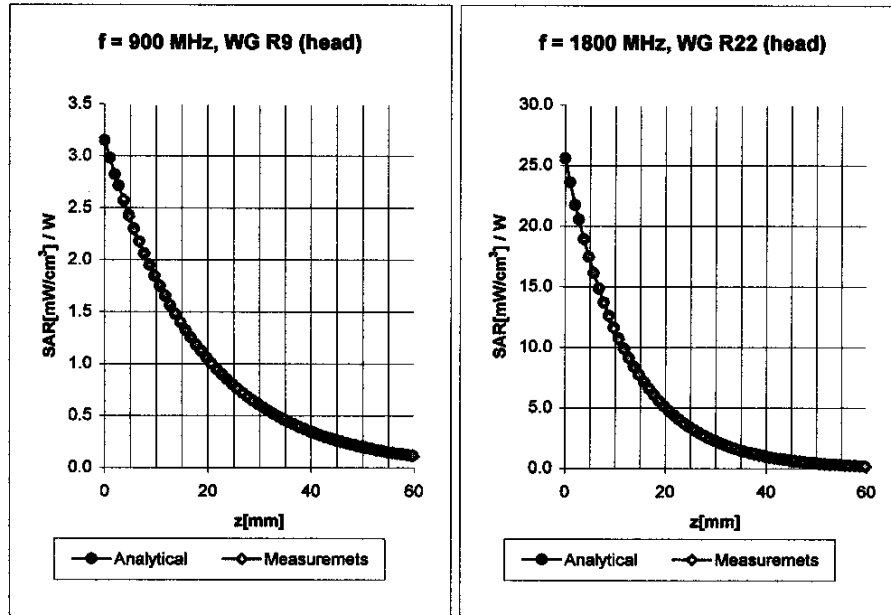




ET3DV6 SN:1644

October 21, 2002

### Conversion Factor Assessment

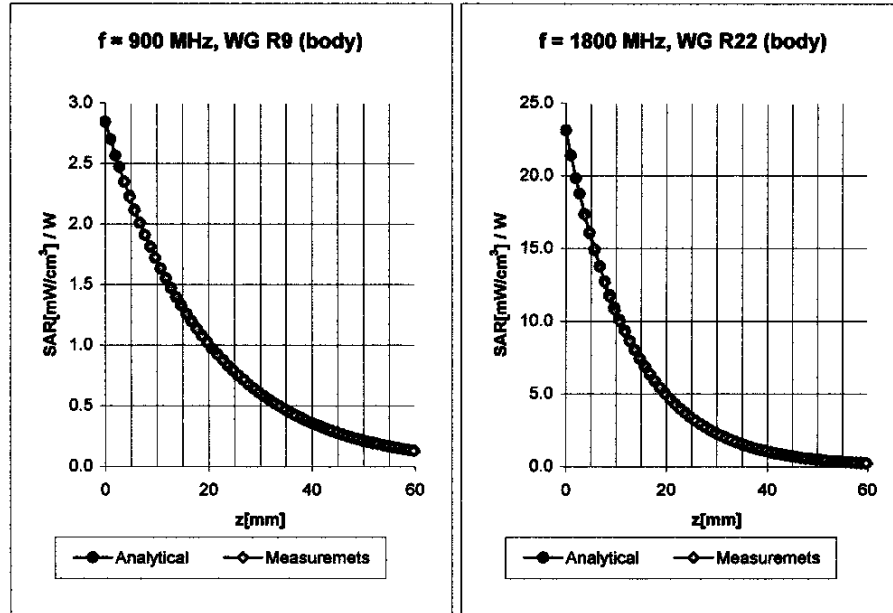


<b>Head</b>	<b>900 MHz</b>	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.97 \pm 5\% \text{ mho/m}$
<b>Head</b>	<b>835 MHz</b>	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.90 \pm 5\% \text{ mho/m}$
	ConvF X	$6.6 \pm 9.5\% (k=2)$	Boundary effect:
	ConvF Y	$6.6 \pm 9.5\% (k=2)$	Alpha <b>0.32</b>
	ConvF Z	$6.6 \pm 9.5\% (k=2)$	Depth <b>2.91</b>
<b>Head</b>	<b>1800 MHz</b>	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\% \text{ mho/m}$
<b>Head</b>	<b>1900 MHz</b>	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\% \text{ mho/m}$
	ConvF X	$5.4 \pm 9.5\% (k=2)$	Boundary effect:
	ConvF Y	$5.4 \pm 9.5\% (k=2)$	Alpha <b>0.49</b>
	ConvF Z	$5.4 \pm 9.5\% (k=2)$	Depth <b>2.47</b>

ET3DV6 SN:1644

October 21, 2002

### Conversion Factor Assessment



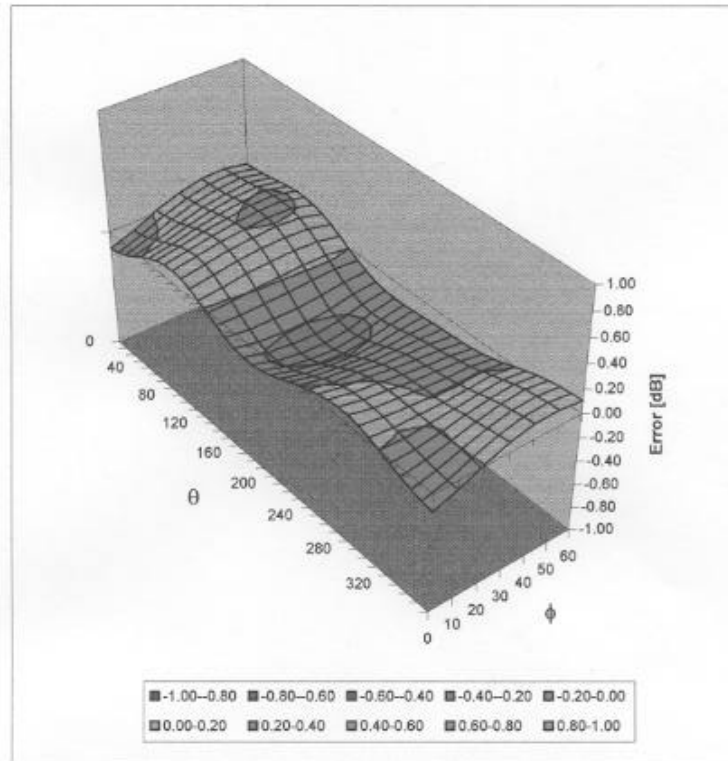
<b>Body</b>	<b>900 MHz</b>	$\epsilon_r = 55.0 \pm 5\%$	$\sigma = 1.05 \pm 5\% \text{ mho/m}$
<b>Body</b>	<b>835 MHz</b>	$\epsilon_r = 55.2 \pm 5\%$	$\sigma = 0.97 \pm 5\% \text{ mho/m}$
	ConvF X	$6.4 \pm 9.5\% (k=2)$	Boundary effect:
	ConvF Y	$6.4 \pm 9.5\% (k=2)$	Alpha <b>0.39</b>
	ConvF Z	$6.4 \pm 9.5\% (k=2)$	Depth <b>2.56</b>
<b>Body</b>	<b>1800 MHz</b>	$\epsilon_r = 53.3 \pm 5\%$	$\sigma = 1.52 \pm 5\% \text{ mho/m}$
<b>Body</b>	<b>1900 MHz</b>	$\epsilon_r = 53.3 \pm 5\%$	$\sigma = 1.52 \pm 5\% \text{ mho/m}$
	ConvF X	$5.1 \pm 9.5\% (k=2)$	Boundary effect:
	ConvF Y	$5.1 \pm 9.5\% (k=2)$	Alpha <b>0.61</b>
	ConvF Z	$5.1 \pm 9.5\% (k=2)$	Depth <b>2.35</b>

ET3DV6 SN:1644

October 21, 2002

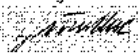
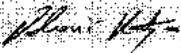
### Deviation from Isotropy in HSL


Error ( $\theta, \phi$ ), f = 900 MHz



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

Client **RIM**

CALIBRATION CERTIFICATE																											
Object(s)	<b>D835V2 - SN.446</b>																										
Calibration procedure(s)	<b>QA CAL-05.v2 Calibration procedure for dipole validation kits</b>																										
Calibration date:	<b>August 21, 2003</b>																										
Condition of the calibrated item	<b>In Tolerance (according to the specific calibration document)</b>																										
<p>This calibration statement documents traceability of M&amp;TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.</p> <p>All calibrations have been conducted in the closed laboratory facility; environment temperature 22 +/- 2 degrees Celsius and humidity &lt; 75%.</p> <p>Calibration Equipment used (M&amp;TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Model Type</th> <th>ID #</th> <th>Cal Date (Calibrated by, Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>RF generator R&amp;S SML-03</td> <td>100698</td> <td>27-Mar-2002 (R&amp;S, No. 20-92389)</td> <td>In house check: Mar-05</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02 (Agilent, No. 20021018)</td> <td>Oct-04</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292783</td> <td>30-Oct-02 (METAS, No. 252-0236)</td> <td>Oct-03</td> </tr> <tr> <td>Power meter EPM E442</td> <td>GB37480704</td> <td>30-Oct-02 (METAS, No. 252-0236)</td> <td>Oct-03</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585</td> <td>18-Oct-01 (Agilent, No. 24BR1033101)</td> <td>In house check: Oct 03</td> </tr> </tbody> </table>				Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration	RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05	Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04	Power sensor HP 8481A	US37292783	30-Oct-02 (METAS, No. 252-0236)	Oct-03	Power meter EPM E442	GB37480704	30-Oct-02 (METAS, No. 252-0236)	Oct-03	Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03
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Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03																								
Calibrated by:	Name <b>Joachim Mueller</b>	Function <b>Technician</b>	Signature 																								
Approved by:	Name <b>Katja Pokovic</b>	Function <b>Laboratory Director</b>	Signature 																								
Date issued: August 22, 2003																											
<p>This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid &amp; Partner Engineering AG is completed</p>																											

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# DASY


## Dipole Validation Kit

**Type: D835V2**

**Serial: 446**

**Manufactured: October 24, 2001**

**Calibrated: August 21, 2003**

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## 1. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with head simulating solution of the following electrical parameters at 835 MHz:

Relative Dielectricity	<b>43.3</b>	$\pm 5\%$
Conductivity	<b>0.91 mho/m</b>	$\pm 5\%$

The DASY4 System with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.7 at 835 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from dipole center to the solution surface. The included distance spacer was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration.

The dipole input power (forward power) was 250 mW  $\pm 3\%$ . The results are normalized to 1W input power.

## 2. SAR Measurement with DASY4 System


Standard SAR-measurements were performed according to the measurement conditions described in section 1. The results (see figure supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured with the dosimetric probe ET3DV6 SN:1507 and applying the advanced extrapolation are:

averaged over 1 cm <sup>3</sup> (1 g) of tissue:	<b>9.60 mW/g</b> $\pm 16.8\%$ (k=2) <sup>1</sup>
averaged over 10 cm <sup>3</sup> (10 g) of tissue:	<b>6.24 mW/g</b> $\pm 16.2\%$ (k=2) <sup>1</sup>

<sup>1</sup> validation uncertainty





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Date/Time: 08/21/03 10:03:51

Test Laboratory: SPEAG, Zurich, Switzerland  
File Name: SN446\_SN1507\_HSL835\_210803.da4

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN446**  
**Program: Dipole Calibration**

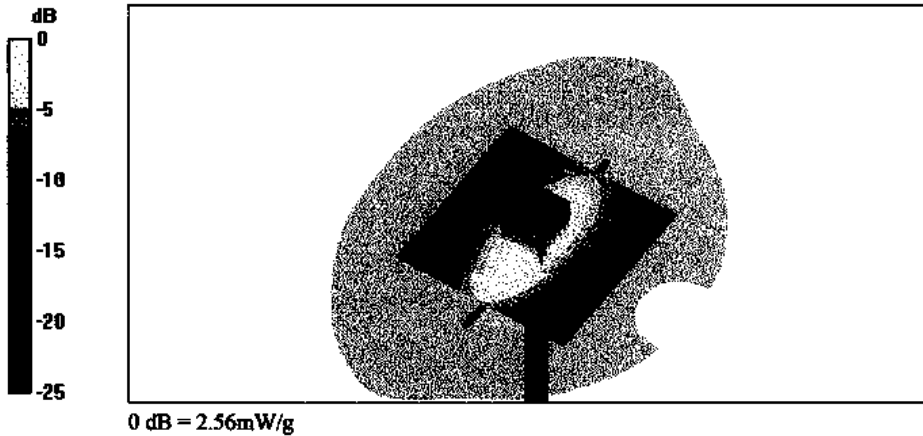
Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1  
Medium: HSL 835 MHz ( $\sigma = 0.91 \text{ mho/m}$ ,  $\epsilon_r = 43.28$ ,  $\rho = 1000 \text{ kg/m}^3$ )  
Phantom section: Flat Section  
Measurement Standard: DASY4 (High Precision Assessment)

**DASY4 Configuration:**

- Probe: ET3DV6 - SN1507; ConvF(6.7, 6.7, 6.7); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

**Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm**  
Reference Value = 55.3 V/m  
Power Drift = -0.02 dB  
Maximum value of SAR = 2.55 mW/g

**Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm**  
Peak SAR (extrapolated) = 3.52 W/kg  
SAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.56 mW/g  
Reference Value = 55.3 V/m  
Power Drift = -0.02 dB  
Maximum value of SAR = 2.56 mW/g





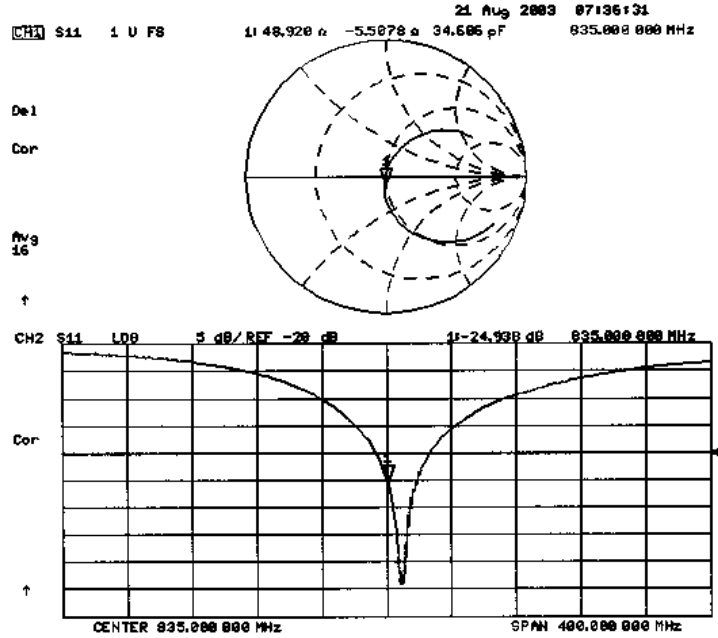
Author Data  
**Daoud Attayi**


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**Sep. 23 - 30, 2003**

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**RIM-0054-0309-07**

FCC ID  
**L6AR6030GN**

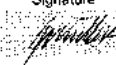
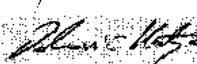
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**Calibration Laboratory of  
 Schmid & Partner  
 Engineering AG**  
 Zeughausstrasse 43, 8004 Zurich, Switzerland

Client **RIM**

CALIBRATION CERTIFICATE																											
Object(s)	D1900V2 - SN:545																										
Calibration procedure(s)	QA CAL-05.v2 Calibration procedure for dipole validation kits																										
Calibration date:	August 22, 2003																										
Condition of the calibrated item	In Tolerance (according to the specific calibration document)																										
<p>This calibration statement documents traceability of M&amp;TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity &lt; 75%.</p> <p>Calibration Equipment used (M&amp;TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Model Type</th> <th>ID #</th> <th>Cal Date (Calibrated by, Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>RF generator R&amp;S SML-03</td> <td>100698</td> <td>27-Mar-2002 (R&amp;S, No. 20-92389)</td> <td>In house check: Mar-05</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02 (Agilent, No. 20021018)</td> <td>Oct-04</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292783</td> <td>30-Oct-02 (METAS, No. 252-0236)</td> <td>Oct-03</td> </tr> <tr> <td>Power meter EPM E442</td> <td>GB37480704</td> <td>30-Oct-02 (METAS, No. 252-0236)</td> <td>Oct-03</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585</td> <td>18-Oct-01 (Agilent, No. 24BR1033101)</td> <td>In house check: Oct 03</td> </tr> </tbody> </table>				Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration	RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05	Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04	Power sensor HP 8481A	US37292783	30-Oct-02 (METAS, No. 252-0236)	Oct-03	Power meter EPM E442	GB37480704	30-Oct-02 (METAS, No. 252-0236)	Oct-03	Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03
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Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03																								
Calibrated by:	Name Ulrich Mueller	Function Technician	Signature 																								
Approved by:	Name Kolja Pokovic	Function Laboratory Director	Signature 																								
Date issued: August 24, 2003																											
<p>This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid &amp; Partner Engineering AG is completed.</p>																											

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# DASY

## Dipole Validation Kit

Type: D1900V2

Serial: 545

Manufactured: November 15, 2001  
Calibrated: August 22, 2003

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## 1. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with head simulating solution of the following electrical parameters at 1900 MHz:

Relative Dielectricity	40.2	± 5%
Conductivity	1.46 mho/m	± 5%

The DASY4 System with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 5.2 at 1900 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from dipole center to the solution surface. The included distance spacer was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration.


The dipole input power (forward power) was 250 mW ± 3 %. The results are normalized to 1W input power.

## 2. SAR Measurement with DASY4 System

Standard SAR-measurements were performed according to the measurement conditions described in section 1. The results (see figure supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured with the dosimetric probe ET3DV6 SN:1507 and applying the advanced extrapolation are:

averaged over 1 cm <sup>3</sup> (1 g) of tissue:	41.2 mW/g ± 16.8 % (k=2) <sup>1</sup>
averaged over 10 cm <sup>3</sup> (10 g) of tissue:	21.3 mW/g ± 16.2 % (k=2) <sup>1</sup>

<sup>1</sup> validation uncertainty

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### 3. Dipole Impedance and Return Loss

The impedance was measured at the SMA-connector with a network analyzer and numerically transformed to the dipole feedpoint. The transformation parameters from the SMA-connector to the dipole feedpoint are:

Electrical delay: 1.198 ns (one direction)  
Transmission factor: 0.984 (voltage transmission, one direction)

The dipole was positioned at the flat phantom sections according to section 1 and the distance spacer was in place during impedance measurements.

Feedpoint impedance at 1900 MHz:  $Re(Z) = 49.7 \Omega$   
 $Im(Z) = 0.96 \Omega$   
Return Loss at 1900 MHz: -39.9 dB

### 4. Handling

Do not apply excessive force to the dipole arms, because they might bend. Bending of the dipole arms stresses the soldered connections near the feedpoint leading to a damage of the dipole.


### 5. Design

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

Small end caps have been added to the dipole arms in order to improve matching when loaded according to the position as explained in Section 1. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

### 6. Power Test

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

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Test Laboratory: SPEAG, Zurich, Switzerland  
File Name: SNS45\_SN1507\_HSL1900\_220803.da4

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN545  
Program: Dipole Calibration

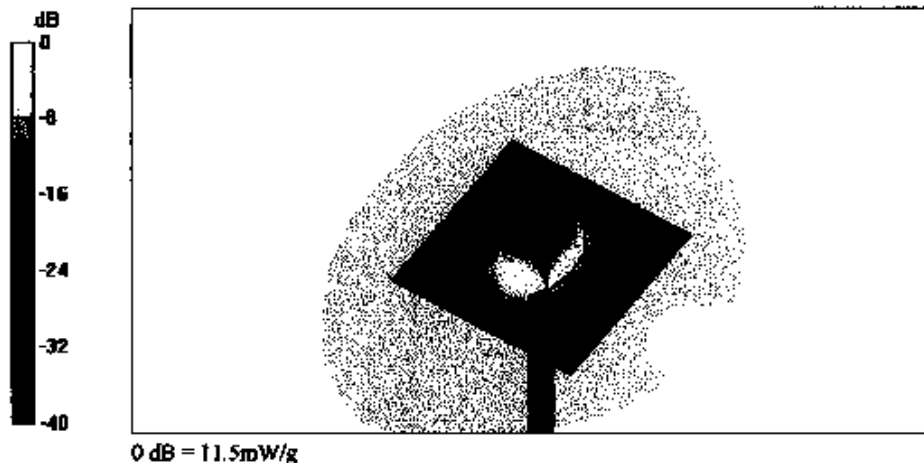
Communication System: CW-1900; Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium: HSL 1900 MHz ( $\sigma = 1.46 \text{ mho/m}$ ,  $\epsilon_r = 40.17$ ,  $\rho = 1000 \text{ kg/m}^3$ )  
Phantom section: Flat Section  
Measurement Standard: DASy4 (High Precision Assessment)

DASy4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(5.2, 5.2, 5.2); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASy4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

$P_{in} = 250 \text{ mW}$ ;  $d = 10 \text{ mm}$ /Area Scan (81x81x1); Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Reference Value = 93.6 V/m  
Power Drift = 0.05 dB  
Maximum value of SAR = 11.5 mW/g

$P_{in} = 250 \text{ mW}$ ;  $d = 10 \text{ mm}$ /Zoom Scan (7x7x7)/Cube 0; Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
Peak SAR (extrapolated) = 17.7 W/kg  
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.32 mW/g  
Reference Value = 93.6 V/m  
Power Drift = 0.05 dB  
Maximum value of SAR = 11.5 mW/g







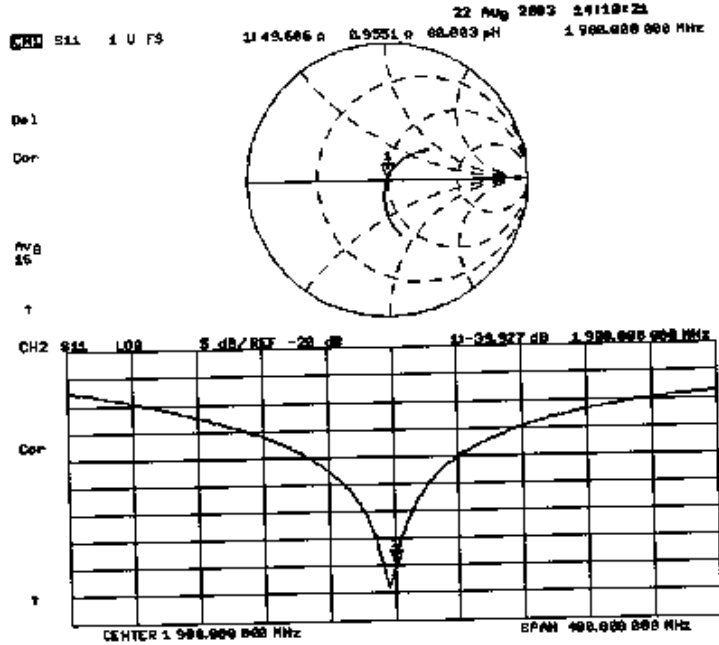
Author Data  
**Daoud Attayi**


Dates of Test  
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**RIM-0054-0309-07**

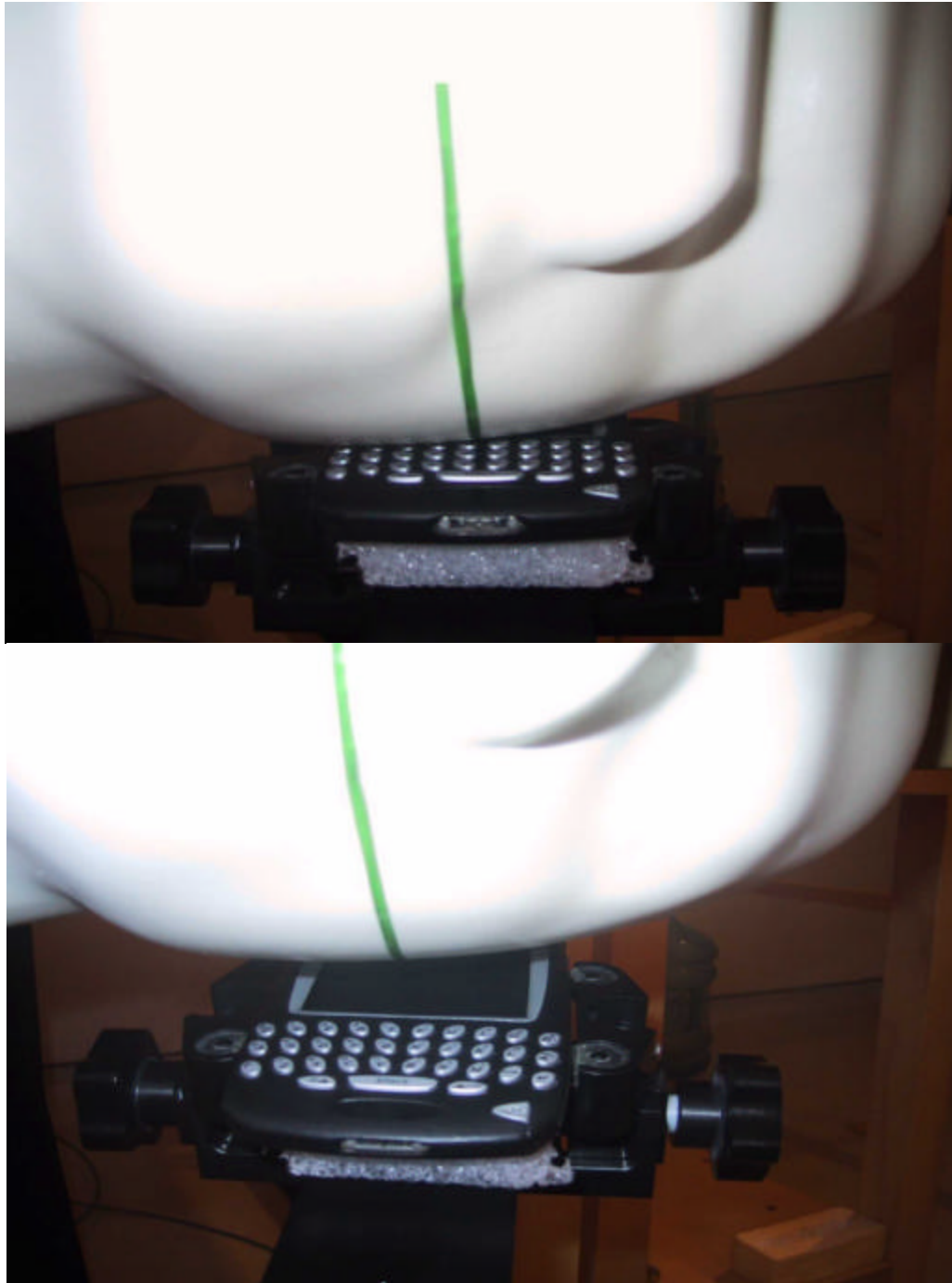
FCC ID  
**L6AR6030GN**

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APPENDIX E: SAR SET UP PHOTOS



**Figure E1. Left ear configuration**




**Figure E2. Right ear configuration**



**Figure E3. Body worn configuration with Plastic Holster ASY-0399-001 and headset**



**Figure E4. Body worn configuration with Leather Swivel Holster HDW-04890-001 and headset**

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**Figure E5. Body worn with Folding Leather Case HDW-04889-001 for inside a shirt pocket configuration front and back side**