 RESEARCH IN MOTION	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		1(1)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

APPENDIX A: SAR DISTRIBUTION COMPARISON FOR THE ACCURACY VERIFICATION

Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/10/03

Dipole 835

SAM 1; Flat

Probe: ET3DV6 - SN1642; ConvF(6.50,6.50,6.50); Crest factor: 1.0; Head 835 MHz: $\sigma = 0.91 \text{ mho/m}$ $\epsilon_r = 42.8$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 19.7 mW/g, SAR (1g): 11.8 mW/g, SAR (10g): 7.39 mW/g, (Worst-case extrapolation)

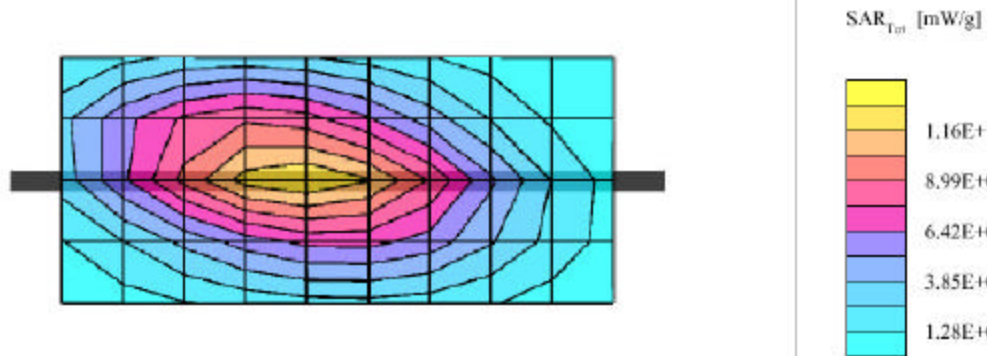
Penetration depth: 11.4 (9.7, 13.6) [mm]

Powerdrift: 0.01 dB

Date Tested: July 10, 2003

Ambient Temperature: 23.4 Deg. Cel.

Liquid Temperature: 21.7 Deg. Cel.



Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/08/03

Dipole 1900 MHz

SAM 1; Flat

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 1.0; Head 1900 MHz: $\sigma = 1.46 \text{ mho/m}$, $\epsilon_r = 40.1$, $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 84.0 mW/g, SAR (1g): 43.0 mW/g, SAR (10g): 21.7 mW/g, (Worst-case extrapolation)

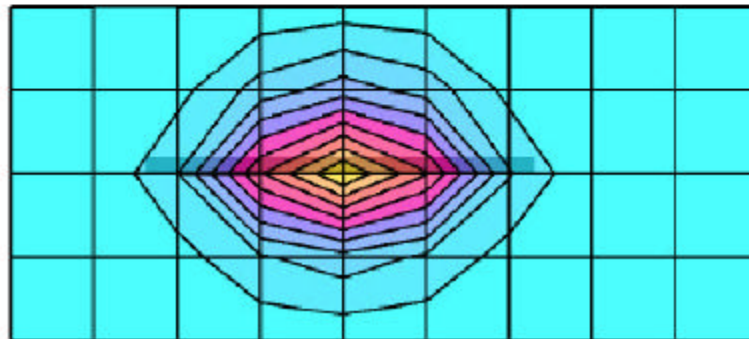
Penetration depth: 7.7 (7.2, 9.0) [mm]

Powerdrift: 0.07 dB

Date tested: July 08, 2003


Ambient Temperature: 22.8 (°C)

Liquid Temperature: 21.8 (°C)



SAR_{Tot} [mW/g]



 RESEARCH IN MOTION	Document Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		Page 4(4)
	Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07

APPENDIX B: SAR DISTRIBUTION PLOTS FOR HEAD CONFIGURATION

07/10/03

BlackBerry Wireless Handheld Model R6030GN

SAM 1; Left Hand

Probe: ET3DV6 - SN1642; ConvF(6.50,6.50,6.50); Crest factor: 8.0; Head 835 MHz; $\sigma = 0.91$ mho/m $\epsilon_r = 42.8$ $\rho = 1.00$ g/cm³

Cube 5x5x7: Peak: 0.537 mW/g, SAR (1g): 0.334 mW/g, SAR (10g): 0.237 mW/g * Max outside, (Worst-case extrapolation)

Penetration depth: 14.7 (11.8, 18.1) [mm]

Powerdrift: -0.08 dB

Date Tested: July 10, 2003

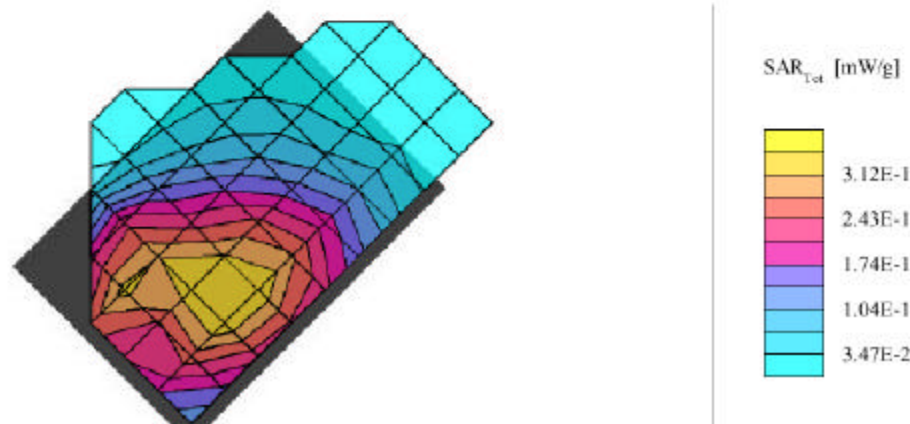
Ambient Temperature: 22.7 Deg. Cel.

Liquid Temperature: 21.4 Deg. Cel.

Band: GSM 850

Channel: 190

Configuration: Left side "Touch" position



Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/10/03

BlackBerry Wireless Handheld Model R6030GN

SAM 1; Left Hand

Probe: ET3DV6 - SN1642; ConvF(6.50,6.50,6.50); Crest factor: 8.0; Head 835 MHz; $\sigma = 0.91$ mho/m $\epsilon_r = 42.8$ $\rho = 1.00$ g/cm³

Cube 5x5x7; Peak: 0.246 mW/g, SAR (1g): 0.175 mW/g, SAR (10g): 0.128 mW/g, (Worst-case extrapolation)

Penetration depth: 18.7 (15.4, 22.0) [mm]

Powerdrift: -0.04 dB

Date Tested: July 10, 2003

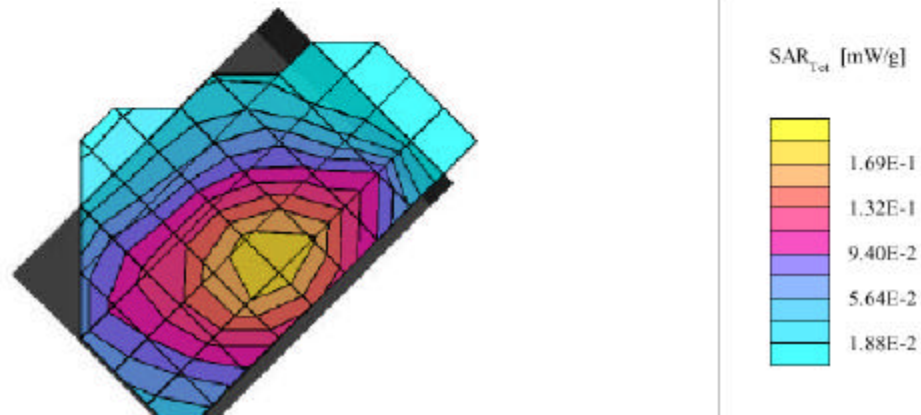
Ambient Temperature: 22.7 Deg. Cel.

Liquid Temperature: 21.4 Deg. Cel.

Band: GSM 850

Channel: 190

Configuration: Left side "Tilted" position



Author Data
Daoud Attayi

Dates of Test
July 08 - 11, 2003

Test Report No
RIM-0054-0307-07

FCC ID
L6AR6030GN

07/10/03

BlackBerry Wireless Handheld Model R6030GN

SAM 1; Right Hand

Probe: ET3DV6 - SN1642; ConvF(6.50,6.50,6.50); Crest factor: 8.0; Head 835 MHz; $\sigma = 0.91$ mho/m $\epsilon_r = 42.8$ $\rho = 1.00$ g/cm³

Cube 5x5x7; Peak: 0.245 mW/g, SAR (1g): 0.165 mW/g, SAR (10g): 0.118 mW/g, (Worst-case extrapolation)

Penetration depth: 17.2 (13.4, 21.5) [mm]

Powerdrift: 0.08 dB

Date Tested: July 10, 2003

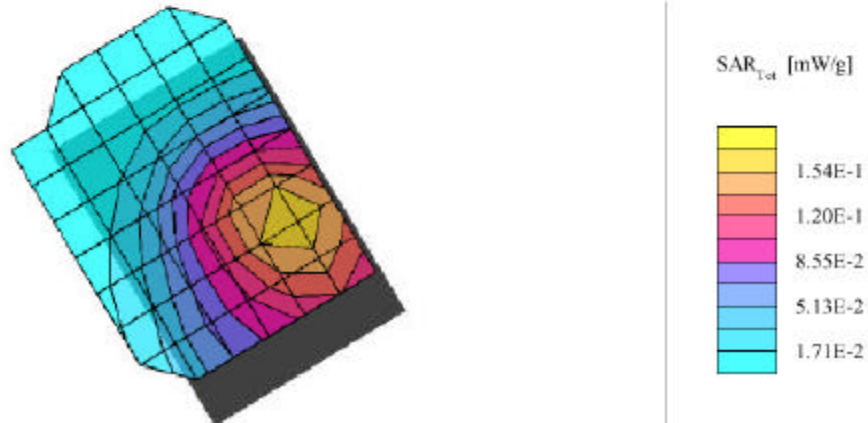
Ambient Temperature: 23.0 Deg. Cel.

Liquid Temperature: 21.7 Deg. Cel.

Band: GSM 850

Channel: 190

Configuration: Right side "Touch" position



Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/10/03

BlackBerry Wireless Handheld Model R6030GN

SAM 1; Right Hand

Probe: ET3DV6 - SN1642; ConvF(6.50,6.50,6.50); Crest factor: 8.0; Head 835 MHz: $\sigma = 0.91$ mho/m $\epsilon_r = 42.8$ $\rho = 1.00$ g/cm³

Cube 5x5x7; Peak: 0.382 mW/g, SAR (1g): 0.244 mW/g, SAR (10g): 0.172 mW/g, (Worst-case extrapolation)

Penetration depth: 15.5 (11.8, 19.9) [mm]

Powerdrift: -0.12 dB

Date Tested: July 10, 2003

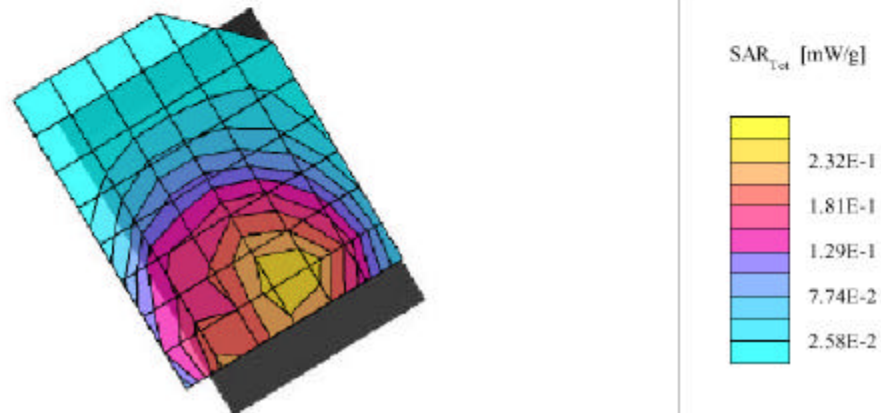
Ambient Temperature: 23.0 Deg. Cel.

Liquid Temperature: 21.7 Deg. Cel.

Band: GSM 850

Channel: 190

Configuration: Right side "Tilted" position



Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07	FCC ID L6AR6030GN
------------------------------------	--	---	-----------------------------

07/08/03

BlackBerry Wireless Handheld Model No. R6030GN

SAM 1; Left Hand

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 8.0; Head 1900 MHz: $\sigma = 1.46 \text{ mho/m}$ $\epsilon_r = 40.1$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7; Peak: 1.94 mW/g, SAR (1g): 0.974 mW/g, SAR (10g): 0.461 mW/g, (Worst-case extrapolation)

Penetration depth: 7.8 (7.1, 9.3) [mm]

Powerdrift: -0.57 dB

Date tested: July 08, 2003

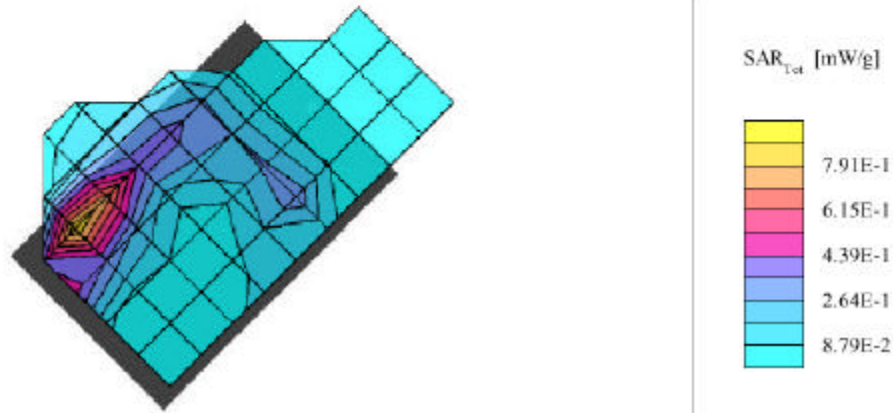
Ambient Temperature: 22.8 (°C)

Liquid Temperature: 21.4 (°C)

Band: GSM 1900

Channel: 810

Configuration: Left side "Touch" position



Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/08/03

BlackBerry Wireless Handheld Model No. R6030GN

SAM 1; Left Hand

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 8.0; Head 1900 MHz: $\sigma = 1.46 \text{ mho/m}$ $\epsilon_r = 40.1$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7; Peak: 0.483 mW/g, SAR (1g): 0.249 mW/g, SAR (10g): 0.134 mW/g, (Worst-case extrapolation)

Penetration depth: 8.4 (7.5, 10.0) [mm]

Powerdrift: 0.38 dB

Date Tested: July 08, 2003

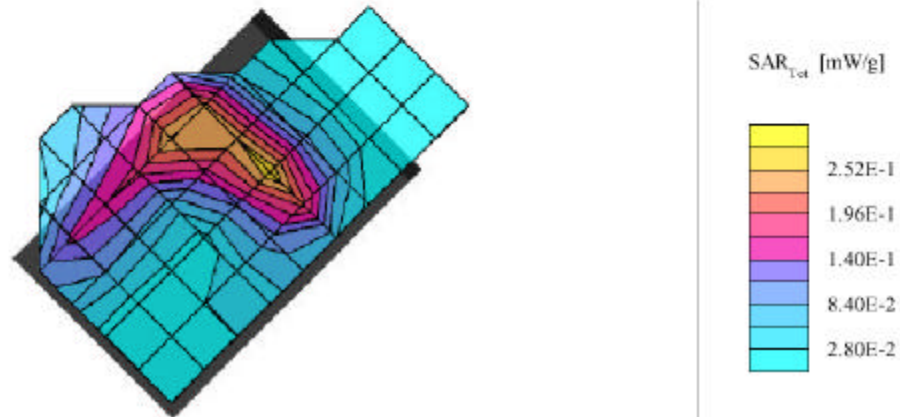
Ambient Temperature: 22.8 Deg. Cel.

Liquid Temperature: 21.3 Deg. Cel.

Band: GSM 1900

Channel: 661

Configuration: Left side "Tilted" position



Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/08/03

BlackBerry Wireless Handheld Model No. R6030GN

SAM 1; Right Hand

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 8.0; Head 1900 MHz: $\sigma = 1.46 \text{ mho/m}$ $\epsilon_r = 40.1$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 1.81 mW/g, SAR (1g): 0.903 mW/g, SAR (10g): 0.442 mW/g, (Worst-case extrapolation)

Penetration depth: 7.7 (6.9, 9.6) [mm]

Powerdrift: -0.15 dB

Date tested: July 08, 2003

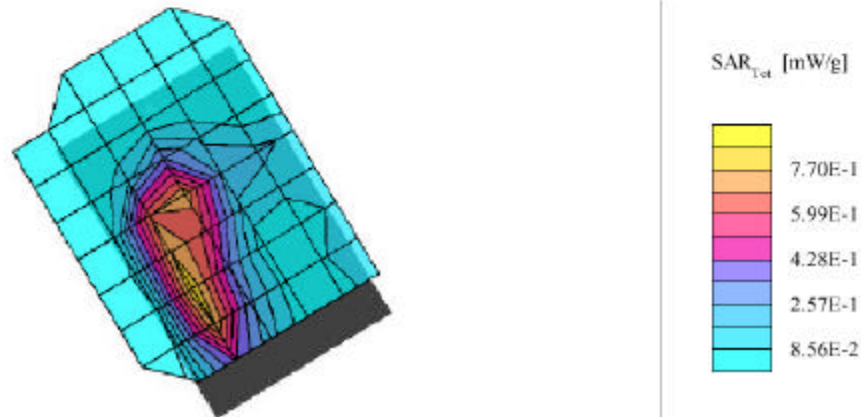
Ambient Temperature: 22.6 (°C)

Liquid Temperature: 21.0 (°C)

Band: GSM 1900

Channel: 810

Configuration: Right side "Touch" position



Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/08/03

BlackBerry Wireless Handheld Model No. R6030GN

SAM 1; Right Hand

Probe: ET3DV6 - SN1642; ConvF(5.30,5.30,5.30); Crest factor: 8.0; Head 1900 MHz: $\sigma = 1.46 \text{ mho/m}$ $\epsilon_r = 40.1$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7; Peak: 0.980 mW/g, SAR (1g): 0.488 mW/g, SAR (10g): 0.251 mW/g, (Worst-case extrapolation)

Penetration depth: 8.1 (7.4, 9.4) [mm]

Powerdrift: -0.16 dB

Date tested: July 08, 2003

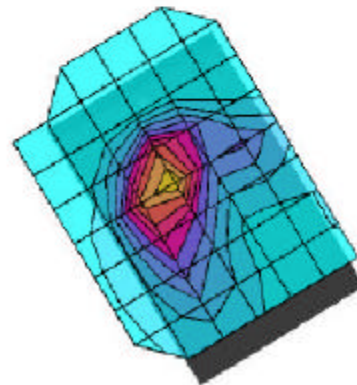
Ambient Temperature: 22.6 (°C)

Liquid Temperature: 21.1 (°C)

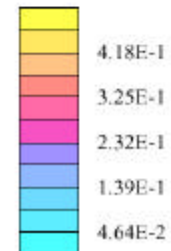
Band: GSM 1900


Channel: 661

Configuration: Right side "Tilted" position



SAR_{Tot} [mW/g]



 RESEARCH IN MOTION	Document Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		Page 13(13)
	Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07

APPENDIX C: SAR DISTRIBUTION PLOTS FOR BODY-WORN CONFIGURATION

Author Data
Daoud Attayi

Dates of Test
July 08 - 11, 2003

Test Report No
RIM-0054-0307-07

FCC ID
L6AR6030GN

07/11/03

BlackBerry Wireless Handheld Model R6030GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(6.40,6.40,6.40); Crest factor: 8.0; Muscle 835 MHz: $\sigma = 0.99$ mho/m $\epsilon_r = 53.9$ $\rho = 1.00$ g/cm³

Cube 5x5x7; Peak: 0.340 mW/g, SAR (1g): 0.233 mW/g, SAR (10g): 0.169 mW/g, (Worst-case extrapolation)

Penetration depth: 16.8 (14.2, 19.6) [mm]

Powerdrift: -0.10 dB

Date Tested: July 11, 2003

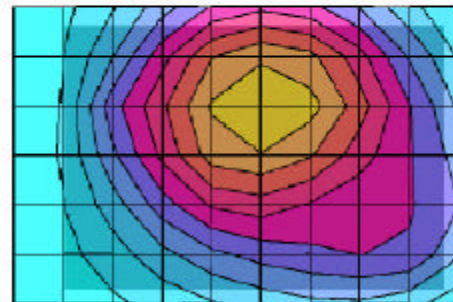
Ambient Temperature: 23.4 Deg. Cel.

Liquid Temperature: 22.6 Deg. Cel.

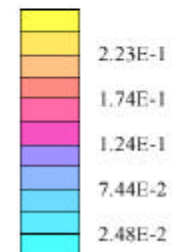
Band: GSM 850

Channel: 190

Configuration: Body worn with Holster



SAR_{Tot} [mW/g]



Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/11/03

BlackBerry Wireless Handheld Model R6030GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(6.40,6.40,6.40); Crest factor: 8.0; Muscle 835 MHz: $\sigma = 0.99$ mho/m $\epsilon_r = 53.9$ $\rho = 1.00$ g/cm³

Cube 5x5x7: Peak: 0.309 mW/g, SAR (1g): 0.216 mW/g, SAR (10g): 0.156 mW/g, (Worst-case extrapolation)

Penetration depth: 16.7 (14.2, 19.3) [mm]

Powerdrift: 0.00 dB

Date Tested: July 11, 2003

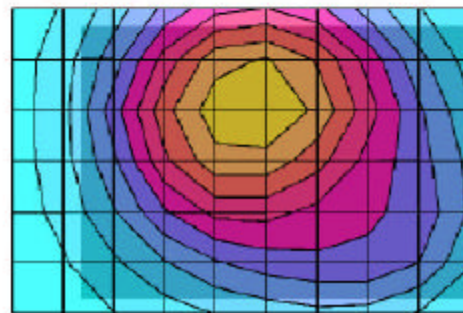
Ambient Temperature: 23.5 Deg. Cel.

Liquid Temperature: 22.6 Deg. Cel.

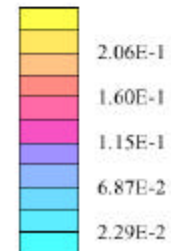
Band: GSM 850

Channel: 190

Configuration: Body worn with Leather Swivel Holster



SAR_{Tot} [mW/g]



Author Data

Daoud Attayi

Dates of Test

July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN

07/11/03

BlackBerry Wireless Handheld Model R6030GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(6.40,6.40,6.40); Crest factor: 8.0; Muscle 835 MHz: $\sigma = 0.99$ mho/m $\epsilon_r = 53.9$ $\rho = 1.00$ g/cm³

Cube 5x5x7: Peak: 0.456 mW/g, SAR (1g): 0.274 mW/g, SAR (10g): 0.175 mW/g * Max outside, (Worst-case extrapolation)

Penetration depth: 13.4 (11.8, 15.3) [mm]

Powerdrift: -0.05 dB

Date Tested: July 11, 2003

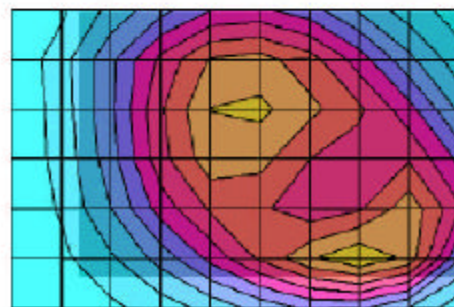
Ambient Temperature: 23.5 Deg. Cel.

Liquid Temperature: 22.6 Deg. Cel.

Band: GSM 850

Channel: 190

Configuration: Body worn with Leather Swivel Holster for inside a shirt pocket, front side



SAR_{Tot} [mW/g]



Author Data
Daoud Attayi

Dates of Test
July 08 - 11, 2003

Test Report No
RIM-0054-0307-07

FCC ID
L6AR6030GN

07/11/03

BlackBerry Wireless Handheld Model R6030GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(6.40,6.40,6.40); Crest factor: 8.0; Muscle 835 MHz: $\sigma = 0.99$ mho/m $\epsilon_r = 53.9$ $\rho = 1.00$ g/cm³

Cube 5x5x7: Peak: 0.684 mW/g, SAR (1g): 0.398 mW/g, SAR (10g): 0.246 mW/g, (Worst-case extrapolation)

Penetration depth: 12.1 (10.4, 14.3) [mm]

Powerdrift: 0.01 dB

Date Tested: July 11, 2003

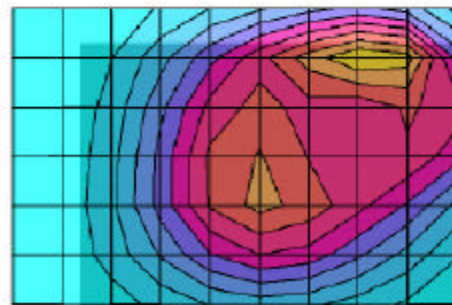
Ambient Temperature: 23.9 Deg. Cel.

Liquid Temperature: 22.5 Deg. Cel.

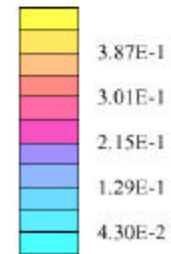
Band: GSM 850


Channel: 190

Configuration: Body worn with Leather Case for inside a shirt pocket, Back side



SAR_{Tot} [mW/g]



	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		18(18)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

07/09/03

BlackBerry Wireless Handheld Model R6030GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(4.80,4.80,4.80); Crest factor: 8.0; Muscle 1900 MHz: $\sigma = 1.57 \text{ mho/m}$ $\epsilon_r = 52.4$ $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.391 mW/g, SAR (1g): 0.225 mW/g, SAR (10g): 0.132 mW/g, (Worst-case extrapolation)

Penetration depth: 10.1 (9.0, 11.5) [mm]

Powerdrift: -0.14 dB

Date Tested: July 09, 2003

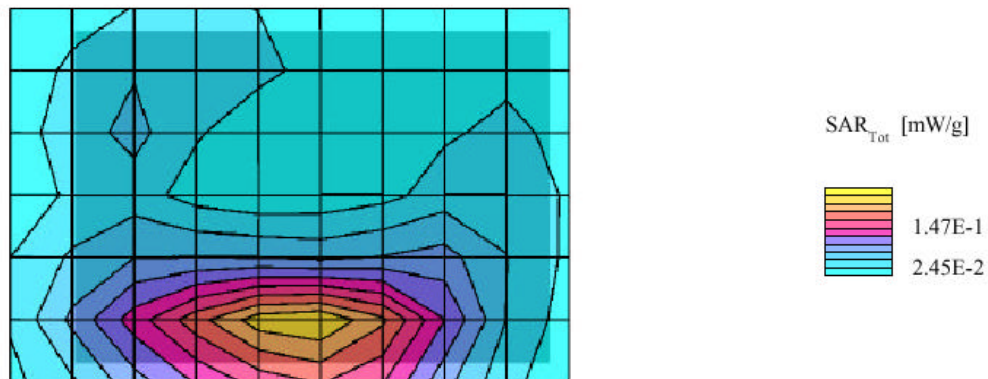
Ambient Temperature: 23.5 Deg. Cel.


Liquid Temperature: 21.4 Deg. Cel.

Band: GSM 1900

Channel: 661

Configuration: Body worn with Holster



	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		19(19)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

07/09/03

BlackBerry Wireless Handheld Model R6030GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(4.80,4.80,4.80); Crest factor: 8.0; Muscle 1900 MHz: $\sigma = 1.57 \text{ mho/m}$ $\epsilon_r = 52.4 \rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 0.324 mW/g, SAR (1g): 0.190 mW/g, SAR (10g): 0.113 mW/g, (Worst-case extrapolation)

Penetration depth: 10.2 (9.3, 11.5) [mm]

Powerdrift: 0.02 dB

Date Tested: July 09, 2003

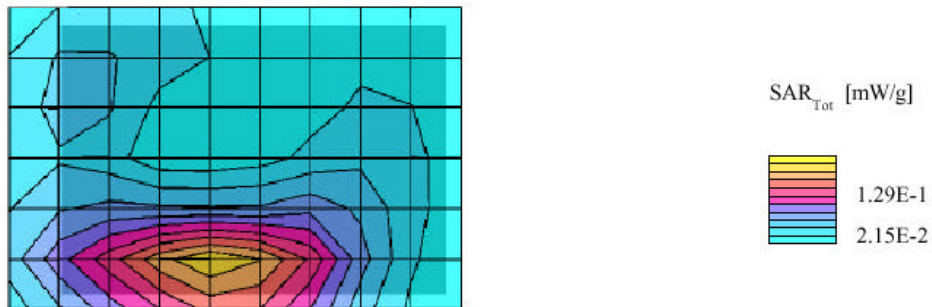
Ambient Temperature: 23.5 Deg. Cel.


Liquid Temperature: 21.4 Deg. Cel.

Band: GSM 1900

Channel: 661

Configuration: Body worn with Leather Swivel Holster



 RESEARCH IN MOTION	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		20(20)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

07/09/03

BlackBerry Wireless Handheld Model R6030GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(4.80,4.80,4.80); Crest factor: 8.0; Muscle 1900 MHz: $\sigma = 1.57 \text{ mho/m}$ $\epsilon_r = 52.4 \rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 1.07 mW/g, SAR (1g): 0.549 mW/g, SAR (10g): 0.286 mW/g * Max outside, (Worst-case extrapolation)

Penetration depth: 10.0 (9.2, 11.1) [mm]

Powerdrift: -0.03 dB

Date Tested: July 09, 2003

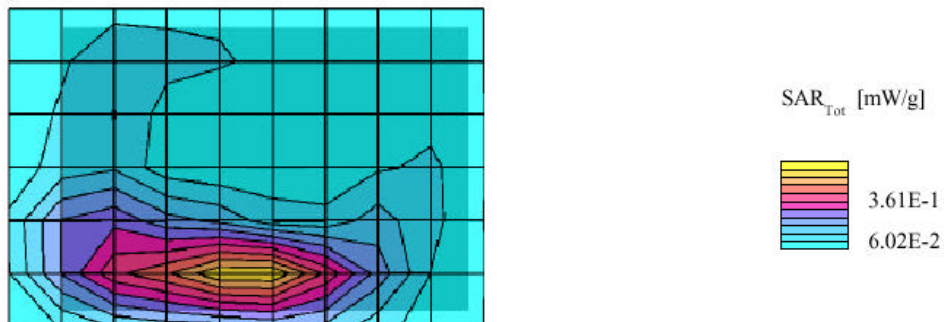
Ambient Temperature: 23.7 Deg. Cel.

Liquid Temperature: 21.5 Deg. Cel.

Band: GSM 1900

Channel: 661

Configuration: Body worn with Leather Case for inside a shirt pocket, front side



Author Data
Daoud Attayi

Dates of Test
July 08 - 11, 2003

Test Report No
RIM-0054-0307-07

FCC ID
L6AR6030GN

07/09/03

BlackBerry Wireless Handheld Model R6030GN

SAM 2; Flat

Probe: ET3DV6 - SN1642; ConvF(4.80,4.80,4.80); Crest factor: 8.0; Muscle 1900 MHz: $\sigma = 1.57 \text{ mho/m}$, $\epsilon_r = 52.4$, $\rho = 1.00 \text{ g/cm}^3$

Cube 5x5x7: Peak: 1.90 mW/g, SAR (1g): 0.936 mW/g, SAR (10g): 0.445 mW/g, (Worst-case extrapolation)

Penetration depth: 7.7 (7.2, 8.8) [mm]

Powerdrift: 0.35 dB

Date Tested: July 09, 2003

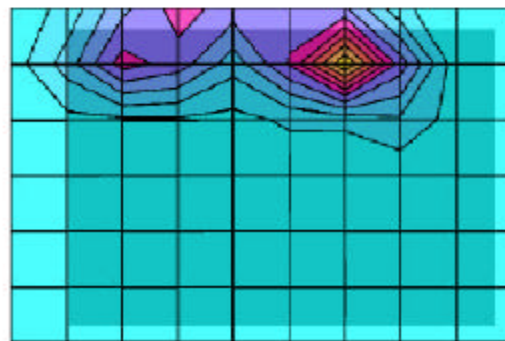
Ambient Temperature: 23.5 Deg. Cel.

Liquid Temperature: 21.4 Deg. Cel.

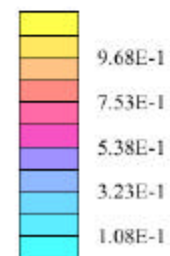
Band: GSM 1900


Channel: 661

Configuration: Body worn with Leather Case for inside a shirt pocket, back side




SAR_{Tot} [mW/g]



 RESEARCH IN MOTION	Document Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		Page 22(22)
	Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07

APPENDIX D: PROBE & DIPOLE CALIBRATION DATA

 RESEARCH IN MOTION	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		23(23)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

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:

1642

Place of Calibration:

Zurich

Date of Calibration:

July 26, 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. Vella

Approved by:

Daoud Attayi

 RESEARCH IN MOTION	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		24(24)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

**Schmid & Partner
Engineering AG**

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

Probe ET3DV6

SN:1642

Manufactured: November 7, 2001
Last calibration: November 26, 2001
Recalibrated: July 26, 2002

Calibrated for System DASY3

ET3DV6 SN:1642

July 26, 2002

DASY3 - Parameters of Probe: ET3DV6 SN:1642

Sensitivity in Free Space

NormX **1.62** $\mu\text{V}/(\text{V}/\text{m})^2$
NormY **1.85** $\mu\text{V}/(\text{V}/\text{m})^2$
NormZ **1.61** $\mu\text{V}/(\text{V}/\text{m})^2$

Diode Compression

DCP X **96** mV
DCP Y **96** mV
DCP Z **96** mV

Sensitivity in Tissue Simulating Liquid

Head **900 MHz** $\epsilon_r = 41.5 \pm 5\%$ $\sigma = 0.97 \pm 5\%$ mho/m

ConvF X	6.5 $\pm 8.9\%$ (k=2)	Boundary effect:
ConvF Y	6.5 $\pm 8.9\%$ (k=2)	Alpha 0.34
ConvF Z	6.5 $\pm 8.9\%$ (k=2)	Depth 2.68

Head **1800 MHz** $\epsilon_r = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\%$ mho/m

ConvF X	5.4 $\pm 8.9\%$ (k=2)	Boundary effect:
ConvF Y	5.4 $\pm 8.9\%$ (k=2)	Alpha 0.53
ConvF Z	5.4 $\pm 8.9\%$ (k=2)	Depth 2.33

Boundary Effect

Head **900 MHz** Typical SAR gradient: **5 % per mm**

Probe Tip to Boundary	1 mm	2 mm
SAR ₉₀ [%] Without Correction Algorithm	9.9	5.7
SAR ₉₀ [%] With Correction Algorithm	0.4	0.5

Head **1800 MHz** Typical SAR gradient: **10 % per mm**

Probe Tip to Boundary	1 mm	2 mm
SAR ₉₀ [%] Without Correction Algorithm	12.0	7.8
SAR ₉₀ [%] With Correction Algorithm	0.2	0.2

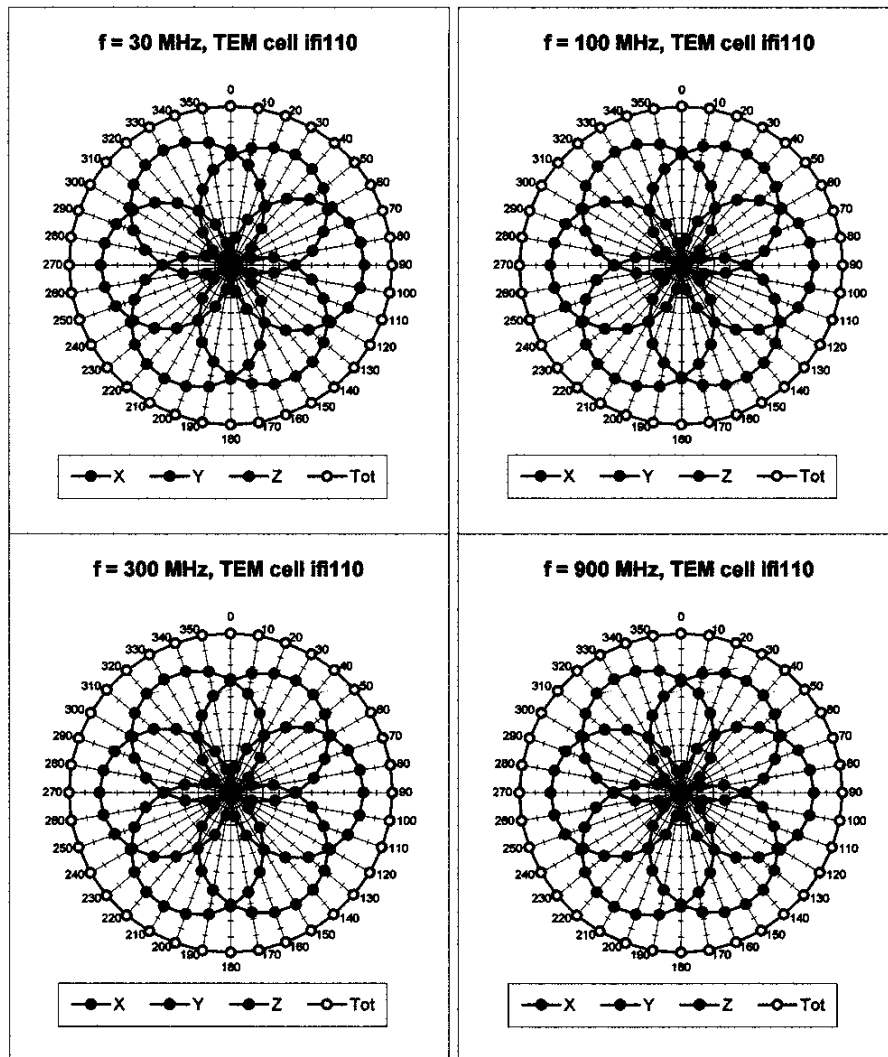
Sensor Offset

Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.1 \pm 0.2	mm

ET3DV6 SN:1642

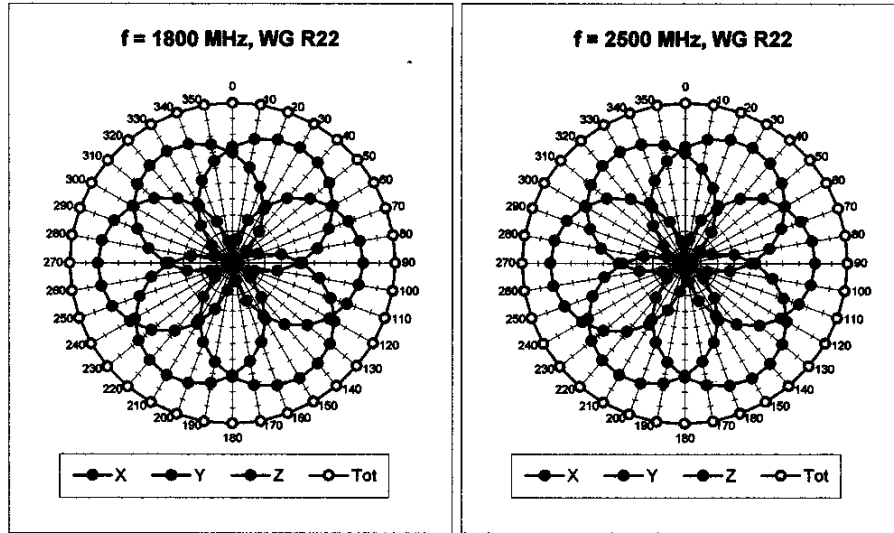
July 26, 2002

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

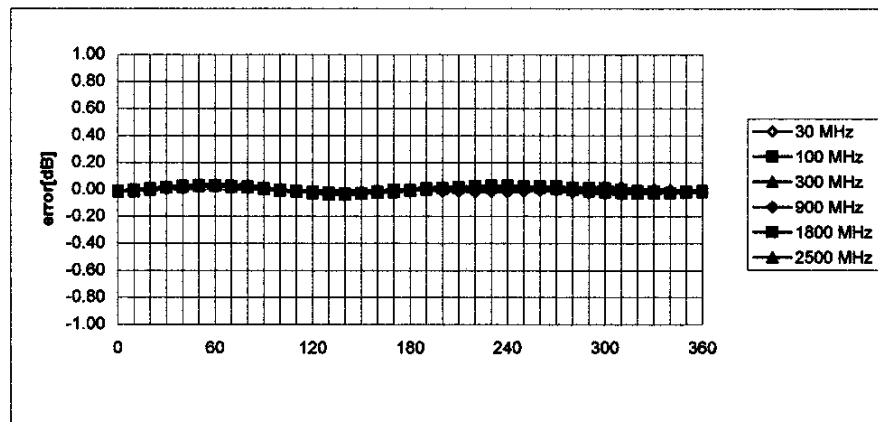


ET3DV6 SN:1642

July 26, 2002



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

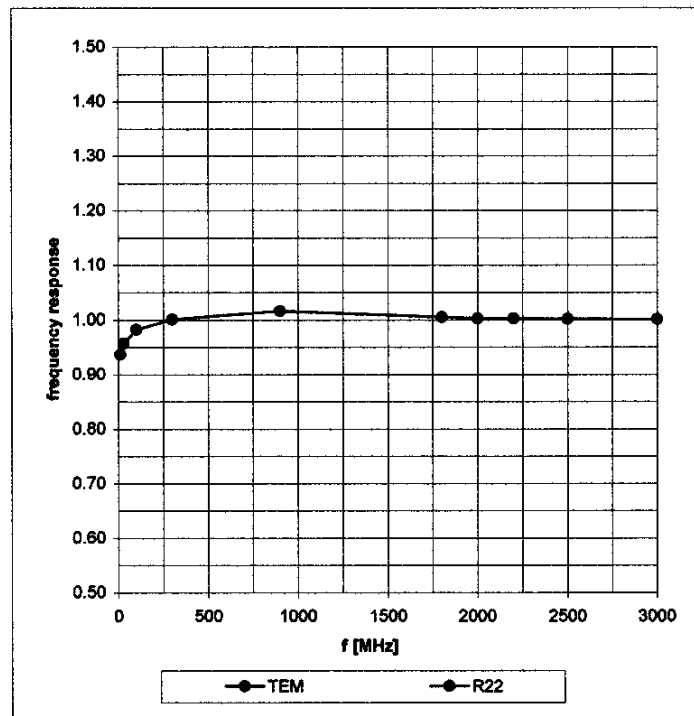


ET3DV6 SN:1642

July 26, 2002

Frequency Response of E-Field

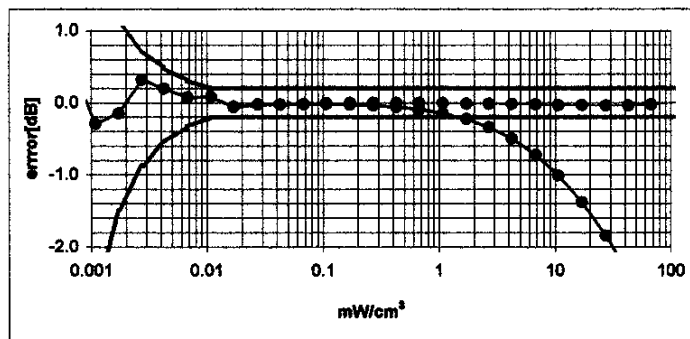
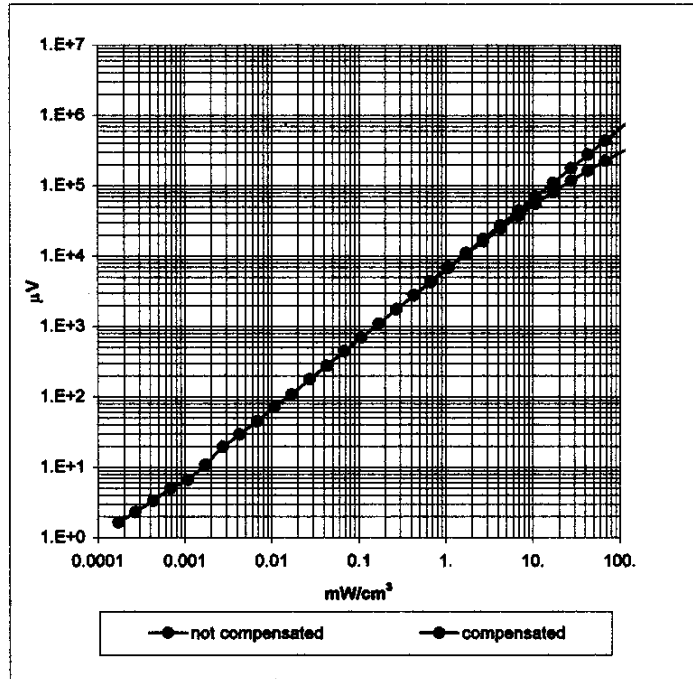
(TEM-Cell:ifi110, Waveguide R22)



ET3DV6 SN:1642

July 26, 2002

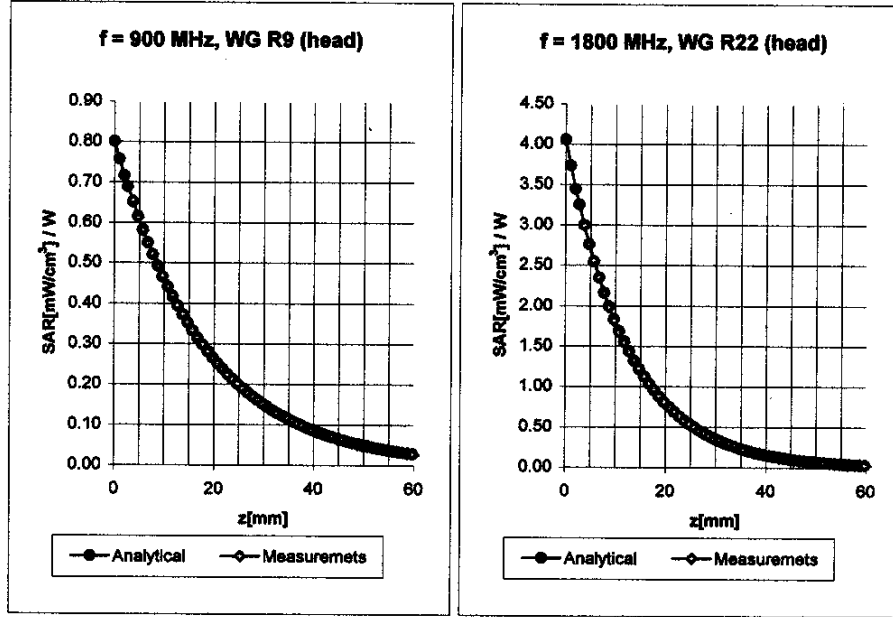
Dynamic Range $f(SAR_{brain})$ (Waveguide R22)



ET3DV6 SN:1642

July 26, 2002

Conversion Factor Assessment

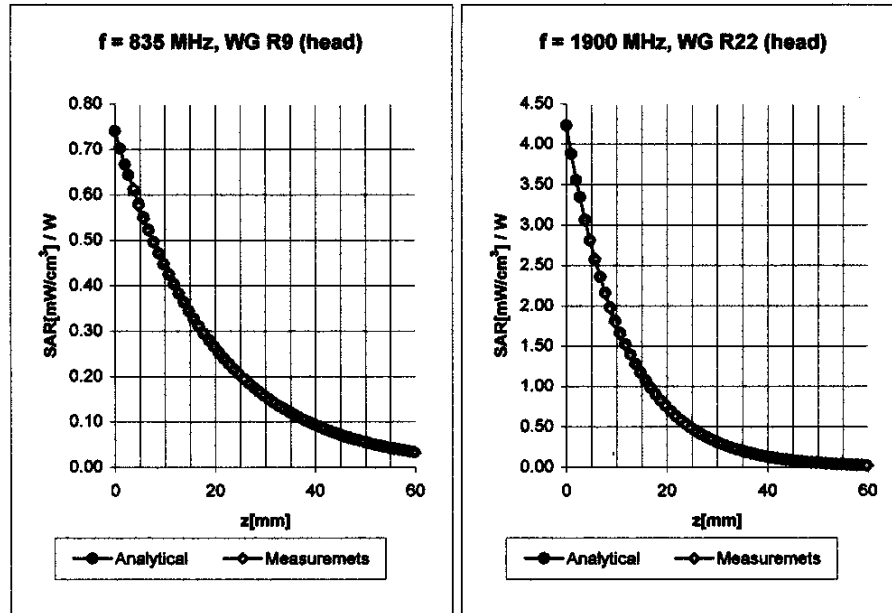


Head	900 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.97 \pm 5\% \text{ mho/m}$
	ConvF X	$6.5 \pm 8.9\% (k=2)$	Boundary effect:
	ConvF Y	$6.5 \pm 8.9\% (k=2)$	Alpha 0.34
	ConvF Z	$6.5 \pm 8.9\% (k=2)$	Depth 2.68
Head	1800 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\% \text{ mho/m}$
	ConvF X	$5.4 \pm 8.9\% (k=2)$	Boundary effect:
	ConvF Y	$5.4 \pm 8.9\% (k=2)$	Alpha 0.53
	ConvF Z	$5.4 \pm 8.9\% (k=2)$	Depth 2.33

ET3DV6 SN:1642

July 26, 2002

Conversion Factor Assessment

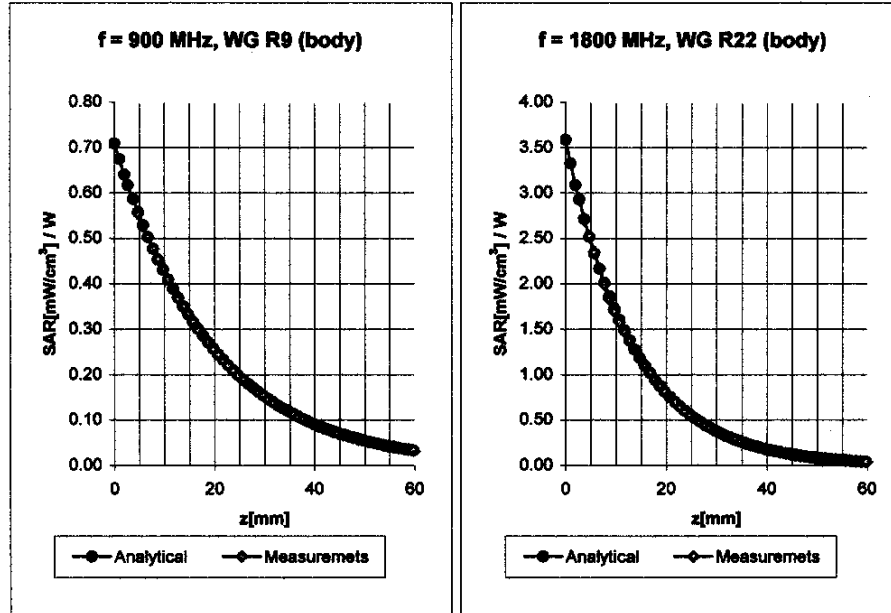


Head	835 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.90 \pm 5\% \text{ mho/m}$
	ConvF X	$6.5 \pm 8.9\% (k=2)$	Boundary effect:
	ConvF Y	$6.5 \pm 8.9\% (k=2)$	Alpha 0.34
	ConvF Z	$6.5 \pm 8.9\% (k=2)$	Depth 2.65
Head	1900 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\% \text{ mho/m}$
	ConvF X	$5.3 \pm 8.9\% (k=2)$	Boundary effect:
	ConvF Y	$5.3 \pm 8.9\% (k=2)$	Alpha 0.57
	ConvF Z	$5.3 \pm 8.9\% (k=2)$	Depth 2.28

ET3DV6 SN:1642

July 26, 2002

Conversion Factor Assessment

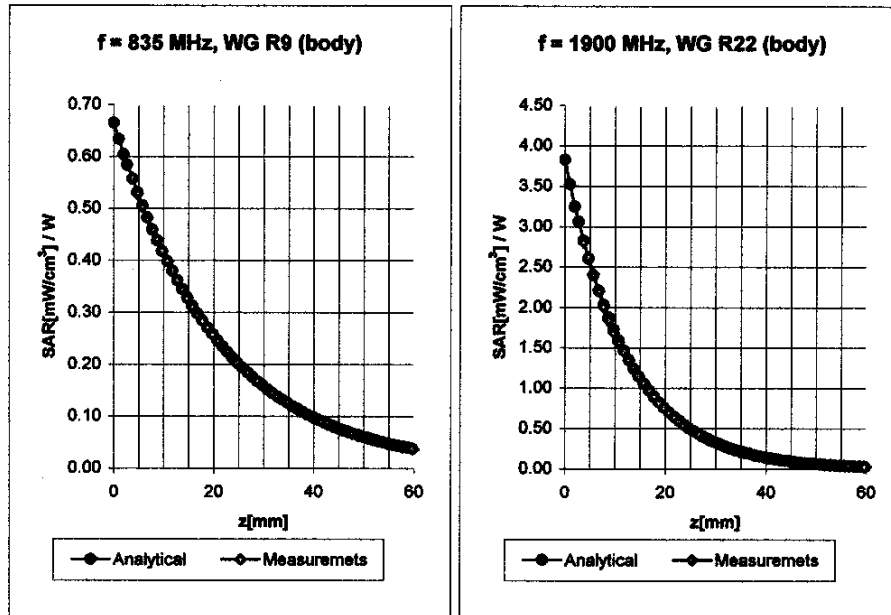


Body	900 MHz	$\epsilon_r = 55.2 \pm 5\%$	$\sigma = 0.97 \pm 5\% \text{ mho/m}$
	ConvF X	6.3 $\pm 8.9\%$ (k=2)	Boundary effect:
	ConvF Y	6.3 $\pm 8.9\%$ (k=2)	Alpha 0.36
	ConvF Z	6.3 $\pm 8.9\%$ (k=2)	Depth 2.63
Body	1800 MHz	$\epsilon_r = 53.3 \pm 5\%$	$\sigma = 1.62 \pm 5\% \text{ mho/m}$
	ConvF X	5.2 $\pm 8.9\%$ (k=2)	Boundary effect:
	ConvF Y	5.2 $\pm 8.9\%$ (k=2)	Alpha 0.61
	ConvF Z	5.2 $\pm 8.9\%$ (k=2)	Depth 2.30

ET3DV6 SN:1642

July 26, 2002

Conversion Factor Assessment



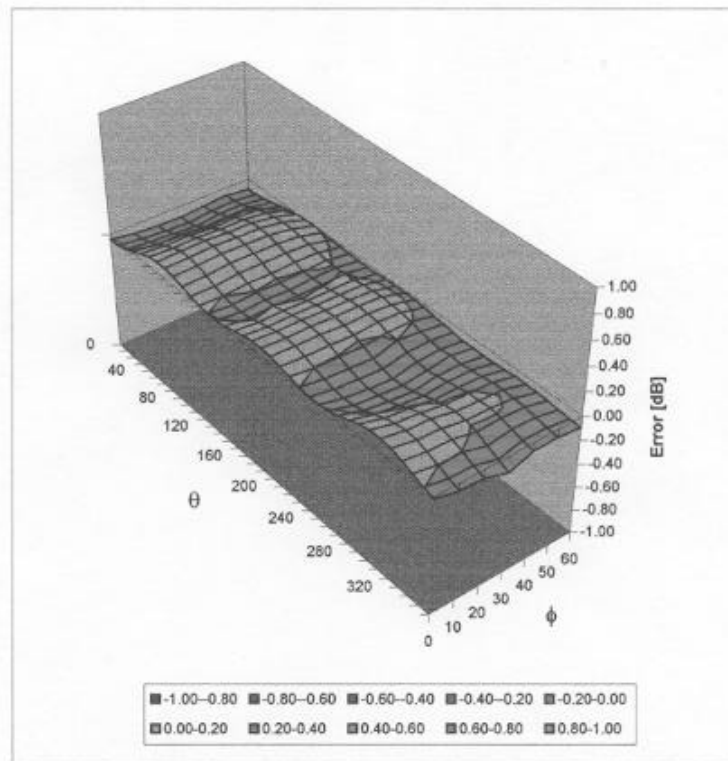
Body	835 MHz	$\epsilon_r = 56.0 \pm 5\%$	$\sigma = 1.05 \pm 5\% \text{ mho/m}$
	ConvF X	6.4 $\pm 8.9\%$ (k=2)	Boundary effect:
	ConvF Y	6.4 $\pm 8.9\%$ (k=2)	Alpha 0.36
	ConvF Z	6.4 $\pm 8.9\%$ (k=2)	Depth 2.66
Body	1900 MHz	$\epsilon_r = 53.3 \pm 5\%$	$\sigma = 1.52 \pm 5\% \text{ mho/m}$
	ConvF X	4.8 $\pm 8.9\%$ (k=2)	Boundary effect:
	ConvF Y	4.8 $\pm 8.9\%$ (k=2)	Alpha 0.74
	ConvF Z	4.8 $\pm 8.9\%$ (k=2)	Depth 2.07


ET3DV6 SN:1642


July 26, 2002

Deviation from Isotropy in HSL

Error (θ, ϕ), f = 900 MHz



 RESEARCH IN MOTION	Document Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		Page 35(35)
	Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07

 RESEARCH IN MOTION	Document Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		Page 36(36)
	Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07

Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 248 97 00, Fax +41 1 248 97 79

Calibration Certificate

835 MHz System Validation Dipole

Type:

D835V2

Serial Number:

446

Place of Calibration:

Zurich

Date of Calibration:

November 12, 2001

Calibration Interval:

24 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:



Approved by:



 RESEARCH IN MOTION	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		37(37)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

**Schmid & Partner
Engineering AG**

Zeughausstrasse 49, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

DASY

Dipole Validation Kit

Type: D835V2

Serial: 446

**Manufactured: October 24, 2001
Calibrated: November 12, 2001**



1. Measurement Conditions

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

Relative Dielectricity	42.3	± 5%
Conductivity	0.91 mho/m	± 5%

The DASY3 System (Software version 3.1c) with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.27 at 900 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 holder was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 20mm was aligned with the dipole. The 5x5x7 fine cube was chosen for cube integration. Probe isotropy errors were cancelled by measuring the SAR with normal and 90° turned probe orientations and averaging.

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


2. SAR Measurement

Standard SAR-measurements were performed with the phantom according to the measurement conditions described in section 1. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values are:

averaged over 1 cm³ (1 g) of tissue: **10.7 mW/g**

averaged over 10 cm³ (10 g) of tissue: **6.84 mW/g**

Note: If the liquid parameters for validation are slightly different from the ones used for initial calibration, the SAR-values will be different as well.

	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		39(39)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

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: 1.401 ns (one direction)
Transmission factor: 0.993 (voltage transmission, one direction)

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

Feedpoint impedance at 835 MHz: $Re\{Z\} = 49.8 \Omega$

$Im\{Z\} = -4.8 \Omega$

Return Loss at 835 MHz: -26.4 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.

6. Power Test

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

Author Data

Daoud Attayi

Dates of Test

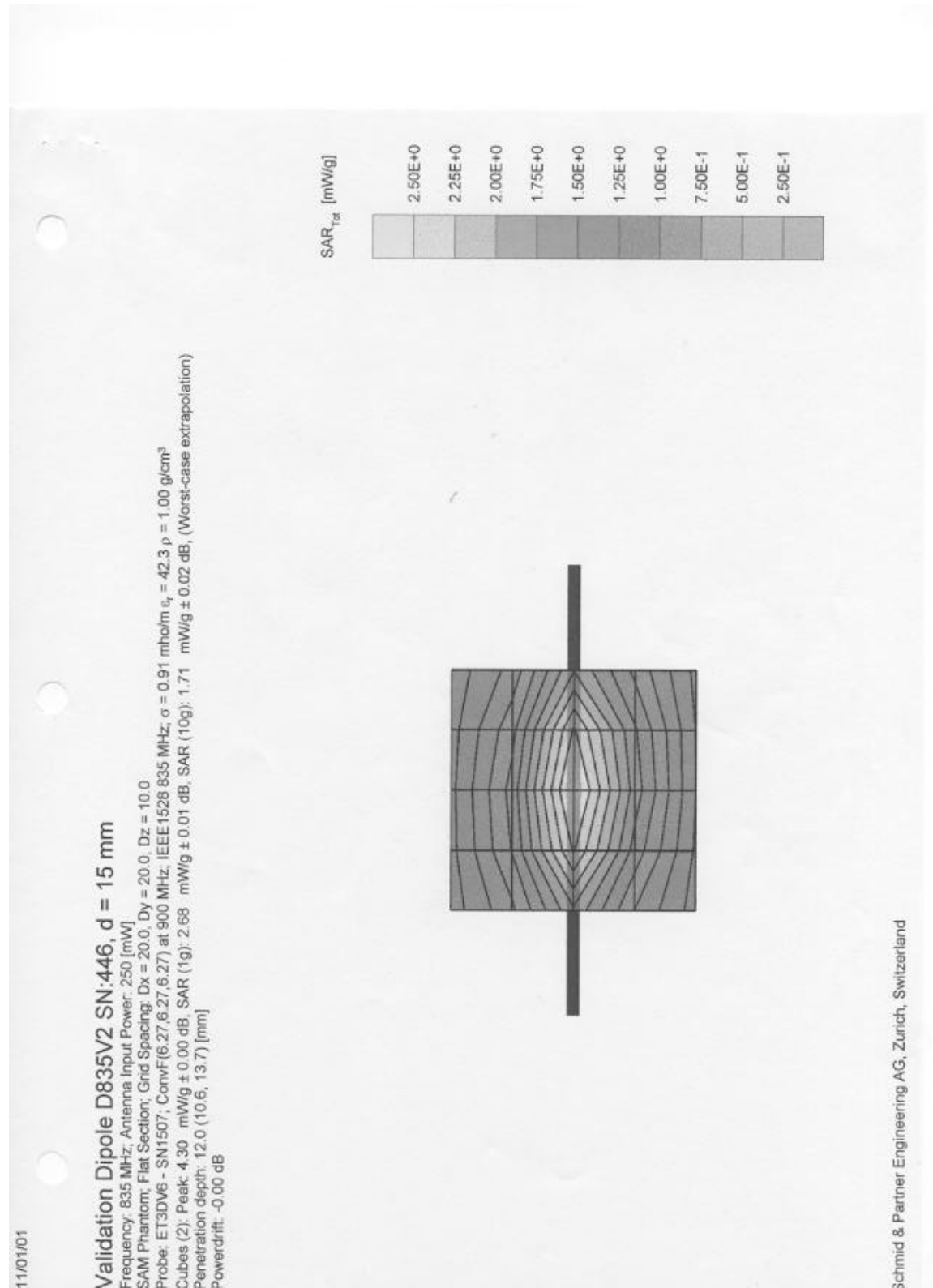
July 08 - 11, 2003

Test Report No

RIM-0054-0307-07

FCC ID

L6AR6030GN



Author Data
Daoud Attayi

Dates of Test
July 08 - 11, 2003

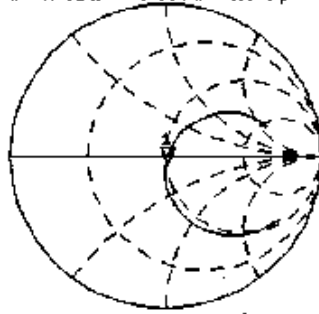
Test Report No
RIM-0054-0307-07

FCC ID
L6AR6030GN

1 Nov 2001 16:49:45
CH1 S11 1 D F6 1: 49.702 a -4.7598 a 48.845 pF 835.000 000 MHz

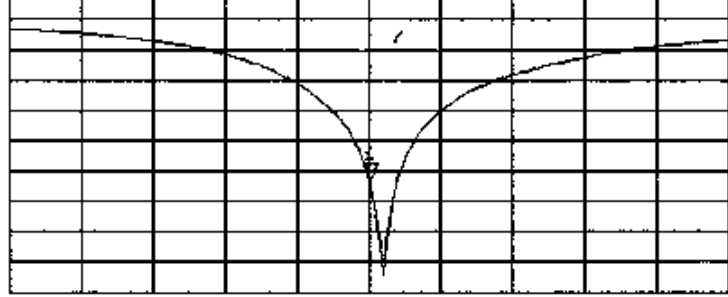
De1

PRM
Cor
Avg
16




CH2 S11 L09 5 dB/REF 0 dB 11-25.382 dB 835.000 000 MHz

PRM
Cor



CENTER 835.000 000 MHz

SPAN 400.000 000 MHz

 RESEARCH IN MOTION	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		42(42)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

Schmid & Partner Engineering AG

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

Calibration Certificate

1900 MHz System Validation Dipole

Type:

D1900V2

Serial Number:

545

Place of Calibration:

Zurich

Date of Calibration:

November 26, 2001

Calibration Interval:

24 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:



Approved by:



 RESEARCH IN MOTION	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		43(43)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

**Schmid & Partner
Engineering AG**

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

DASY3


Dipole Validation Kit

Type: D1900V2

Serial: 545

Manufactured: November 15, 2001

Calibrated: November 26, 2001

	Document		Page
	Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		44(44)
Author Data	Dates of Test	Test Report No	FCC ID
Daoud Attayi	July 08 - 11, 2003	RIM-0054-0307-07	L6AR6030GN

1. Measurement Conditions

The measurements were performed in the flat section of the new generic twin phantom filled with brain simulating sugar solution of the following electrical parameters at 1900 MHz:

Relative permittivity	40.0	± 5%
Conductivity	1.45 mho/m	± 10%

The DASY3 System (Software version 3.1d) with a dosimetric E-field probe ET3DV6 (SN:1507, conversion factor 5.31 at 1800 MHz) was used for the measurements.

The dipole feedpoint was positioned below the center marking and 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 holder was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 20mm was aligned with the dipole. The 5x5x7 fine cube was chosen for cube integration. Probe isotropy errors were cancelled by measuring the SAR with normal and 90° turned probe orientations and averaging.

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

2. SAR Measurement

Standard SAR-measurements were performed with the head phantom according to the measurement conditions described in section 1. The results (see figure) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values are:

averaged over 1 cm ³ (1 g) of tissue:	43.2 mW/g
averaged over 10 cm ³ (10 g) of tissue:	22.0 mW/g

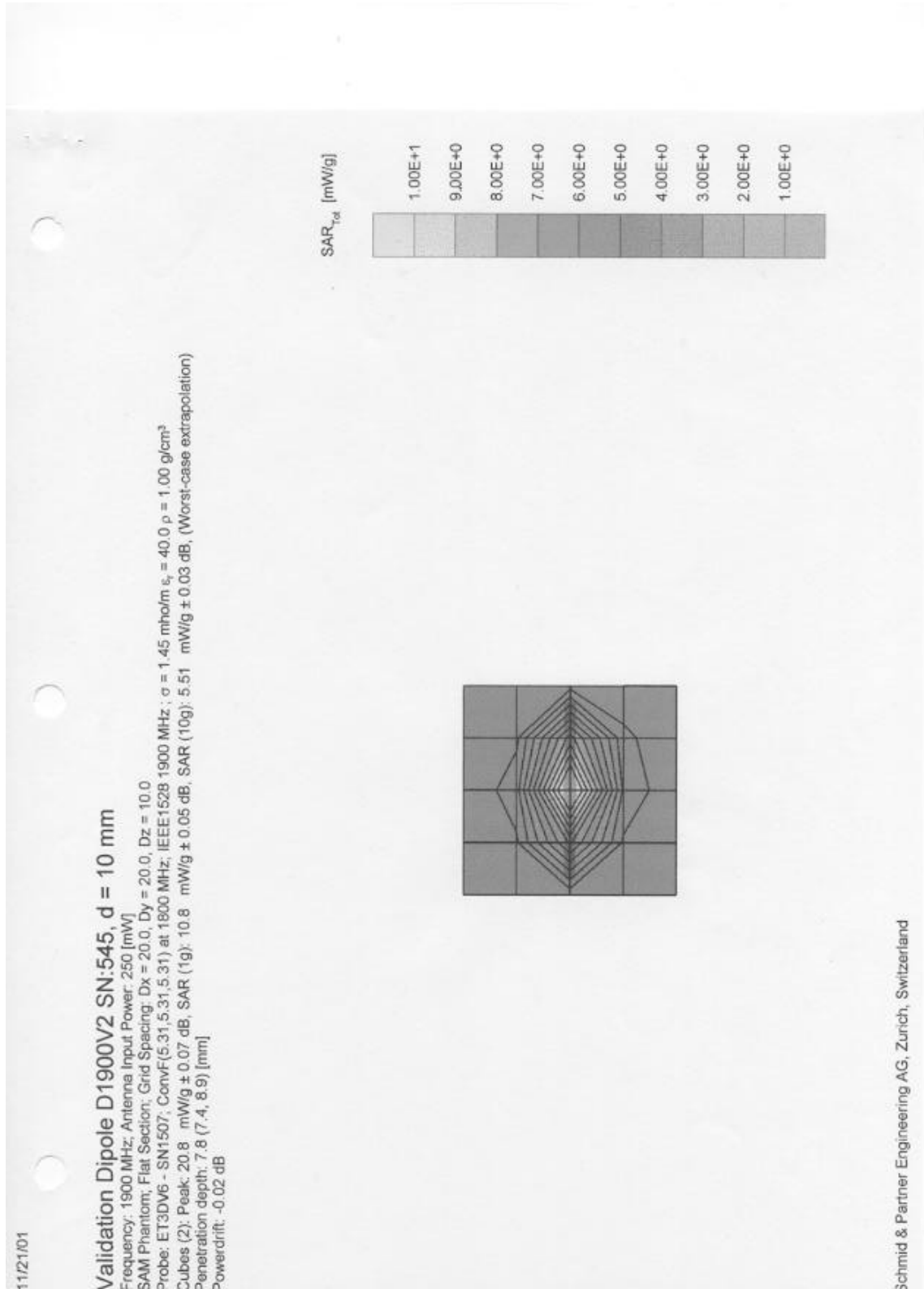
Note: If the liquid parameters for validation are slightly different from the ones used for initial calibration, the SAR-values will be different as well. The estimated sensitivities of SAR-values and penetration depths to the liquid parameters are listed in the DASY Application Note 4: 'SAR Sensitivities'.

Author Data
Daoud Attayi

Dates of Test
July 08 - 11, 2003

Test Report No
RIM-0054-0307-07

FCC ID
L6AR6030GN



Author Data
Daoud Attayi

Dates of Test
July 08 - 11, 2003

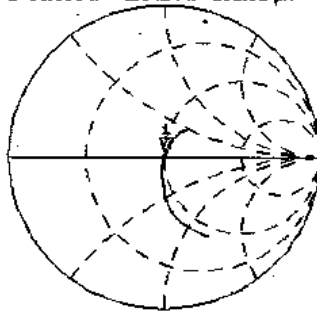
Test Report No
RIM-0054-0307-07

FCC ID
L6AR6030GN

15 Nov 2001 17:04:44
CH1 S11 1 U FS 1: 50.359 α 1.9414 α 162.62 μ H 1 900.000 000 MHz

Del


PRn
Cor
Avg
16



CH2 S11 LOG 5 dB/REF 0 dB 1: -34.303 dB 1 900.000 000 MHz

PRn
Cor



 RESEARCH IN MOTION	Document Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		Page 48(48)
	Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07

APPENDIX E: SAR SET UP PHOTOS

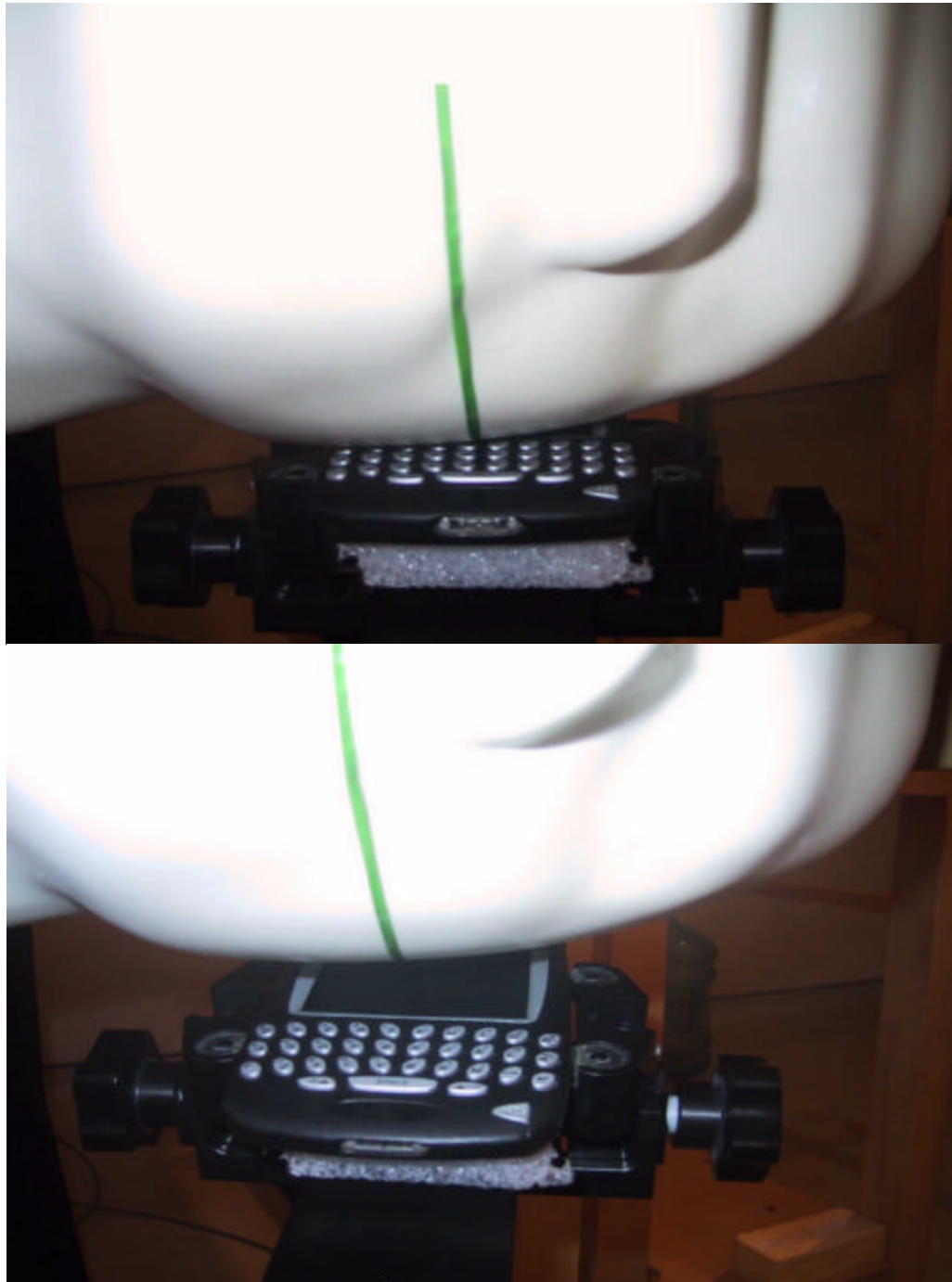


Figure E1. Left ear configuration



Figure E2. Right ear configuration


 RESEARCH IN MOTION	Document Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		Page 51(51)
	Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07



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


 RESEARCH IN MOTION	Document Appendices - SAR Compliance Test Report for BlackBerry Wireless Handheld Model No. R6030GN		Page 53(53)
	Author Data Daoud Attayi	Dates of Test July 08 - 11, 2003	Test Report No RIM-0054-0307-07



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