

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 1(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

APPENDIX A: SAR DISTRIBUTION COMPARISON FOR THE ACCURACY VERIFICATION

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		2(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 11/07/2005 10:10:16 AM Date/Time: 11/07/2005 10:27:12 AM

Page 1 of 1

Date/Time: 11/07/2005 10:27:12 AM

Lab: RIM Testing Services (RTS)

Dipole_Validation_835_MHz_Ambient Temp. 24.5 Deg. Cel._ Liquid Temp. 23.3 Deg. Cel._07-11-2005

DUT: Dipole 835 MHz; Type: D835V2

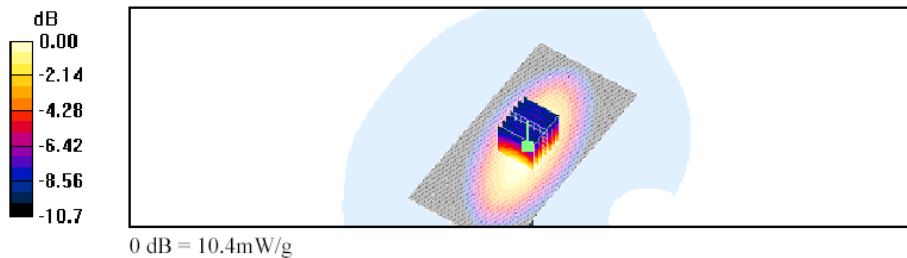
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
 Medium: 835 MHz Head Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (81x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
 Maximum value of SAR (interpolated) = 10.4 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 108.2 V/m; Power Drift = -0.043 dB
 Peak SAR (extrapolated) = 14.5 W/kg
SAR(1 g) = 9.62 mW/g; SAR(10 g) = 6.25 mW/g
 Maximum value of SAR (measured) = 10.4 mW/g



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RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		3(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 12/07/2005 2:51:34 PM Date/Time: 12/07/2005 3:08:30 PM

Page 1 of 2

Date/Time: 12/07/2005 3:08:30 PM

Lab: RIM Testing Services (RTS)

Dipole_Validation_835_MHz_Ambient Temp. 24.1 Deg. Cel._ Liquid Temp. 22.4 Deg. Cel._07-12-2005

DUT: Dipole 835 MHz; Type: D835V2

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 MHz Head Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (81x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 10.7 mW/g

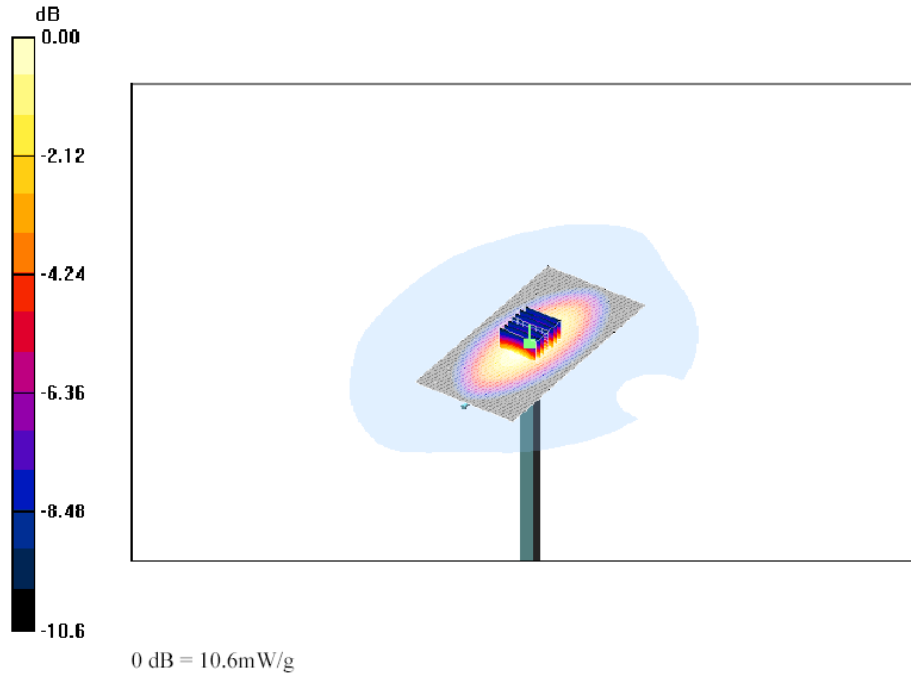
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 111.8 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 14.9 W/kg
SAR(1 g) = 9.81 mW/g; SAR(10 g) = 6.35 mW/g
Maximum value of SAR (measured) = 10.6 mW/g

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RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 4(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

Date/Time: 12/07/2005 2:51:34 PM Date/Time: 12/07/2005 3:08:30 PM

Page 2 of 2



file://C:\Program%20Files\DASY4\Print_Templates\Dipole_Validation_835_MHz_Ambi... 12/07/2005

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 5(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 13/07/2005 4:18:10 PM Date/Time: 13/07/2005 4:35:17 PM

Page 1 of 1

Date/Time: 13/07/2005 4:18:10 PM Date/Time: 13/07/2005 4:35:17 PM

Lab: RIM Testing Services (RTS)

Dipole Validation_835_MHz_Ambient Temp. 23.3 Deg. Cel._ Liquid Temp. 22.0 Deg. Cel._07-13-2005

DUT: Dipole 835 MHz; Type: D835V2

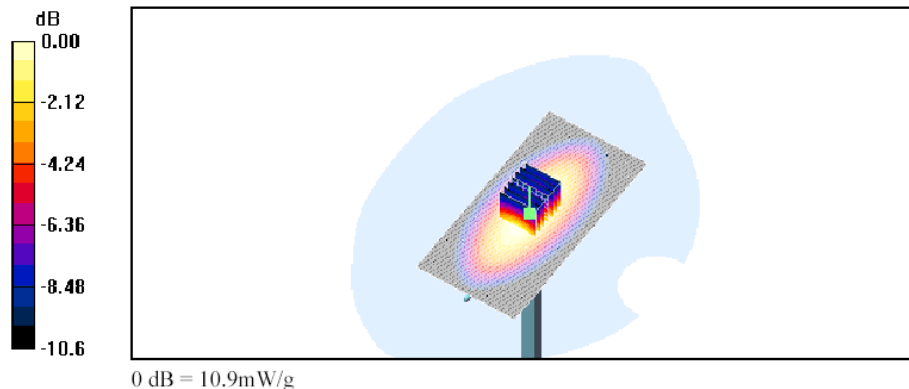
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
 Medium: 835 MHz Head Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 43.5$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (81x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
 Maximum value of SAR (interpolated) = 11.1 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 113.6 V/m; Power Drift = -0.173 dB
 Peak SAR (extrapolated) = 15.2 W/kg
SAR(1 g) = 10 mW/g; SAR(10 g) = 6.47 mW/g
 Maximum value of SAR (measured) = 10.9 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 6(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 14/07/2005 3:19:13 PM Date/Time: 14/07/2005 3:36:24 PM

Page 1 of 1

Date/Time: 14/07/2005 3:19:13 PM Date/Time: 14/07/2005 3:36:24 PM

Lab: RIM Testing Services (RTS)

Dipole_Validation_835_MHz_Ambient
Temp_23.5_Deg_Cel_Liquid_Temp_22.6_Deg_Cel_07-14-2005

DUT: Dipole 835 MHz; Type: D835V2

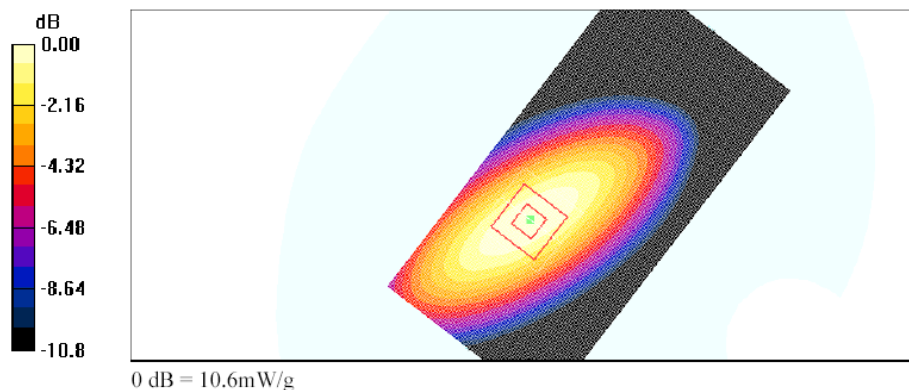
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 MHz Head Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 43.5$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (81x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 10.6 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 99.0 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 14.7 W/kg
SAR(1 g) = 9.81 mW/g; SAR(10 g) = 6.4 mW/g
Maximum value of SAR (measured) = 10.6 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 7(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 15/07/2005 10:47:18 AM Date/Time: 15/07/2005 11:04:21 AM

Page 1 of 1

Date/Time: 15/07/2005 10:47:18 AM Date/Time: 15/07/2005 11:04:21 AM

Lab: RIM Testing Services (RTS)

**Dipole Validation_835_MHz_Ambient
Temp_23.0_Deg_Cel_Liquid_Temp_22.0_Deg_Cel_07-15-2005**

DUT: Dipole 835 MHz; Type: D835V2

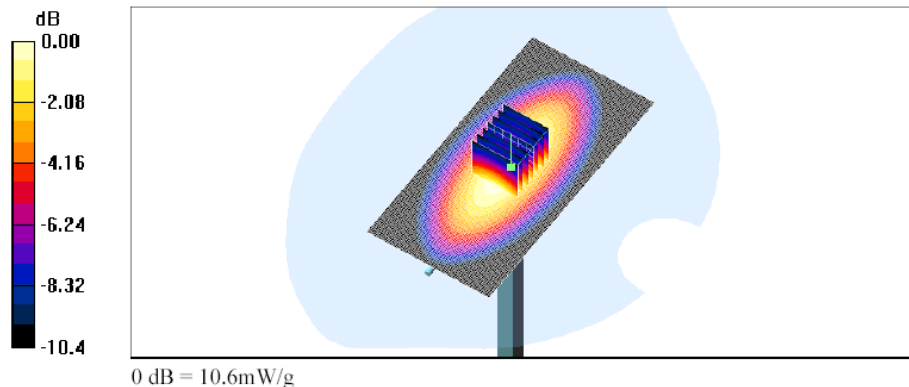
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 MHz Head Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (81x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 10.7 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 112.8 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 14.9 W/kg
SAR(1 g) = 9.9 mW/g; SAR(10 g) = 6.44 mW/g
Maximum value of SAR (measured) = 10.6 mW/g



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RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		8(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 18/07/2005 9:12:14 AM Date/Time: 18/07/2005 9:29:15 AM

Page 1 of 1

Date/Time: 18/07/2005 9:12:14 AM Date/Time: 18/07/2005 9:29:15 AM

Lab: RIM Testing Services (RTS)

Dipole_Validation_835_MHz_Ambient
Temp_22.2_Deg_Cel_Liquid_Temp_22.0_Deg_Cel_07-18-2005

DUT: Dipole 835 MHz; Type: D835V2

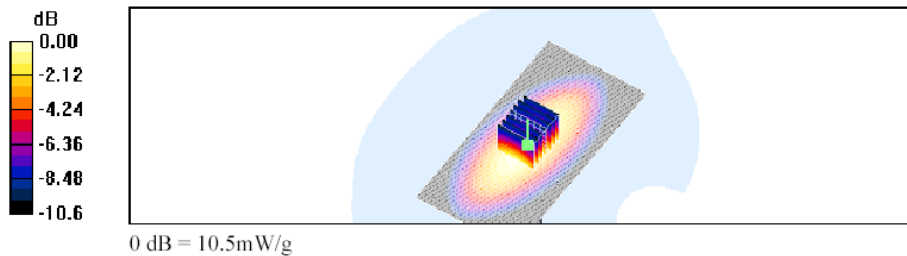
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 MHz Head Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.91 \text{ mho/m}$; $\epsilon_r = 42.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (81x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 10.6 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 111.4 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 14.5 W/kg
SAR(1 g) = 9.69 mW/g; SAR(10 g) = 6.3 mW/g
Maximum value of SAR (measured) = 10.5 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 9(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 18/07/2005 3:47:46 PM Date/Time: 18/07/2005 4:04:51 PM

Page 1 of 1

Date/Time: 18/07/2005 3:47:46 PM Date/Time: 18/07/2005 4:04:51 PM

Lab: RIM Testing Services (RTS)

**Dipole Validation_900_MHz_Ambient
Temp_24.1_Deg_Cel_Liquid_Temp_21.8_Deg_Cel_07-18-2005**

DUT: Dipole 900 MHz; Type: D900V2

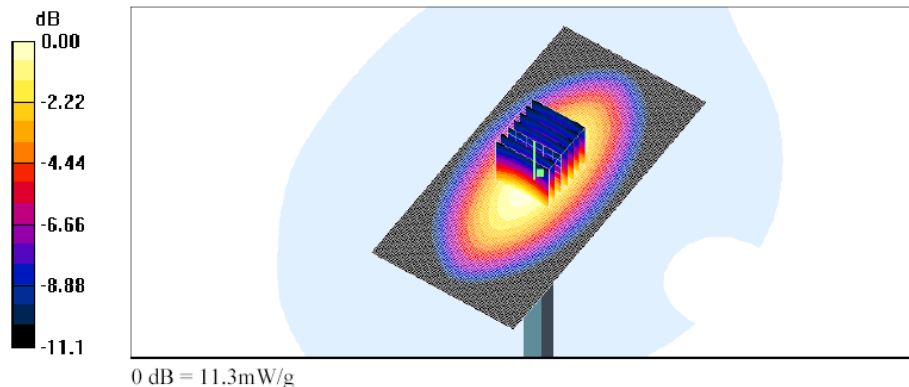
Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
 Medium: 835 MHz Head Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 42.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (81x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
 Maximum value of SAR (interpolated) = 11.3 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 112.7 V/m; Power Drift = -0.038 dB
 Peak SAR (extrapolated) = 16.1 W/kg
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 6.69 mW/g
 Maximum value of SAR (measured) = 11.3 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 10(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 19/07/2005 5:41:44 PM Date/Time: 19/07/2005 5:58:51 PM

Lab: RIM Testing Services (RTS)

**Dipole Validation_900_MHz_Ambient
Temp_23.9_Deg_Cel_Liquid_Temp_22.7_Deg_Cel_07-19-2005**

DUT: Dipole 900 MHz; Type: D900V2

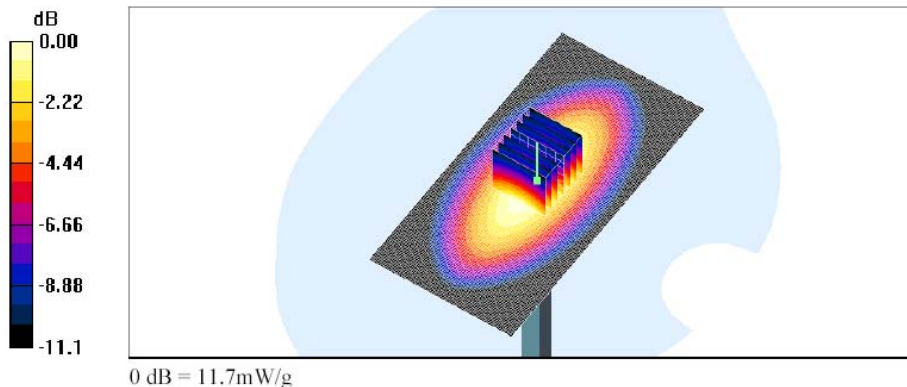
Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
 Medium: 835 MHz Head Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 41.6$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (81x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
 Maximum value of SAR (interpolated) = 11.8 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$,
 $dz=5\text{mm}$
 Reference Value = 113.7 V/m; Power Drift = -0.019 dB
 Peak SAR (extrapolated) = 16.5 W/kg
SAR(1 g) = 10.8 mW/g; SAR(10 g) = 6.92 mW/g
 Maximum value of SAR (measured) = 11.7 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 11(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

APPENDIX B: SAR DISTRIBUTION PLOTS FOR HEAD CONFIGURATION

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		12(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 12/07/2005 8:42:09 AM Date/Time: 12/07/2005 9:05:08 AM

Page 1 of 1

Date/Time: 12/07/2005 9:05:08 AM

Lab: RIM Testing Services (RTS)

Touch Right_iDEN 800 MHz_Low Channel_Extended Ant_Ambient Temp. 22.8 Deg. Cel._ Liquid Temp. 22.5 Deg. Cel._07-11-2005

DUT: BlackBerry Wireless Handheld; Type: Sample (Retracted Ant.)

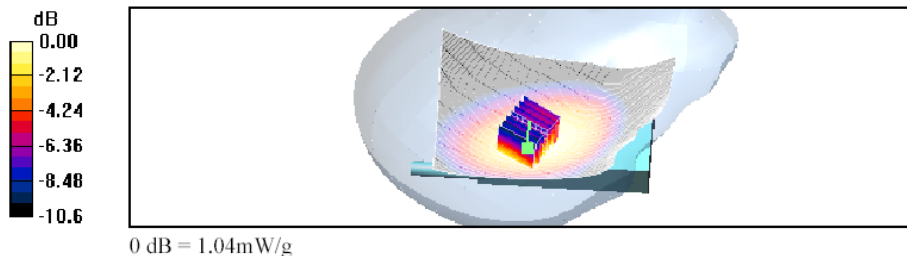
Communication System: IDEN ; Frequency: 806.013 MHz; Duty Cycle: 1:3
 Medium: 835 MHz Head Medium parameters used: f = 806.013 MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 43$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 1.06 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 26.2 V/m; Power Drift = -0.228 dB
 Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.973 mW/g; SAR(10 g) = 0.681 mW/g
 Maximum value of SAR (measured) = 1.04 mW/g



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RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		13(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 13/07/2005 8:15:26 AM Date/Time: 13/07/2005 8:37:41 AM

Page 1 of 2

Date/Time: 13/07/2005 8:37:41 AM

Lab: RIM Testing Services (RTS)

Tilted Right_iDEN 800 MHz_Low Channel_Extended Ant_Ambient Temp. 23.5 Deg. Cel._ Liquid Temp. 21.6 Deg. Cel._07-13-2005

DUT: BlackBerry Wireless Handheld; Type: Sample (Retracted Ant.)

Communication System: IDEN ; Frequency: 806.013 MHz; Duty Cycle: 1:3
Medium: 835 MHz Head Medium parameters used: f = 806.013 MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 43$; $\rho = 1000$ kg/m³
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.903 mW/g

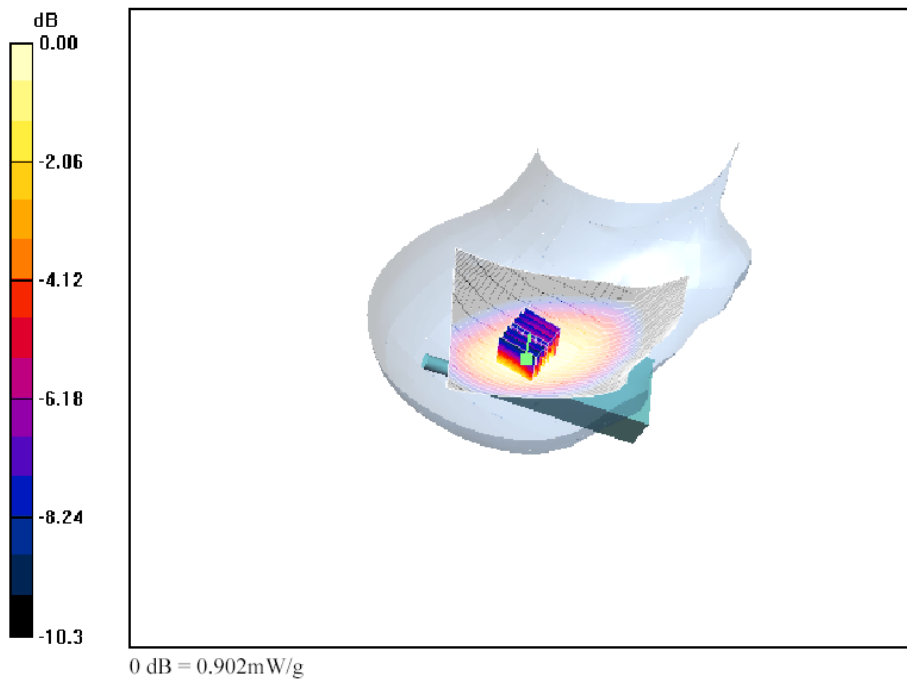
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.4 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.843 mW/g; SAR(10 g) = 0.580 mW/g
Maximum value of SAR (measured) = 0.902 mW/g

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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 14(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 13/07/2005 8:15:26 AM Date/Time: 13/07/2005 8:37:41 AM

Page 2 of 2



file://C:\Program%20Files\DASY4\Print_Templates\Tilted%20Right_iDEN%20800%20... 13/07/2005

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		15(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 12/07/2005 3:33:46 PM Date/Time: 12/07/2005 3:58:12 PM

Page 1 of 2

Date/Time: 12/07/2005 3:58:12 PM

Lab: RIM Testing Services (RTS)

Touch Left_iDEN 800 MHz_Middle Channel_Ext. Ant._Ambient Temp. 23.8 Deg. Cel._ Liquid Temp. 22.3 Deg. Cel._07-12-2005

DUT: BlackBerry Wireless Handheld; Type: Sample (Retracted Ant.)

Communication System: IDEN ; Frequency: 815.5 MHz; Duty Cycle: 1:3
Medium: 835 MHz Head Medium parameters used: $f = 815.5 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.831 mW/g

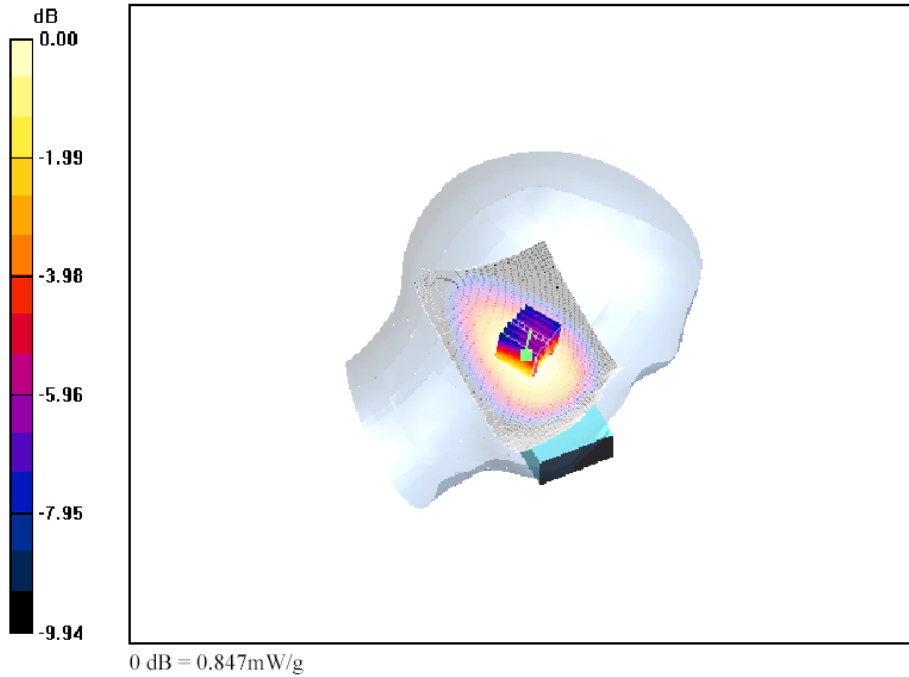
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.9 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.793 mW/g; SAR(10 g) = 0.583 mW/g
Maximum value of SAR (measured) = 0.847 mW/g

file://C:\Program%20Files\DASY4\Print_Templates\Touch%20Left_iDEN%20800%20... 12/07/2005

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 16(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 12/07/2005 3:33:46 PM Date/Time: 12/07/2005 3:58:12 PM

Page 2 of 2



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RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		17(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 12/07/2005 4:32:41 PM Date/Time: 12/07/2005 4:57:13 PM

Page 1 of 2

Date/Time: 12/07/2005 4:32:41 PM Date/Time: 12/07/2005 4:57:13 PM

Lab: RIM Testing Services (RTS)

**Tilted Left_iDEN 800 MHz_Middle Channel_Ext. Ant._Ambient Temp. 24.5 Deg.
Cel._ Liquid Temp. 22.4 Deg. Cel._07-12-2005**

DUT: BlackBerry Wireless Handheld; Type: Sample (Retracted Ant.)

Communication System: IDEN ; Frequency: 815.5 MHz; Duty Cycle: 1:3
Medium: 835 MHz Head Medium parameters used: $f = 815.5 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.789 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,
dz=5mm
Reference Value = 29.8 V/m; Power Drift = -0.445 dB
Peak SAR (extrapolated) = 0.990 W/kg
SAR(1 g) = 0.716 mW/g; SAR(10 g) = 0.515 mW/g

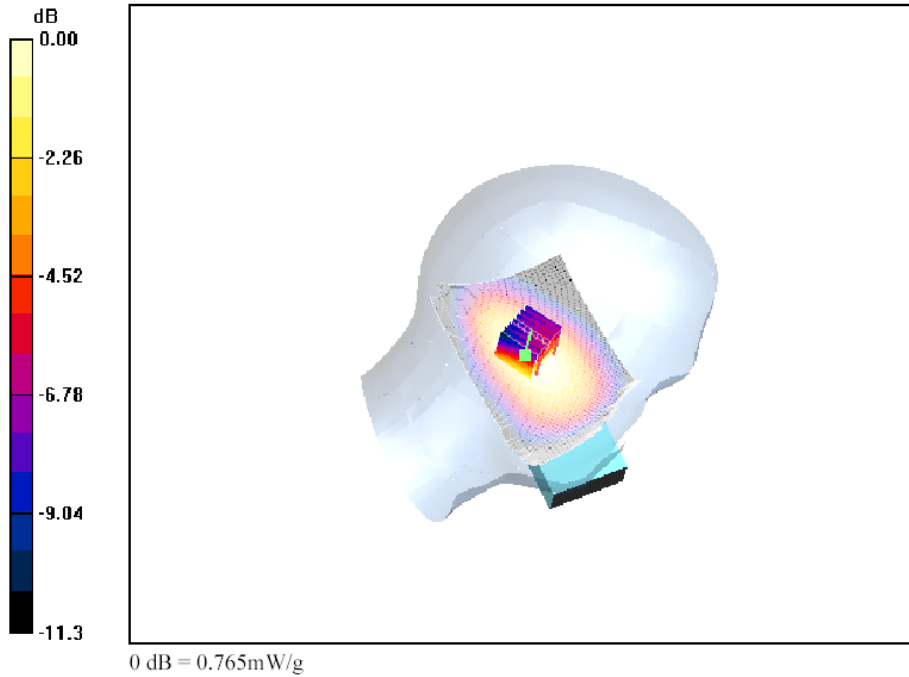
Maximum value of SAR (measured) = 0.765 mW/g

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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 18(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 12/07/2005 4:32:41 PM Date/Time: 12/07/2005 4:57:13 PM

Page 2 of 2



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 19(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04
		FCC ID: L6ARAW20IN	

Date/Time: 19/07/2005 10:53:02 AM Date/Time: 19/07/2005 11:17:26 AM

Lab: RIM Testing Services (RTS)

**Touch_Left_iDEN_900MHz_Mid_Chan_Ret_Ant_Ambient_Temp_23.2_Deg_Cel_Liqu
-19-2005**

DUT: BlackBerry Wireless Handheld; Type: Sample

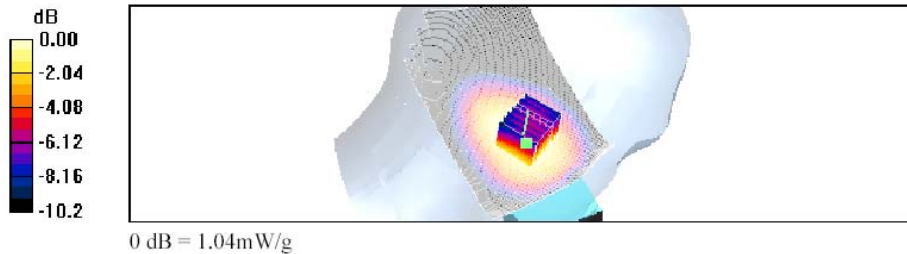
Communication System: IDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:3
Medium: HSL900 Medium parameters used: $f = 898.519 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 42.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 1.04 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 30.1 V/m; Power Drift = -0.313 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.978 mW/g; SAR(10 g) = 0.707 mW/g
Maximum value of SAR (measured) = 1.04 mW/g



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RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		20(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 19/07/2005 12:01:28 PM Date/Time: 19/07/2005 12:28:00 PM

Lab: RIM Testing Services (RTS)

Tilted_Left_iDEN_900MHz_Mid_Chan_Ret_Ant_Ambient_Temp_23.4_Deg_Cel

Liquid_Temp_22.7_Deg_Cel_07-19-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:3
Medium: HSL900 Medium parameters used: $f = 898.519$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$

kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.807 mW/g

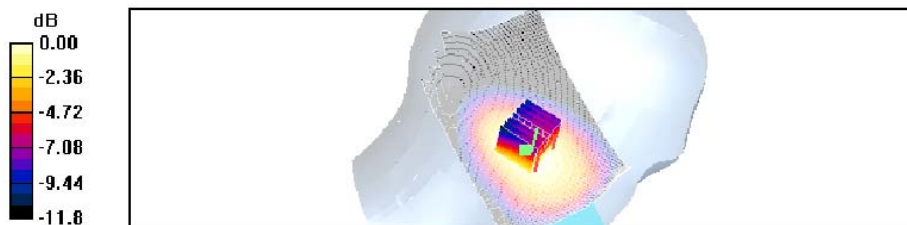
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.1 V/m; Power Drift = -0.775 dB

Peak SAR (extrapolated) = 0.962 W/kg

SAR(1 g) = 0.723 mW/g; SAR(10 g) = 0.513 mW/g

Maximum value of SAR (measured) = 0.779 mW/g



0 dB = 0.779mW/g

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		21(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 18/07/2005 5:46:04 PM Date/Time: 18/07/2005 6:06:52 PM

Lab: RIM Testing Services (RTS)

Touch_Right_iDEN_900MHz_Mid_Chan_Retracted_Ant_Ambient_Temp_24.1_Deg_C

Liquid_Temp_22.1_Deg_Cel_07-18-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:3
Medium: HSL900 Medium parameters used: $f = 898.519$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$

kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.20 mW/g

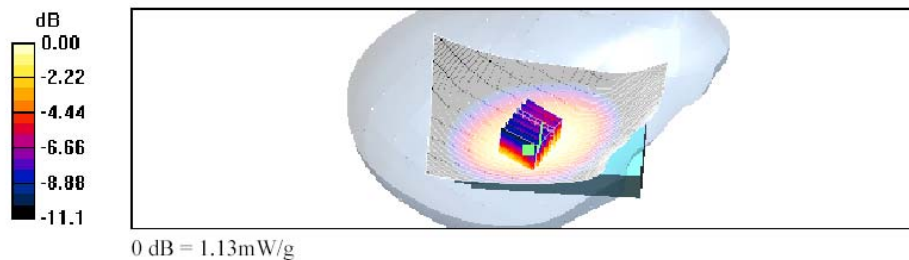
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,
dz=5mm

Reference Value = 27.9 V/m; Power Drift = -0.453 dB

Peak SAR (extrapolated) = 1.51 W/kg

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.747 mW/g

Maximum value of SAR (measured) = 1.13 mW/g



RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		22(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 19/07/2005 8:51:00 AM Date/Time: 19/07/2005 9:14:12 AM

Lab: RIM Testing Services (RTS)

Tilted_Right_iDEN_900MHz_Mid_Chan_Retracted_Ant_Ambient_Temp_23.1_Deg_C

Liquid_Temp_22.5_Deg_Cel_07-19-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:3
Medium: HSL900 Medium parameters used: $f = 898.519$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$

kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.00 mW/g

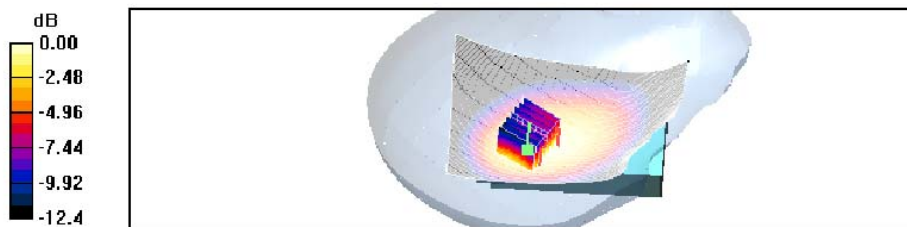
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.4 V/m; Power Drift = -0.442 dB

Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.892 mW/g; SAR(10 g) = 0.599 mW/g

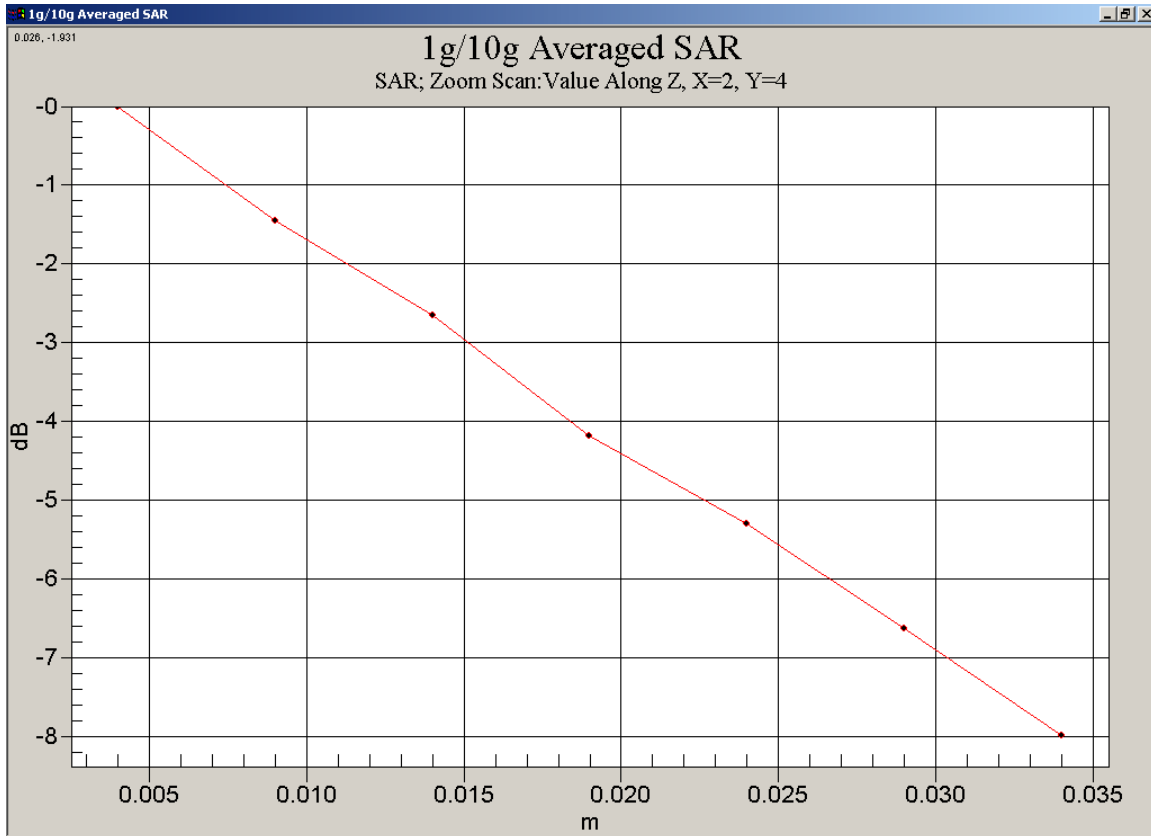
Maximum value of SAR (measured) = 0.943 mW/g



0 dB = 0.943mW/g

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 23(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Z-Axis plot for the worst-case head SAR configuration:



RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 24(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

APPENDIX C: SAR DISTRIBUTION PLOTS FOR BODY-WORN SAR CONFIGURATION

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 25(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 14/07/2005 4:08:43 PM Date/Time: 14/07/2005 4:31:25 PM

Page 1 of 1

Date/Time: 14/07/2005 4:08:43 PM Date/Time: 14/07/2005 4:31:25 PM

Lab: RIM Testing Services (RTS)

BodyWorn_KeychainHolster_back_iDEN_800MHz_Mid_Chan_Retracted_Ant_

Ambient_Temp_23.6_Deg_Cel_Liquid_Temp_22.4_Deg_Cel_07-14-2005

DUT: BlackBerry Wireless Handheld; Type: Sample (Retracted Ant.)

Communication System: IDEN ; Frequency: 815.5 MHz; Duty Cycle: 1:3

Medium: M 835 Medium parameters used: $f = 815.5$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 0.811 mW/g

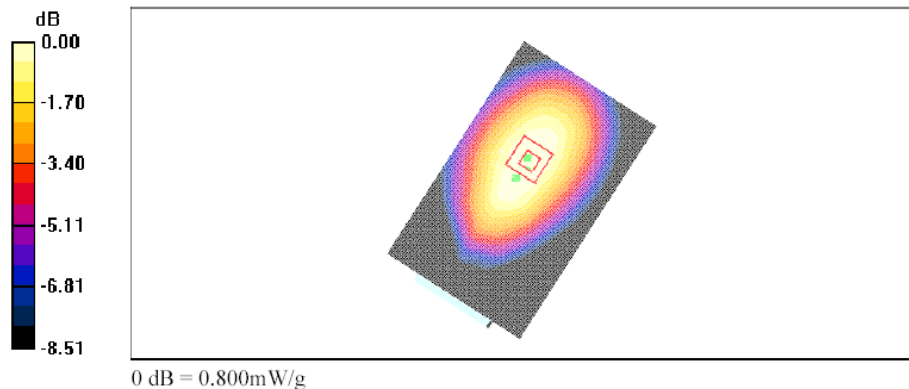
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,
 dz=5mm

Reference Value = 28.8 V/m; Power Drift = -0.233 dB

Peak SAR (extrapolated) = 0.970 W/kg

SAR(1 g) = 0.750 mW/g; SAR(10 g) = 0.559 mW/g

Maximum value of SAR (measured) = 0.800 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 26(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04
		FCC ID: L6ARAW20IN	

Date/Time: 15/07/2005 12:19:35 PM Date/Time: 15/07/2005 12:42:14 PM

Page 1 of 2

Date/Time: 15/07/2005 12:19:35 PM Date/Time: 15/07/2005 12:42:14 PM

Lab: RIM Testing Services (RTS)

BodyWorn_FabricHolster_back_iDEN_800MHz_Low_Chan_Retracted_Ant_

Ambient_Temp_23.4_Deg_Cel_Liquid_Temp_21.8_Deg_Cel_07-15-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN ; Frequency: 806.013 MHz; Duty Cycle: 1:3
 Medium: M 835 Medium parameters used: $f = 806.013$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 52.5$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

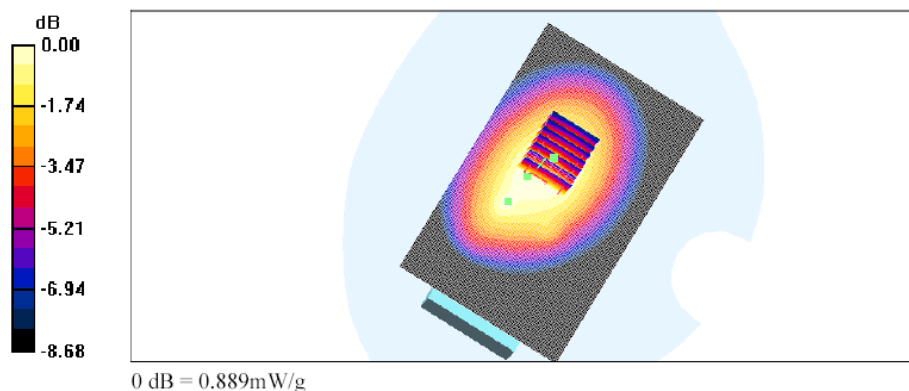
DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 0.901 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 31.0 V/m; Power Drift = -0.345 dB
 Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.835 mW/g; SAR(10 g) = 0.631 mW/g

Maximum value of SAR (measured) = 0.889 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 27(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04
		FCC ID: L6ARAW20IN	

Date/Time: 15/07/2005 11:30:35 AM Date/Time: 15/07/2005 11:54:52 AM

Page 1 of 1

Date/Time: 15/07/2005 11:30:35 AM Date/Time: 15/07/2005 11:54:52 AM

Lab: RIM Testing Services (RTS)

BodyWorn_FabricHolster_back_iDEN_800MHz_Mid_Chan_Retracted_Ant_

Ambient_Temp_23.5_Deg_Cel_Liquid_Temp_21.7_Deg_Cel_07-15-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN ; Frequency: 815.5 MHz; Duty Cycle: 1:3

Medium: M 835 Medium parameters used: $f = 815.5 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 52.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 0.911 mW/g

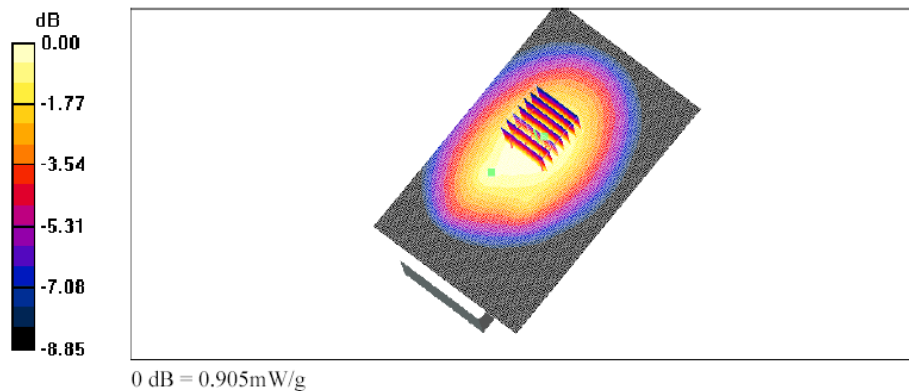
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 31.1 V/m; Power Drift = -0.262 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.857 mW/g; SAR(10 g) = 0.645 mW/g

Maximum value of SAR (measured) = 0.905 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 28(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 15/07/2005 3:09:36 PM Date/Time: 15/07/2005 3:32:16 PM

Page 1 of 1

Date/Time: 15/07/2005 3:09:36 PM Date/Time: 15/07/2005 3:32:16 PM

Lab: RIM Testing Services (RTS)

BodyWorn_LeatherHolster_back_iDEN_800MHz_Mid_Chan_Retracted_Ant_

Ambient_Temp_23.9_Deg_Cel_Liquid_Temp_21.9_Deg_Cel_07-15-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN ; Frequency: 815.5 MHz; Duty Cycle: 1:3

Medium: M 835 Medium parameters used: $f = 815.5 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 52.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
 Maximum value of SAR (interpolated) = 0.869 mW/g

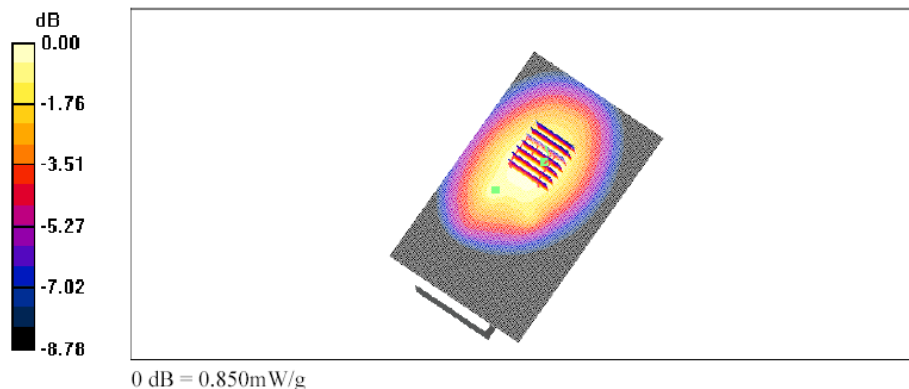
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 29.3 V/m; Power Drift = -0.341 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.786 mW/g; SAR(10 g) = 0.594 mW/g

Maximum value of SAR (measured) = 0.850 mW/g



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RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 29(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 18/07/2005 2:33:24 PM Date/Time: 18/07/2005 2:56:19 PM

Page 1 of 1

Date/Time: 18/07/2005 2:33:24 PM Date/Time: 18/07/2005 2:56:19 PM

Lab: RIM Testing Services (RTS)

BodyWorn_15mm_NoHolster_back_iDEN_800MHz_Mid_Chan_Retracted_Ant_

Ambient_Temp_23.1_Deg_Cel_Liquid_Temp_22.0_Deg_Cel_07-18-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN ; Frequency: 815.5 MHz; Duty Cycle: 1:3

Medium: M 835 Medium parameters used: $f = 815.5$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.682 mW/g

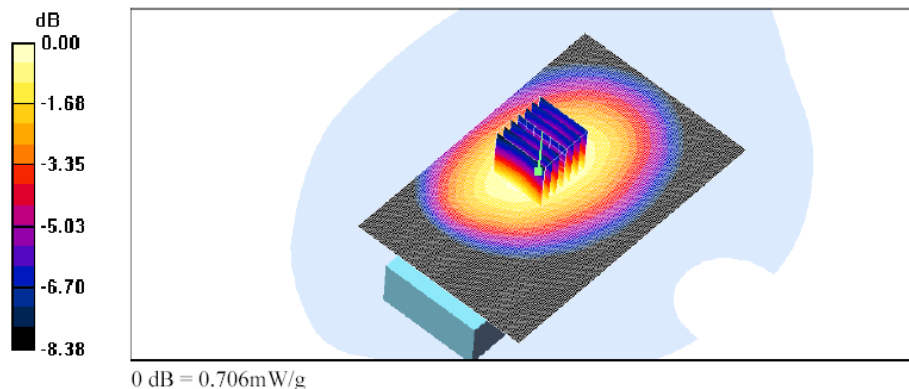
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.1 V/m; Power Drift = -0.068 dB

Peak SAR (extrapolated) = 0.854 W/kg

SAR(1 g) = 0.659 mW/g; SAR(10 g) = 0.492 mW/g

Maximum value of SAR (measured) = 0.706 mW/g



file://C:\Program%20Files\DASY4\Print_Templates\BodyWorn_15mm_NoHolster_back... 18/07/2005

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		30(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 20/07/2005 11:00:26 AM Date/Time: 20/07/2005 11:23:21 AM

Lab: RIM Testing Services (RTS)

**BodyWorn_Keychain_back_iDEN_900MHz_Mid_Chan_Retract
_Ant_Ambient_Temp_23.5_Deg_Cel_Liquid_Temp_23.0_Deg_Cel_07-20-2005**

DUT: BlackBerry Wireless Handheld; Type: Sample

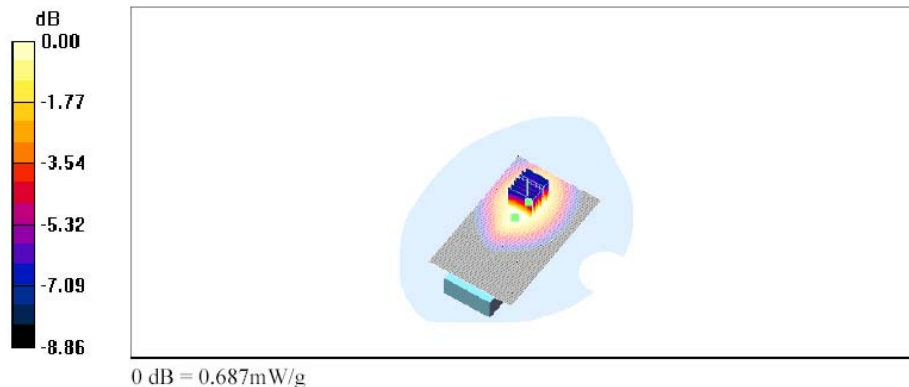
Communication System: IDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:3
Medium: M 835 Medium parameters used: $f = 898.519 \text{ MHz}$; $\sigma = 1.04 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 0.710 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 24.2 V/m; Power Drift = -0.572 dB
Peak SAR (extrapolated) = 0.842 W/kg
SAR(1 g) = 0.639 mW/g; SAR(10 g) = 0.467 mW/g
Maximum value of SAR (measured) = 0.687 mW/g



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RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		31(34)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 20/07/2005 9:13:18 AM Date/Time: 20/07/2005 9:36:04 AM

Lab: RIM Testing Services (RTS)

BodyWorn_FabricHolster_back_iDEN_900MHz_Mid_Chan_Retracted_Ant_Ambient

Temp_24.3_Deg_Cel_Liquid_Temp_23.1_Deg_Cel_07-20-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:3
 Medium: M 835 Medium parameters used: $f = 898.519$ MHz; $\sigma = 1.04$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

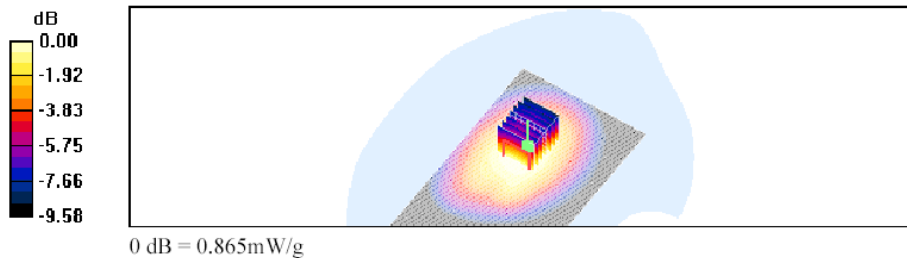
DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 0.881 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 28.6 V/m; Power Drift = -0.317 dB
 Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.797 mW/g; SAR(10 g) = 0.581 mW/g

Maximum value of SAR (measured) = 0.865 mW/g



RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 32(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 19/07/2005 7:23:58 PM Date/Time: 19/07/2005 7:46:45 PM

Lab: RIM Testing Services (RTS)

BodyWorn_LeatherHolster_back_iDEN_900MHz_Mid_Chan_Retracted_Ant_

Ambient_Temp_23.8_Deg_Cel_Liquid_Temp_22.7_Deg_Cel_07-19-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:3
 Medium: M 835 Medium parameters used: $f = 898.519 \text{ MHz}$; $\sigma = 1.04 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

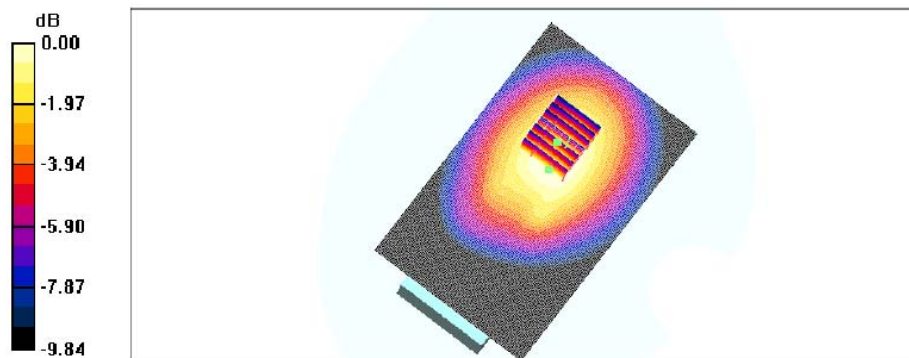
DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 0.820 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 27.8 V/m; Power Drift = -0.294 dB
 Peak SAR (extrapolated) = 0.949 W/kg
SAR(1 g) = 0.732 mW/g; SAR(10 g) = 0.540 mW/g

Maximum value of SAR (measured) = 0.790 mW/g



0 dB = 0.790mW/g

file://C:\Program%20Files\DASY4\Print_Templates\BodyWorn_LeatherHolster_back_i... 19/07/2005

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 33(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 20/07/2005 12:42:39 PM Date/Time: 20/07/2005 1:05:32 PM

Lab: RIM Testing Services (RTS)

**BodyWorn_15 mm space_back_iDEN_900MHz_Mid_Chan_Retract
_Ant_Ambient_Temp_23.9_Deg_Cel_Liquid_Temp_23.2_Deg_Cel_07-20-2005**

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: IDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:3
Medium: M 835 Medium parameters used: $f = 898.519$ MHz; $\sigma = 1.04$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

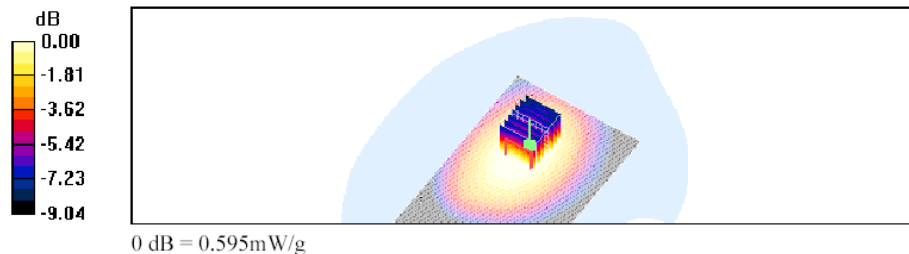
DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.18, 6.18, 6.18); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.620 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.7 V/m; Power Drift = -0.557 dB
Peak SAR (extrapolated) = 0.729 W/kg
SAR(1 g) = 0.559 mW/g; SAR(10 g) = 0.411 mW/g

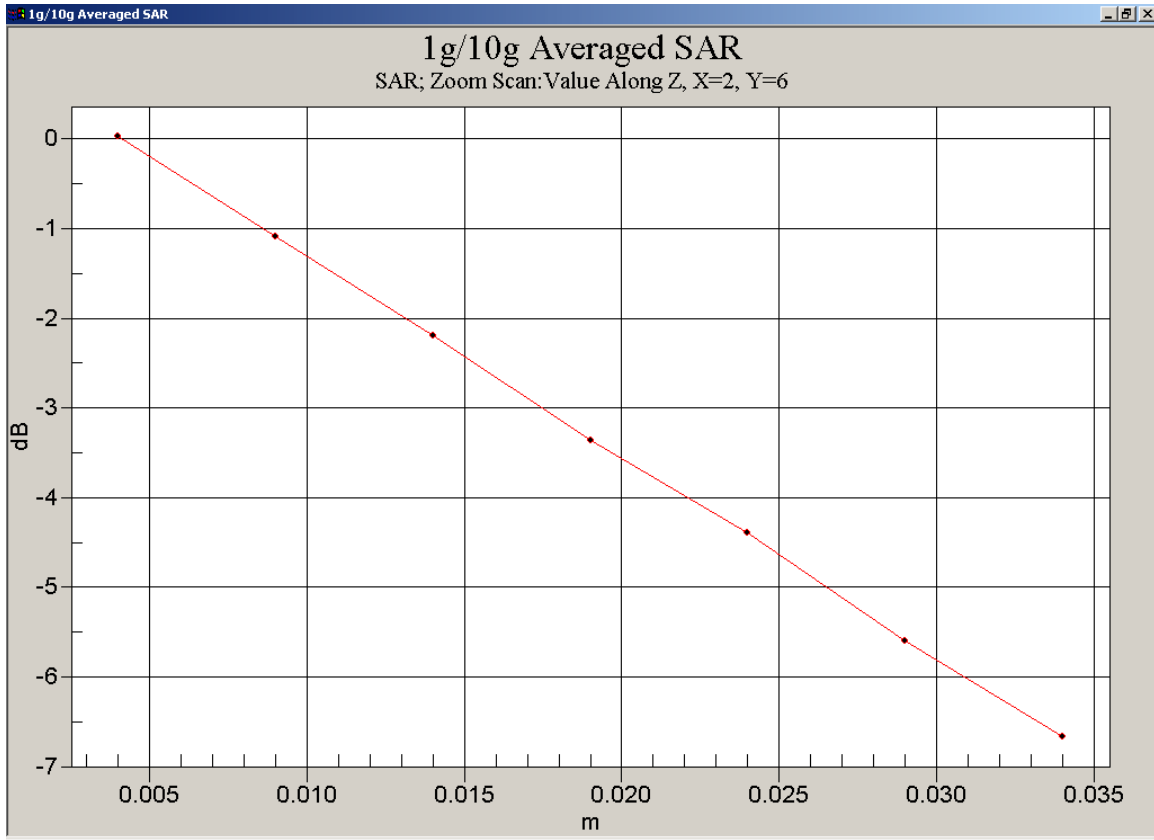
Maximum value of SAR (measured) = 0.595 mW/g



file://C:\Program%20Files\DASY4\Print_Templates\BodyWorn_15%20mm%20space_b... 20/07/2005

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 34(34)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

Z-Axis plot for the worst-case body worn SAR configuration:



RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 1(39)
Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

APPENDIX D: SAR DISTRIBUTION PLOTS FOR PUSH-TO-TALK MODE CONFIGURATION

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		2(39)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 13/07/2005 12:40:30 PM Date/Time: 13/07/2005 1:03:28 PM

Lab: RIM Testing Services (RTS)

Push_To_Talk_iDEN 800 MHz_Mid Channel_Retrac_Ant_Ambient Temp. 23.2 Deg. Cel._

Liquid Temp. 22.0 Deg. Cel._07-13-2005

DUT: BlackBerry Wireless Handheld; Type: Sample (Retracted Ant.)

Communication System: iDEN ; Frequency: 815.5 MHz; Duty Cycle: 1:6
Medium: 835 MHz Head Medium parameters used: $f = 815.5 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

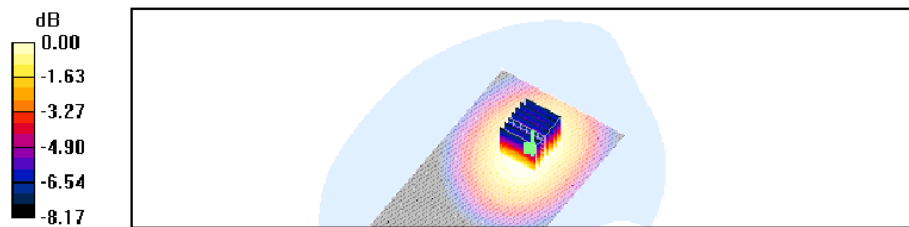
- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.189 mW/g

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

Reference Value = 12.6 V/m; Power Drift = -0.473 dB
Peak SAR (extrapolated) = 0.239 W/kg

SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.125 mW/g
Maximum value of SAR (measured) = 0.186 mW/g



0 dB = 0.186mW/g

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		3(39)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 13/07/2005 11:50:07 AM Date/Time: 13/07/2005 12:13:05 PM

Page 1 of 2

Date/Time: 13/07/2005 12:13:05 PM

Lab: RIM Testing Services (RTS)

**Push_To_Talk_iDEN 800 MHz_Mid Channel_Extended Ant_Ambient Temp. 22.9
Deg. Cel._ Liquid Temp. 21.8 Deg. Cel._07-13-2005**

DUT: BlackBerry Wireless Handheld; Type: Sample (Retracted Ant.)

Communication System: IDEN ; Frequency: 815.5 MHz; Duty Cycle: 1:6
Medium: 835 MHz Head Medium parameters used: $f = 815.5$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 43$; $\rho = 1000$
kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM I; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.200 mW/g

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

Reference Value = 12.8 V/m; Power Drift = -0.038 dB
Peak SAR (extrapolated) = 0.254 W/kg
SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.137 mW/g

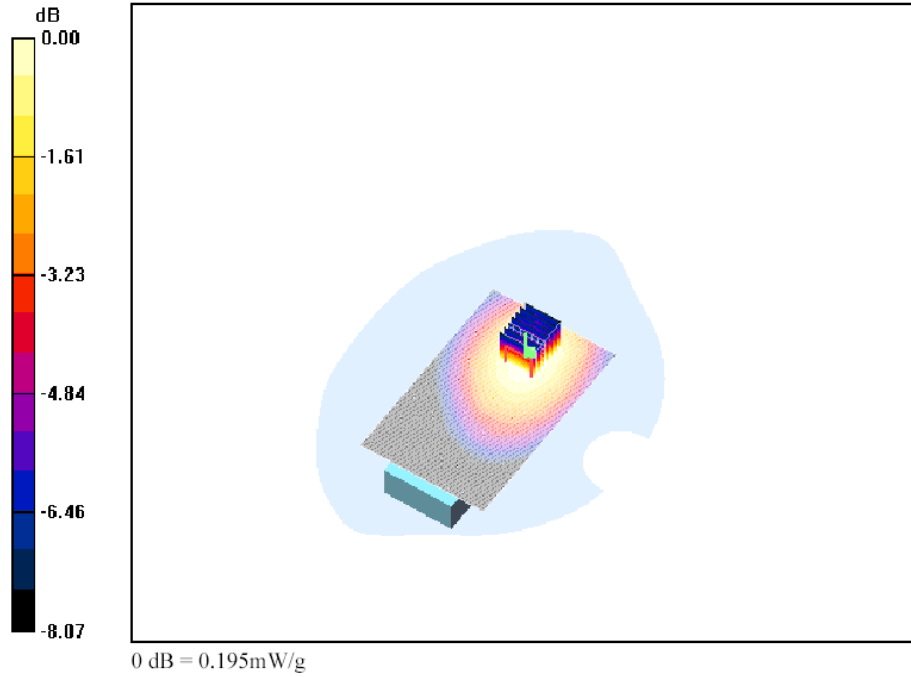
Maximum value of SAR (measured) = 0.195 mW/g

file://C:\Program%20Files\DASY4\Print_Templates\Push_To_Talk_iDEN%20800%20M... 13/07/2005

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 4(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Date/Time: 13/07/2005 11:50:07 AM Date/Time: 13/07/2005 12:13:05 PM

Page 2 of 2



file://C:\Program%20Files\DASY4\Print_Templates\Push_To_Talk_iDEN%20800%20M... 13/07/2005

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		5(39)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

Date/Time: 19/07/2005 2:49:46 PM Date/Time: 19/07/2005 3:10:59 PM

Lab: RIM Testing Services (RTS)

Push_To_Talk_25 mm
space_iDEN_900MHz_Mid_Chan_Retracted_Ant_Ambient_Temp_23.5_Deg_Cel_

Liquid_Temp_22.8_Deg_Cel_07-19-2005

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: iDEN 900; Frequency: 898.519 MHz; Duty Cycle: 1:6
Medium: HSL900 Medium parameters used: $f = 898.519$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1642; ConvF(6.52, 6.52, 6.52); Calibrated: 07/01/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Unnamed procedure/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.172 mW/g

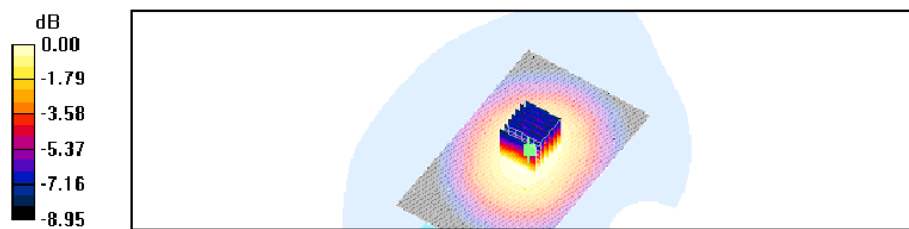
Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.8 V/m; Power Drift = -0.173 dB

Peak SAR (extrapolated) = 0.226 W/kg

SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.119 mW/g

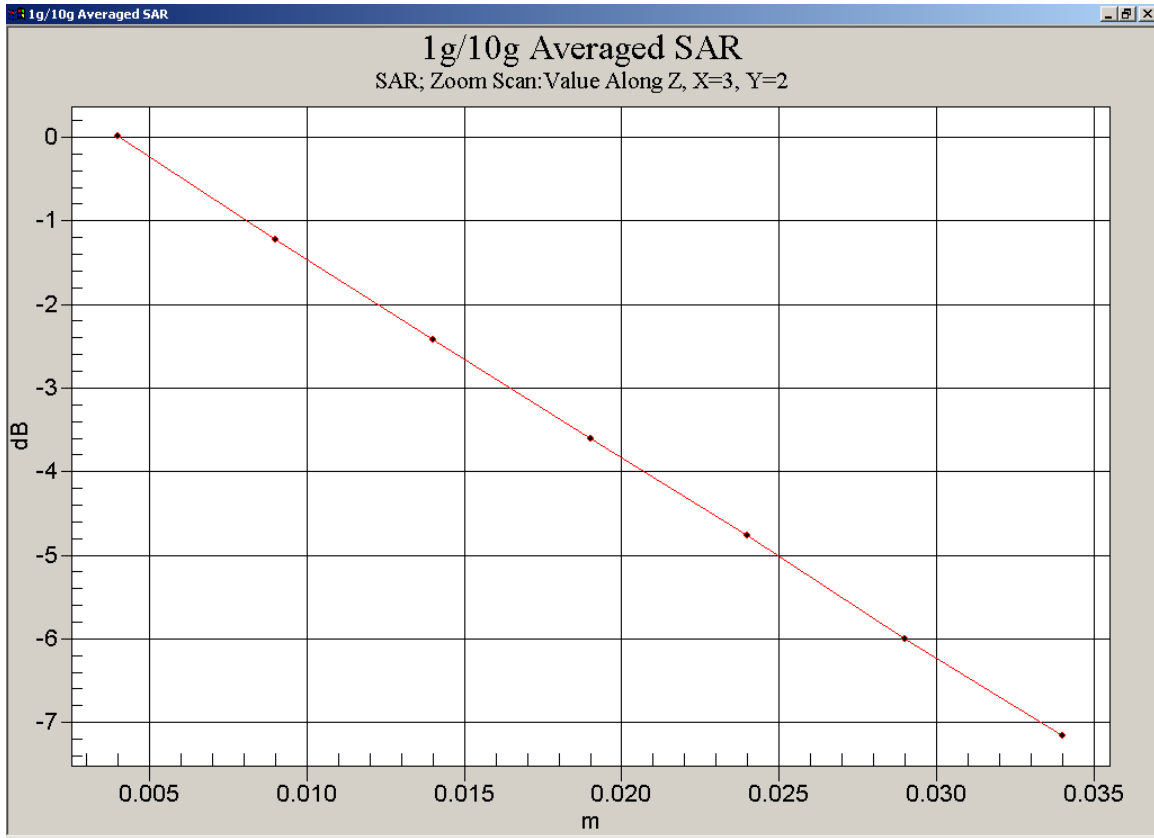
Maximum value of SAR (measured) = 0.177 mW/g



0 dB = 0.177mW/g

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 6(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Z-Axis plot for the worst case Push-to-talk mode:



RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 7(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

APPENDIX E: PROBE AND VALIDATION DIPOLE CALIBRATION

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		8(39)
Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

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



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **RIM**

Certificate No: **ET3-1642_Jan05**

CALIBRATION CERTIFICATE

Object: **ET3DV6 - SN:1642**

Calibration procedure(s): **QA CAL-01.v5**
Calibration procedure for dosimetric E-field probes

Calibration date: **January 7, 2005**

Condition of the calibrated item: **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&PE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power motor E4419B	GB41293874	5-May-04 (METAS, No. 251-03388)	May-05
Power sensor E4412A	MY41495277	5-May-04 (METAS, No. 251-03388)	May-05
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-04 (METAS, No. 251-00403)	Aug-05
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-04 (METAS, No. 251-00389)	May-05
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-04 (METAS, No. 251-00404)	Aug-05
Reference Probe ES3DV2	SN: 3013	7-Jan-05 (SPEAG, No. ES3-3013 Jan05)	Jan-06
DAE4	SN: 617	29-Sep-04 (SPEAG, No. DAE4-617_Sep04)	Sep-05

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct-05
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov-05

Calibrated by:	Name Nico Vetterli	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	

Issued: January 13, 2005

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No. ET3-1642_Jan05

Page 1 of 9

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		9(39)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

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



S Schweizerischer Kalibrierdienst
S Service suisse d'étalonnage
C Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
Polarization ϕ	ϕ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}:** Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E^2 -field uncertainty inside TSL (see below *ConvF*).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- DCP_{x,y,z}:** DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters:** Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy):** in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset:** The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 10(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

ET3DV6 SN:1642

January 7, 2005

Probe ET3DV6

SN:1642

Manufactured: November 7, 2001
Last calibrated: August 31, 2004
Recalibrated: January 7, 2005

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		11(39)
Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

ET3DV6 SN:1642

January 7, 2005

DASY - Parameters of Probe: ET3DV6 SN:1642

Sensitivity in Free Space^A

NormX	1.64 ± 10.1%	$\mu V/(V/m)^2$	DCP X	94 mV
NormY	1.88 ± 10.1%	$\mu V/(V/m)^2$	DCP Y	94 mV
NormZ	1.62 ± 10.1%	$\mu V/(V/m)^2$	DCP Z	94 mV

Diode Compression^B

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

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

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	9.1	4.9
SAR _{be} [%]	With Correction Algorithm	0.0	0.2

TSL **1810 MHz** Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	13.4	9.0
SAR _{be} [%]	With Correction Algorithm	1.0	0.0

Sensor Offset

Probe Tip to Sensor Center **2.7 mm**

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 8).

^B Numerical linearization parameter: uncertainty not required.

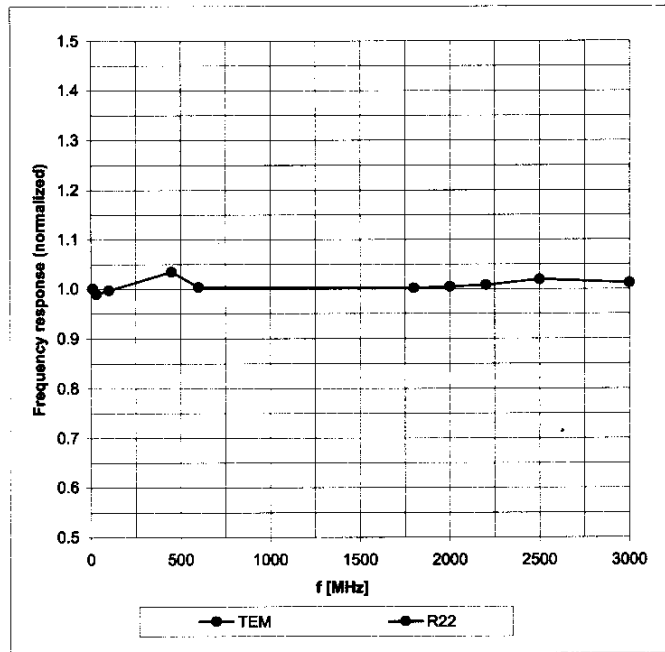
RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 12(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

ET3DV6 SN:1642

January 7, 2005

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



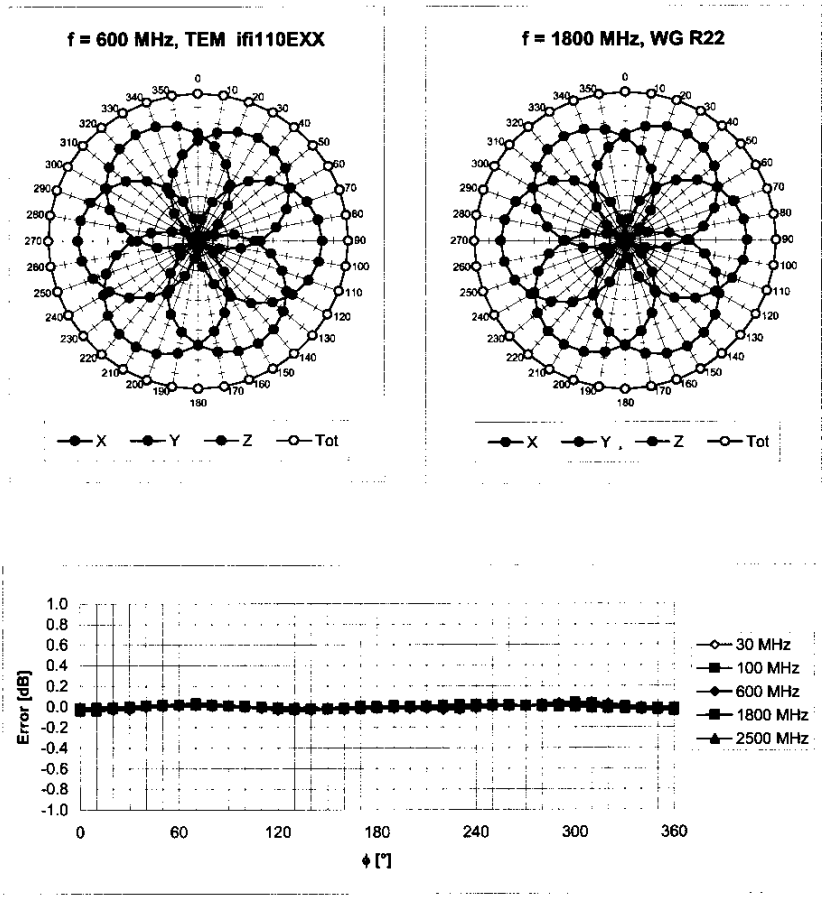
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 13(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

ET3DV6 SN:1642

January 7, 2005

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



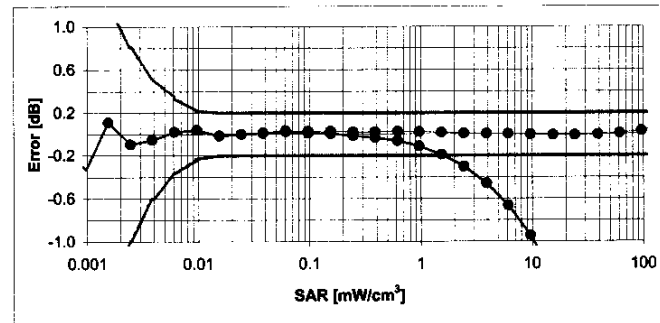
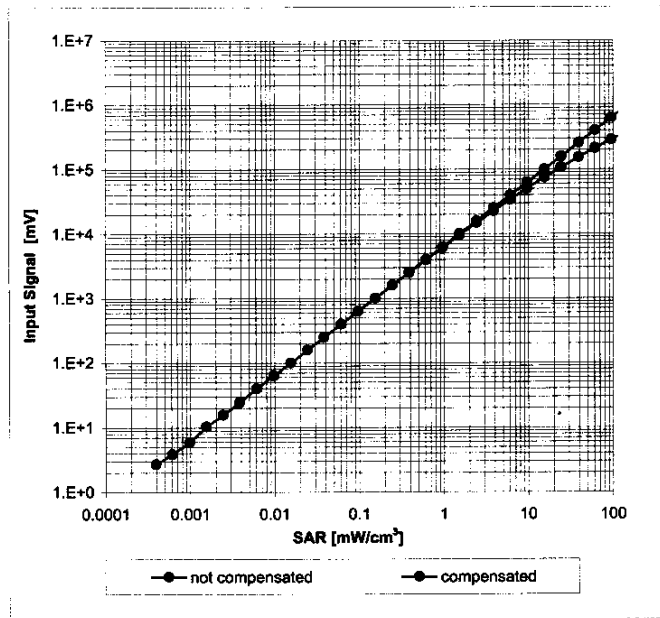
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 14(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

ET3DV6 SN:1642

January 7, 2005

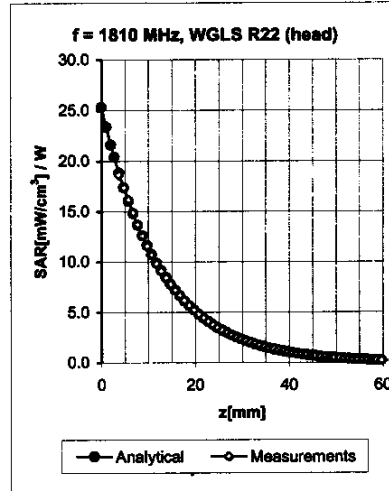
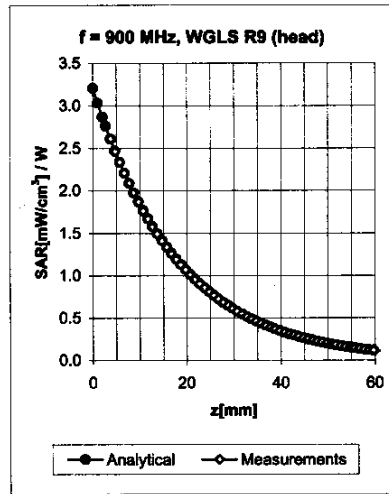
Dynamic Range $f(SAR_{head})$
(Waveguide R22, $f = 1800$ MHz)



ET3DV6 SN:1642

January 7, 2005

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.65	1.81	6.52 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.62	2.32	5.29 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.53	2.11	6.18 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.58	2.76	4.78 ± 11.0% (k=2)

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

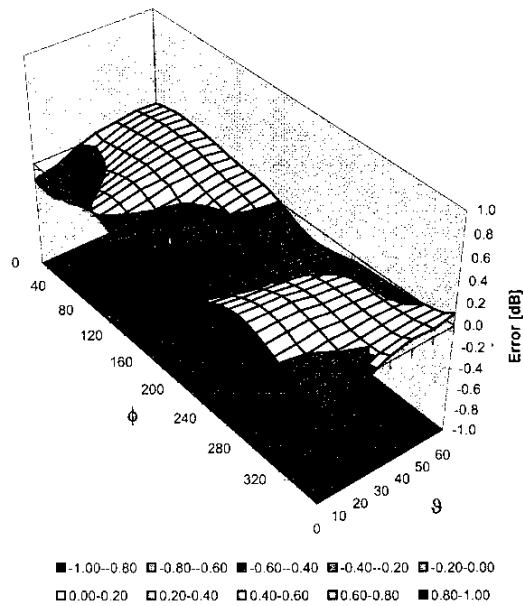
RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 16(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

ET3DV6 SN:1642

January 7, 2005

Deviation from Isotropy in HSL

Error (ϕ , θ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 17(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **RIM**

Certificate No: **D835V2-446_Jan05**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 446**

Calibration procedure(s) **QA CAL-05.v6
Calibration procedure for dipole validation kits**

Calibration date: **January 7, 2005**

Condition of the calibrated item **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E442	GB37480704	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Power sensor HP 8481A	US37292783	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Reference 20 dB Attenuator	SN: 5086 (20g)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference Probe ET3DV6	SN 1507	26-Oct-04 (SPEAG, No. ET3-1507_Oct04)	Oct-05
DAE4	SN 907	03-May-04 (SPEAG, No. DAE4-907_May04)	May-05

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-03)	In house check: Oct-05
RF generator R&S SML-03	100698	27-Mar-02 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585 S4206	Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov-05

Calibrated by:	Name Judith Müller	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature

Issued: January 13, 2005

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D835V2-446_Jan05

Page 1 of 6

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		18(39)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

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The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL tissue simulating liquid
ConvF sensitivity in TSL / NORM x,y,z
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		19(39)
Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY4	V4.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Area Scan resolution	dx, dy = 15 mm	
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.2 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	2.27 mW / g
SAR normalized	normalized to 1W	9.08 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	9.10 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.48 mW / g
SAR normalized	normalized to 1W	5.92 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	5.93 mW / g ± 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 20(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.1 Ω - 7.1 j Ω
Return Loss	- 22.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.385 ns
----------------------------------	----------

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

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.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 24, 2001

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 21(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

DASY4 Validation Report for Head TSL

Date/Time: 01/07/05 15:08:43

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN446

Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL 900 MHz;

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.91 \text{ mho/m}$; $\epsilon_r = 42.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(6.24, 6.24, 6.24); Calibrated: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn907; Calibrated: 03.05.2004
- Phantom: Flat Phantom 4.9L; Type: QD000P50AA; Serial: SN:1001;
- Measurement SW: DASY4, V4.4 Build 10; Postprocessing SW: SEMCAD, V1.8 Build 133

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 2.44 mW/g

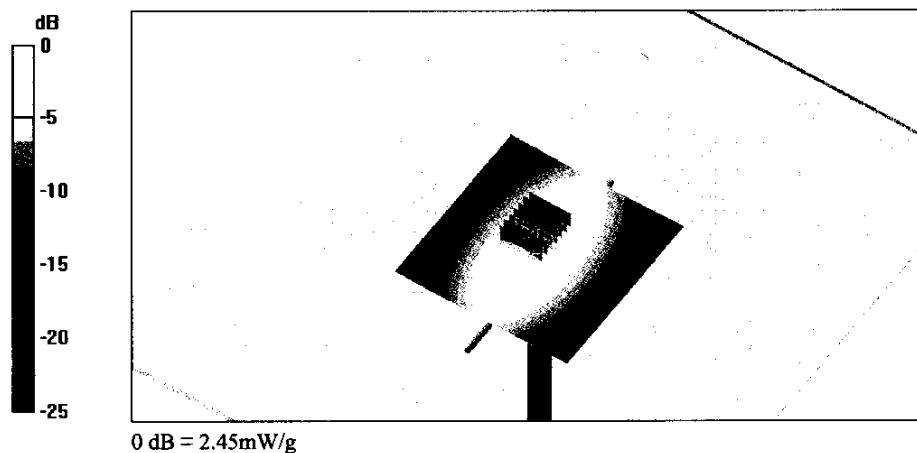
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.2 V/m; Power Drift = 0.0 dB

Peak SAR (extrapolated) = 3.36 W/kg

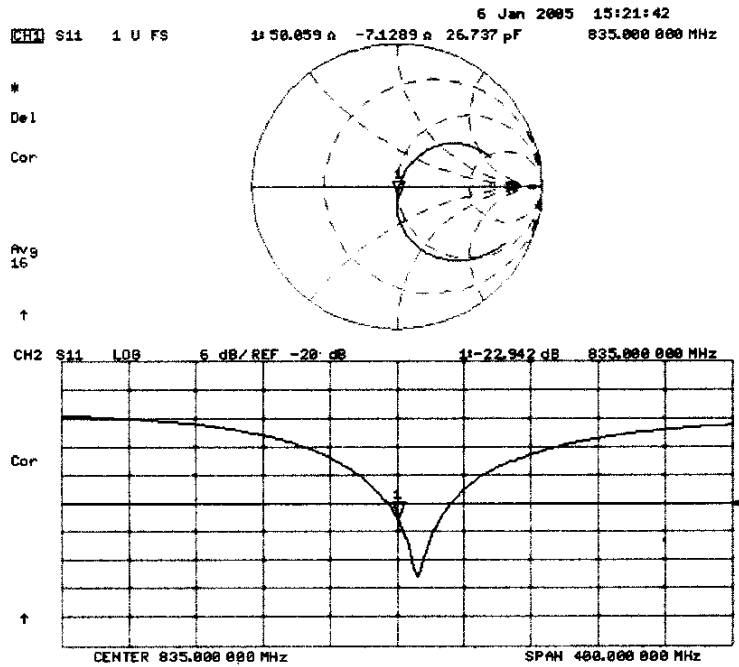
SAR(1 g) = 2.27 mW/g; SAR(10 g) = 1.48 mW/g

Maximum value of SAR (measured) = 2.45 mW/g



RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 22(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

Impedance Measurement Plot for Head TSL



RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 23(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04
		FCC ID: L6ARAW20IN	

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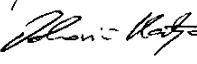
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S Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **RIM**

Certificate No: **D900V2-133_Jan05**

CALIBRATION CERTIFICATE			
Object	D900V2 - SN: 133		
Calibration procedure(s)	QA CAL-05.v6 Calibration procedure for dipole validation kits		
Calibration date:	January 07, 2005		
Condition of the calibrated item	In Tolerance		
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.			
Calibration Equipment used (M&TE critical for calibration)			
Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E442	GB37480704	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Power sensor HP 8481A	US37292783	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Reference 20 dB Attenuator	SN: 5086 (20g)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference Probe ET3DV6	SN 1507	26-Oct-04 (SPEAG, No. ET3-1507_Oct04)	Oct-05
DAE4	SN 907	03-May-04 (SPEAG, No. DAE4-907_May04)	May-05
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-03)	In house check: Oct-05
RF generator R&S SML-03	100698	27-Mar-02 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov-05
Calibrated by:	Name Judith Müller	Function Laboratory Technician	Signature 
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 
			Issued: January 12, 2005
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Certificate No: D900V2-133_Jan05

Page 1 of 6

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		24(39)
Author Data	Dates of Test	Test Report No	FCC ID:
Daoud Attayi	June 11 – 19, 2005	RTS-0184-0507-04	L6ARAW20IN

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The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL tissue simulating liquid
ConvF sensitivity in TSL / NORM x,y,z
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- d) DASY4 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		25(39)
Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY4	V4.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	15 mm	with Spacer
Area Scan resolution	dx, dy = 15 mm	
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.97 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.4 ± 6 %	0.97 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	2.74 mW / g
SAR normalized	normalized to 1W	11.0 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	10.9 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.76 mW / g
SAR normalized	normalized to 1W	7.04 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	7.03 mW / g ± 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

RTS RIM Testing Services	Document		Page
	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		26(39)
Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.5 Ω - 10.6 j Ω
Return Loss	- 19.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.399 ns
----------------------------------	----------

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

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.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 25, 2001

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 27(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

DASY4 Validation Report for Head TSL

Date/Time: 01/07/05 16:17:49

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:133

Communication System: CW-900; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: HSL 900 MHz;

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 41.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(5.95, 5.95, 5.95); Calibrated: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn907; Calibrated: 03.05.2004
- Phantom: Flat Phantom 4.9L; Type: QD000P4.9AA; Serial: 1001;
- Measurement SW: DASY4, V4.4 Build 10; Postprocessing SW: SEMCAD, V1.8 Build 133

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 2.96 mW/g

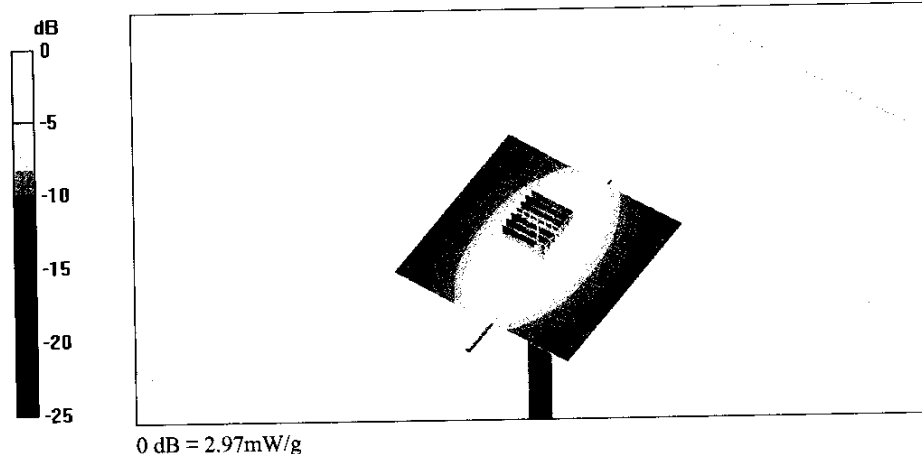
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 58.2 V/m; Power Drift = 0.005 dB

Peak SAR (extrapolated) = 4.09 W/kg

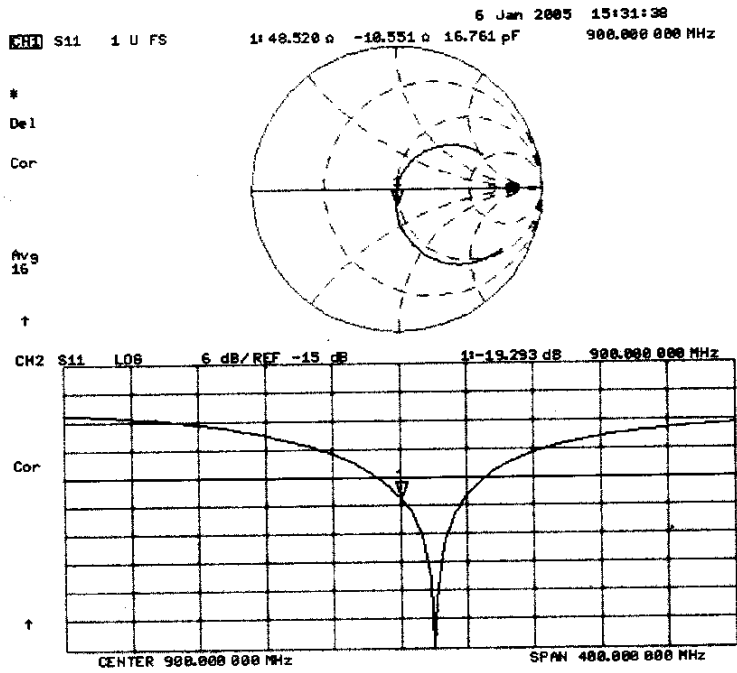
SAR(1 g) = 2.74 mW/g; SAR(10 g) = 1.76 mW/g

Maximum value of SAR (measured) = 2.97 mW/g



RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 28(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

Impedance Measurement Plot for Head TSL



RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 29(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

APPENDIX F: SAR SET UP PHOTOS

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 30(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

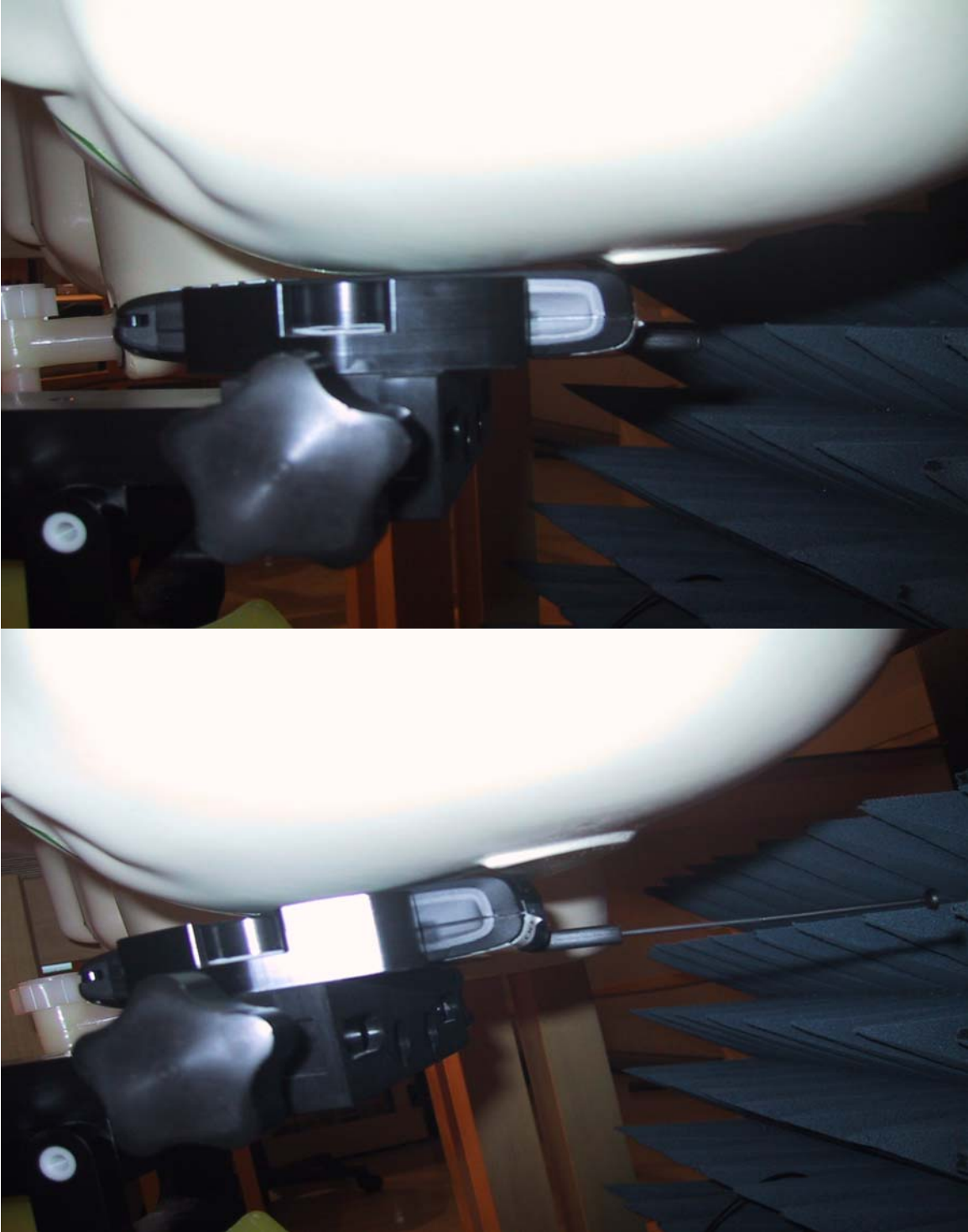


Figure E1. Left ear touch configuration

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 31(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN



Figure E2. Left ear tilted configuration

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 32(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN



Figure E3. Right ear touch configuration

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 33(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

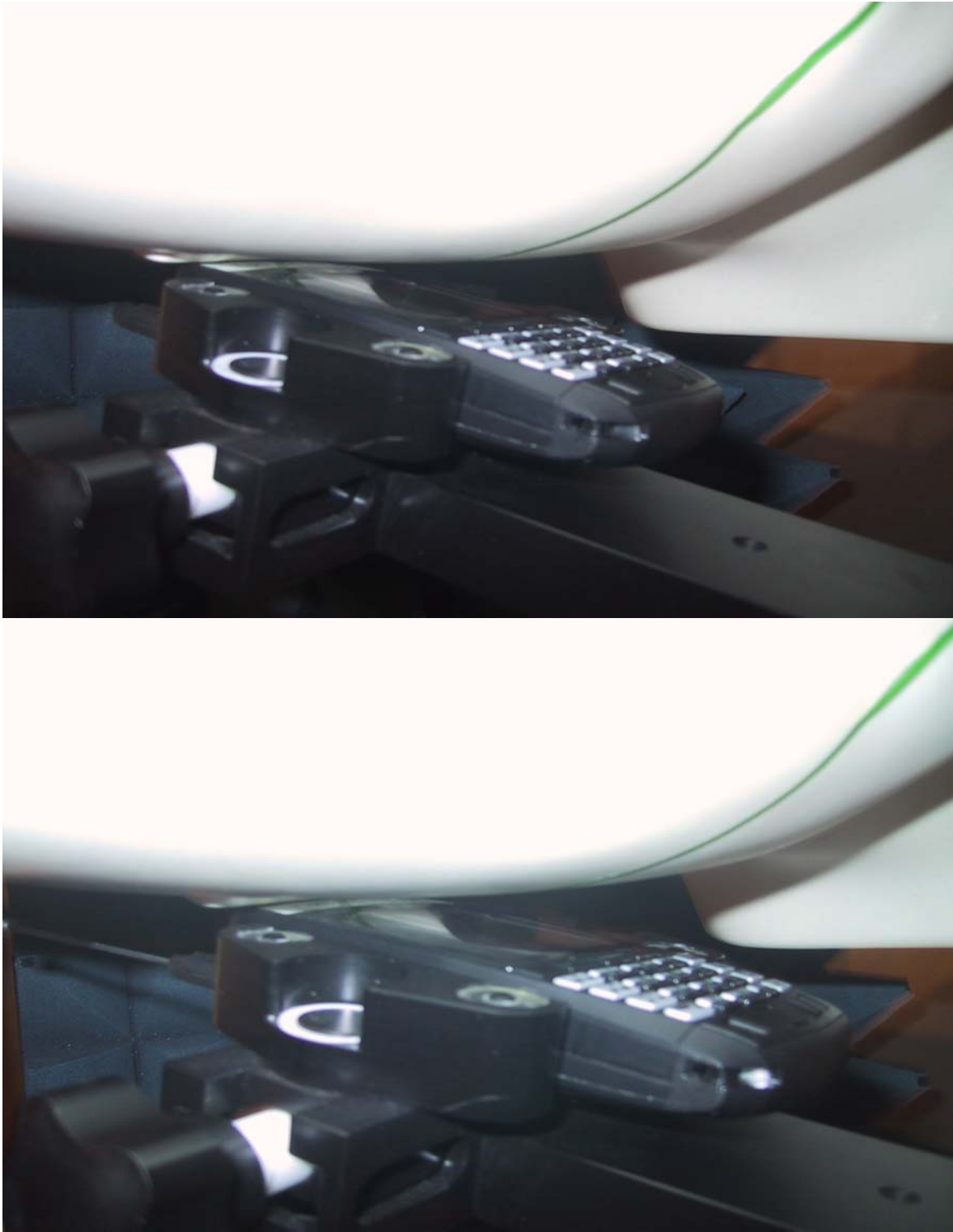


Figure E4. Right ear tilted configuration

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 34(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN



Figure E5. Body worn configuration with keychain holster (Handheld back side towards phantom)

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 35(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04

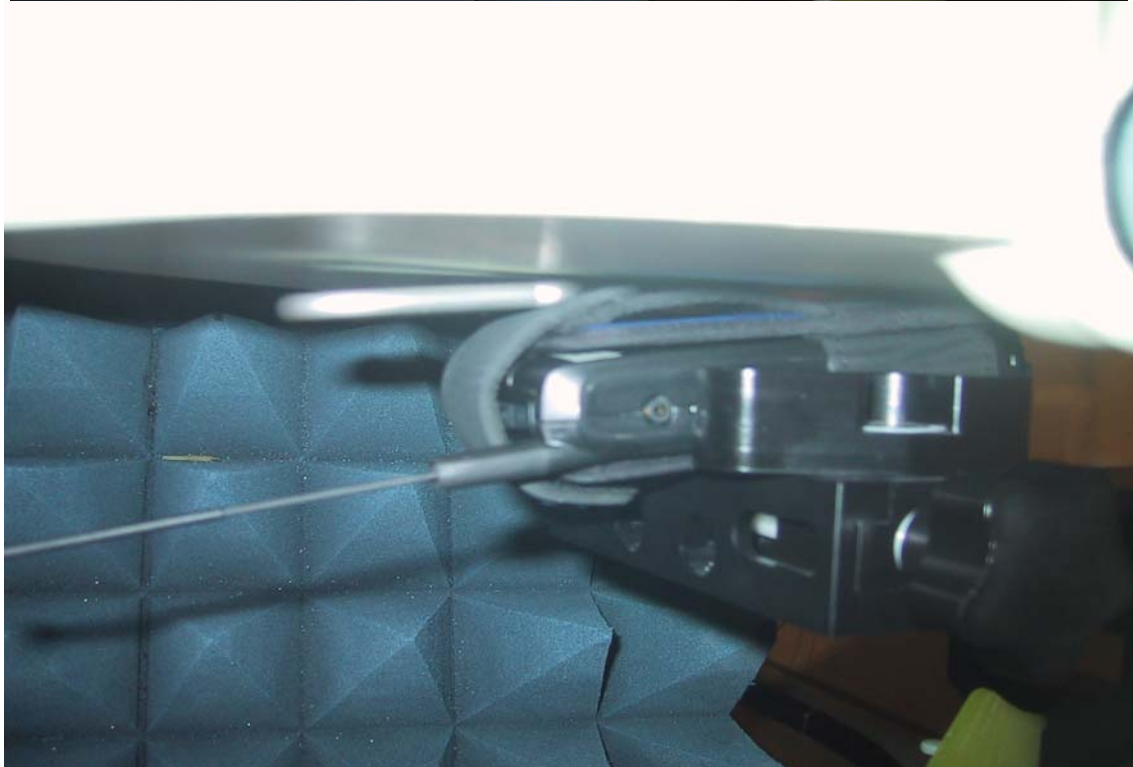


Figure E6. Body worn configuration with keychain holster (Handheld front side towards phantom)

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 36(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN



Figure E7. Body worn configuration with leather holster

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 37(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

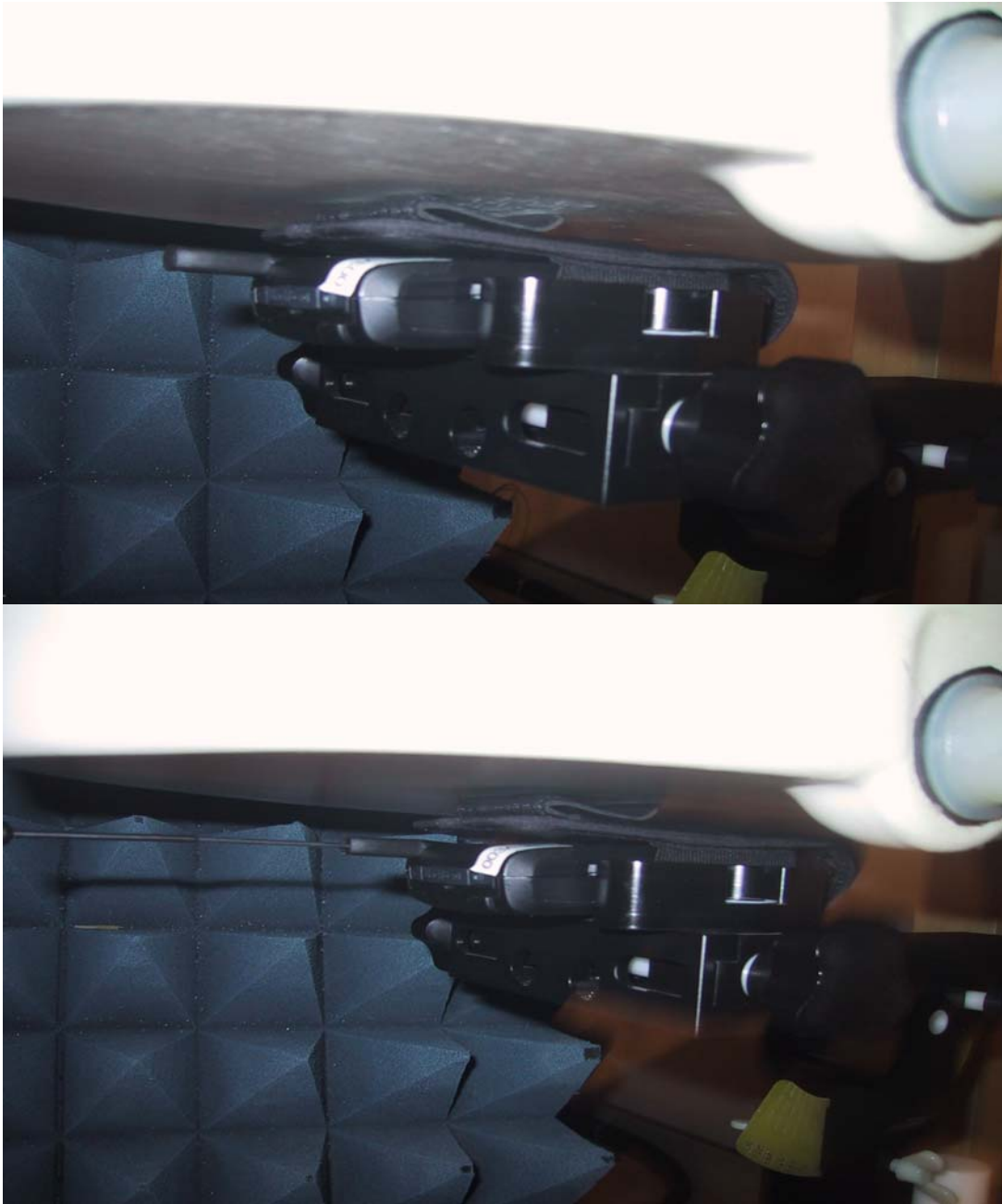


Figure E8. Body worn configuration with fabric holster

RTS RIM Testing Services	Document Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN	Page 38(39)	
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04



Figure E9. Body worn configuration with 15 mm separation distance

RTS RIM Testing Services	Document	Appendix to SAR Compliance Test Report for the BlackBerry 7100i Wireless Handheld Model RAW20IN		Page 39(39)
	Author Data Daoud Attayi	Dates of Test June 11 – 19, 2005	Test Report No RTS-0184-0507-04	FCC ID: L6ARAW20IN

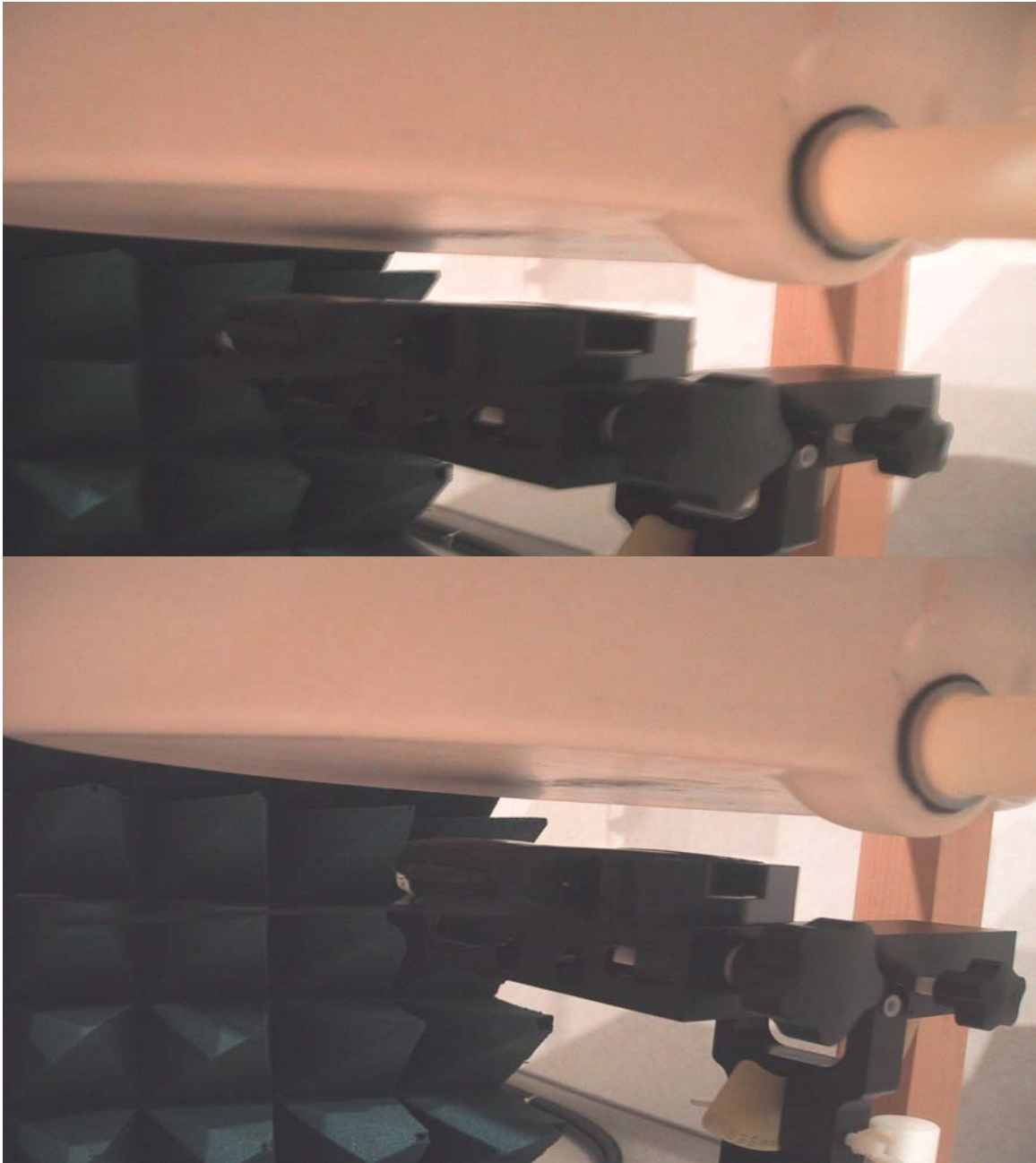


Figure E10. Push-To-Talk mode configuration with 2.5 cm separation distance