

November 24, 2005

Martin Perrine
Federal Communications Commission,
Equipment Authorization Division
Application Processing Branch
7435 Oakland Mills Road
Columbia, MD 21045

Subject: Response to the FCC Correspondence Reference # 24544 for additional information on RIM BlackBerry Wireless Handheld FCC ID: L6ARAV20CW, 731 Confirmation # TC662230.

Dear Martin:

The following addresses the comment on your **Correspondence Reference # 24544**, dated November 15, 2005.

1) Please explain probe modulation factor powers of 12.5 and 11.1 dBm noted in table 4. Spectrum analyzer plots from Annex A.2 suggest approximately 20 dBm. Also, spectrum analyzer plots are difficult to read. Please resubmit a clearer graphic.

With reference to the setup photos shown below, PMFs (Probe Modulation Factors) were measured using the Wireless Handheld model RAV20CW. The unit was connected conducted to a connector / cable, splitter, attenuator, another cable to a spectrum analyzer input / dipole feed point for generating modulated signal. A signal generator was used for generating CW and AM signals.

The total attenuation loss of the splitter, attenuator and 2 cables is ~ 12.5 dB for the 836 MHz band and 12.8 dB for 1880 MHz band. The maximum conducted power for the unit is 25.0 dBm and 23.9 dBm for the above frequencies.

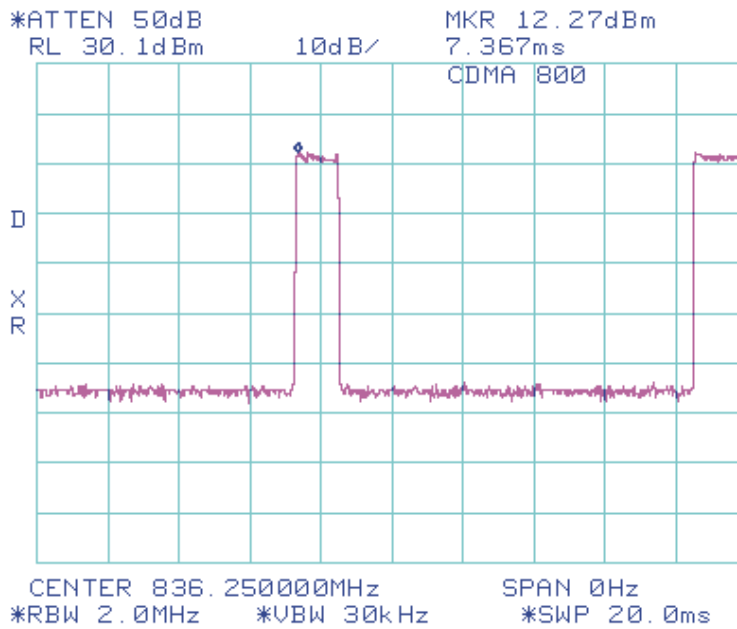
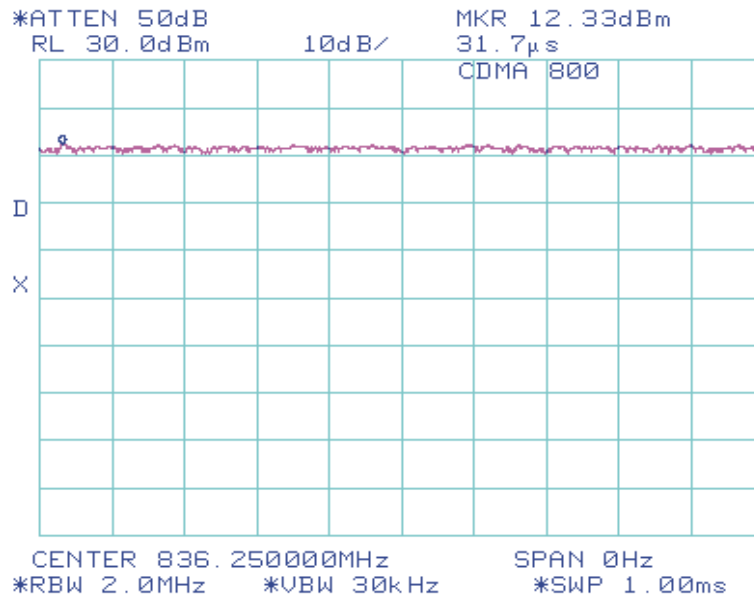
Net power at the dipole feed point / spectrum analyzer input (836 MHz)
= 25.0 dBm – 12.5 dB
= 12.5 dBm

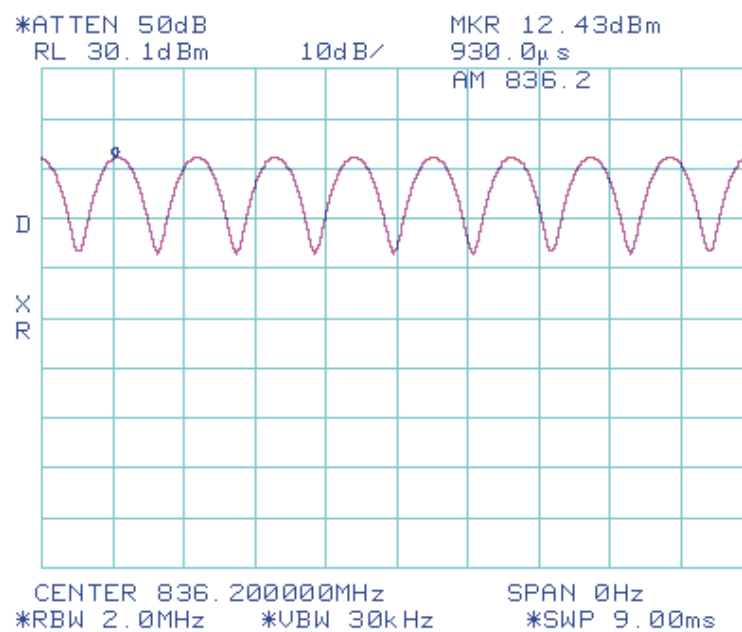
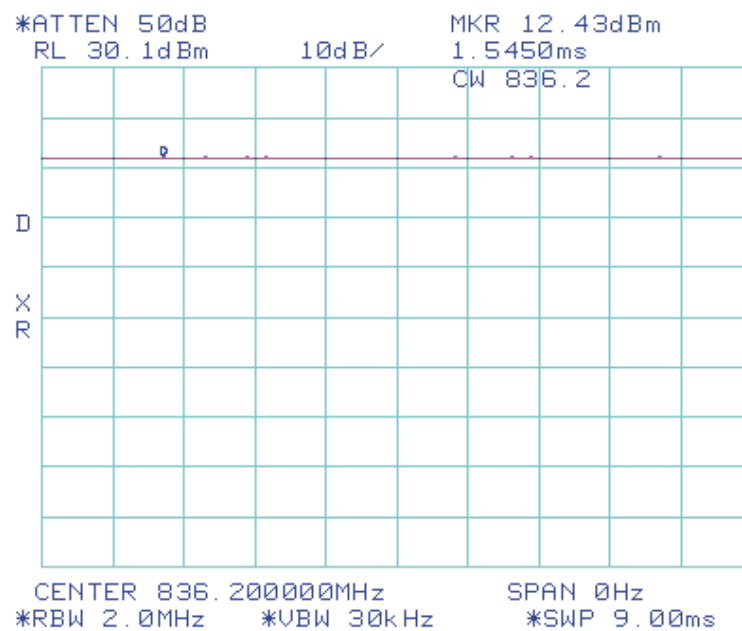
Net power at the dipole feed point / spectrum analyzer input (1880 MHz)
= 23.9 dBm – 12.8 dB
= 11.1 dBm

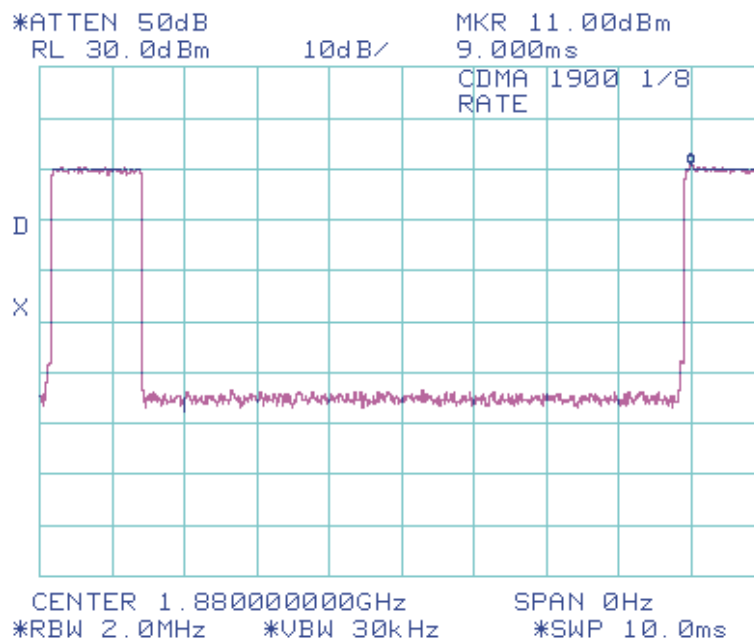
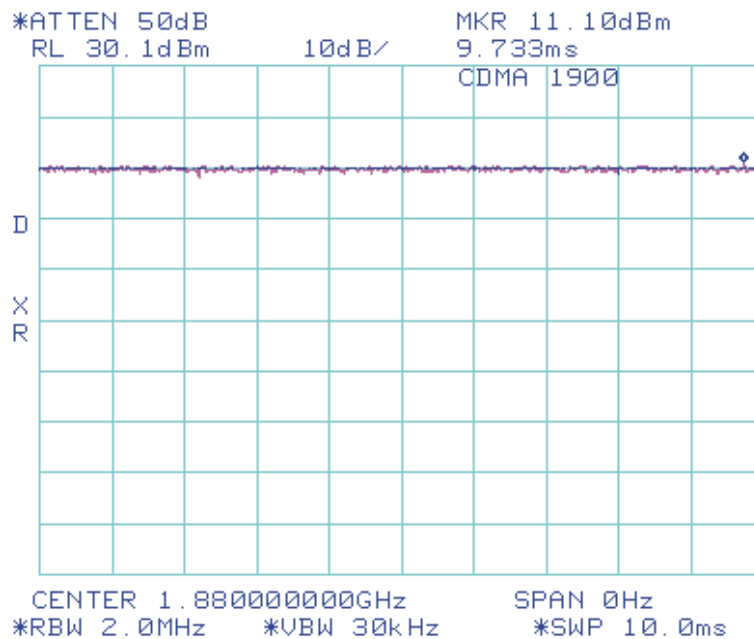
The spectrum analyzer plot that showed 20 dBm power is used for the dipole validation only. For the PMF measurements, the above power levels were used.

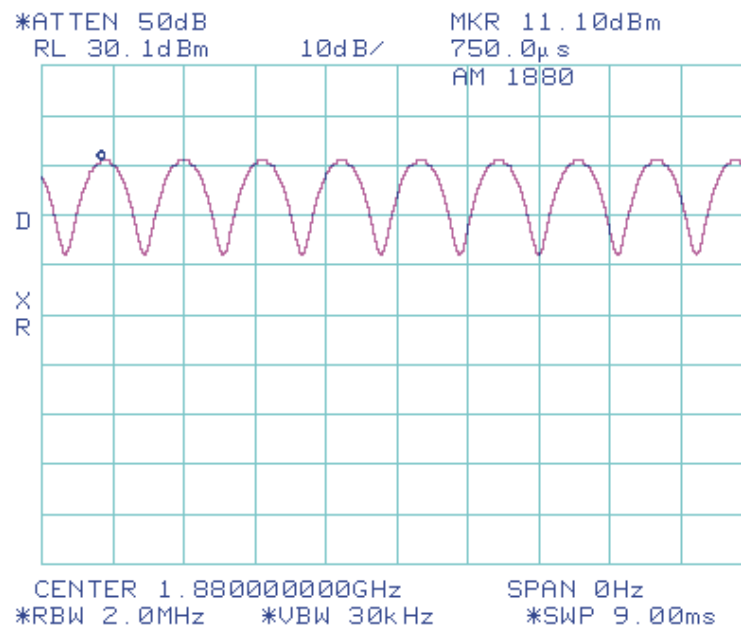
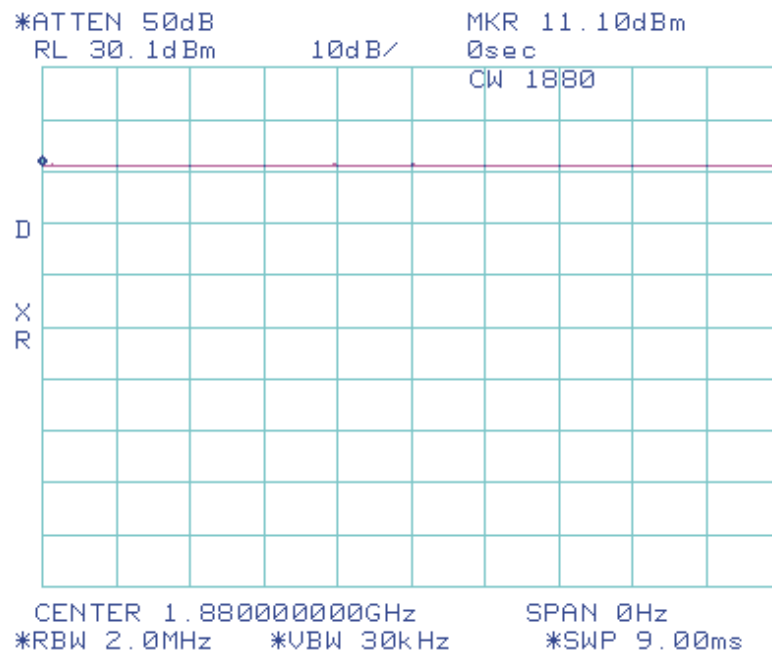


Spectrum analyzer plots showing clearer CW, AM, CDMA-200 Full Rate and 1/8th Rate signals:









2) Please justify that all CDMA modes were addressed similar to SAR question 3).

HAC E-Field was re-measured with different CDMA modes and full data rate. Since 1/8 rate (as is shown in the report number RTS-0181-0507-01) generated lower field and 1/2 rate SAR result also was lower, these modes were not re-tested. The basestation simulator default setting that was used for the previous measurements was (RC3, SO55, full rate). Please see results in the table below and refer to the HAC plots in the Appendix A.

Wireless Device: BlackBerry Wireless Handheld – Model: RAV20CW				
RF Emissions Test				
Mode	f (MHz)	Mode / Configuration	Peak E-Field (V/m)	M-Rating
CDMA 1900	1880.00	RC1 (Radio Config), SO3 (Service Option), Full Rate	61.0	4
	1880.00	RC1, SO2, Full Rate	69.6	3
	1880.00	RC1, SO55, Full Rate	70.0	3
	1880.00	RC3, SO2, Full Rate	69.0	3
	1880.00	RC3, SO55, Full Rate	70.5	3
	1880.00	RC3, SO3, Full Rate	69.6	3

3) Please explain how multiple SAR peaks were measured. See pages 14 and 16 of 21 of annex a to b and 10 of 19 in annex c. Please repeat as necessary.

SAR scans on pages 14 and 16 of Annex A-B and page 10 of Annex C were re-measured with multiple SAR peaks that are within 2dB from the highest peak. In addition, different CDMA-2000 modes were investigated and the results are within the measurement uncertainty as shown in the table below. Please see new SAR plots in the Annex B.

Mode	f (MHz)	Configuration / Mode	Peak 1 SAR, avg over 1 g (W/kg)	Peak 2 SAR, avg over 1 g (W/)
CDMA 1900	1908.50	Right Touch Head ; RC1, SO3; Full Rate	1.11	0.68
	1880.00	Left Touch Head ; RC3, SO3; Full Rate	1.18	1.05
	1851.25	Body-Worn with Holster ; RC3, SO55; Full Rate	1.03	1.08
	1908.50	Right Touch Head ; RC1, SO2; Full Rate	1.26	0.91
	1908.50	Right Touch Head ; RC3, SO55; 1/2 Rate	1.20	
	1908.50	Right Touch Head ; RC1, SO3; 1/8 Rate	1.40	
	1851.25	Body-Worn ; EVDO; 153.6 kbps	0.74	

4) EMC report, user manual, etc. indicate cdma2000 operation

- filings should be clear about transmitter setup & operation capabilities to ensure devices are configured properly according to communication protocol and operating requirements to obtain valid SAR results

- An Agilent 8960 Base Station Simulator was used to place a normal voice / data call to the WD on the desired channel.
- The Base Station Simulator's Power Control was set to "all up bits" to force the WD to transmit at maximum power while monitoring and maintaining FER to ~ 0%.
- Protocol was set to "6 (IS-2000)".
- Different Radio Configurations, Service Options and Data Rates were investigated.

Please do not hesitate to contact the undersigned should you have any questions.

Yours truly,

A handwritten signature in black ink, appearing to read "M. Attayi", with a stylized flourish extending from the end.

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Appendix A: HAC Plots

Date/Time: 22/11/2005 9:44:03 AM

Test Laboratory: RTS

BB7130_model_RAV20CW_CDMA_1900_mid_ch_RC1_SO3

DUT: BlackBerry Wireless Handheld; Type: Sample ; Serial: **Not Specified**

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 07/01/2005
- Sensor-Surface: 0mm (Fix Surface) Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: HAC Test Arch; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (11x11x1):

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

Probe Modulation Factor = 1.00

Reference Value = 38.4 V/m; Power Drift = 0.232 dB

Maximum value of Total (measured) = 60.3 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (101x101x1):

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

Maximum value of peak Total field = 61.1 V/m

Probe Modulation Factor = 1.00

Reference Value = 38.4 V/m; Power Drift = 0.232 dB

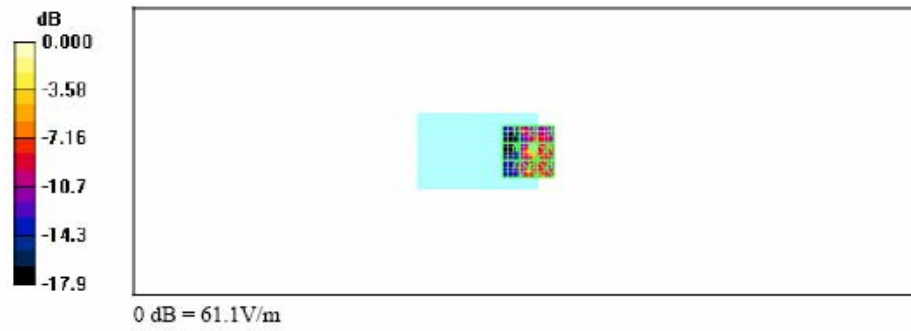
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
24.1	31.3	27.1
Grid 4	Grid 5	Grid 6
16.0	61.1	37.9
Grid 7	Grid 8	Grid 9
25.9	38.7	39.7

Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6

	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.15



Test Laboratory: RTS

BB7130_model_RAV20CW_CDMA_1900_mid_ch_RC3_SO3**DUT: BlackBerry Wireless Handheld; Type: Sample ; Serial: Not Specified**

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 07/01/2005
- Sensor-Surface: 0mm (Fix Surface) Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: HAC Test Arch; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (11x11x1):

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

Probe Modulation Factor = 1.00

Reference Value = 58.9 V/m; Power Drift = -0.100 dB

Maximum value of Total (measured) = 70.1 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (101x101x1):

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

Maximum value of peak Total field = 69.6 V/m

Probe Modulation Factor = 1.00

Reference Value = 58.9 V/m; Power Drift = -0.100 dB

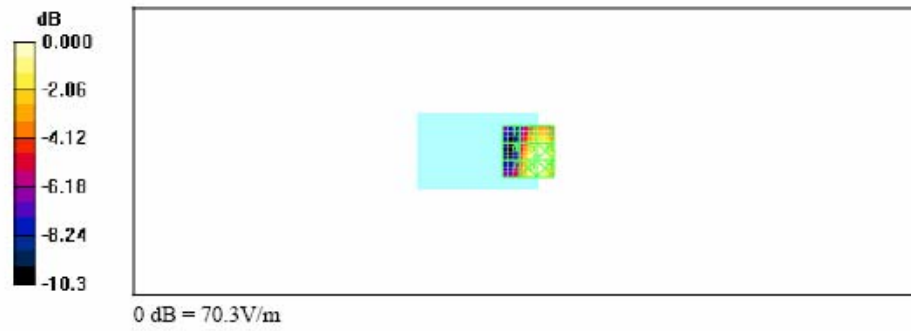
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
37.6	59.9	61.2
Grid 4	Grid 5	Grid 6
39.1	69.6	70.3
Grid 7	Grid 8	Grid 9
45.9	69.0	69.4

Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6

	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.15



Test Laboratory: RTS

BB7130_model_RAV20CW_CDMA_1900_mid_ch_RC1_SO55**DUT: BlackBerry Wireless Handheld; Type: Sample ; Serial: Not Specified**

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 07/01/2005
- Sensor-Surface: 0mm (Fix Surface) Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: HAC Test Arch; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (11x11x1):

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

Probe Modulation Factor = 1.00

Reference Value = 60.0 V/m; Power Drift = 0.017 dB

Maximum value of Total (measured) = 70.5 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (101x101x1):

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

Maximum value of peak Total field = 70.0 V/m

Probe Modulation Factor = 1.00

Reference Value = 60.0 V/m; Power Drift = 0.017 dB

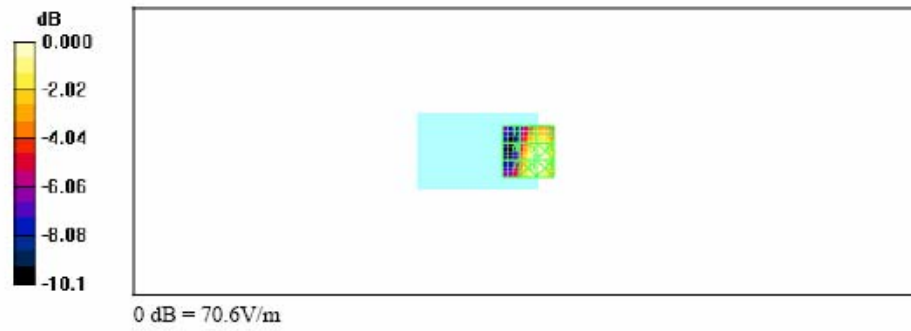
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

Peak E-field in V/m

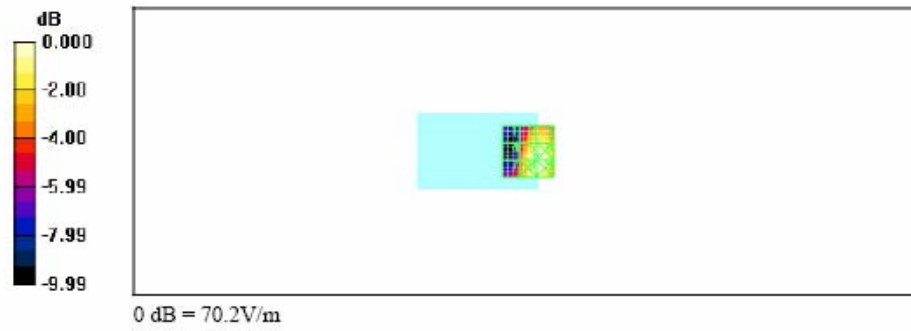
Grid 1	Grid 2	Grid 3
38.6	61.1	62.0
Grid 4	Grid 5	Grid 6
41.3	70.0	70.6
Grid 7	Grid 8	Grid 9
47.6	69.6	70.1

Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6

	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.15



	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.15



Test Laboratory: RTS

BB7130_model_RAV20CW_CDMA_1900_mid_ch_RC3_SO2**DUT: BlackBerry Wireless Handheld; Type: Sample ; Serial: Not Specified**

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 07/01/2005
- Sensor-Surface: 0mm (Fix Surface) Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: HAC Test Arch; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (11x11x1):

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

Probe Modulation Factor = 1.00

Reference Value = 61.0 V/m; Power Drift = -0.067 dB

Maximum value of Total (measured) = 69.5 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (101x101x1):

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

Maximum value of peak Total field = 69.0 V/m

Probe Modulation Factor = 1.00

Reference Value = 61.0 V/m; Power Drift = -0.067 dB

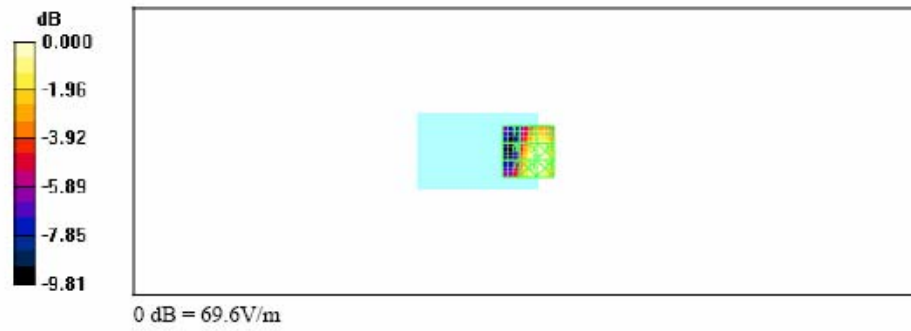
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
38.9	61.2	62.2
Grid 4	Grid 5	Grid 6
41.9	69.0	69.6
Grid 7	Grid 8	Grid 9
48.7	68.5	68.8

Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6

	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.15



Test Laboratory: RTS

BB7130_model_RAV20CW_CDMA_1900_mid_ch_RC3_SO55**DUT: BlackBerry Wireless Handheld; Type: Sample ; Serial: Not Specified**

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 07/01/2005
- Sensor-Surface: 0mm (Fix Surface) Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: HAC Test Arch; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (11x11x1):

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

Probe Modulation Factor = 1.00

Reference Value = 60.2 V/m; Power Drift = 0.030 dB

Maximum value of Total (measured) = 71.1 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test (101x101x1):

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

Maximum value of peak Total field = 70.5 V/m

Probe Modulation Factor = 1.00

Reference Value = 60.2 V/m; Power Drift = 0.030 dB

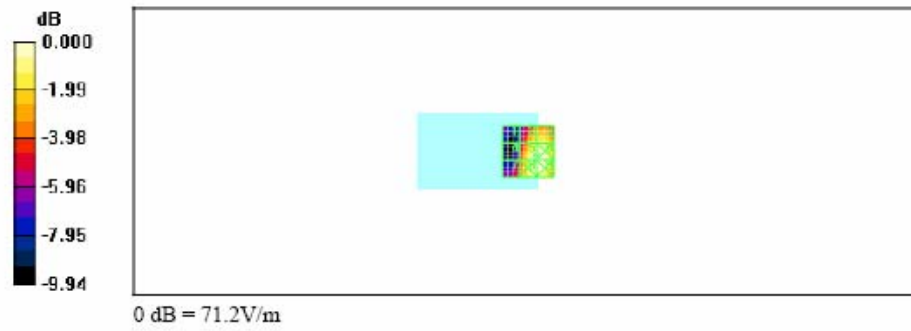
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
39.1	61.1	62.1
Grid 4	Grid 5	Grid 6
41.4	70.5	71.2
Grid 7	Grid 8	Grid 9
48.0	69.5	70.0

Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6

	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.15



Annex B: SAR Plots

Title
SubTitle

November 17, 2005 02:34 PM

Frequency	e'	e''
1.800000000 GHz	38.7998	13.4810
1.805000000 GHz	38.7632	13.4877
1.810000000 GHz	38.7580	13.4910
1.815000000 GHz	38.7418	13.5007
1.820000000 GHz	38.7108	13.5103
1.825000000 GHz	38.7021	13.5216
1.830000000 GHz	38.6738	13.5297
1.835000000 GHz	38.6475	13.5456
1.840000000 GHz	38.6487	13.5570
1.845000000 GHz	38.6360	13.5647
1.850000000 GHz	38.5973	13.5584
1.855000000 GHz	38.5588	13.5669
1.860000000 GHz	38.5416	13.5805
1.865000000 GHz	38.5172	13.5867
1.870000000 GHz	38.4969	13.5992
1.875000000 GHz	38.4860	13.6120
1.880000000 GHz	38.4769	13.6177
1.885000000 GHz	38.4418	13.6335
1.890000000 GHz	38.4216	13.6490
1.895000000 GHz	38.3810	13.6595
1.900000000 GHz	38.3562	13.6809
1.905000000 GHz	38.3461	13.6874
1.910000000 GHz	38.3361	13.6938
1.915000000 GHz	38.3052	13.7133
1.920000000 GHz	38.2880	13.7448

Title
SubTitle

November 18, 2005 11:55 AM

Frequency	e'	e''
1.800000000 GHz	51.4148	14.5911
1.805000000 GHz	51.4012	14.6164
1.810000000 GHz	51.3833	14.6273
1.815000000 GHz	51.3626	14.6513
1.820000000 GHz	51.3429	14.6460
1.825000000 GHz	51.3256	14.6602
1.830000000 GHz	51.2954	14.6711
1.835000000 GHz	51.2840	14.6911
1.840000000 GHz	51.2492	14.7167
1.845000000 GHz	51.2439	14.7175
1.850000000 GHz	51.2210	14.7475
1.855000000 GHz	51.1901	14.7381
1.860000000 GHz	51.1715	14.7468
1.865000000 GHz	51.1607	14.7560
1.870000000 GHz	51.1313	14.7636
1.875000000 GHz	51.1214	14.7686
1.880000000 GHz	51.1031	14.7881
1.885000000 GHz	51.0659	14.8097
1.890000000 GHz	51.0611	14.8070
1.895000000 GHz	51.0287	14.8248
1.900000000 GHz	51.0206	14.8498
1.905000000 GHz	51.0091	14.8460
1.910000000 GHz	50.9979	14.8704
1.915000000 GHz	50.9739	14.8918
1.920000000 GHz	50.9603	14.9042

Date/Time: 17/11/2005 3:13:38 PM

Test Laboratory: RTS

Validation_1900 MHz_Liquid_Temp_24_2_C_Ambient_Temp_23_5_C

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:545

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1643; ConvF(5.11, 5.11, 5.11); Calibrated: 15/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn473; Calibrated: 14/03/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

Reference Value = 193.1 V/m; Power Drift = -0.075 dB

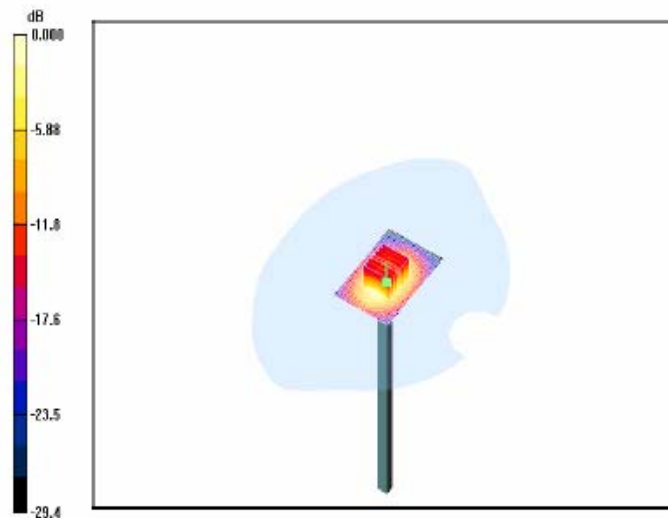
Peak SAR (extrapolated) = 73.3 W/kg

SAR(1 g) = 42.6 mW/g; SAR(10 g) = 22.5 mW/g

Maximum value of SAR (measured) = 48.2 mW/g

Unnamed procedure/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 51.4 mW/g



Test Laboratory: RTS

Right_Side_Touch_CDMA1900_High_Chan_Ambient_Temp_24_7_C_Liquid_Temp

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1908.5 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1908.5$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

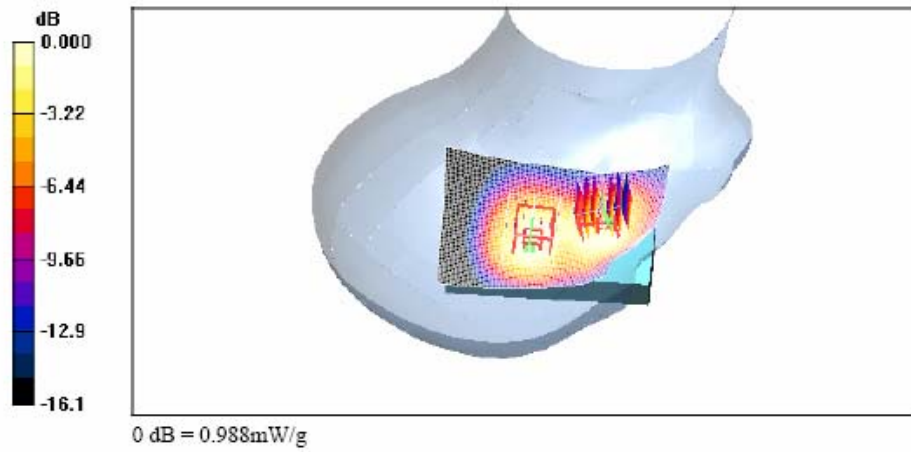
- Probe: ET3DV6 - SN1643; ConvF(5.11, 5.11, 5.11); Calibrated: 15/03/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn473; Calibrated: 14/03/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Touch position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.35 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.721 mW/g
Maximum value of SAR (measured) = 1.33 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.921 mW/g; SAR(10 g) = 0.613 mW/g

Maximum value of SAR (measured) = 0.988 mW/g



Date/Time: 18/11/2005 10:04:09 AM

Test Laboratory: RTS

Left_Side_Touch_CDMA1900_Mid_Chan_Ambient_Temp_24_8_C_Liquid_Temp_22_

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1643; ConvF(5.11, 5.11, 5.11); Calibrated: 15/03/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn473; Calibrated: 14/03/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.1 V/m; Power Drift = -0.509 dB

Peak SAR (extrapolated) = 1.62 W/kg

SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.744 mW/g

Maximum value of SAR (measured) = 1.30 mW/g

Touch position - Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.24 mW/g

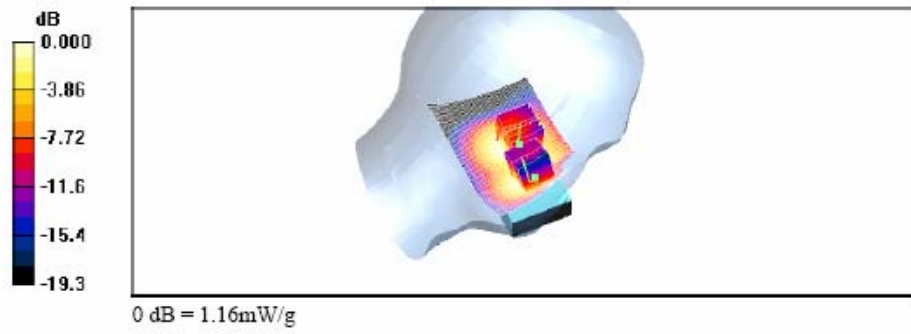
Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.1 V/m; Power Drift = -0.509 dB

Peak SAR (extrapolated) = 1.60 W/kg

SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.620 mW/g

Maximum value of SAR (measured) = 1.16 mW/g



Test Laboratory: RTS

**Body_Worn_LeatherHolster_Back_CDMA
1900_Low_Chan_Amb_Temp_23_8_C_Liq_Temp_23_1_C**

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1851.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1851.25$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 51$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

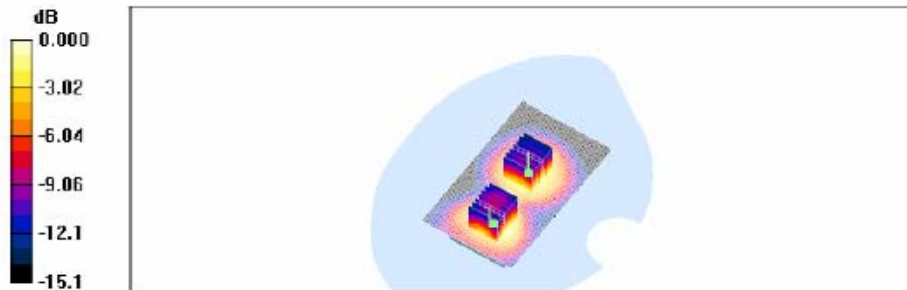
DASY4 Configuration:

- Probe: ET3DV6 - SN1643; ConvF(4.69, 4.69, 4.69); Calibrated: 15/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn473; Calibrated: 14/03/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body Worn/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.11 mW/g

Body Worn/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.5 V/m; Power Drift = 0.732 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.647 mW/g
Maximum value of SAR (measured) = 1.14 mW/g

Body Worn/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.5 V/m; Power Drift = 0.732 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.670 mW/g
Maximum value of SAR (measured) = 1.17 mW/g



Date/Time: 18/11/2005 2:34:00 PM

Test Laboratory: RTS

Right_Side_Touch_CDMA1900_High_Chan_RC1_SO55_Ambient_Temp_24_2_C_Liq

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1908.5 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1908.5 \text{ MHz}$; $\sigma = 1.45 \text{ mho/m}$; $\epsilon_r = 38.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

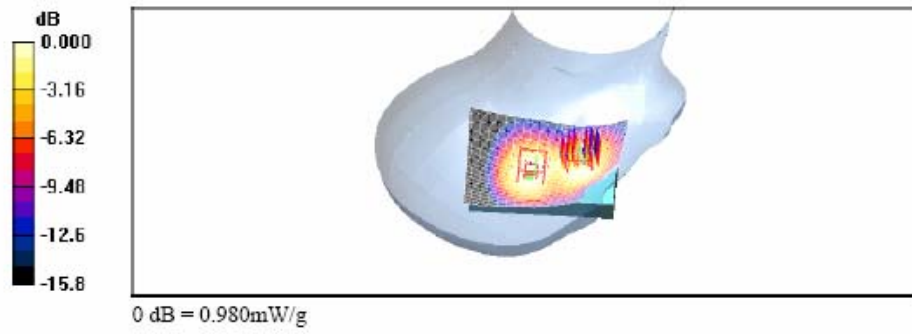
DASY4 Configuration:

- Probe: ET3DV6 - SN1643; ConvF(5.11, 5.11, 5.11); Calibrated: 15/03/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn473; Calibrated: 14/03/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Touch position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.41 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.1 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 1.26 mW/g; SAR(10 g) = 0.756 mW/g
Maximum value of SAR (measured) = 1.40 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.1 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.907 mW/g; SAR(10 g) = 0.601 mW/g
Maximum value of SAR (measured) = 0.980 mW/g



Test Laboratory: RTS

Right_Side_Touch_CDMA1900_High_Chan_RC3_SO55_

HalfRate_Ambient_Temp_24_8_C_Liquid_Temp_23_4_C

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1908.5 MHz; Duty Cycle: 1:2

Medium parameters used: $f = 1908.5$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration: Probe: ET3DV6 - SN1643; ConvF(5.11, 5.11, 5.11); Calibrated: 15/03/2005

- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn473; Calibrated: 14/03/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Touch position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.37 mW/g

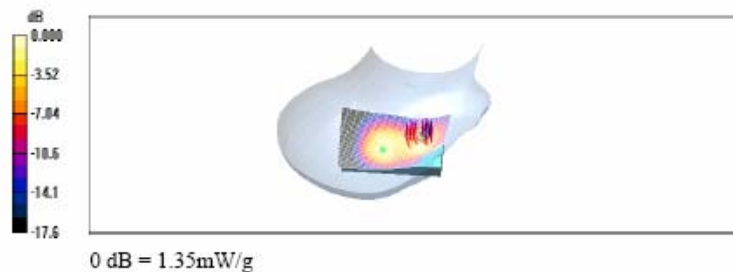
Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.0 V/m; Power Drift = -0.092 dB

Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.709 mW/g

Maximum value of SAR (measured) = 1.35 mW/g



Test Laboratory: RTS

Right_Side_Touch_CDMA1900_High_Chan_RC1_SO2_

1_8th_Ambient_Temp_24_5_C_Liquid_Temp_23_2_C

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1908.5 MHz; Duty Cycle: 1:8

Medium parameters used: $f = 1908.5$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration: Probe: ET3DV6 - SN1643; ConvF(5.11, 5.11, 5.11); Calibrated: 15/03/2005

- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn473; Calibrated: 14/03/2005
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Touch position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.67 mW/g

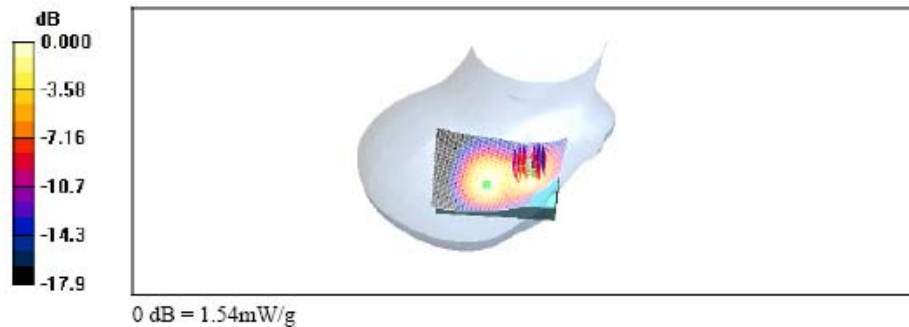
Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.7 V/m; Power Drift = -0.342 dB

Peak SAR (extrapolated) = 2.26 W/kg

SAR(1 g) = 1.4 mW/g; SAR(10 g) = 0.807 mW/g

Maximum value of SAR (measured) = 1.54 mW/g



Test Laboratory: RTS

**Body_Worn_LeatherHolster_Back_EVDO_1900_HighRate(153.6 Kbps)
_Low_Chan_Amb_Temp_23_4_C_Liq_Temp_22_8_C**

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1851.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1851.25$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 51$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1643; ConvF(4.69, 4.69, 4.69); Calibrated: 15/03/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn473; Calibrated: 14/03/2005
- Phantom: SAM 2; Type: SAM 4.0; Serial: 1080
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body Worn/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.820 mW/g

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

Reference Value = 16.6 V/m; Power Drift = -0.144 dB

Peak SAR (extrapolated) = 1.00 W/kg

SAR(1 g) = 0.741 mW/g; SAR(10 g) = 0.457 mW/g

Maximum value of SAR (measured) = 0.815 mW/g

