

RTS RIM Testing Services	Document Hearing Aid Compatibility RF Emissions Test Report for BlackBerry 7130e Wireless Handheld Model RAV20CW		
Author Data Lauren Weber	Dates July 05-08, 2005	Report No RTS-0181-0507-01	FCC ID L6ARAV20CW

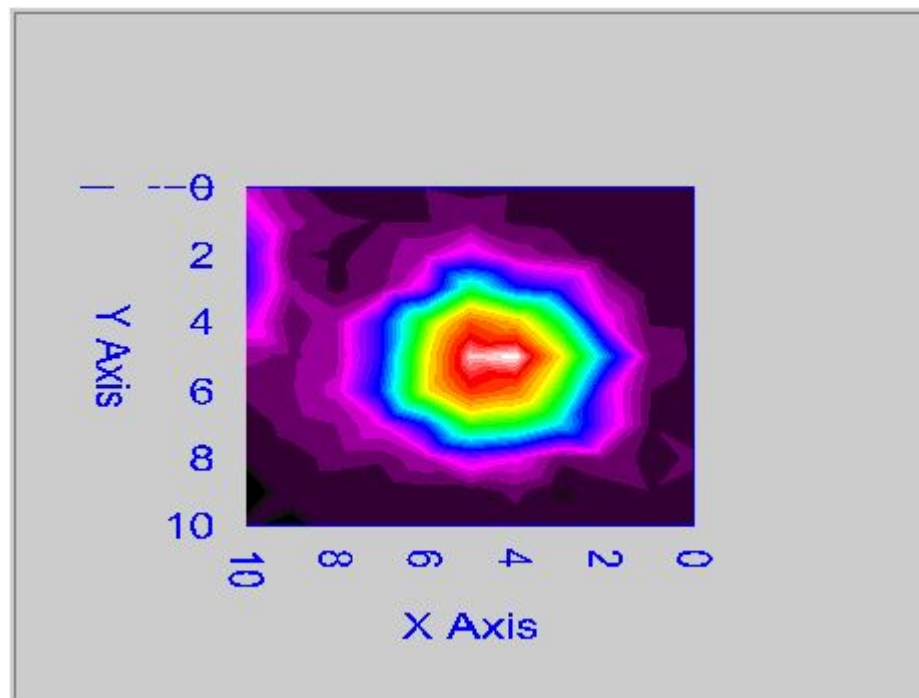
8.0 Annexes

RTS RIM Testing Services	Document Hearing Aid Compatibility RF Emissions Test Report for BlackBerry 7130e Wireless Handheld Model RAV20CW		
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Annex A: Measurement plots and data

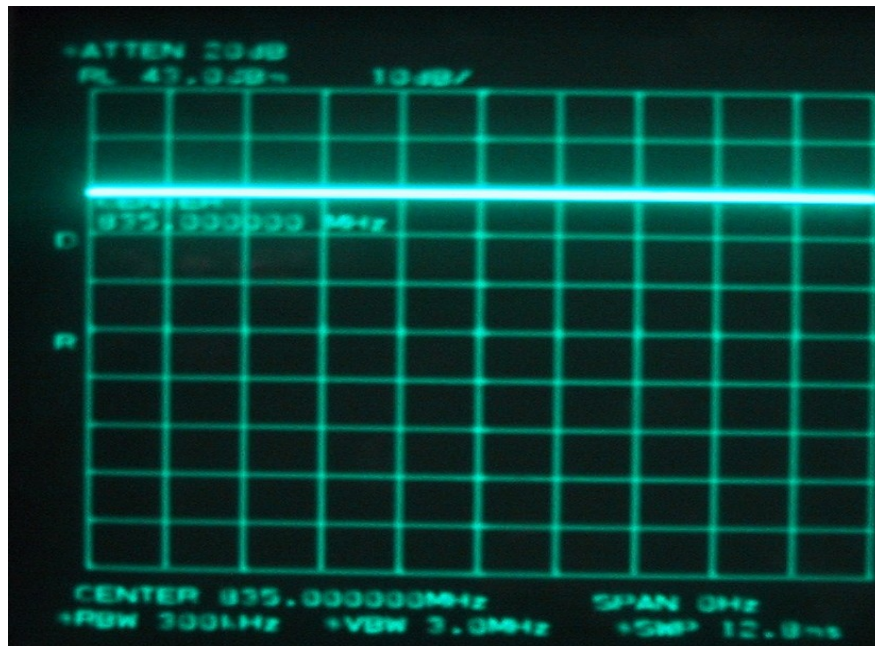
A.1 T-Coil axial data and plot

	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	X-Axis (cm)
0.0	-32.979	-33.097	-33.077	-33.121	-33.072	-33.029	-33.192	-33.175	-32.874	-33.115	-33.162	
0.5	-33.036	-32.981	-33.135	-33.209	-32.992	-32.585	-32.958	-32.97	-33.123	-32.971	-33.014	
1.0	-33.265	-33.116	-33.27	-32.278	-31.402	-28.422	-30.939	-30.764	-32.603	-33.167	-33.13	
1.5	-33.027	-33.121	-32.731	-30.028	-25.996	-23.084	-25.171	-27.639	-32.868	-33.39	-33.116	
2.0	-33.025	-33.05	-32.344	-29.207	-22.361	-17.2	-20.982	-25.629	-31.503	-32.838	-33.152	
2.5	-33.082	-32.689	-31.12	-26.346	-20.611	-17.83	-19.861	-25.059	-30.839	-33.201	-33.285	
3.0	-32.957	-32.994	-32.171	-31.132	-24.909	-23.574	-23.41	-29.334	-32.162	-33.154	-33.264	
3.5	-33.09	-32.979	-32.753	-32.636	-29.787	-29.702	-29.164	-31.644	-32.884	-33.283	-33.112	
4.0	-33.277	-32.866	-33.059	-33.096	-32.212	-32.322	-31.957	-32.575	-32.818	-33.161	-33.149	
4.5	-32.78	-32.421	-32.896	-32.45	-32.932	-32.652	-32.623	-32.777	-33.127	-33.175	-33.53	
5.0	-31.859	-30.891	-29.901	-29.9	-30.968	-32.471	-32.818	-33.248	-33.314	-33.595	-33.315	
Y-Axis (cm)												

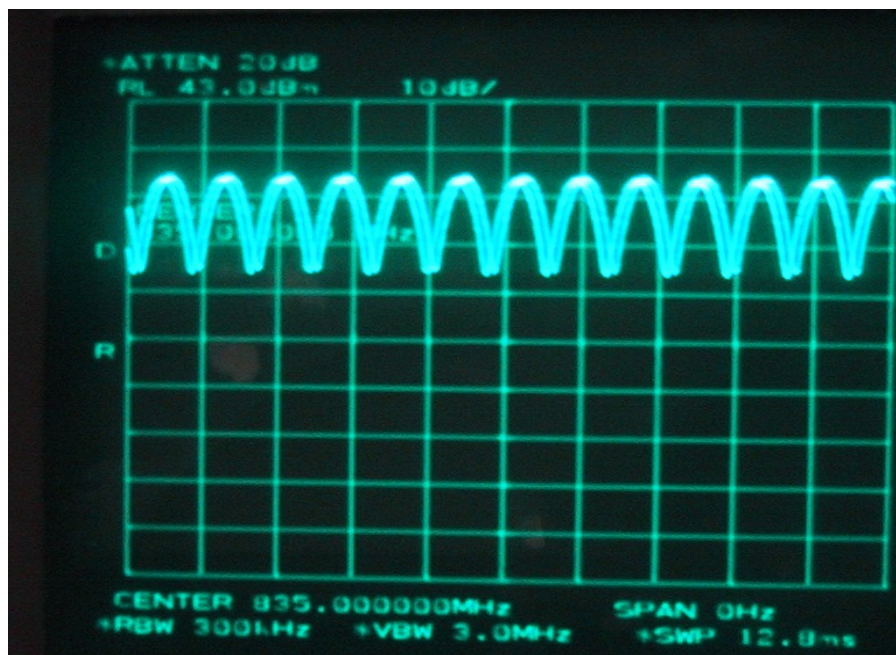


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A.2 Spectrum analyser plots: CW, 80% AM and CDMA signals

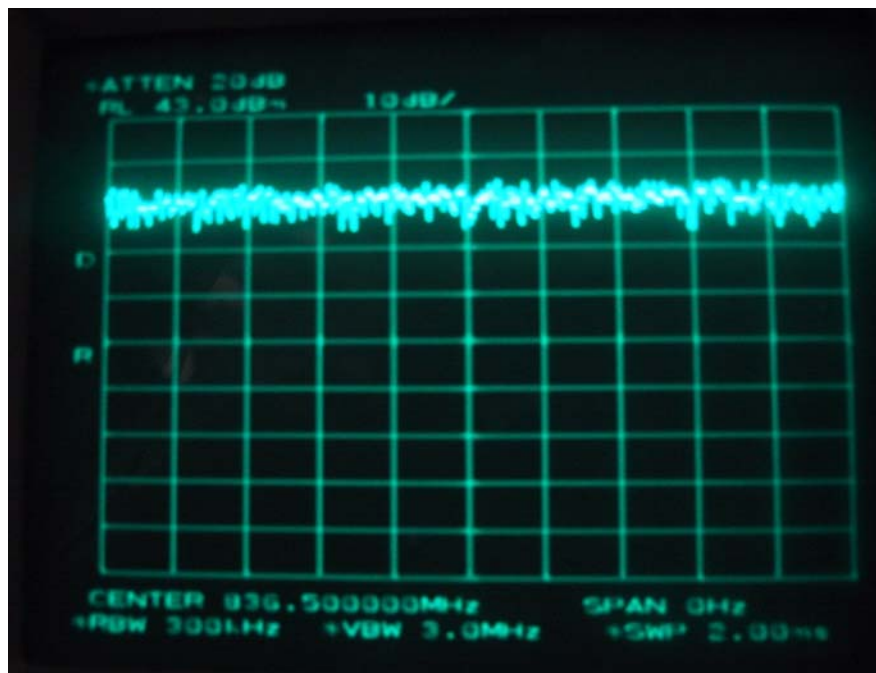


0 Hz Span CW Plot (835MHz)

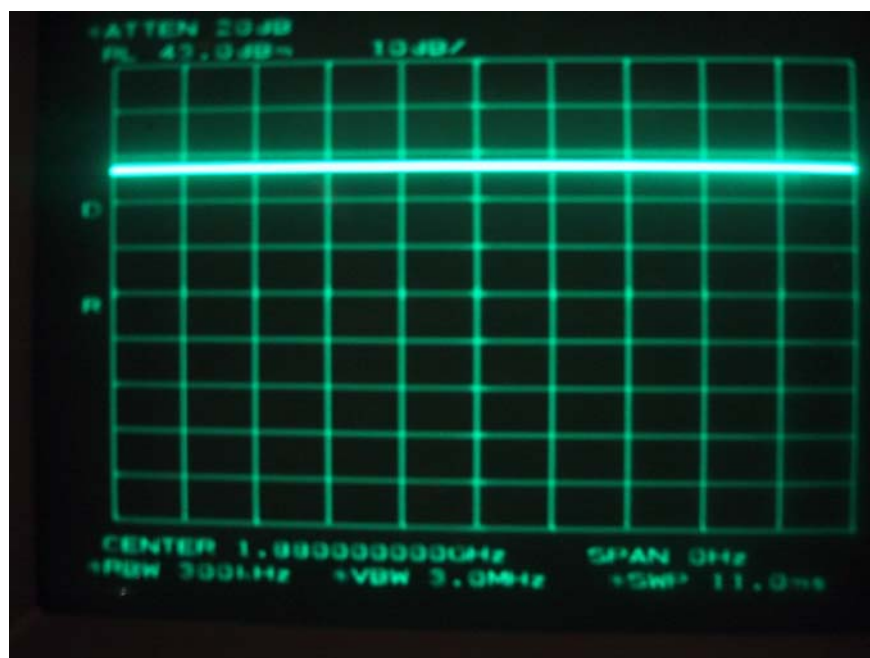


0 Hz Span 80% AM Plot (835MHz)

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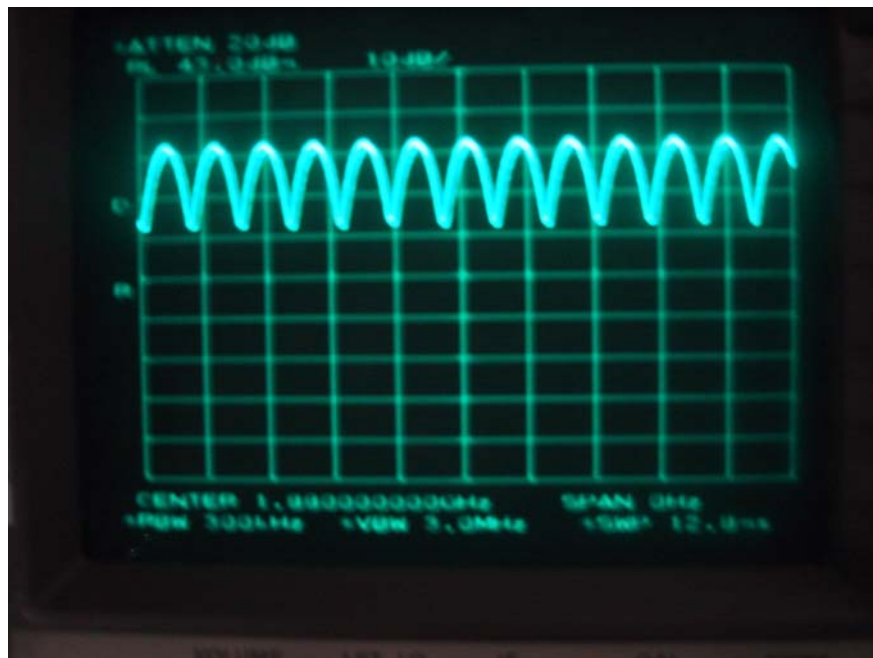


0 Hz Span CDMA Full Rate Plot (835MHz)

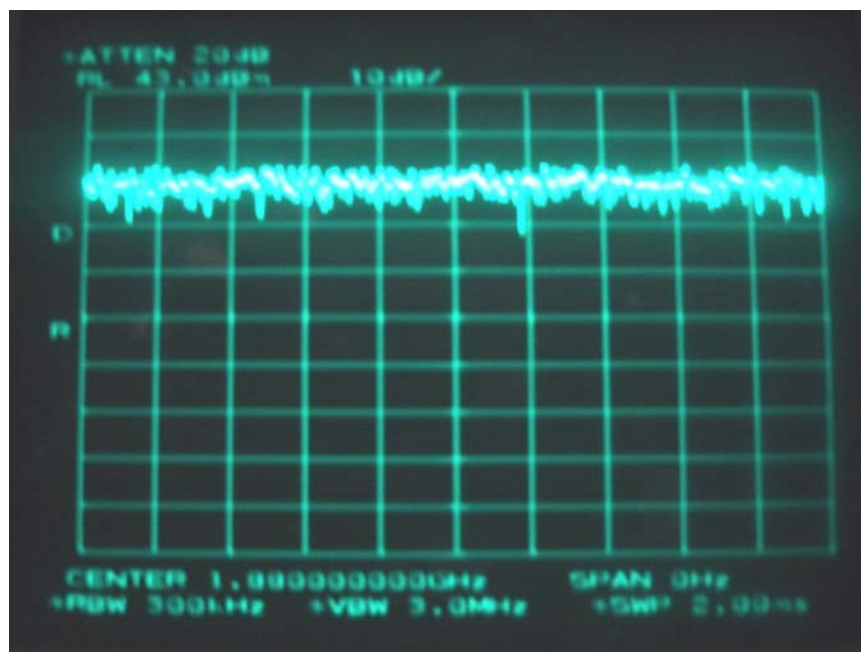


0 Hz Span CW Plot (1880MHz)

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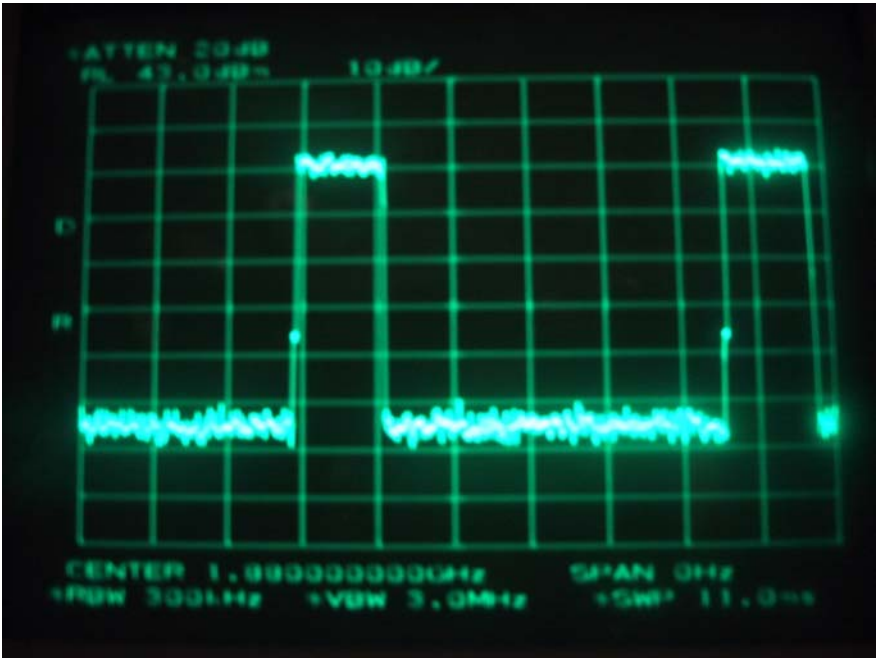


0 Hz Span 80% AM Plot (1880MHz)



0 Hz Span CDMA Full Rate Plot (1880MHz)

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		FCC ID L6ARAV20CW	



0 Hz Span CDMA 1/8 Gating Plot (1880MHz)

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A.3 Dipole validation and probe modulation factor plots

Please note that the colours in the contour plots refer to RMS average levels.

Date/Time: 05/07/2005 11:40:37 AM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_835MHz_CW_20dBm_07-05-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 166.2 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

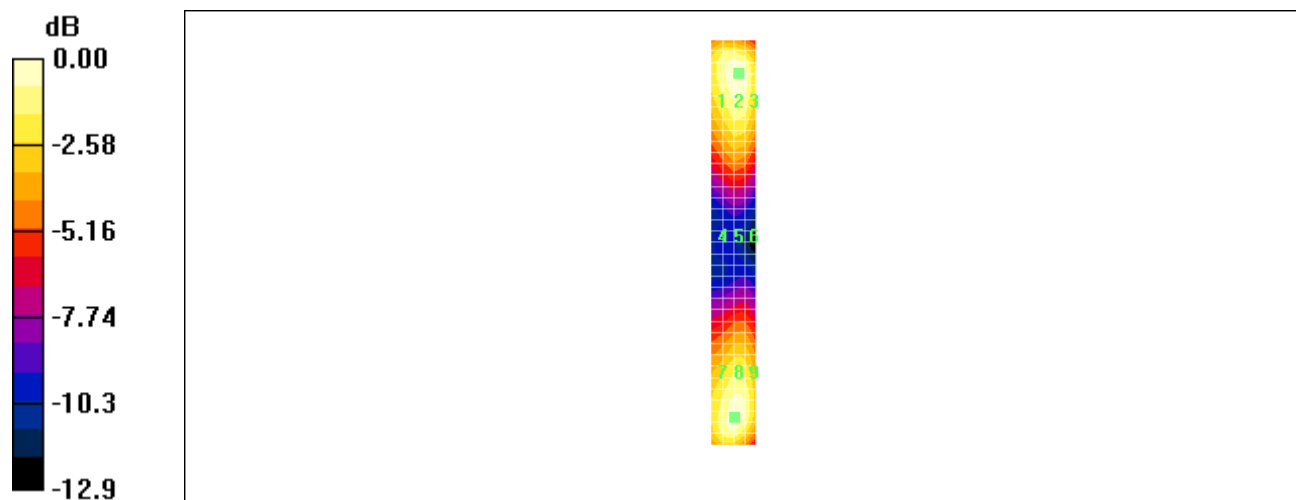
Maximum value of Total field (slot averaged) = 160.6 V/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
153.2	167.2	165.5	153.2	167.2	165.5
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
82.1	90.0	88.0	82.1	90.0	88.0
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
148.2	160.6	156.8	148.2	160.6	156.8

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



0 dB = 167.2V/m

Date/Time: 05/07/2005 12:06:53 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_835MHz_CW_12.5dBm_07-05-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 69.9 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

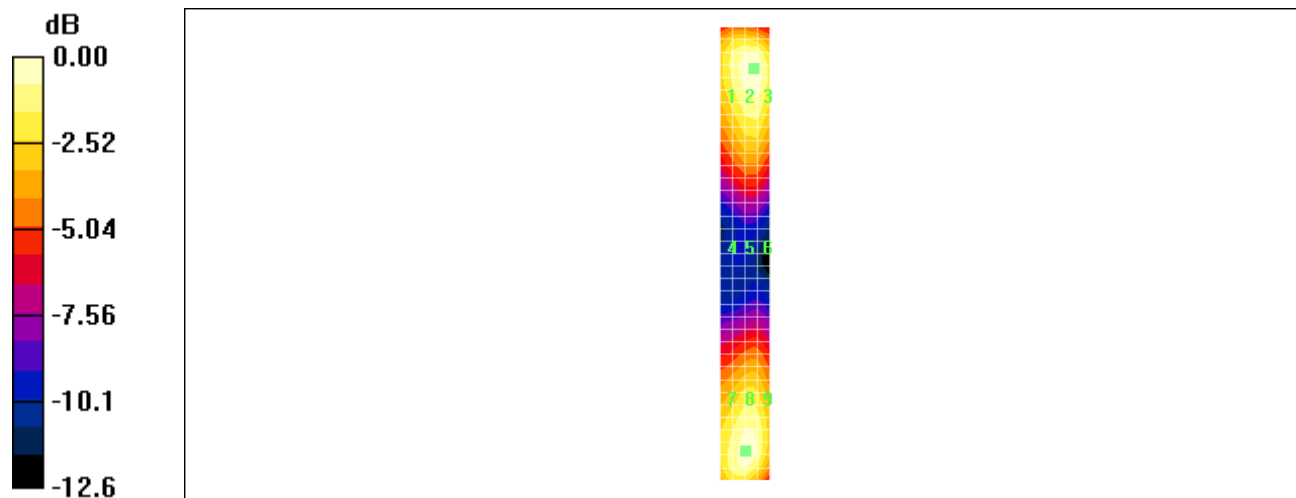
Maximum value of Total field (slot averaged) = 68.8 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
63.3	71.6	71.6	63.3	71.6	71.6
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
35.7	39.8	39.6	35.7	39.8	39.6
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
63.6	68.8	66.7	63.6	68.8	66.7

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



0 dB = 71.6V/m

Date/Time: 05/07/2005 12:39:32 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_835MHz_AM80%_12.5dBm_07-05-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 43.4 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 42.7 V/m

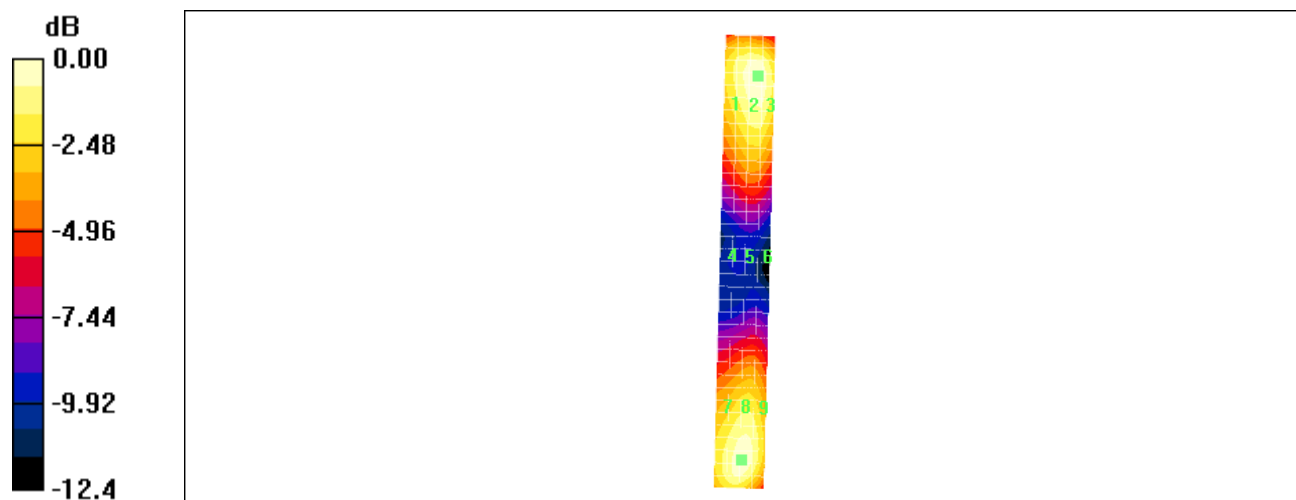
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3
39.5	44.4	44.4
Grid 4	Grid 5	Grid 6
22.5	24.9	24.8
Grid 7	Grid 8	Grid 9
39.5	42.7	42.0

Grid 1	Grid 2	Grid 3
39.5	44.4	44.4
Grid 4	Grid 5	Grid 6
22.5	24.9	24.8
Grid 7	Grid 8	Grid 9
39.5	42.7	42.0

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



0 dB = 44.4V/m

Date/Time: 05/07/2005 2:03:44 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_835MHz_CDMA_full_12.5dBm_07-05-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 69.8 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

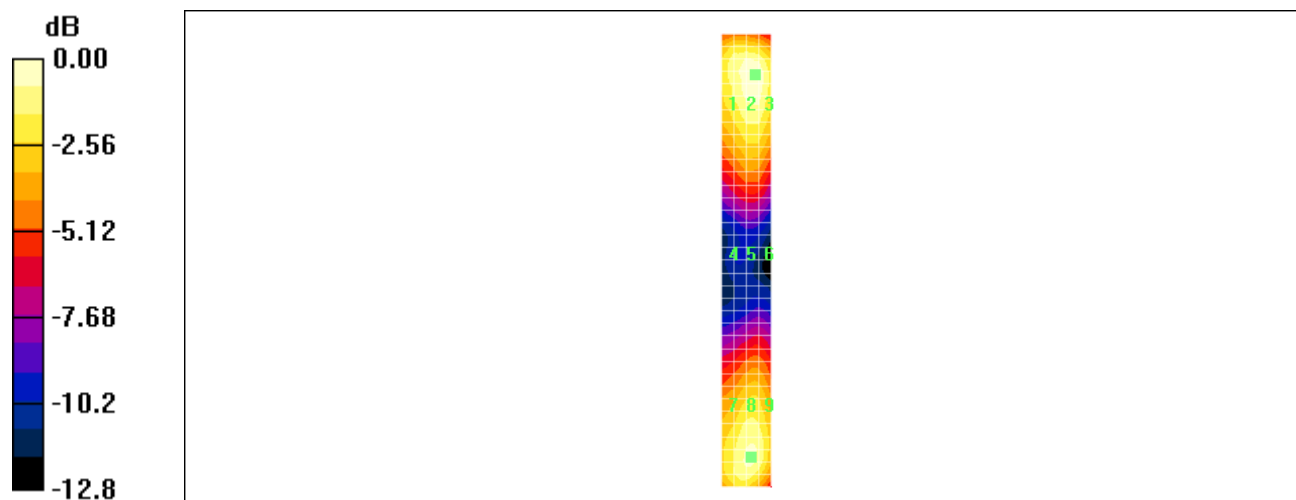
Maximum value of Total field (slot averaged) = 66.4 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
64.4	71.3	71.5	64.4	71.3	71.5
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
35.6	40.0	40.0	35.6	40.0	40.0
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
60.5	66.4	65.8	60.5	66.4	65.8

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



0 dB = 71.5V/m

Date/Time: 05/07/2005 2:14:18 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_835MHz_CDMA_12.5%gating_12.5dBm_07-05-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 24.5 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

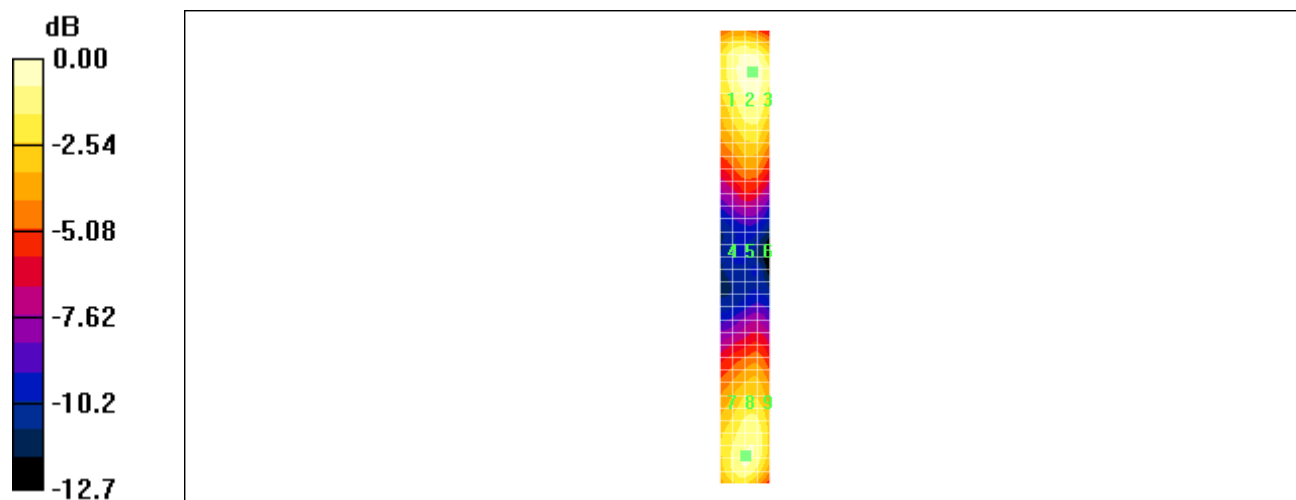
Maximum value of Total field (slot averaged) = 23.2 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
23.0	25.1	25.0	23.0	25.1	25.0
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
12.8	13.9	13.8	12.8	13.9	13.8
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
21.6	23.2	22.8	21.6	23.2	22.8

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



0 dB = 25.1V/m

Date/Time: 05/07/2005 3:17:10 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_1880MHz_CW_20dBm_07-05-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 129.6 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

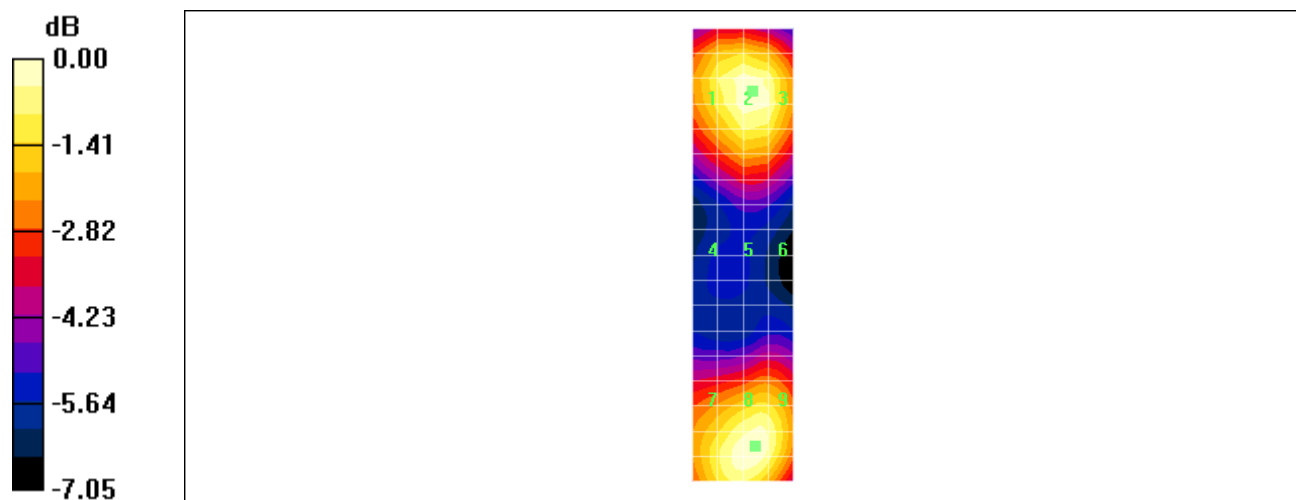
Maximum value of Total field (slot averaged) = 130.3 V/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
122.7	132.3	131.4	122.7	132.3	131.4
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
81.1	89.0	88.1	81.1	89.0	88.1
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
120.9	130.3	129.4	120.9	130.3	129.4

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



0 dB = 132.3V/m

Date/Time: 05/07/2005 3:52:35 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_1880MHz_CW_11.1dBm_07-05-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 46.6 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 46.9 V/m

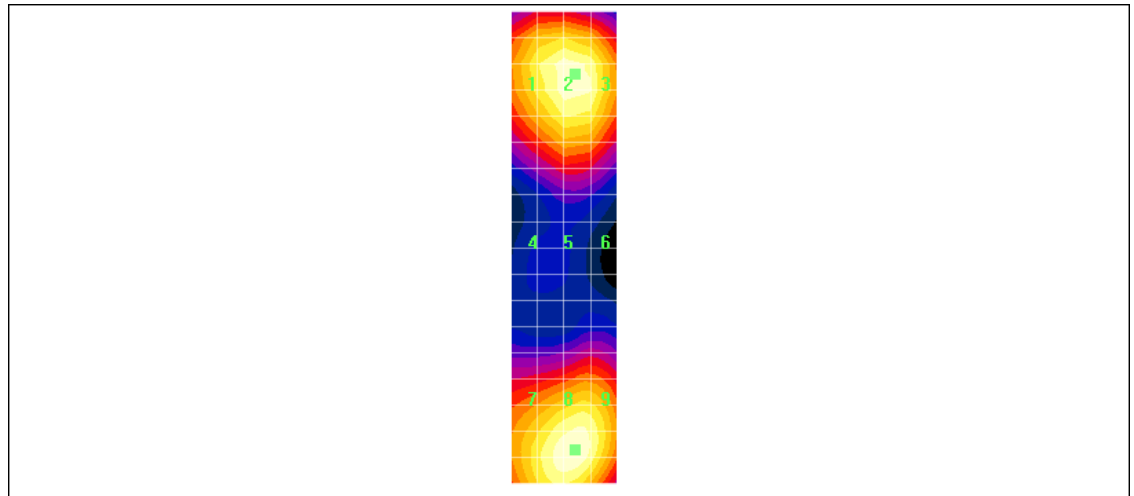
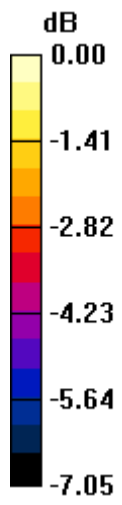
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3
44.0	47.6	47.3
Grid 4	Grid 5	Grid 6
29.2	32.1	31.7
Grid 7	Grid 8	Grid 9
43.2	46.9	46.6

Grid 1	Grid 2	Grid 3
44.0	47.6	47.3
Grid 4	Grid 5	Grid 6
29.2	32.1	31.7
Grid 7	Grid 8	Grid 9
43.2	46.9	46.6

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



0 dB = 47.6V/m

Date/Time: 05/07/2005 4:01:43 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_1880MHz_AM80%_11.1dBm_07-05-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 29.3 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

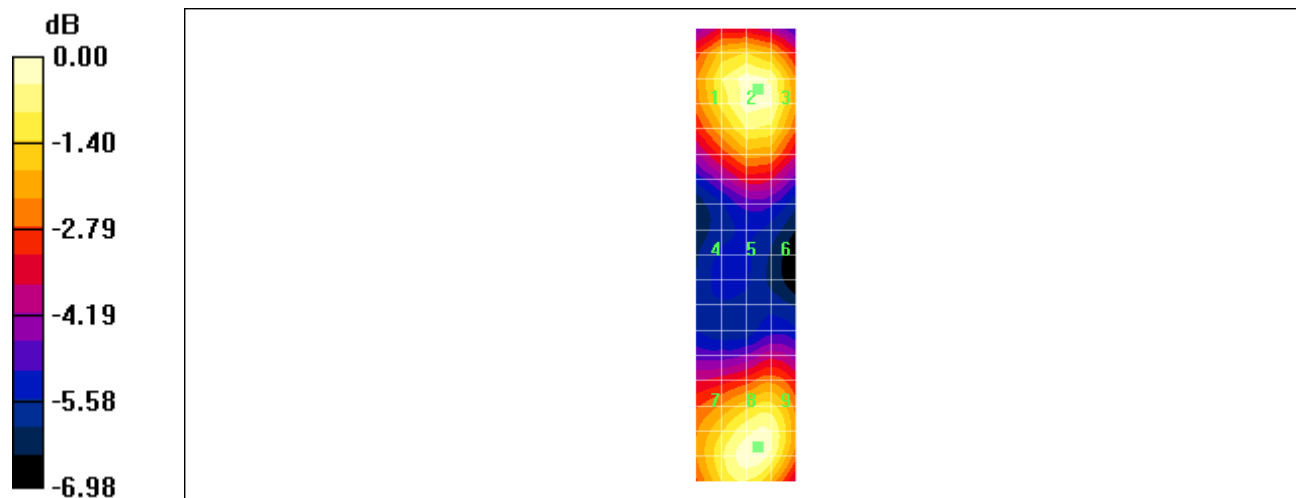
Maximum value of Total field (slot averaged) = 29.5 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
27.7	30.0	29.8	27.7	30.0	29.8
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
18.4	20.3	20.1	18.4	20.3	20.1
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
27.2	29.5	29.3	27.2	29.5	29.3

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



0 dB = 30.0V/m

Date/Time: 05/07/2005 4:14:39 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_1880MHz_CDMA_full_11.1dBm_07-05-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 46.6 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

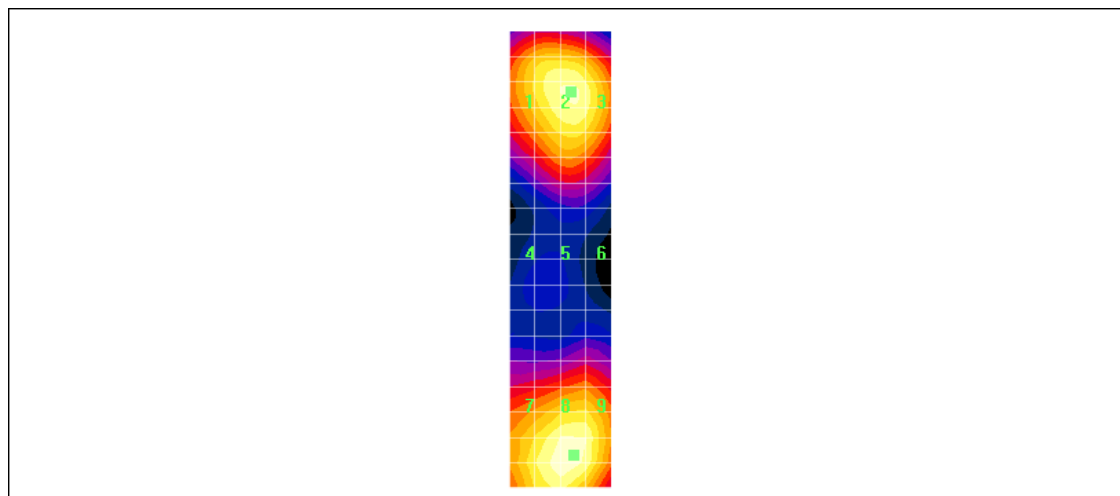
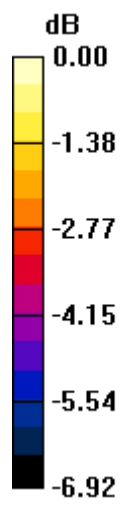
Maximum value of Total field (slot averaged) = 45.1 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1 42.0	Grid 2 45.1	Grid 3 44.9	Grid 1 42.0	Grid 2 45.1	Grid 3 44.9
Grid 4 27.7	Grid 5 30.8	Grid 6 30.5	Grid 4 27.7	Grid 5 30.8	Grid 6 30.5
Grid 7 43.5	Grid 8 47.2	Grid 9 47.0	Grid 7 43.5	Grid 8 47.2	Grid 9 47.0

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



0 dB = 47.2V/m

Date/Time: 05/07/2005 4:23:20 PM

Lab: RIM Testing Services (RTS)

HAC_E_Dipole_1880MHz_CDMA_12.5%gating_11.1dBm_07-05-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 16.2 V/m

E Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 16.0 V/m

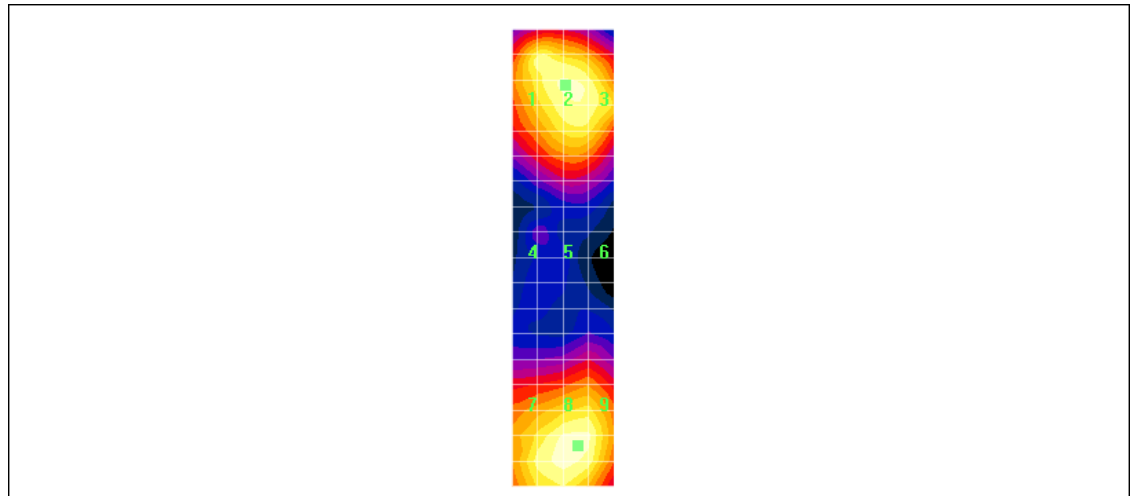
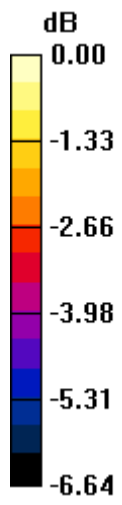
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3
15.7	16.0	15.9
Grid 4	Grid 5	Grid 6
9.99	10.9	10.7
Grid 7	Grid 8	Grid 9
15.7	16.6	16.5

Grid 1	Grid 2	Grid 3
15.7	16.0	15.9
Grid 4	Grid 5	Grid 6
9.99	10.9	10.7
Grid 7	Grid 8	Grid 9
15.7	16.6	16.5

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



0 dB = 16.6V/m

HAC_H_Dipole_835MHz_CW_20dBm_07-06-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.415 A/m

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

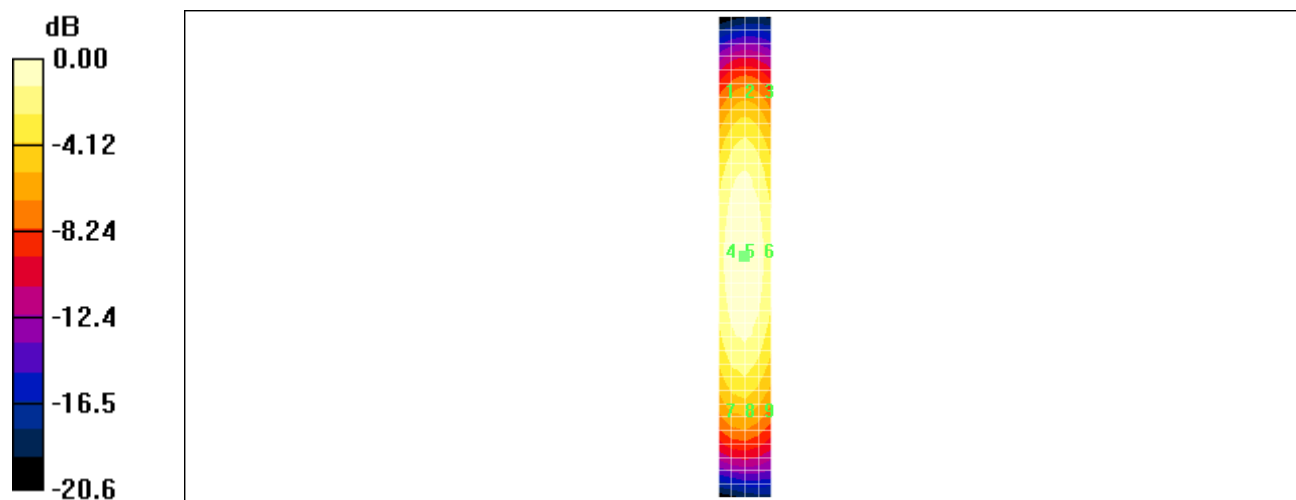
Maximum value of Total field (slot averaged) = 0.415 A/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1 0.347	Grid 2 0.361	Grid 3 0.344	Grid 1 0.347	Grid 2 0.361	Grid 3 0.344
Grid 4 0.395	Grid 5 0.415	Grid 6 0.395	Grid 4 0.395	Grid 5 0.415	Grid 6 0.395
Grid 7 0.349	Grid 8 0.363	Grid 9 0.344	Grid 7 0.349	Grid 8 0.363	Grid 9 0.344

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



0 dB = 0.415A/m

Date/Time: 07/07/2005 9:34:01 AM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_835MHz_CW_12.5dBm_07-07-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.181 A/m

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.181 A/m

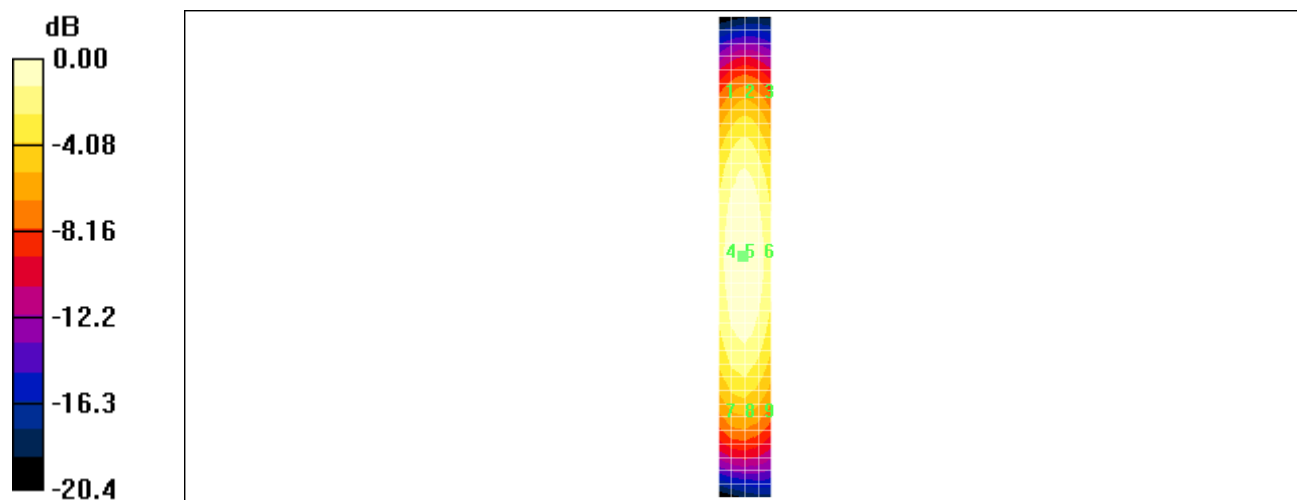
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.152	0.159	0.150
Grid 4	Grid 5	Grid 6
0.174	0.181	0.172
Grid 7	Grid 8	Grid 9
0.154	0.159	0.150

Grid 1	Grid 2	Grid 3
0.152	0.159	0.150
Grid 4	Grid 5	Grid 6
0.174	0.181	0.172
Grid 7	Grid 8	Grid 9
0.154	0.159	0.150

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



0 dB = 0.181A/m

Date/Time: 07/07/2005 9:55:52 AM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_835MHz_AM80%_12.5dBm_07-07-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.114 A/m

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.114 A/m

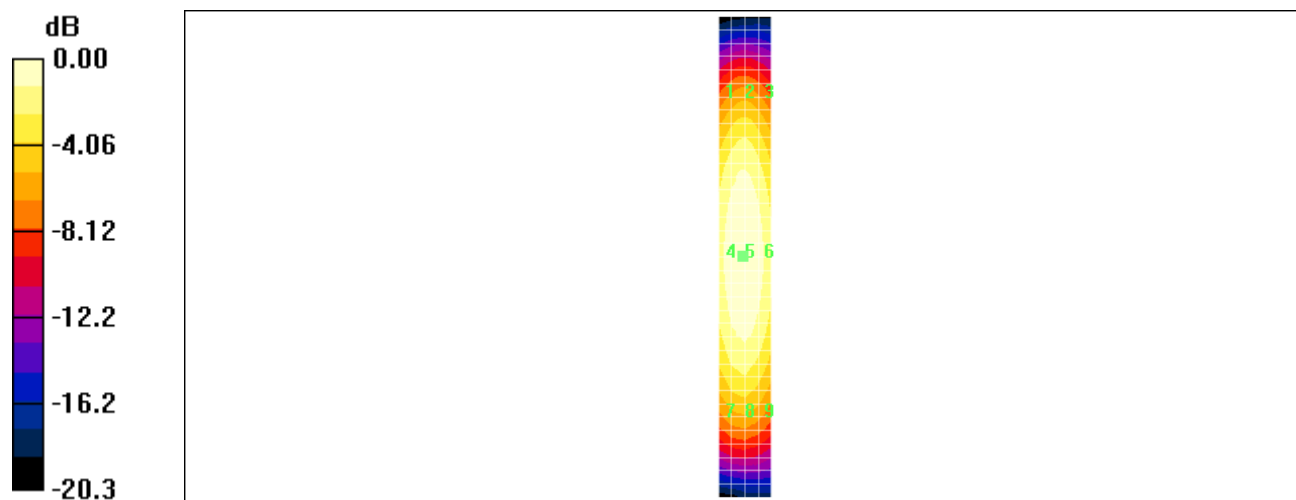
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.096	0.100	0.094
Grid 4	Grid 5	Grid 6
0.110	0.114	0.108
Grid 7	Grid 8	Grid 9
0.096	0.100	0.094

Grid 1	Grid 2	Grid 3
0.096	0.100	0.094
Grid 4	Grid 5	Grid 6
0.110	0.114	0.108
Grid 7	Grid 8	Grid 9
0.096	0.100	0.094

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



0 dB = 0.114A/m

Date/Time: 07/07/2005 8:44:05 AM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_835MHz_CDMA_full_12.5dBm_07-07-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.184 A/m

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.184 A/m

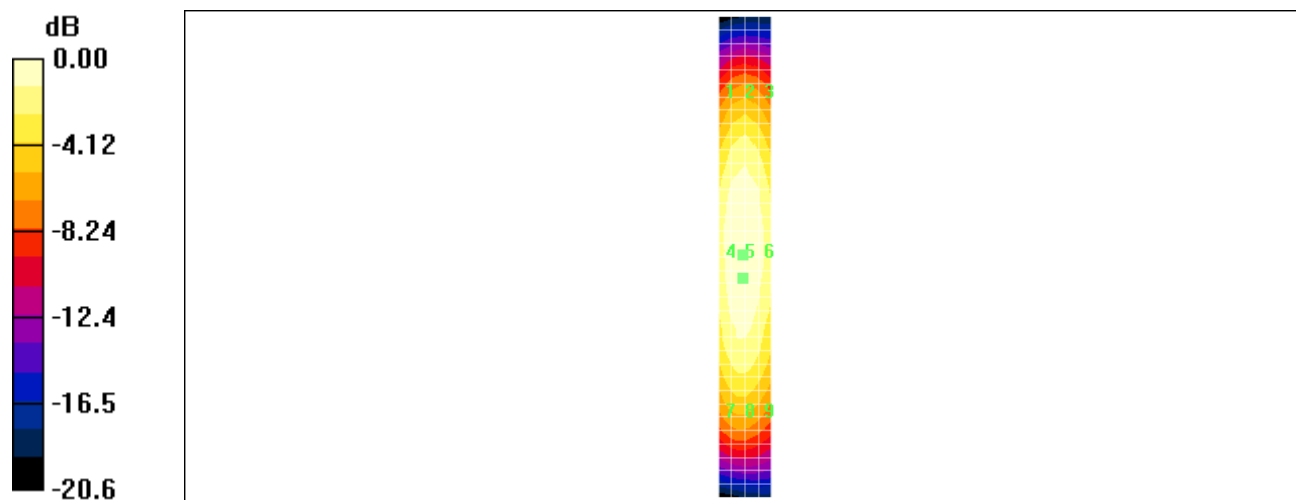
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.158	0.164	0.154
Grid 4	Grid 5	Grid 6
0.178	0.184	0.174
Grid 7	Grid 8	Grid 9
0.155	0.158	0.147

Grid 1	Grid 2	Grid 3
0.158	0.164	0.154
Grid 4	Grid 5	Grid 6
0.178	0.184	0.174
Grid 7	Grid 8	Grid 9
0.155	0.158	0.147

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



0 dB = 0.184A/m

Date/Time: 07/07/2005 8:58:34 AM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_835MHz_CDMA_12.5%gating_12.5dBm_07-07-2005

DUT: HAC-Dipole 835 MHz; Type: D835V3

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

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(5x37x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.066 A/m

H Scan 10mm above CD 835 MHz/Hearing Aid Compatibility Test

(41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.066 A/m

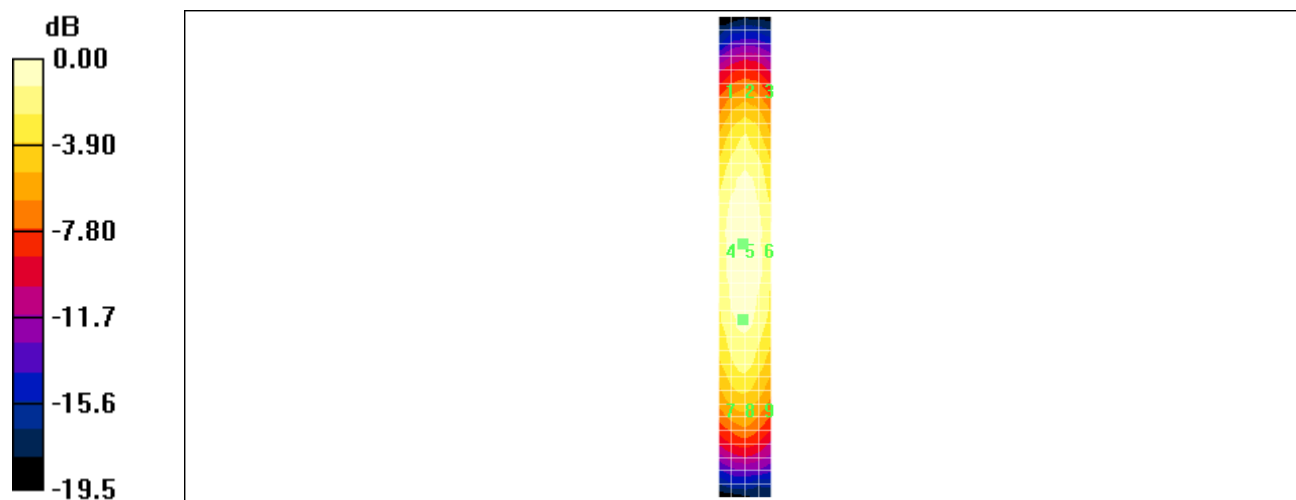
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.055	0.059	0.056
Grid 4	Grid 5	Grid 6
0.063	0.066	0.062
Grid 7	Grid 8	Grid 9
0.053	0.056	0.053

Grid 1	Grid 2	Grid 3
0.055	0.059	0.056
Grid 4	Grid 5	Grid 6
0.063	0.066	0.062
Grid 7	Grid 8	Grid 9
0.053	0.056	0.053

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



0 dB = 0.066A/m

Date/Time: 06/07/2005 6:33:39 PM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_1880MHz_CW_20dBm_07-06-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.405 A/m

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

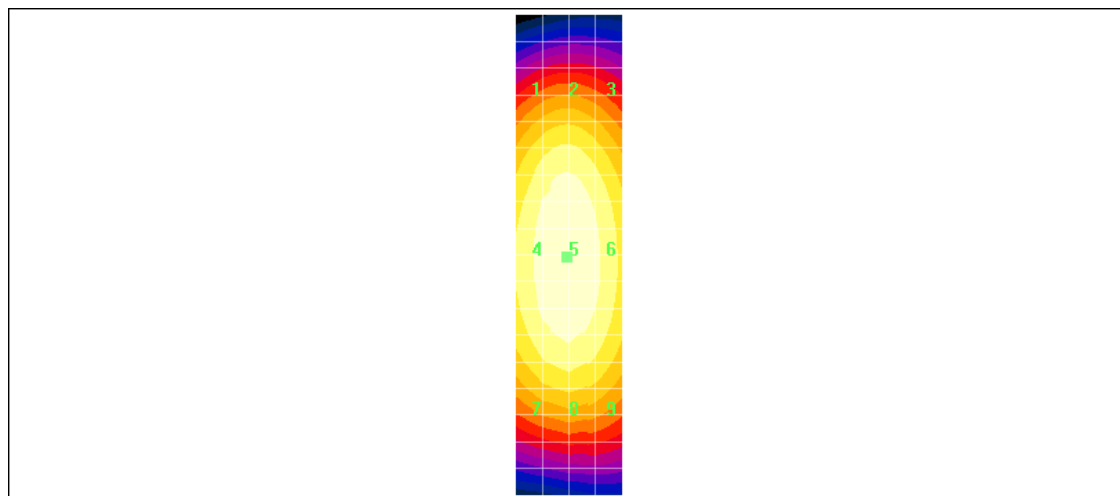
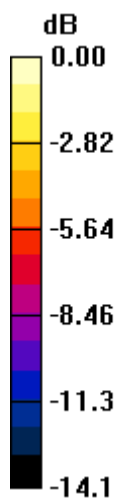
Maximum value of Total field (slot averaged) = 0.405 A/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.349	0.364	0.345	0.349	0.364	0.345
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.390	0.405	0.386	0.390	0.405	0.386
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.360	0.374	0.357	0.360	0.374	0.357

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



0 dB = 0.405A/m

Date/Time: 07/07/2005 11:22:37 AM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_1880MHz_CW_11.1dBm_07-07-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.148 A/m

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

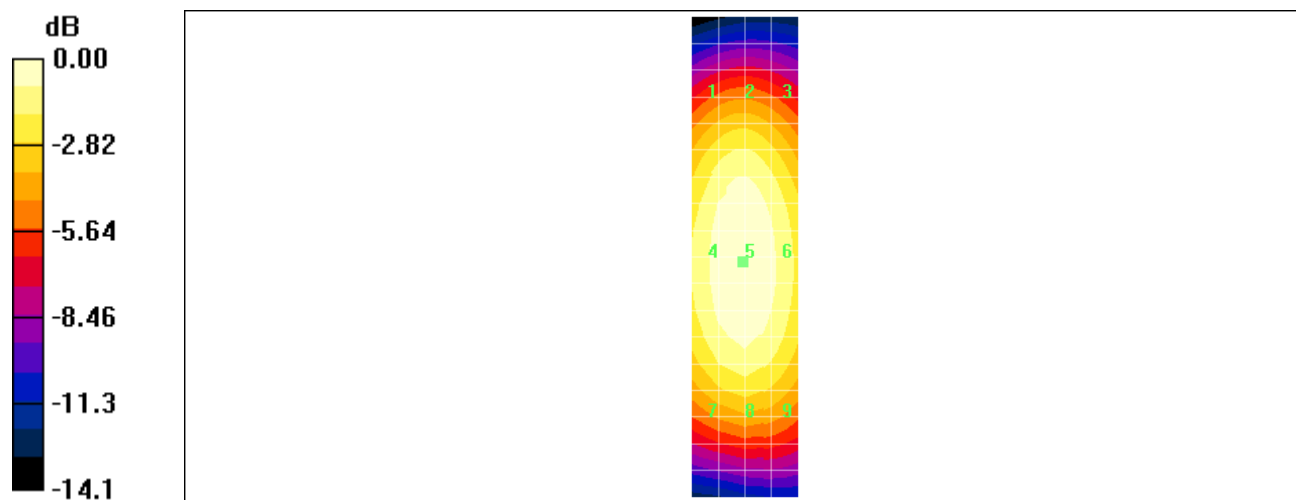
Maximum value of Total field (slot averaged) = 0.148 A/m

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

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.127	0.132	0.125	0.127	0.132	0.125
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.143	0.148	0.141	0.143	0.148	0.141
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.132	0.138	0.131	0.132	0.138	0.131

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



0 dB = 0.148A/m

Date/Time: 07/07/2005 11:35:52 AM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_1880MHz_AM80%_11.1dBm_07-07-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.094 A/m

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

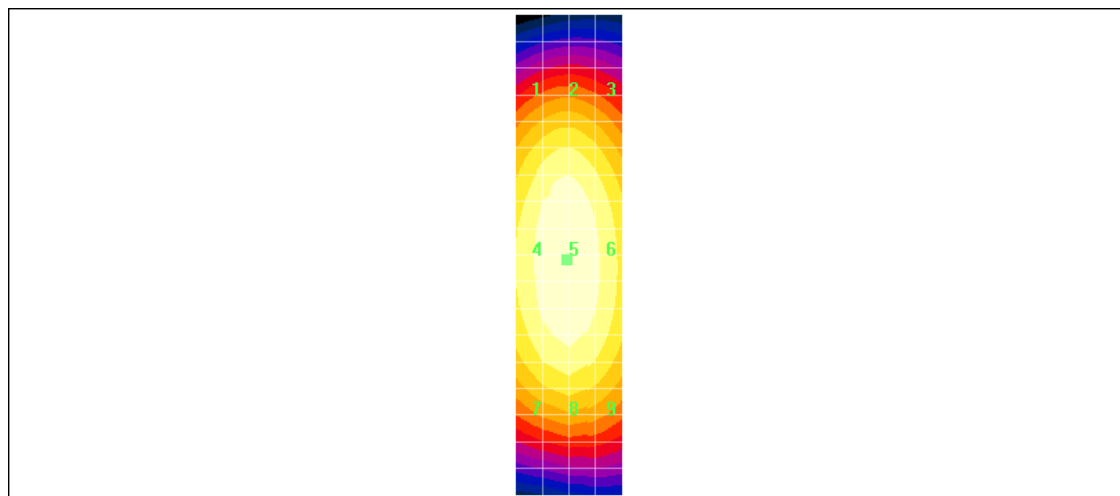
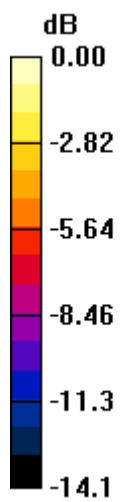
Maximum value of Total field (slot averaged) = 0.094 A/m

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

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.080	0.083	0.079	0.080	0.083	0.079
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.090	0.094	0.089	0.090	0.094	0.089
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.084	0.088	0.084	0.084	0.088	0.084

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



0 dB = 0.094A/m

Date/Time: 07/07/2005 10:46:11 AM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_1880MHz_CDMA_full_11.1dBm_07-07-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.145 A/m

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

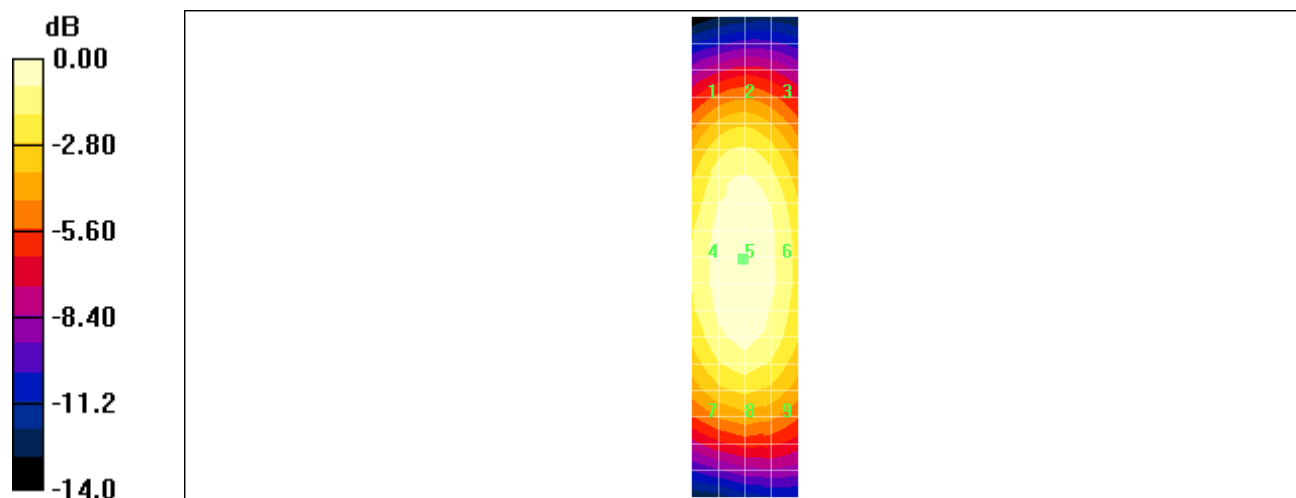
Maximum value of Total field (slot averaged) = 0.145 A/m

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

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.125	0.130	0.124	0.125	0.130	0.124
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.140	0.145	0.138	0.140	0.145	0.138
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.130	0.137	0.129	0.130	0.137	0.129

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



0 dB = 0.145A/m

Date/Time: 07/07/2005 10:54:27 AM

Lab: RIM Testing Services (RTS)

HAC_H_Dipole_1880MHz_CDMA_12.5%gating_11.1dBm_07-07-2005

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(5x19x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.051 A/m

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test

(41x181x1): Measurement grid: dx=5mm, dy=5mm

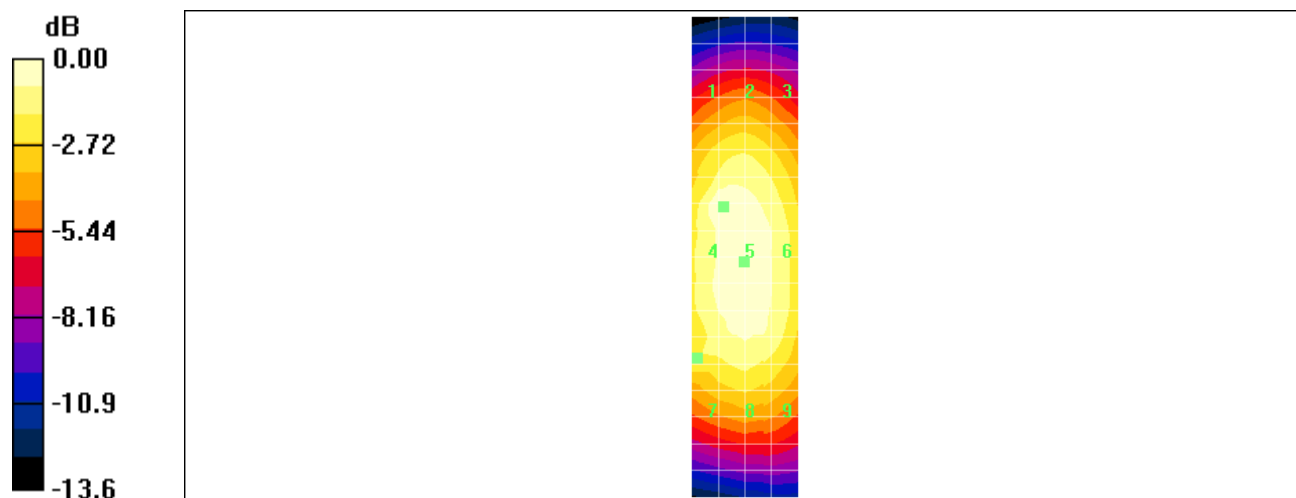
Maximum value of Total field (slot averaged) = 0.052 A/m

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

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.044	0.045	0.043	0.044	0.045	0.043
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.052	0.052	0.049	0.052	0.052	0.049
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.046	0.047	0.047	0.046	0.047	0.047

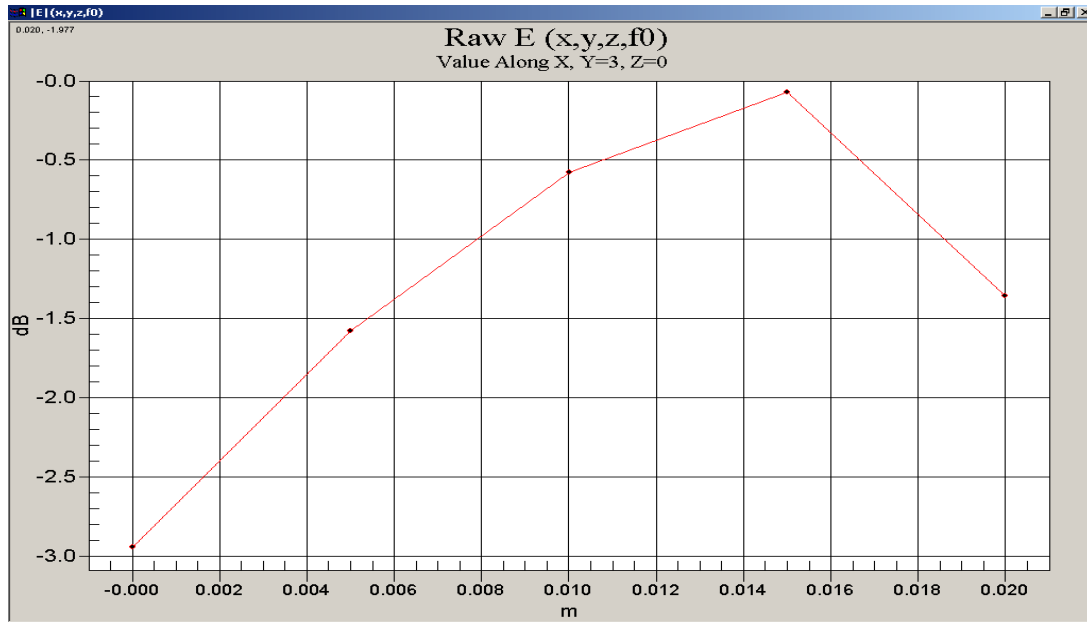
Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.15



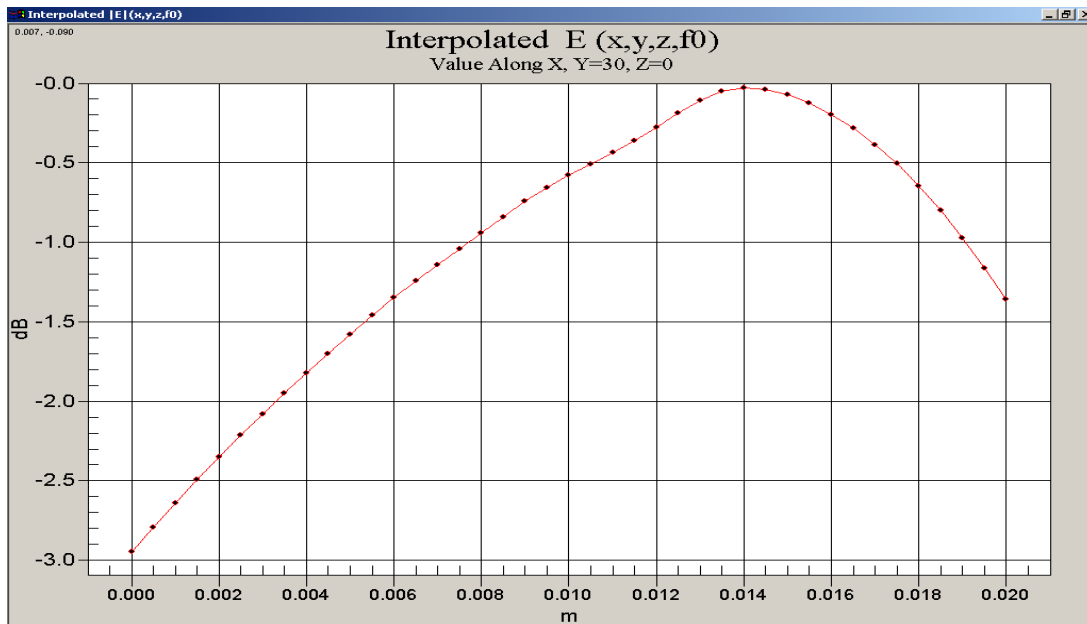
0 dB = 0.052A/m

Justification of Step Size and Interpolation

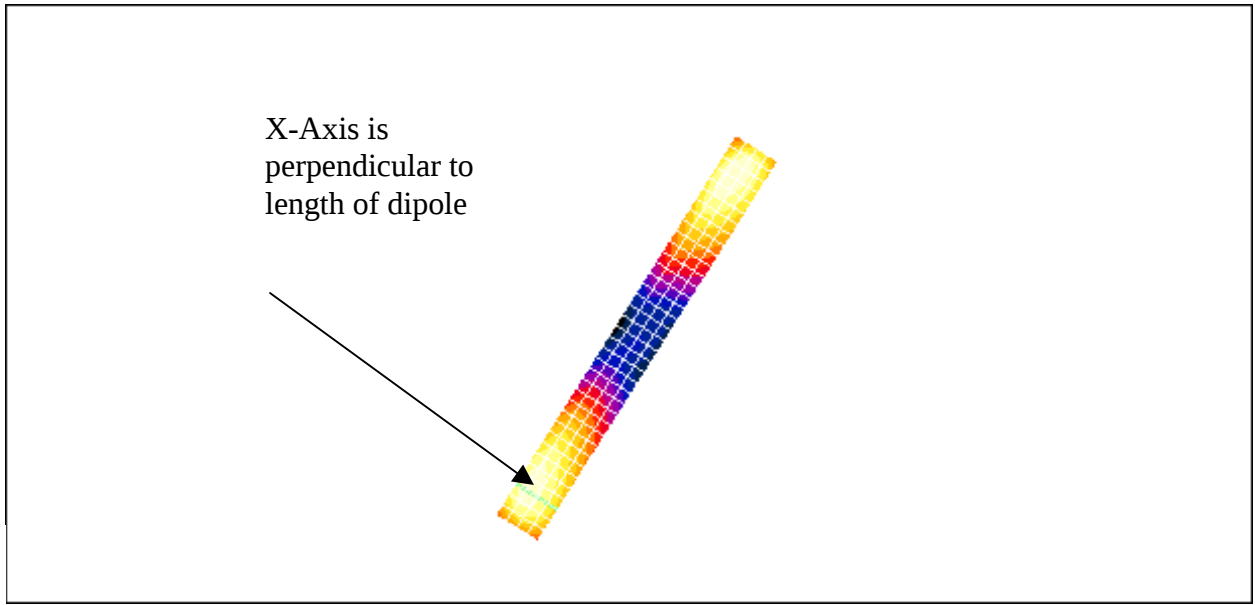
This section demonstrates that a 5mm step size with interpolation provides sufficient resolution for RF emissions measurements. The DASY 4 uses interpolation algorithms to derive 9 interpolated points between every measured point.



The figure above shows the raw measured field strength perpendicular to the length of the validation dipole. The TCB guidance slides require the 3dB width to be much larger than the step size. The width between -3dB points is > 21mm, at least 4 times the step size.



This figure shows the interpolated field strength perpendicular to the dipole. The interpolated points follow the raw points with no inconsistencies.



The green line in this figure shows the axis along which the points lie.

Comparison of 5mm and 2mm step sizes

An additional set of measurements was taken: dipole validations were performed using 5mm and 2mm step sizes. The delta between the two readings is insignificant for both field types ($< 0.4\%$ for E and 0% for H), demonstrating that 5mm is sufficient. The plots follow.

Date/Time: 14/07/2005 11:35:24 AM

Lab: RIM Testing Services (RTS)**Dipole Validation 1880 MHz_E-Field 07_14_05****DUT: HAC Dipole 1880 MHz; Type: CD1880V3**

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004
- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (5x19x1):

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

Maximum value of Total (measured) = 134.8 V/m

E Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (41x181x1):

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

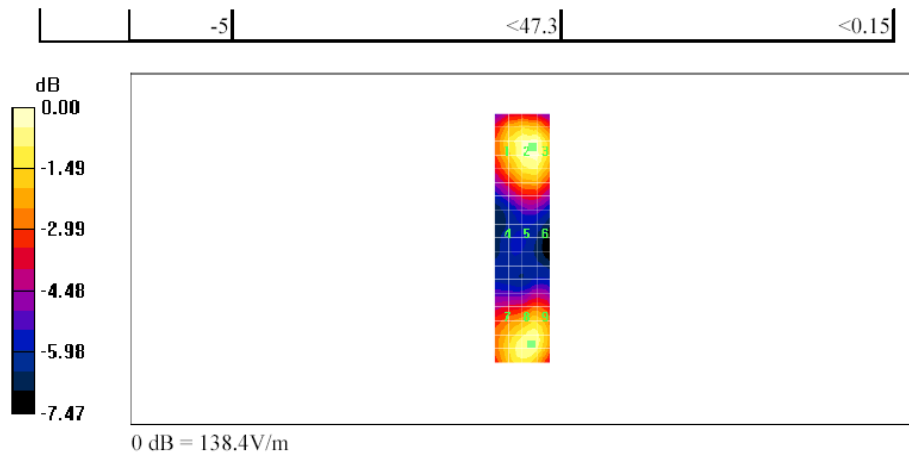
Maximum value of Total field (slot averaged) = 131.0 V/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
123.2	138.1	138.4	123.2	138.1	138.4
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
80.9	92.3	92.2	80.9	92.3	92.2
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
119.8	131.0	130.7	119.8	131.0	130.7

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



Date/Time: 14/07/2005 11:44:51 AM

Lab: RIM Testing Services (RTS)**Dipole Validation 1880 MHz_2mm step_E-Field 07_14_05****DUT: HAC Dipole 1880 MHz; Type: CD1880V3**

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004
- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (11x46x1):

Measurement grid: dx=2mm, dy=2mm

Maximum value of Total (measured) = 138.0 V/m

E Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (101x451x1):

Measurement grid: dx=2mm, dy=2mm

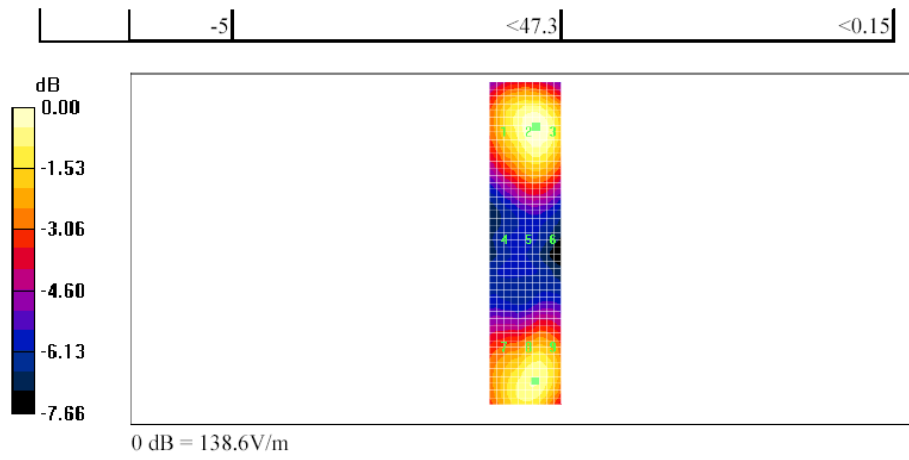
Maximum value of Total field (slot averaged) = 131.2 V/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
123.1	138.6	138.6	123.1	138.6	138.6
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
81.4	92.1	91.6	81.4	92.1	91.6
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
121.3	131.2	131.0	121.3	131.2	131.0

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



Date/Time: 14/07/2005 12:43:02 PM

Lab: RIM Testing Services (RTS)**HAC_H_Dipole_CW 1880_5 mm step_07_14_05****DUT: HAC Dipole 1880 MHz; Type: CD1880V3**

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004
- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (5x19x1):

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

Maximum value of Total (measured) = 0.406 A/m

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (41x181x1):

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

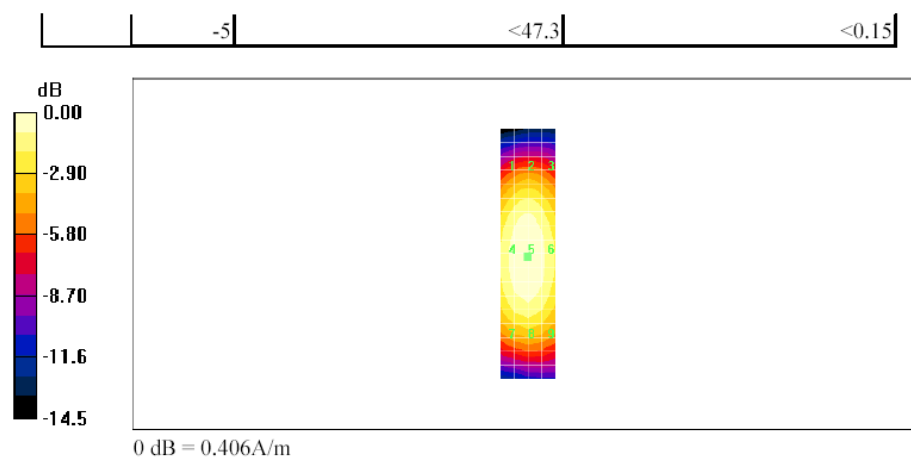
Maximum value of Total field (slot averaged) = 0.406 A/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.342	0.359	0.344	0.342	0.359	0.344
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.389	0.406	0.389	0.389	0.406	0.389
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.363	0.378	0.363	0.363	0.378	0.363

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



Date/Time: 14/07/2005 12:53:40 PM

Lab: RIM Testing Services (RTS)**HAC_H_Dipole_CW 1880_2 mm step_07_14_05****DUT: HAC Dipole 1880 MHz; Type: CD1880V3**

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

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

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004
- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (11x46x1):

Measurement grid: dx=2mm, dy=2mm

Maximum value of Total (measured) = 0.406 A/m

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (101x451x1):

Measurement grid: dx=2mm, dy=2mm

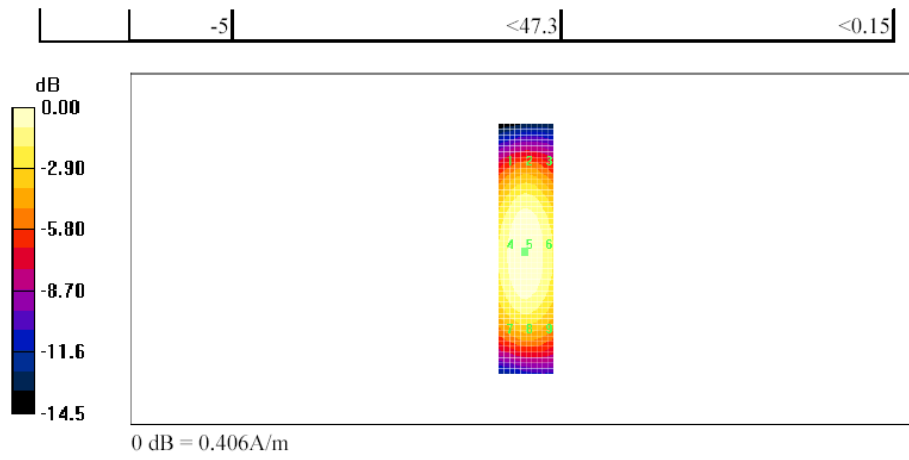
Maximum value of Total field (slot averaged) = 0.406 A/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.347	0.361	0.348	0.347	0.361	0.348
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.394	0.406	0.391	0.394	0.406	0.391
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.367	0.380	0.365	0.367	0.380	0.365

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



RTS RIM Testing Services	Document Hearing Aid Compatibility RF Emissions Test Report for BlackBerry 7130e Wireless Handheld Model RAV20CW		
Author Data Lauren Weber	Dates July 05-08, 2005	Report No RTS-0181-0507-01	FCC ID L6ARAV20CW

A.4 RF emission field plots

Please note that the colours in the contour plots refer to RMS average levels.

For plots where the probe was rotated, an 'X' marks the location of rotation.

Date/Time: 05/07/2005 5:17:05 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtSpeaker_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 836.52 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 89.6 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

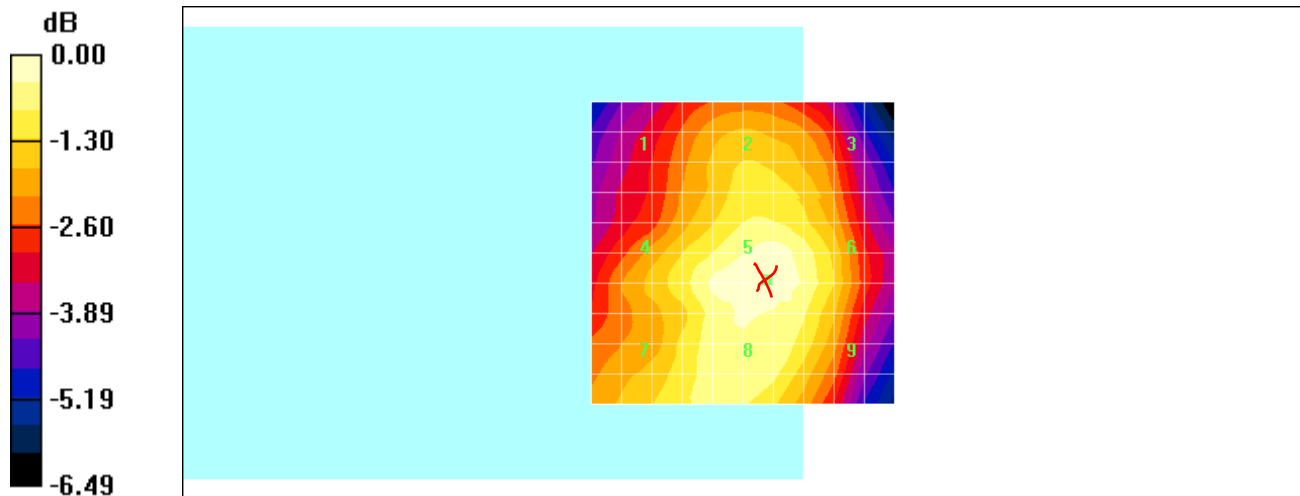
Maximum value of Total field (slot averaged) = 89.7 V/m

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

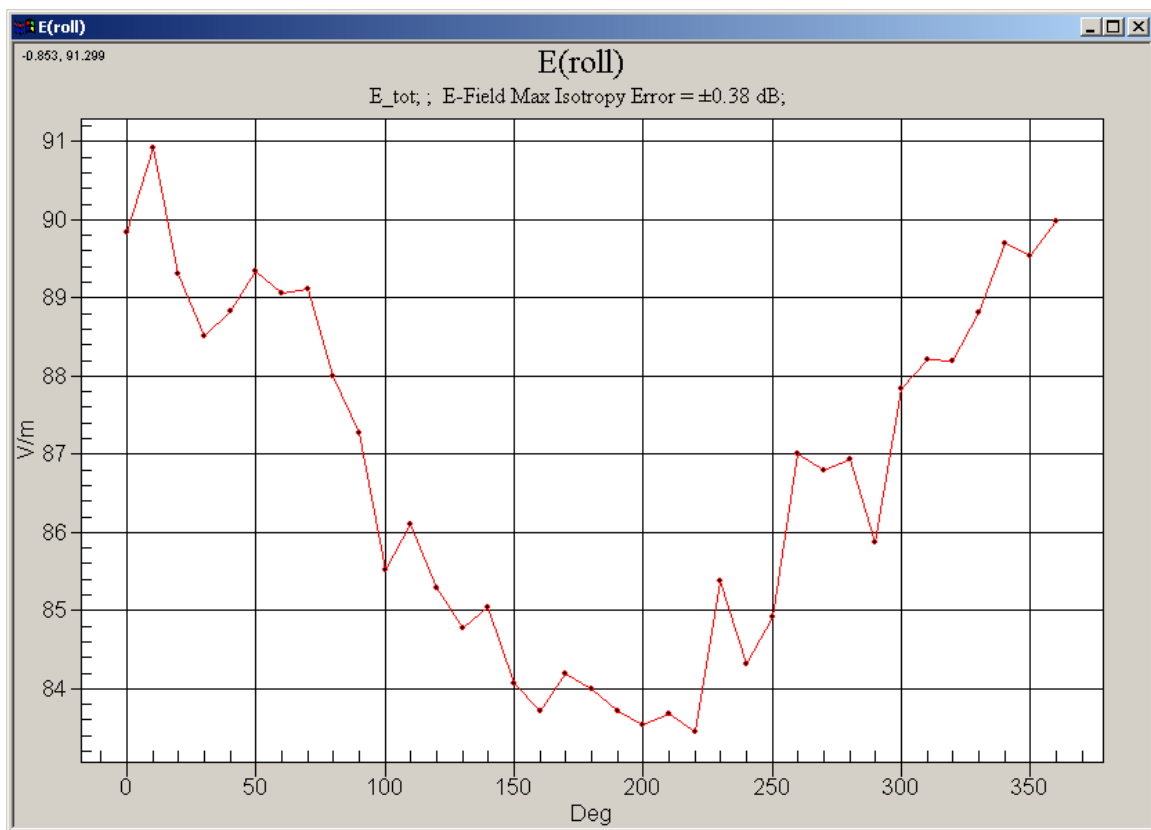
E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
71.7	80.1	78.0	71.7	80.1	78.0
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
80.9	89.7	86.9	80.9	89.7	86.9
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
81.1	87.0	84.3	81.1	87.0	84.3

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



0 dB = 89.7V/m



Peak after rotation = $E_{roll_max} \times PMF$
 = 90.9×1.00
 = 90.9 V/m

Screen capture showing power drift for worst-case scan

DASY4 - [BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtSpeaker_batt1.d44]

File Edit View Tools Window Help

Locked Setup Status

Item	Status
Server	
DAE3 Sn472	
ER3D/V6 - SN2285	Not installed
Bigfoot RX90L	Power is off - Lefty-Above-NoFlip
HAC Test Arch...	
Air	Not installed
BlackBerry Wir...	
CDMA 800	Not installed
DASY4 (High Pr...	ANSI-C63.19 Hearing Aid Compatibility

HAC E Device

- Phantom Adjustment and Verification (CDMA 800, Channel 384 'Middle', 836.52 MHz, Crest Factor: 1, Mod. Frequency: 0 Hz)
 - Surface Check (HAC)
 - Verify Height 0.5mm above Center (User point 'Height Check')
 - Delay 1 (10 s)
 - Verify Height for Scan (Section grid reference)
 - E Scan 10mm above Device Reference (CDMA 800, Channel 384 'Middle', 836.52 MHz, Crest Factor: 1, Mod. Frequency: 0 Hz)
 - Power Reference Measurement 100% done, 91.5 V/m
 - Hearing Aid Compatibility Test 100% done, Max (Interp.) = 89.75 V/m
 - Power Drift Measurement 100% done, 92.2 V/m, 0.0663 dB
 - Robot Command (Interpolated maximum of 'E Scan 10mm above Device Reference/Hearing Aid Compatibility Test')
 - Rotation (1D) 100% done, 86.8 V/m ± 0.37 dB
 - Robot Command 2 (Section park)

Messages

Robot Terminal

```
rom ES received, communication starting up
Timeout while waiting for header 21 0.336
*** Watchdog: Communication error
srf: 0.3%
Initial message from ES received, communication starting up
*** Probe collision
```

X: Y: Z: NUM

Date/Time: 06/07/2005 8:49:23 AM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtT-Coil_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 836.52 MHz; Duty Cycle: 1:1

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 87.4 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

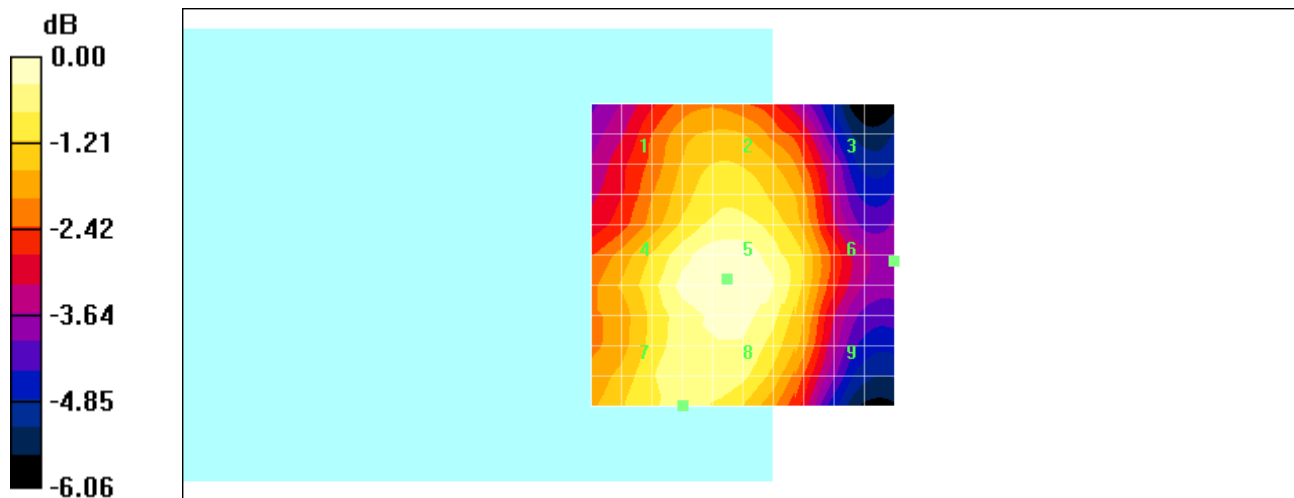
Maximum value of Total field (slot averaged) = 87.8 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
76.1	79.6	73.4	76.1	79.6	73.4
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
86.0	87.8	79.0	86.0	87.8	79.0
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
83.6	86.3	77.2	83.6	86.3	77.2

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



Date/Time: 06/07/2005 9:01:07 AM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_high_ch_centerAtT-Coil_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 848.52 MHz; Duty Cycle: 1:1

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 83.0 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 83.4 V/m

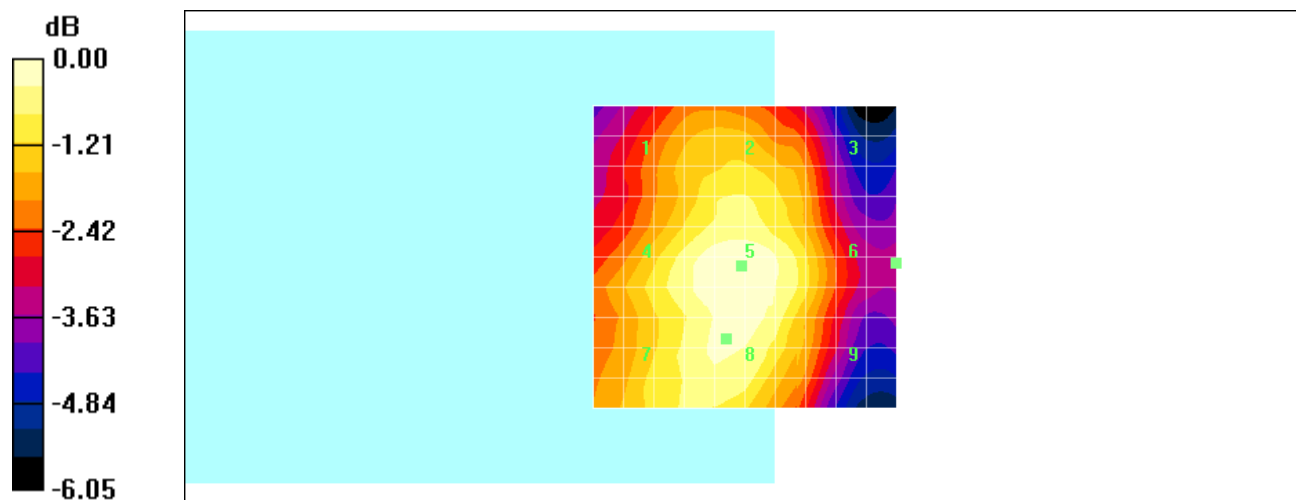
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3
71.6	76.7	71.0
Grid 4	Grid 5	Grid 6
79.5	83.4	76.4
Grid 7	Grid 8	Grid 9
77.5	82.2	73.4

Grid 1	Grid 2	Grid 3
71.6	76.7	71.0
Grid 4	Grid 5	Grid 6
79.5	83.4	76.4
Grid 7	Grid 8	Grid 9
77.5	82.2	73.4

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



Date/Time: 06/07/2005 9:36:01 AM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtSpeaker_batt2

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 836.52 MHz; Duty Cycle: 1:1

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 86.6 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 86.9 V/m

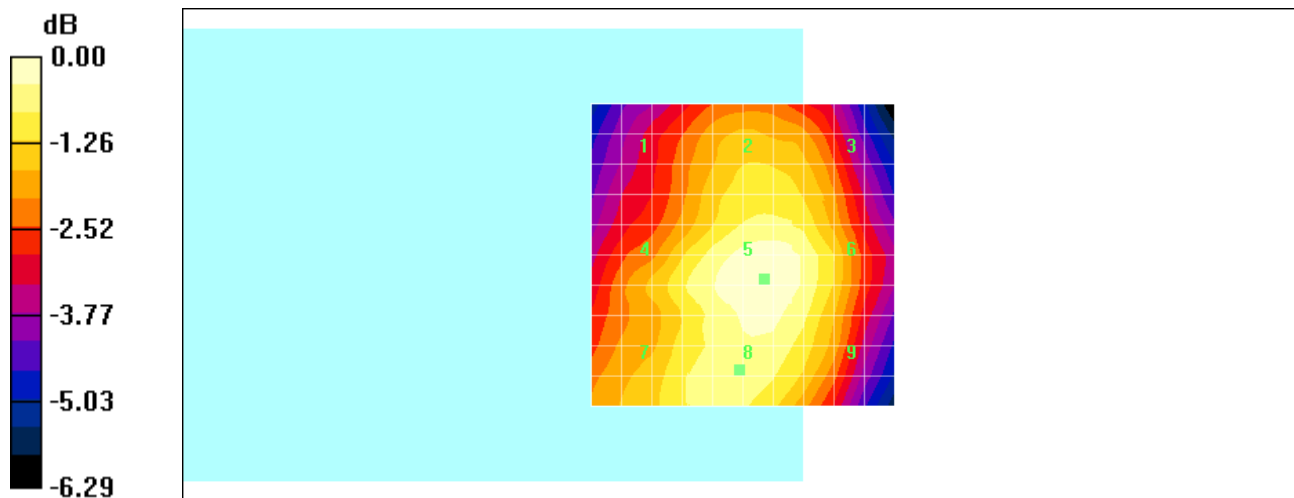
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3
69.1	78.0	76.6
Grid 4	Grid 5	Grid 6
79.3	86.9	84.6
Grid 7	Grid 8	Grid 9
79.2	85.1	82.5

Grid 1	Grid 2	Grid 3
69.1	78.0	76.6
Grid 4	Grid 5	Grid 6
79.3	86.9	84.6
Grid 7	Grid 8	Grid 9
79.2	85.1	82.5

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



0 dB = 86.9V/m

Date/Time: 06/07/2005 9:56:33 AM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtSpeaker_batt3

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 836.52 MHz; Duty Cycle: 1:1

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 79.9 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

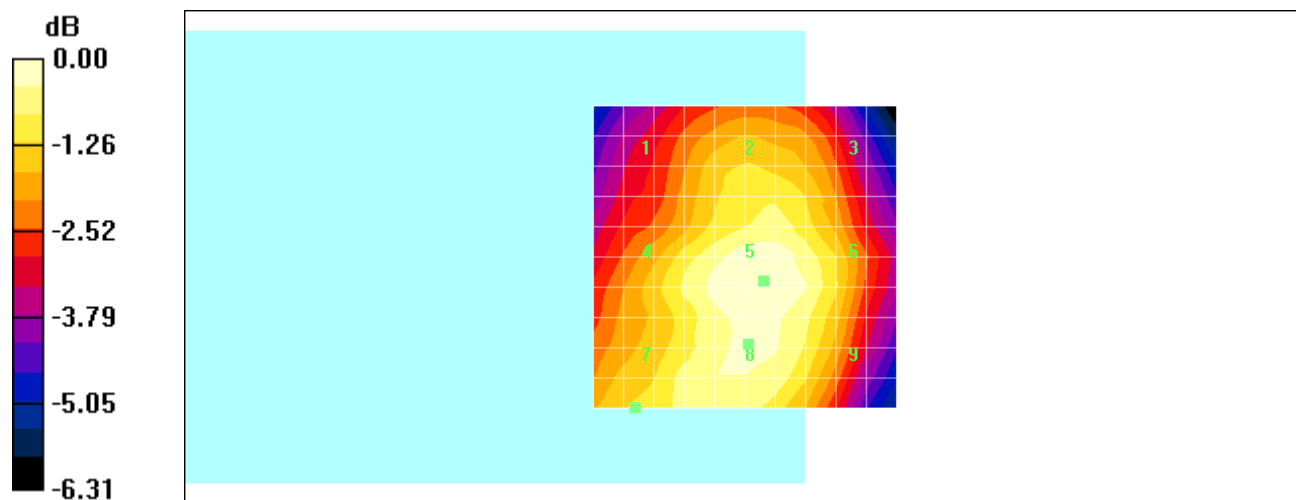
Maximum value of Total field (slot averaged) = 80.3 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
65.5	72.9	71.1	65.5	72.9	71.1
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
74.4	80.3	78.2	74.4	80.3	78.2
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
75.1	78.5	76.2	75.1	78.5	76.2

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



Date/Time: 06/07/2005 10:27:02 AM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtSpeaker_batt4

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 836.52 MHz; Duty Cycle: 1:1

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 87.5 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

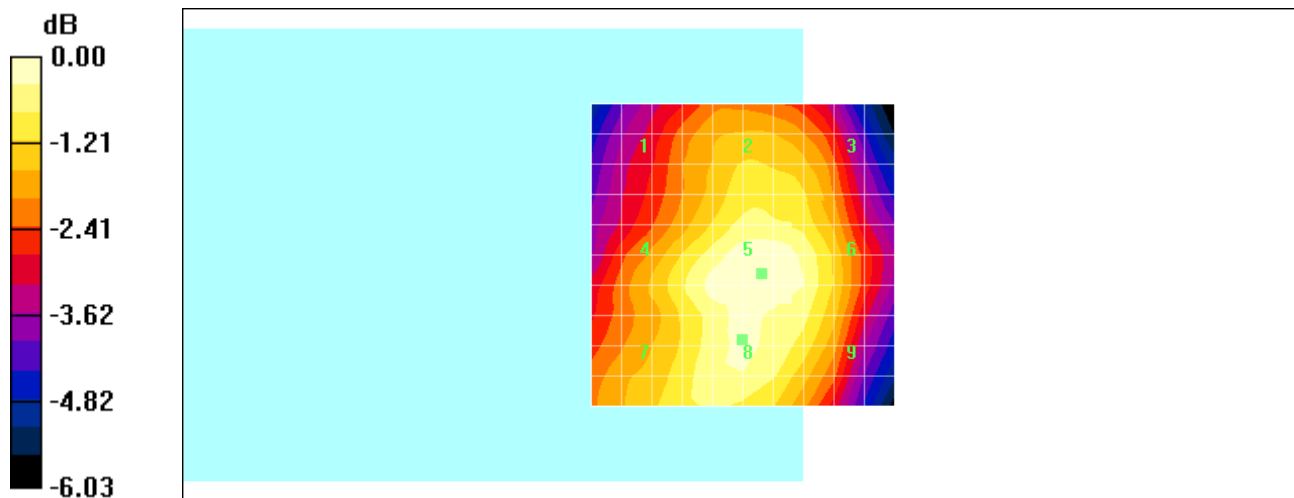
Maximum value of Total field (slot averaged) = 88.2 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
71.3	80.0	78.9	71.3	80.0	78.9
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
81.1	88.2	86.1	81.1	88.2	86.1
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
79.9	86.5	83.7	79.9	86.5	83.7

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



0 dB = 88.2V/m

Date/Time: 06/07/2005 10:55:54 AM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtSpeaker_12.5%gating_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 836.52 MHz; Duty Cycle: 1:8.14

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 30.9 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

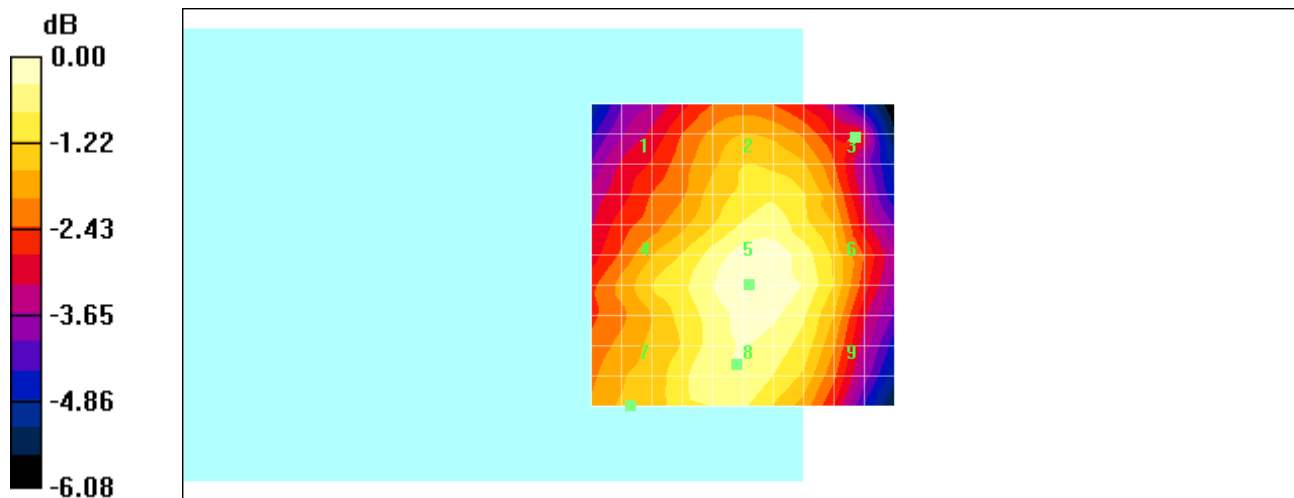
Maximum value of Total field (slot averaged) = 88.2 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
24.8	28.1	27.6	70.8	80.2	78.6
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
28.1	30.9	29.9	80.3	88.2	85.4
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
28.2	30.3	29.2	80.3	86.5	83.4

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



0 dB = 30.9V/m

Date/Time: 06/07/2005 11:44:23 AM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_mid_ch_centerAtSpeaker_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1.02

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 67.6 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 68.2 V/m

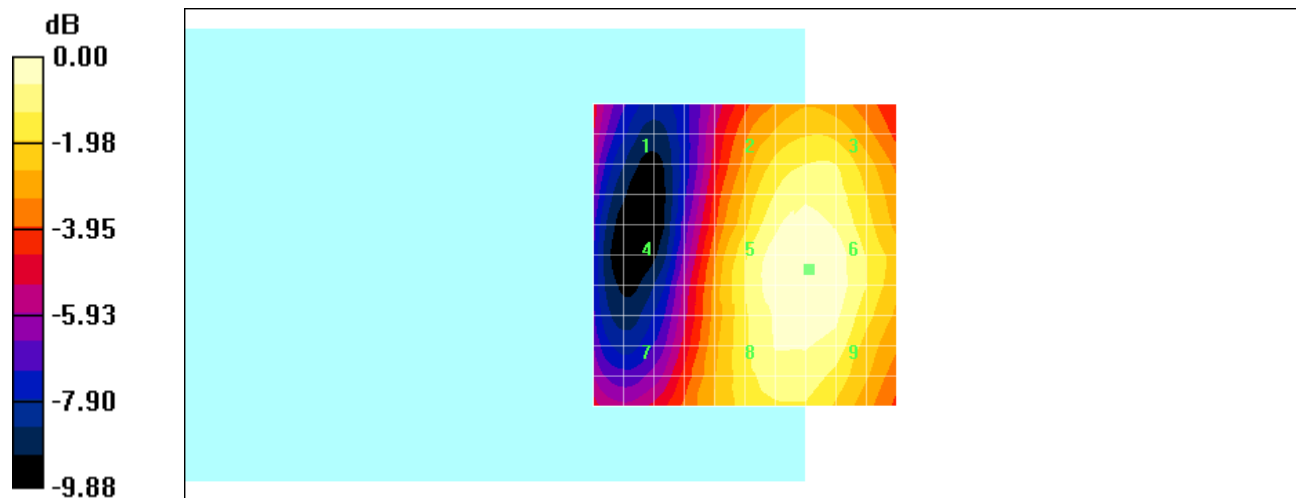
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3
38.7	61.8	62.6
Grid 4	Grid 5	Grid 6
38.0	67.5	67.8
Grid 7	Grid 8	Grid 9
45.1	66.5	67.2

Grid 1	Grid 2	Grid 3
39.1	62.4	63.2
Grid 4	Grid 5	Grid 6
38.3	68.2	68.5
Grid 7	Grid 8	Grid 9
45.6	67.2	67.8

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



0 dB = 67.8V/m

Date/Time: 06/07/2005 4:45:11 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_low_ch_centerAtT-Coil_batt4

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1851.25 MHz; Duty Cycle: 1:1.02

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 68.5 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

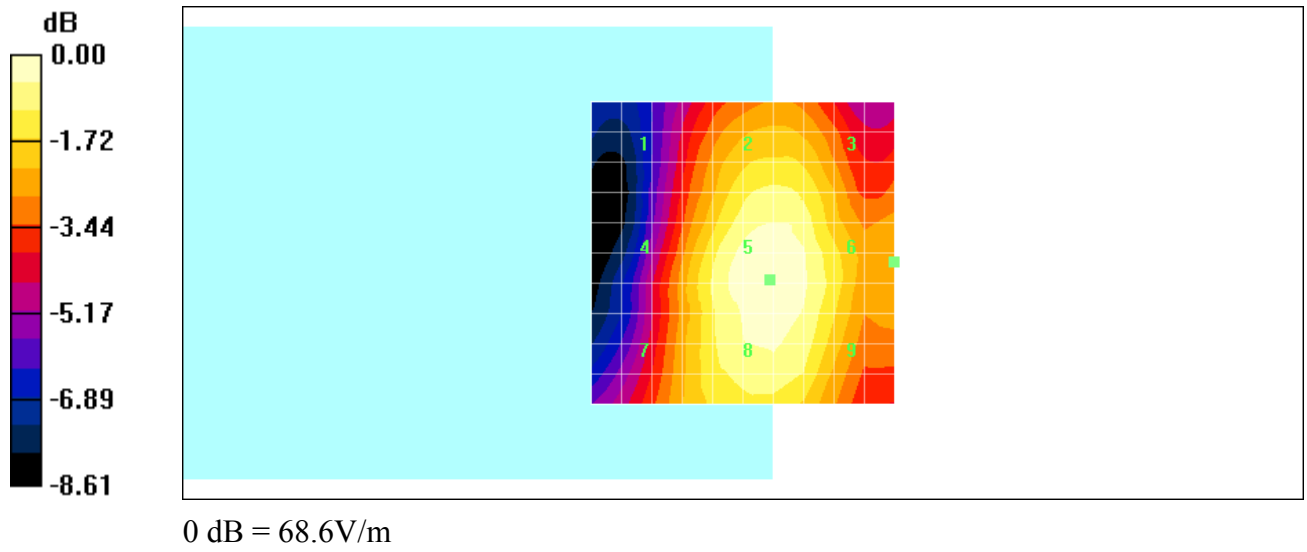
Maximum value of Total field (slot averaged) = 69.2 V/m

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

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1 46.5	Grid 2 61.8	Grid 3 61.1	Grid 1 46.9	Grid 2 62.4	Grid 3 61.7
Grid 4 53.5	Grid 5 68.6	Grid 6 66.8	Grid 4 54.0	Grid 5 69.2	Grid 6 67.4
Grid 7 53.8	Grid 8 67.6	Grid 9 66.0	Grid 7 54.4	Grid 8 68.3	Grid 9 66.6

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



Date/Time: 06/07/2005 4:55:54 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_low_ch_centerAtT-Coil_12.5%gating_batt4

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1851.25 MHz; Duty Cycle: 1:8.22

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

Phantom section: E Device Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build

146

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 24.1 V/m

E Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 69.2 V/m

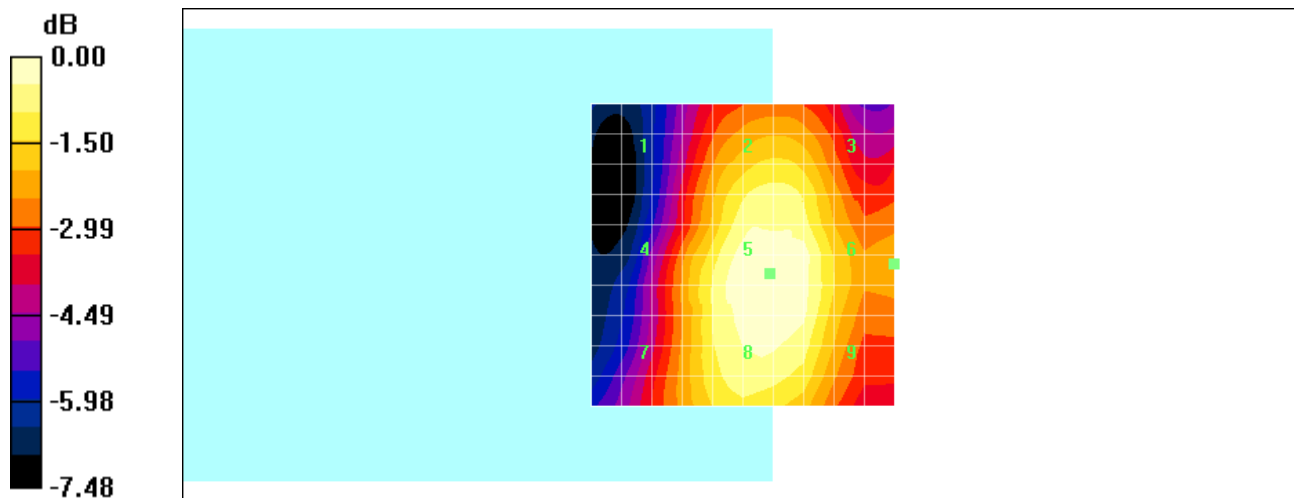
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

E in V/m (Time averaged) E in V/m (Slot averaged)

Grid 1	Grid 2	Grid 3
16.6	22.2	21.9
Grid 4	Grid 5	Grid 6
19.2	24.1	24.0
Grid 7	Grid 8	Grid 9
19.1	23.9	23.7

Grid 1	Grid 2	Grid 3
47.5	63.7	62.9
Grid 4	Grid 5	Grid 6
55.1	69.2	68.7
Grid 7	Grid 8	Grid 9
54.8	68.6	67.8

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



0 dB = 24.1 V/m

Date/Time: 07/07/2005 1:40:41 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtSpeaker_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 836.52 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.188 A/m

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.134 A/m

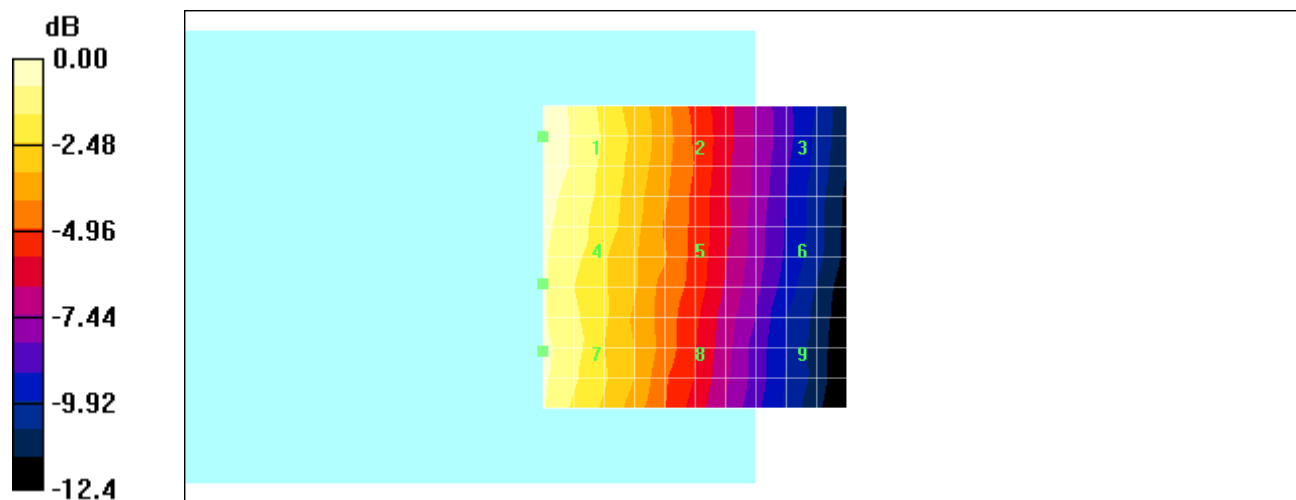
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.188	0.134	0.083
Grid 4	Grid 5	Grid 6
0.176	0.129	0.081
Grid 7	Grid 8	Grid 9
0.175	0.124	0.077

Grid 1	Grid 2	Grid 3
0.188	0.134	0.083
Grid 4	Grid 5	Grid 6
0.176	0.129	0.081
Grid 7	Grid 8	Grid 9
0.175	0.124	0.077

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



0 dB = 0.188A/m

Date/Time: 07/07/2005 2:11:35 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_800_mid_ch_centerAtT-Coil_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 800; Frequency: 836.52 MHz; Duty Cycle: 1:1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.176 A/m

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.122 A/m

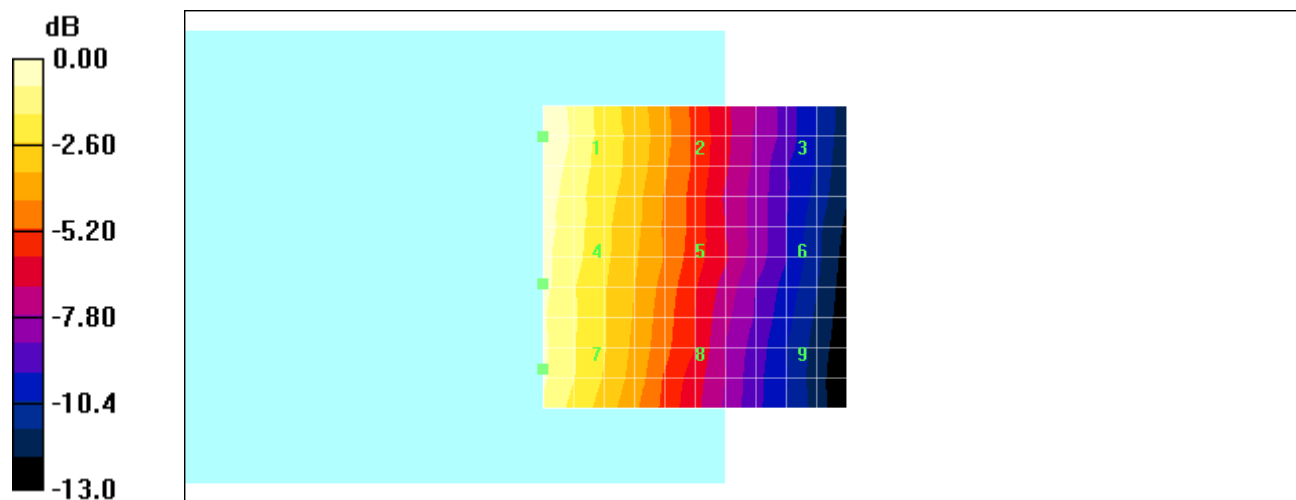
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.176	0.122	0.075
Grid 4	Grid 5	Grid 6
0.168	0.118	0.072
Grid 7	Grid 8	Grid 9
0.163	0.113	0.068

Grid 1	Grid 2	Grid 3
0.176	0.122	0.075
Grid 4	Grid 5	Grid 6
0.168	0.118	0.072
Grid 7	Grid 8	Grid 9
0.163	0.113	0.068

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



Date/Time: 07/07/2005 3:55:45 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_mid_ch_centerAtSpeaker_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1.04

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.218 A/m

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.196 A/m

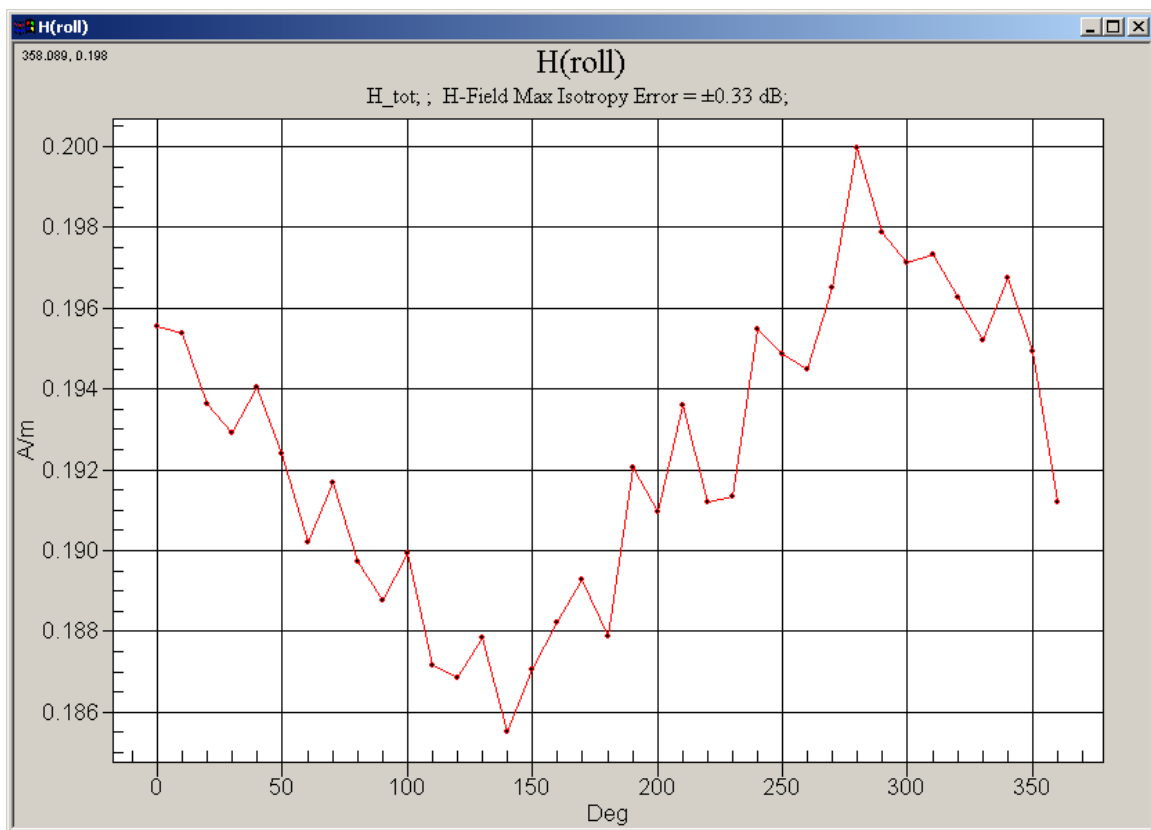
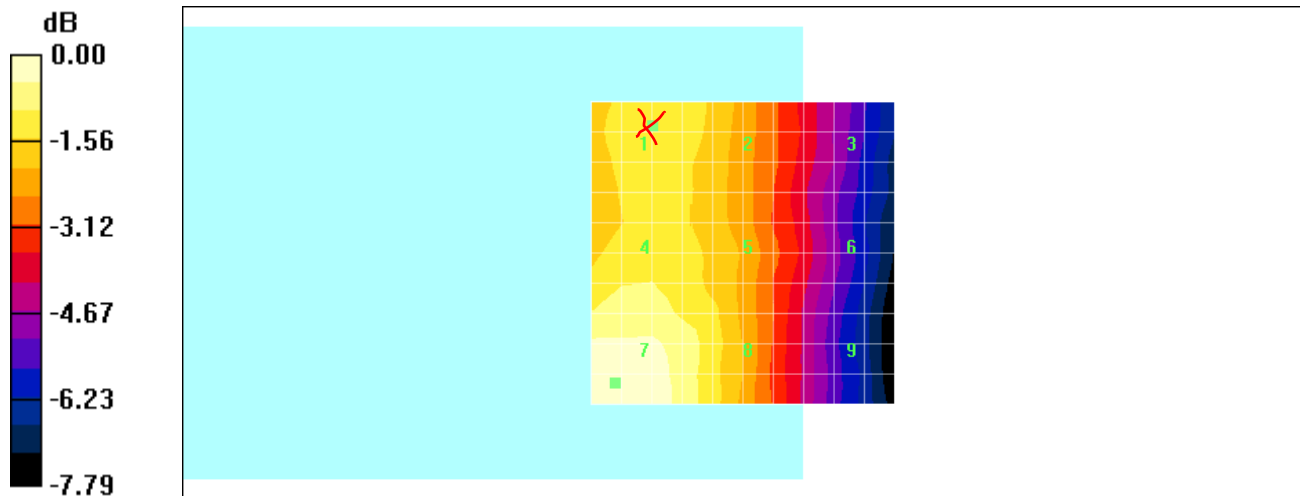
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.192	0.186	0.146
Grid 4	Grid 5	Grid 6
0.197	0.189	0.146
Grid 7	Grid 8	Grid 9
0.218	0.198	0.140

Grid 1	Grid 2	Grid 3
0.196	0.190	0.149
Grid 4	Grid 5	Grid 6
0.201	0.192	0.148
Grid 7	Grid 8	Grid 9
0.223	0.201	0.143

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



Peak after rotation = Hroll_max x PMF
 = 0.200 x 1.02
 = 0.204A/m

Screen capture showing power drift for worst-case scan

DASY4 - [BB7130_model_RAV20CW_CDMA_1900_mid_ch_centerATSpeaker_batt1.da4]

File Edit View Tools Window Help

Locked Setup Status

- Server
- DAE3 Sn472
- H3DV6 - SN6105
- Bigfoot RX90L Power is off - Lefty-Above-NoFlip
- HAC Test Arch...
- Air
- BlackBerry Wir...
- CDMA 1900
- DASY4 (High Pr... ANSI-C63.19 Hearing Aid Compatibility

HAC H Device

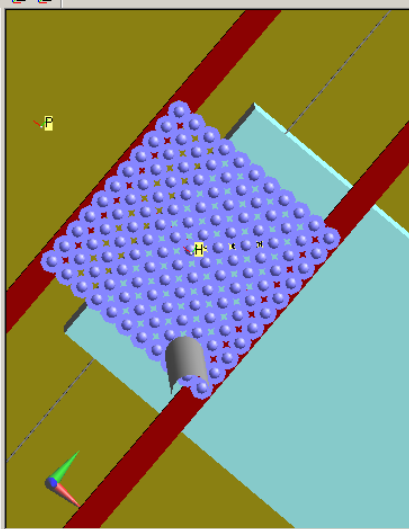
- Phantom Adjustment and Verification (CDMA 1900, Channel 600 'Middle', 1880 MHz, Crest Factor: 1.04, Mod. Frequency: 0)
 - Surface Check (HAC)
 - Verify Height 0.5mm above Center (User point 'Height Check')
 - Delay 1 (10 s)
 - Verify Height for Scan (Section grid reference)
 - H Scan 10mm above Device Reference (CDMA 1900, Channel 600 'Middle', 1880 MHz, Crest Factor: 1.04, Mod. Frequency: 0)
 - Power Reference Measurement 100% done, 0.1689 A/m
 - Hearing Aid Compatibility Test 100% done, Max (interp.) = 0.2183 A/m
 - Power Drift Measurement 100% done, 0.1686 A/m, -0.0158 dB
 - Robot Command (Interpolated maximum of 'H Scan 10mm above Device Reference/Hearing Aid Compatibility Test')
 - Rotation (1D) 100% done, 0.218 A/m $\pm$ 0.25 dB
 - Robot Command 2 (Section park)

Messages

Robot Terminal

```
rom ES received, communication starting up
Timeout while waiting for header 21 0.336
*** Watchdog: Communication error
srf: 0.3%
Initial message from ES received, communication starting up
*** Probe collision
```

X: Y: Z: NUM



Date/Time: 07/07/2005 4:29:38 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_mid_ch_centerAtT-Coil_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1.04

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.220 A/m

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.189 A/m

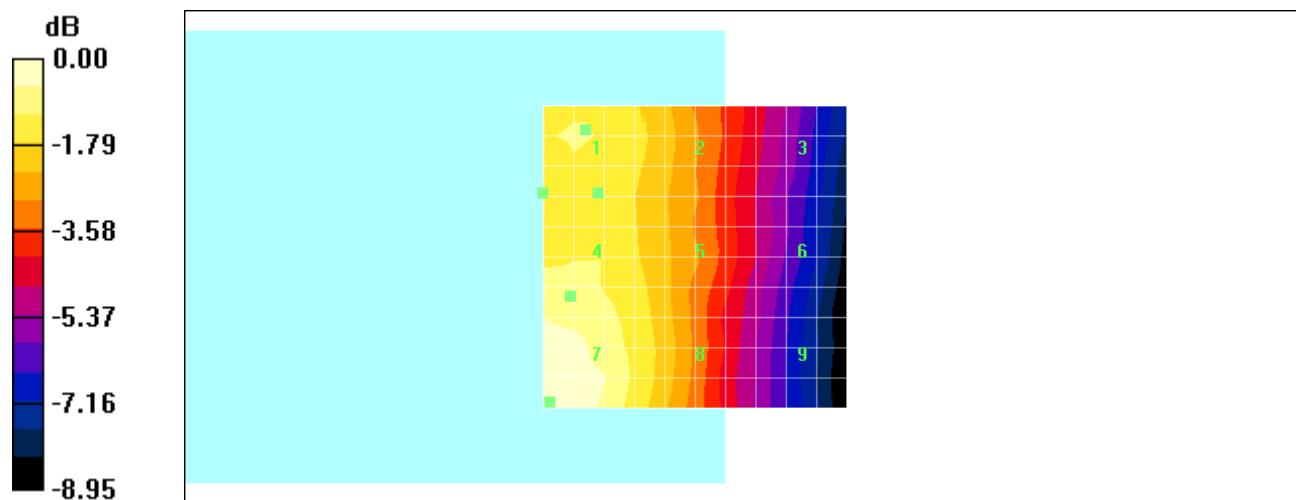
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.193	0.180	0.135
Grid 4	Grid 5	Grid 6
0.202	0.182	0.132
Grid 7	Grid 8	Grid 9
0.220	0.185	0.126

Grid 1	Grid 2	Grid 3
0.197	0.184	0.138
Grid 4	Grid 5	Grid 6
0.206	0.186	0.135
Grid 7	Grid 8	Grid 9
0.224	0.189	0.129

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



0 dB = 0.220A/m

Date/Time: 07/07/2005 5:06:19 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_mid_ch_centerAtSpeaker_batt2

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1.04

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.217 A/m

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

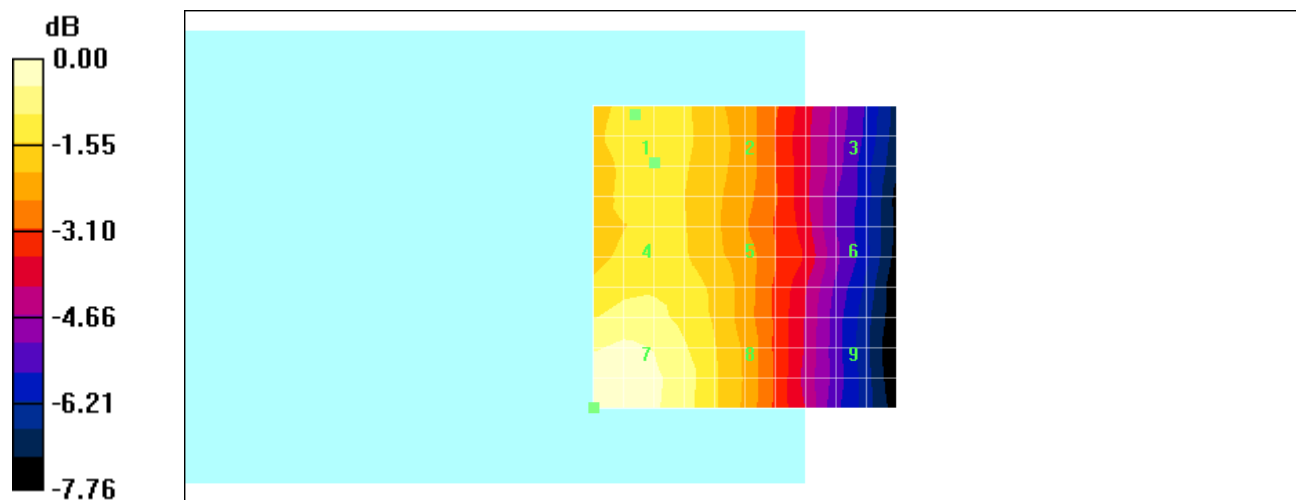
Maximum value of Total field (slot averaged) = 0.193 A/m

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

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.189	0.182	0.143	0.193	0.185	0.146
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.195	0.186	0.146	0.199	0.190	0.149
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.217	0.195	0.140	0.221	0.199	0.143

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



0 dB = 0.217A/m

Date/Time: 07/07/2005 5:18:29 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_mid_ch_centerAtSpeaker_batt3

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1.04

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.212 A/m

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.191 A/m

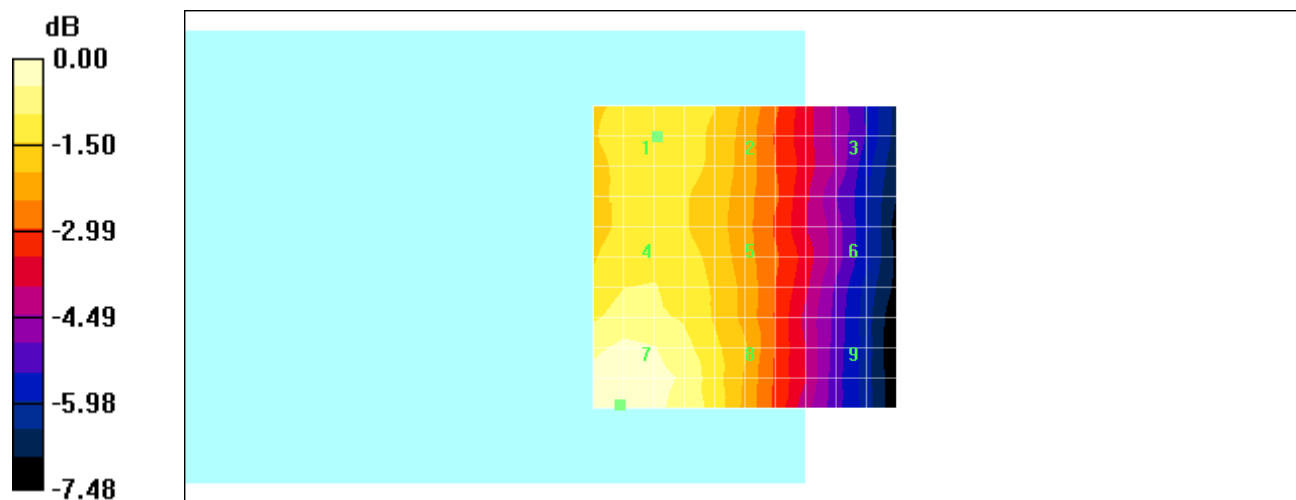
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.187	0.184	0.142
Grid 4	Grid 5	Grid 6
0.192	0.184	0.143
Grid 7	Grid 8	Grid 9
0.212	0.195	0.139

Grid 1	Grid 2	Grid 3
0.191	0.187	0.145
Grid 4	Grid 5	Grid 6
0.195	0.187	0.145
Grid 7	Grid 8	Grid 9
0.216	0.199	0.142

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



Date/Time: 07/07/2005 5:29:18 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_mid_ch_centerAtSpeaker_batt4

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:1.04

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.215 A/m

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.193 A/m

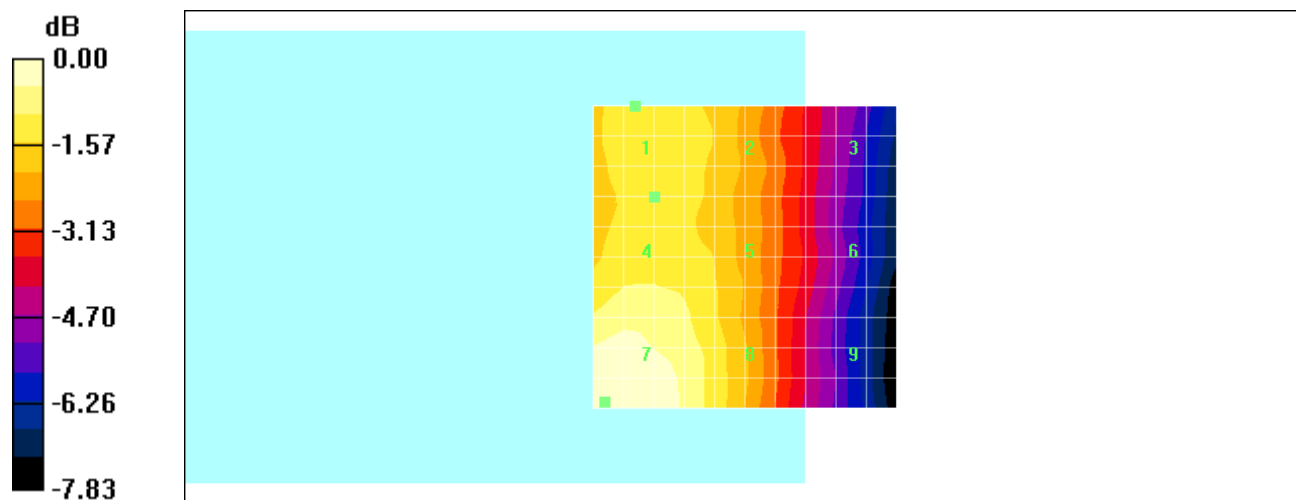
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3
0.190	0.185	0.145
Grid 4	Grid 5	Grid 6
0.196	0.189	0.144
Grid 7	Grid 8	Grid 9
0.215	0.197	0.140

Grid 1	Grid 2	Grid 3
0.193	0.189	0.148
Grid 4	Grid 5	Grid 6
0.200	0.193	0.147
Grid 7	Grid 8	Grid 9
0.220	0.201	0.143

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



0 dB = 0.215A/m

Date/Time: 07/07/2005 5:40:45 PM

Lab: RIM Testing Services (RTS)

BB7130_model_RAV20CW_CDMA_1900_mid_ch_centerAtSpeaker_12.5gating_batt1

DUT: BlackBerry Wireless Handheld; Type: Sample

Communication System: CDMA 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.1

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

Phantom section: H Device Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 10/12/2004

- 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, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(11x11x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.078 A/m

H Scan 10mm above Device Reference/Hearing Aid Compatibility Test

(101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.194 A/m

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

H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.068	0.067	0.051	0.194	0.190	0.146
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.071	0.068	0.051	0.202	0.193	0.146
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.078	0.071	0.050	0.222	0.201	0.143

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

