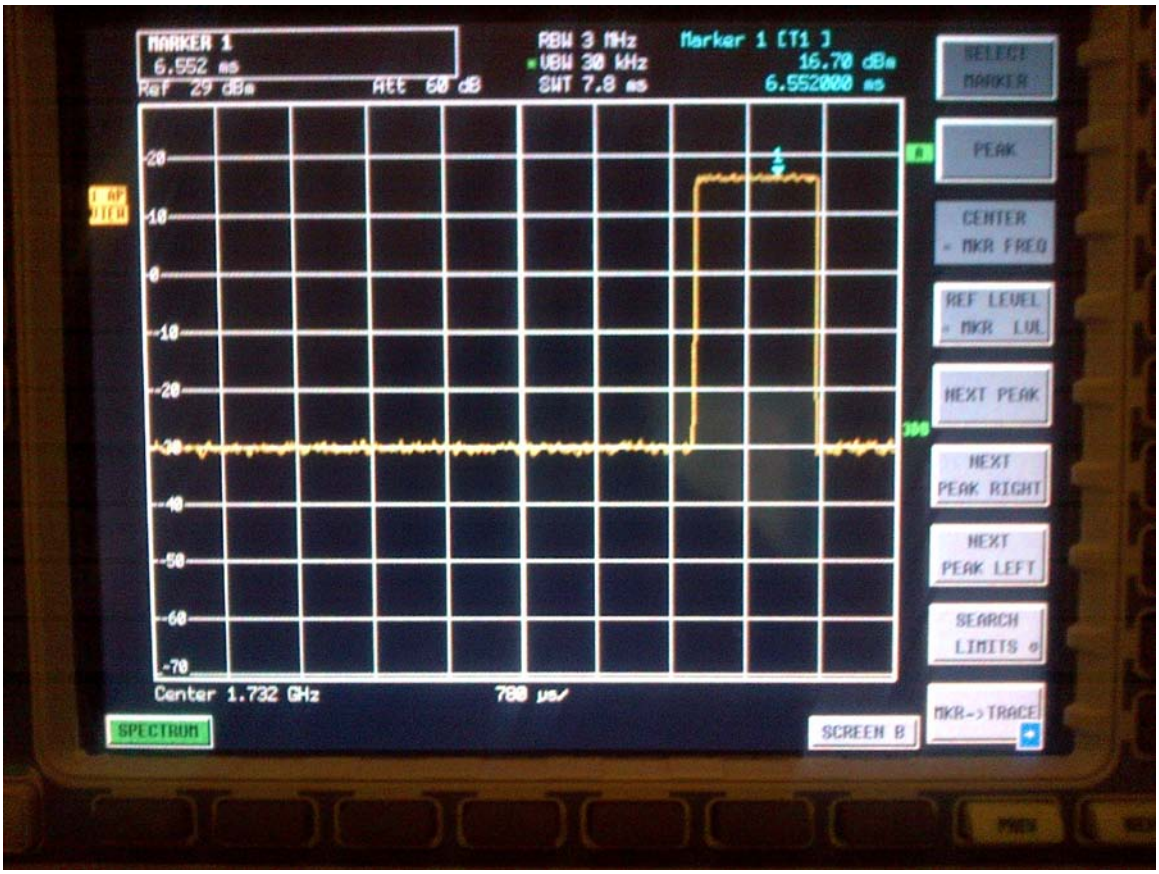
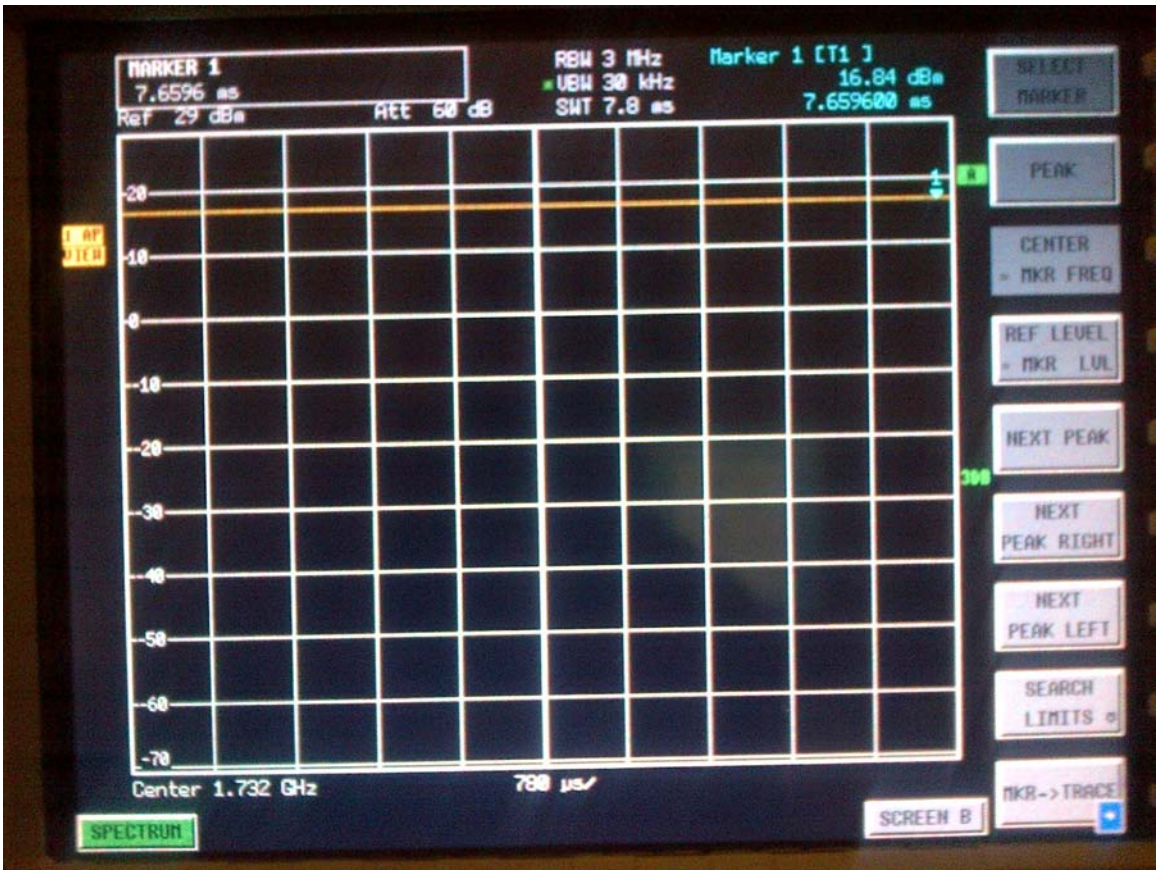
Annex A: Measurement data and plots

A.1 Spectrum analyser plots: CDMA, CW, 80%AM, signals

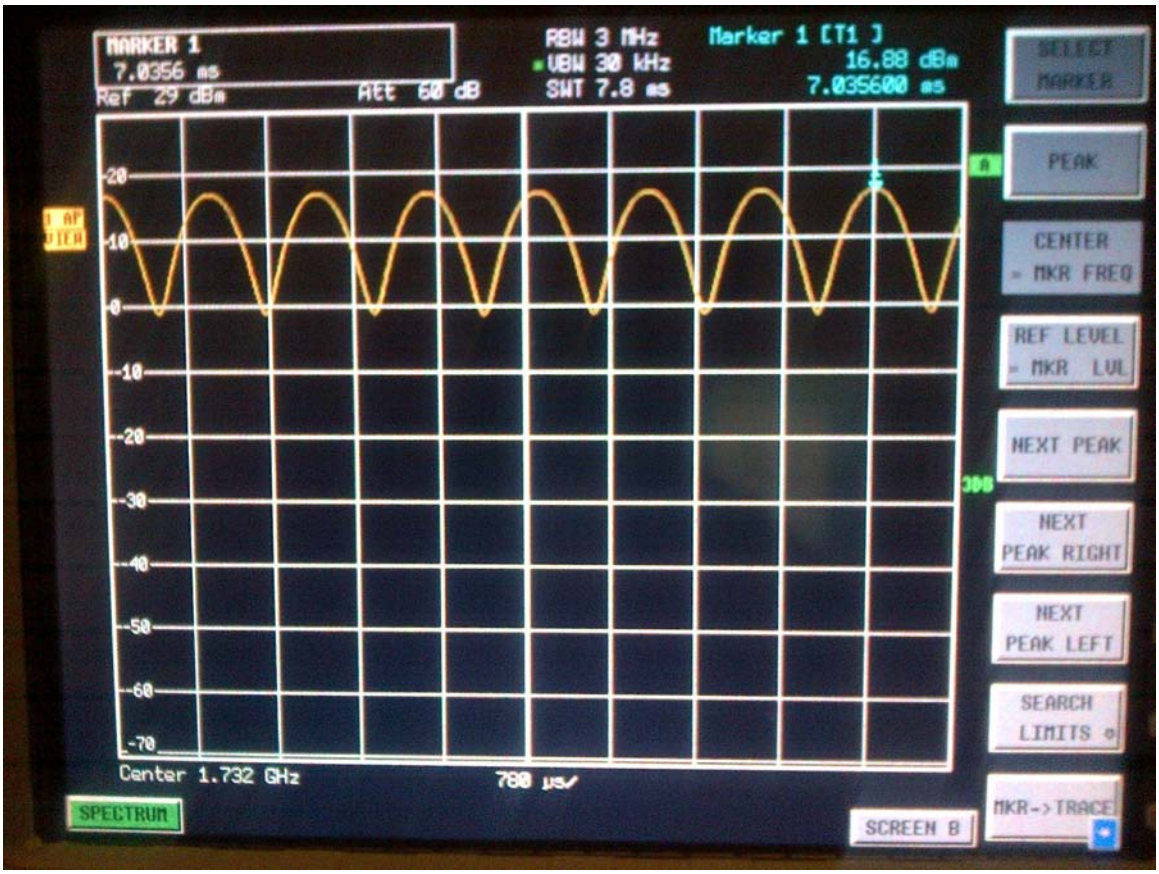
CDMA 1732 MHz (BC15)



CDMA 1732 MHz (BC15) 1/8th



CW 1732 MHz



AM 80% 1732 MHz

A.2 Dipole validation and probe modulation factor plots

Date/Time: 3/21/2012 2:02:04 PM

Test Laboratory: RIM Testing Services

HAC RF_E-Field_PMF_CDMA1732 MHz_03_21_12

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1008

Communication System: CDMA AWS 1700, Communication System: CDMA AWS 1700_1/8th, Communication System: CW, Communication System: AM 80%; Frequency: 1732.5 MHz, Frequency: 1732 MHz

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/9/2012
- Sensor-Surface: (Fix Surface), z = 4.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole E-Field measurement/E Scan - CDMA 1732_PMF/Hearing Aid Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 101.6 V/m; Power Drift = 0.04 dB

PMR not calibrated. PMF = 1.000 is applied.

E-field emissions = 93.46 V/m

Near-field category: M3 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M3** **82.35 V/m**	Grid 2 **M3** **85.96 V/m**	Grid 3 **M3** **84.70 V/m**
Grid 4 **M4** **59.56 V/m**	Grid 5 **M4** **60.87 V/m**	Grid 6 **M4** **59.04 V/m**
Grid 7 **M3** **87.33 V/m**	Grid 8 **M3** **93.46 V/m**	Grid 9 **M3** **92.83 V/m**

Cursor:

Total = 93.462 V/m

E Category: M3

Location: -2, 37.5, 4.7 mm

Dipole E-Field measurement/E Scan - CDMA 1732_1/8th/Hearing Aid Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 36.74 V/m; Power Drift = 0.00 dB

PMR not calibrated. PMF = 1.000 is applied.

E-field emissions = 36.38 V/m

Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M4** **30.24 V/m**	Grid 2 **M4** **34.23 V/m**	Grid 3 **M4** **33.60 V/m**
Grid 4 **M4** **23.53 V/m**	Grid 5 **M4** **23.42 V/m**	Grid 6 **M4** **20.67 V/m**
Grid 7 **M4** **31.31 V/m**	Grid 8 **M4** **36.38 V/m**	Grid 9 **M4** **34.30 V/m**

Cursor:

Total = 36.378 V/m

E Category: M4

Location: -0.5, 39, 4.7 mm

Dipole E-Field measurement/E Scan- CW 1732_PMF/Hearing Aid Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 105.8 V/m; Power Drift = -0.19 dB

PMR not calibrated. PMF = 1.000 is applied.

E-field emissions = 94.88 V/m

Near-field category: M3 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M3** **82.56 V/m**	Grid 2 **M3** **85.14 V/m**	Grid 3 **M3** **83.28 V/m**
Grid 4 **M4** **59.33 V/m**	Grid 5 **M4** **60.47 V/m**	Grid 6 **M4** **58.29 V/m**
Grid 7 **M3** **88.65 V/m**	Grid 8 **M3** **94.88 V/m**	Grid 9 **M3** **93.80 V/m**

Cursor:

Total = 94.884 V/m

E Category: M3

Location: -1.5, 37.5, 4.7 mm

Dipole E-Field measurement/E Scan - AM80%_ 1732_PMF/Hearing Aid Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 66.04 V/m; Power Drift = -0.09 dB

PMR not calibrated. PMF = 1.000 is applied.

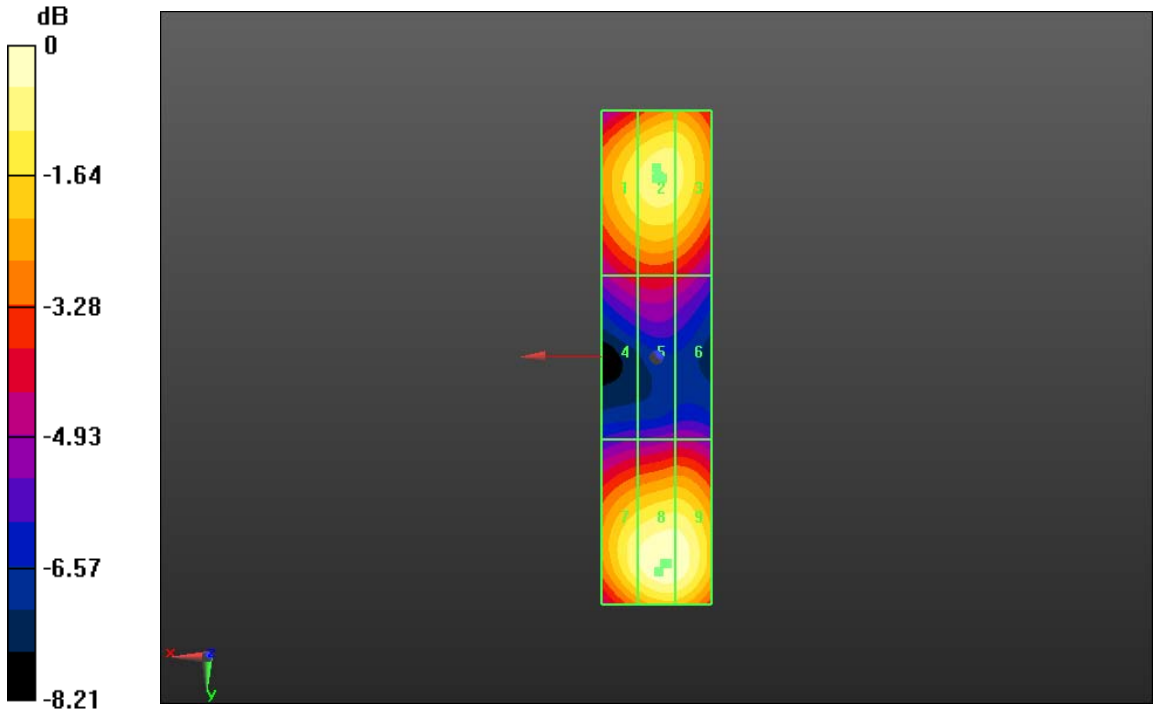
E-field emissions = 59.38 V/m

Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M4** **52.62 V/m**	Grid 2 **M4** **54.22 V/m**	Grid 3 **M4** **53.22 V/m**
Grid 4 **M4** **37.87 V/m**	Grid 5 **M4** **38.39 V/m**	Grid 6 **M4** **37.14 V/m**
Grid 7 **M4** **56.05 V/m**	Grid 8 **M4** **59.38 V/m**	Grid 9 **M4** **58.88 V/m**

Cursor:
Total = 59.381 V/m
E Category: M4
Location: -2, 37.5, 4.7 mm



0 dB = 93.460V/m = 39.41 dB V/m

Date/Time: 3/21/2012 1:40:26 PM

Test Laboratory: RIM Testing Services

HAC RF_E-Field_validation_1880 MHz_03_21_12

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1008

Communication System: CW; Frequency: 1880 MHz

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/9/2012
- Sensor-Surface: (Fix Surface), z = 4.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole E-Field measurement/E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 143.8 V/m; Power Drift = -0.06 dB

PMR not calibrated. PMF = 1.000 is applied.

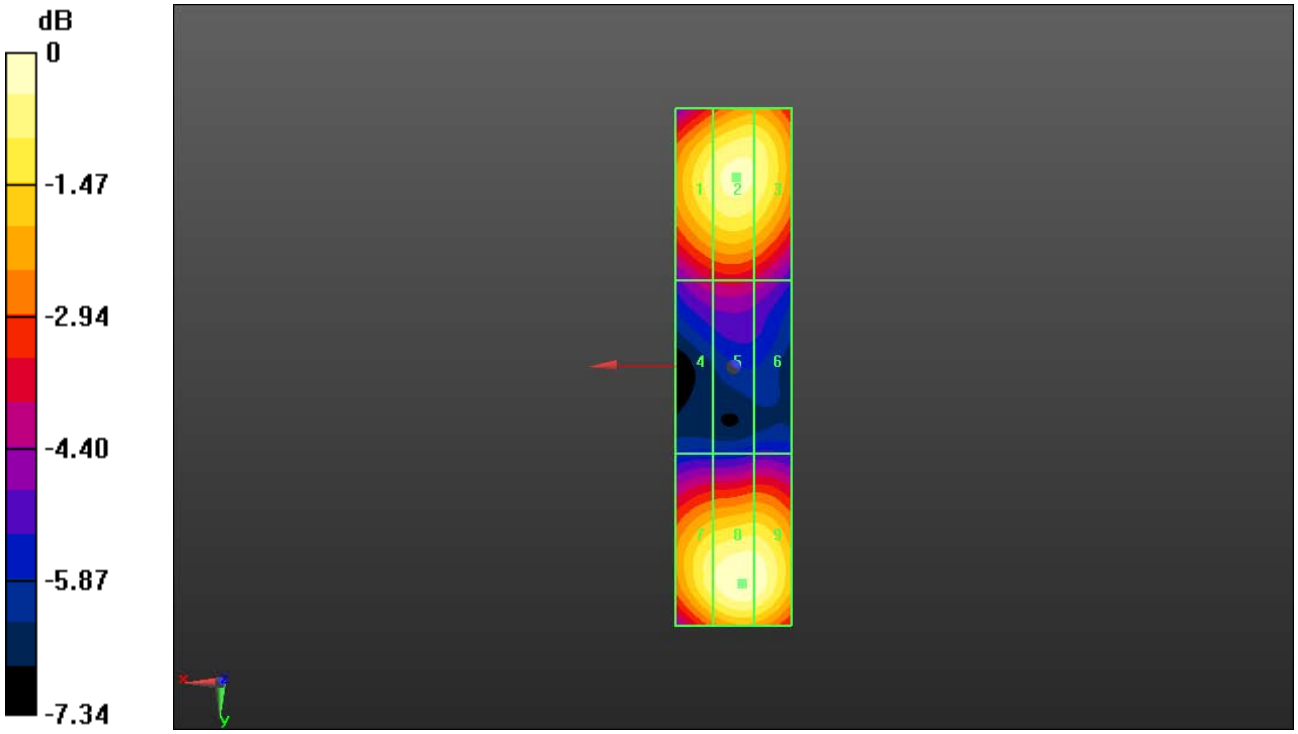
E-field emissions = 129.4 V/m

Near-field category: M2 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M2** **120.1 V/m**	Grid 2 **M2** **124.8 V/m**	Grid 3 **M2** **122.6 V/m**
Grid 4 **M3** **82.90 V/m**	Grid 5 **M3** **84.73 V/m**	Grid 6 **M3** **81.79 V/m**
Grid 7 **M2** **121.7 V/m**	Grid 8 **M2** **129.4 V/m**	Grid 9 **M2** **128.2 V/m**

Cursor:
Total = 129.4 V/m
E Category: M2
Location: -1.5, 37.5, 4.7 mm



0 dB = 129.4V/m = 42.24 dB V/m

Date/Time: 3/21/2012 2:33:27 PM

Test Laboratory: RIM Testing Services

HAC RF_H-Field_PMF_CDMA1732 MHz_03_21_12

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1008

Communication System: CDMA AWS 1700, Communication System: CDMA AWS 1700_1/8th, Communication System: CW, Communication System: AM 80%; Frequency: 1732.5 MHz, Frequency: 1732 MHz

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 11/8/2011
- Sensor-Surface: (Fix Surface), z = 4.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole H-Field meausrement with H3DV6 probe/H Scan -CDMA 1732_PMF/Hearing Aid Compatibility Test (41x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.35 V/m; Power Drift = -0.09 dB

PMR not calibrated. PMF = 1.000 is applied.

H-field emissions = 0.33 A/m

Near-field category: M3 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M3** **0.29 A/m**	Grid 2 **M3** **0.31 A/m**	Grid 3 **M3** **0.30 A/m**
Grid 4 **M3** **0.31 A/m**	Grid 5 **M3** **0.33 A/m**	Grid 6 **M3** **0.31 A/m**
Grid 7 **M3** **0.29 A/m**	Grid 8 **M3** **0.31 A/m**	Grid 9 **M3** **0.29 A/m**

Cursor:

Total = 0.326 A/m

H Category: M3

Location: 0, -0.5, 4.7 mm

Dipole H-Field meausrement with H3DV6 probe/H Scan -CDMA 1732_PMF_1/8th/Hearing Aid Compatibility Test (41x101x1):

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

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.12 V/m; Power Drift = -0.28 dB

PMR not calibrated. PMF = 1.000 is applied.

H-field emissions = 0.13 A/m

Near-field category: M4 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M4** **0.11 A/m**	Grid 2 **M4** **0.11 A/m**	Grid 3 **M4** **0.11 A/m**
Grid 4 **M4** **0.11 A/m**	Grid 5 **M4** **0.13 A/m**	Grid 6 **M4** **0.12 A/m**
Grid 7 **M4** **0.10 A/m**	Grid 8 **M4** **0.11 A/m**	Grid 9 **M4** **0.10 A/m**

Cursor:

Total = 0.126 A/m

H Category: M4

Location: 0, 0, 4.7 mm

Dipole H-Field meausrement with H3DV6 probe/H Scan - CW 1732_PMF/Hearing Aid Compatibility Test (41x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.34 V/m; Power Drift = 0.01 dB

PMR not calibrated. PMF = 1.000 is applied.

H-field emissions = 0.32 A/m

Near-field category: M3 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M3** **0.29 A/m**	Grid 2 **M3** **0.30 A/m**	Grid 3 **M3** **0.29 A/m**
Grid 4 **M3** **0.30 A/m**	Grid 5 **M3** **0.32 A/m**	Grid 6 **M3** **0.30 A/m**
Grid 7 **M3** **0.29 A/m**	Grid 8 **M3** **0.31 A/m**	Grid 9 **M3** **0.29 A/m**

Cursor:

Total = 0.318 A/m

H Category: M3

Location: 0, 0, 4.7 mm

Dipole H-Field meausrement with H3DV6 probe/H Scan - AM80%_1732_PMF/Hearing Aid Compatibility Test (41x101x1):

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

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.23 V/m; Power Drift = -0.13 dB

PMR not calibrated. PMF = 1.000 is applied.

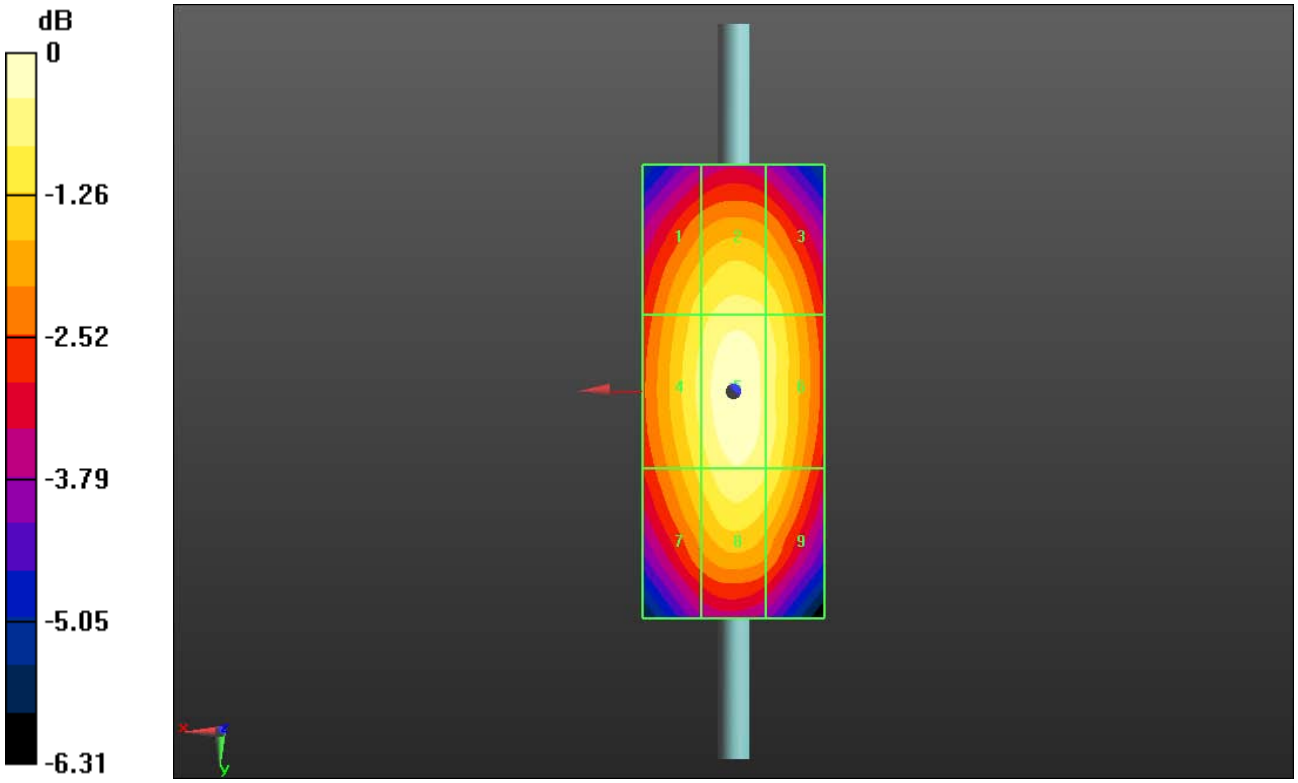
H-field emissions = 0.21 A/m

Near-field category: M3 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M4** **0.19 A/m**	Grid 2 **M3** **0.20 A/m**	Grid 3 **M3** **0.19 A/m**
Grid 4 **M3** **0.19 A/m**	Grid 5 **M3** **0.21 A/m**	Grid 6 **M3** **0.20 A/m**
Grid 7 **M4** **0.19 A/m**	Grid 8 **M3** **0.20 A/m**	Grid 9 **M3** **0.19 A/m**

Cursor:
Total = 0.208 A/m
H Category: M3
Location: 0, 0, 4.7 mm



0 dB = 0.330A/m = -9.63 dB A/m

Time: 3/21/2012 2:50:54 PM

Test Laboratory: RIM Testing Services

HAC RF_H-Field_validation_1880 MHz_03_21_12

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1008

Communication System: CW; Frequency: 1880 MHz

Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 0 kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 11/8/2011
- Sensor-Surface: (Fix Surface), z = 4.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole H-Field meausrement with H3DV6 probe/H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x101x1):

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

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.48 V/m; Power Drift = 0.01 dB

PMR not calibrated. PMF = 1.000 is applied.

H-field emissions = 0.46 A/m

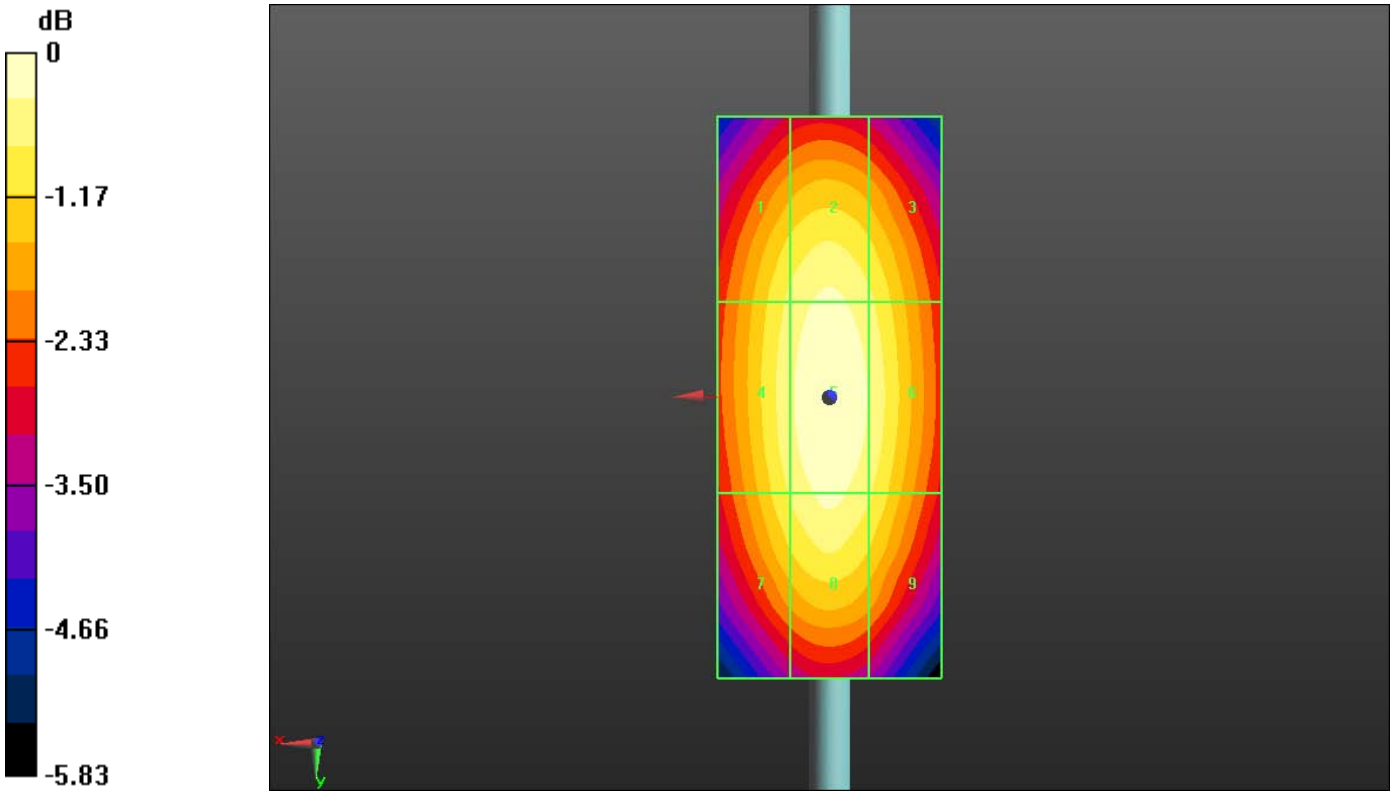
Near-field category: M2 (AWF 0 dB)

PMF scaled H-field

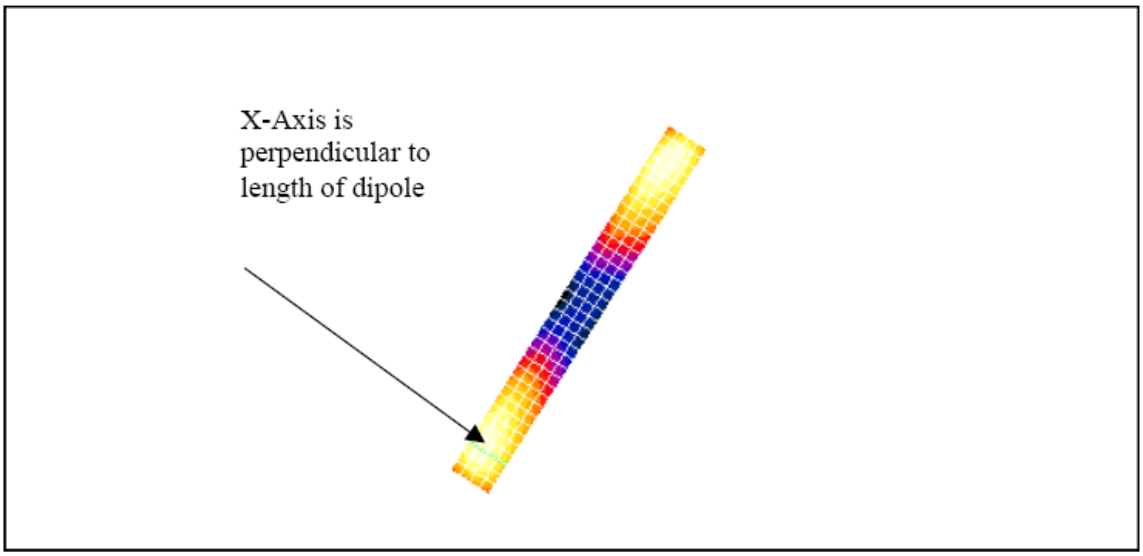
Grid 1 **M2** **0.43 A/m**	Grid 2 **M2** **0.44 A/m**	Grid 3 **M2** **0.43 A/m**
Grid 4 **M2** **0.44 A/m**	Grid 5 **M2** **0.46 A/m**	Grid 6 **M2** **0.44 A/m**
Grid 7 **M2** **0.42 A/m**	Grid 8 **M2** **0.44 A/m**	Grid 9 **M2** **0.42 A/m**

Cursor:

Total = 0.459 A/m
H Category: M2
Location: 0, 0, 4.7 mm



0 dB = 0.460A/m = -6.74 dB A/m



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: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3
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)

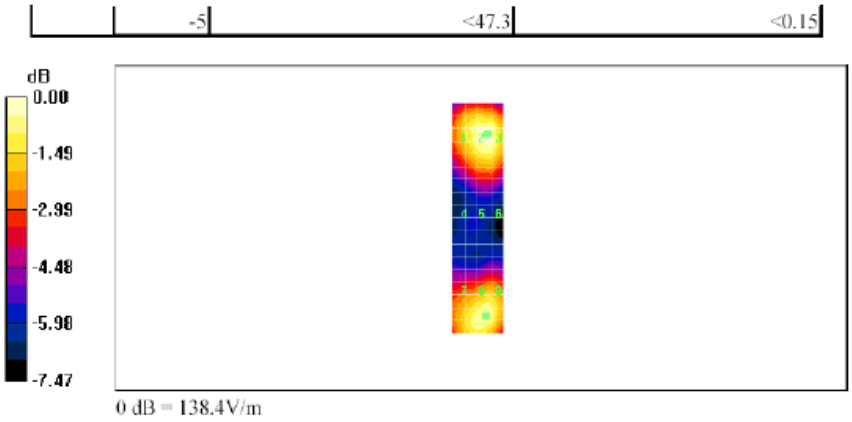
Grid 1 **123.2**	Grid 2 **138.1**	Grid 3 **138.4**
Grid 4 **80.9**	Grid 5 **92.3**	Grid 6 **92.2**
Grid 7 **119.8**	Grid 8 **131.0**	Grid 9 **130.7**

E in V/m (Slot averaged)

Grid 1 **123.2**	Grid 2 **138.1**	Grid 3 **138.4**
Grid 4 **80.9**	Grid 5 **92.3**	Grid 6 **92.2**
Grid 7 **119.8**	Grid 8 **131.0**	Grid 9 **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 11:35:24 AM Page 2 of 2



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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: σ = 0 mho/m, ε_r = 1; ρ = 1000 kg/m^3
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)

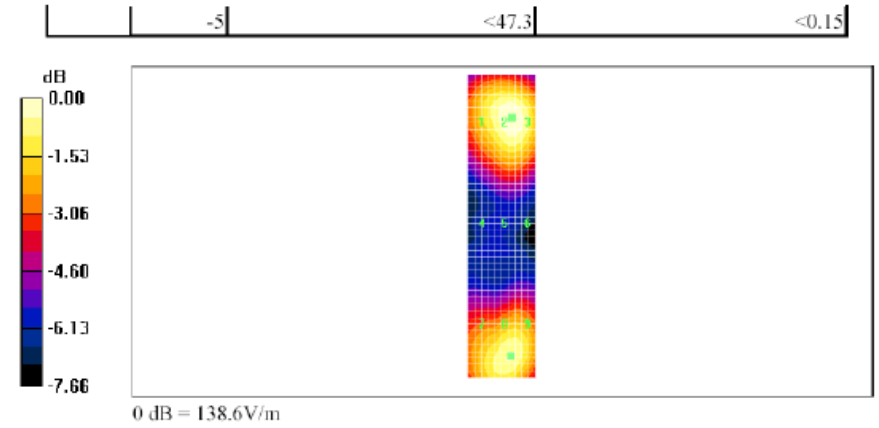
Grid 1 **123.1**	Grid 2 **138.6**	Grid 3 **138.6**
Grid 4 **81.4**	Grid 5 **92.1**	Grid 6 **91.6**
Grid 7 **121.3**	Grid 8 **131.2**	Grid 9 **131.0**

E in V/m (Slot averaged)

Grid 1 **123.1**	Grid 2 **138.6**	Grid 3 **138.6**
Grid 4 **81.4**	Grid 5 **92.1**	Grid 6 **91.6**
Grid 7 **121.3**	Grid 8 **131.2**	Grid 9 **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 11:44:51 AM Page 2 of 2



0 dB = 138.6V/m

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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, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
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)

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

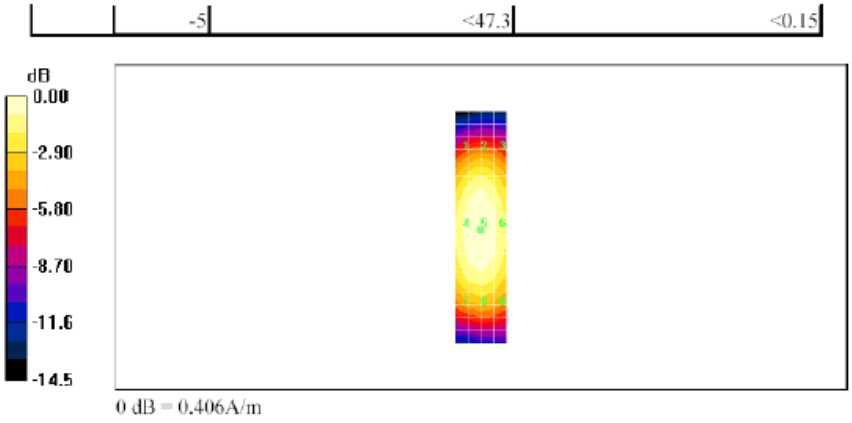
H in A/m (Slot averaged)

Grid 1 **0.342**	Grid 2 **0.359**	Grid 3 **0.344**
Grid 4 **0.389**	Grid 5 **0.406**	Grid 6 **0.389**
Grid 7 **0.363**	Grid 8 **0.378**	Grid 9 **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 12:43:02 PM

Page 2 of 2



0 dB = 0.406A/m

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: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
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)

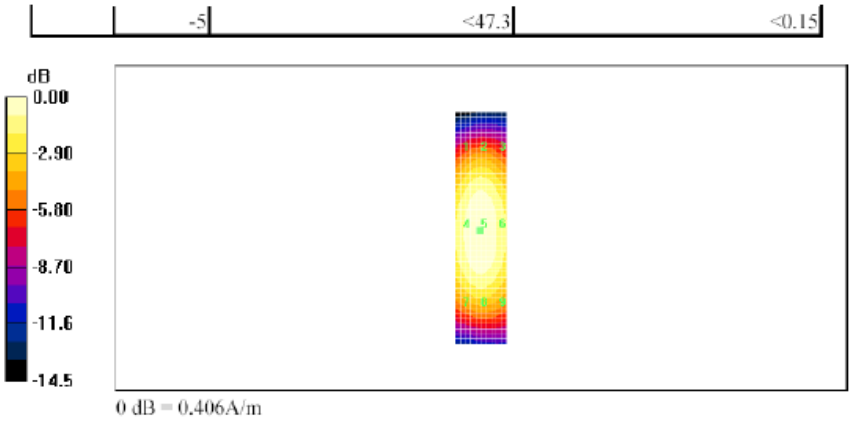
Grid 1 **0.347**	Grid 2 **0.361**	Grid 3 **0.348**
Grid 4 **0.394**	Grid 5 **0.406**	Grid 6 **0.391**
Grid 7 **0.367**	Grid 8 **0.380**	Grid 9 **0.365**

H in A/m (Slot averaged)

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

Date/Time: 14/07/2005 12:53:40 PM Page 2 of 2



0 dB = 0.406A/m

file://C:\Program%20Files\DASY4\Print_Templates\HAC_H_Dipole_CW%201880_2%... 14/07/2005

A.3 RF emissions plots

Date/Time: 3/21/2012 5:05:31 PM

Test Laboratory: RIM Testing Services

HAC RF_E-Field_CDMA1700

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 331CEAA2

Communication System: CDMA AWS 1700; Frequency: 1711.25 MHz,

Frequency: 1732.5 MHz, Frequency: 1753.75 MHz

Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 0 kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/9/2012
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Device E-Field measurement with ER probe/E Scan - ER3D - 2007: 15 mm from Probe Center to Device_Low_Chan/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 49.73 V/m; Power Drift = 0.02 dB

PMR not calibrated. PMF = 1.020 is applied.

E-field emissions = 50.36 V/m

Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M4** **23.69 V/m**	Grid 2 **M4** **36.45 V/m**	Grid 3 **M4** **36.84 V/m**
Grid 4 **M4** **36.32 V/m**	Grid 5 **M4** **50.36 V/m**	Grid 6 **M4** **50.36 V/m**
Grid 7 **M4** **47.58 V/m**	Grid 8 **M4** **54.98 V/m**	Grid 9 **M4** **54.58 V/m**

Cursor:

Total = 54.985 V/m

E Category: M4

Location: -4.5, 22, 8.7 mm

Device E-Field measurement with ER probe/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device_Mid_Chan/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 52.85 V/m; Power Drift = 0.09 dB

PMR not calibrated. PMF = 1.020 is applied.

E-field emissions = 54.06 V/m

Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M4** **25.61 V/m**	Grid 2 **M4** **39.24 V/m**	Grid 3 **M4** **39.79 V/m**
Grid 4 **M4** **38.57 V/m**	Grid 5 **M4** **54.06 V/m**	Grid 6 **M4** **54.03 V/m**
Grid 7 **M4** **50.29 V/m**	Grid 8 **M4** **59.24 V/m**	Grid 9 **M4** **58.20 V/m**

Cursor:

Total = 59.237 V/m

E Category: M4

Location: -4.5, 21.5, 8.7 mm

Device E-Field measurement with ER probe/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device_High_Chan/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 46.55 V/m; Power Drift = -0.02 dB

PMR not calibrated. PMF = 1.020 is applied.

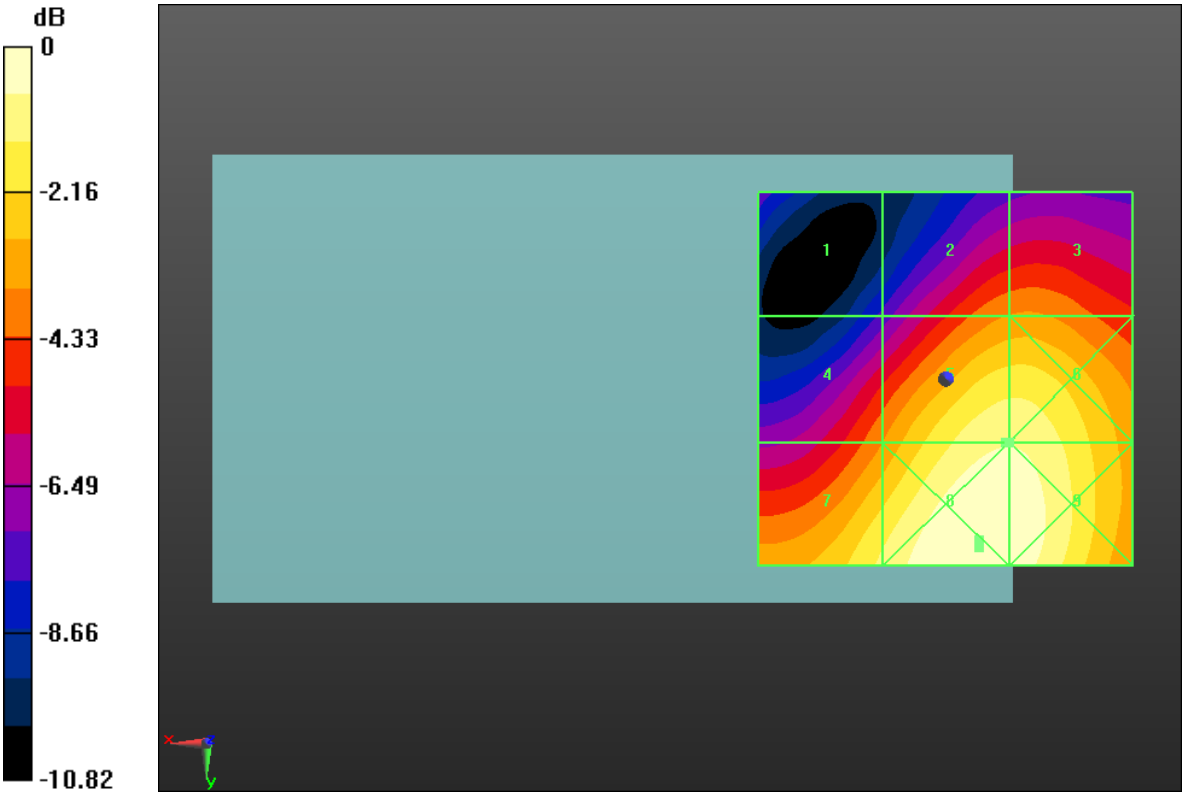
E-field emissions = 48.11 V/m

Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M4** **24.02 V/m**	Grid 2 **M4** **34.37 V/m**	Grid 3 **M4** **34.92 V/m**
Grid 4 **M4** **33.14 V/m**	Grid 5 **M4** **48.11 V/m**	Grid 6 **M4** **48.11 V/m**
Grid 7 **M4** **44.56 V/m**	Grid 8 **M4** **53.01 V/m**	Grid 9 **M4** **52.31 V/m**

Cursor:
Total = 53.008 V/m
E Category: M4
Location: -4.5, 22.5, 8.7 mm



0 dB = 54.990V/m = 34.81 dB V/m

Date/Time: 3/21/2012 5:21:33 PM

Test Laboratory: RIM Testing Services

HAC RF_E-Field_CDMA1700_OneEighth

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 331CEAA2

Communication System: CDMA AWS 1700_1/8th; Frequency: 1711.25 MHz

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/9/2012
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Device E-Field measurement with ER probe/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device_1/8th/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 20.20 V/m; Power Drift = -0.90 dB

PMR not calibrated. PMF = 2.610 is applied.

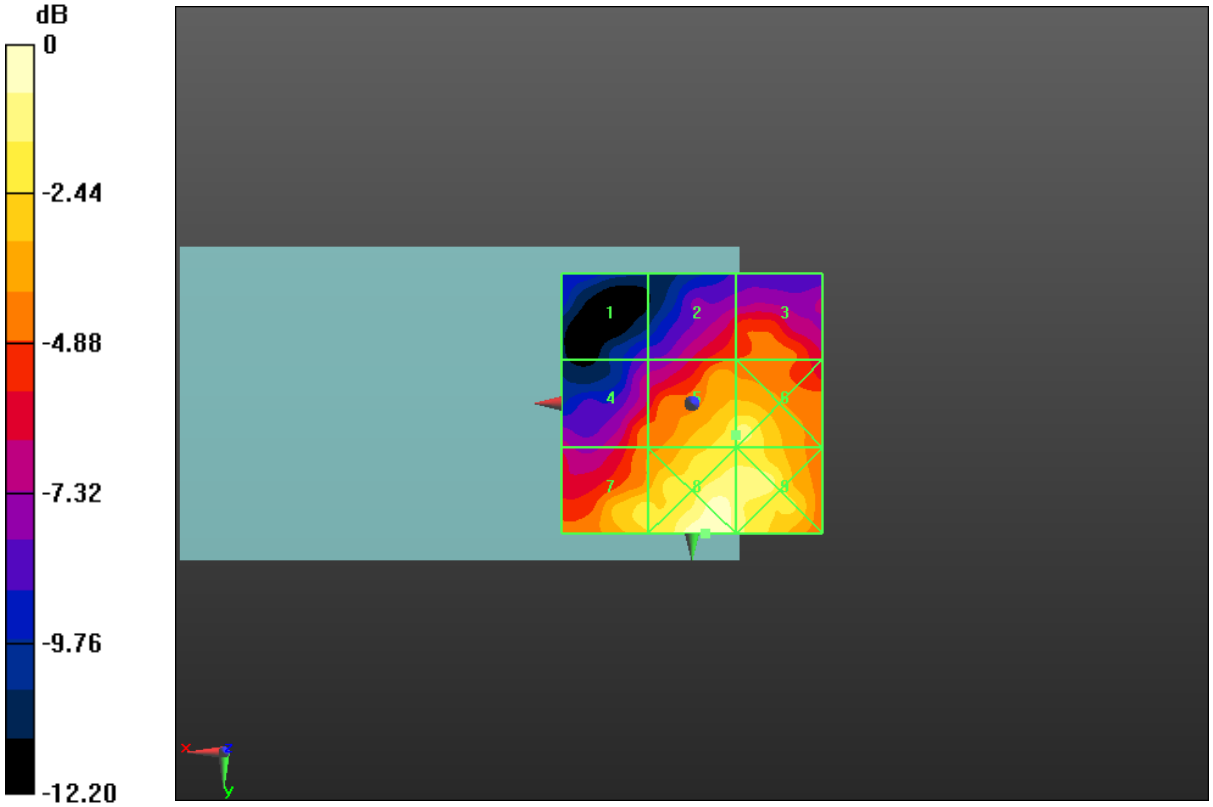
E-field emissions = 48.76 V/m

Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M4** **22.83 V/m**	Grid 2 **M4** **33.43 V/m**	Grid 3 **M4** **35.73 V/m**
Grid 4 **M4** **35.61 V/m**	Grid 5 **M4** **48.76 V/m**	Grid 6 **M4** **50.06 V/m**
Grid 7 **M4** **45.70 V/m**	Grid 8 **M4** **58.21 V/m**	Grid 9 **M4** **50.83 V/m**

Cursor:
Total = 58.207 V/m
E Category: M4
Location: -2.5, 25, 8.7 mm



0 dB = 58.210V/m = 35.30 dB V/m

Date/Time: 3/21/2012 5:30:08 PM

Test Laboratory: RIM Testing Services

HAC RF_E-Field_CDMA1700_Telecoil

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 331CEAA2

Communication System: CDMA AWS 1700; Frequency: 1711.25 MHz

Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 0 kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/9/2012
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Device E-Field measurement with ER probe/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device_Telecoil/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 50.29 V/m; Power Drift = -0.06 dB

PMR not calibrated. PMF = 1.020 is applied.

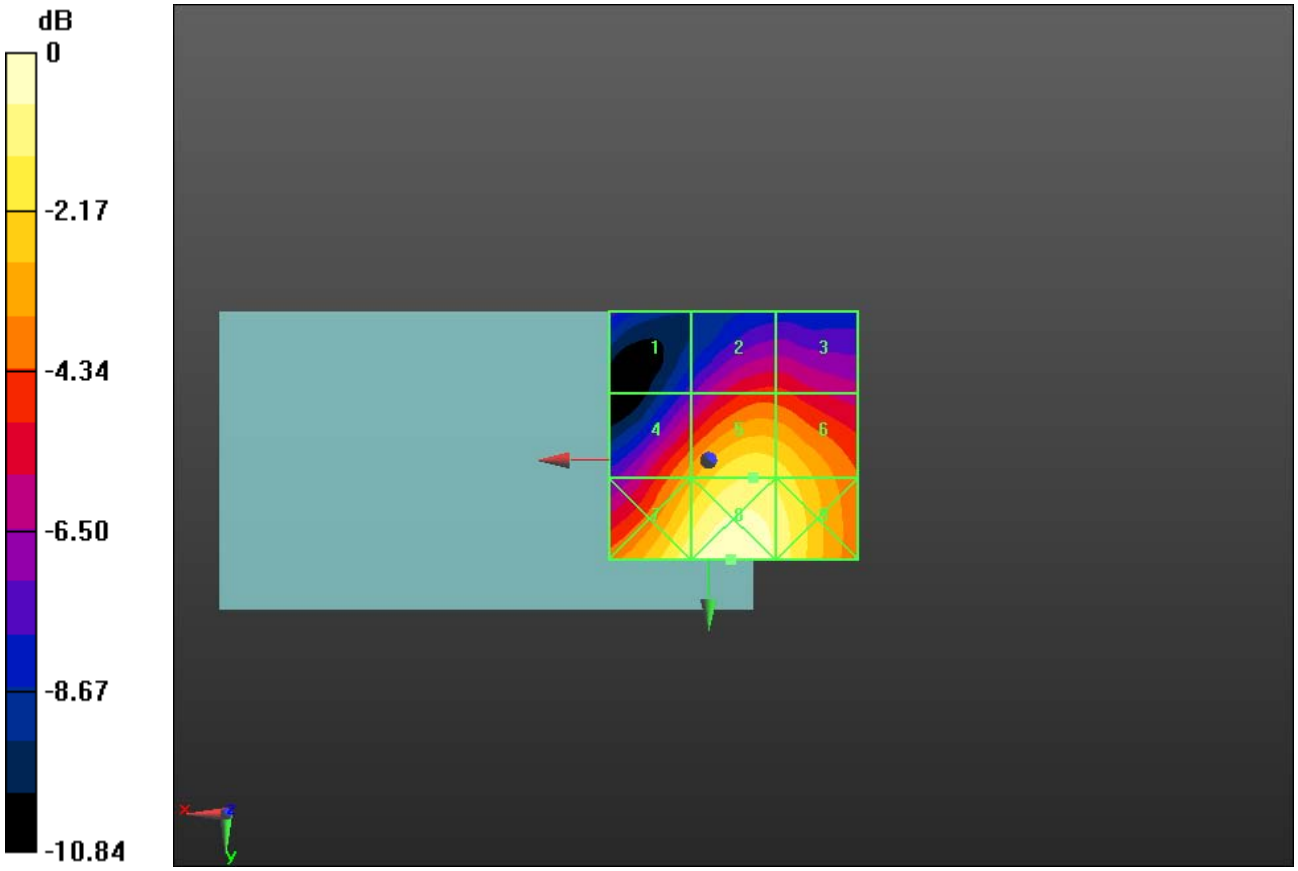
E-field emissions = 47.15 V/m

Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M4** **23.86 V/m**	Grid 2 **M4** **32.01 V/m**	Grid 3 **M4** **31.87 V/m**
Grid 4 **M4** **38.78 V/m**	Grid 5 **M4** **47.15 V/m**	Grid 6 **M4** **45.66 V/m**
Grid 7 **M4** **50.22 V/m**	Grid 8 **M4** **55.31 V/m**	Grid 9 **M4** **50.14 V/m**

Cursor:
Total = 55.309 V/m
E Category: M4
Location: -4.5, 20, 8.7 mm



0 dB = 55.310V/m = 34.86 dB V/m

Date/Time: 3/22/2012 12:05:52 PM

Test Laboratory: RIM Testing Services

HAC RF_H-Field_CDMA1700

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 331CEAA2

Communication System: CDMA AWS 1700; Frequency: 1711.25 MHz,

Frequency: 1732.5 MHz, Frequency: 1753.75 MHz

Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 0 kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 11/8/2011
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Device H-Field meausrement with H3DV6 probe/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device_low_chan/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.12 V/m; Power Drift = -0.07 dB

PMR not calibrated. PMF = 0.980 is applied.

H-field emissions = 0.12 A/m

Near-field category: M4 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M4** **0.12 A/m**	Grid 2 **M4** **0.11 A/m**	Grid 3 **M4** **0.10 A/m**
Grid 4 **M4** **0.14 A/m**	Grid 5 **M4** **0.12 A/m**	Grid 6 **M4** **0.10 A/m**
Grid 7 **M4** **0.17 A/m**	Grid 8 **M4** **0.14 A/m**	Grid 9 **M4** **0.09 A/m**

Cursor:

Total = 0.168 A/m

H Category: M4

Location: 25, 25, 8.7 mm

Device H-Field meausrement with H3DV6 probe/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device_mid_chan/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.12 V/m; Power Drift = 0.01 dB

PMR not calibrated. PMF = 0.980 is applied.

H-field emissions = 0.13 A/m

Near-field category: M4 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M4 0.12 A/m**	Grid 2 **M4 0.12 A/m**	Grid 3 **M4 0.10 A/m**
Grid 4 **M4 0.15 A/m**	Grid 5 **M4 0.13 A/m**	Grid 6 **M4 0.10 A/m**
Grid 7 **M4 0.18 A/m**	Grid 8 **M4 0.15 A/m**	Grid 9 **M4 0.10 A/m**

Cursor:

Total = 0.179 A/m

H Category: M4

Location: 25, 25, 8.7 mm

Device H-Field meausrement with H3DV6 probe/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device_high_chan/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.11 V/m; Power Drift = 0.11 dB

PMR not calibrated. PMF = 0.980 is applied.

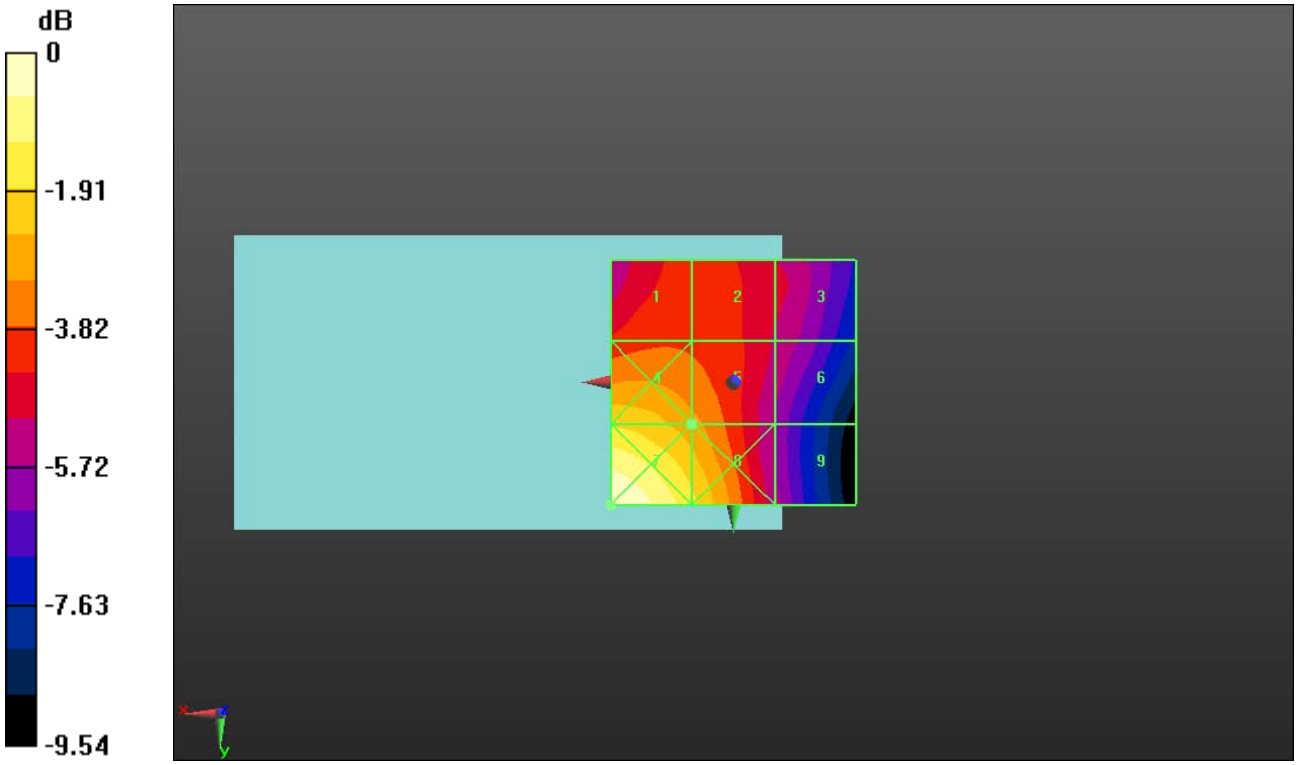
H-field emissions = 0.12 A/m

Near-field category: M4 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M4** **0.11 A/m**	Grid 2 **M4** **0.11 A/m**	Grid 3 **M4** **0.10 A/m**
Grid 4 **M4** **0.13 A/m**	Grid 5 **M4** **0.12 A/m**	Grid 6 **M4** **0.09 A/m**
Grid 7 **M4** **0.16 A/m**	Grid 8 **M4** **0.13 A/m**	Grid 9 **M4** **0.09 A/m**

Cursor:
Total = 0.160 A/m
H Category: M4
Location: 25, 25, 8.7 mm



0 dB = 0.170A/m = -15.39 dB A/m

Date/Time: 3/22/2012 12:39:29 PM

Test Laboratory: RIM Testing Services

HAC RF_H-Field_CDMA1700_OneEighth

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 331CEAA2

Communication System: CDMA AWS 1700_1/8th; Frequency: 1732.5 MHz

Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 0 kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 11/8/2011
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Device H-Field meausrement with H3DV6 probe/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device_1/8th/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.04 V/m; Power Drift = -0.02 dB

PMR not calibrated. PMF = 2.520 is applied.

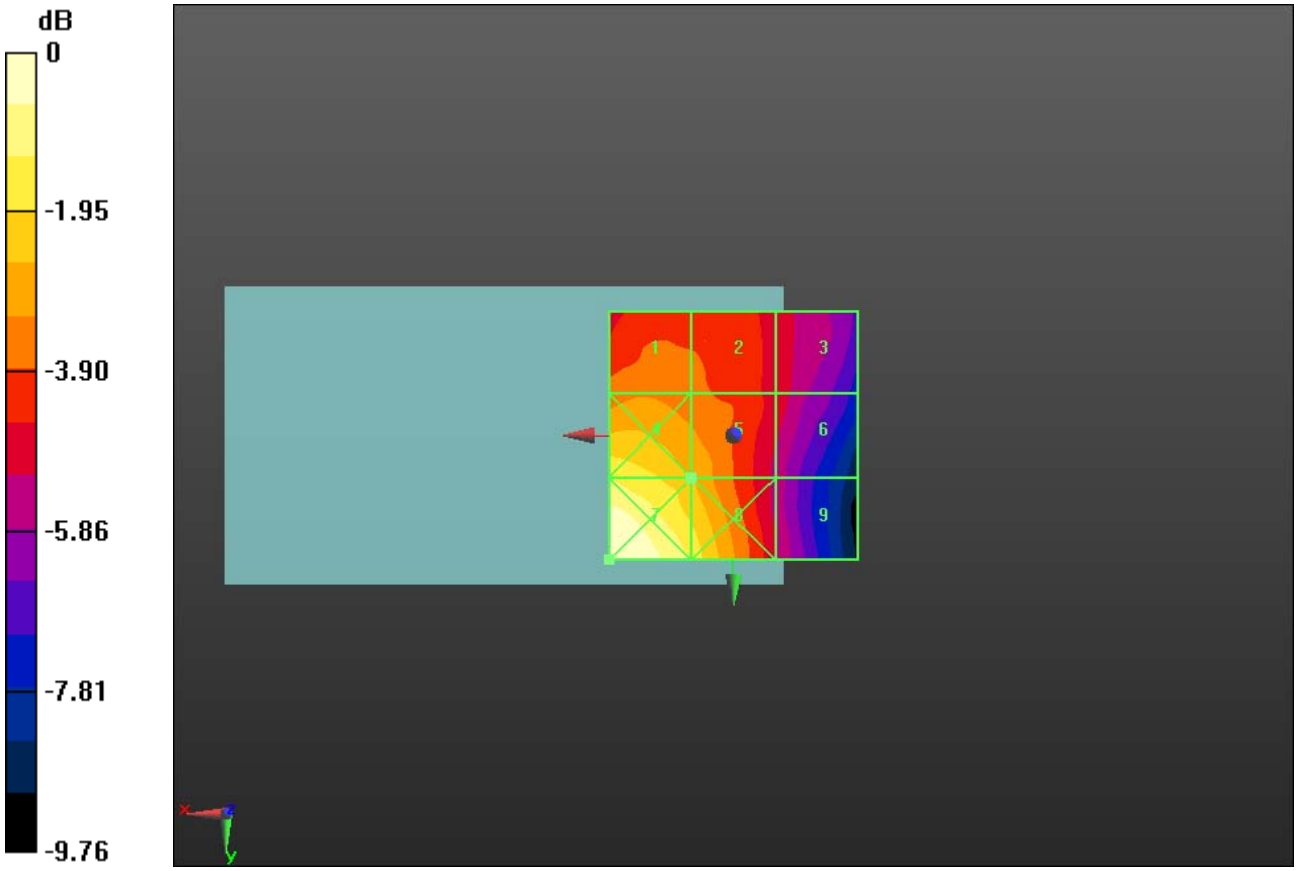
H-field emissions = 0.12 A/m

Near-field category: M4 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M4 0.11 A/m**	Grid 2 **M4 0.11 A/m**	Grid 3 **M4 0.09 A/m**
Grid 4 **M4 0.14 A/m**	Grid 5 **M4 0.12 A/m**	Grid 6 **M4 0.09 A/m**
Grid 7 **M4 0.16 A/m**	Grid 8 **M4 0.14 A/m**	Grid 9 **M4 0.09 A/m**

Cursor:
Total = 0.164 A/m
H Category: M4
Location: 25, 25, 8.7 mm



0 dB = 0.160A/m = -15.92 dB A/m

Date/Time: 3/22/2012 12:46:55 PM

Test Laboratory: RIM Testing Services

HAC RF_H-Field_CDMA1700_Telecoil

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 331CEAA2

Communication System: CDMA AWS 1700; Frequency: 1732.5 MHz

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: H3DV6 - SN6105; ; Calibrated: 11/8/2011
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn473; Calibrated: 1/13/2012
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA; Serial: Not Specified
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Device H-Field meausrement with H3DV6 probe/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device_Centre_Telecoil/Hearing Aid Compatibility Test (101x101x1):

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

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.12 V/m; Power Drift = -0.10 dB

PMR not calibrated. PMF = 0.980 is applied.

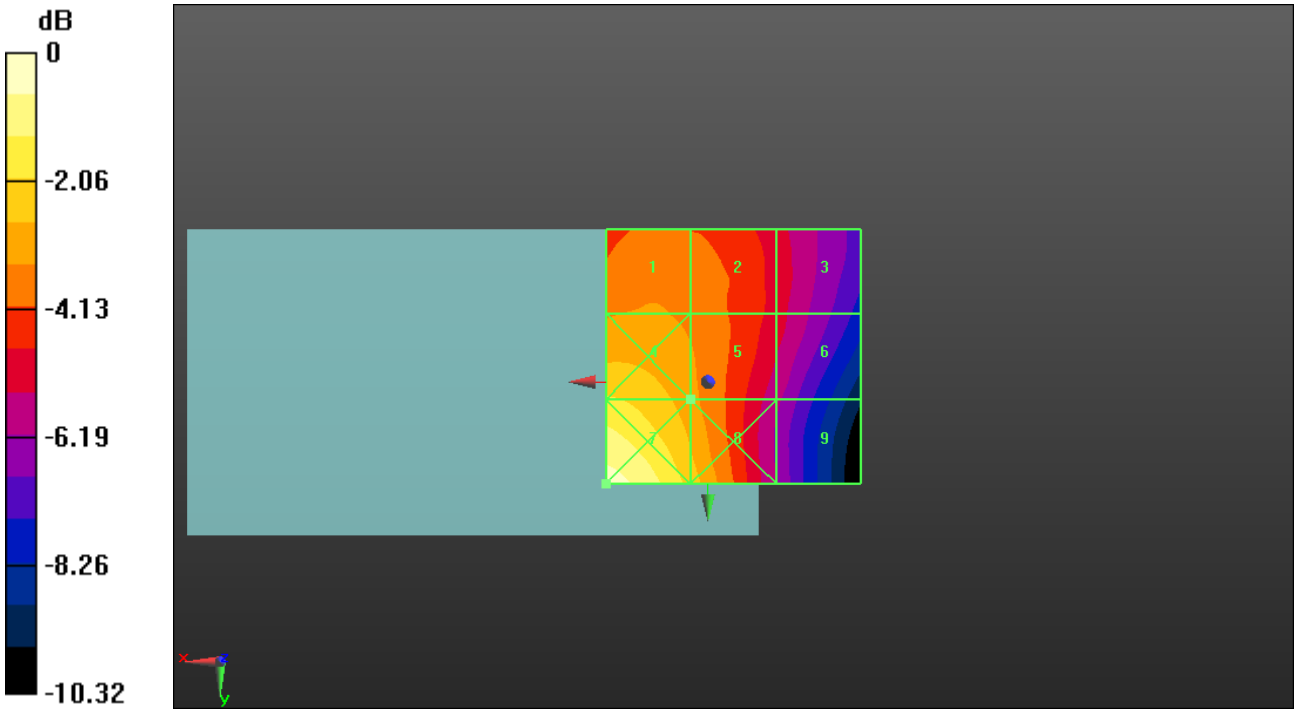
H-field emissions = 0.12 A/m

Near-field category: M4 (AWF 0 dB)

PMF scaled H-field

Grid 1 **M4** **0.12 A/m**	Grid 2 **M4** **0.11 A/m**	Grid 3 **M4** **0.09 A/m**
Grid 4 **M4** **0.14 A/m**	Grid 5 **M4** **0.12 A/m**	Grid 6 **M4** **0.09 A/m**
Grid 7 **M4** **0.17 A/m**	Grid 8 **M4** **0.13 A/m**	Grid 9 **M4** **0.09 A/m**

Cursor:
Total = 0.167 A/m
H Category: M4
Location: 20, 20, 8.7 mm



0 dB = 0.170A/m = -15.39 dB A/m