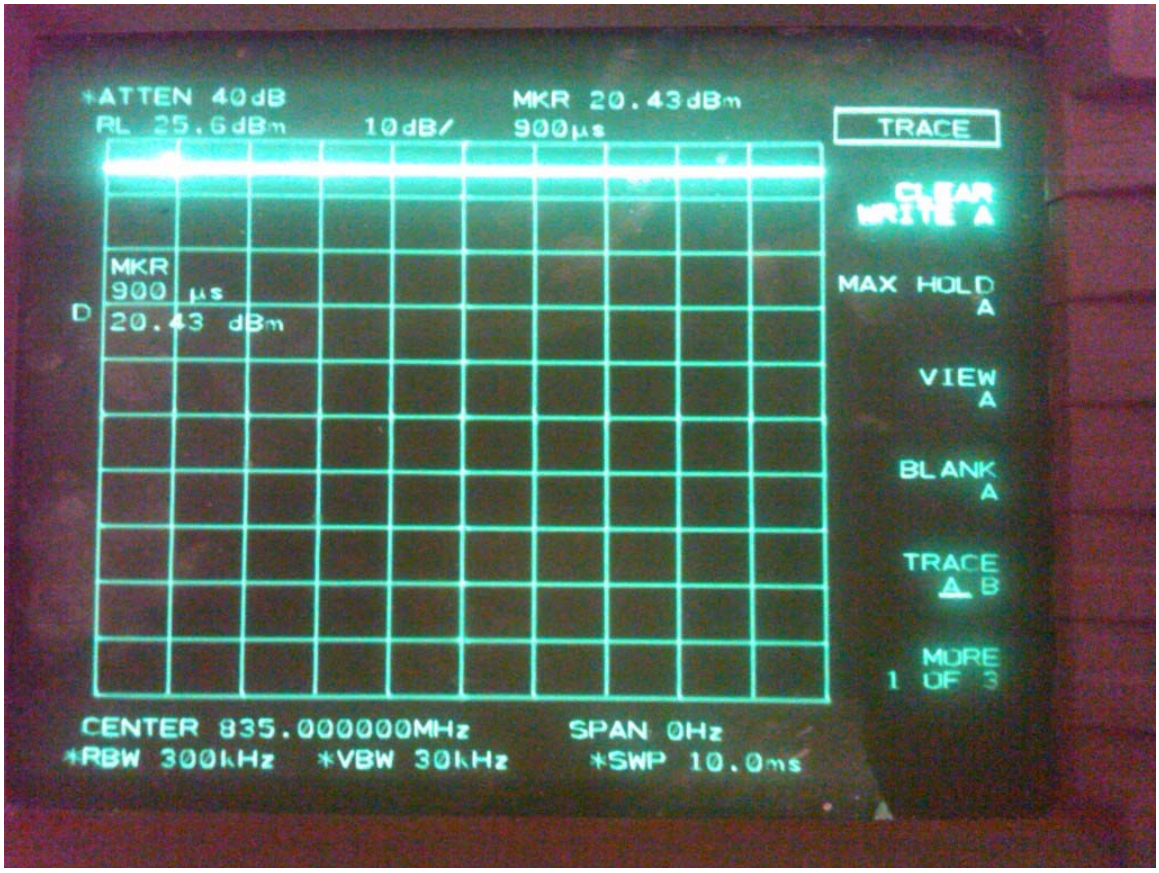
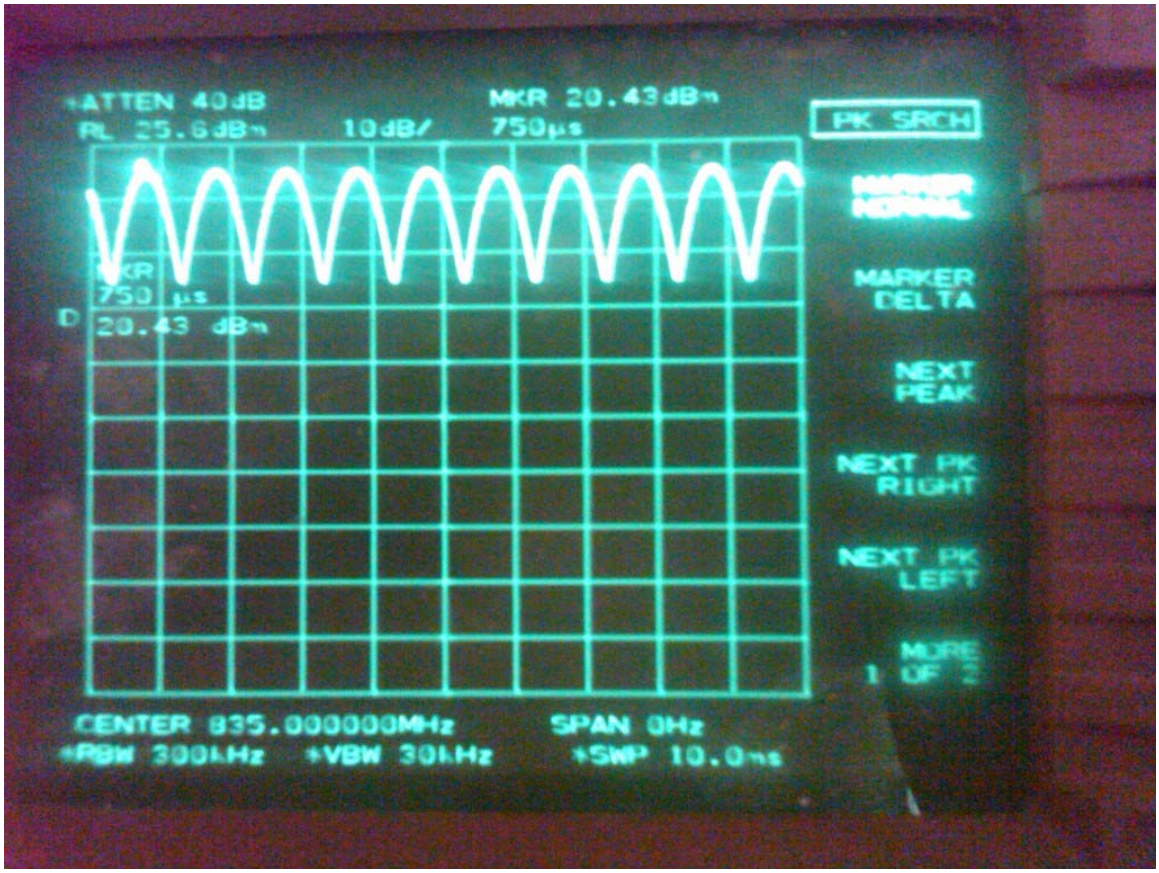
# Annex A: Measurement data and plots

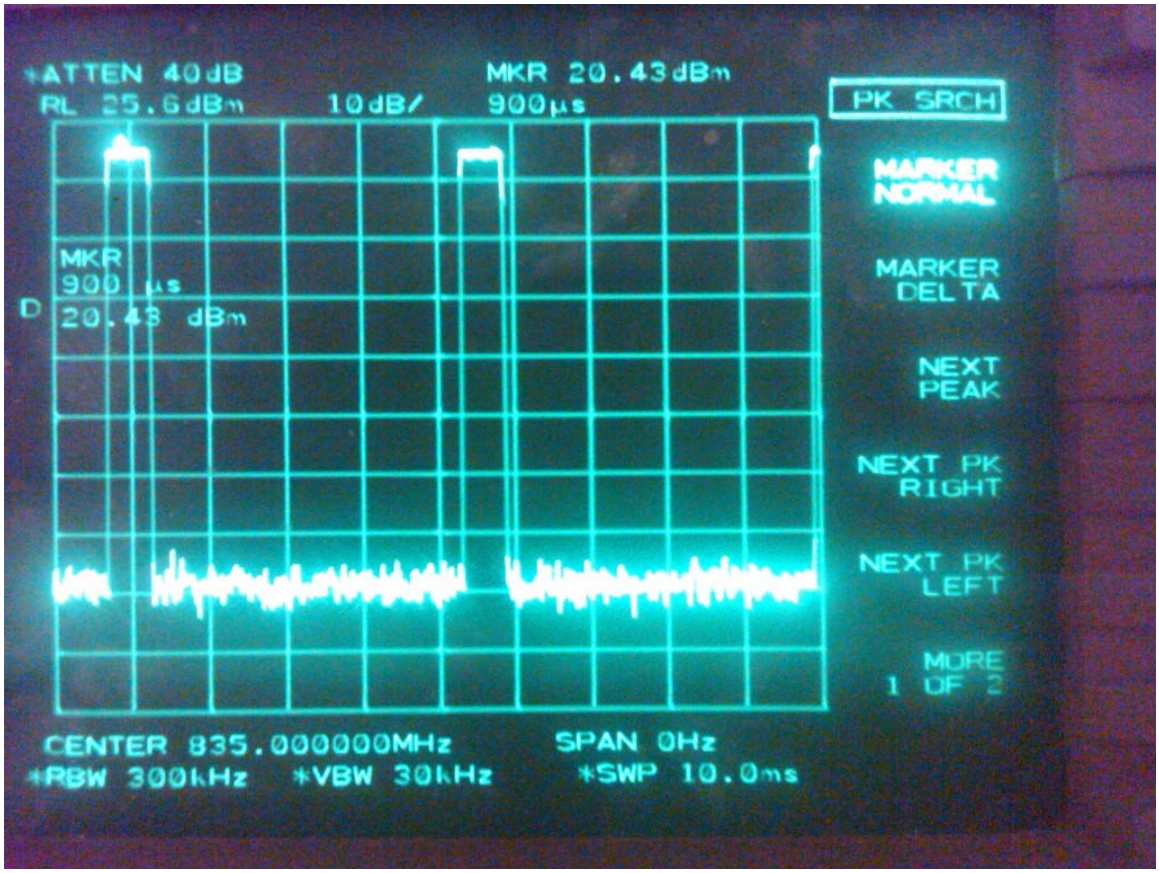
## A.1 Spectrum analyser plots: CW, 80%AM, GSM and WCDMA signals



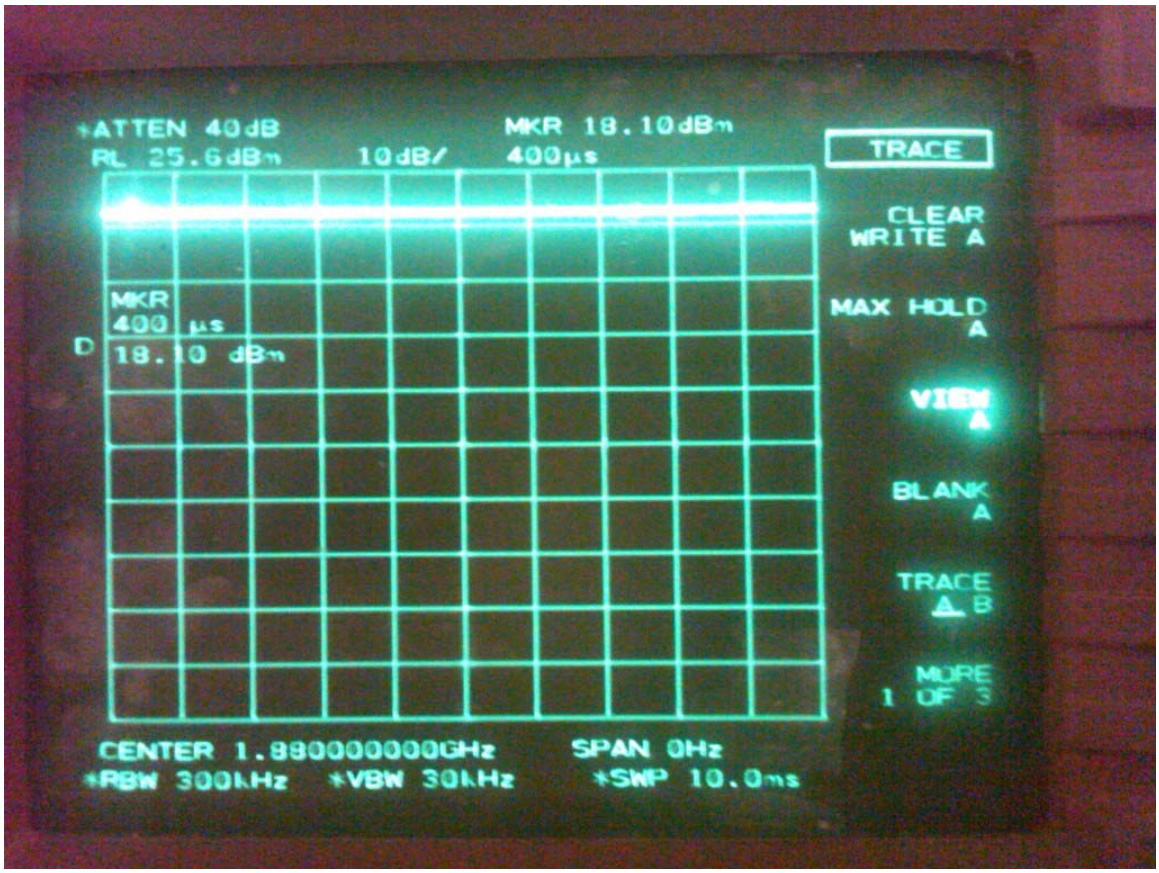

**0 Hz Span CW Plot (835MHz)**



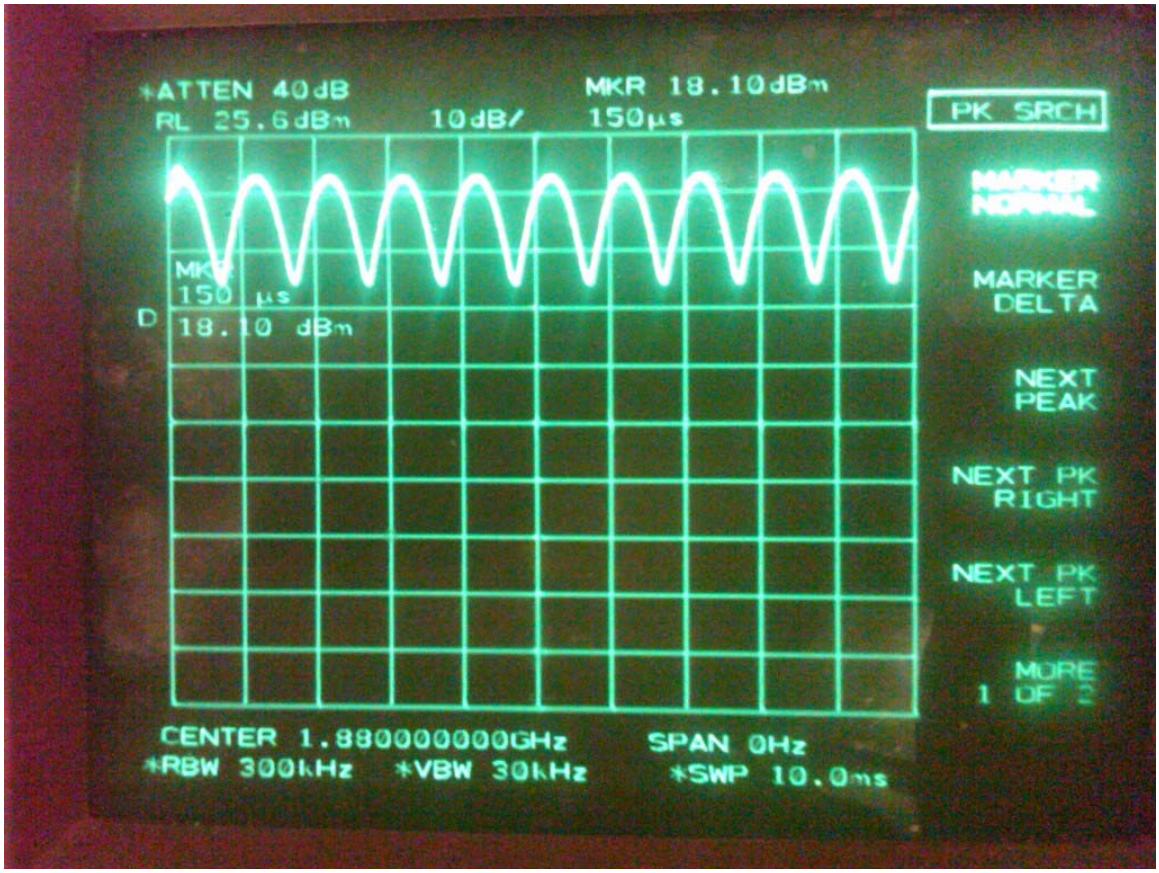

**0 Hz Span 80% AM Plot (835MHz)**



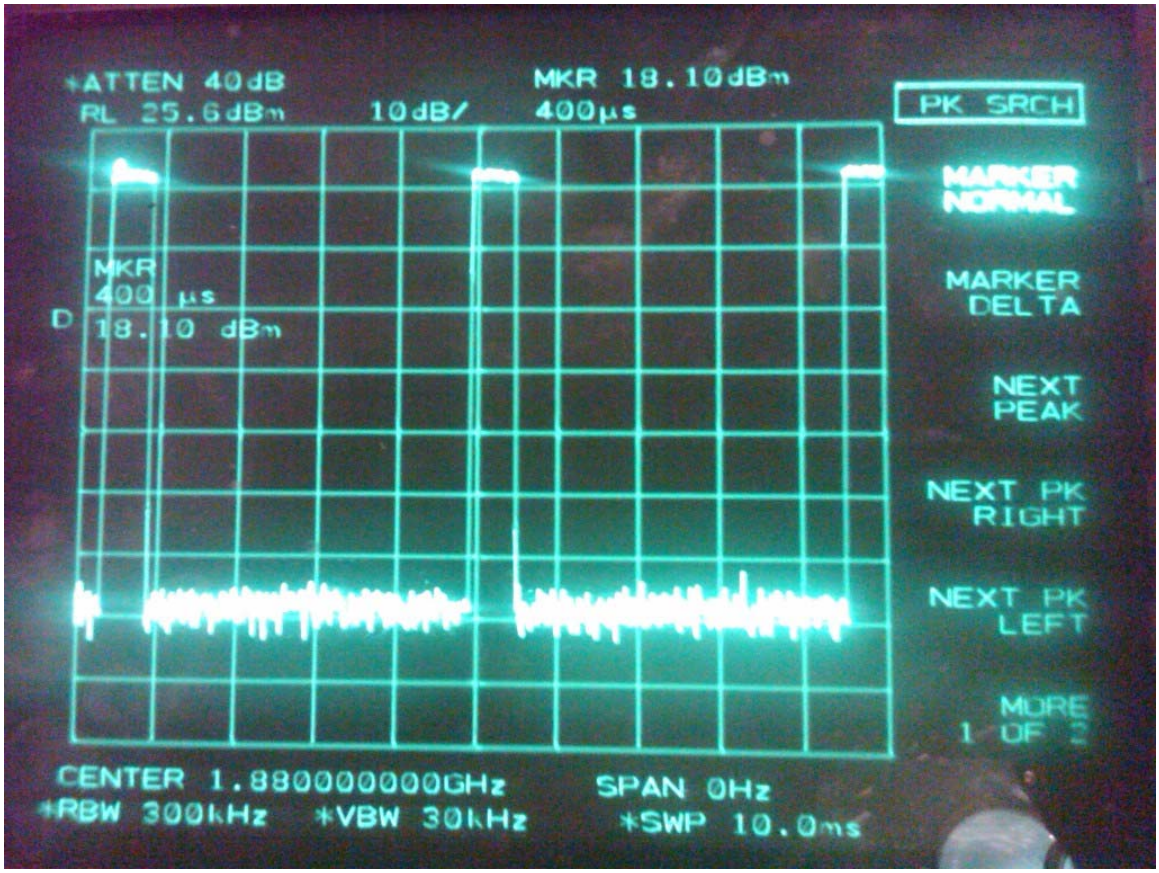

**0 Hz Span GSM (835MHz)**



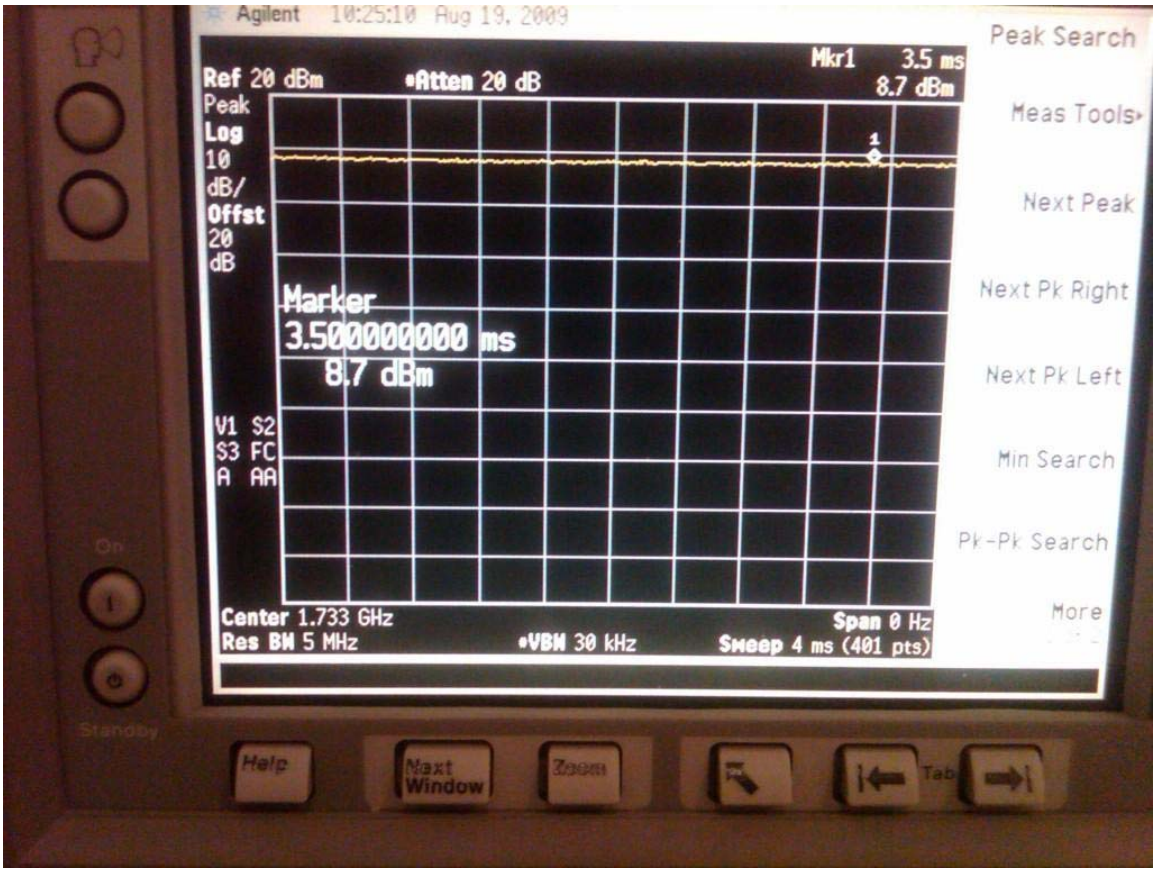

**0 Hz Span CW Plot (1880MHz)**



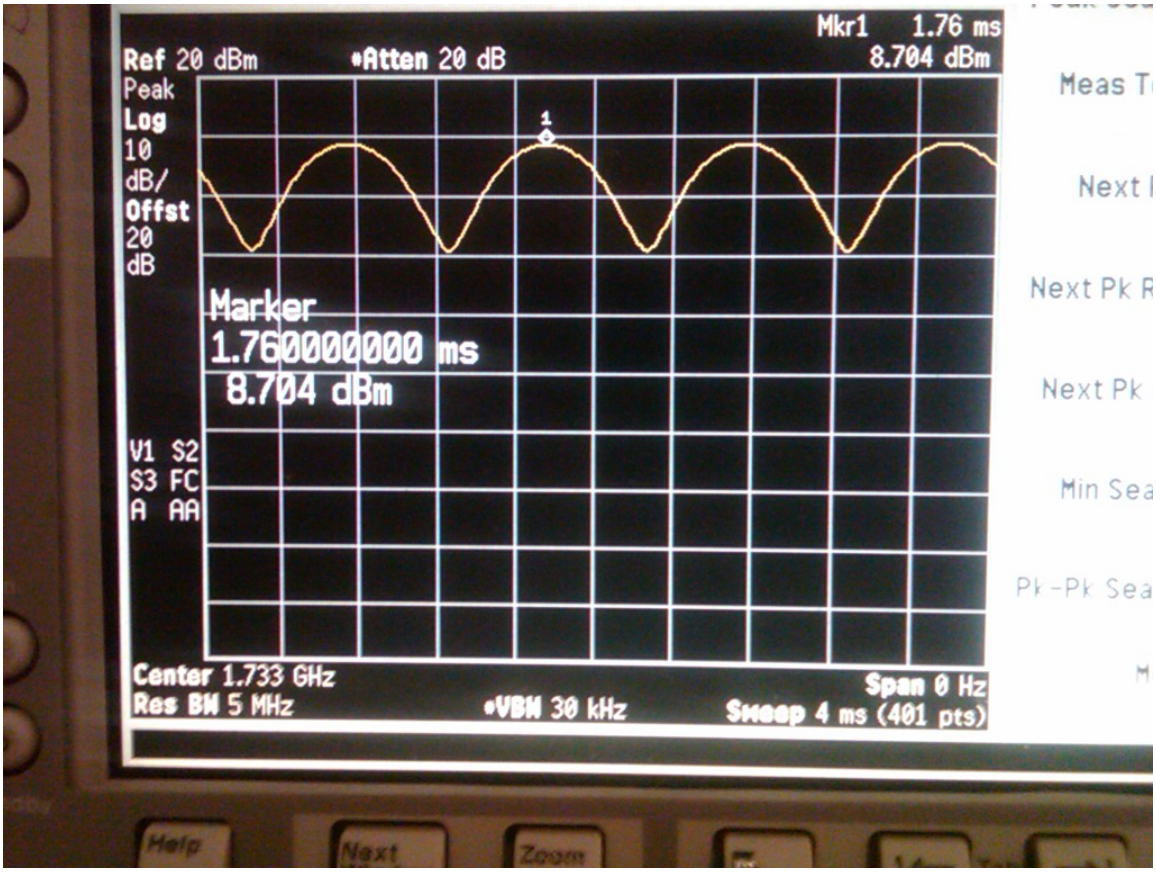

**0 Hz Span 80% AM Plot (1880MHz)**



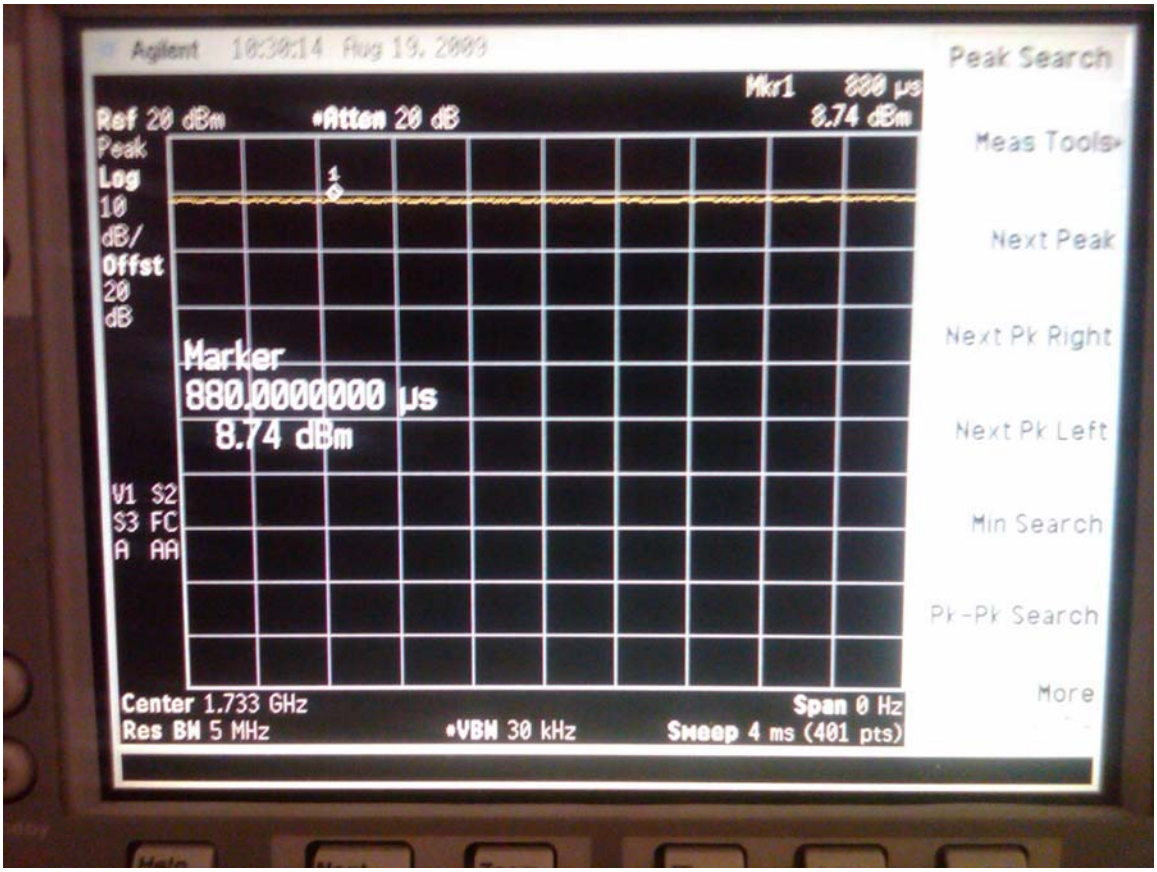

**0 Hz Span GSM (1880MHz)**




**0 Hz Span CW Plot (1733 MHz)**




**0 Hz Span 80% AM Plot (1733 MHz)**




**0 Hz Span WCDMA (1733 MHz)**

## A.2 Dipole validation and probe modulation factor plots

Date/Time: 11/08/2009 9:12:23 AM

Test Laboratory: RTS

File Name: HAC_E_Dipole_CW835_20.00dBm.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x37x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 102.2 V/m; Power Drift = 0.093 dB

Maximum value of Total (measured) = 160.7 V/m

## E Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):

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

Maximum value of peak Total field = 162.8 V/m

Probe Modulation Factor = 1.00

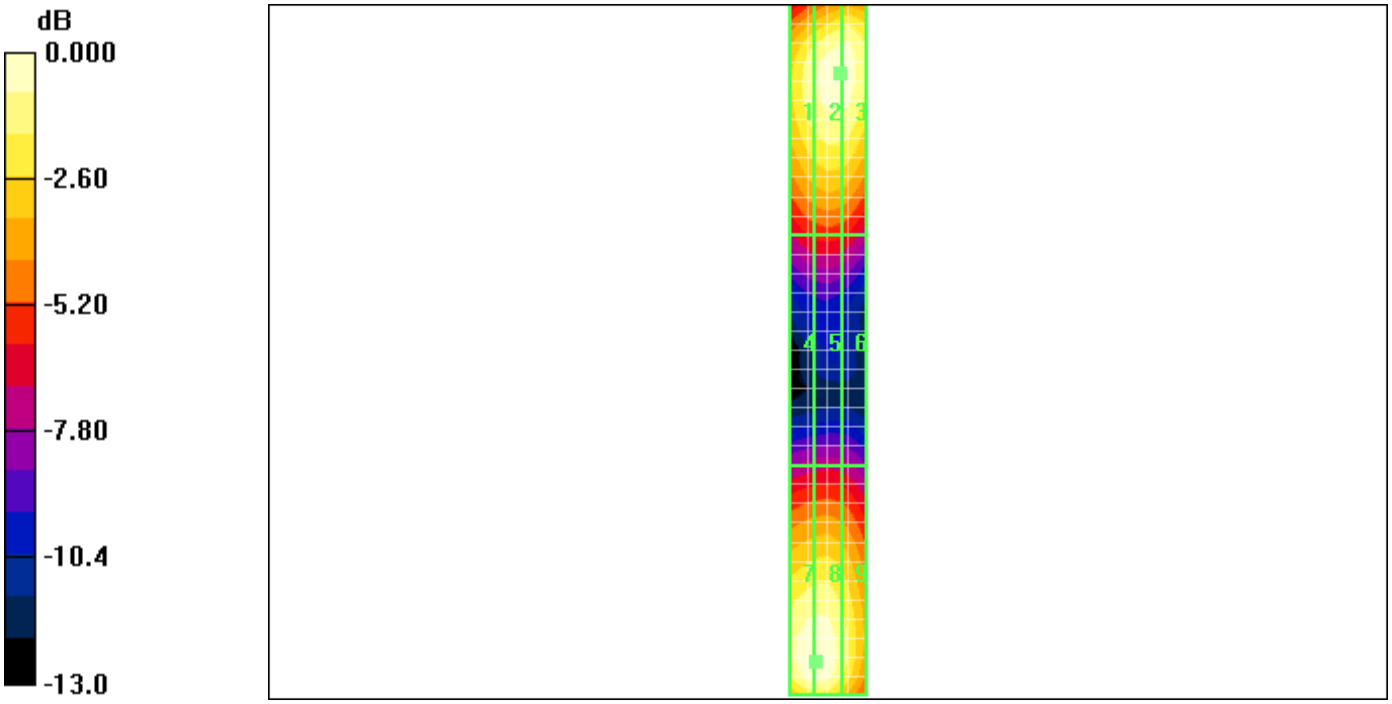
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 102.2 V/m; Power Drift = 0.093 dB

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

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**147.2 M4** | Grid 2<br>**158.1 M4** | Grid 3<br>**158.0 M4** |
| Grid 4<br>**83.4 M4** | Grid 5<br>**85.2 M4** | Grid 6<br>**83.5 M4** |
| Grid 7<br>**162.6 M4** | Grid 8<br>**162.8 M4** | Grid 9<br>**142.8 M4** |




0 dB = 162.8V/m

Date/Time: 03/07/2009 10:28:16 AM

Test Laboratory: RTS

File Name: HAC_E_Dipole_835MHz_CW.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x37x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 104.4 V/m; Power Drift = 0.112 dB

Maximum value of Total (measured) = 163.1 V/m

## E Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):

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

Maximum value of peak Total field = 164.3 V/m

Probe Modulation Factor = 1.00

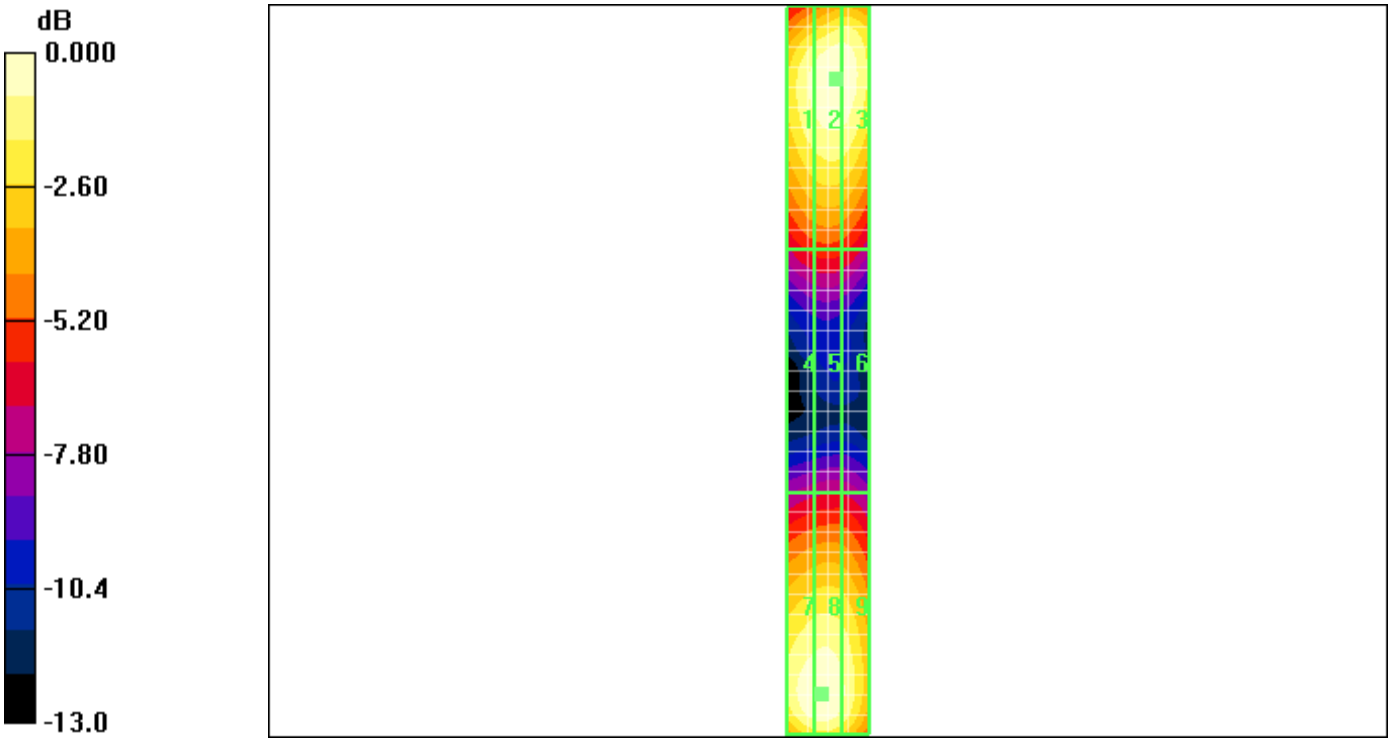
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 104.4 V/m; Power Drift = 0.112 dB

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

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**154.1 M4** | Grid 2<br>**162.8 M4** | Grid 3<br>**161.9 M4** |
| Grid 4<br>**85.4 M4** | Grid 5<br>**87.1 M4** | Grid 6<br>**84.8 M4** |
| Grid 7<br>**161.9 M4** | Grid 8<br>**164.3 M4** | Grid 9<br>**152.0 M4** |




0 dB = 164.3V/m

Date/Time: 06/07/2009 2:40:33 PM

Test Laboratory: RTS

File Name: HAC_E_Dipole_835MHz_CW_GSM_mod.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x37x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 103.1 V/m; Power Drift = 0.054 dB

Maximum value of Total (measured) = 161.1 V/m

## E Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):

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

Maximum value of peak Total field = 161.5 V/m

Probe Modulation Factor = 1.00

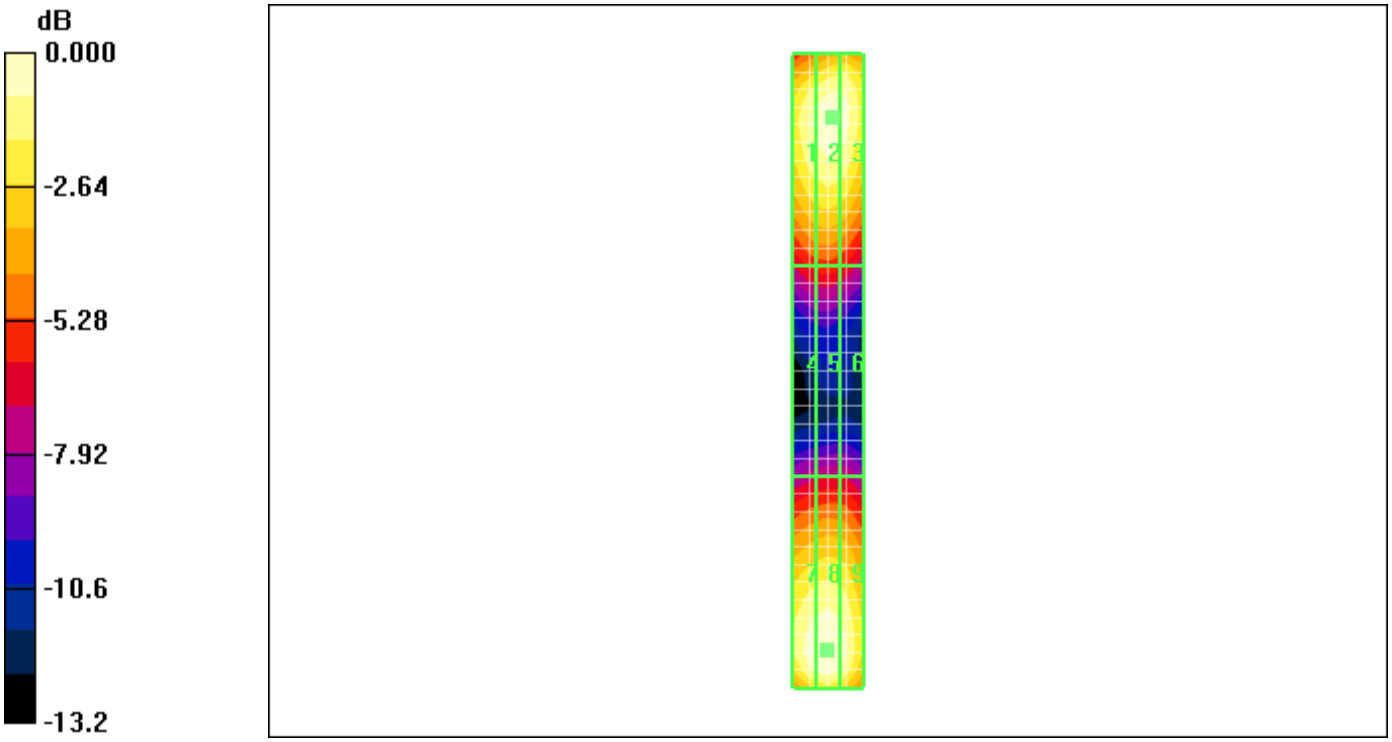
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 103.1 V/m; Power Drift = 0.054 dB

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

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**149.5 M4** | Grid 2<br>**155.9 M4** | Grid 3<br>**154.5 M4** |
| Grid 4<br>**84.1 M4** | Grid 5<br>**85.4 M4** | Grid 6<br>**82.2 M4** |
| Grid 7<br>**158.0 M4** | Grid 8<br>**161.5 M4** | Grid 9<br>**153.8 M4** |




0 dB = 161.5V/m

Date/Time: 06/07/2009 2:48:36 PM

Test Laboratory: RTS

File Name: HAC_E_Dipole_835MHz_AM80%.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x37x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 65.7 V/m; Power Drift = 0.070 dB

Maximum value of Total (measured) = 102.1 V/m

## E Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):

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

Maximum value of peak Total field = 102.3 V/m

Probe Modulation Factor = 1.00

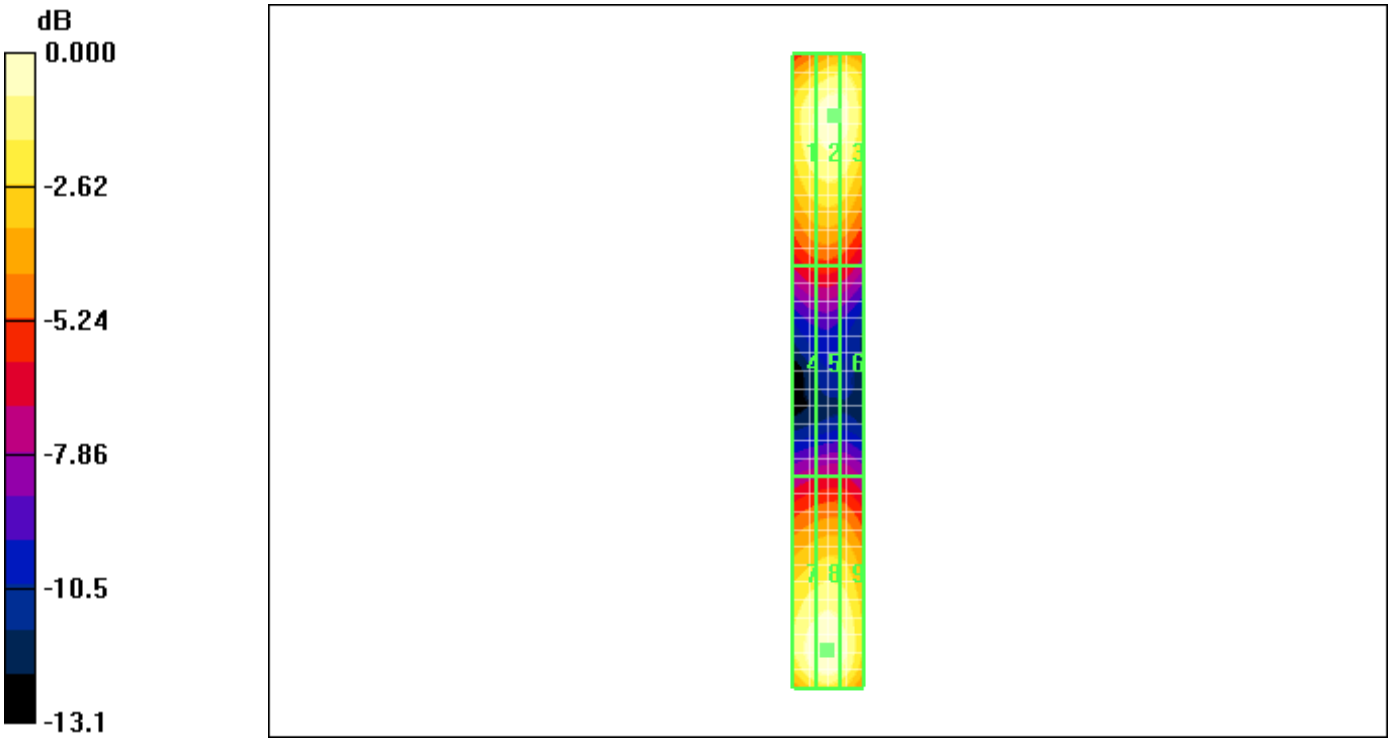
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 65.7 V/m; Power Drift = 0.070 dB

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

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**93.9 M4** | Grid 2<br>**97.9 M4** | Grid 3<br>**97.5 M4** |
| Grid 4<br>**53.7 M4** | Grid 5<br>**54.3 M4** | Grid 6<br>**52.5 M4** |
| Grid 7<br>**99.9 M4** | Grid 8<br>**102.3 M4** | Grid 9<br>**98.2 M4** |




0 dB = 102.3V/m

Date/Time: 06/07/2009 2:40:33 PM

Test Laboratory: RTS

File Name: HAC_E_Dipole_835MHz_CW_GSM_mod.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3; Serial: Not Specified**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x37x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 103.1 V/m; Power Drift = 0.054 dB

Maximum value of Total (measured) = 161.1 V/m

## E Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):

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

Maximum value of peak Total field = 161.5 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 103.1 V/m; Power Drift = 0.054 dB

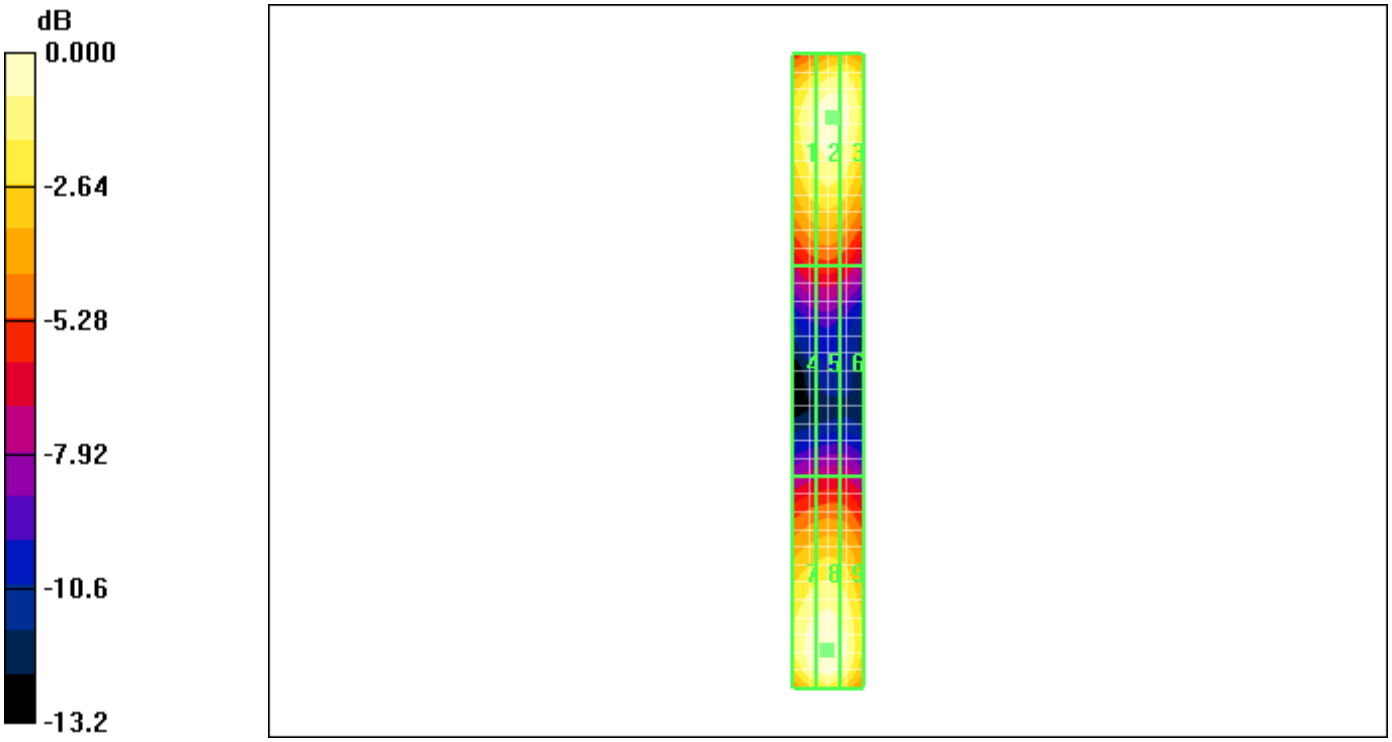
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **149.5 M4** | Grid 2 **155.9 M4** | Grid 3 **154.5 M4** |
| Grid 4 **84.1 M4** | Grid 5 **85.4 M4** | Grid 6 **82.2 M4** |
| Grid 7 **158.0 M4** | Grid 8 **161.5 M4** | Grid 9 **153.8 M4** |

**Cursor:**

Total = 161.5 V/m
E Category: M4
Location: 0.5, 79.5, 4.7 mm




0 dB = 161.5V/m

Date/Time: 11/08/2009 9:21:32 AM

Test Laboratory: RTS

File Name: HAC_E_Dipole_CW1880_20.00dBm.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 149.6 V/m; Power Drift = -0.059 dB

Maximum value of Total (measured) = 127.9 V/m

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 129.5 V/m

Probe Modulation Factor = 1.00

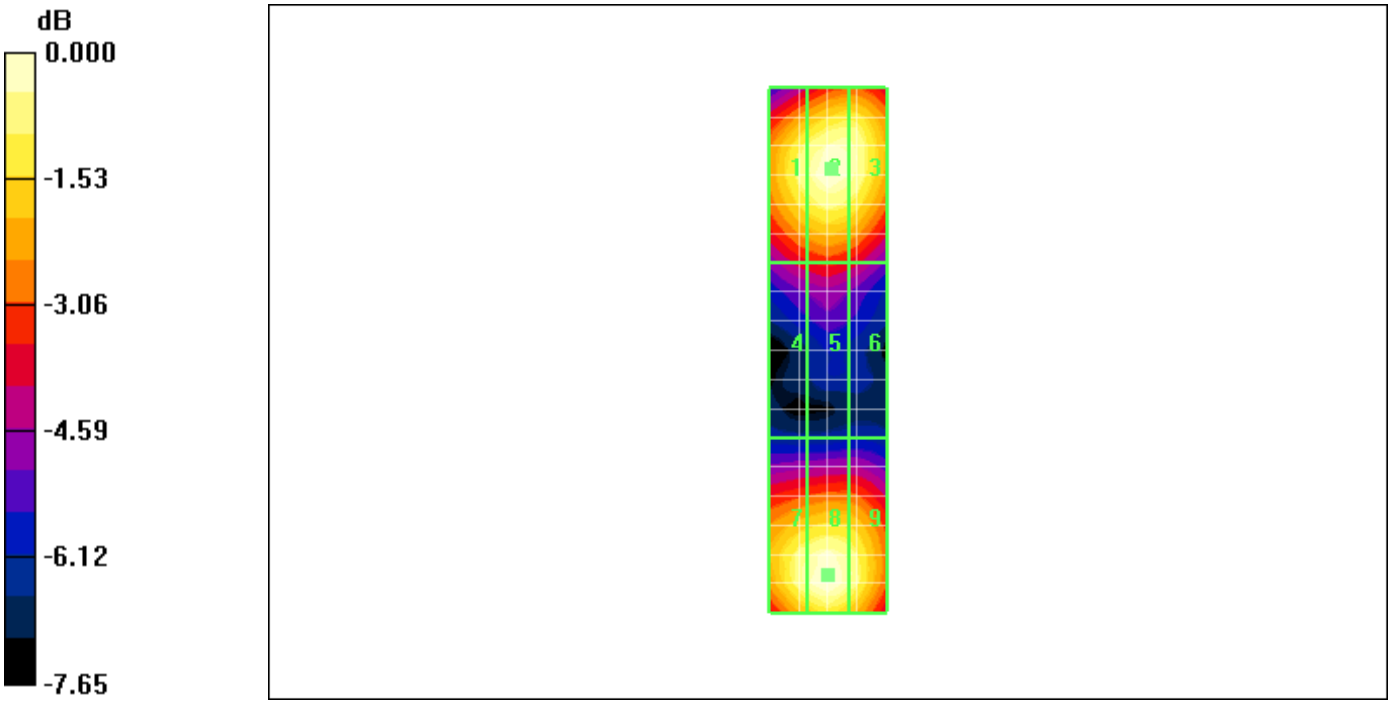
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 149.6 V/m; Power Drift = -0.059 dB

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

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**121.5 M2** | Grid 2<br>**126.5 M2** | Grid 3<br>**125.1 M2** |
| Grid 4<br>**85.1 M3** | Grid 5<br>**88.0 M3** | Grid 6<br>**84.9 M3** |
| Grid 7<br>**125.0 M2** | Grid 8<br>**129.5 M2** | Grid 9<br>**123.9 M2** |




0 dB = 129.5V/m

Date/Time: 03/07/2009 11:15:10 AM

Test Laboratory: RTS

File Name: HAC_E_Dipole_1880MHz_CW.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 143.7 V/m; Power Drift = 0.004 dB

Maximum value of Total (measured) = 126.1 V/m

## E Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 128.4 V/m

Probe Modulation Factor = 1.00

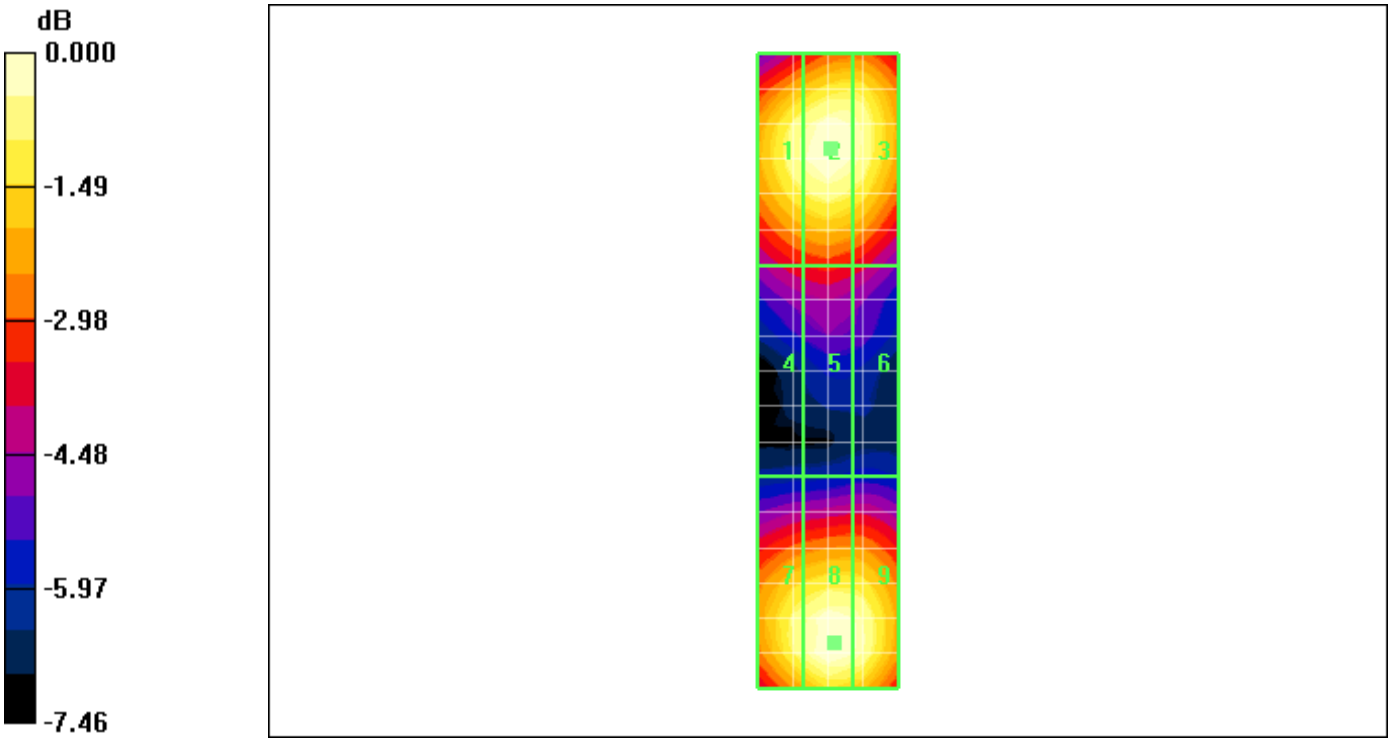
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 143.7 V/m; Power Drift = 0.004 dB

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

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**122.6 M2** | Grid 2<br>**126.3 M2** | Grid 3<br>**124.1 M2** |
| Grid 4<br>**86.4 M3** | Grid 5<br>**88.5 M3** | Grid 6<br>**85.4 M3** |
| Grid 7<br>**121.8 M2** | Grid 8<br>**128.4 M2** | Grid 9<br>**126.4 M2** |




0 dB = 128.4V/m

Date/Time: 06/07/2009 1:23:02 PM

Test Laboratory: RTS

File Name: HAC_E_Dipole_1880MHz_CW_GSM_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 111.8 V/m; Power Drift = -0.011 dB

Maximum value of Total (measured) = 98.3 V/m

## E Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 100.0 V/m

Probe Modulation Factor = 1.00

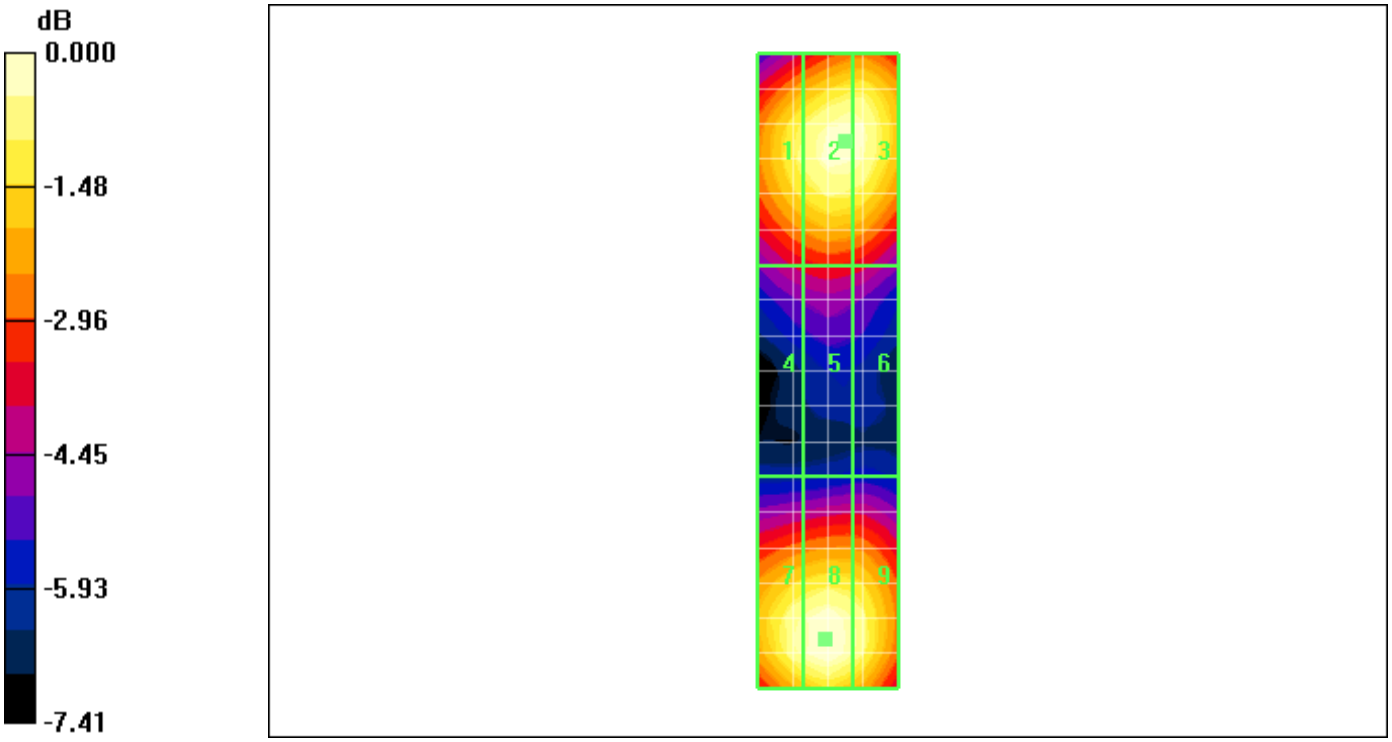
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 111.8 V/m; Power Drift = -0.011 dB

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

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**91.9 M3** | Grid 2<br>**97.3 M3** | Grid 3<br>**97.1 M3** |
| Grid 4<br>**65.6 M3** | Grid 5<br>**67.8 M3** | Grid 6<br>**66.5 M3** |




0 dB = 100.0V/m

Date/Time: 06/07/2009 1:28:37 PM

Test Laboratory: RTS

File Name: HAC_E_Dipole_1880MHz_AM80%.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF E Dipole**

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

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 70.9 V/m; Power Drift = 0.028 dB

Maximum value of Total (measured) = 62.5 V/m

## E Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 63.6 V/m

Probe Modulation Factor = 1.00

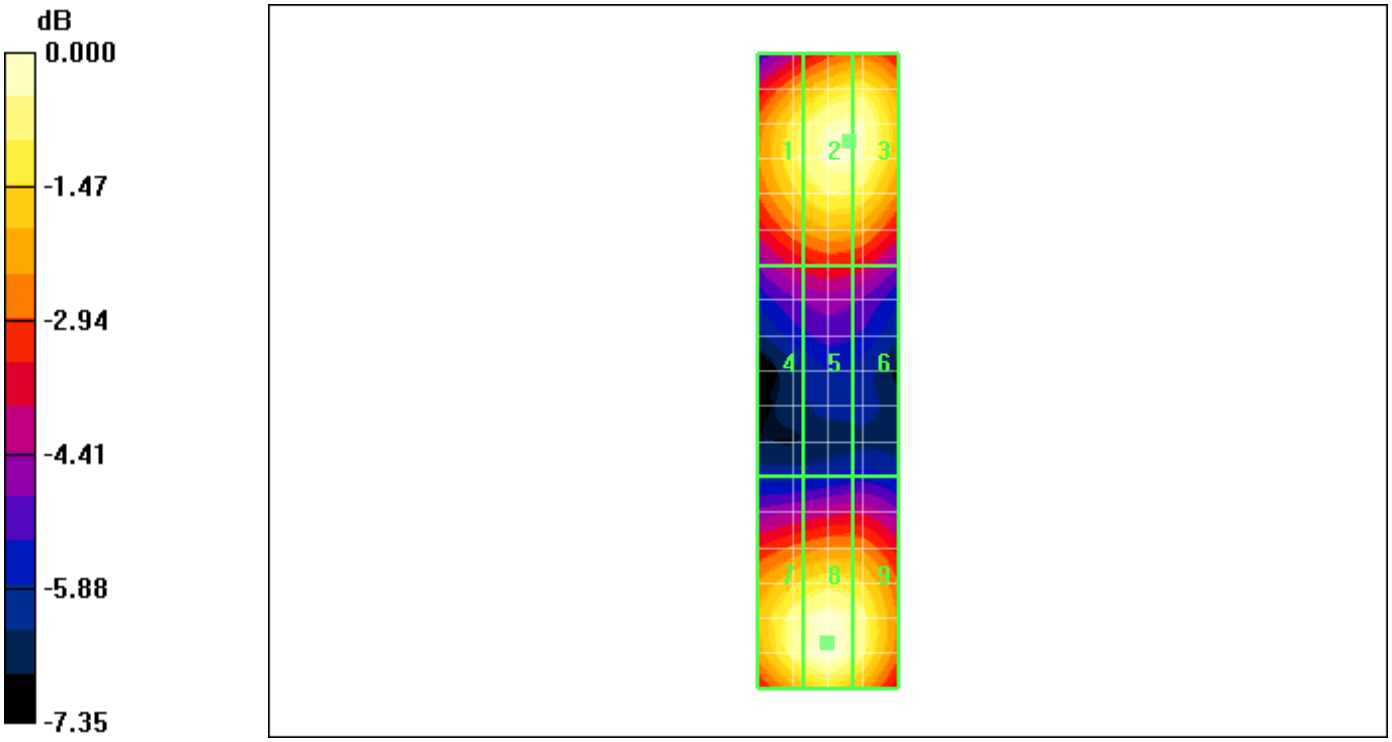
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 70.9 V/m; Power Drift = 0.028 dB

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

Peak E-field in V/m

| Grid 1 | Grid 2 | Grid 3 |
|---|---|---|
| **58.3 M4** | **61.8 M4** | **61.7 M4** |
| Grid 4 | Grid 5 | Grid 6 |
| **41.8 M4** | **43.2 M4** | **42.5 M4** |




0 dB = 63.6V/m

Date/Time: 06/07/2009 1:07:30 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_1880MHz_GSM_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Dipole**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 18.2 V/m; Power Drift = -0.071 dB

Maximum value of Total (measured) = 35.3 V/m

## H Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 35.9 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 18.2 V/m; Power Drift = -0.071 dB

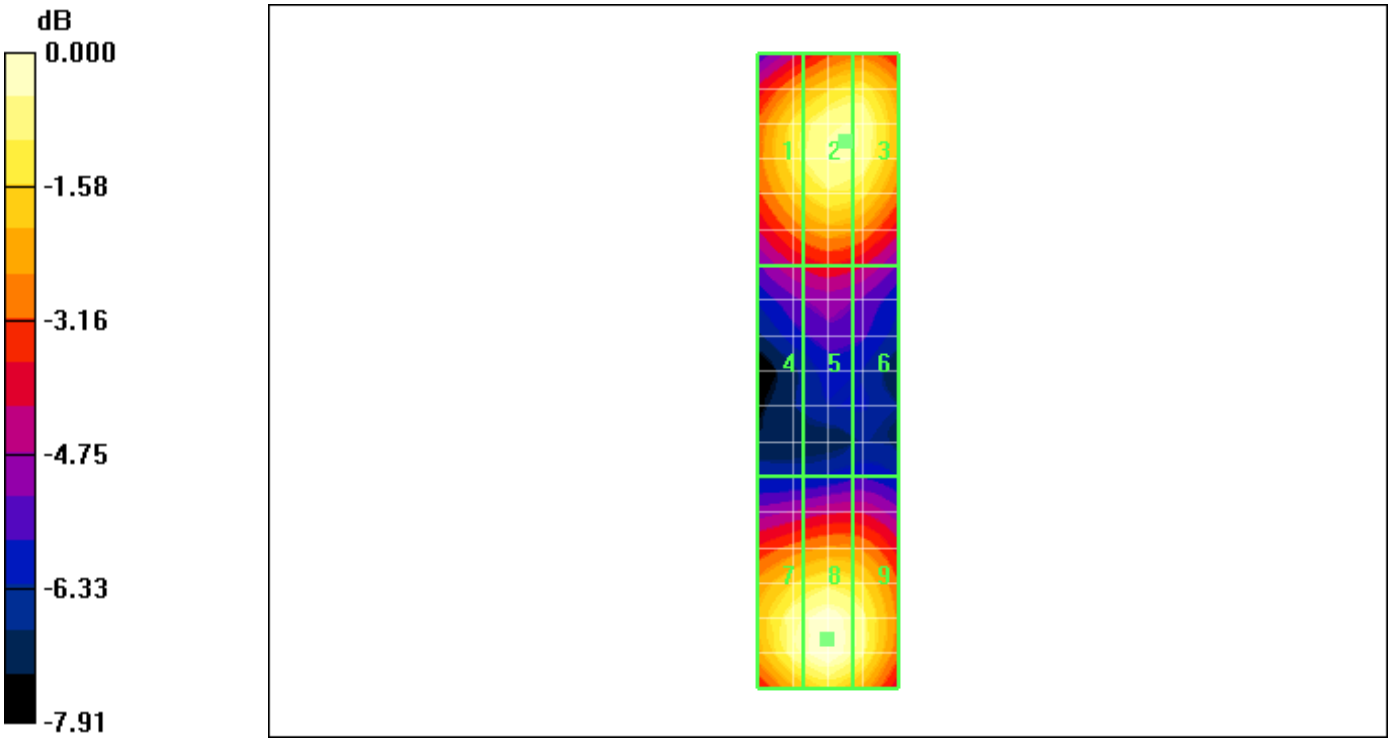
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **32.3 M4** | Grid 2 **34.2 M4** | Grid 3 **34.1 M4** |
| Grid 4 **22.6 M4** | Grid 5 **23.5 M4** | Grid 6 **22.9 M4** |
| Grid 7 **34.7 M4** | Grid 8 **35.9 M4** | Grid 9 **34.3 M4** |

**Cursor:**

Total = 35.9 V/m
E Category: M4
Location: 0, 38, 4.2 mm




0 dB = 35.9V/m

Date/Time: 20/08/2009 3:42:37 PM

Test Laboratory: RTS

File Name: HAC_E_Dipole_1733MHz_CW_WCDMA_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF E Dipole**

Communication System: CW; Frequency: 1733 MHz;Duty Cycle: 1:1

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 43.9 V/m; Power Drift = 0.005 dB

Maximum value of Total (measured) = 38.4 V/m

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 38.9 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 43.9 V/m; Power Drift = 0.005 dB

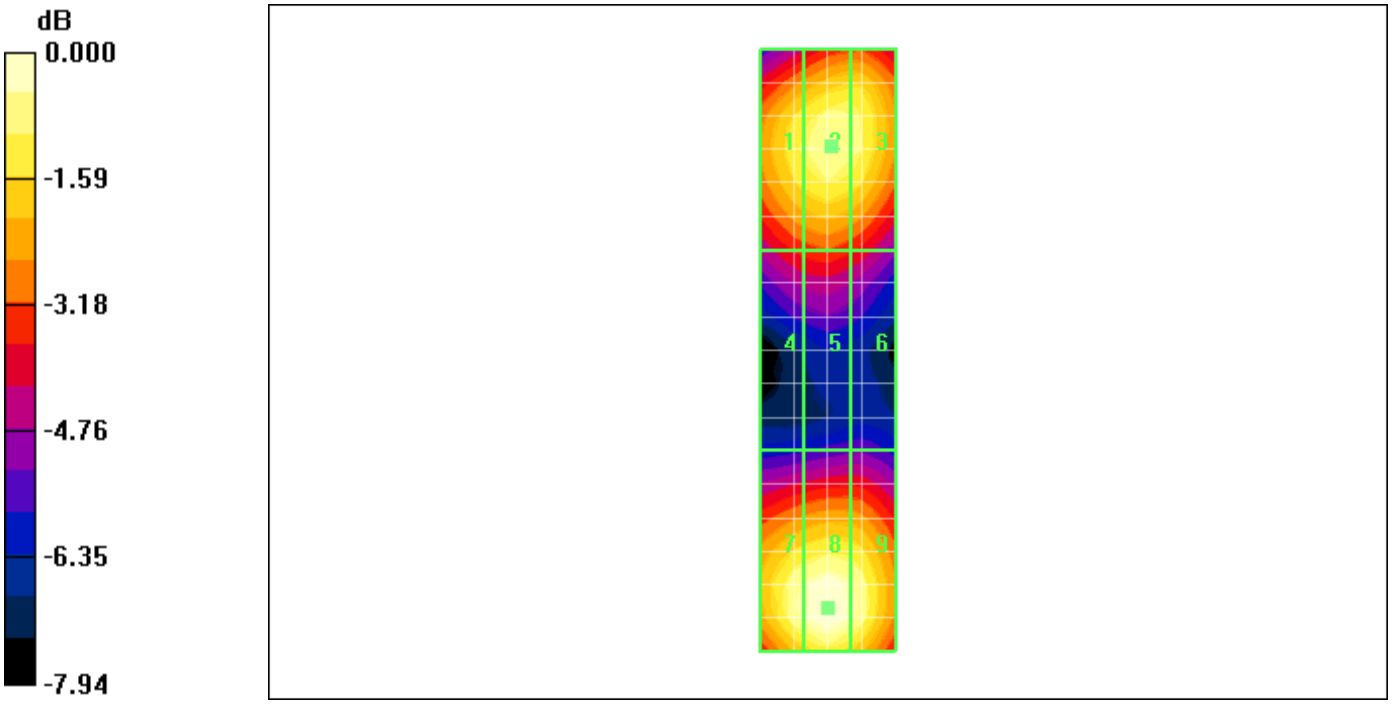
**Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**34.8 M4** | Grid 2<br>**36.1 M4** | Grid 3<br>**35.6 M4** |
| Grid 4<br>**26.3 M4** | Grid 5<br>**27.0 M4** | Grid 6<br>**25.9 M4** |
| Grid 7<br>**37.6 M4** | Grid 8<br>**38.9 M4** | Grid 9<br>**37.5 M4** |

**Cursor:**

Total = 38.9 V/m
E Category: M4
Location: 0, 38.5, 4.7 mm




0 dB = 38.9V/m

Date/Time: 20/08/2009 3:47:46 PM

Test Laboratory: RTS

File Name: HAC_E_Dipole_1733MHz_AM80%.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: Not Specified**

**Program Name: HAC RF E Dipole**

Communication System: AM; Frequency: 1733 MHz;Duty Cycle: 1:1

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 27.9 V/m; Power Drift = 0.010 dB

Maximum value of Total (measured) = 24.3 V/m

## E Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 24.6 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 27.9 V/m; Power Drift = 0.010 dB

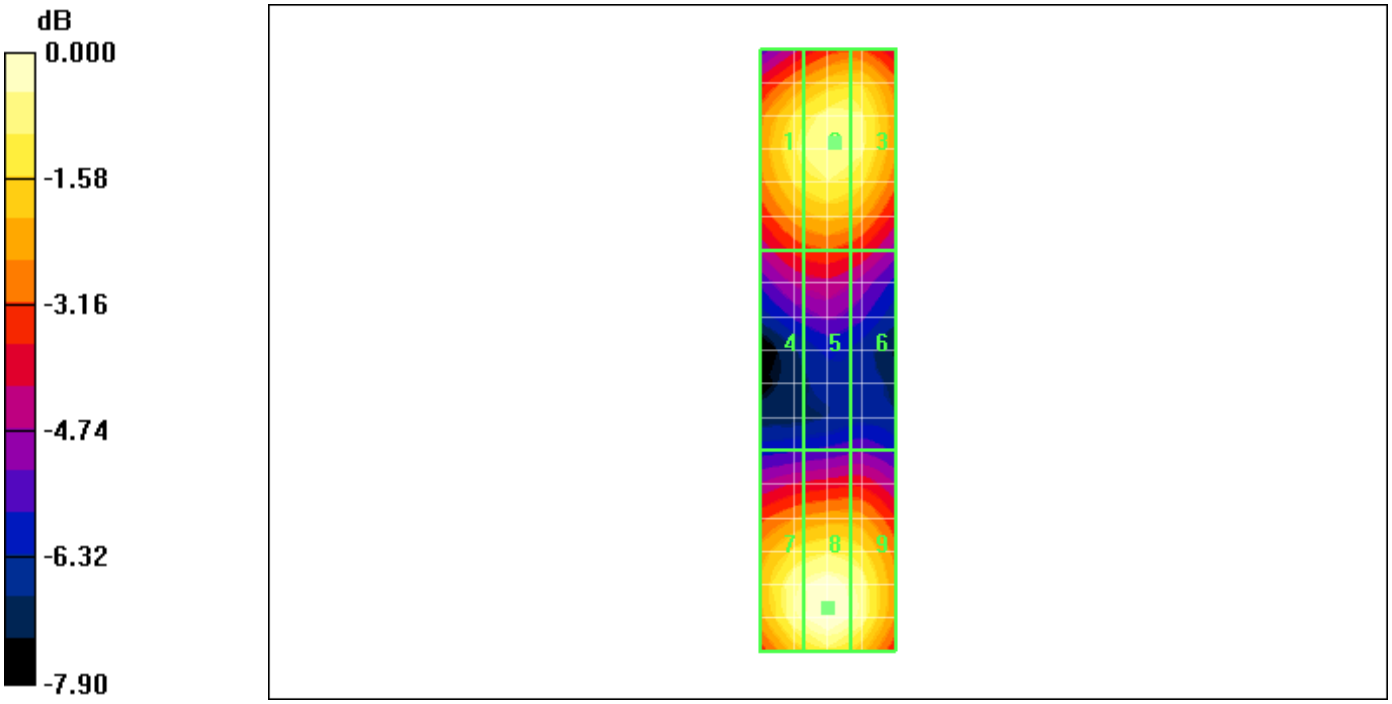
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **22.2 M4** | Grid 2 **22.9 M4** | Grid 3 **22.7 M4** |
| Grid 4 **16.8 M4** | Grid 5 **17.2 M4** | Grid 6 **16.6 M4** |
| Grid 7 **23.9 M4** | Grid 8 **24.6 M4** | Grid 9 **23.8 M4** |

**Cursor:**

Total = 24.6 V/m
E Category: M4
Location: 0, 38.5, 4.7 mm




0 dB = 24.6V/m

Date/Time: 20/08/2009 3:31:13 PM

Test Laboratory: RTS

File Name: HAC_E_Dipole_1733MHz_WCDMA_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: Not Specified**

**Program Name: HAC RF E Dipole**

Communication System: WCDMA FDD IV; Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 46.2 V/m; Power Drift = 0.059 dB

Maximum value of Total (measured) = 40.6 V/m

## E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 41.1 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 46.2 V/m; Power Drift = 0.059 dB

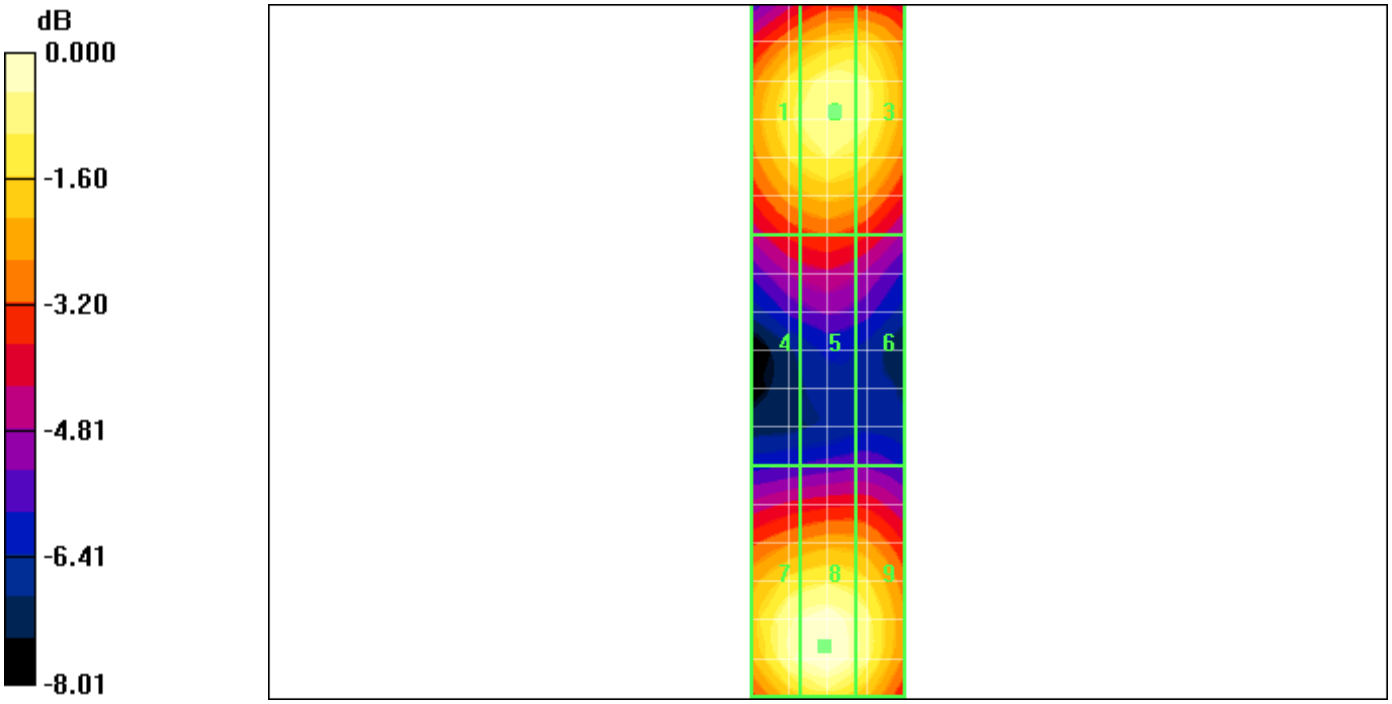
**Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **37.1 M4** | Grid 2 **38.3 M4** | Grid 3 **38.0 M4** |
| Grid 4 **27.9 M4** | Grid 5 **28.6 M4** | Grid 6 **27.8 M4** |
| Grid 7 **40.2 M4** | Grid 8 **41.1 M4** | Grid 9 **39.3 M4** |

**Cursor:**

Total = 41.1 V/m
E Category: M4
Location: 0.5, 38.5, 4.7 mm




0 dB = 41.1V/m

Date/Time: 11/08/2009 10:02:03 AM

Test Laboratory: RTS

File Name: HAC_H_Dipole_CW835_20.00dBm.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF H3DV6 Dipole**

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

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x13x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.475 A/m; Power Drift = 0.081 dB

Maximum value of Total (measured) = 0.455 A/m

## H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x121x1):

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

Maximum value of peak Total field = 0.455 A/m

Probe Modulation Factor = 1.00

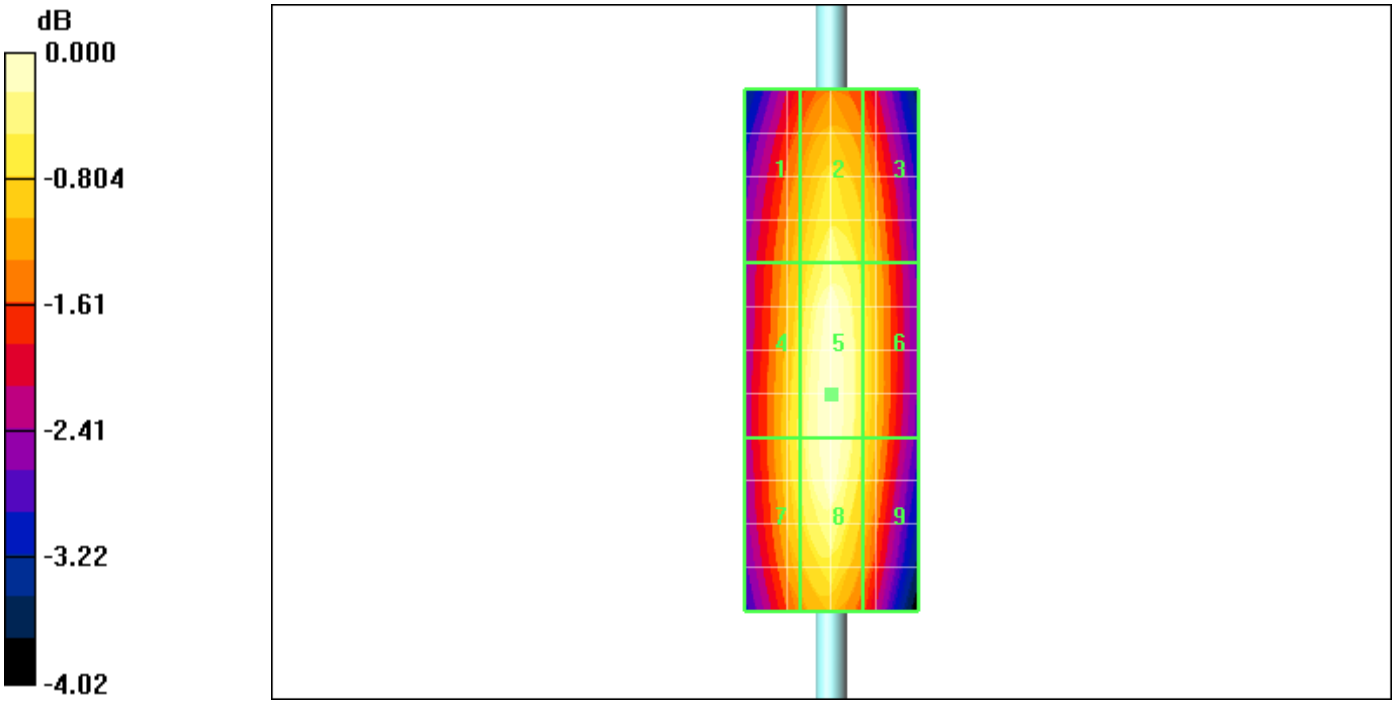
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.475 A/m; Power Drift = 0.081 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.416 M4** | Grid 2<br>**0.435 M4** | Grid 3<br>**0.423 M4** |
| Grid 4<br>**0.433 M4** | Grid 5<br>**0.455 M4** | Grid 6<br>**0.432 M4** |
| Grid 7<br>**0.433 M4** | Grid 8<br>**0.454 M4** | Grid 9<br>**0.428 M4** |




0 dB = 0.455A/m

Date/Time: 03/07/2009 11:53:55 AM

Test Laboratory: RTS

File Name: HAC_H_Dipole_835MHz_CW.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF H3DV6 Dipole**

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

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x37x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.490 A/m; Power Drift = 0.066 dB

Maximum value of Total (measured) = 0.463 A/m

## H Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1):

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

Maximum value of peak Total field = 0.463 A/m

Probe Modulation Factor = 1.00

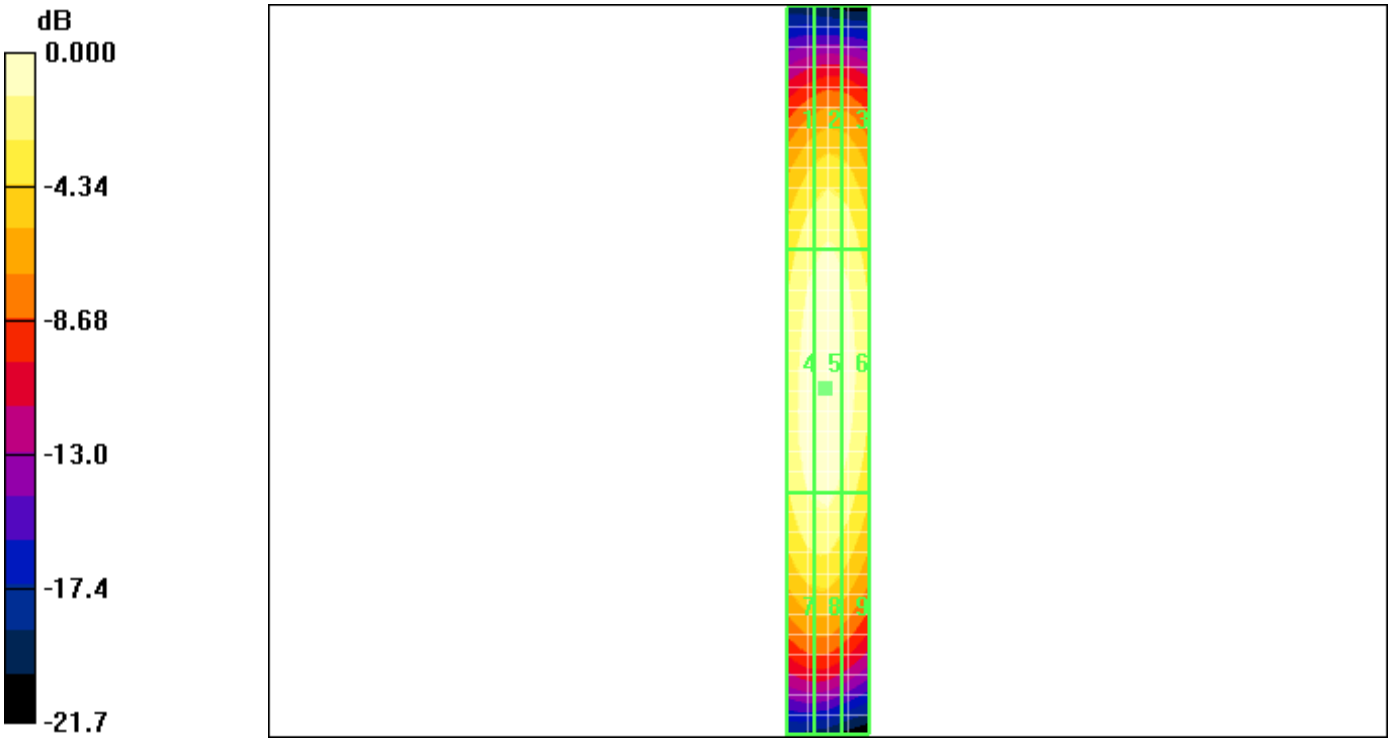
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.490 A/m; Power Drift = 0.066 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.381 M4** | Grid 2<br>**0.400 M4** | Grid 3<br>**0.384 M4** |
| Grid 4<br>**0.444 M4** | Grid 5<br>**0.463 M4** | Grid 6<br>**0.438 M4** |
| Grid 7<br>**0.403 M4** | Grid 8<br>**0.410 M4** | Grid 9<br>**0.377 M4** |




0 dB = 0.463A/m

Date/Time: 20/08/2009 12:30:34 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_835MHz_CW_GSM_mod.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF H3DV6 Dipole**

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

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.463 A/m; Power Drift = -0.039 dB

Maximum value of Total (measured) = 0.434 A/m

## H Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 0.435 A/m

Probe Modulation Factor = 1.00

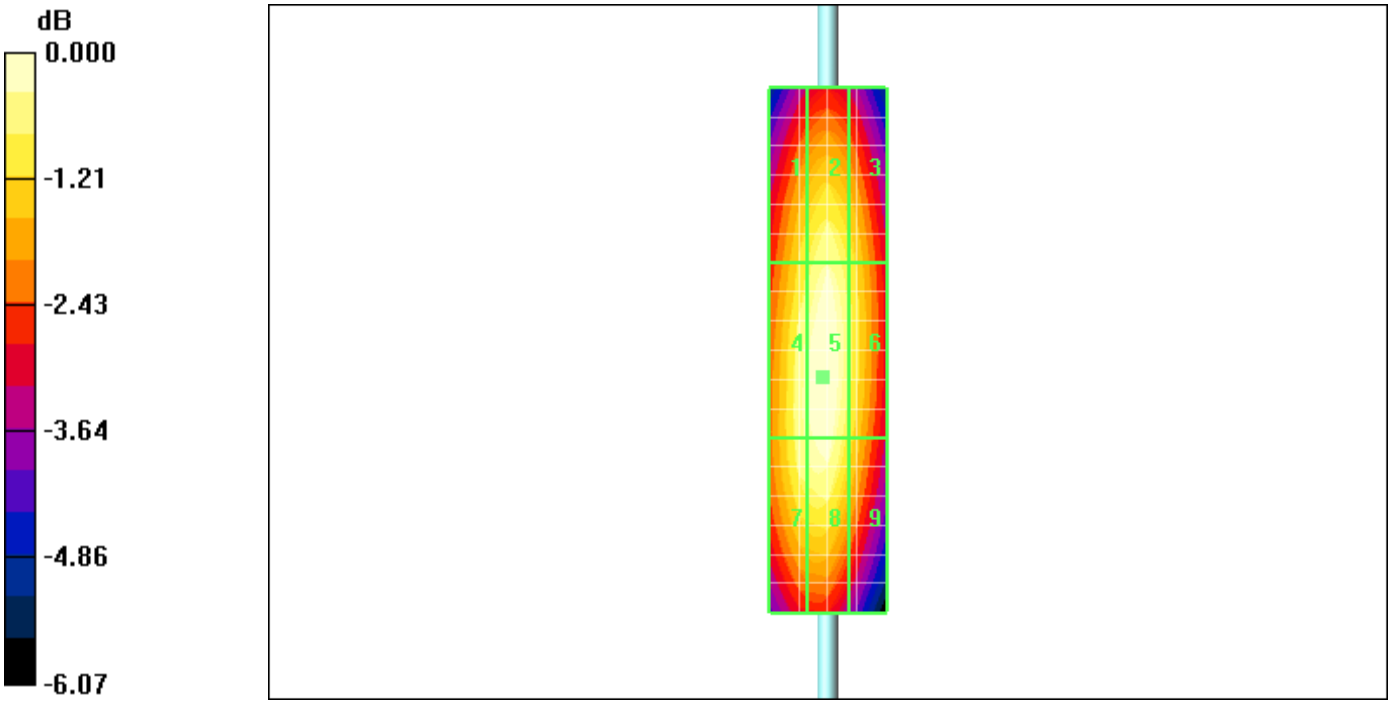
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.463 A/m; Power Drift = -0.039 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.397 M4** | Grid 2 **0.414 M4** | Grid 3 **0.395 M4** |
| Grid 4 **0.423 M4** | Grid 5 **0.435 M4** | Grid 6 **0.405 M4** |
| Grid 7 **0.419 M4** | Grid 8 **0.428 M4** | Grid 9 **0.391 M4** |




0 dB = 0.435A/m

Date/Time: 20/08/2009 12:35:15 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_835MHz_AM80%_mod.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF H3DV6 Dipole**

Communication System: AM 80%; Frequency: 835 MHz;Duty Cycle: 1:1

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.300 A/m; Power Drift = 0.005 dB

Maximum value of Total (measured) = 0.283 A/m

## H Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 0.284 A/m

Probe Modulation Factor = 1.00

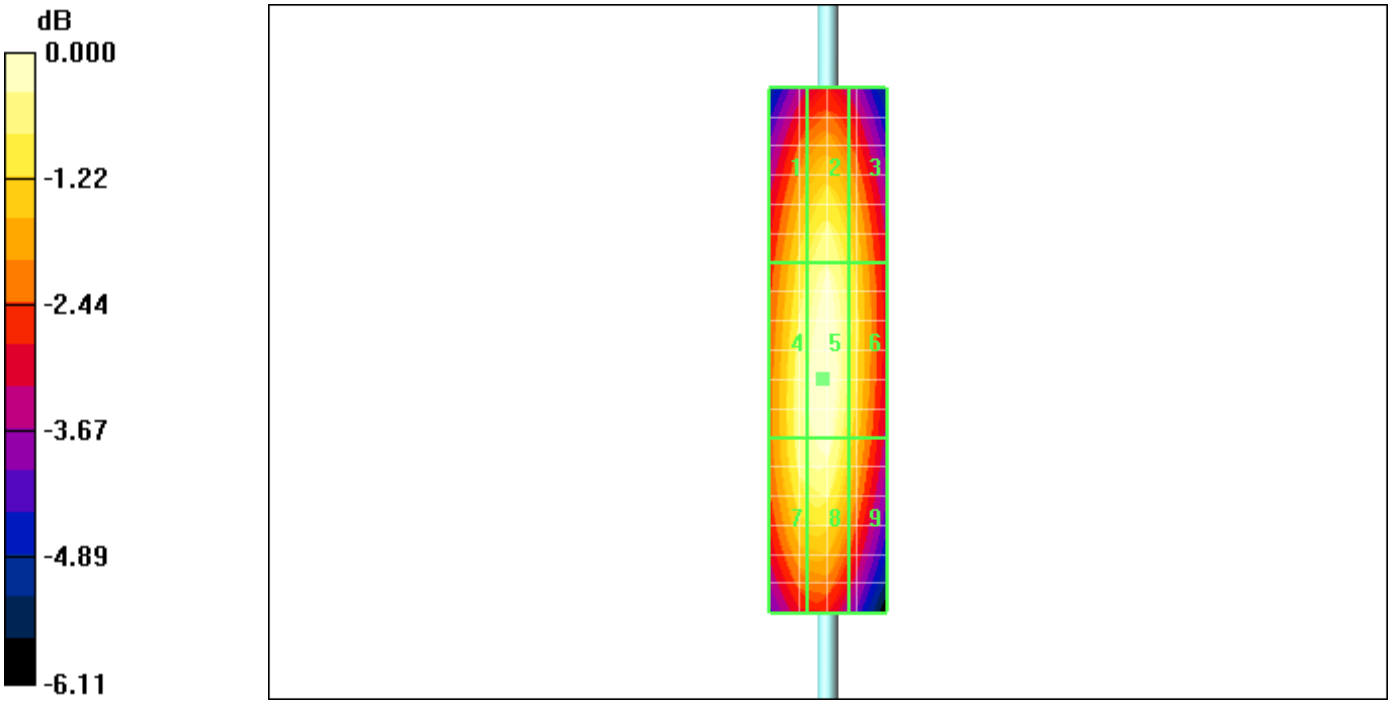
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.300 A/m; Power Drift = 0.005 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.260 M4** | Grid 2<br>**0.270 M4** | Grid 3<br>**0.256 M4** |
| Grid 4<br>**0.276 M4** | Grid 5<br>**0.284 M4** | Grid 6<br>**0.263 M4** |
| Grid 7<br>**0.274 M4** | Grid 8<br>**0.279 M4** | Grid 9<br>**0.254 M4** |




0 dB = 0.284A/m

Date/Time: 20/08/2009 11:45:42 AM

Test Laboratory: RTS

File Name: HAC_H_Dipole_835MHz_GSM_mod.da4

**DUT: HAC-Dipole 835 MHz; Type: D835V3;**

**Program Name: HAC RF H3DV6 Dipole**

Communication System: GSM 850; Frequency: 835 MHz;Duty Cycle: 1:8.3

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.168 A/m; Power Drift = 0.139 dB

Maximum value of Total (measured) = 0.156 A/m

## H Scan - measurement distance from the probe sensor center to

## CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 0.157 A/m

Probe Modulation Factor = 1.00

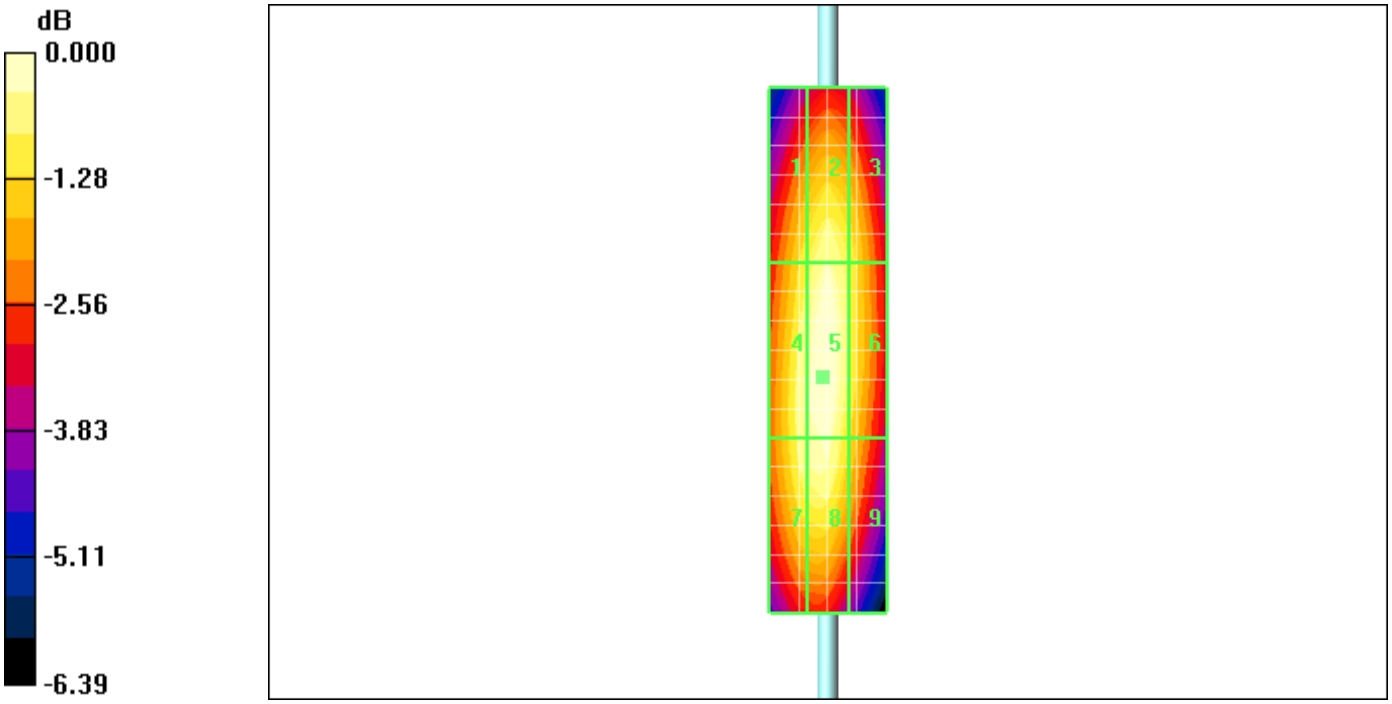
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.168 A/m; Power Drift = 0.139 dB

## Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.142 M4** | Grid 2<br>**0.149 M4** | Grid 3<br>**0.142 M4** |
| Grid 4<br>**0.152 M4** | Grid 5<br>**0.157 M4** | Grid 6<br>**0.145 M4** |




0 dB = 0.157A/m

Date/Time: 11/08/2009 11:47:11 AM

Test Laboratory: RTS

File Name: HAC_H_Dipole_CW1880_20.00dBm.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF H3DV6 Dipole**

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

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x13x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.493 A/m; Power Drift = -0.077 dB

Maximum value of Total (measured) = 0.451 A/m

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x121x1):

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

Maximum value of peak Total field = 0.451 A/m

Probe Modulation Factor = 1.00

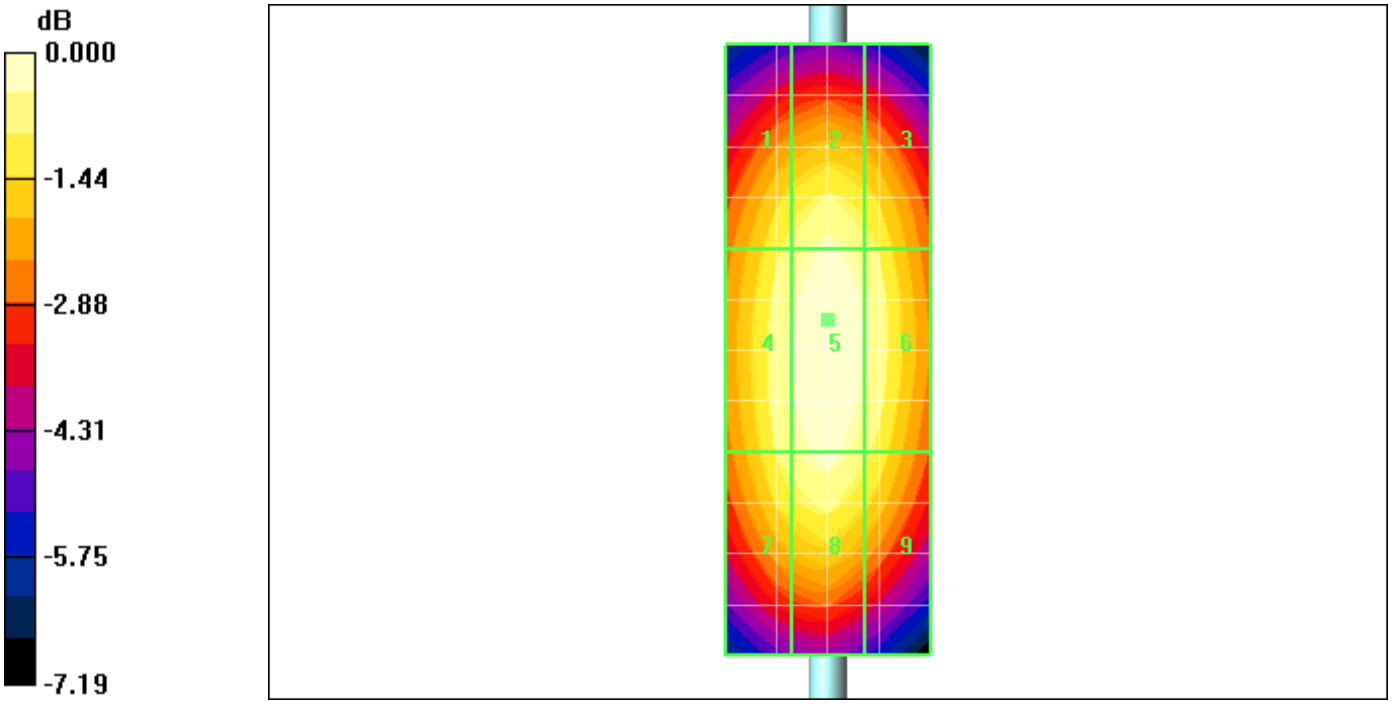
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.493 A/m; Power Drift = -0.077 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.415 M2** | Grid 2 **0.433 M2** | Grid 3 **0.418 M2** |
| Grid 4 **0.433 M2** | Grid 5 **0.451 M2** | Grid 6 **0.435 M2** |
| Grid 7 **0.422 M2** | Grid 8 **0.436 M2** | Grid 9 **0.415 M2** |




0 dB = 0.451A/m

Date/Time: 03/07/2009 11:34:22 AM

Test Laboratory: RTS

File Name: HAC_H_Dipole_1880MHz_CW.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF H3DV6 Dipole**

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

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.474 A/m; Power Drift = -0.032 dB

Maximum value of Total (measured) = 0.444 A/m

## H Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 0.444 A/m

Probe Modulation Factor = 1.00

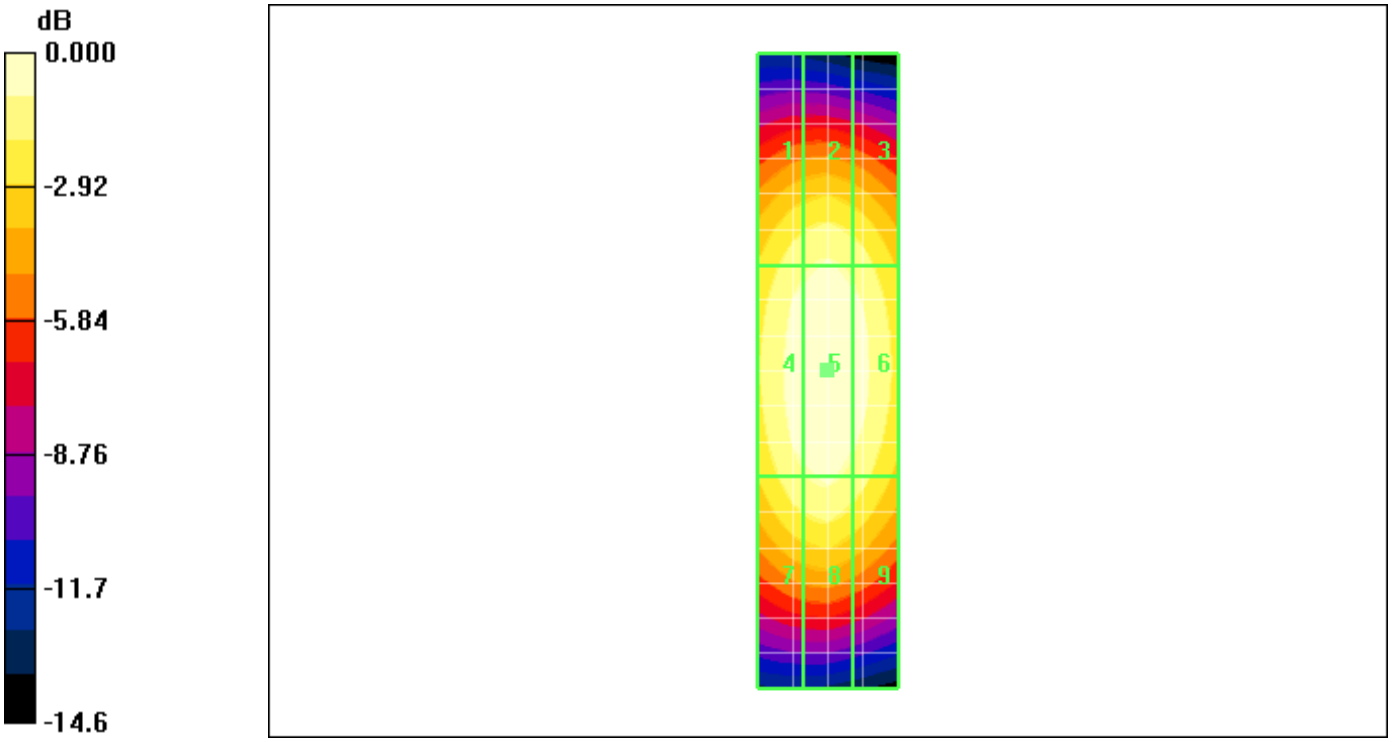
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.474 A/m; Power Drift = -0.032 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.389 M2** | Grid 2<br>**0.403 M2** | Grid 3<br>**0.386 M2** |
| Grid 4<br>**0.427 M2** | Grid 5<br>**0.444 M2** | Grid 6<br>**0.424 M2** |
| Grid 7<br>**0.393 M2** | Grid 8<br>**0.406 M2** | Grid 9<br>**0.382 M2** |




0 dB = 0.444A/m

Date/Time: 20/08/2009 2:28:28 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_1880MHz_CW_GSM_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF H3DV6 Dipole**

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

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x19x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.376 A/m; Power Drift = 0.000 dB

Maximum value of Total (measured) = 0.355 A/m

## H Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

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

Maximum value of peak Total field = 0.355 A/m

Probe Modulation Factor = 1.00

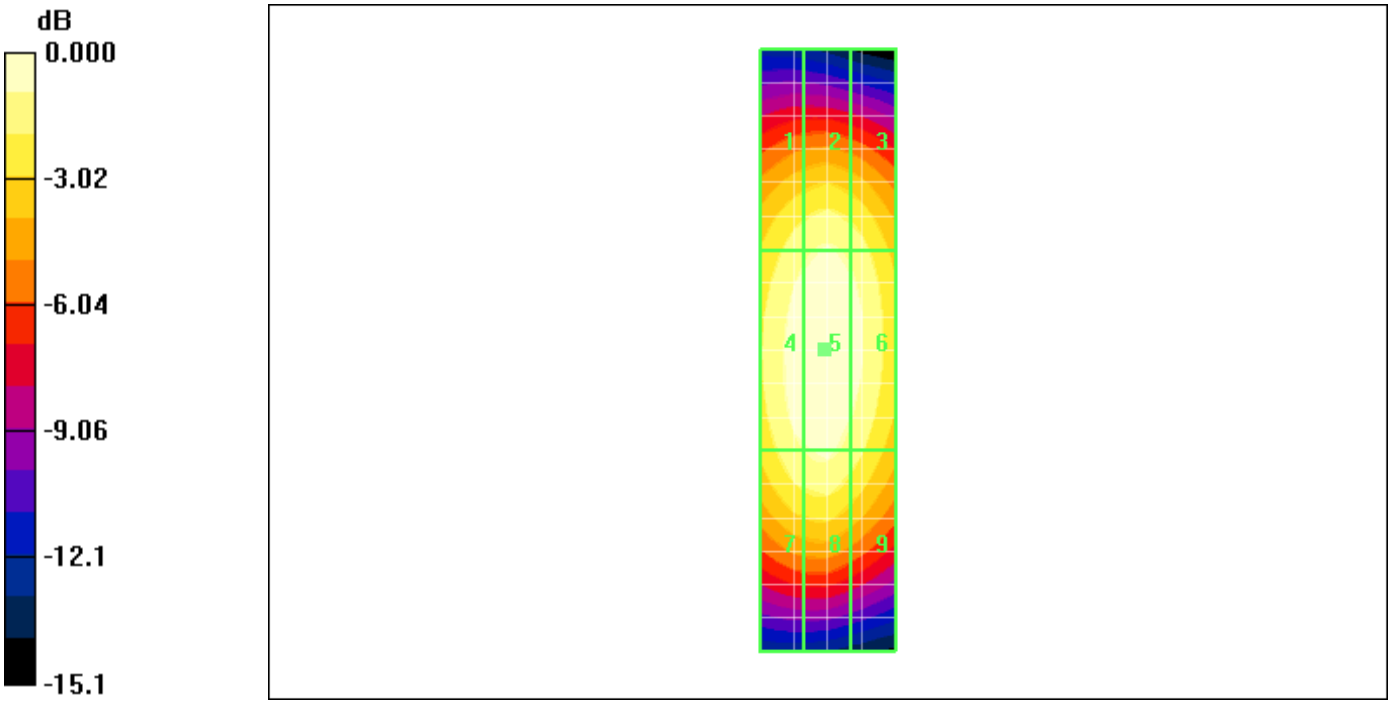
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.376 A/m; Power Drift = 0.000 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.308 M3** | Grid 2<br>**0.322 M3** | Grid 3<br>**0.306 M3** |
| Grid 4<br>**0.344 M2** | Grid 5<br>**0.355 M2** | Grid 6<br>**0.334 M3** |
| Grid 7<br>**0.317 M3** | Grid 8<br>**0.325 M3** | Grid 9<br>**0.300 M3** |




0 dB = 0.355A/m

Date/Time: 20/08/2009 2:36:17 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_1880MHz_AM80%_GSM_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF H3DV6 Dipole**

Communication System: AM 80%; Frequency: 1880 MHz;Duty Cycle: 1:1

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x11x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.251 A/m; Power Drift = 0.011 dB

Maximum value of Total (measured) = 0.237 A/m

## H Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x101x1):

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

Maximum value of peak Total field = 0.237 A/m

Probe Modulation Factor = 1.00

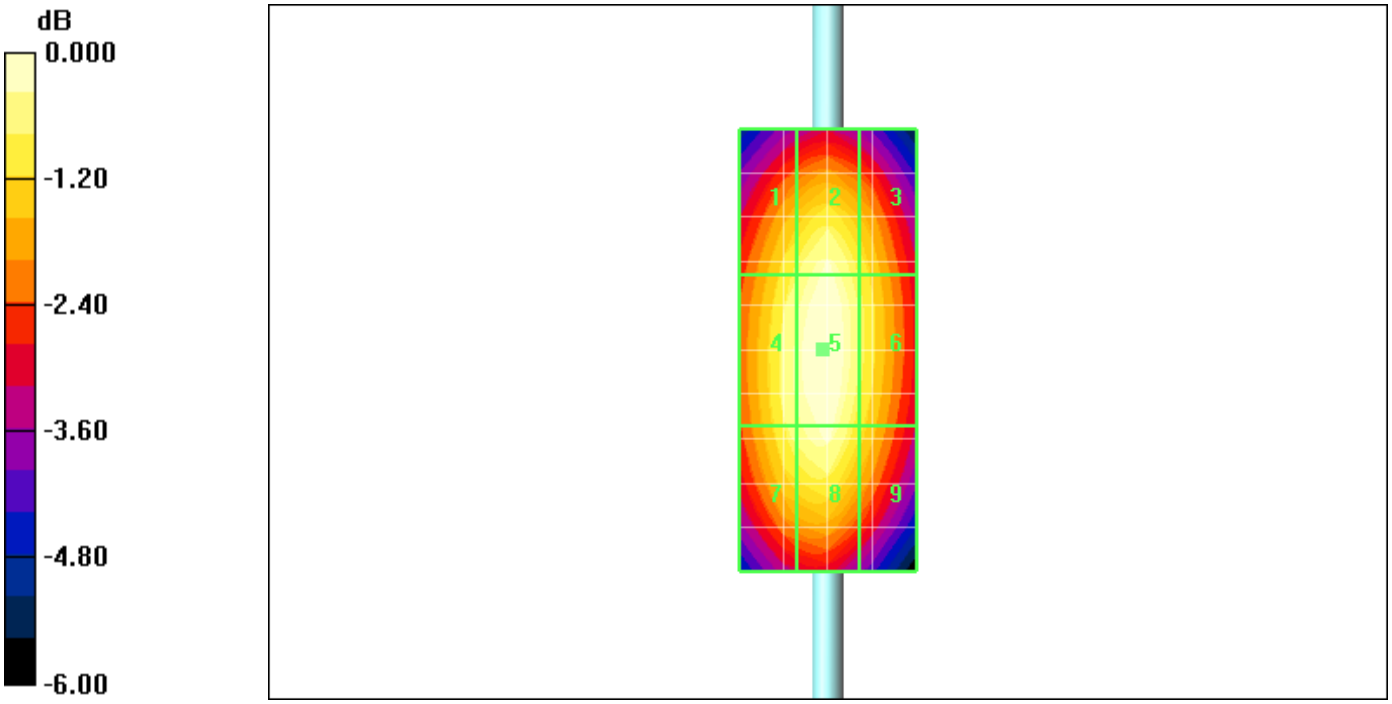
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.251 A/m; Power Drift = 0.011 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.219 M3** | Grid 2 **0.230 M3** | Grid 3 **0.216 M3** |
| Grid 4 **0.229 M3** | Grid 5 **0.237 M3** | Grid 6 **0.221 M3** |
| Grid 7 **0.224 M3** | Grid 8 **0.231 M3** | Grid 9 **0.212 M3** |




0 dB = 0.237A/m

Date/Time: 20/08/2009 1:33:06 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_1880MHz_GSM_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF H3DV6 Dipole**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x11x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.151 A/m; Power Drift = 0.064 dB

Maximum value of Total (measured) = 0.141 A/m

## H Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x101x1):

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

Maximum value of peak Total field = 0.141 A/m

Probe Modulation Factor = 1.00

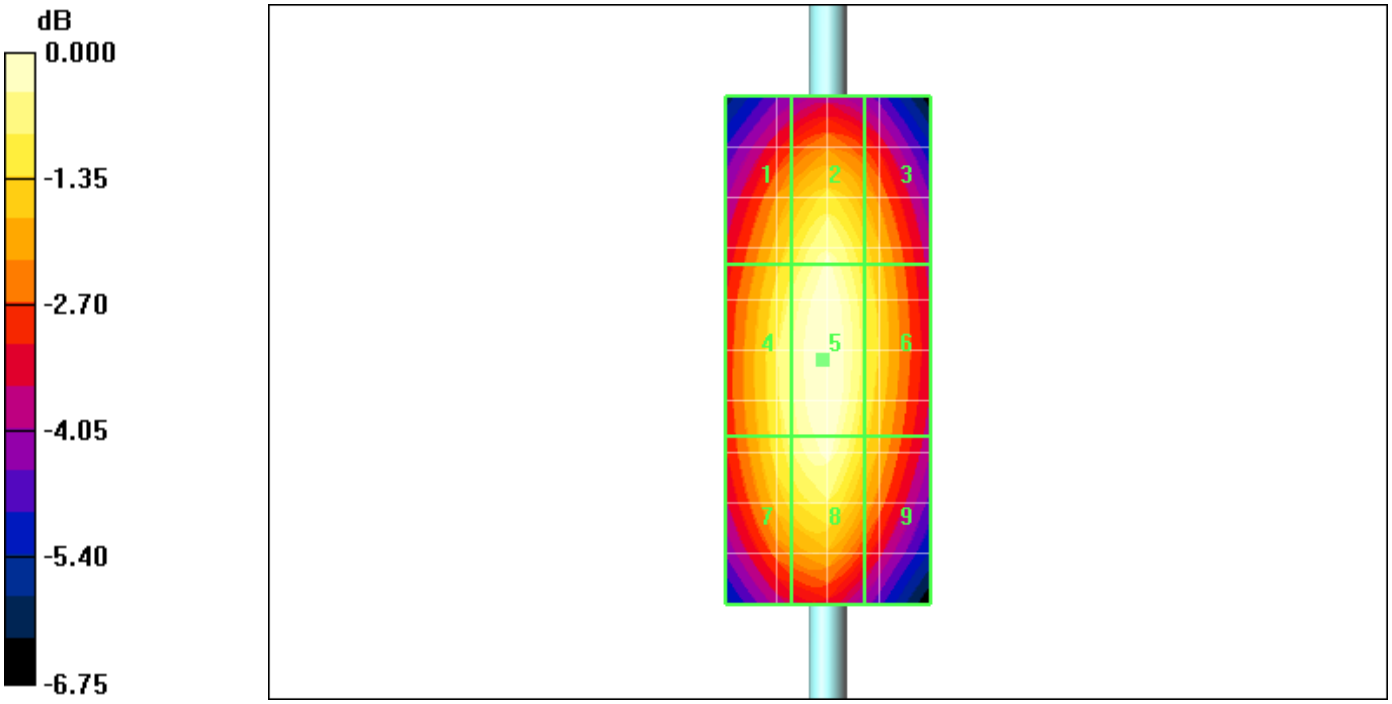
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.151 A/m; Power Drift = 0.064 dB

## Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.126 M4** | Grid 2<br>**0.135 M4** | Grid 3<br>**0.125 M4** |
| Grid 4<br>**0.134 M4** | Grid 5<br>**0.141 M3** | Grid 6<br>**0.129 M4** |
| Grid 7<br>**0.132 M4** | Grid 8<br>**0.138 M4** | Grid 9<br>**0.124 M4** |




0 dB = 0.141A/m

Date/Time: 20/08/2009 3:03:34 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_1733MHz_CW_WCDMA_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF H3DV6 Dipole**

Communication System: CW; Frequency: 1733 MHz;Duty Cycle: 1:1

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x11x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.147 A/m; Power Drift = 0.033 dB

Maximum value of Total (measured) = 0.138 A/m

## H Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x101x1):

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

Maximum value of peak Total field = 0.139 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.147 A/m; Power Drift = 0.033 dB

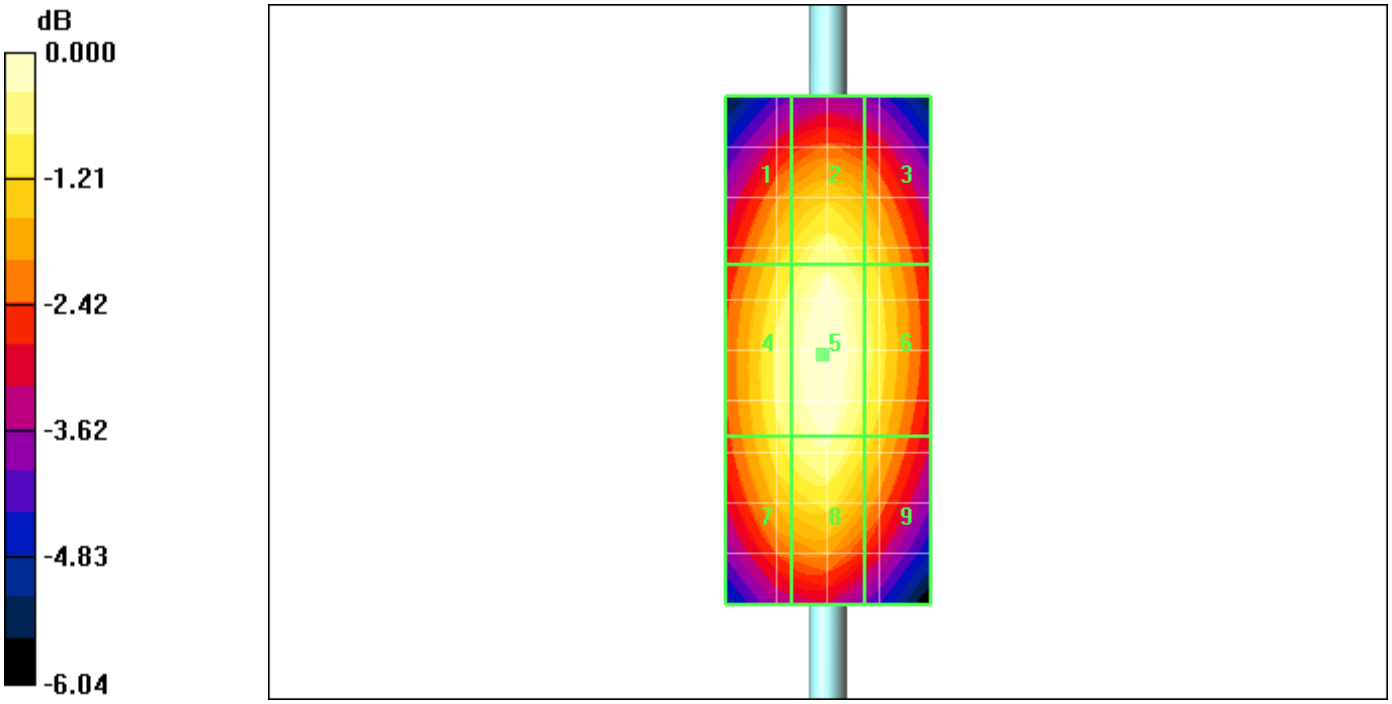
### Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.126 M4** | Grid 2 **0.132 M4** | Grid 3 **0.125 M4** |
| Grid 4 **0.134 M4** | Grid 5 **0.139 M4** | Grid 6 **0.131 M4** |
| Grid 7 **0.130 M4** | Grid 8 **0.134 M4** | Grid 9 **0.125 M4** |

**Cursor:**

Total = 0.139 A/m
H Category: M4
Location: 0.5, 0.5, 4.7 mm




0 dB = 0.139A/m

Date/Time: 20/08/2009 3:11:16 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_1733MHz_AM80%_WCDMA_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF H3DV6 Dipole**

Communication System: AM 80%; Frequency: 1733 MHz;Duty Cycle: 1:1

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x11x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.093 A/m; Power Drift = -0.061 dB

Maximum value of Total (measured) = 0.087 A/m

## H Scan - measurement distance from the probe sensor center to

## CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x101x1):

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

Maximum value of peak Total field = 0.087 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.093 A/m; Power Drift = -0.061 dB

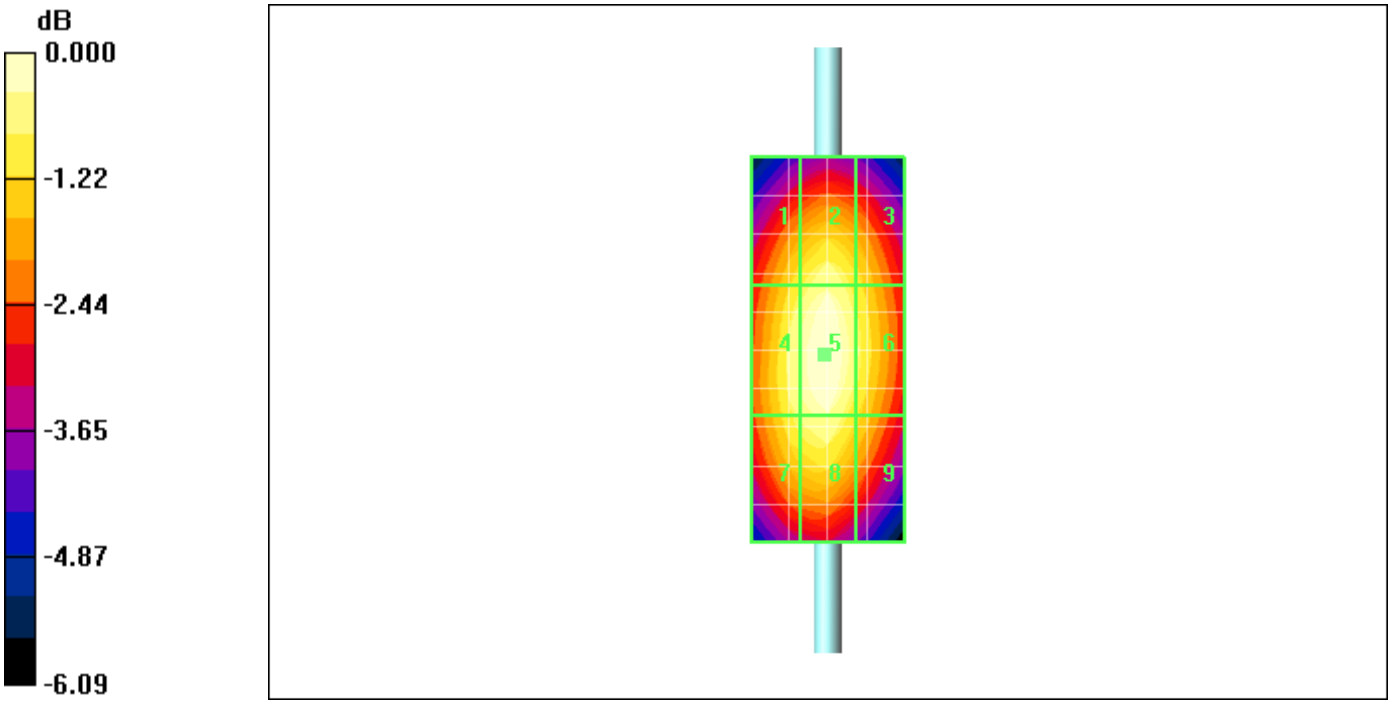
### Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.079 M4** | Grid 2 **0.083 M4** | Grid 3 **0.078 M4** |
| Grid 4 **0.084 M4** | Grid 5 **0.087 M4** | Grid 6 **0.081 M4** |
| Grid 7 **0.081 M4** | Grid 8 **0.083 M4** | Grid 9 **0.077 M4** |

**Cursor:**

Total = 0.087 A/m
H Category: M4
Location: 0.5, 0.5, 4.7 mm




0 dB = 0.087A/m

Date/Time: 20/08/2009 3:20:24 PM

Test Laboratory: RTS

File Name: HAC_H_Dipole_1733MHz_WCDMA_mod.da4

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3;**

**Program Name: HAC RF H3DV6 Dipole**

Communication System: WCDMA FDD IV; Frequency: 1732.6 MHz;Duty Cycle: 1:1

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (5x11x1):

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

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.153 A/m; Power Drift = -0.016 dB

Maximum value of Total (measured) = 0.144 A/m

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

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

Maximum value of peak Total field = 0.144 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.153 A/m; Power Drift = -0.016 dB

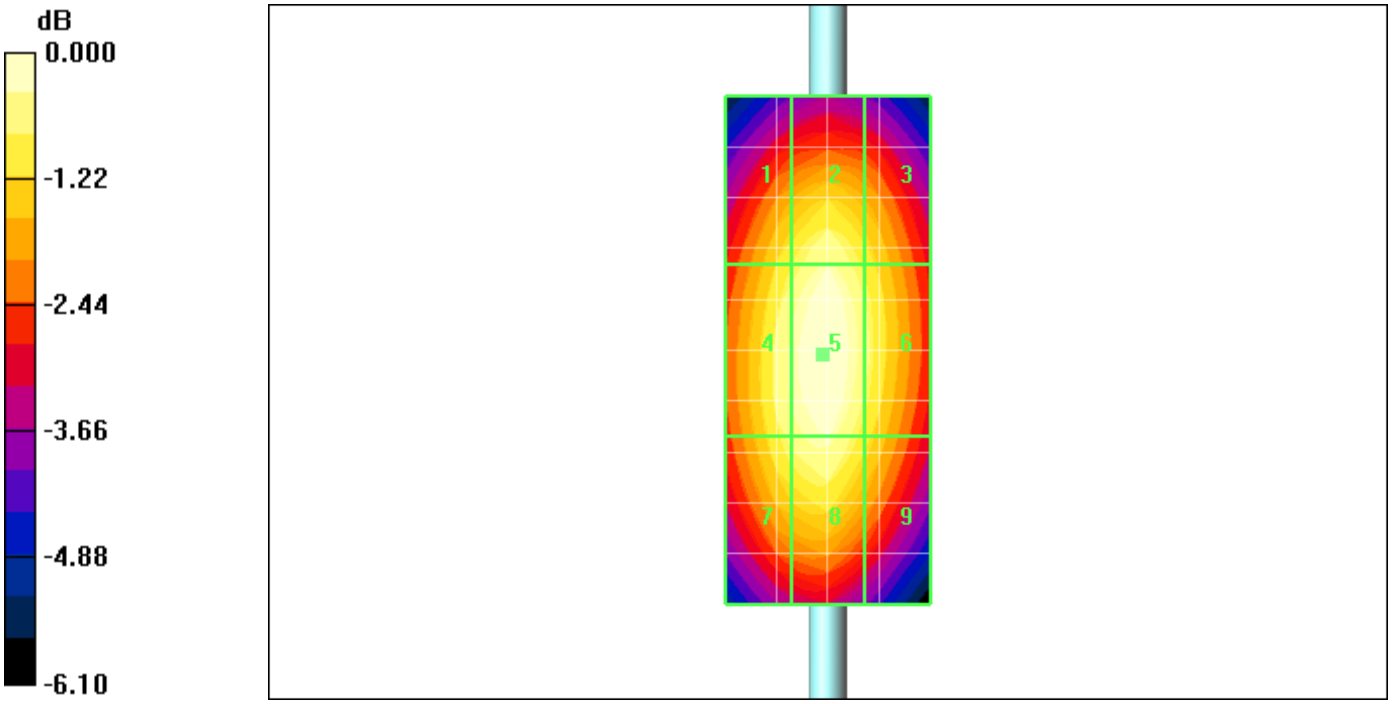
**Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.131 M4** | Grid 2<br>**0.137 M4** | Grid 3<br>**0.130 M4** |
| Grid 4<br>**0.139 M4** | Grid 5<br>**0.144 M4** | Grid 6<br>**0.135 M4** |
| Grid 7<br>**0.135 M4** | Grid 8<br>**0.139 M4** | Grid 9<br>**0.129 M4** |

**Cursor:**

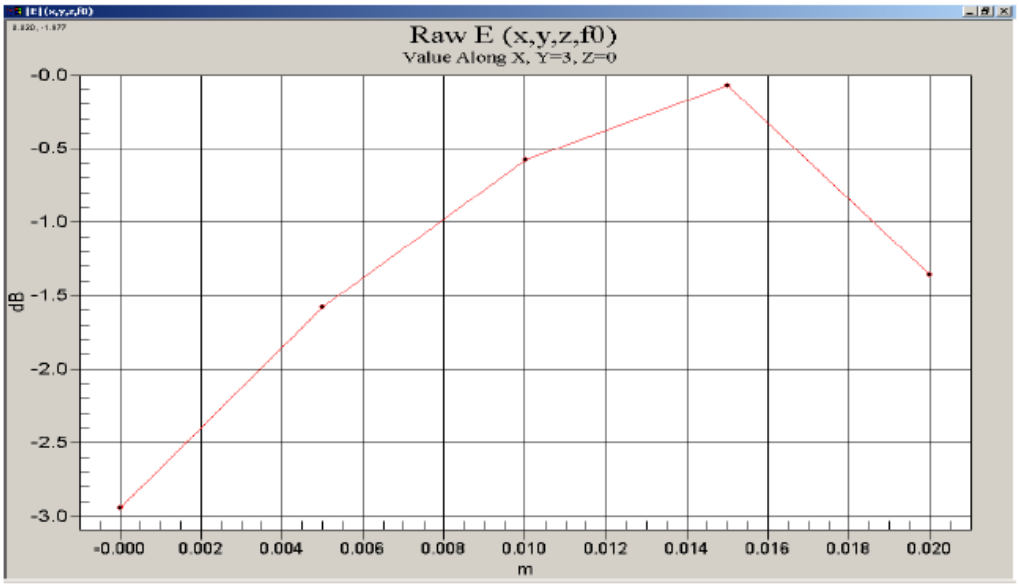
Total = 0.144 A/m
H Category: M4
Location: 0.5, 0.5, 4.7 mm



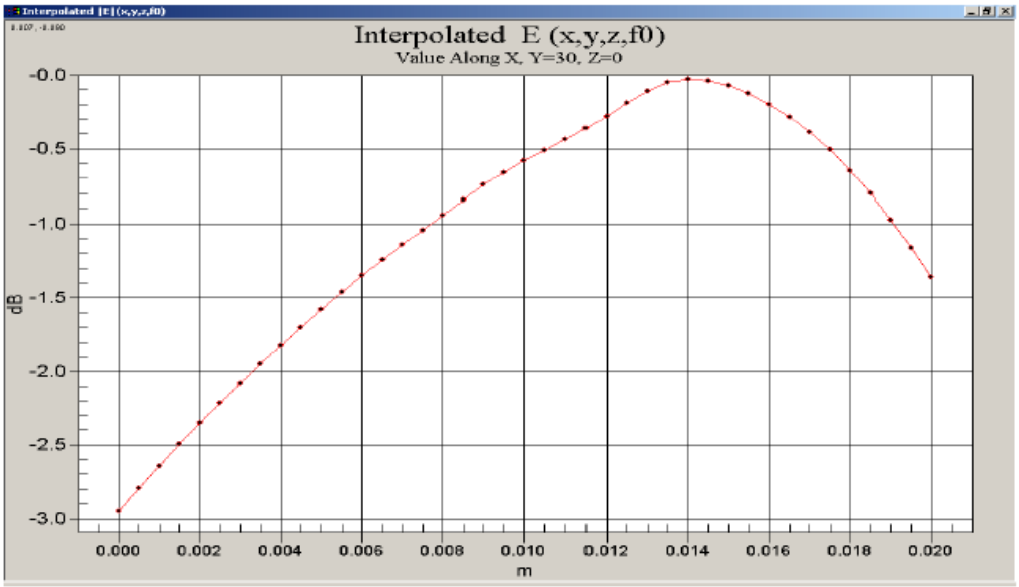

0 dB = 0.144A/m

**Justification of Step Size and Interpolation**

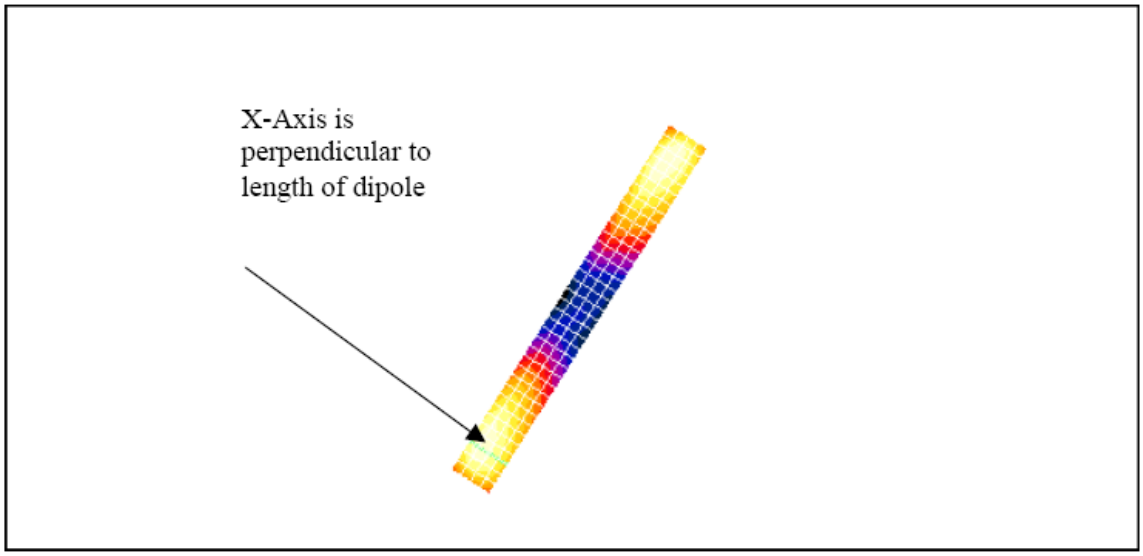
This section demonstrates that a 5mm step size with interpolation provides sufficient resolution for RF emissions measurements. The DASY 4 uses interpolation algorithms to derive 9 interpolated points between every measured point.




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, $\varepsilon_r$ = 1; $\rho$ = 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)**

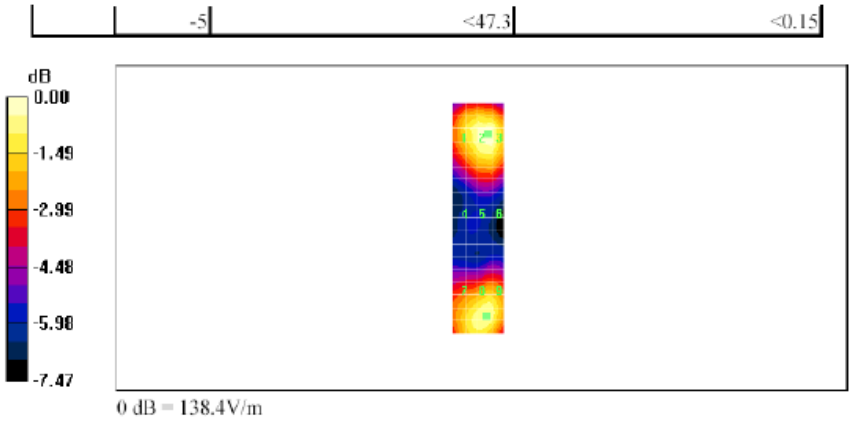
E in V/m (Time averaged)

| | | |
|---|---|---|
| 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 11:44:51 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, $\varepsilon_r$ = 1; $\rho$ = 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)**

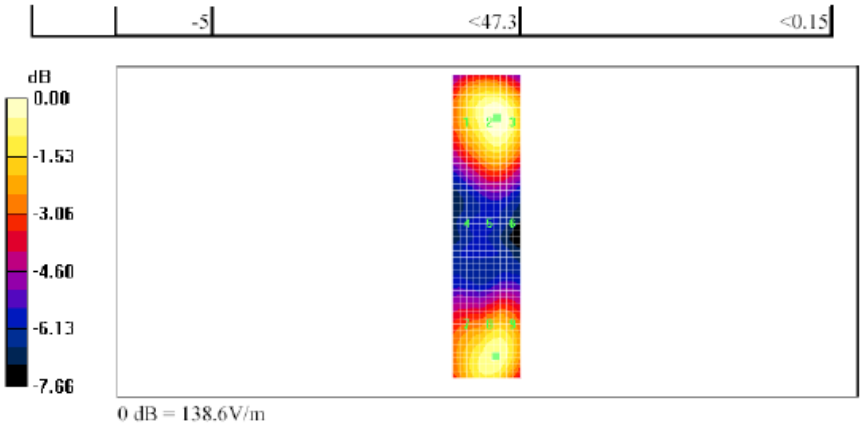
E in V/m (Time averaged)

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

E in V/m (Slot averaged)

| Grid 1 | Grid 2 | Grid 3 |
|---|---|---|
| **123.1** | **138.6** | **138.6** |
| Grid 4 | Grid 5 | Grid 6 |
| **81.4** | **92.1** | **91.6** |
| Grid 7 | Grid 8 | Grid 9 |
| **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 |




0 dB = 138.6V/m

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** |

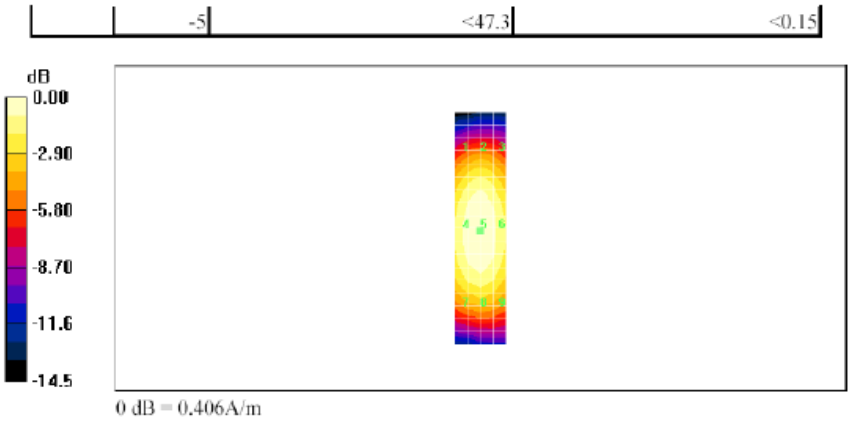
H in A/m (Slot averaged)

| | | |
|---|---|---|
| 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

file://C:\Program%20Files\DASY4\Print_Templates\HAC_H_Dipole_CW%201880_5%... 14/07/2005

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, $\varepsilon_r$ = 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 (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)

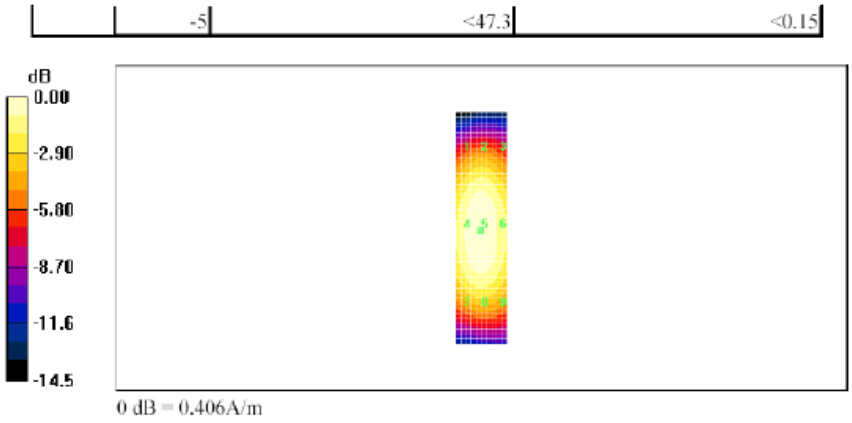
| | | |
|---|---|---|
| Grid 1 **0.347** | Grid 2 **0.361** | Grid 3 **0.348** |
| Grid 4 **0.394** | Grid 5 **0.406** | Grid 6 **0.391** |
| Grid 7 **0.367** | Grid 8 **0.380** | Grid 9 **0.365** |

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




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

Date/Time: 13/07/2009 9:21:57 AM

Test Laboratory: RTS

File Name: HAC_E_GSM_850_low chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 90.9 V/m; Power Drift = -0.066 dB

Maximum value of Total (measured) = 70.6 V/m

## E Scan - ER3D - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 202.9 V/m

Probe Modulation Factor = 2.87

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 90.9 V/m; Power Drift = -0.066 dB

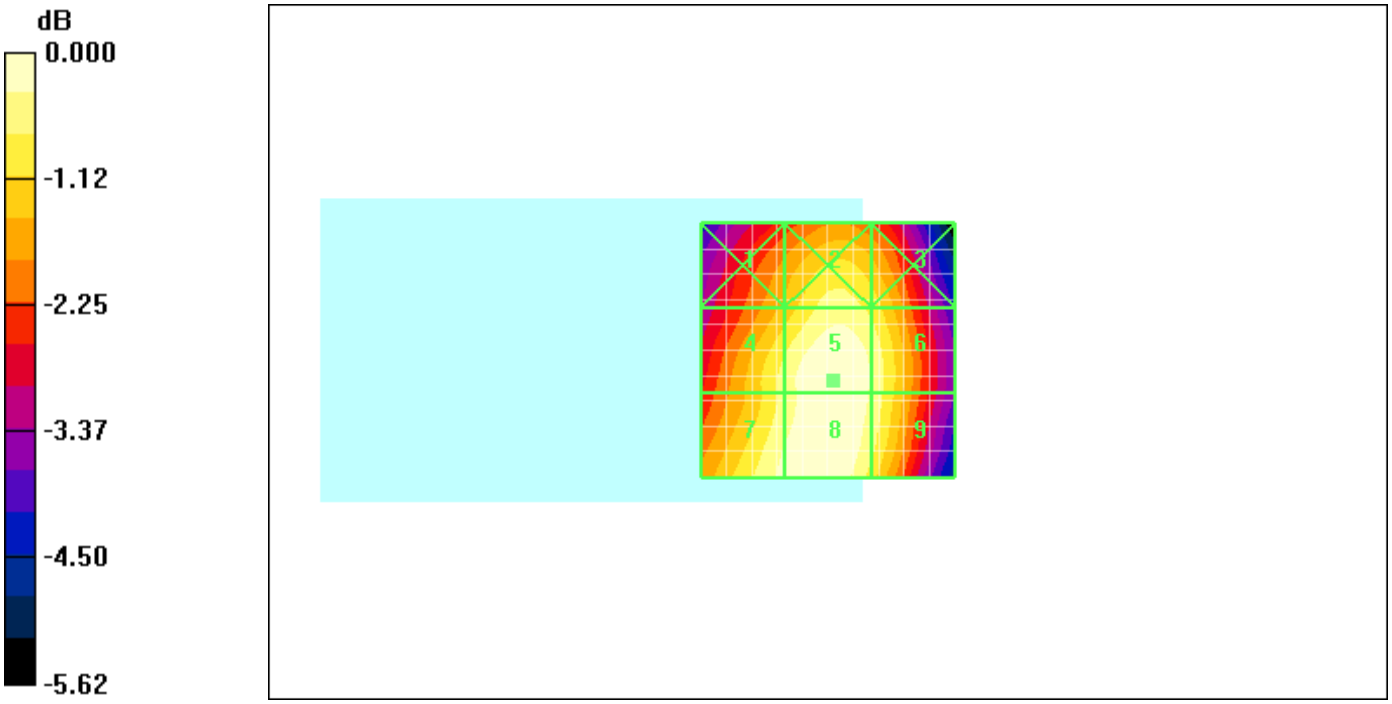
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **173.2 M3** | Grid 2 **190.5 M3** | Grid 3 **183.8 M3** |
| Grid 4 **189.6 M3** | Grid 5 **202.9 M3** | Grid 6 **193.8 M3** |
| Grid 7 **196.9 M3** | Grid 8 **202.5 M3** | Grid 9 **193.2 M3** |

**Cursor:**

Total = 202.9 V/m
E Category: M3
Location: -1, 6, 8.7 mm




0 dB = 202.9V/m

Date/Time: 13/07/2009 9:39:51 AM

Test Laboratory: RTS

File Name: HAC_E_GSM_850_mid chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: GSM 850; Frequency: 836.8 MHz;Duty Cycle: 1:8.3

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 94.7 V/m; Power Drift = 0.042 dB

Maximum value of Total (measured) = 74.8 V/m

## E Scan - ER3D - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 214.9 V/m

Probe Modulation Factor = 2.87

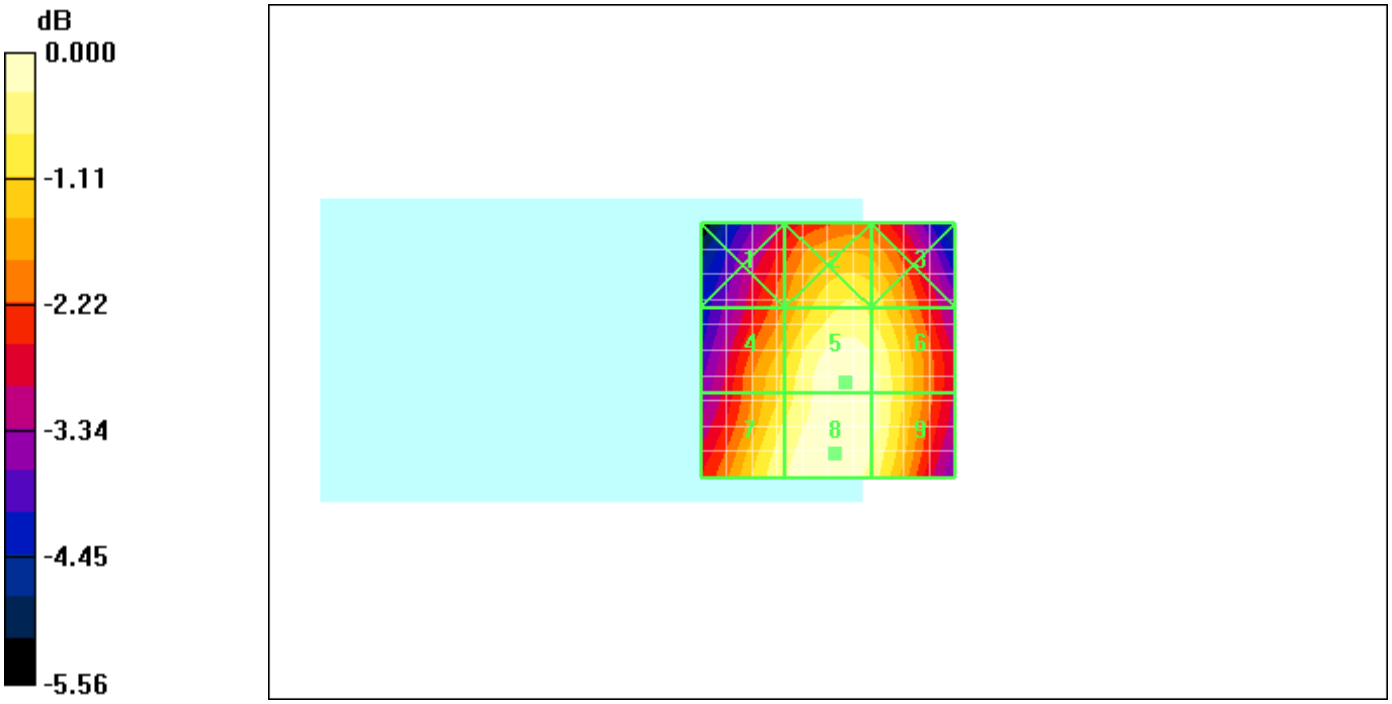
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 94.7 V/m; Power Drift = 0.042 dB

**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **174.6 M3** | Grid 2 **198.9 M3** | Grid 3 **195.4 M3** |
| Grid 4 **192.7 M3** | Grid 5 **213.6 M3** | Grid 6 **208.5 M3** |
| Grid 7 **205.1 M3** | Grid 8 **214.9 M3** | Grid 9 **208.7 M3** |




0 dB = 214.9V/m

Date/Time: 13/07/2009 9:39:51 AM

Test Laboratory: RTS

File Name: HAC_E_GSM_850_mid chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: GSM 850; Frequency: 836.8 MHz;Duty Cycle: 1:8.3

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 94.7 V/m; Power Drift = 0.042 dB

Maximum value of Total (measured) = 74.8 V/m

## E Scan - ER3D - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 214.9 V/m

Probe Modulation Factor = 2.87

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 94.7 V/m; Power Drift = 0.042 dB

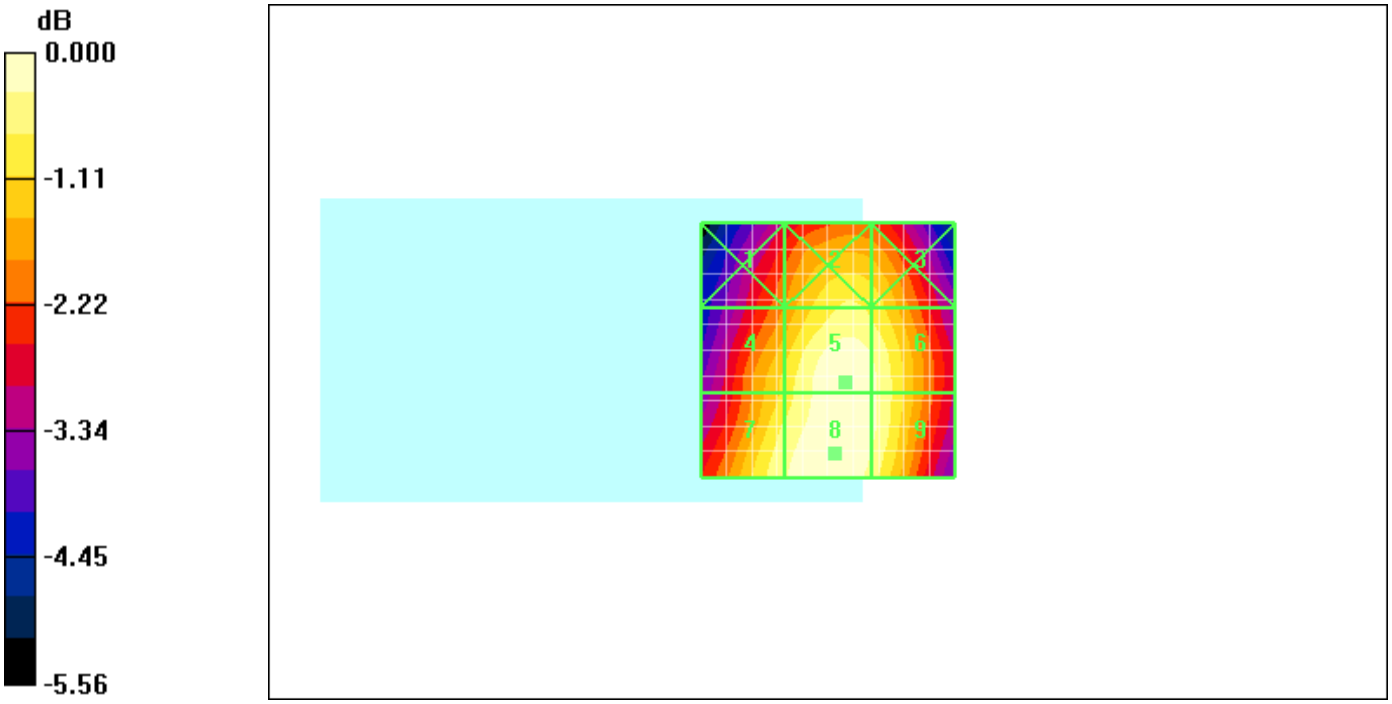
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **174.6 M3** | Grid 2 **198.9 M3** | Grid 3 **195.4 M3** |
| Grid 4 **192.7 M3** | Grid 5 **213.6 M3** | Grid 6 **208.5 M3** |
| Grid 7 **205.1 M3** | Grid 8 **214.9 M3** | Grid 9 **208.7 M3** |

**Cursor:**

Total = 214.9 V/m
E Category: M3
Location: -1.5, 20.5, 8.7 mm




0 dB = 214.9V/m

Date/Time: 13/07/2009 9:50:35 AM

Test Laboratory: RTS

File Name: HAC_E_GSM_1900_low chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 13.5 V/m; Power Drift = 0.020 dB

Maximum value of Total (measured) = 30.3 V/m

## E Scan - ER3D - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 59.7 V/m

Probe Modulation Factor = 2.79

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 13.5 V/m; Power Drift = 0.020 dB

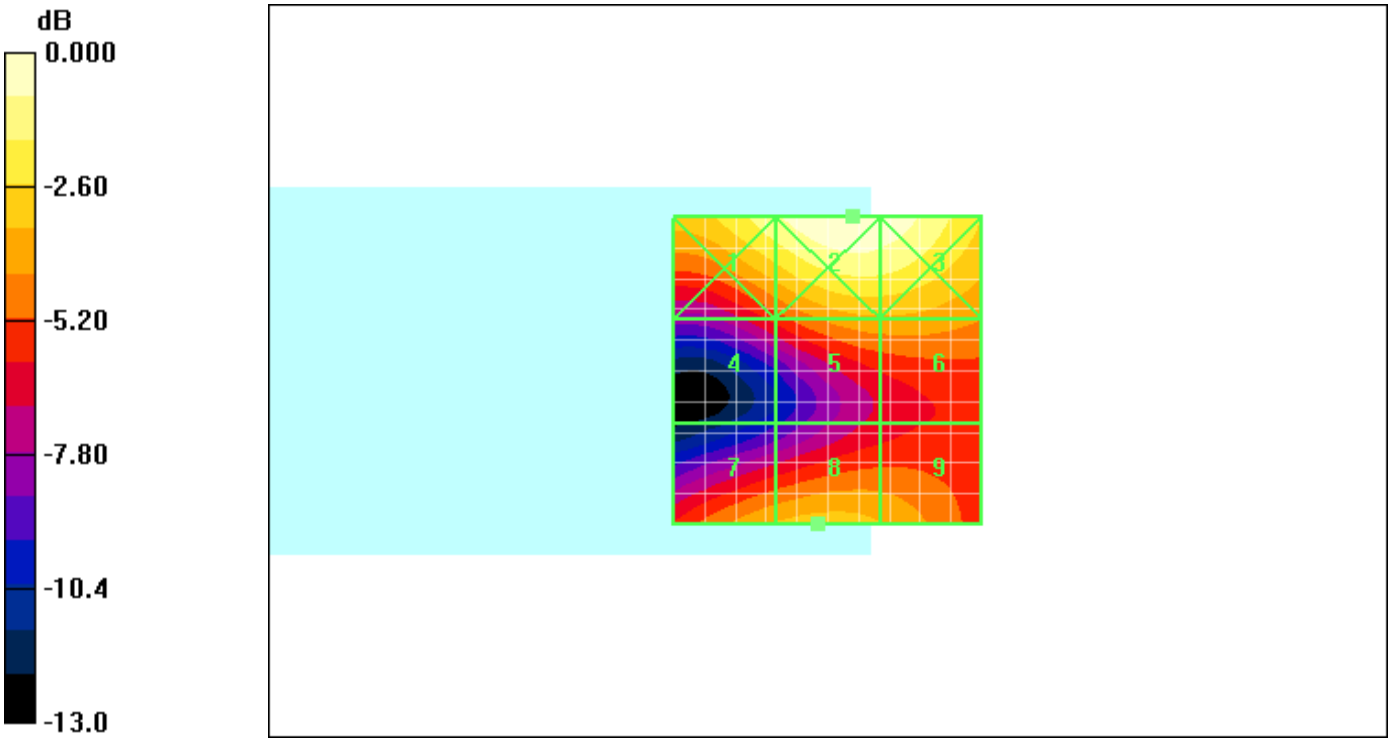
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **75.3 M3** | Grid 2 **84.6 M2** | Grid 3 **82.9 M3** |
| Grid 4 **44.1 M4** | Grid 5 **56.0 M3** | Grid 6 **55.9 M3** |
| Grid 7 **57.6 M3** | Grid 8 **59.7 M3** | Grid 9 **57.2 M3** |

**Cursor:**

Total = 84.6 V/m
E Category: M2
Location: -4, -25, 8.7 mm




0 dB = 84.6V/m

Date/Time: 13/07/2009 9:55:34 AM

Test Laboratory: RTS

File Name: HAC_E_GSM_1900_mid chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 15.5 V/m; Power Drift = -0.154 dB

Maximum value of Total (measured) = 30.6 V/m

## E Scan - ER3D - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 61.0 V/m

Probe Modulation Factor = 2.79

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 15.5 V/m; Power Drift = -0.154 dB

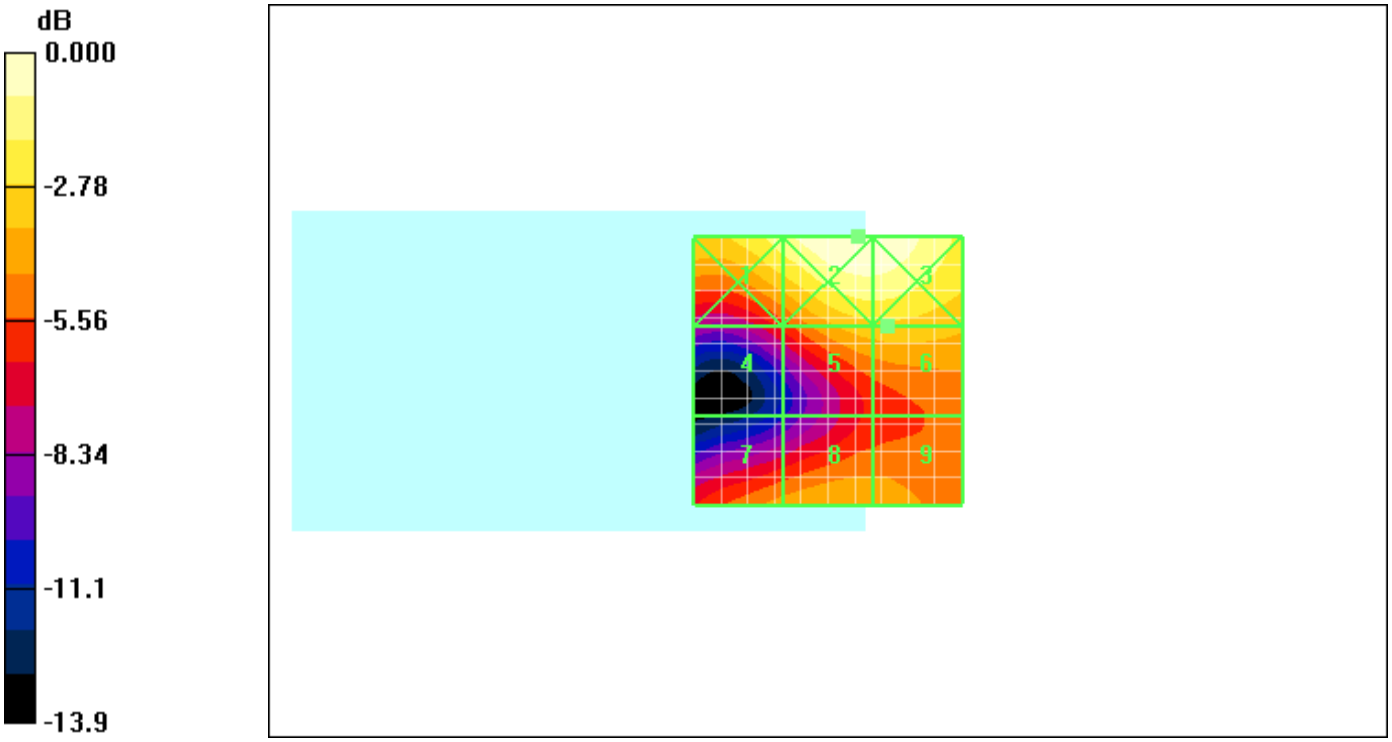
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **73.6 M3** | Grid 2 **85.5 M2** | Grid 3 **84.7 M2** |
| Grid 4 **42.7 M4** | Grid 5 **60.6 M3** | Grid 6 **61.0 M3** |
| Grid 7 **52.8 M3** | Grid 8 **56.3 M3** | Grid 9 **55.0 M3** |

**Cursor:**

Total = 85.5 V/m
E Category: M2
Location: -5.5, -25, 8.7 mm




0 dB = 85.5V/m

Date/Time: 13/07/2009 10:01:07 AM

Test Laboratory: RTS

File Name: HAC_E_GSM_1900_high chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 18.1 V/m; Power Drift = 0.010 dB

Maximum value of Total (measured) = 31.1 V/m

## E Scan - ER3D - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 66.4 V/m

Probe Modulation Factor = 2.79

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 18.1 V/m; Power Drift = 0.010 dB

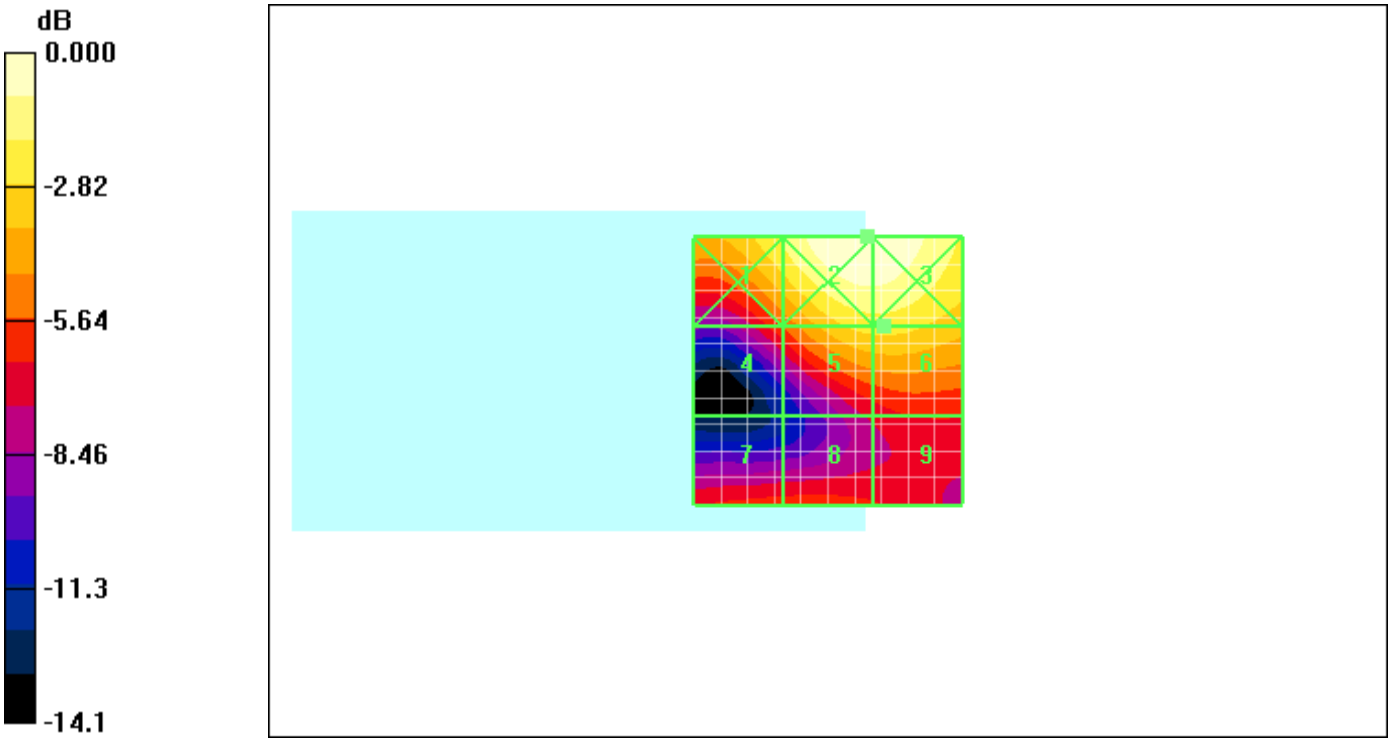
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **71.5 M3** | Grid 2 **87.3 M2** | Grid 3 **87.2 M2** |
| Grid 4 **46.1 M4** | Grid 5 **66.3 M3** | Grid 6 **66.4 M3** |
| Grid 7 **43.6 M4** | Grid 8 **43.9 M4** | Grid 9 **41.6 M4** |

**Cursor:**

Total = 87.3 V/m
E Category: M2
Location: -7.5, -25, 8.7 mm




0 dB = 87.3V/m

Date/Time: 13/07/2009 10:11:15 AM

Test Laboratory: RTS

File Name: HAC_E_WCDMA_band_IV_low chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: WCDMA FDD IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1):** Measurement grid: dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 17.0 V/m; Power Drift = -0.008 dB

Maximum value of Total (measured) = 36.5 V/m

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

Maximum value of peak Total field = 34.7 V/m

Probe Modulation Factor = 0.950

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 17.0 V/m; Power Drift = -0.008 dB

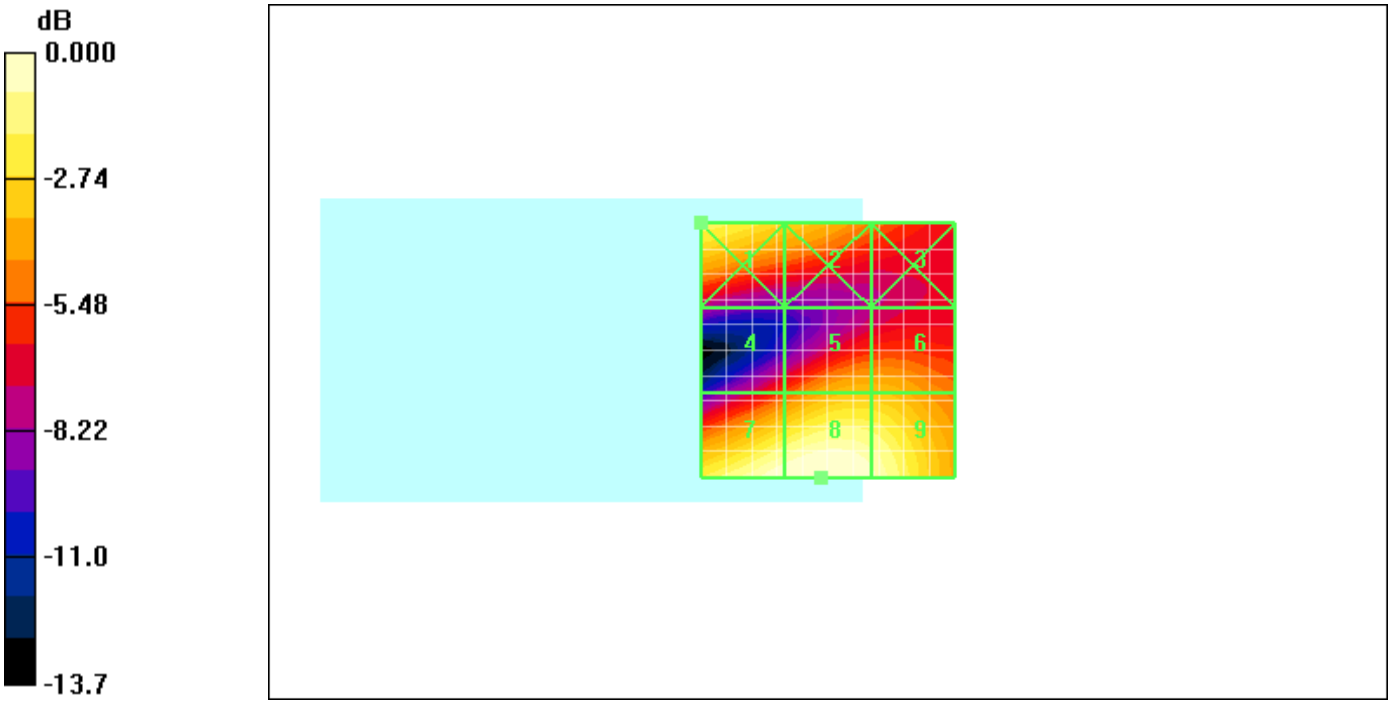
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **28.1 M4** | Grid 2 **24.2 M4** | Grid 3 **19.3 M4** |
| Grid 4 **18.1 M4** | Grid 5 **23.2 M4** | Grid 6 **23.2 M4** |
| Grid 7 **33.3 M4** | Grid 8 **34.7 M4** | Grid 9 **31.8 M4** |

**Cursor:**

Total = 34.7 V/m
E Category: M4
Location: 1.5, 25, 8.7 mm




0 dB = 34.7V/m

Date/Time: 13/07/2009 10:16:40 AM

Test Laboratory: RTS

File Name: HAC_E_WCDMA_band_IV_mid chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: WCDMA FDD IV; Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1):** Measurement grid: dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 14.4 V/m; Power Drift = -0.133 dB

Maximum value of Total (measured) = 36.8 V/m

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

Maximum value of peak Total field = 35.1 V/m

Probe Modulation Factor = 0.950

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 14.4 V/m; Power Drift = -0.133 dB

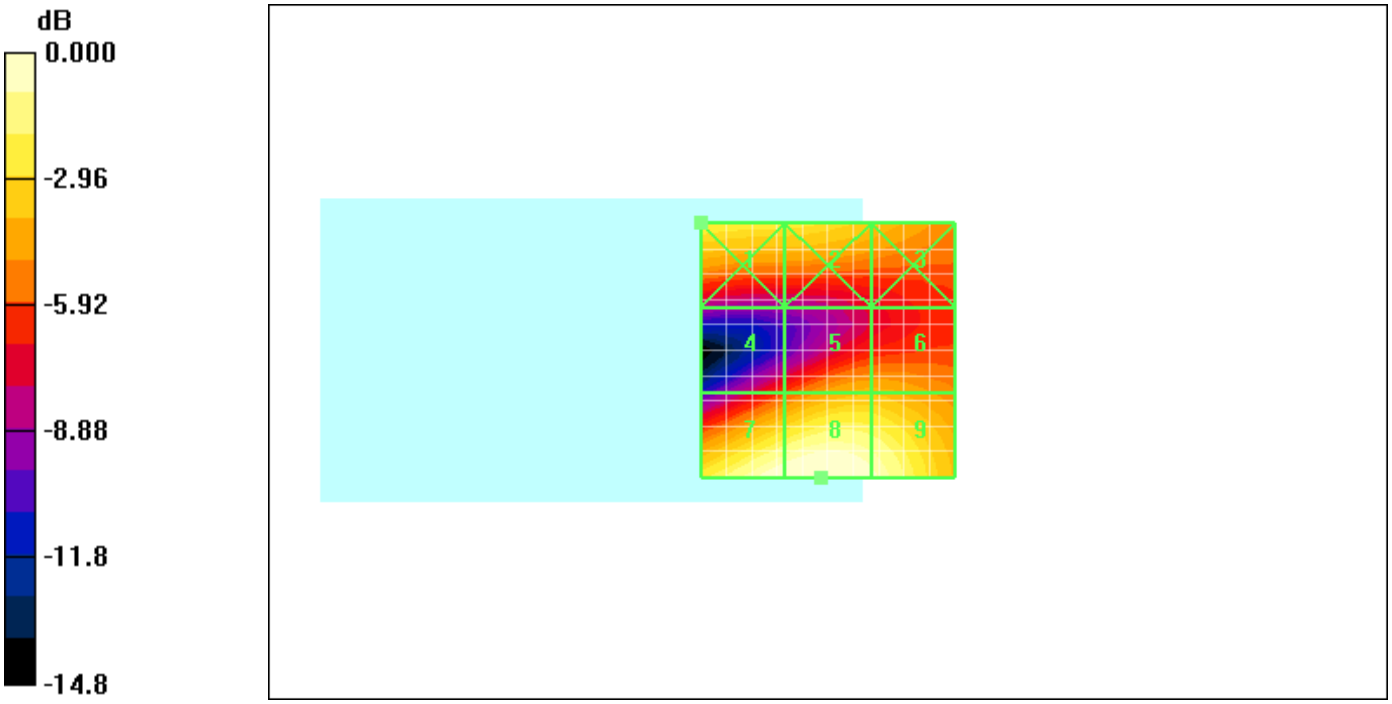
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **26.2 M4** | Grid 2 **25.7 M4** | Grid 3 **22.9 M4** |
| Grid 4 **17.3 M4** | Grid 5 **22.1 M4** | Grid 6 **22.1 M4** |
| Grid 7 **33.8 M4** | Grid 8 **35.1 M4** | Grid 9 **32.0 M4** |

**Cursor:**

Total = 35.1 V/m
E Category: M4
Location: 1.5, 25, 8.7 mm




0 dB = 35.1V/m

Date/Time: 13/07/2009 10:22:56 AM

Test Laboratory: RTS

File Name: HAC_E_WCDMA_band_IV_high chan.da4

**DUT: BlackBerry Smartphone; Type: Not Specified; Serial: Not Specified**

**Program Name: HAC RF ER3D Device**

Communication System: WCDMA FDD IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used: $\sigma$ = 0 mho/m, $\varepsilon_r$ = 1; $\rho$ = 1000 kg/m$^3$

Phantom section: RF Section

DASY4 Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 08/01/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1):** Measurement grid: dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 14.6 V/m; Power Drift = -0.154 dB

Maximum value of Total (measured) = 37.3 V/m

## E Scan - ER3D - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid:

dx=5mm, dy=5mm

Maximum value of peak Total field = 35.5 V/m

Probe Modulation Factor = 0.950

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 14.6 V/m; Power Drift = -0.154 dB

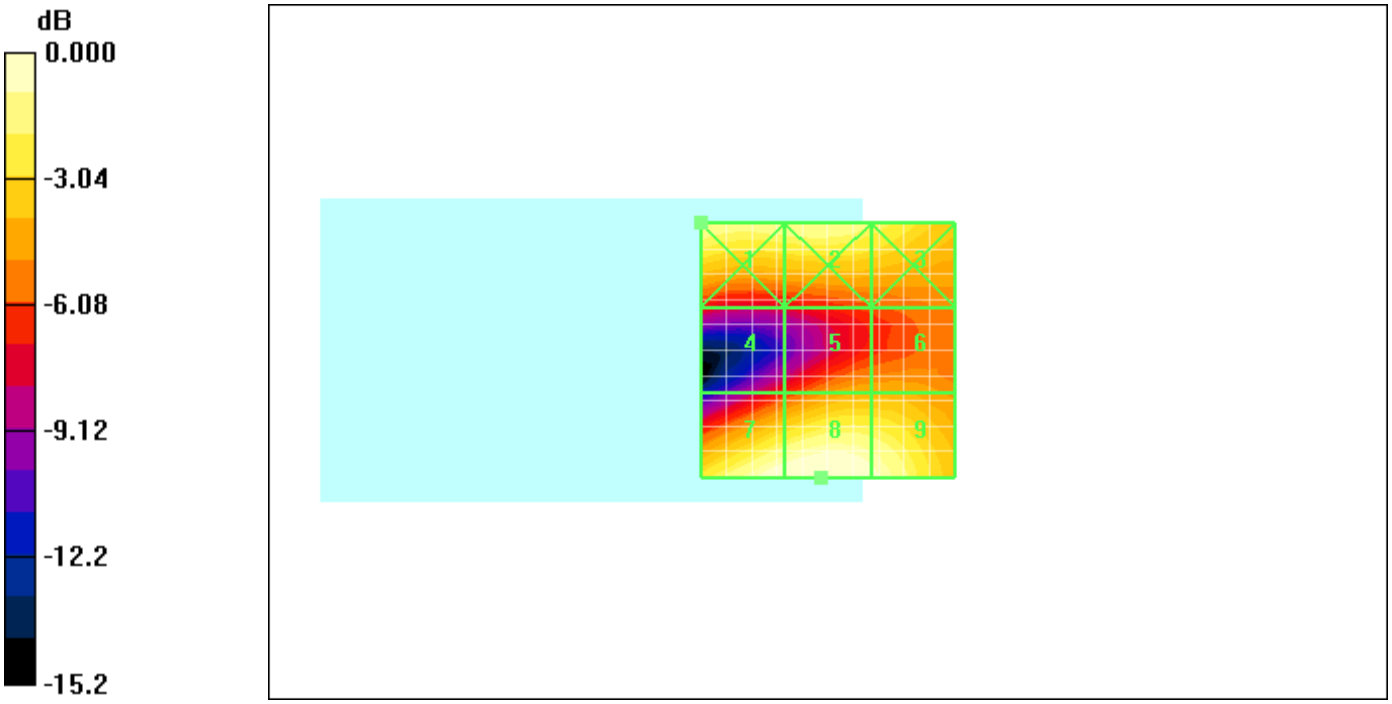
## Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **30.3 M4** | Grid 2 **30.1 M4** | Grid 3 **28.2 M4** |
| Grid 4 **16.3 M4** | Grid 5 **21.5 M4** | Grid 6 **21.6 M4** |
| Grid 7 **34.2 M4** | Grid 8 **35.5 M4** | Grid 9 **32.6 M4** |

**Cursor:**

Total = 35.5 V/m
E Category: M4
Location: 1.5, 25, 8.7 mm




0 dB = 35.5V/m

Date/Time: 13/07/2009 10:40:27 AM

Test Laboratory: RTS

File Name: HAC_H_GSM850_low_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.077 A/m; Power Drift = 0.125 dB

Maximum value of Total (measured) = 0.164 A/m

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.408 A/m

Probe Modulation Factor = 2.77

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.077 A/m; Power Drift = 0.125 dB

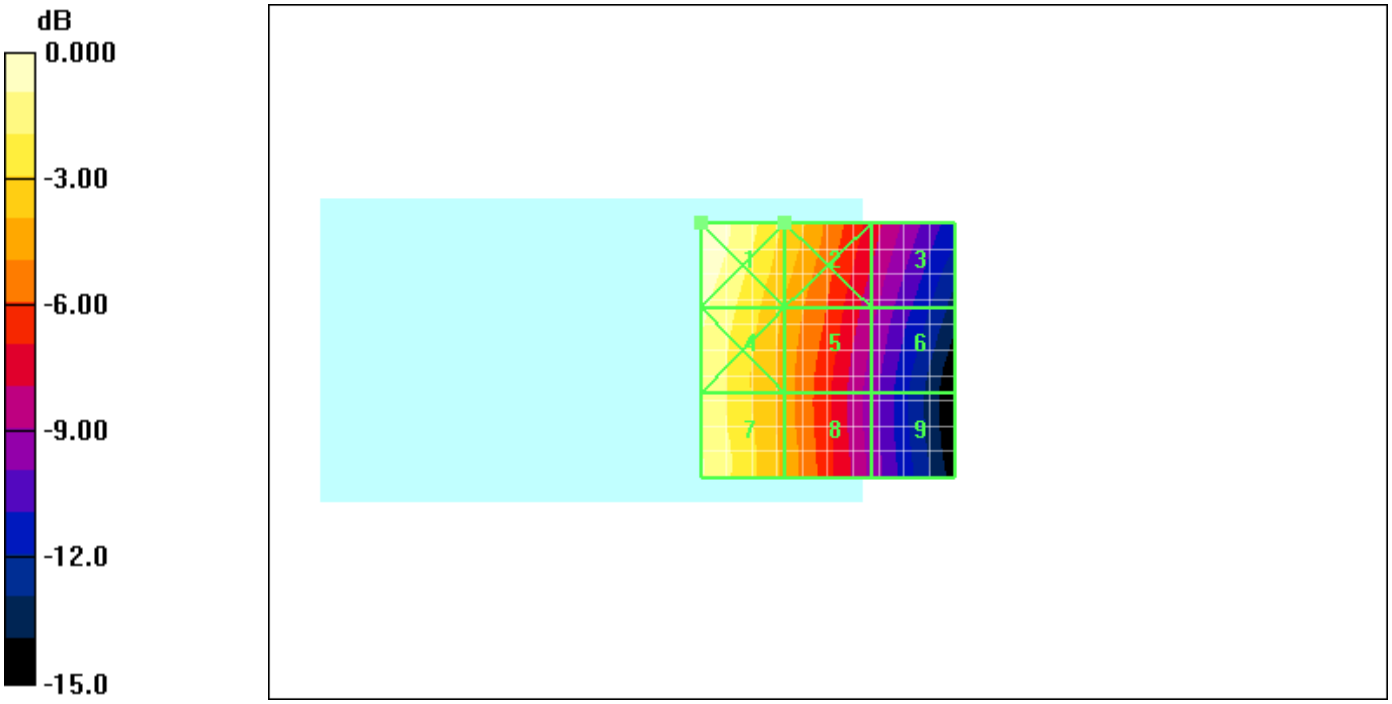
**Hearing Aid Near-Field Category: M4 (AWF -5 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.453 M3** | Grid 2 **0.316 M4** | Grid 3 **0.194 M4** |
| Grid 4 **0.417 M4** | Grid 5 **0.283 M4** | Grid 6 **0.169 M4** |
| Grid 7 **0.408 M4** | Grid 8 **0.278 M4** | Grid 9 **0.157 M4** |

**Cursor:**

Total = 0.453 A/m
H Category: M3
Location: 25, -25, 8.7 mm




0 dB = 0.453A/m

Date/Time: 13/07/2009 10:45:23 AM

Test Laboratory: RTS

File Name: HAC_H_GSM850_mid_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: GSM 850; Frequency: 836.8 MHz;Duty Cycle: 1:8.3

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.088 A/m; Power Drift = 0.102 dB

Maximum value of Total (measured) = 0.175 A/m

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.449 A/m

Probe Modulation Factor = 2.77

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.088 A/m; Power Drift = 0.102 dB

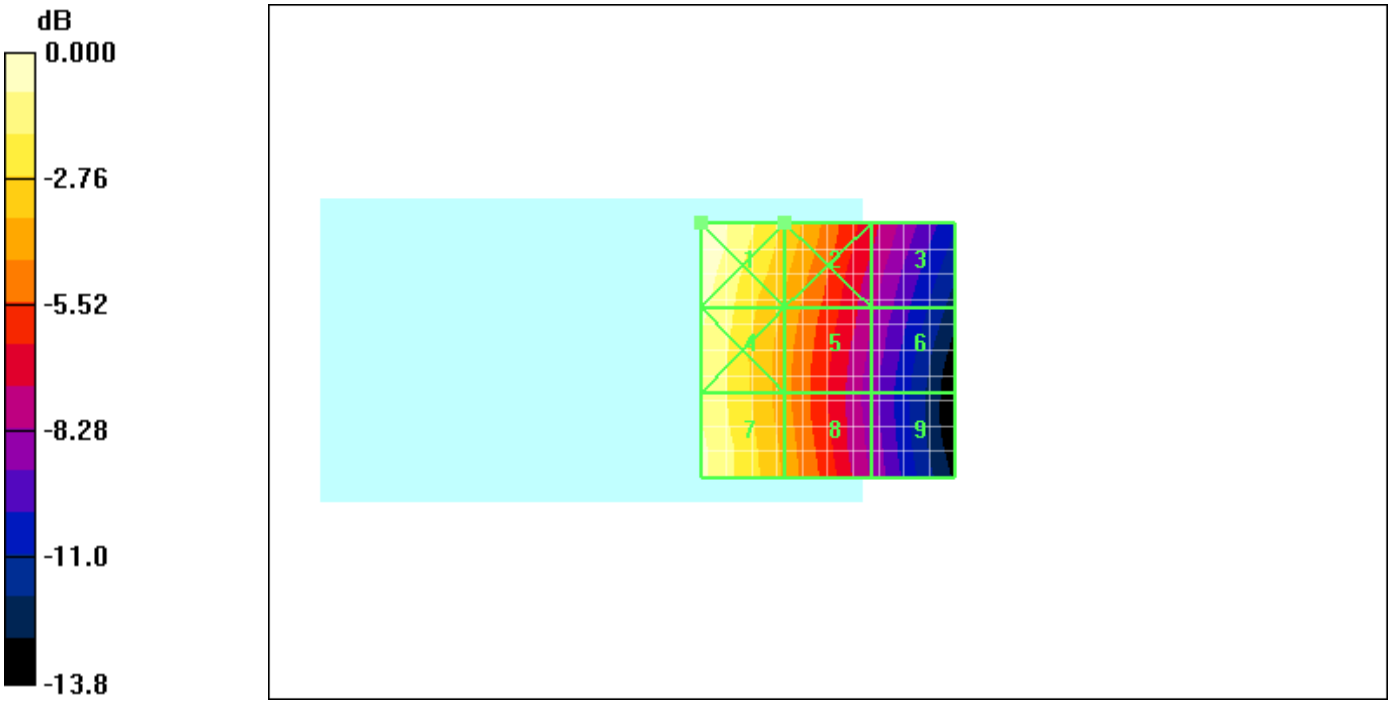
**Hearing Aid Near-Field Category: M4 (AWF -5 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.486 M3** | Grid 2 **0.346 M4** | Grid 3 **0.218 M4** |
| Grid 4 **0.448 M4** | Grid 5 **0.312 M4** | Grid 6 **0.193 M4** |
| Grid 7 | Grid 8 | Grid 9 |

**Cursor:**

Total = 0.486 A/m
H Category: M3
Location: 25, -25, 8.7 mm




0 dB = 0.486A/m

Date/Time: 13/07/2009 10:50:13 AM

Test Laboratory: RTS

File Name: HAC_H_GSM850_high_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.102 A/m; Power Drift = 0.224 dB

Maximum value of Total (measured) = 0.187 A/m

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.380 A/m

Probe Modulation Factor = 2.77

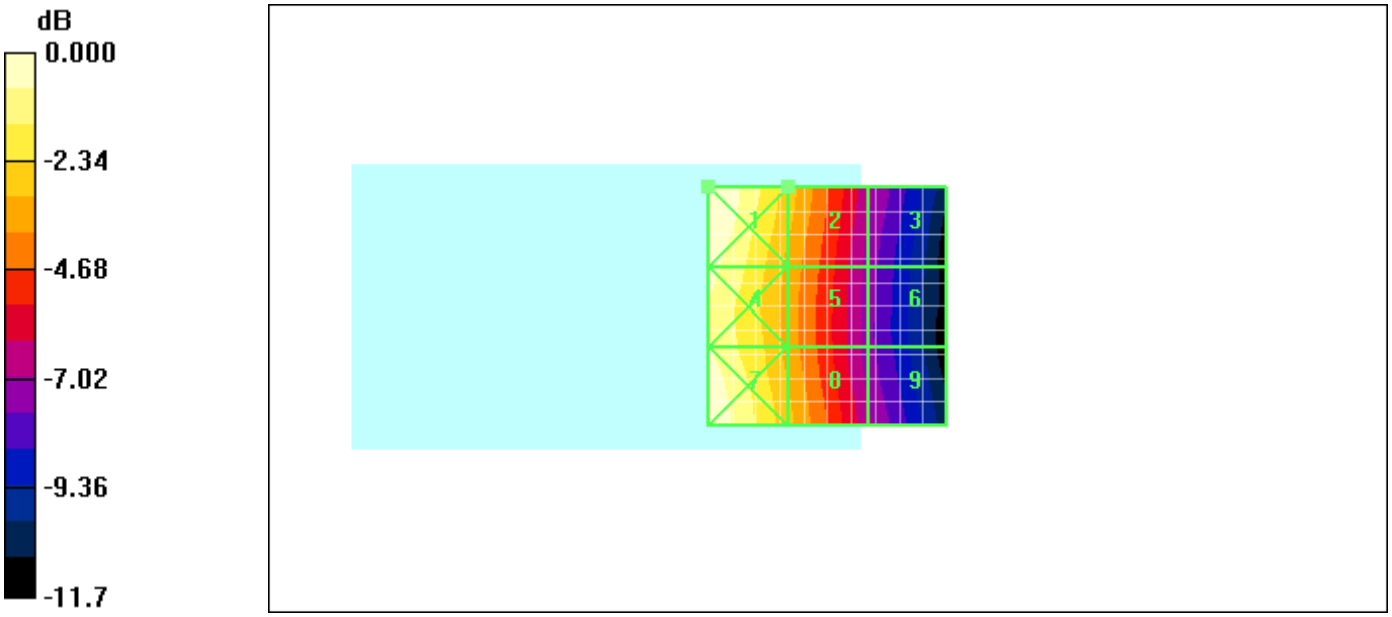
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.102 A/m; Power Drift = 0.224 dB

**Hearing Aid Near-Field Category: M4 (AWF -5 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.519 M3** | Grid 2 **0.380 M4** | Grid 3 **0.237 M4** |
| Grid 4 **0.487 M3** | Grid 5 **0.356 M4** | Grid 6 **0.224 M4** |
| Grid 7 **0.513 M3** | Grid 8 **0.375 M4** | Grid 9 **0.237 M4** |




0 dB = 0.519A/m

Date/Time: 13/07/2009 11:00:12 AM

Test Laboratory: RTS

File Name: HAC_H_GSM1900_low_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1):** Measurement grid: dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.082 A/m; Power Drift = -0.257 dB

Maximum value of Total (measured) = 0.103 A/m

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the**

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.182 A/m

Probe Modulation Factor = 2.52

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.082 A/m; Power Drift = -0.257 dB

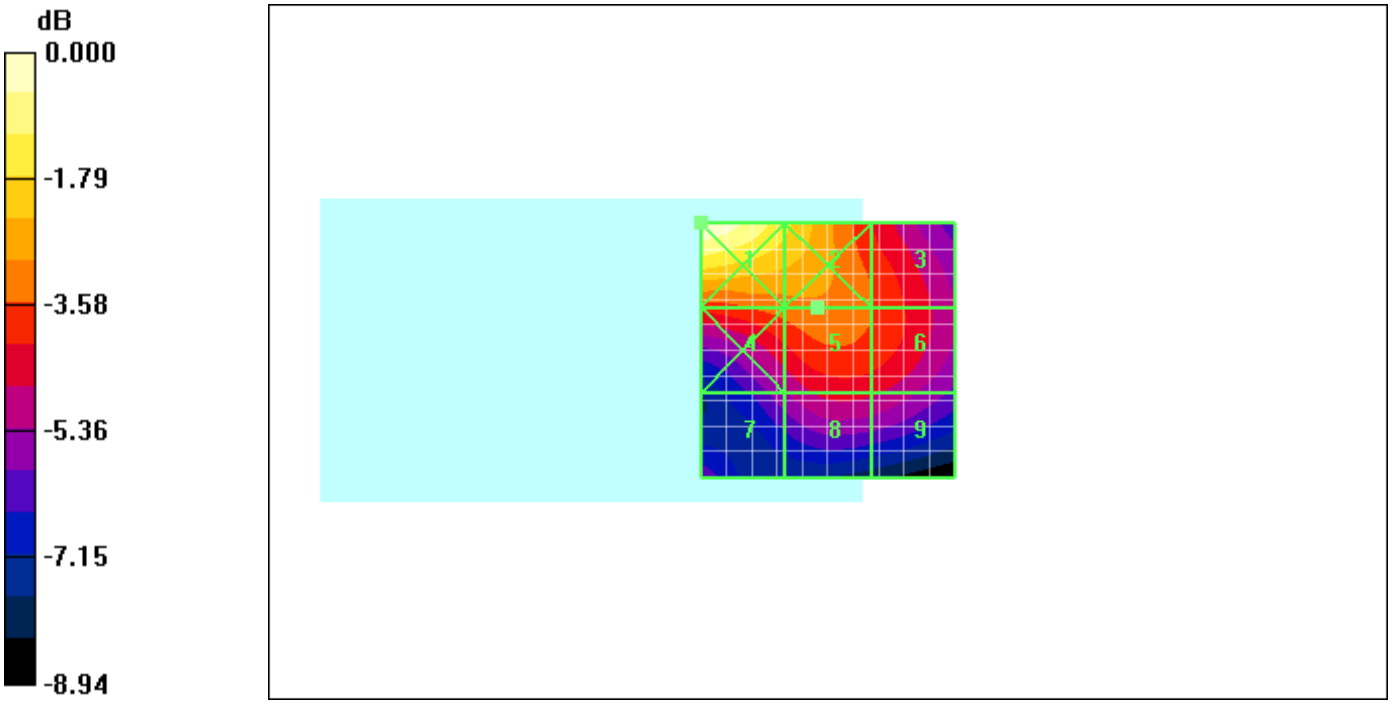
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.260 M2** | Grid 2<br>**0.216 M3** | Grid 3<br>**0.173 M3** |
| Grid 4<br>**0.179 M3** | Grid 5<br>**0.182 M3** | Grid 6<br>**0.173 M3** |
| Grid 7<br>**0.139 M4** | Grid 8<br>**0.154 M3** | Grid 9<br>**0.152 M3** |

**Cursor:**

Total = 0.260 A/m
H Category: M2
Location: 25, -25, 8.7 mm




0 dB = 0.260A/m

Date/Time: 13/07/2009 11:08:50 AM

Test Laboratory: RTS

File Name: HAC_H_GSM1900_mid_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1):** Measurement grid: dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.085 A/m; Power Drift = 0.182 dB

Maximum value of Total (measured) = 0.107 A/m

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the**

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.204 A/m

Probe Modulation Factor = 2.52

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.085 A/m; Power Drift = 0.182 dB

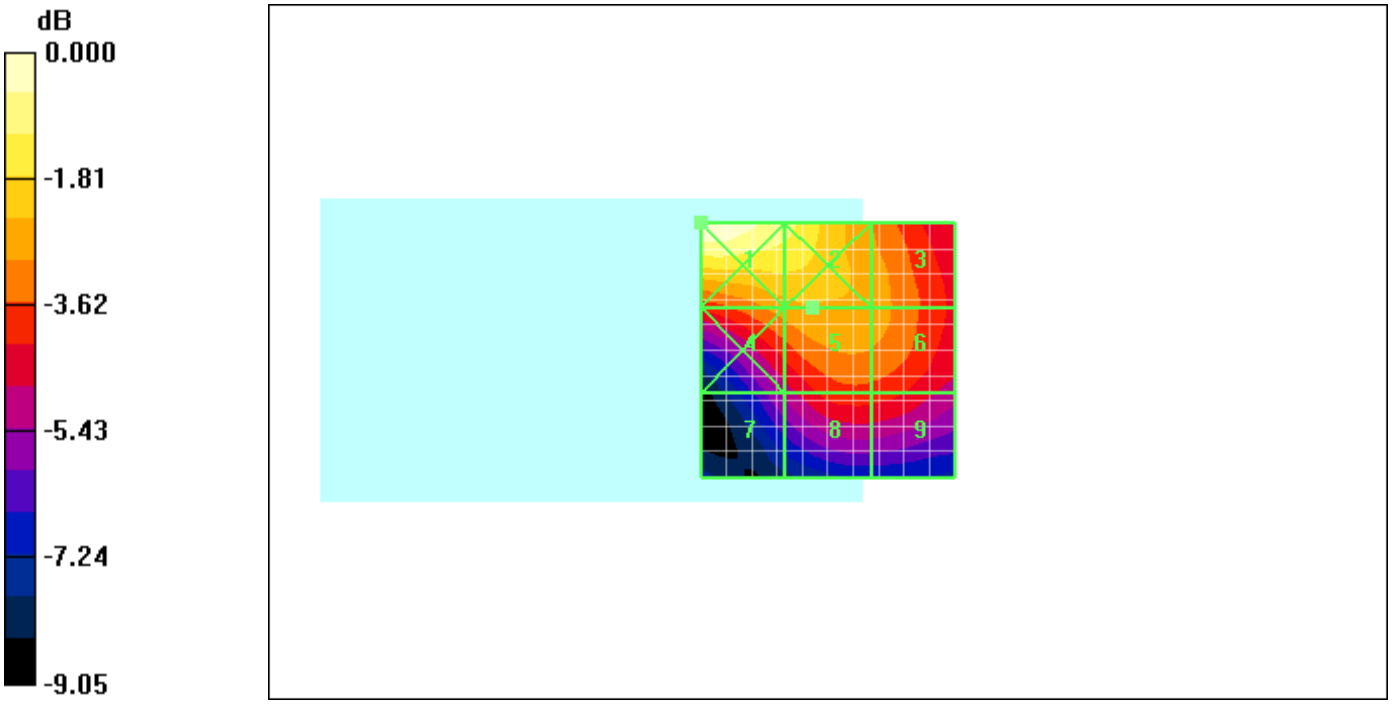
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.270 M2** | Grid 2 **0.242 M3** | Grid 3 **0.199 M3** |
| Grid 4 **0.199 M3** | Grid 5 **0.204 M3** | Grid 6 **0.198 M3** |
| Grid 7 **0.149 M3** | Grid 8 **0.174 M3** | Grid 9 **0.173 M3** |

**Cursor:**

Total = 0.270 A/m
H Category: M2
Location: 25, -25, 8.7 mm




0 dB = 0.270A/m

Date/Time: 13/07/2009 11:24:01 AM

Test Laboratory: RTS

File Name: HAC_H_GSM1900_high_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1): Measurement grid:

dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.079 A/m; Power Drift = 0.026 dB

Maximum value of Total (measured) = 0.111 A/m

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the

**Device/Hearing Aid Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.192 A/m

Probe Modulation Factor = 2.52

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.079 A/m; Power Drift = 0.026 dB

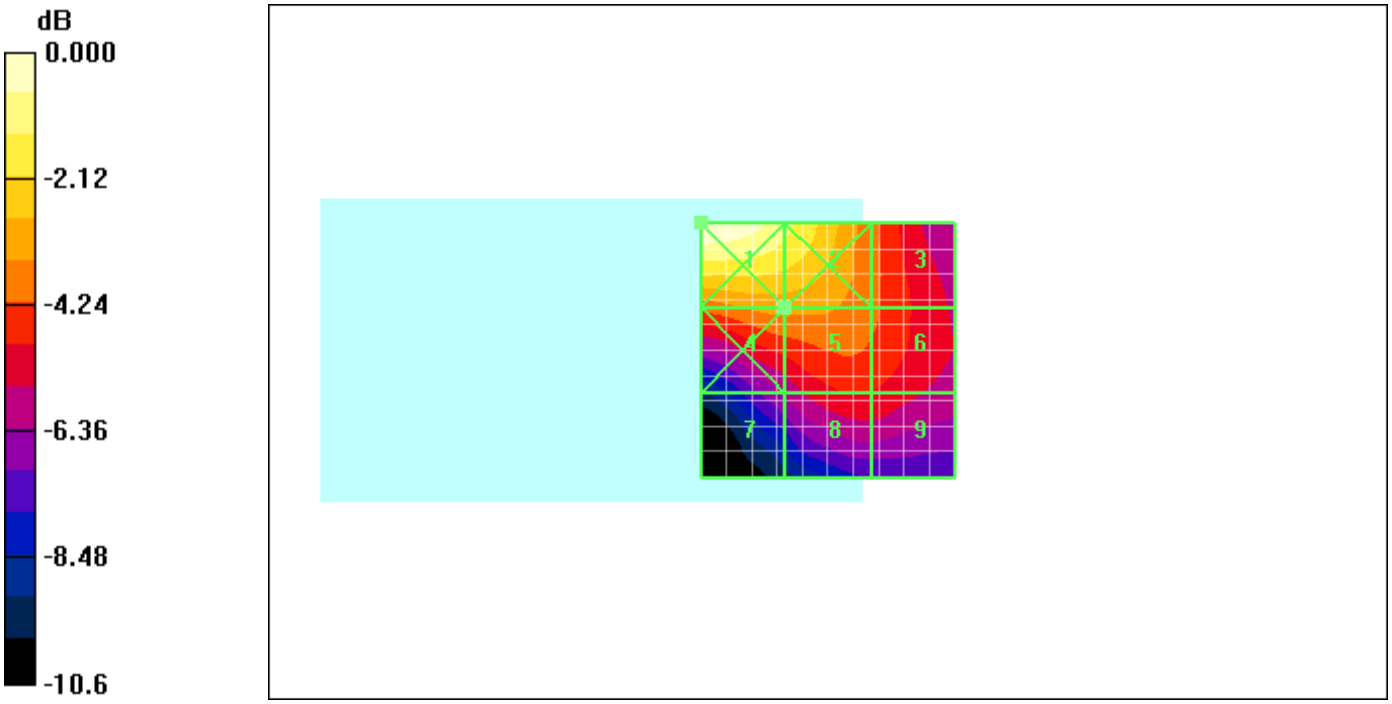
**Hearing Aid Near-Field Category: M3 (AWF -5 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.280 M2** | Grid 2 **0.245 M3** | Grid 3 **0.177 M3** |
| Grid 4 **0.192 M3** | Grid 5 **0.192 M3** | Grid 6 **0.175 M3** |
| Grid 7 **0.137 M4** | Grid 8 **0.159 M3** | Grid 9 **0.158 M3** |

**Cursor:**

Total = 0.280 A/m
H Category: M2
Location: 25, -25, 8.7 mm




0 dB = 0.280A/m

Date/Time: 13/07/2009 11:47:18 AM

Test Laboratory: RTS

File Name: HAC_H_WCDMA_band_IV_low_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: WCDMA FDD IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1):** Measurement grid: dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.099 A/m; Power Drift = -0.116 dB

Maximum value of Total (measured) = 0.102 A/m

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

Maximum value of peak Total field = 0.099 A/m

Probe Modulation Factor = 0.970

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.099 A/m; Power Drift = -0.116 dB

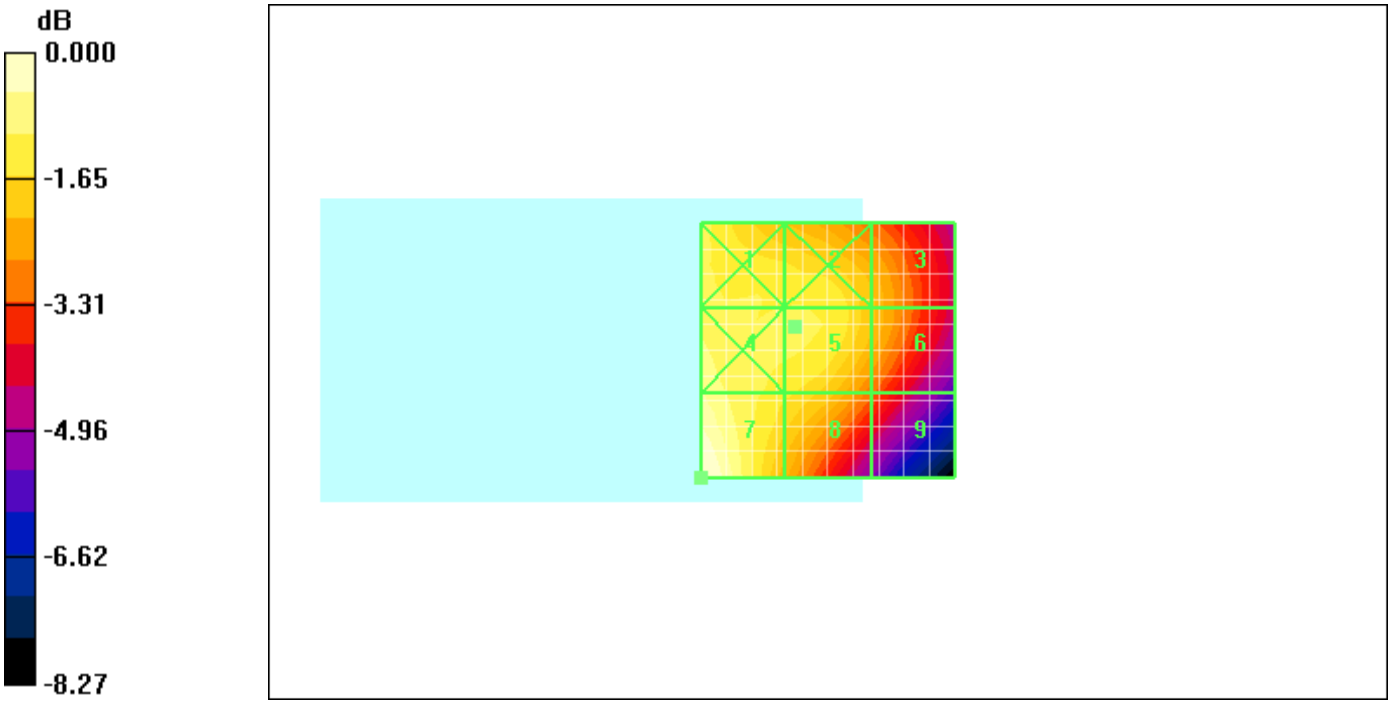
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.086 M4** | Grid 2 **0.085 M4** | Grid 3 **0.078 M4** |
| Grid 4 **0.090 M4** | Grid 5 **0.085 M4** | Grid 6 **0.078 M4** |
| Grid 7 **0.099 M4** | Grid 8 **0.083 M4** | Grid 9 **0.069 M4** |

**Cursor:**

Total = 0.099 A/m
H Category: M4
Location: 25, 25, 8.7 mm




0 dB = 0.099A/m

Date/Time: 13/07/2009 12:11:37 PM

Test Laboratory: RTS

File Name: HAC_H_WCDMA_band_IV_mid_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: WCDMA FDD IV; Frequency: 1732.6 MHz;Duty Cycle: 1:1

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1):** Measurement grid: dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.104 A/m; Power Drift = -0.018 dB

Maximum value of Total (measured) = 0.098 A/m

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

Maximum value of peak Total field = 0.095 A/m

Probe Modulation Factor = 0.970

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.104 A/m; Power Drift = -0.018 dB

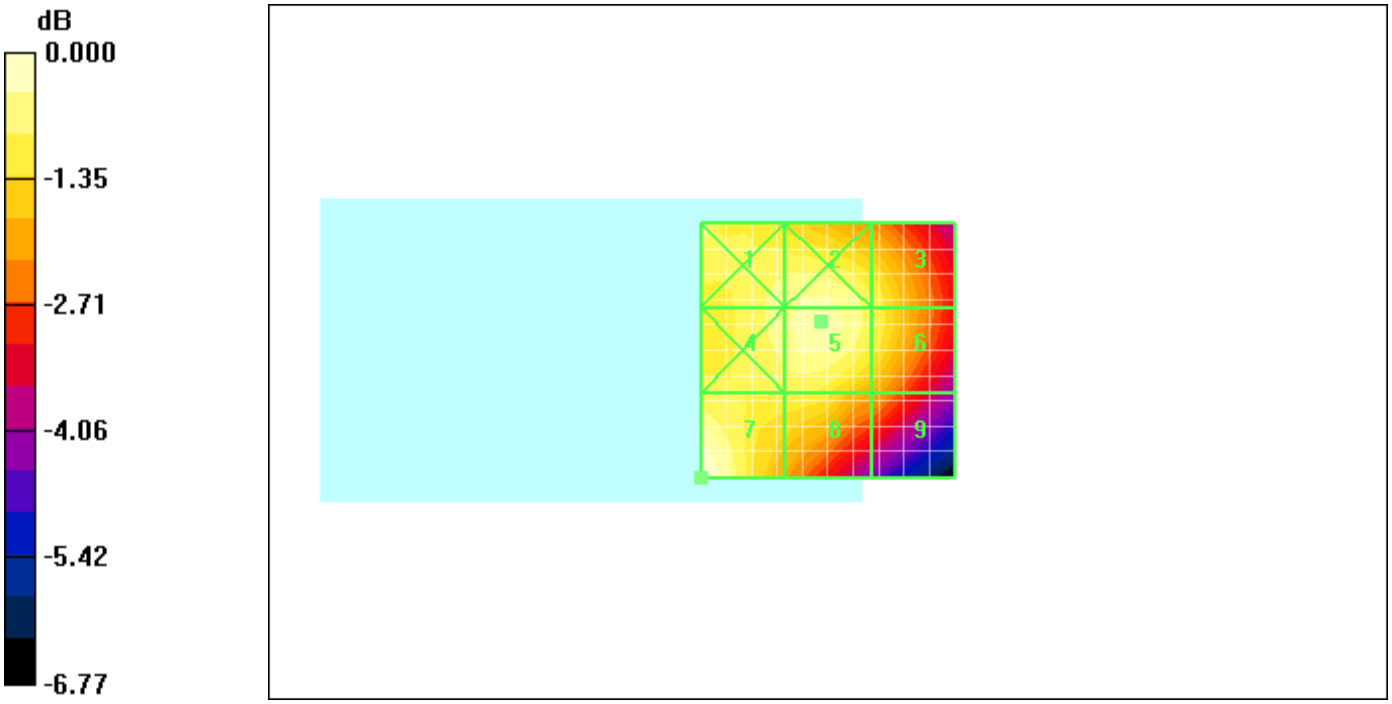
**Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.088 M4** | Grid 2 **0.088 M4** | Grid 3 **0.084 M4** |
| Grid 4 **0.087 M4** | Grid 5 **0.089 M4** | Grid 6 **0.084 M4** |
| Grid 7 **0.095 M4** | Grid 8 **0.084 M4** | Grid 9 **0.075 M4** |

**Cursor:**

Total = 0.095 A/m
H Category: M4
Location: 25, 25, 8.7 mm




0 dB = 0.095A/m

Date/Time: 13/07/2009 12:17:03 PM

Test Laboratory: RTS

File Name: HAC_H_WCDMA_band_IV_high_chan.da4

**DUT: BlackBerry Smartphone; Type: Sample ; Serial: Not Specified**

**Program Name: HAC RF H3DV6 Device**

Communication System: WCDMA FDD IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1

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

Phantom section: RF Section

DASY4 Configuration:

- Probe: H3DV6 - SN6168; ; Calibrated: 03/03/2009
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/03/2009
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (11x11x1):** Measurement grid: dx=5mm, dy=5mm

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.117 A/m; Power Drift = 0.047 dB

Maximum value of Total (measured) = 0.108 A/m

## H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid:

dx=5mm, dy=5mm

Maximum value of peak Total field = 0.100 A/m

Probe Modulation Factor = 0.970

Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.117 A/m; Power Drift = 0.047 dB

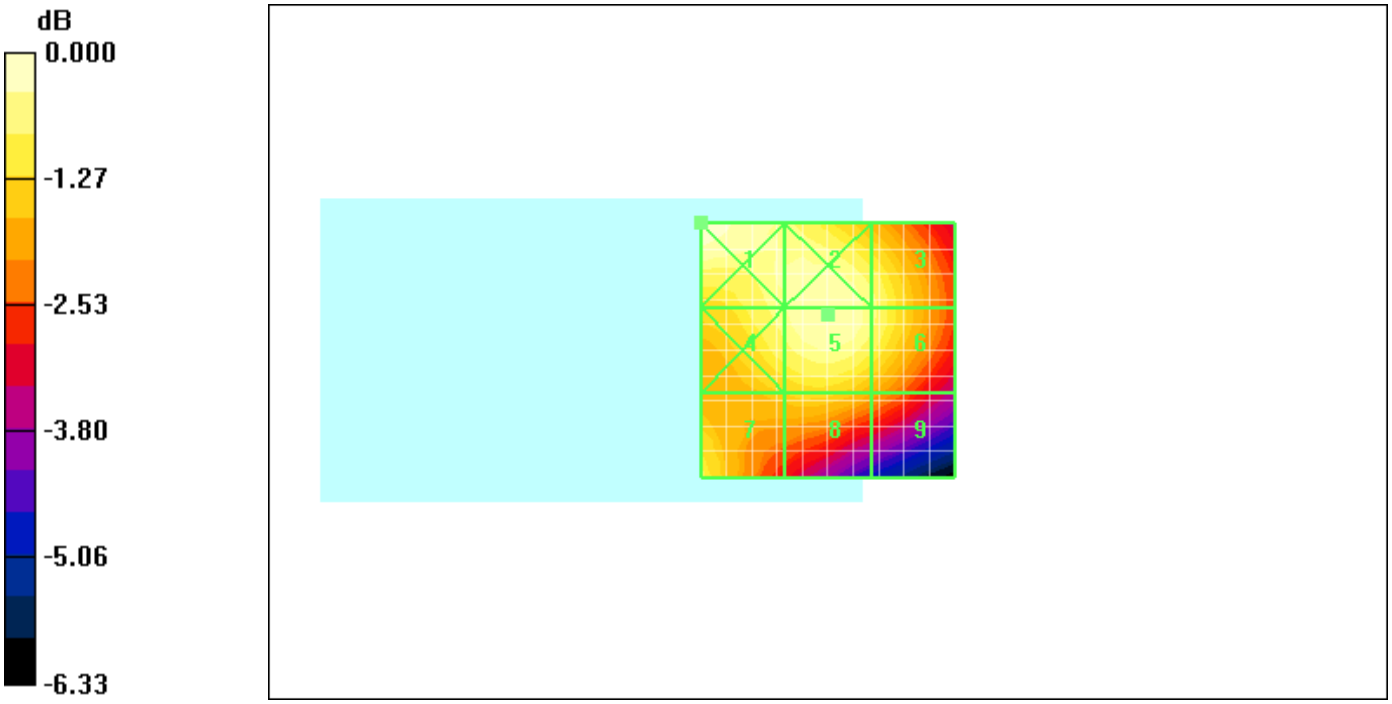
**Hearing Aid Near-Field Category: M4 (AWF 0 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.105 M4** | Grid 2 **0.100 M4** | Grid 3 **0.096 M4** |
| Grid 4 **0.097 M4** | Grid 5 **0.100 M4** | Grid 6 **0.096 M4** |
| Grid 7 **0.094 M4** | Grid 8 **0.090 M4** | Grid 9 **0.084 M4** |

**Cursor:**

Total = 0.105 A/m
H Category: M4
Location: 25, -25, 8.7 mm




0 dB = 0.105A/m