# Annex B: Probe and dipole descriptions and calibration certificates

## B.2 Dipole calibration certificate

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client RTS (RIM Testing Services) Certificate No: CD835V3-1011_Nov09

# CALIBRATION CERTIFICATE

Object: CD835V3 - SN: 1011

Calibration procedure(s): QA CAL-20.v4
Calibration procedure for dipoles in air

Calibration date: November 17, 2009

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|---|---|---|---|
| Power meter EPM-442A | GB37480704 | 06-Oct-09 (No. 217-01086) | Oct-10 |
| Power sensor HP 8481A | US37292783 | 06-Oct-09 (No. 217-01086) | Oct-10 |
| Probe ER3DV6 | SN: 2336 | 22-Dec-08 (No. ER3-2336_Dec08) | Dec-09 |
| Probe H3DV6 | SN: 6065 | 22-Dec-08 (No. H3-6065_-Dec08) | Dec-09 |
| DAE4 | SN: 781 | 20-Feb-09 (No. DAE4-781_Feb09) | Feb-10 |

| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
|---|---|---|---|
| Power meter Agilent 4419B | SN: GB42420191 | 09-Oct-09 (in house check Oct-09) | In house check: Oct-10 |
| Power sensor HP 8482H | SN: 3318A09450 | 09-Oct-09 (in house check Oct-09) | In house check: Oct-10 |
| Power sensor HP 8482A | SN: US37295597 | 09-Oct-09 (in house check Oct-09) | In house check: Oct-10 |
| Network Analyzer HP 8753E | US37390585 | 18-Oct-01 (in house check Oct-09) | In house check: Oct-10 |
| RF generator E4433B | MY 41000675 | 03-Nov-04 (in house check Oct-09) | In house check: Oct-11 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by: | Mike Meli | Laboratory Technician | |
| Approved by: | Fin Bomholt | Technical Director | |

Issued: November 19, 2009

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

Certificate No: CD835V3-1011_Nov09 Page 1 of 6

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Engineering AG
**Zeughausstrasse 43, 8004 Zurich, Switzerland**

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

**Accreditation No.: SCS 108**

**References**

[1] ANSI-C63.19-2006
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

[2] ANSI-C63.19-2007
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

**Methods Applied and Interpretation of Parameters:**

- *Coordinate System:* y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes. In coincidence with the standards [1, 2], the measurement planes (probe sensor center) are selected to be at a distance of 10 mm above the top edge of the dipole arms.
- *Measurement Conditions:* Further details are available from the hardcopies at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- *Antenna Positioning:* The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections. It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY5 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy.
- *Feed Point Impedance and Return Loss:* These parameters are measured using a HP 8753E Vector Network Analyzer. The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any obstacles.
- *E- field distribution:* E field is measured in the x-y-plane with an isotropic ER3D-field probe with 100 mW forward power to the antenna feed point. In accordance with [1, 2], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 10 mm (in z) above the top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any non-parallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, 10mm above the dipole surface.
- *H-field distribution:* H-field is measured with an isotropic H-field probe with 100mW forward power to the antenna feed point, in the x-y-plane. The scan area and sensor distance is equivalent to the E-field scan. The maximum of the field is available at the center (subgrid 5) above the feed point. The H-field value stated as calibration value represents the maximum of the interpolated H-field, 10mm above the dipole surface at the feed point.

## 1 Measurement Conditions

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

| | | |
|---|---|---|
| **DASY Version** | DASY5 | V5.2 B157 |
| **DASY PP Version** | SEMCAD X | V14.0 B57 |
| **Phantom** | HAC Test Arch | SD HAC P01 BA, #1070 |
| **Distance Dipole Top - Probe Center** | 10 mm | |
| **Scan resolution** | dx, dy = 5 mm | area = 20 x 180 mm |
| **Frequency** | **835 MHz** ± 1 MHz | |
| **Forward power at dipole connector** | 20.0 dBm = 100mW | |
| **Input power drift** | < 0.05 dB | |

## 2 Maximum Field values

| **H-field 10 mm above dipole surface** | condition | **interpolated maximum** |
|---|---|---|
| Maximum measured | 100 mW forward power | **0.464 A/m** |

Uncertainty for H-field measurement: 8.2% (k=2)

| **E-field 10 mm above dipole surface** | condition | **Interpolated maximum** |
|---|---|---|
| Maximum measured above high end- | 100 mW forward power | 168.6 V/m |
| Maximum measured above low end | 100 mW forward power | 157.4 V/m |
| Averaged maximum above arm | 100 mW forward power | **163.0 V/m** |

Uncertainty for E-field measurement: 12.8% (k=2)

## 3 Appendix

### 3.1 Antenna Parameters

| **Frequency** | **Return Loss** | **Impedance** |
|---|---|---|
| 800 MHz | 15.7 dB | ( 44.8 – j14.9 ) Ohm |
| **835 MHz** | **31.8 dB** | **( 48.5 + j2.0 ) Ohm** |
| 900 MHz | 17.7 dB | ( 54.3 – j12.9 ) Ohm |
| 950 MHz | 20.5 dB | ( 44.7 + j7.2 ) Ohm |
| 960 MHz | 16.3 dB | ( 51.0 + j15.7 ) Ohm |

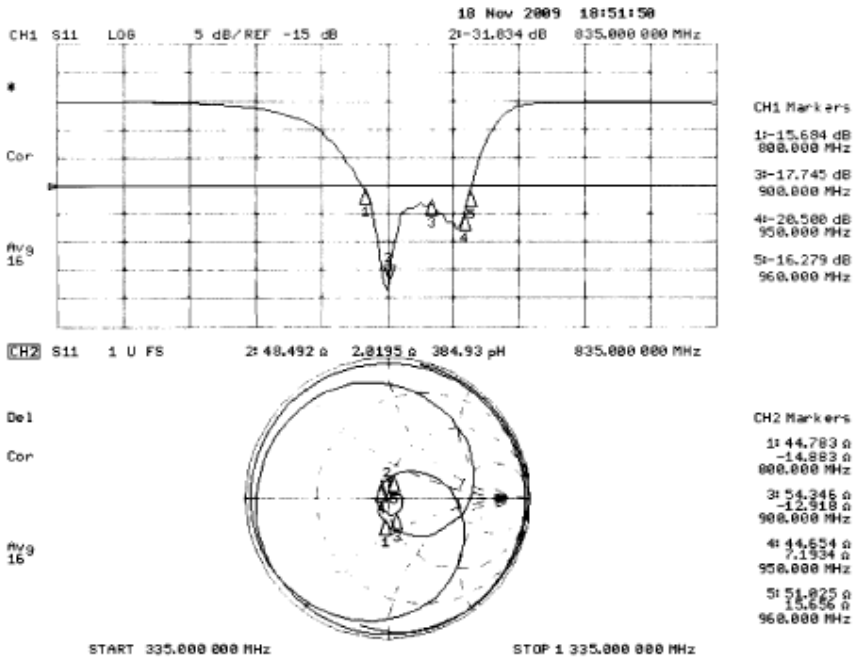
### 3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.
The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.
Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

### 3.3 Measurement Sheets

#### 3.3.1 Return Loss and Smith Chart



### 3.3.2 DASY4 H-field Result

Date/Time: 17.11.2009 15:02:26

Test Laboratory: SPEAG Lab2

**HAC RF_CD835_1011_091117_H_MM**

**DUT: HAC-Dipole 835 MHz; Type: D835V3; Serial: 1011**

Communication System: CW; Frequency: 835 MHz

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

Phantom section: RF Section

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

DASY5 Configuration:

- Probe: H3DV6 - SN6065; ; Calibrated: 22.12.2008
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 20.02.2009
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Dipole H-Field measurement @ 835MHz/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 = 0.464 A/m

Probe Modulation Factor = 1

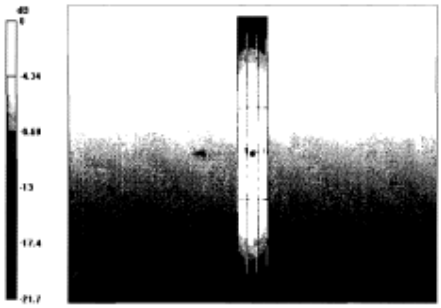
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.494 A/m; Power Drift = -0.00467 dB

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

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1<br>**0.384**<br>**M4** | Grid 2<br>**0.405**<br>**M4** | Grid 3<br>**0.386**<br>**M4** |
| Grid 4<br>**0.441**<br>**M4** | Grid 5<br>**0.464**<br>**M4** | Grid 6<br>**0.439**<br>**M4** |
| Grid 7<br>**0.390**<br>**M4** | Grid 8<br>**0.409**<br>**M4** | Grid 9<br>**0.382**<br>**M4** |



0 dB = 0.464A/m

### 3.3.3 DASY4 E-field Result

Date/Time: 17.11.2009 11:56:37

Test Laboratory: SPEAG Lab2

**HAC RF_CD835_1011_091117_E_MM**

**DUT: HAC-Dipole 835 MHz; Type: D835V3; Serial: 1011**

Communication System: CW; Frequency: 835 MHz

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

Phantom section: RF Section

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

DASY5 Configuration:

- Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 22.12.2008
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 20.02.2009
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Dipole E-Field measurement @ 835MHz/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 = 168.6 V/m

Probe Modulation Factor = 1

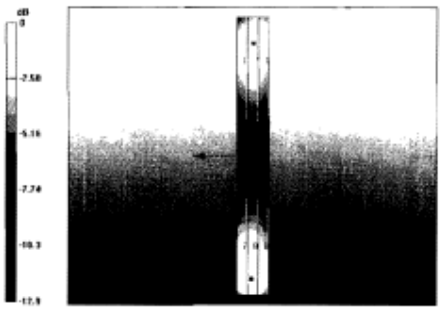
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 109.2 V/m; Power Drift = -0.023 dB

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

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1 **152.1 M4** | Grid 2 **157.4 M4** | Grid 3 **154.5 M4** |
| Grid 4 **84.1 M4** | Grid 5 **86.8 M4** | Grid 6 **84.5 M4** |
| Grid 7 **165.5 M4** | Grid 8 **168.6 M4** | Grid 9 **158.2 M4** |



0 dB = 168.6V/m

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**Accreditation No.: SCS 108**

**Client** RTS (RIM Testing Services) **Certificate No: CD1880V3-1008_Nov09**

# CALIBRATION CERTIFICATE

Object: CD1880V3 - SN: 1008

Calibration procedure(s): QA CAL-20.v4
Calibration procedure for dipoles in air

Calibration date: November 18, 2009

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|---|---|---|---|
| Power meter EPM-442A | GB37480704 | 06-Oct-09 (No. 217-01086) | Oct-10 |
| Power sensor HP 8481A | US37292783 | 06-Oct-09 (No. 217-01086) | Oct-10 |
| Probe ER3DV6 | SN: 2336 | 22-Dec-08 (No. ER3-2336_Dec08) | Dec-09 |
| Probe H3DV6 | SN: 6065 | 22-Dec-08 (No. H3-6065_Dec08) | Dec-09 |
| DAE4 | SN: 781 | 20-Feb-09 (No. DAE4-781_Feb09) | Feb-10 |

| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
|---|---|---|---|
| Power meter Agilent 4419B | SN: GB42420191 | 09-Oct-09 (in house check Oct-09) | In house check: Oct-10 |
| Power sensor HP 8482H | SN: 3318A09450 | 09-Oct-09 (in house check Oct-09) | In house check: Oct-10 |
| Power sensor HP 8482A | SN: US37295597 | 09-Oct-09 (in house check Oct-09) | In house check: Oct-10 |
| Network Analyzer HP 8753E | US37390585 | 18-Oct-01 (in house check Oct-09) | In house check: Oct-10 |
| RF generator E4433B | MY 41000675 | 03-Nov-04 (in house check Oct-09) | In house check: Oct-11 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by: | Claudio Leubler | Laboratory Technician | |
| Approved by: | Fin Bomholt | Technical Director | |

Issued: November 19, 2009

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

Certificate No: CD1880V3-1008_Nov09 Page 1 of 6

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Accreditation No.: **SCS 108**

**References**

[1] ANSI-C63.19-2006
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

[2] ANSI-C63.19-2007
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

**Methods Applied and Interpretation of Parameters:**

- *Coordinate System:* y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes. In coincidence with the standards [1, 2], the measurement planes (probe sensor center) are selected to be at a distance of 10 mm above the top edge of the dipole arms.
- *Measurement Conditions:* Further details are available from the hardcopies at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- *Antenna Positioning:* The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections.
  It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY5 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy.
- *Feed Point Impedance and Return Loss:* These parameters are measured using a HP 8753E Vector Network Analyzer. The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any obstacles.
- *E- field distribution:* E field is measured in the x-y-plane with an isotropic ER3D-field probe with 100 mW forward power to the antenna feed point. In accordance with [1, 2], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 10 mm (in z) above the top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any non-parallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, 10mm above the dipole surface.
- *H-field distribution:* H-field is measured with an isotropic H-field probe with 100mW forward power to the antenna feed point, in the x-y-plane. The scan area and sensor distance is equivalent to the E-field scan. The maximum of the field is available at the center (subgrid 5) above the feed point. The H-field value stated as calibration value represents the maximum of the interpolated H-field, 10mm above the dipole surface at the feed point.

**1. Measurement Conditions**

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

| | | |
|---|---|---|
| **DASY Version** | DASY5 | V5.2 B157 |
| **DASY PP Version** | SEMCAD X | V14.0 B57 |
| **Phantom** | HAC Test Arch | SD HAC P01 BA, #1070 |
| **Distance Dipole Top - Probe Center** | 10 mm | |
| **Scan resolution** | dx, dy = 5 mm | area = 20 x 90 mm |
| **Frequency** | **1880 MHz** ± 1 MHz | |
| **Forward power at dipole connector** | 20.0 dBm = 100mW | |
| **Input power drift** | < 0.05 dB | |

**2. Maximum Field values**

| **H-field 10 mm above dipole surface** | condition | **Interpolated maximum** |
|---|---|---|
| Maximum measured | 100 mW forward power | **0.471 A/m** |

Uncertainty for H-field measurement: 8.2% (k=2)

| **E-field 10 mm above dipole surface** | condition | **Interpolated maximum** |
|---|---|---|
| Maximum measured above high end | 100 mW forward power | 136.2 V/m |
| Maximum measured above low end | 100 mW forward power | 132.1 V/m |
| Averaged maximum above arm | 100 mW forward power | **134.2 V/m** |

Uncertainty for E-field measurement: 12.8% (k=2)

**3. Appendix**

**3.1 Antenna Parameters**

| **Frequency** | **Return Loss** | **Impedance** |
|---|---|---|
| 1710 MHz | 22.8 dB | ( 52.2 + j7.1 ) Ohm |
| **1880 MHz** | **20.0 dB** | **( 50.5 + j10.1 ) Ohm** |
| 1900 MHz | 20.9 dB | ( 53.2 + j8.8 ) Ohm |
| 1950 MHz | 29.5 dB | ( 52.3 + j2.6 ) Ohm |
| 2000 MHz | 18.7 dB | ( 43.2 + j8.4 ) Ohm |

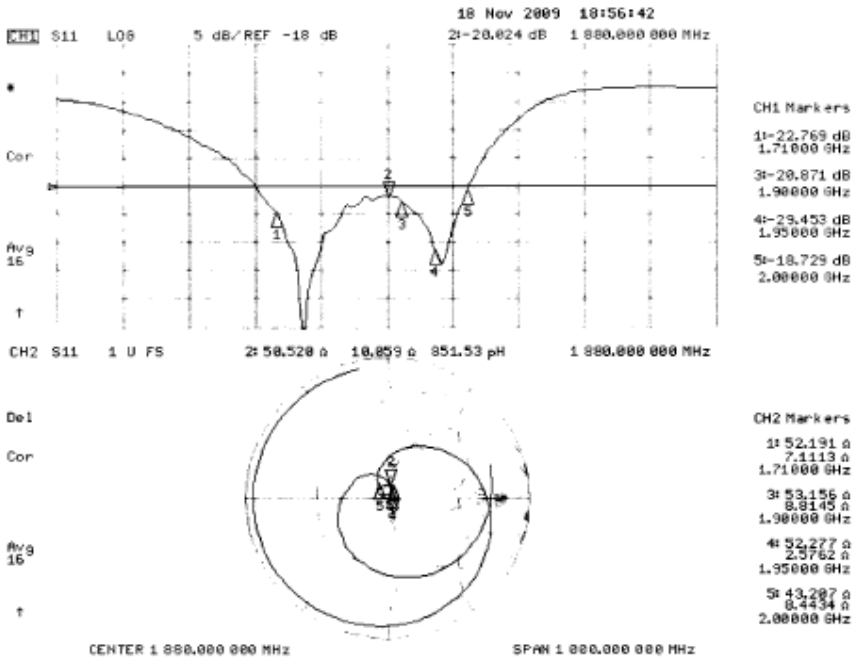
**3.2 Antenna Design and Handling**

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.
The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.
Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

### 3.3 Measurement Sheets

#### 3.3.1 Return Loss and Smith Chart



### 3.3.2 DASY4 H-Field Result

Date/Time: 18.11.2009 12:32:23

Test Laboratory: SPEAG Lab2

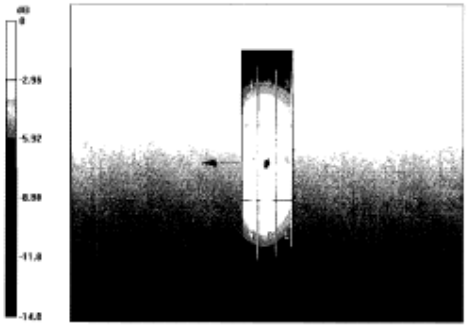
**HAC_RF_CD1880_1008_091118_H_CL**
**DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1008**
Communication System: CW; Frequency: 1880 MHz
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m$^3$
Phantom section: RF Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: H3DV6 - SN6065; ; Calibrated: 22.12.2008
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 20.02.2009
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Dipole H-Field measurement @ 1880MHz/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 = 0.471 A/m
Probe Modulation Factor = 1
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 0.499 A/m; Power Drift = 0.00498 dB
**Hearing Aid Near-Field Category: M2 (AWF 0 dB)**

Peak H-field in A/m

| | | |
|---|---|---|
| Grid 1 **0.408 M2** | Grid 2 **0.423 M2** | Grid 3 **0.398 M2** |
| Grid 4 **0.456 M2** | Grid 5 **0.471 M2** | Grid 6 **0.439 M2** |
| Grid 7 **0.420 M2** | Grid 8 **0.435 M2** | Grid 9 **0.400 M2** |




0 dB = 0.471A/m

### 3.3.3 DASY4 E-Field Result

Date/Time: 18.11.2009 17:16:43

Test Laboratory: SPEAG Lab2

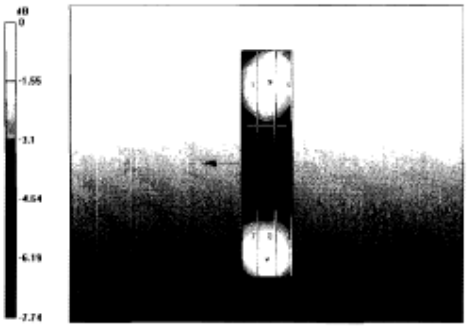
**HAC_RF_CD1880_1008_091118_E_CL**
**DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1008**
Communication System: CW; Frequency: 1880 MHz
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m$^3$
Phantom section: RF Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 22.12.2008
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 20.02.2009
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Dipole E-Field measurement @ 1880MHz/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 = 136.2 V/m
Probe Modulation Factor = 1
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 152.3 V/m; Power Drift = -0.00386 dB
**Hearing Aid Near-Field Category: M2 (AWF 0 dB)**

Peak E-field in V/m

| | | |
|---|---|---|
| Grid 1<br>**124.7**<br>**M2** | Grid 2<br>**132.1**<br>**M2** | Grid 3<br>**131.1**<br>**M2** |
| Grid 4<br>**86.6**<br>**M3** | Grid 5<br>**90.1**<br>**M3** | Grid 6<br>**87.7**<br>**M3** |
| Grid 7<br>**130.7**<br>**M2** | Grid 8<br>**136.2**<br>**M2** | Grid 9<br>**132.2**<br>**M2** |




0 dB = 136.2V/m