

1. Measurement Conditions

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

DASY Version	DASY5	V5.2 B162
DASY PP Version	SEMCAD X	V14.0 B59
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 $\pm$ 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	0.472 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	140.2 V/m
Maximum measured above low end	100 mW forward power	138.8 V/m
Averaged maximum above arm	100 mW forward power	139.5 V/m

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

3. Appendix

3.1 Antenna Parameters

Frequency	Return Loss	Impedance
1710 MHz	22.5 dB	(50.4 + j7.5) Ohm
1880 MHz	19.9 dB	(48.3 + j9.9) Ohm
1900 MHz	20.4 dB	(51.7 + j9.6) Ohm
1950 MHz	24.9 dB	(53.9 + j4.4) Ohm
2000 MHz	23.8 dB	(44.8 + j3.1) 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.

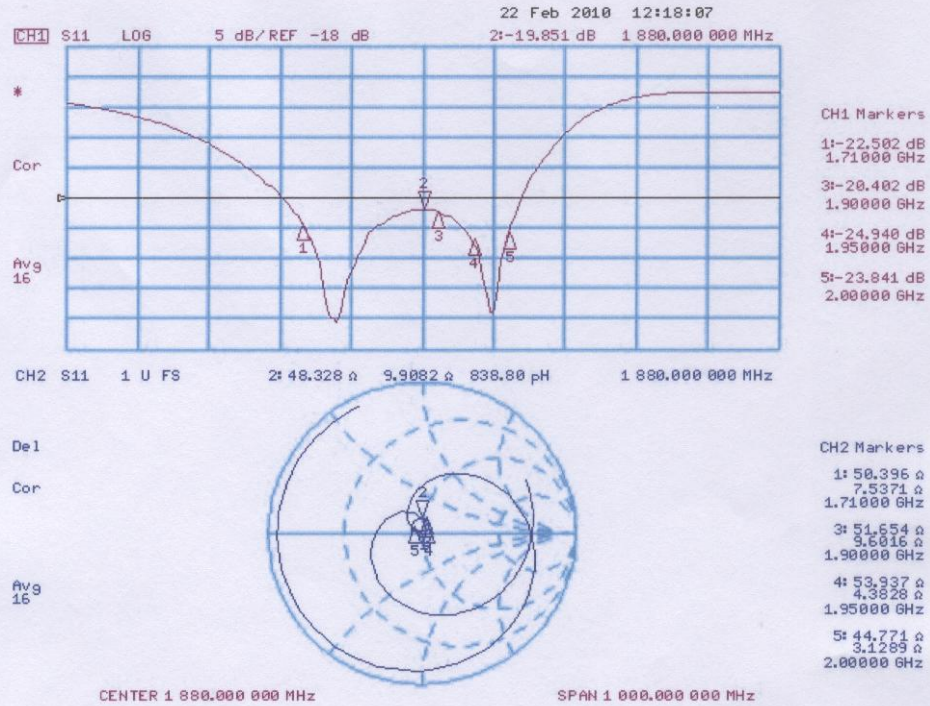
The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.

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: 17.02.2010 12:02:47

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1019

Communication System: CW; Communication System Band: CD1880 (1880.0 MHz); Frequency: 1880 MHz;

Communication System PAR: 0 dB

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

Phantom section: RF Section

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

DASY5 Configuration:

- Probe: H3DV6 - SN6065; ; Calibrated: 30.12.2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 22.01.2010
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

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 = 0.472 A/m

Probe Modulation Factor = 1

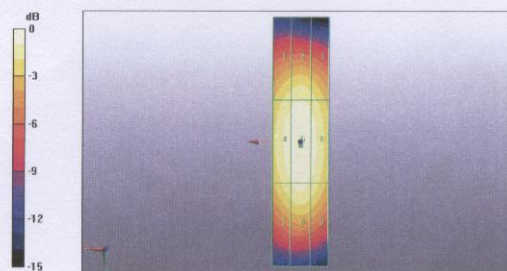
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.500 A/m; Power Drift = -0.00239 dB

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

Peak H-field in A/m

Grid 1 0.404 M2	Grid 2 0.423 M2	Grid 3 0.402 M2
Grid 4 0.450 M2	Grid 5 0.472 M2	Grid 6 0.451 M2
Grid 7 0.416 M2	Grid 8 0.440 M2	Grid 9 0.417 M2



0 dB = 0.472A/m

3.3.3 DASY4 E-Field Result

Date/Time: 17.02.2010 13:23:20

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1019

Communication System: CW; Communication System Band: CD1880 (1880.0 MHz); Frequency: 1880 MHz;

Communication System PAR: 0 dB

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

Phantom section: RF Section

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

DASY5 Configuration:

- Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 30.12.2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 22.01.2010
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

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 = 140.2 V/m

Probe Modulation Factor = 1

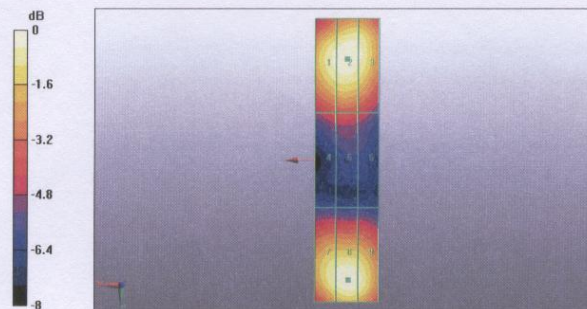
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 157.5 V/m; Power Drift = 0.00907 dB

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

Peak E-field in V/m

Grid 1 134.9 M2	Grid 2 138.8 M2	Grid 3 135.3 M2
Grid 4 90.9 M3	Grid 5 92.9 M3	Grid 6 88.8 M3
Grid 7 133.8 M2	Grid 8 140.2 M2	Grid 9 136.5 M2



0 dB = 140.2V/m