

## Measurement Conditions

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

|                                           |                      |          |
|-------------------------------------------|----------------------|----------|
| <b>DASY Version</b>                       | DASY5                | V52.10.2 |
| <b>Phantom</b>                            | HAC Test Arch        |          |
| <b>Distance Dipole Top - Probe Center</b> | 15 mm                |          |
| <b>Scan resolution</b>                    | dx, dy = 5 mm        |          |
| <b>Frequency</b>                          | 1880 MHz $\pm$ 1 MHz |          |
| <b>Input power drift</b>                  | < 0.05 dB            |          |

## Maximum Field values at 1880 MHz

| <b>E-field 15 mm above dipole surface</b> | condition          | <b>Interpolated maximum</b>                   |
|-------------------------------------------|--------------------|-----------------------------------------------|
| Maximum measured above high end           | 100 mW input power | 89.8 V/m = 39.06 dBV/m                        |
| Maximum measured above low end            | 100 mW input power | 89.3 V/m = 39.02 dBV/m                        |
| Averaged maximum above arm                | 100 mW input power | <b>89.5 V/m <math>\pm</math> 12.8 % (k=2)</b> |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters

| <b>Frequency</b> | <b>Return Loss</b> | <b>Impedance</b>               |
|------------------|--------------------|--------------------------------|
| 1730 MHz         | 31.2 dB            | 52.8 $\Omega$ + 0.2 j $\Omega$ |
| 1880 MHz         | 20.9 dB            | 52.8 $\Omega$ + 8.9 j $\Omega$ |
| 1900 MHz         | 21.1 dB            | 55.0 $\Omega$ + 7.8 j $\Omega$ |
| 1950 MHz         | 28.1 dB            | 53.5 $\Omega$ + 2.1 j $\Omega$ |
| 2000 MHz         | 19.4 dB            | 46.4 $\Omega$ + 9.7 j $\Omega$ |

### 3.2 Antenna Design and Handling

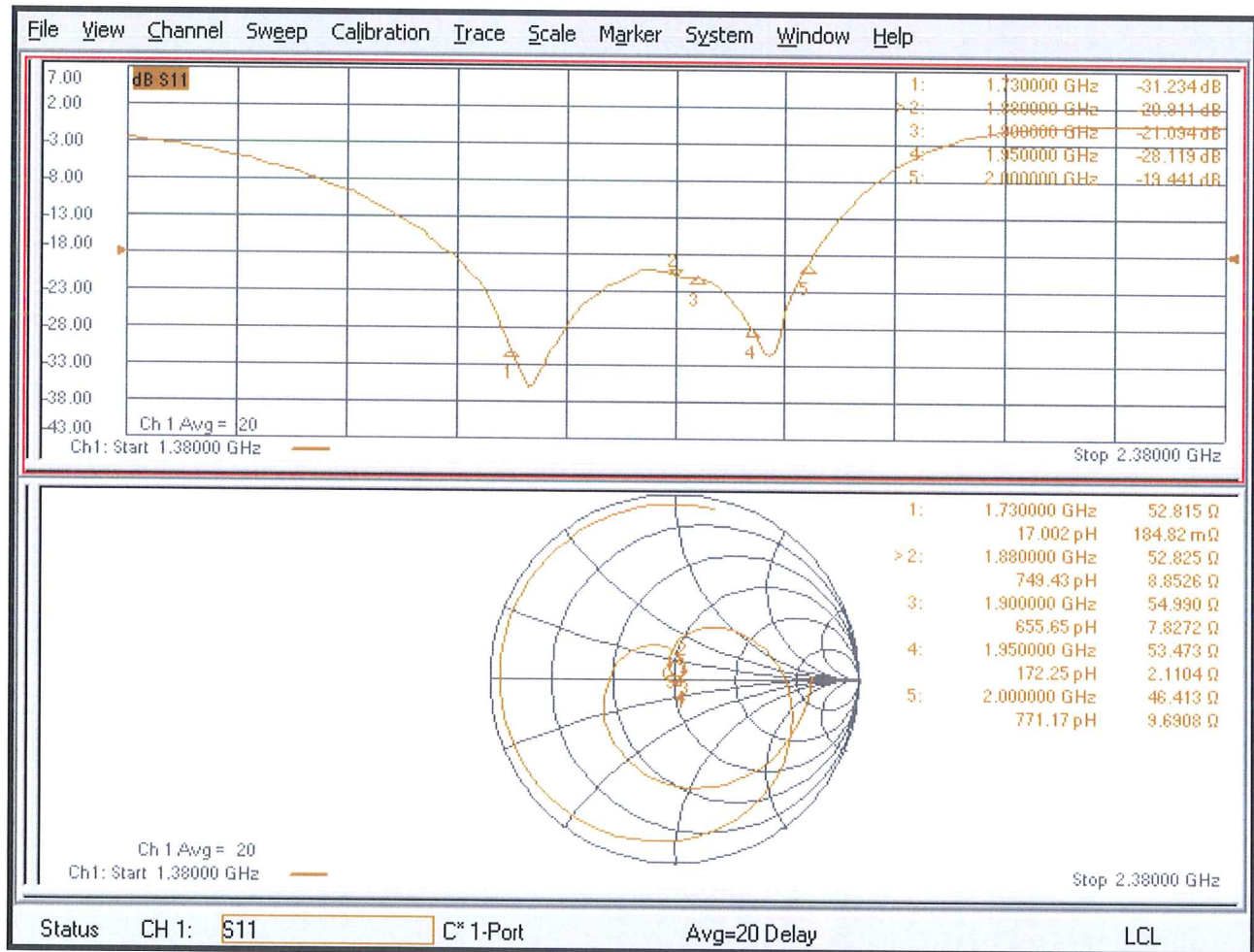
The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

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.

## Impedance Measurement Plot



## DASY5 E-field Result

Date: 23.10.2018

Test Laboratory: SPEAG Lab2

**DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN: 1111**

Communication System: UID 0 - CW ; Frequency: 1880 MHz

Medium parameters used:  $\sigma = 0$  S/m,  $\epsilon_r = 1$ ;  $\rho = 0$  kg/m<sup>3</sup>

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 1880 MHz; Calibrated: 05.03.2018
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 17.01.2018
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

**Dipole E-Field measurement @ 1880MHz/E-Scan - 1880MHz d=15mm/Hearing Aid Compatibility Test (41x181x1):**

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 159.1 V/m; Power Drift = -0.01 dB

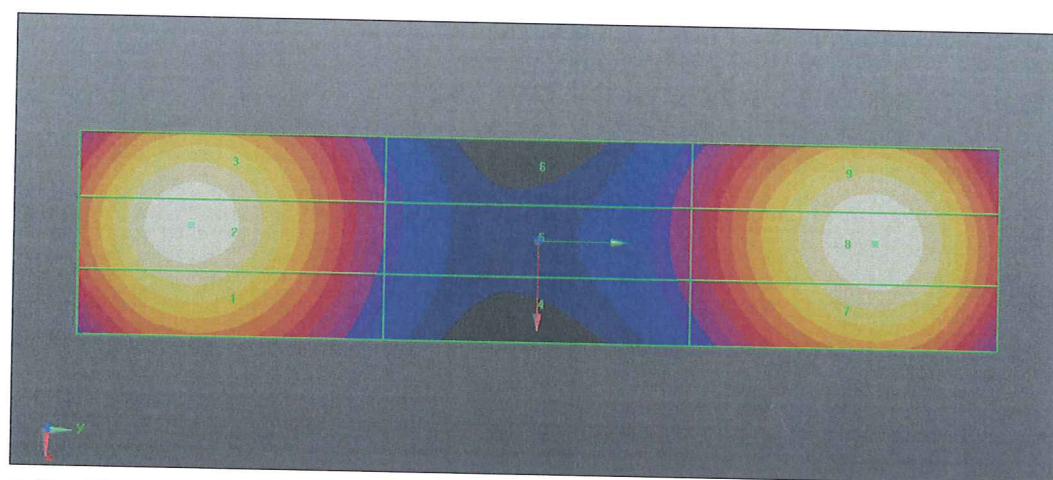
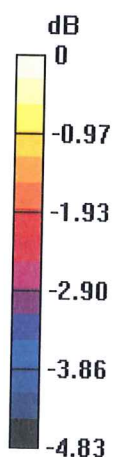
Applied MIF = 0.00 dB

RF audio interference level = 39.06 dBV/m

**Emission category: M2**

MIF scaled E-field

|                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| Grid 1 M2<br>38.66 dBV/m | Grid 2 M2<br>39.02 dBV/m | Grid 3 M2<br>38.93 dBV/m |
| Grid 4 M2<br>36.1 dBV/m  | Grid 5 M2<br>36.27 dBV/m | Grid 6 M2<br>36.23 dBV/m |
| Grid 7 M2<br>38.82 dBV/m | Grid 8 M2<br>39.06 dBV/m | Grid 9 M2<br>38.95 dBV/m |



0 dB = 89.77 V/m = 39.06 dBV/m