Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	1880 MHz ± 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 1880 MHz

E-field 15 mm above dipole surface	condition	**Interpolated maximum**
Maximum measured above high end	100 mW input power	87.2 V/m = 38.81 dBV/m
Maximum measured above low end	100 mW input power	85.4 V/m = 38.63 dBV/m
Averaged maximum above arm	100 mW input power	**86.3 V/m ± 12.8 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

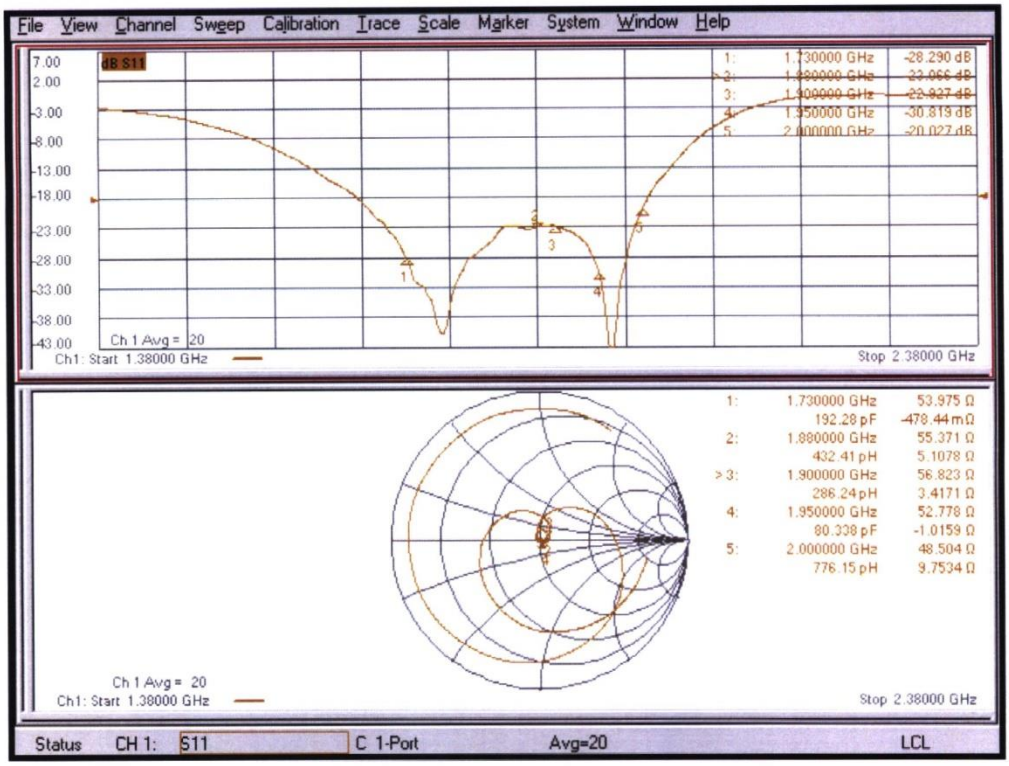
Frequency	**Return Loss**	**Impedance**
1730 MHz	28.3 dB	54.0 Ω - 0.5 jΩ
1880 MHz	23.1 dB	55.4 Ω + 5.1 jΩ
1900 MHz	22.9 dB	56.8 Ω + 3.4 jΩ
1950 MHz	30.8 dB	52.8 Ω - 1.0 jΩ
2000 MHz	20.0 dB	48.5 Ω + 9.8 jΩ

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: 15.08.2023

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN: 1018

Communication System: UID 0 - CW ; Frequency: 1880 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: RF Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

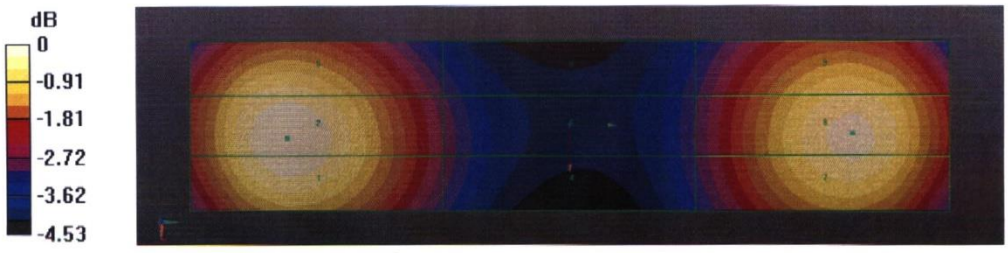
DASY52 Configuration:

- Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 1880 MHz; Calibrated: 30.12.2022
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 03.01.2023
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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 = 150.8 V/m; Power Drift = 0.01 dB
Applied MIF = 0.00 dB
RF audio interference level = 38.81 dBV/m
Emission category: M2

MIF scaled E-field

Grid 1 **M2** **38.77 dBV/m**	Grid 2 **M2** **38.81 dBV/m**	Grid 3 **M2** **38.44 dBV/m**
Grid 4 **M2** **36.08 dBV/m**	Grid 5 **M2** **36.09 dBV/m**	Grid 6 **M2** **35.86 dBV/m**
Grid 7 **M2** **38.57 dBV/m**	Grid 8 **M2** **38.63 dBV/m**	Grid 9 **M2** **38.28 dBV/m**



0 dB = 87.25 V/m = 38.81 dBV/m

ANNEX F THE EVALUATION OF SPOTCHECK

F.1 The results for spot check

Bands	Frequency （MHz）	Channel	RFail (dBV/m)	Compliance
GSM 850	848.8	251	**38.15**	**PASS(see Fig F.3.1)**
GSM 1900	1850.2	512	**30.04**	**PASS (see Fig F.3.2)**

F.2 Validation Result

E-Field Scan						
Mode	**Frequency (MHz)**	**Input Power (mW)**	**Measured[1] Value(V/m)**	**Target[2] Value(V/m)**	**Deviation[3] (%)**	**Limit[4] (%)**
CW	835	100	112.00	113.40	-1.23	±18
CW	1880	100	90.40	87.20	3.67	±18

F.3 Test plots of spot check

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4060	May 24, 2023	DAE4 Sn1524	October 20, 2023

Communication Systems

Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	251	848.8

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	10.0	10.0	15.0

Results

Emax [dB(V/m)]	Eavg50x50 max [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
38.62	34.52	3.63	38.15

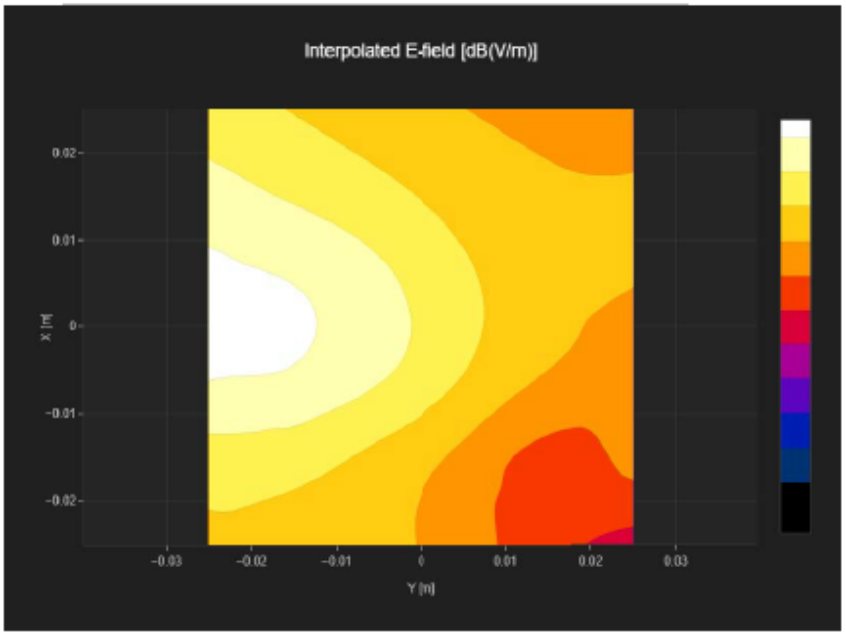


Fig F.3.1 HAC RF E-Field GSM850

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4060	May 24, 2023	DAE4 Sn1524	October 20, 2023

Communication Systems

Band Name	Communication Systems Name	Channel	Frequency [MHz]
PCS 1900	GSM-FDD (TDMA, GMSK)	512	1850.2

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	10.0	10.0	15.0

Results

Emax [dB(V/m)]	Eavg50x50 max [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
32.16	26.41	3.63	30.04

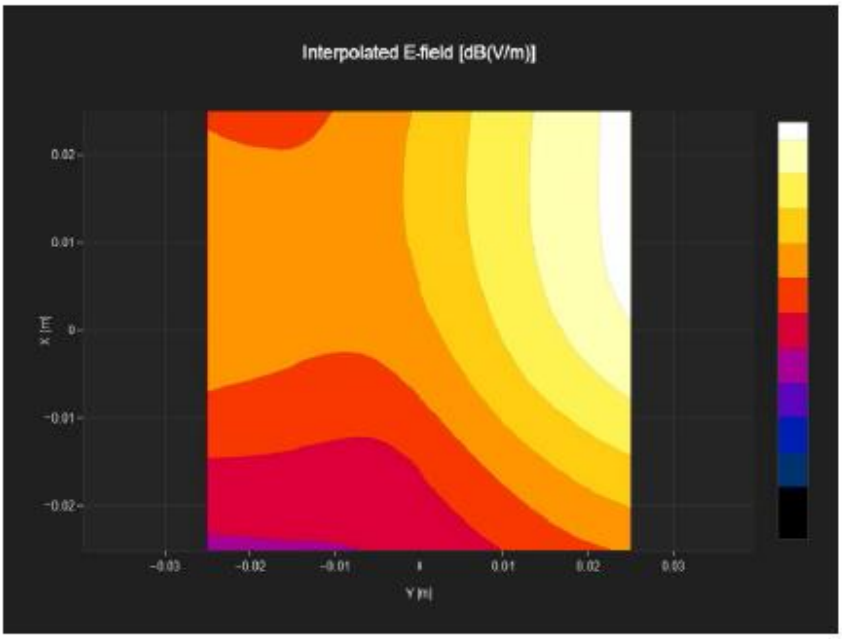


Fig F.3.2 HAC RF E-Field GSM1900

F.4 System validation

E SCAN of Dipole 835 MHz

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4060	May 24, 2023	DAE4 Sn1524	October 20, 2023

Communication Systems

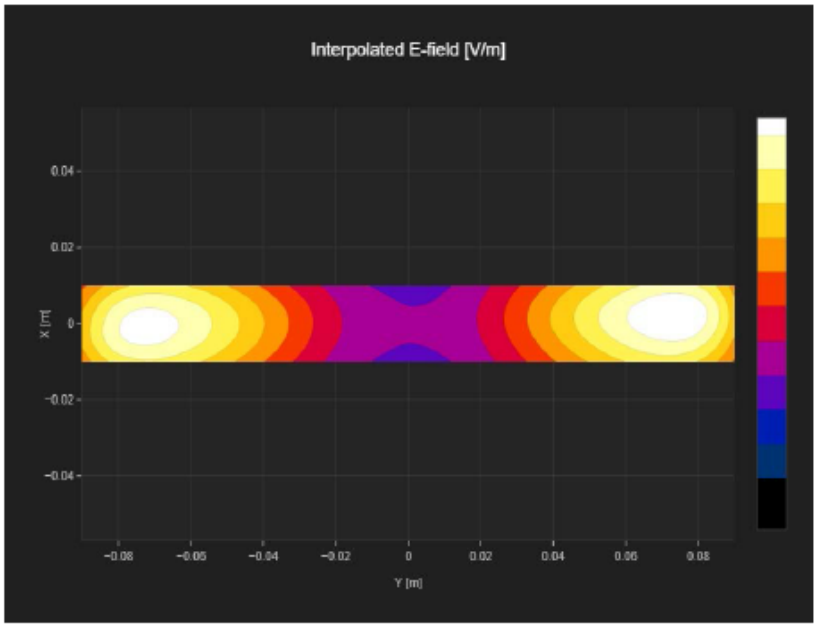
Band Name	Communication Systems Name	Channel	Frequency [MHz]
CD835	CW	50	835.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
20.0	180.0	5.0	5.0	15.0

Results

Dipole Type	Dipole Serial Number	Emax [V/m]	Drift [dB]
CD835	XXXX	112	0.14



E SCAN of Dipole 1880 MHz

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4060	May 24, 2023	DAE4 Sn1524	October 20, 2023

Communication Systems

Band Name	Communication Systems Name	Channel	Frequency [MHz]
CD1880	CW	0	1730.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
20.0	90.0	5.0	5.0	15.0

Results

Dipole Type	Dipole Serial Number	Emax [V/m]	Drift [dB]
CD1880	XXXX	90.4	-0.0