Annex A: Probe sensitivity and reference signal measurement plots

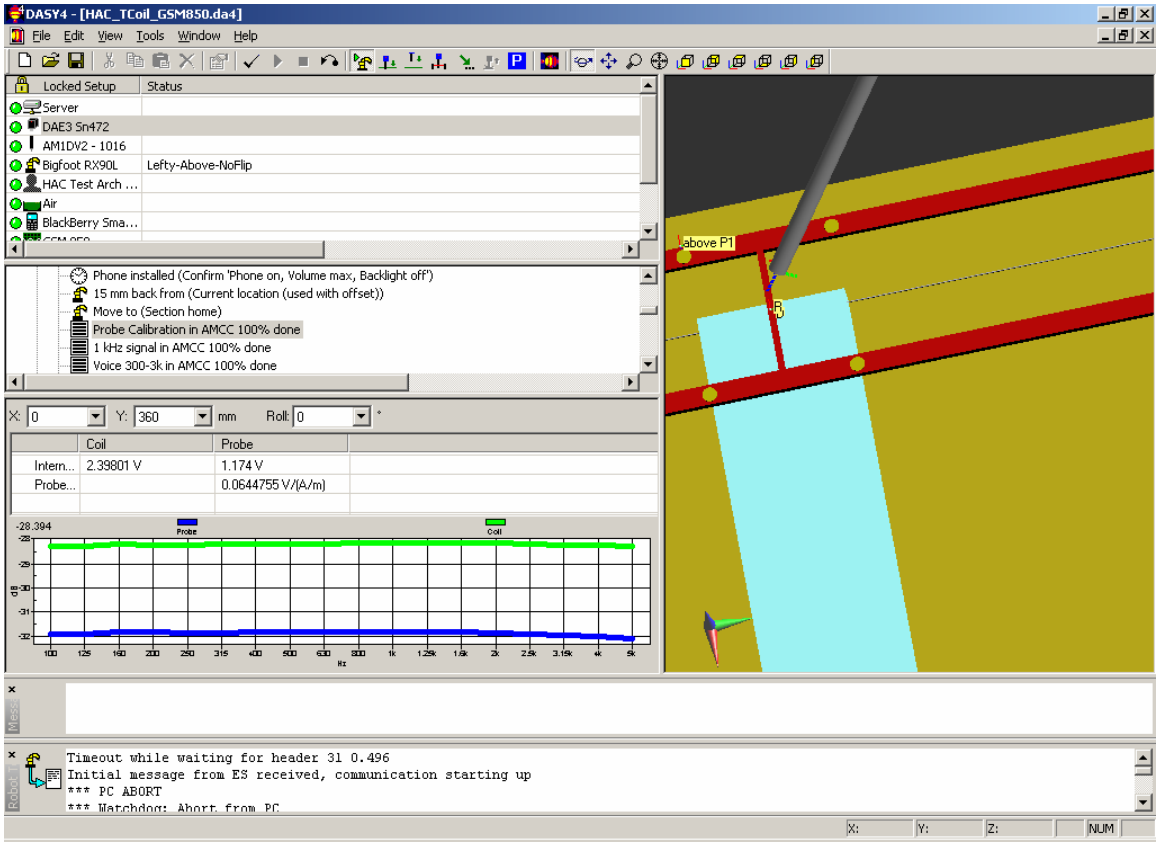


Figure A1: Probe calibration data for coil and probe

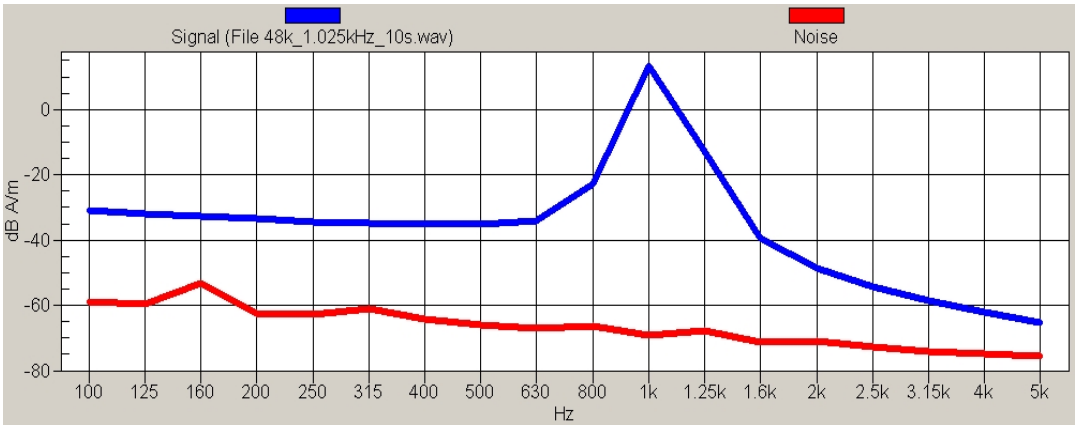


Figure A2: Reference sinusoidal 1.025 KHz signal and noise

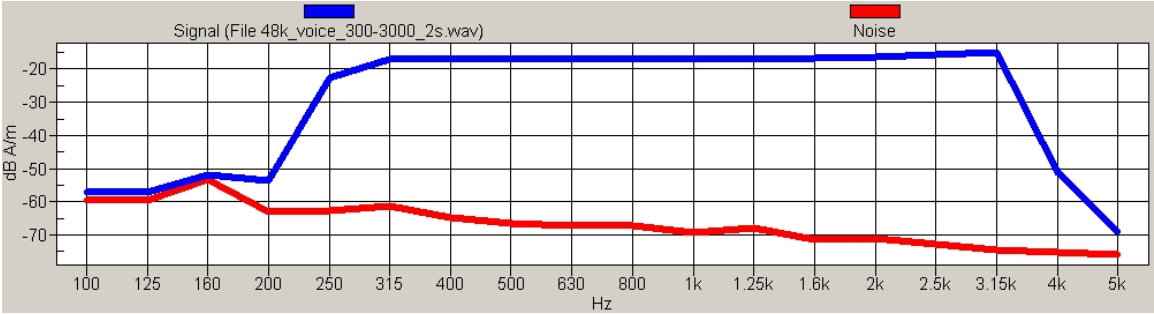


Figure A3: Reference voice simulated signal and noise

Annex B: Ambient noise and TMFS system validation data and plots

Test Laboratory: RTS
File Name: ABM2_Ambient Noise_835 MHz

Program Name: HAC_TCoil_WD_Emission

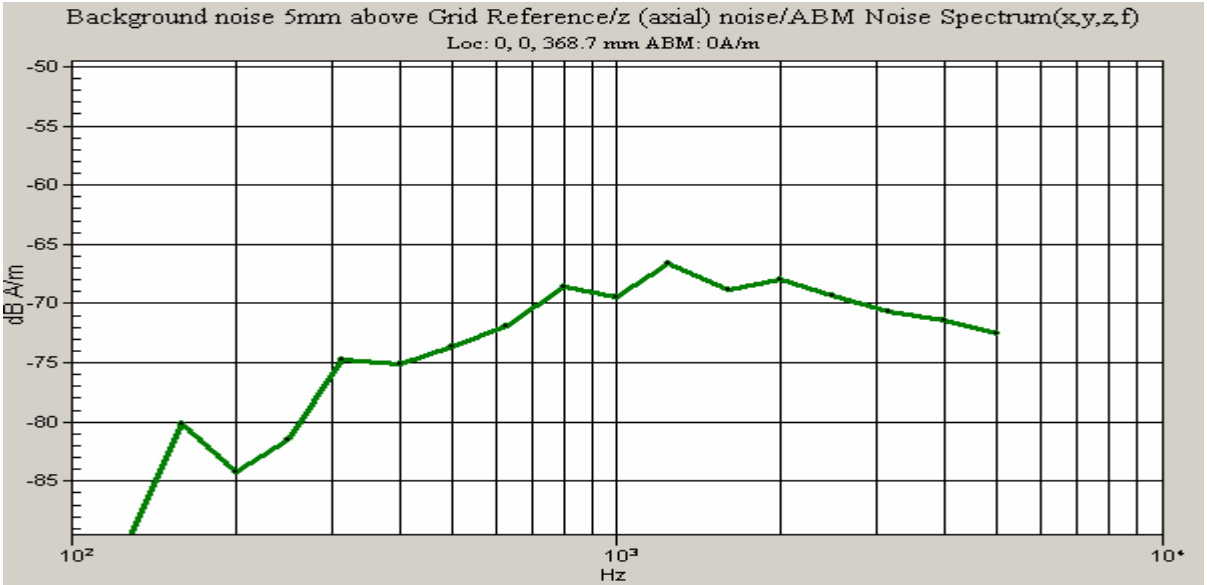
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: AMB with Coil Section

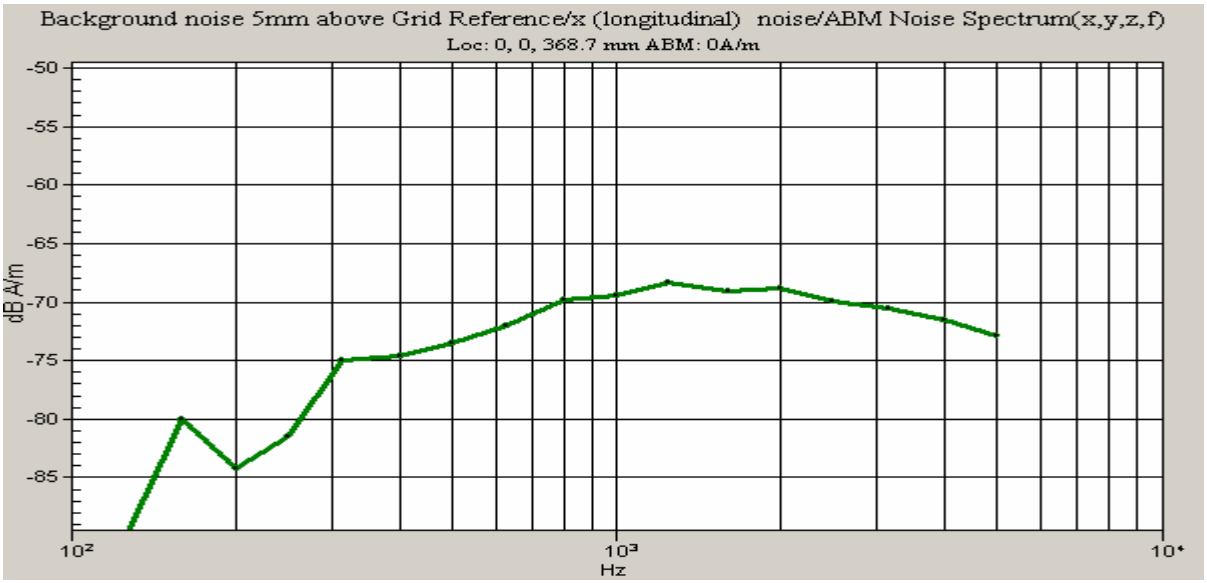
DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

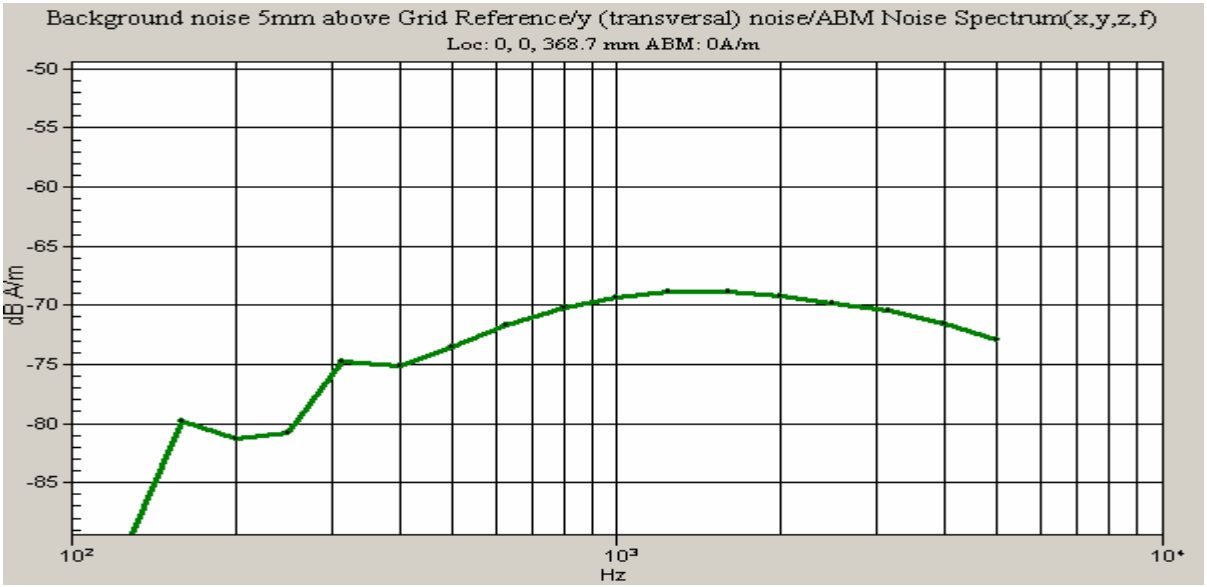
Background noise 5mm above Grid Reference/z (axial) noise/ABM Noise(x,y,z) (1x1x1)
Signal Type: Off
Cursor:
ABM2 = -58.8 dB A/m
Location: 0, 0, 368.7 mm

Background noise 5mm above Grid Reference/x (longitudinal) noise/ABM Noise(x,y,z) (1x1x1):
Cursor:
ABM2 = -59.3 dB A/m
Location: 0, 0, 368.7 mm

Background noise 5mm above Grid Reference/y (transversal) noise/ABM Noise(x,y,z) (1x1x1):
Cursor:
ABM2 = -59.4 dB A/m
Location: 0, 0, 368.7 mm







Test Laboratory: RTS
File Name: ABM2_Ambient Noise_1880 MHz

Program Name: HAC_TCoil_WD_Emission

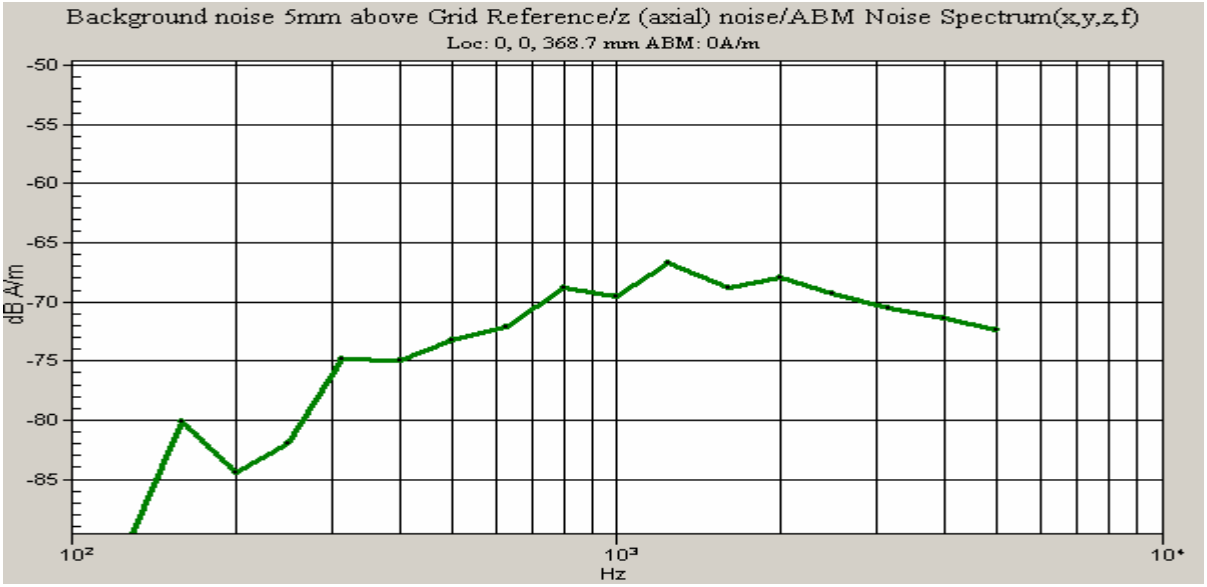
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: AMB with Coil Section

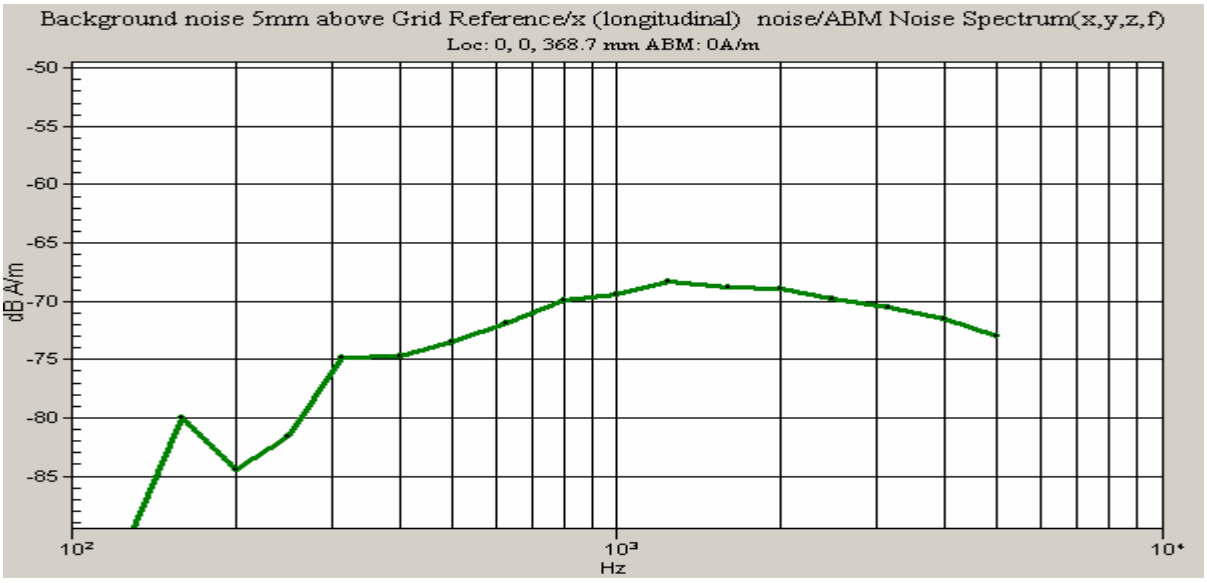
DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

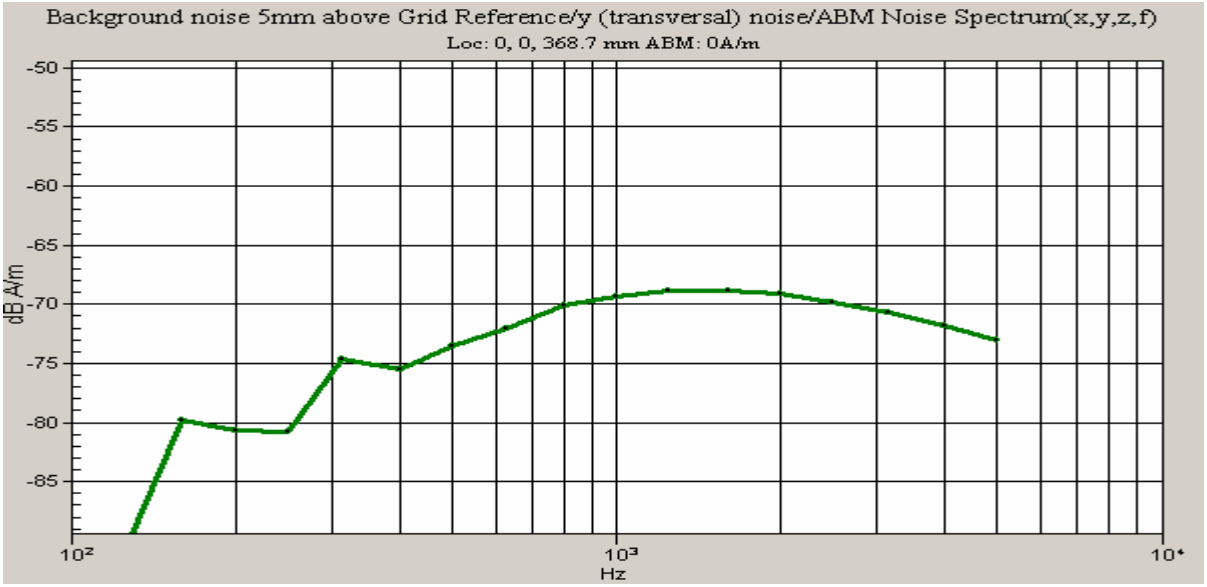
Background noise 5mm above Grid Reference/z (axial) noise/ABM Noise(x,y,z) (1x1x1):
Signal Type: Off
Cursor:
ABM2 = -58.8 dB A/m
Location: 0, 0, 368.7 mm

Background noise 5mm above Grid Reference/x (longitudinal) noise/ABM Noise(x,y,z) (1x1x1):
Signal Type: Off
Cursor:
ABM2 = -59.3 dB A/m
Location: 0, 0, 368.7 mm

Background noise 5mm above Grid Reference/y (transversal) noise/ABM Noise(x,y,z) (1x1x1):
Signal Type: Off
Cursor:
ABM2 = -59.4 dB A/m
Location: 0, 0, 368.7 mm







Date/Time: 17/06/2008 11:18:52 AM

Test Laboratory: RTS
File Name: TMFS_T_Coil_Validation_06_17_08.da4

DUT: TMFS; Type: Sample ; Serial: Not Specified
Program Name: HAC_TCoil_WD_Emission

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: AMB with Coil Section

DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Scans/z (axial) rough 50 x 50/ABM Signal(x,y,z) (11x11x1):
Measurement grid: dx=5mm, dy=5mm
Signal Type: 1 kHz Sine
Output Gain: 35
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00130279 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

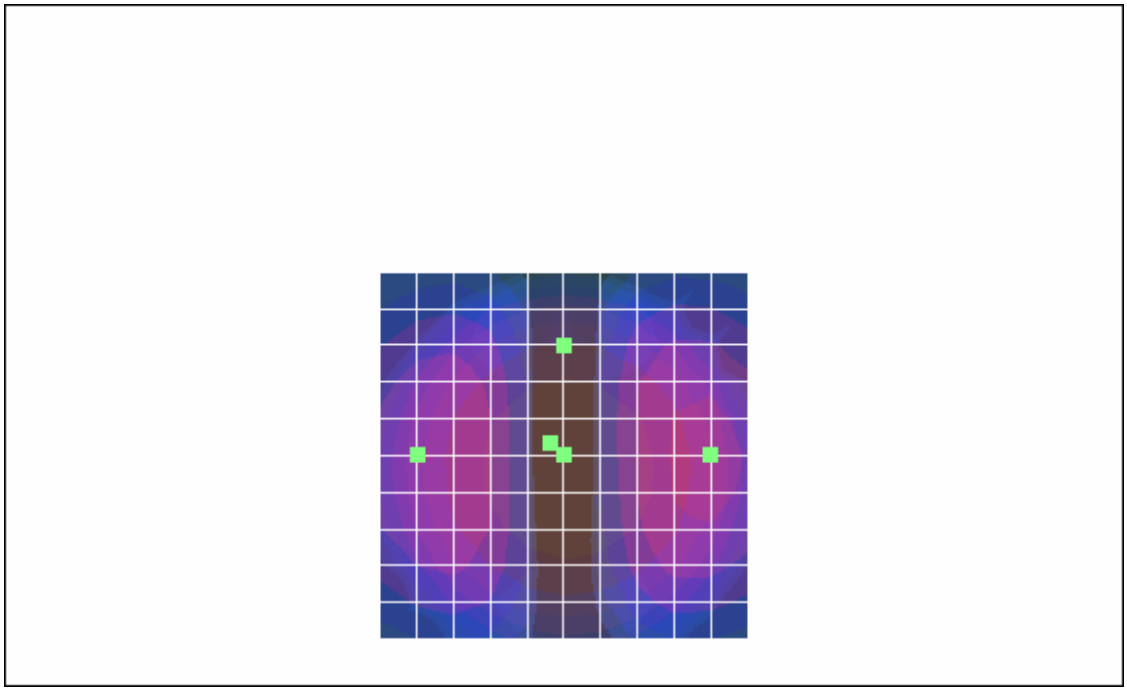
Cursor:
ABM1 comp = -20.4 dB A/m
BWC Factor = 0.00130279 dB
Location: 0, 0, 363.7 mm

Scans/x (longitudinal) 50 x 50/ABM Signal(x,y,z) (11x11x1):
Measurement grid: dx=5mm, dy=5mm
Signal Type: 1 kHz Sine
Output Gain: 35
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00130279 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

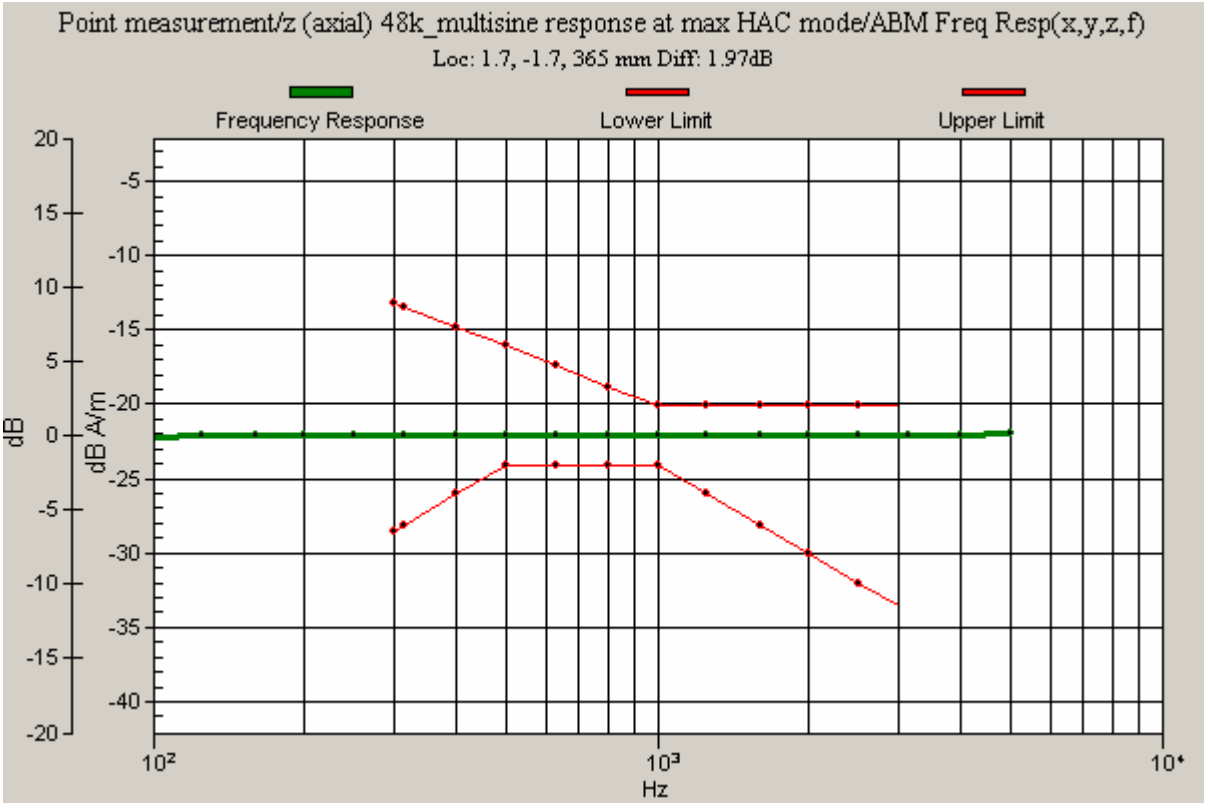
Cursor:
ABM1 comp = -25.1 dB A/m
BWC Factor = 0.00130279 dB
Location: -20, 0, 363.7 mm

Scans/y (transversal) 50 x 50/ABM Signal(x,y,z) (11x11x1):
Measurement grid: dx=5mm, dy=5mm
Signal Type: 1 kHz Sine
Output Gain: 35
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00130279 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = -26.3 dB A/m
BWC Factor = 0.00130279 dB
Location: 0, -15, 363.7 mm



0 dB = 1.00A/m



Annex C: Audio Band Magnetic measurement data and plots

Date/Time: 19/06/2008 12:08:06 PM

Test Laboratory: RTS
File Name: HAC_TCoil_GSM850.da4

DUT: BlackBerry Smartphone; Type: Clamshell; Serial: Not Specified
Program Name: HAC_TCoil_WD_Emission

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: AMB with Coil Section

DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Point measurement Low Chan/z (axial) FR V1/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.56 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) FR V1/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -49.8 dB A/m
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) FR V1/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 52.4 dB
ABM1 comp = 2.56 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) FR V2/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.43 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) FR V2/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -48.8 dB A/m
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) FR V2/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 51.2 dB
ABM1 comp = 2.43 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) HR V1/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.96 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) HR V1/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -49.4 dB A/m
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) HR V1/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 52.3 dB
ABM1 comp = 2.96 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) AMR FR/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.54 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) AMR FR/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -49.1 dB A/m
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) AMR FR/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 51.7 dB
ABM1 comp = 2.54 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) AMR HR/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.15 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) AMR HR/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -51.6 dB A/m
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) AMR HR/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 53.7 dB
ABM1 comp = 2.15 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Date/Time: 19/06/2008 10:25:28 AM

Test Laboratory: RTS
File Name: HAC_TCoil_GSM850.da4

DUT: BlackBerry Smartphone; Type: Clamshell; Serial: Not Specified
Program Name: HAC_TCoil_WD_Emission

Communication System: GSM 850; Frequency: 836.8 MHzFrequency: 824.2 MHzFrequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Phantom section: AMB with Coil Section

DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Scans/z (axial) rough 50 x 50/ABM Signal(x,y,z) (11x11x1):
Measurement grid: dx=5mm, dy=5mm
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00764022 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.56 dB A/m
BWC Factor = 0.00764022 dB
Location: 0, 0, 363.7 mm

Scans/z (axial) 16 x 16/ABM Signal(x,y,z) (9x9x1):
Measurement grid: dx=2mm, dy=2mm
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00764022 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.63 dB A/m
BWC Factor = 0.00764022 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.52 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) at max/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -50.0 dB A/m
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) at max/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 52.5 dB
ABM1 comp = 2.52 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, 1, 363.7 mm

Point measurement Low Chan/z (axial) 300-3k response at max HAC mode/ABM Freq Resp(x,y,z,f) (1x1x1):
Signal Type: Audio File (.wav) 48k_voice_300-3000_2s.wav
Output Gain: 69.4
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 10.8 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
Diff = 1.46 dB
BWC Factor = 10.8 dB
Location: 0, 1, 363.7 mm

Point measurement Mid Chan/z (axial) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.57 dB A/m
BWC Factor = 0.00746665 dB
Location: 0, 1, 363.7 mm

Point measurement Mid Chan/z (axial) at max/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -49.4 dB A/m
Location: 0, 1, 363.7 mm

Point measurement Mid Chan/z (axial) at max/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 52.0 dB
ABM1 comp = 2.57 dB A/m
BWC Factor = 0.00746665 dB
Location: 0, 1, 363.7 mm

Point measurement High Chan/z (axial) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = 2.54 dB A/m
BWC Factor = 0.007727 dB
Location: 0, 1, 363.7 mm

Point measurement High Chan/z (axial) at max/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

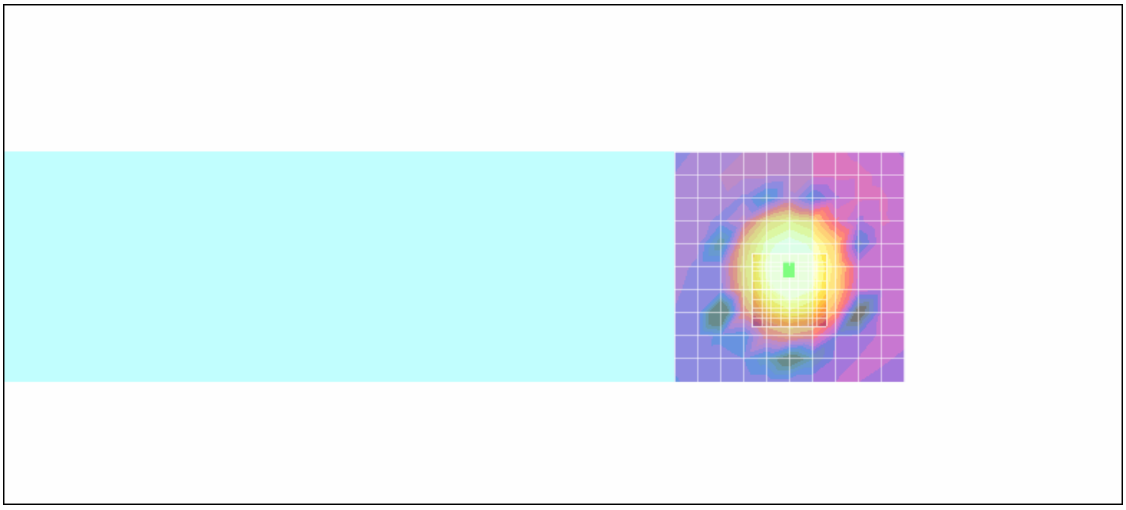
ABM2 = -50.1 dB A/m
Location: 0, 1, 363.7 mm

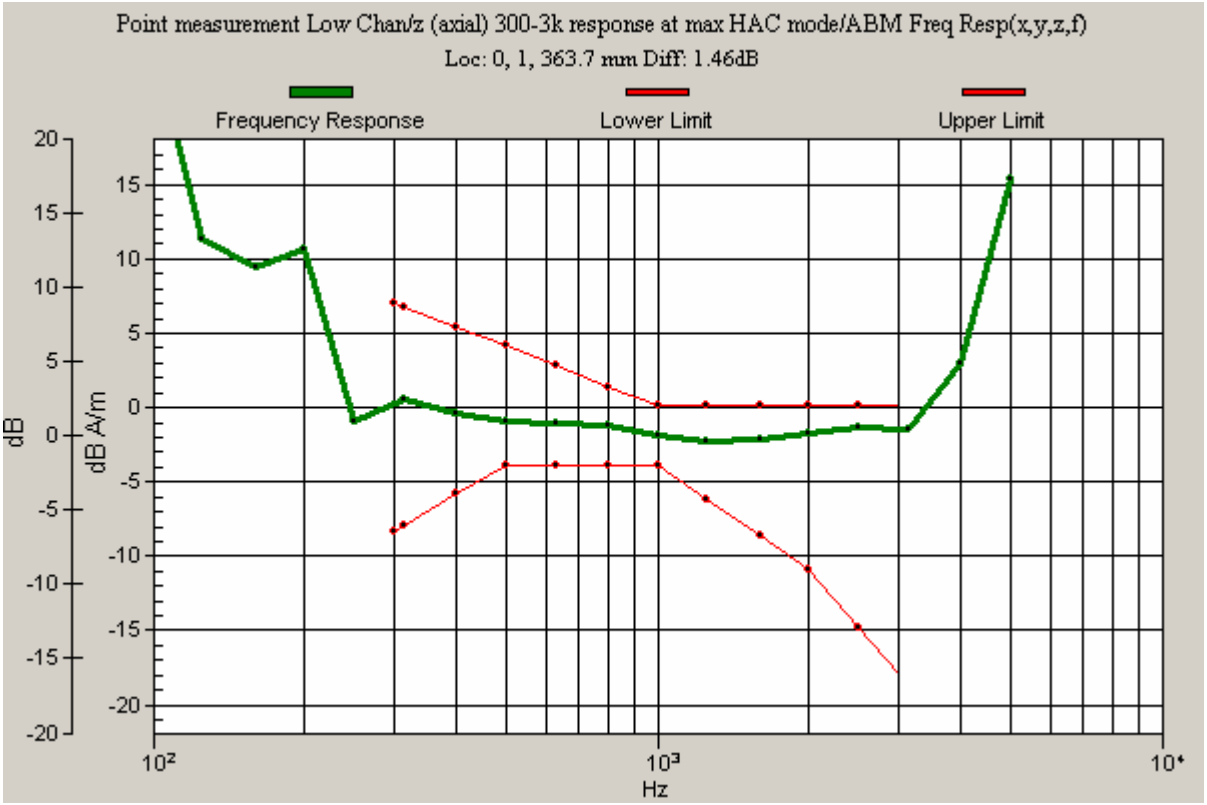
Point measurement High Chan/z (axial) at max/ABM SNR(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 52.6 dB
ABM1 comp = 2.54 dB A/m
BWC Factor = 0.007727 dB
Location: 0, 1, 363.7 mm





Test Laboratory: RTS
File Name: HAC_TCoil_GSM850.da4

DUT: BlackBerry Smartphone; Type: Clamshell; Serial: Not Specified
Program Name: HAC_TCoil_WD_Emission

Communication System: GSM 850; Frequency: 836.8 MHzFrequency: 824.2 MHzFrequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Phantom section: AMB with Coil Section

DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Scans/x (longitudinal) 24 x 16/ABM Signal(x,y,z) (13x9x1):
Measurement grid: dx=2mm, dy=2mm
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00764022 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -4.43 dB A/m
BWC Factor = 0.00764022 dB
Location: -8, -1, 363.7 mm

Point measurement Low Chan/x (longitudinal) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -4.39 dB A/m
BWC Factor = 0.00711951 dB
Location: -8, -1, 363.7 mm

Point measurement Low Chan/x (longitudinal) at max/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM2 = -53.4 dB A/m
Location: -8, -1, 363.7 mm

Point measurement Low Chan/x (longitudinal) at max/ABM SNR(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 49.1 dB
ABM1 comp = -4.39 dB A/m
BWC Factor = 0.00711951 dB
Location: -8, -1, 363.7 mm

Point measurement Mid Chan/x (longitudinal) at max/ABM Signal(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -4.42 dB A/m
BWC Factor = 0.00746665 dB
Location: -8, -1, 363.7 mm

Point measurement Mid Chan/x (longitudinal) at max/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -53.8 dB A/m
Location: -8, -1, 363.7 mm

Point measurement Mid Chan/x (longitudinal) at max/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 49.4 dB
ABM1 comp = -4.42 dB A/m
BWC Factor = 0.00746665 dB
Location: -8, -1, 363.7 mm

Point measurement High Chan/x (longitudinal) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = -4.41 dB A/m
BWC Factor = 0.007727 dB
Location: -8, -1, 363.7 mm

Point measurement High Chan/x (longitudinal) at max/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -53.9 dB A/m
Location: -8, -1, 363.7 mm

Point measurement High Chan/x (longitudinal) at max/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 49.5 dB
ABM1 comp = -4.41 dB A/m
BWC Factor = 0.007727 dB
Location: -8, -1, 363.7 mm

0 dB = 1.00A/m

Date/Time: 19/06/2008 2:04:40 PM

Test Laboratory: RTS
File Name: HAC_TCoil_GSM850.da4

DUT: BlackBerry Smartphone; Type: Clamshell; Serial: Not Specified
Program Name: HAC_TCoil_WD_Emission

Communication System: GSM 850; Frequency: 836.8 MHzFrequency: 824.2 MHzFrequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Phantom section: AMB with Coil Section

DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Scans/y (transversal) 16 x 24/ABM Signal(x,y,z) (9x13x1):
Measurement grid: dx=2mm, dy=2mm
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00764022 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -6.85 dB A/m
BWC Factor = 0.00764022 dB
Location: 0, -7, 363.7 mm

Point measurement Low Chan/y (transversal) at max y/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -6.72 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, -7, 363.7 mm

Point measurement Low Chan/y (transversal) at max y/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM2 = -56.2 dB A/m
Location: 0, -7, 363.7 mm

Point measurement Low Chan/y (transversal) at max y/ABM SNR(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00711951 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 49.5 dB
ABM1 comp = -6.72 dB A/m
BWC Factor = 0.00711951 dB
Location: 0, -7, 363.7 mm

Point measurement Mid Chan/y (transversal) at max y/ABM Signal(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -6.73 dB A/m
BWC Factor = 0.00746665 dB
Location: 0, -7, 363.7 mm

Point measurement Mid Chan/y (transversal) at max y/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -55.9 dB A/m
Location: 0, -7, 363.7 mm

Point measurement Mid Chan/y (transversal) at max y/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 49.1 dB
ABM1 comp = -6.73 dB A/m
BWC Factor = 0.00746665 dB
Location: 0, -7, 363.7 mm

Point measurement High Chan/y (transversal) at max y/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = -6.74 dB A/m
BWC Factor = 0.007727 dB
Location: 0, -7, 363.7 mm

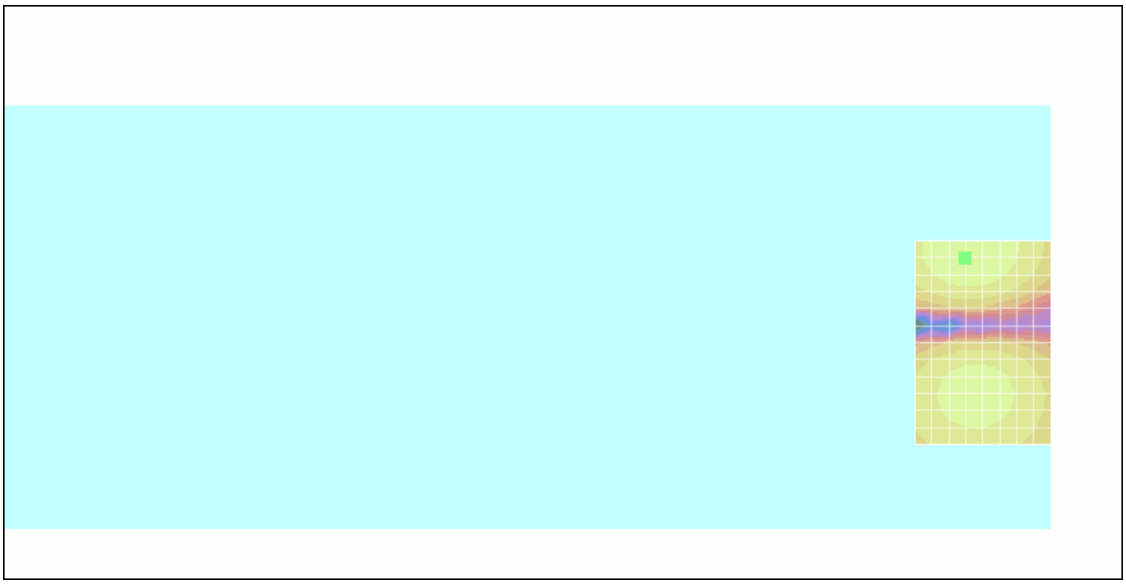
Point measurement High Chan/y (transversal) at max y/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -56.0 dB A/m
Location: 0, -7, 363.7 mm

Point measurement High Chan/y (transversal) at max y/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 49.3 dB
ABM1 comp = -6.74 dB A/m
BWC Factor = 0.007727 dB
Location: 0, -7, 363.7 mm



0 dB = 1.00A/m

Date/Time: 19/06/2008 2:55:52 PM

Test Laboratory: RTS
File Name: HAC_TCoil_GSM1900.da4

DUT: BlackBerry Smartphone; Type: Clamshell; Serial: Not Specified
Program Name: HAC_TCoil_WD_Emission

Communication System: GSM 1900; Frequency: 1850.2 MHzFrequency: 1880 MHzFrequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Phantom section: AMB with Coil Section

DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Scans/z (axial) rough 50 x 50/ABM Signal(x,y,z) (11x11x1):
Measurement grid: dx=5mm, dy=5mm
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = 2.51 dB A/m
BWC Factor = 0.00746665 dB
Location: 0, 0, 363.7 mm

Scans/z (axial) 16 x 16/ABM Signal(x,y,z) (9x9x1):
Measurement grid: dx=2mm, dy=2mm
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.53 dB A/m
BWC Factor = 0.00746665 dB
Location: 0, 0, 363.7 mm

Point measurement Low Chan/z (axial) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.58 dB A/m
BWC Factor = 0.007727 dB
Location: 0, 0, 363.7 mm

Point measurement Low Chan/z (axial) at max/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -49.3 dB A/m
Location: 0, 0, 363.7 mm

Point measurement Low Chan/z (axial) at max/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 51.9 dB
ABM1 comp = 2.58 dB A/m
BWC Factor = 0.007727 dB
Location: 0, 0, 363.7 mm

Point measurement Low Chan/z (axial) 300-3k response at max HAC mode/ABM Freq Resp(x,y,z,f) (1x1x1):
Signal Type: Audio File (.wav) 48k_voice_300-3000_2s.wav
Output Gain: 69.4
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 10.8 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
Diff = 1.29 dB
BWC Factor = 10.8 dB
Location: 0, 0, 363.7 mm

Point measurement Mid Chan/z (axial) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00781378 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = 2.50 dB A/m
BWC Factor = 0.00781378 dB
Location: 0, 0, 363.7 mm

Point measurement Mid Chan/z (axial) at max/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -49.8 dB A/m
Location: 0, 0, 363.7 mm

Point measurement Mid Chan/z (axial) at max/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00781378 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 52.3 dB
ABM1 comp = 2.50 dB A/m
BWC Factor = 0.00781378 dB
Location: 0, 0, 363.7 mm

Point measurement High Chan/z (axial) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00694593 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = 2.49 dB A/m
BWC Factor = 0.00694593 dB
Location: 0, 0, 363.7 mm

Point measurement High Chan/z (axial) at max/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

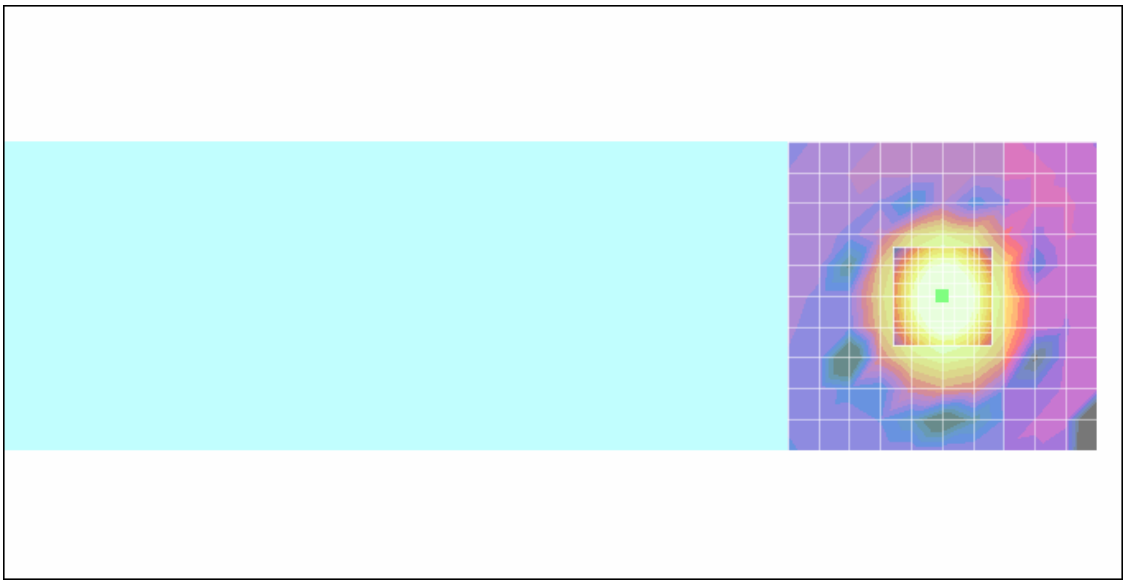
ABM2 = -49.4 dB A/m
Location: 0, 0, 363.7 mm

Point measurement High Chan/z (axial) at max/ABM SNR(x,y,z) (1x1x1):

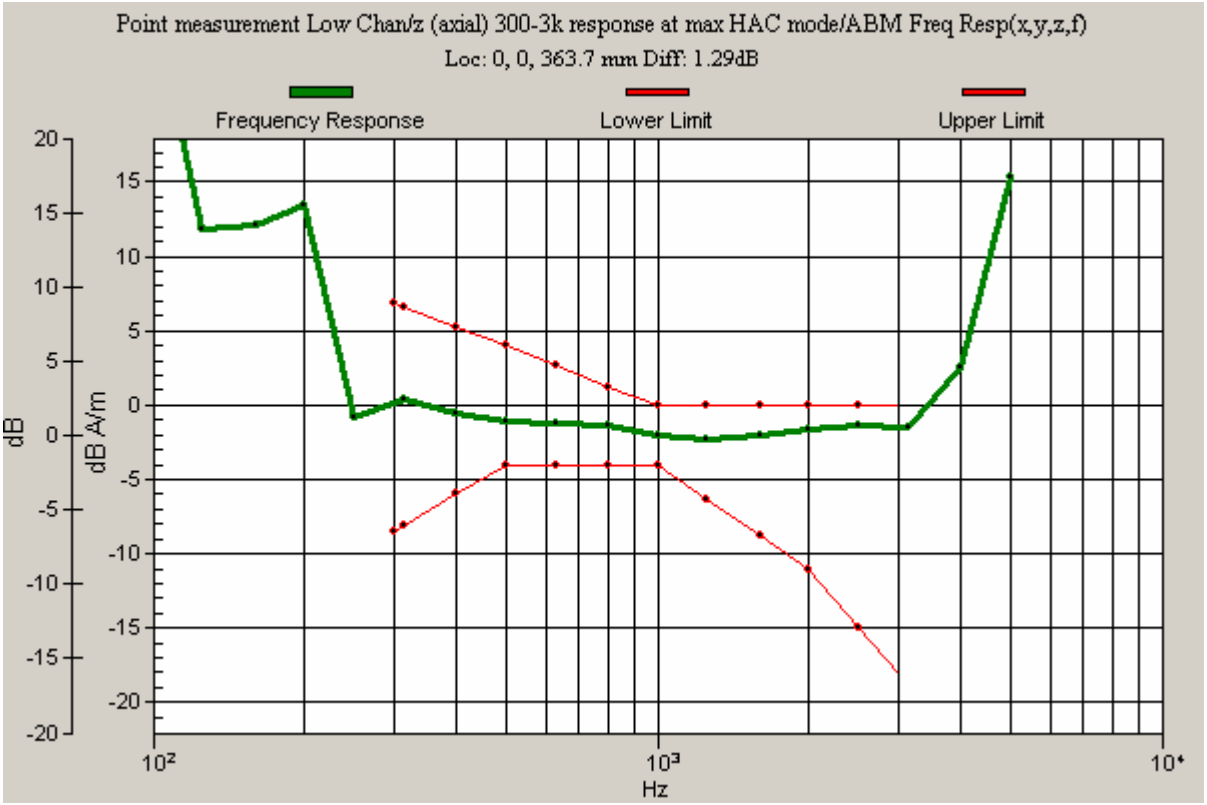
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00694593 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 51.9 dB
ABM1 comp = 2.49 dB A/m
BWC Factor = 0.00694593 dB
Location: 0, 0, 363.7 mm



0 dB = 1.00A/m



Date/Time: 19/06/2008 5:00:06 PM

Test Laboratory: RTS
File Name: HAC_TCoil_GSM1900.da4

DUT: BlackBerry Smartphone; Type: Clamshell; Serial: Not Specified
Program Name: HAC_TCoil_WD_Emission

Communication System: GSM 1900; Frequency: 1850.2 MHzFrequency: 1880 MHzFrequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Phantom section: AMB with Coil Section

DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Scans/x (longitudinal) 24 x 16/ABM Signal(x,y,z) (13x9x1):
Measurement grid: dx=2mm, dy=2mm
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -4.34 dB A/m
BWC Factor = 0.00746665 dB
Location: -8, 0, 363.7 mm

Point measurement Low Chan/x (longitudinal) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -4.59 dB A/m
BWC Factor = 0.007727 dB
Location: -8, 0, 363.7 mm

Point measurement Low Chan/x (longitudinal) at max/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM2 = -54.4 dB A/m
Location: -8, 0, 363.7 mm

Point measurement Low Chan/x (longitudinal) at max/ABM SNR(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 49.8 dB
ABM1 comp = -4.59 dB A/m
BWC Factor = 0.007727 dB
Location: -8, 0, 363.7 mm

Point measurement Mid Chan/x (longitudinal) at max/ABM Signal(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00781378 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -4.36 dB A/m
BWC Factor = 0.00781378 dB
Location: -8, 0, 363.7 mm

Point measurement Mid Chan/x (longitudinal) at max/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -54.3 dB A/m
Location: -8, 0, 363.7 mm

Point measurement Mid Chan/x (longitudinal) at max/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00781378 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 49.9 dB
ABM1 comp = -4.36 dB A/m
BWC Factor = 0.00781378 dB
Location: -8, 0, 363.7 mm

Point measurement High Chan/x (longitudinal) at max/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00694593 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = -4.38 dB A/m
BWC Factor = 0.00694593 dB
Location: -8, 0, 363.7 mm

Point measurement High Chan/x (longitudinal) at max/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -53.5 dB A/m
Location: -8, 0, 363.7 mm

Point measurement High Chan/x (longitudinal) at max/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00694593 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 49.1 dB
ABM1 comp = -4.38 dB A/m
BWC Factor = 0.00694593 dB
Location: -8, 0, 363.7 mm

0 dB = 1.00A/m

Date/Time: 20/06/2008 9:40:17 AM

Test Laboratory: RTS
File Name: HAC_TCoil_GSM1900.da4

DUT: BlackBerry Smartphone; Type: Clamshell; Serial: Not Specified
Program Name: HAC_TCoil_WD_Emission

Communication System: GSM 1900; Frequency: 1850.2 MHzFrequency: 1880 MHzFrequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Phantom section: AMB with Coil Section

DASY4 Configuration:
- Probe: AM1DV2 - 1016; ; Calibrated: 16/04/2008
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 05/03/2008
- Phantom: HAC Test Arch with Coil; Type: SD HAC P01 BA; Serial: 100x
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Scans/y (transversal) 16 x 24 2/ABM Signal(x,y,z) (9x13x1):
Measurement grid: dx=2mm, dy=2mm
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00746665 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -7.26 dB A/m
BWC Factor = 0.00746665 dB
Location: 0, -8, 363.7 mm

Point measurement Low Chan/y (transversal) at max y/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -6.81 dB A/m
BWC Factor = 0.007727 dB
Location: 0, -8, 363.7 mm

Point measurement Low Chan/y (transversal) at max y/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM2 = -55.9 dB A/m
Location: 0, -8, 363.7 mm

Point measurement Low Chan/y (transversal) at max y/ABM SNR(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.007727 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 49.1 dB
ABM1 comp = -6.81 dB A/m
BWC Factor = 0.007727 dB
Location: 0, -8, 363.7 mm

Point measurement Mid Chan/y (transversal) at max y/ABM Signal(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00781378 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1 comp = -6.82 dB A/m
BWC Factor = 0.00781378 dB
Location: 0, -8, 363.7 mm

Point measurement Mid Chan/y (transversal) at max y/ABM Noise(x,y,z) (1x1x1):

Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -56.4 dB A/m
Location: 0, -8, 363.7 mm

Point measurement Mid Chan/y (transversal) at max y/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00781378 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1/ABM2 = 49.6 dB
ABM1 comp = -6.82 dB A/m
BWC Factor = 0.00781378 dB
Location: 0, -8, 363.7 mm

Point measurement High Chan/y (transversal) at max y/ABM Signal(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00694593 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM1 comp = -6.84 dB A/m
BWC Factor = 0.00694593 dB
Location: 0, -8, 363.7 mm

Point measurement High Chan/y (transversal) at max y/ABM Noise(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:
ABM2 = -55.6 dB A/m
Location: 0, -8, 363.7 mm

Point measurement High Chan/y (transversal) at max y/ABM SNR(x,y,z) (1x1x1):
Signal Type: Audio File (.wav) 48k_1.025kHz_10s.wav
Output Gain: 8.2
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 0.00694593 dB
Device Reference Point: 0.000, 0.000, 353.7 mm

Cursor:

ABM1/ABM2 = 48.8 dB
ABM1 comp = -6.84 dB A/m
BWC Factor = 0.00694593 dB
Location: 0, -8, 363.7 mm

0 dB = 1.00A/m

Annex D: Probe certificate and equipment spec

Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

s p e a g

Client RIM

Certificate of test and configuration

Item	**AM1DV2** Audio Magnetic 1D Field Probe
Type No	SP AM1 001 AC
Series No	**1016**
Manufacturer / Origin	Schmid & Partner Engineering AG, Zürich, Switzerland

Description of the item
The Audio Magnetic Field Probe is a fully shielded magnetic field probe for the frequency range from 100 Hz to 20 kHz. The pickup coil is compliant with the dimensional requirements of [1]. The probe includes a symmetric 40dB low noise amplifier for the signal available at the shielded 3 pin connector at the side. Power is supplied via the same connector (phantom power supply) and monitored via the LED near the connector. The 7 pin connector at the end of the probe does not carry any signals, but determines the angle of the sensor when mounted on the DAE. The probe supports mechanical detection of the surface. The single sensor in the probe is arranged in a tilt angle allowing measurement of 3 orthogonal field components when rotating the probe by 120° around its axis. It is aligned with the perpendicular component of the field, if the probe axis is tilted 35.3° above the measurement plane, using the connector rotation and Sensor angle stated below.
The probe is fully RF shielded when operated with the matching signal cable (shielded) and allows measurement of audio magnetic fields in the close vicinity of RF emitting wireless devices according to [1] without additional shielding.

Handling of the item
The probe is manufactured from stainless steel. In order to maintain the performance and calibration of the probe, it must not be opened. The probe is designed for operation in air and shall not be exposed to humidity or liquids. For proper operation of the surface detection and emergency stop functions in the DASY4 system, the probe must be operated with the special probe cup provided (larger diameter).

Functional test, configuration data and sensitivity
The probe configuration data were evaluated after a functional test including noise level and RF immunity. Connector rotation, sensor angle and sensitivity are specific for this probe.

DASY4 configuration data for the probe

Configuration item	Condition	Configuration Data	Dimension
Overall length	mounted on DAE in DASY4 system	296	mm
Tip diameter	at the cylindrical part	6	mm
Sensor offset	center of sensor, from tip	3	mm
Connector rotation	Evaluated in homogeneous 1 kHz magnetic field generated with AMCC Helmholtz Calibration Coil	**252.5**	°
Sensor angle		**3.34**	°
Sensitivity	at 1 kHz	**0.0657**	V / (A/m)

Standards
[1] ANSI-C63.19-2006

Test date 19.04.2007

Issue date 19.04.2007

Signature i.V.

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Certificate of conformity

Item	Audio Magnetic Calibration Coil AMCC
Type No	SD HAC P02 A
Series No	1001 ff.
Manufacturer / Origin	Schmid & Partner Engineering AG Zurich, Switzerland

Description of the item
The Audio Magnetic Calibration coil (AMCC) is a Helmholtz Coil designed according to standard [1], section D.9 for calibration of the AM1D probe. Two horizontal coils are positioned above a non-metallic base plate and generate a homogeneous magnetic field in the z direction (normal to it).

Configuration
The AMCC consists of two parallel coils of 20 turns with radius 143 mm connected in parallel in a distance of 143 mm. With this design, a current of 10 mA produces a field of 1 A/m.
The DC input resistance at the input BNC socket is adjusted by a series resistor to a DC resistance of approximately 50 Ohm. The voltage required to produce a field of 1 A/m is consequently approx. 500 mV.
To current through the coil is monitored via a shunt resistor of 10 Ohm +/- 1%. The voltage is available on a BNO socket with 100 mV corresponding to 1 A/m.

Handling of the item
The coil shall be positioned in a non-metallic environment to avoid distortion of the magnetic field.

Tests

Test	Requirement	Details	Units tested
Number of turns	N = 20 per coil	Resistance measurment	all
Orientation of coils	parallel coils with same direction of windings	Magnetic field variation in the AMCC axis	all
Coil radius	r = 143 mm	mechanical dimension	First article
Coil distance	d = 143 mm distance between coil centers	mechanical dimension	First article
Input resistance	51.7 +/- 2 Ohm	DC resistance at BNC input connector	all
Shunt resistance	R = 10.0 Ohm +/- 1 %	DC resistance at BNO output connector	all
Shunt sensitivity	Hc = 1 A/m per 100 mV according to formula Hc = (U / R) * N / r / (1.25^1.5)	Field measurement compared with Narda ELT400 + BN2300/90.10	First article

Standards
[1] ANSI PC63.19-2006 Draft 3.12

Conformity
Based on the tests above, we certify that this item is in compliance with the requirements of [1].

Date 22.5.2006

Stamp / Signature

s p e a g
Schmid & Partner Engineering AG
Zeughausstrasse 43, 8004 Zürich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Doc No 880 – SD HAC P02 A – A Page 1 (1)

Specifications

Audio Magnetic Field Probe AM1D

The AM1D probe is an active probe with a single sensor according to [1] section D.8. It is fully RF shielded and has a rounded tip of 6 mm diameter incorporating a pickup coil with its center offset 3mm from the tip and the sides.

SPEAG, the manufacturer of the T-Coil system tested the probe frequency response and its dynamic range. The compliance is stated in the Certificate of conformity document 880-SPAM1001A-A. Also the probe frequency has been verified and the response deviation from the ideal differentiator was within +0.05 and - 0.46 dB in the range 100 Hz to 10 kHz on the center frequencies of the third-octave bands. Note that it includes the probe preamplifier and also with the AMMI internal preamplifiers, filters and processing.

Dynamic range:
maximum + 21 dB A/m @ 1 kHz
Noise level typically -70 dB A/m @ 1 kHz
ABM2 typically -60 dB A/m

Linearity
Within < 0.1 dB from 5 dB
below limitation to 16 dB above noise level

Sensitivity
Typically -24 dBV / A/m @ 1 kHz probe output

Audio Magnetic Measurement Instrument (AMMI)
sampling rate 48 kHz / 24 bit
dynamic range 85 dB
test signal generation user selectable and predefined (via PC)
calibration auto-calibration / full system calibration using AMCC
with monitor output
dimensions 482 x 65 x 270 mm

Helmholtz Calibration Coil (AMCC)
dimensions 370 x 370 x 196 mm, according to ANSI-PC63.19
The Audio Magnetic Calibration coil is a Helmholtz Coil designed according to [1], section D.9 for calibration of the AM1D probe. The two horizontal coils generate a homogeneous magnetic field in the z direction.

Shunt sensitivity Hc = 1 A/m per 100mV according to formula:

Hc = (U / R) * N / r / (1.25 ^ 1.5)

Number of turns N = 20 per coil
Coil radius r = 143 mm
Shunt resistance R = 10.00 Ohm