

$0 \text{ dB} = 19.42 \text{ V/m} = 25.76 \text{ dBV/m}$

Fig B.11 HAC RF E-Field LTE Band41 QPSK CH39750

HAC RF E-Field LTE Band41 16QAM CH41490

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2680 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan – ER3DV6 – 2011: 15 mm from Probe Center to the Device/Hearing

Aid Compatibility Test (101x101x1): Interpolated grid: dx=0.5000 mm,
dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 15.23 V/m; Power Drift = 0.13 dB

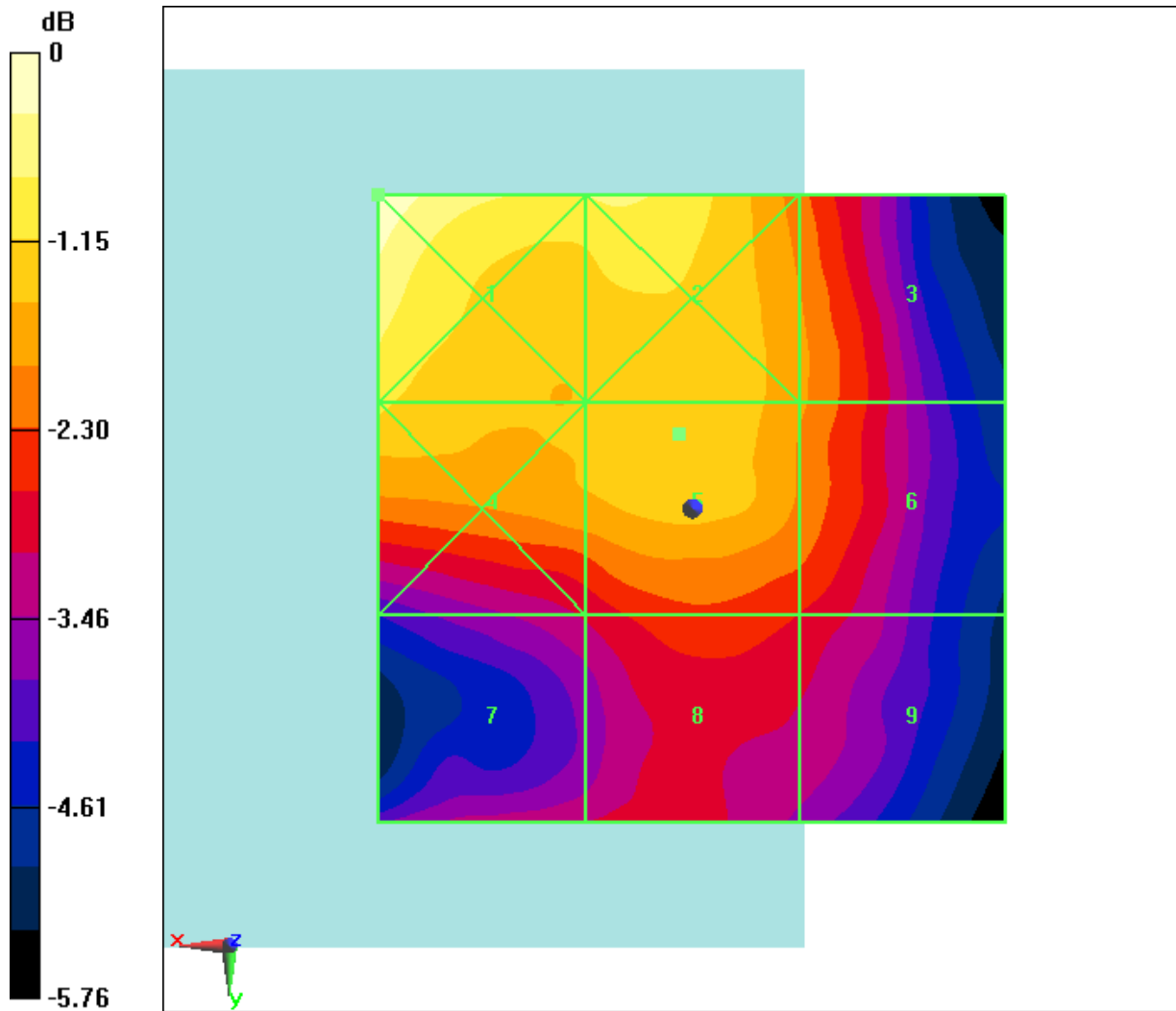
Applied MIF = -1.71 dB

RF audio interference level = 19.71 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 20.98 dBV/m	Grid 2 M4 20.29 dBV/m	Grid 3 M4 19.19 dBV/m
Grid 4 M4 19.92 dBV/m	Grid 5 M4 19.71 dBV/m	Grid 6 M4 19.15 dBV/m
Grid 7 M4 17.98 dBV/m	Grid 8 M4 18.61 dBV/m	Grid 9 M4 18.3 dBV/m



$0 \text{ dB} = 11.20 \text{ V/m} = 20.98 \text{ dBV/m}$

Fig B.12 HAC RF E-Field LTE Band41 16QAM CH41490

HAC RF E-Field LTE Band41 16QAM CH41055

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2636.5 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device

2/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 14.49 V/m; Power Drift = -0.01 dB

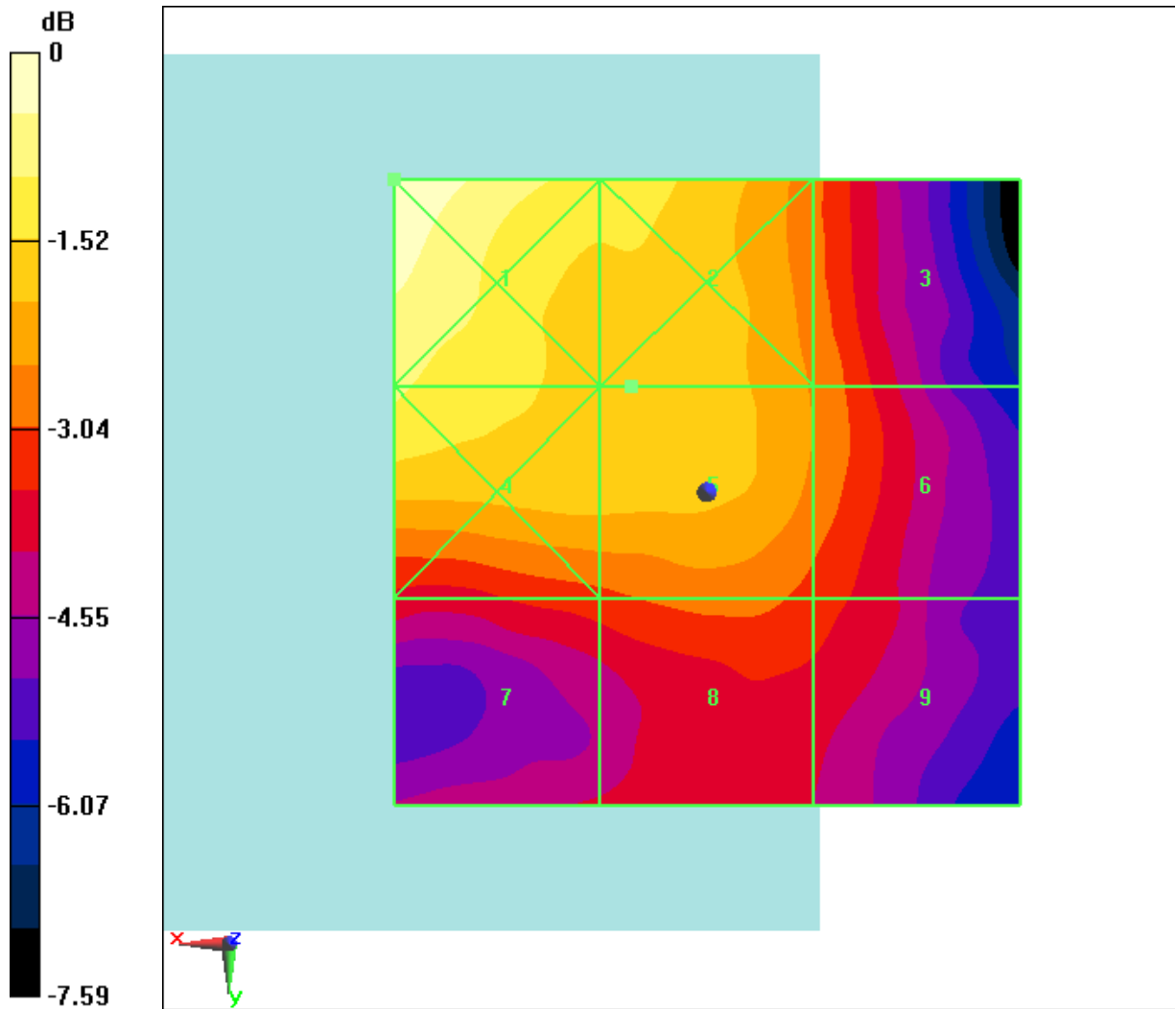
Applied MIF = -1.95 dB

RF audio interference level = 19.08 dBV/m

Emission category: **M4**

MIF scaled E-field

Grid 1 M4 20.65 dBV/m	Grid 2 M4 19.48 dBV/m	Grid 3 M4 18.08 dBV/m
Grid 4 M4 19.75 dBV/m	Grid 5 M4 19.08 dBV/m	Grid 6 M4 18.12 dBV/m
Grid 7 M4 17.46 dBV/m	Grid 8 M4 17.8 dBV/m	Grid 9 M4 17.43 dBV/m



0 dB = 10.78 V/m = 20.65 dBV/m

Fig B.13 HAC RF E-Field LTE Band41 16QAM CH41055

HAC RF E-Field LTE Band41 16QAM CH40620**Date: 2020-1-14**

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2593 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device

3/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 15.98 V/m; Power Drift = -0.02 dB

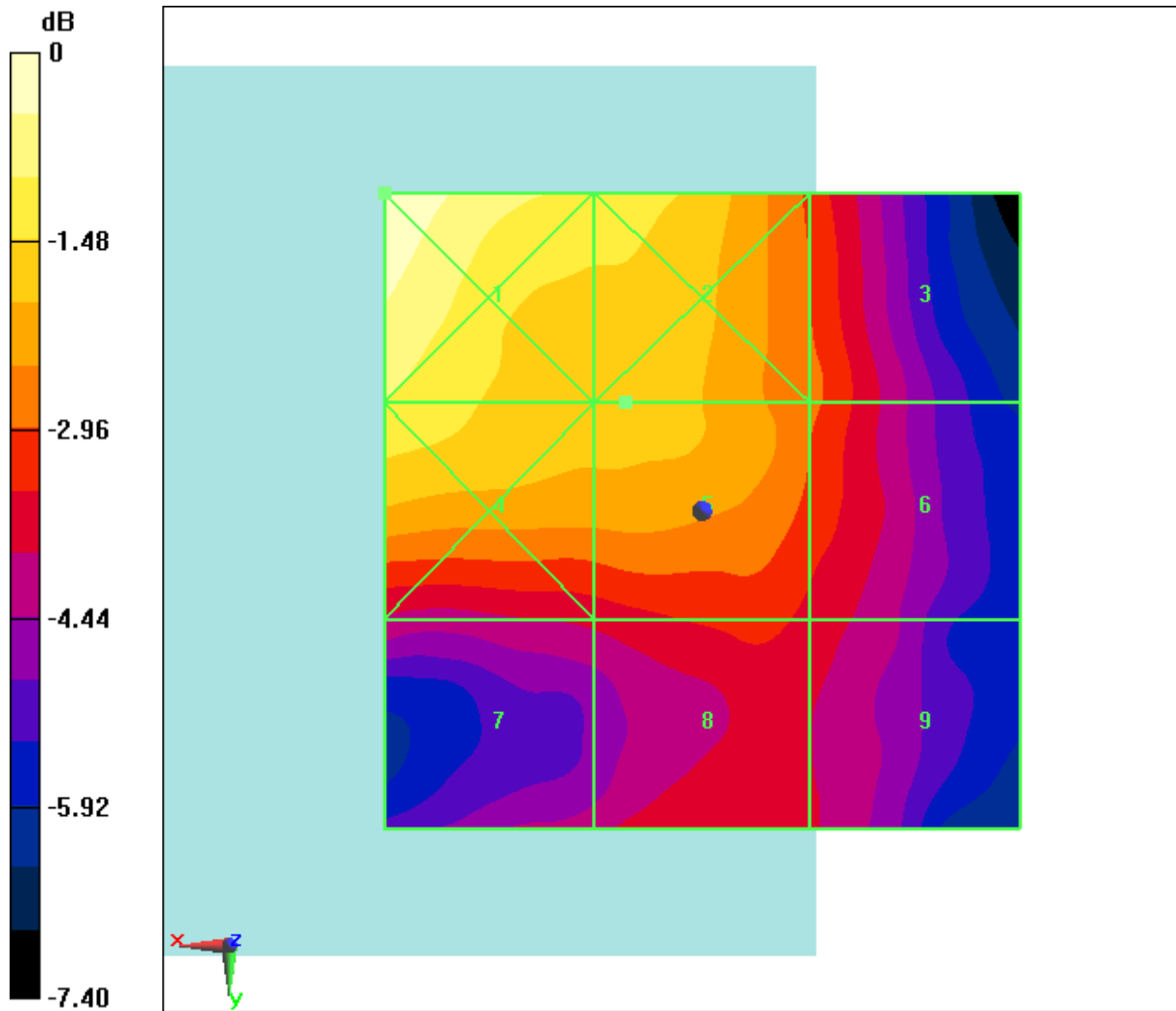
Applied MIF = -1.55 dB

RF audio interference level = 20.66 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 22.4 dBV/m	Grid 2 M4 21.27 dBV/m	Grid 3 M4 19.61 dBV/m
Grid 4 M4 21.4 dBV/m	Grid 5 M4 20.66 dBV/m	Grid 6 M4 19.58 dBV/m
Grid 7 M4 18.61 dBV/m	Grid 8 M4 19.12 dBV/m	Grid 9 M4 18.8 dBV/m



0 dB = 13.18 V/m = 22.40 dBV/m

Fig B.14 HAC RF E-Field LTE Band41 16QAM CH40620

HAC RF E-Field LTE Band41 16QAM CH40185

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2549.5 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 3

3/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 14.37 V/m; Power Drift = -0.11 dB

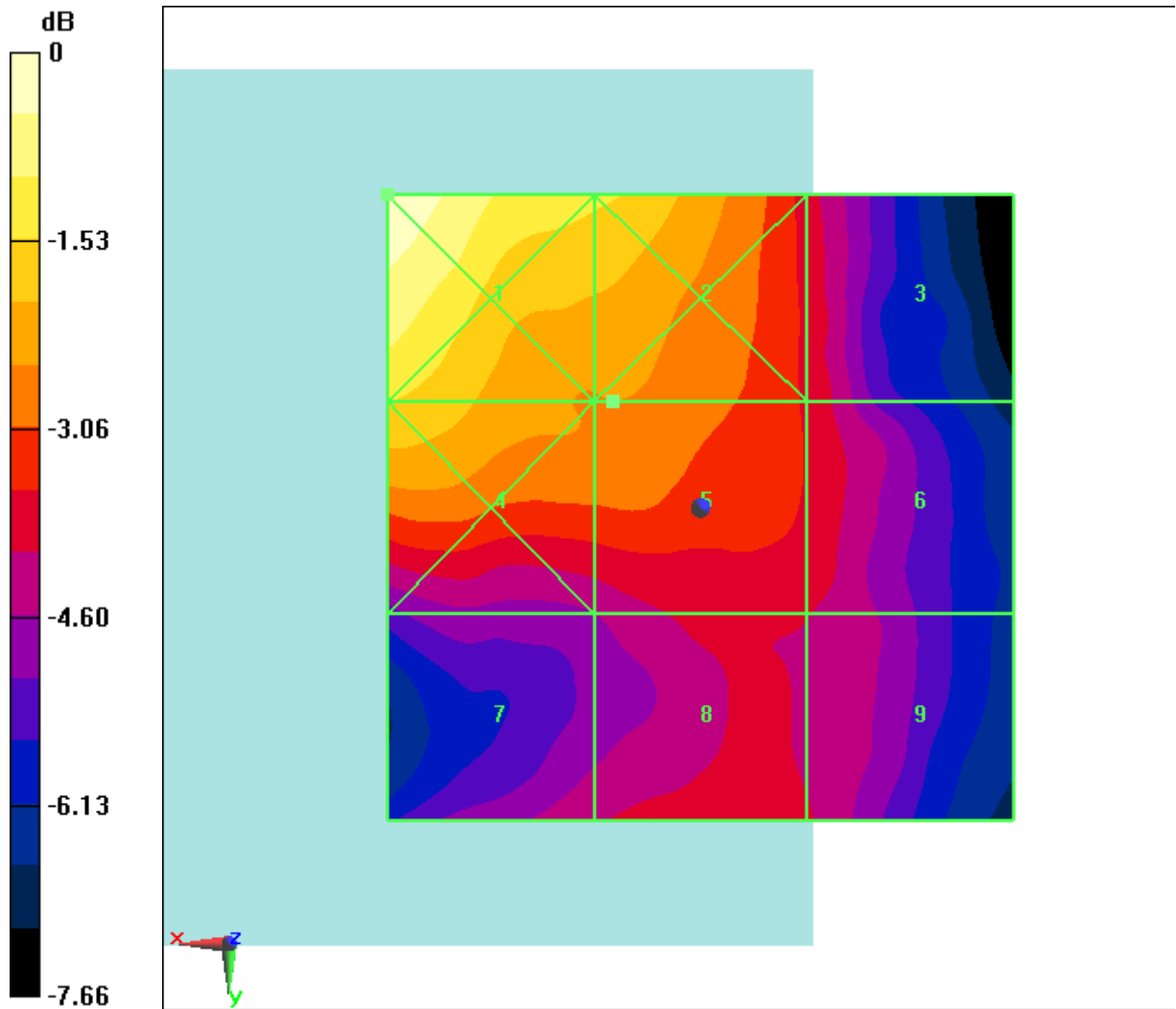
Applied MIF = -1.67 dB

RF audio interference level = 19.48 dBV/m

Emission category: **M4**

MIF scaled E-field

Grid 1 M4 22.03 dBV/m	Grid 2 M4 20.62 dBV/m	Grid 3 M4 18.37 dBV/m
Grid 4 M4 20.52 dBV/m	Grid 5 M4 19.48 dBV/m	Grid 6 M4 18.44 dBV/m
Grid 7 M4 17.9 dBV/m	Grid 8 M4 18.27 dBV/m	Grid 9 M4 18.02 dBV/m



0 dB = 12.63 V/m = 22.03 dBV/m

Fig B.15 HAC RF E-Field LTE Band41 16QAM CH40185

HAC RF E-Field LTE Band41 16QAM CH39750

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2506 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 3

2/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 18.25 V/m; Power Drift = -0.10 dB

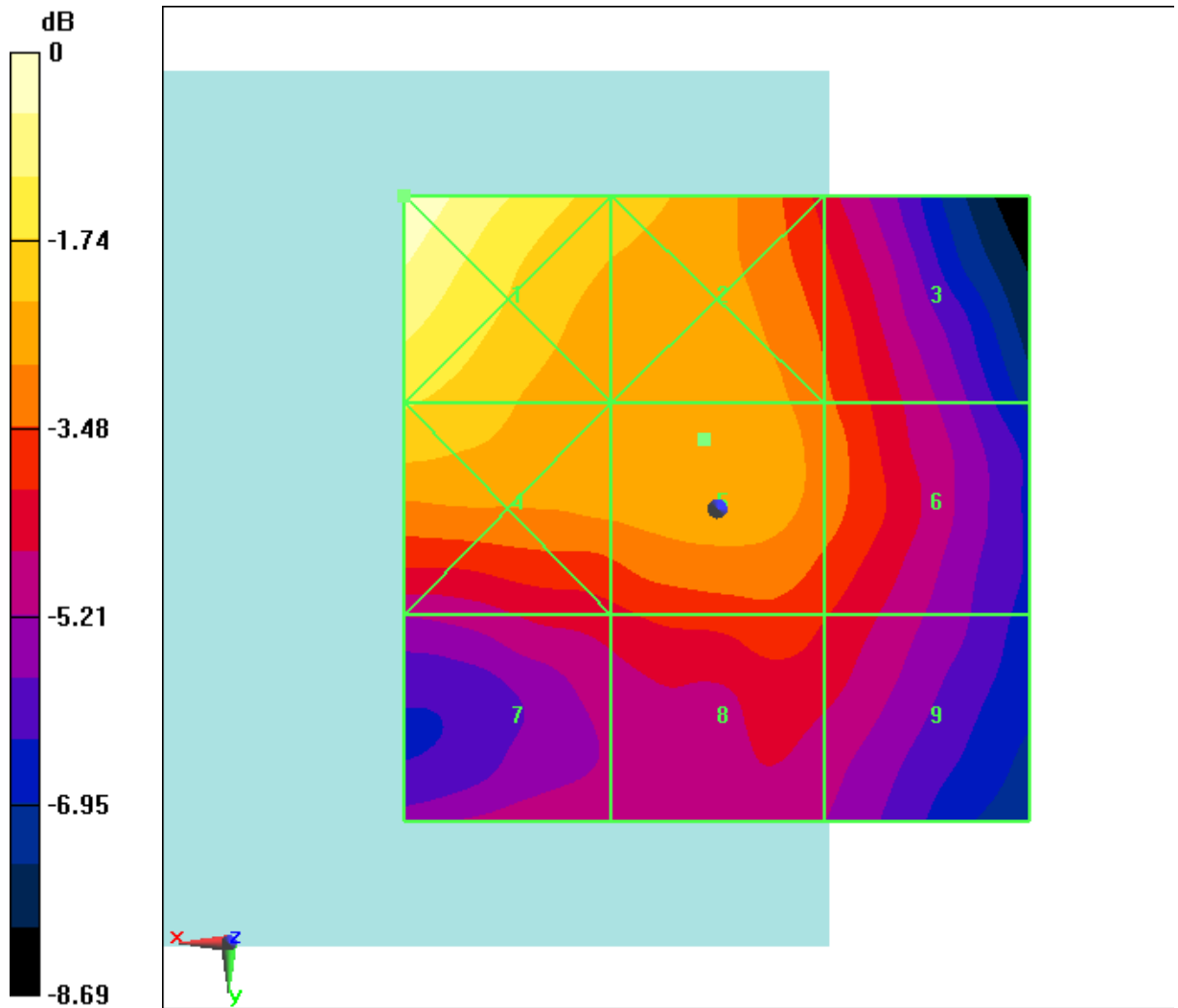
Applied MIF = -1.75 dB

RF audio interference level = 21.16 dBV/m

Emission category: **M4**

MIF scaled E-field

Grid 1 M4 23.52 dBV/m	Grid 2 M4 21.55 dBV/m	Grid 3 M4 20.21 dBV/m
Grid 4 M4 21.84 dBV/m	Grid 5 M4 21.16 dBV/m	Grid 6 M4 20.42 dBV/m
Grid 7 M4 19.28 dBV/m	Grid 8 M4 19.92 dBV/m	Grid 9 M4 19.53 dBV/m



0 dB = 14.99 V/m = 23.52 dBV/m

Fig B.16 HAC RF E-Field LTE Band41 16QAM CH39750

HAC RF E-Field LTE Band41 64QAM CH41490

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2680 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan – ER3DV6 – 2011: 15 mm from Probe Center to the Device/Hearing

Aid Compatibility Test (101x101x1): Interpolated grid: dx=0.5000 mm,
dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 22.12 V/m; Power Drift = 0.01 dB

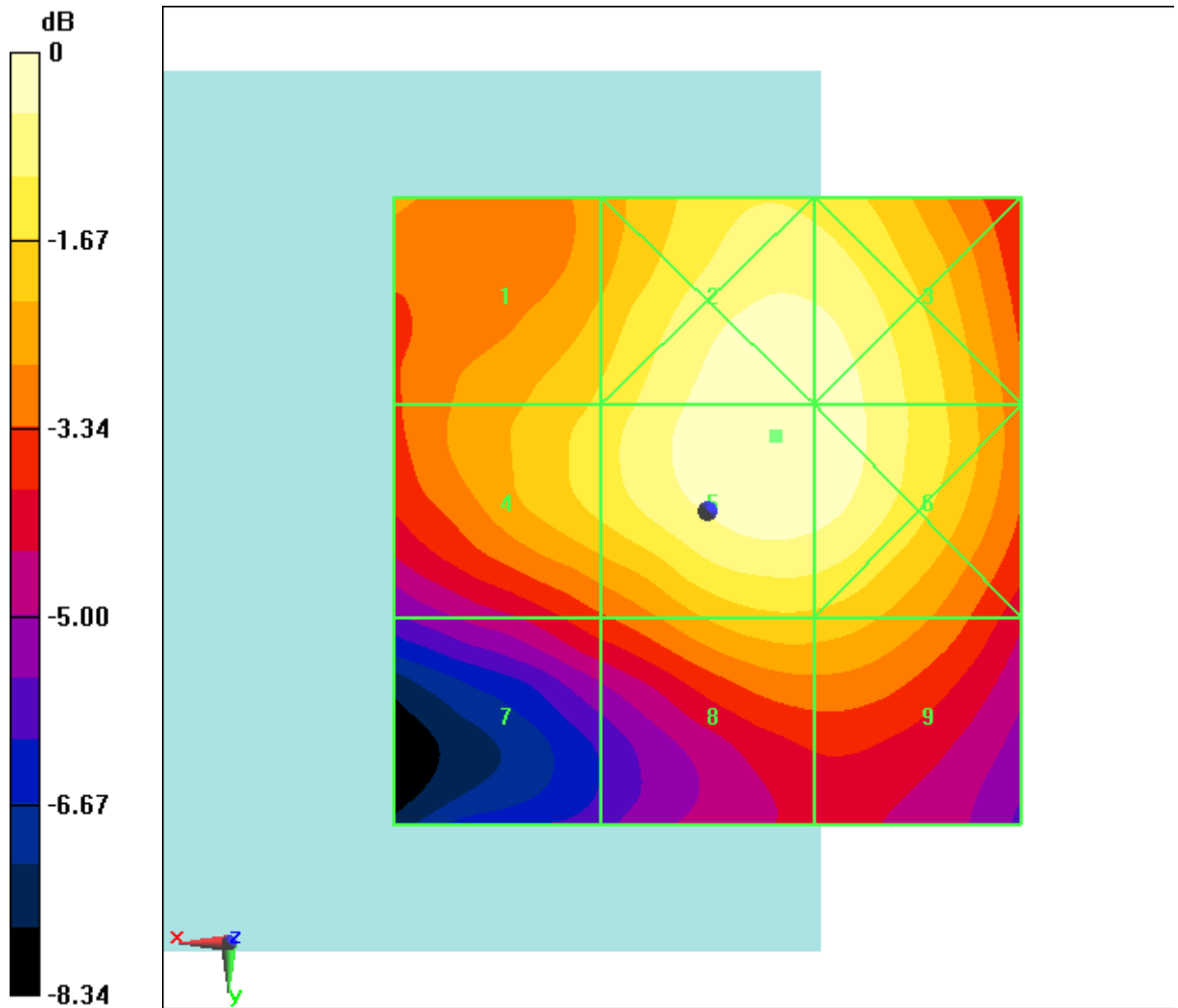
Applied MIF = -1.78 dB

RF audio interference level = 23.04 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 21.5 dBV/m	Grid 2 M4 22.98 dBV/m	Grid 3 M4 22.91 dBV/m
Grid 4 M4 21.71 dBV/m	Grid 5 M4 23.04 dBV/m	Grid 6 M4 22.97 dBV/m
Grid 7 M4 19.62 dBV/m	Grid 8 M4 21.28 dBV/m	Grid 9 M4 21.23 dBV/m



0 dB = 14.18 V/m = 23.03 dBV/m

Fig B.17 HAC RF E-Field LTE Band41 64QAM CH41490

HAC RF E-Field LTE Band41 64QAM CH41055

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2636.5 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device

2/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 20.17 V/m; Power Drift = -0.03 dB

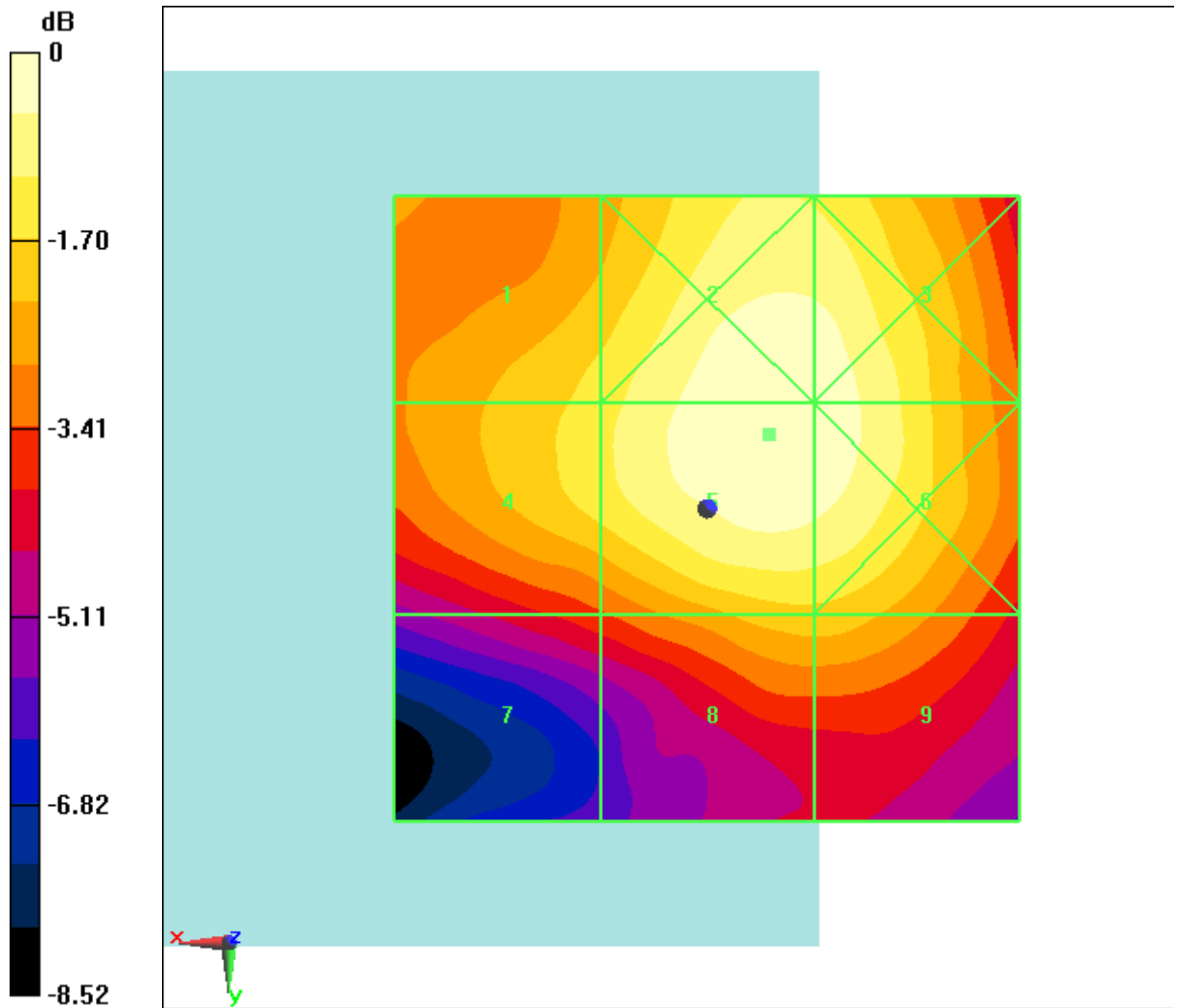
Applied MIF = -1.66 dB

RF audio interference level = 22.39 dBV/m

Emission category: **M4**

MIF scaled E-field

Grid 1 M4 21 dBV/m	Grid 2 M4 22.31 dBV/m	Grid 3 M4 22.22 dBV/m
Grid 4 M4 21.11 dBV/m	Grid 5 M4 22.39 dBV/m	Grid 6 M4 22.24 dBV/m
Grid 7 M4 18.9 dBV/m	Grid 8 M4 20.51 dBV/m	Grid 9 M4 20.51 dBV/m



$0 \text{ dB} = 13.17 \text{ V/m} = 22.39 \text{ dBV/m}$

Fig B.18 HAC RF E-Field LTE Band41 64QAM CH41055

HAC RF E-Field LTE Band41 64QAM CH40620

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2593 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device

3/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 23.66 V/m; Power Drift = -0.03 dB

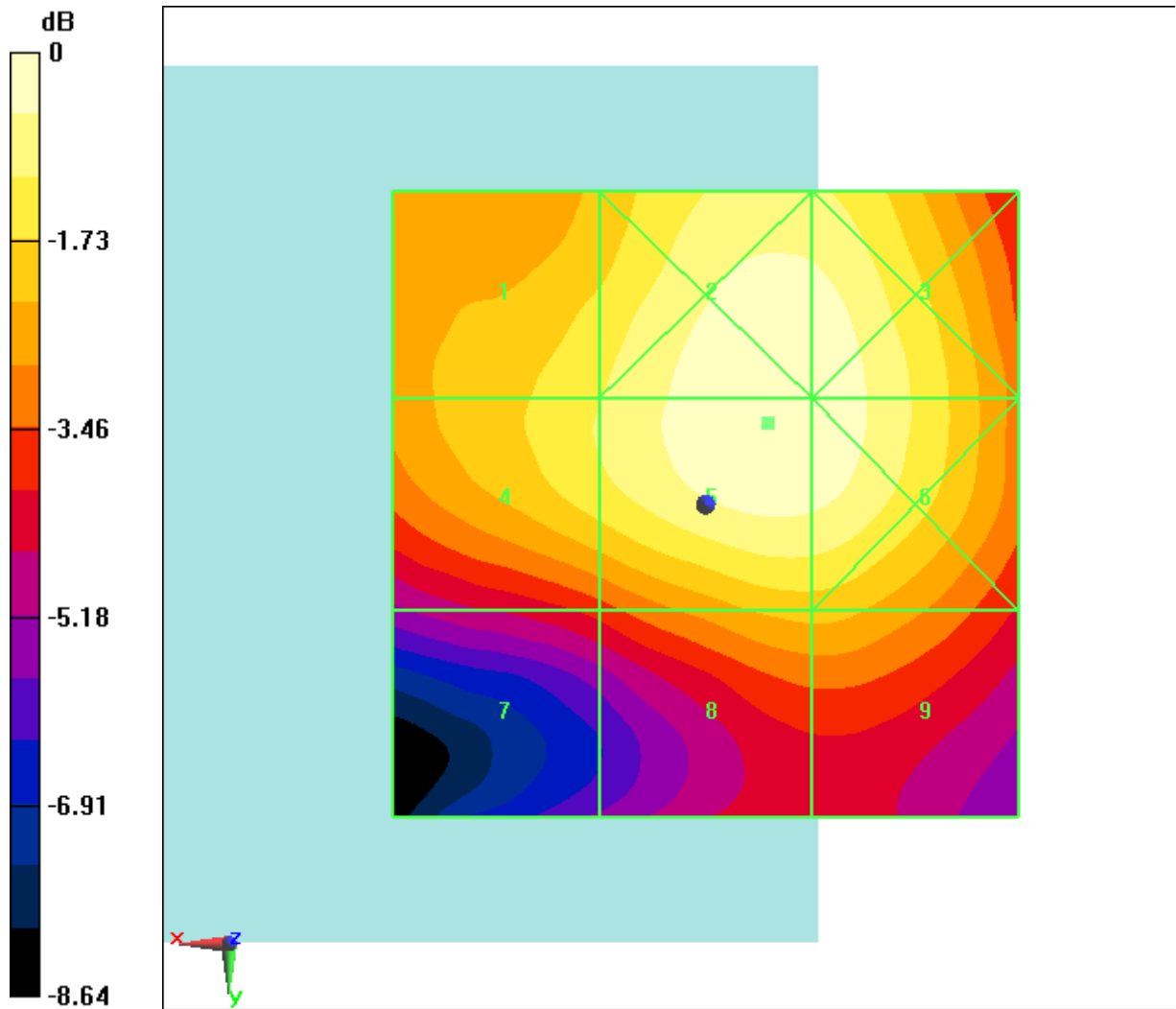
Applied MIF = -1.49 dB

RF audio interference level = 24.10 dBV/m

Emission category: **M4**

MIF scaled E-field

Grid 1 M4 22.92 dBV/m	Grid 2 M4 24.05 dBV/m	Grid 3 M4 23.99 dBV/m
Grid 4 M4 23 dBV/m	Grid 5 M4 24.1 dBV/m	Grid 6 M4 24 dBV/m
Grid 7 M4 20.34 dBV/m	Grid 8 M4 22.03 dBV/m	Grid 9 M4 22.03 dBV/m



0 dB = 16.03 V/m = 24.10 dBV/m

Fig B.19 HAC RF E-Field LTE Band41 64QAM CH40620

HAC RF E-Field LTE Band41 64QAM CH40185

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2549.5 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 3

3/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 21.65 V/m; Power Drift = -0.05 dB

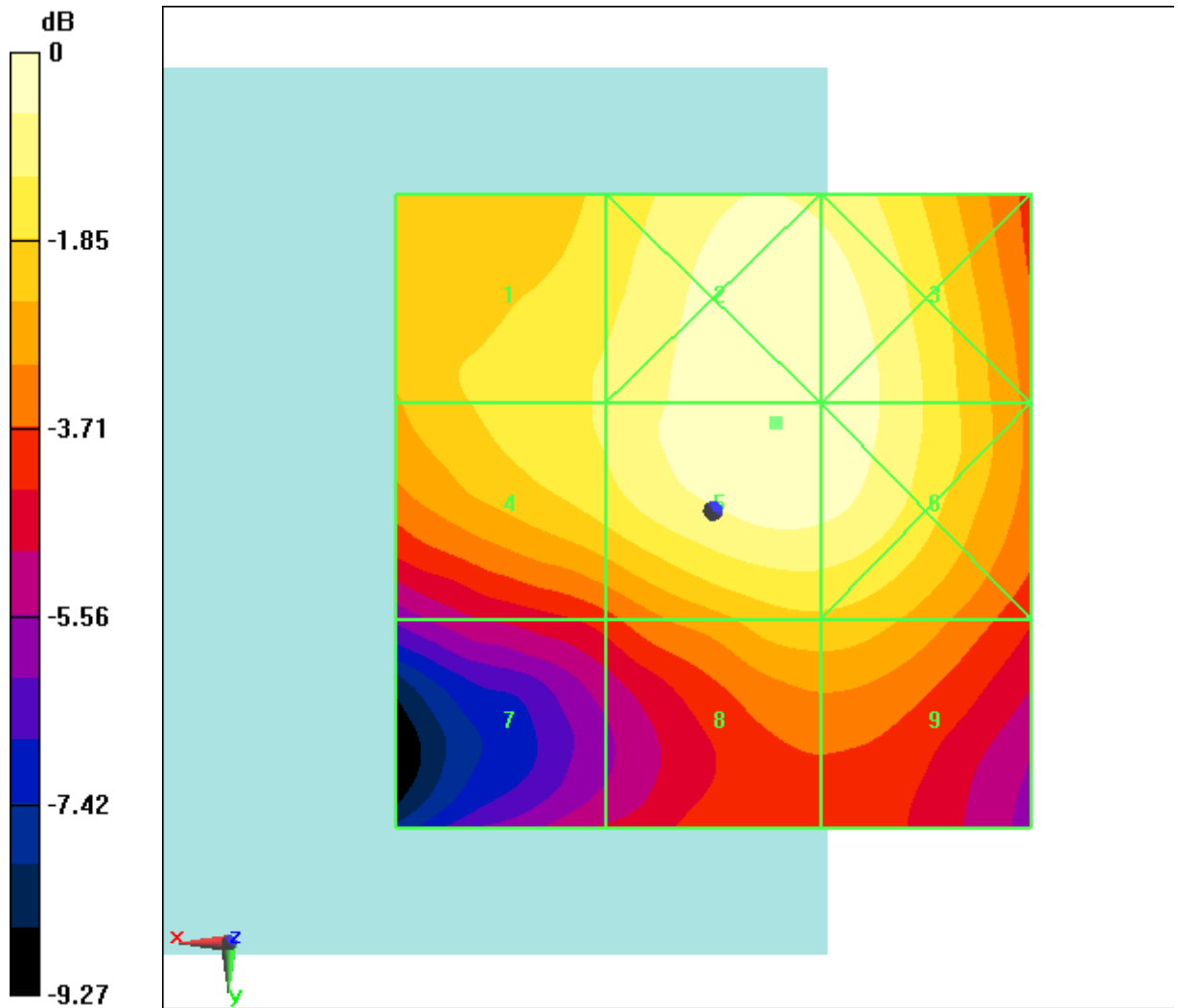
Applied MIF = -1.71 dB

RF audio interference level = 23.14 dBV/m

Emission category: **M4**

MIF scaled E-field

Grid 1 M4 22 dBV/m	Grid 2 M4 23.13 dBV/m	Grid 3 M4 23.05 dBV/m
Grid 4 M4 22.01 dBV/m	Grid 5 M4 23.14 dBV/m	Grid 6 M4 23.04 dBV/m
Grid 7 M4 19.21 dBV/m	Grid 8 M4 21.17 dBV/m	Grid 9 M4 21.17 dBV/m



0 dB = 14.35 V/m = 23.14 dBV/m

Fig B.20 HAC RF E-Field LTE Band41 64QAM CH40185

HAC RF E-Field LTE Band41 64QAM CH39750

Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Ambient Temperature: 22.0°C

Communication System: LTE Band41; Frequency: 2506 MHz; Duty Cycle: 1:1.58

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

B41/E Scan - ER3DV6 - 2011: 15 mm from Probe Center to the Device 3

2/Hearing Aid Compatibility Test (101x101x1): Interpolated grid:

$dx=0.5000$ mm, $dy=0.5000$ mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 25.42 V/m; Power Drift = -0.01 dB

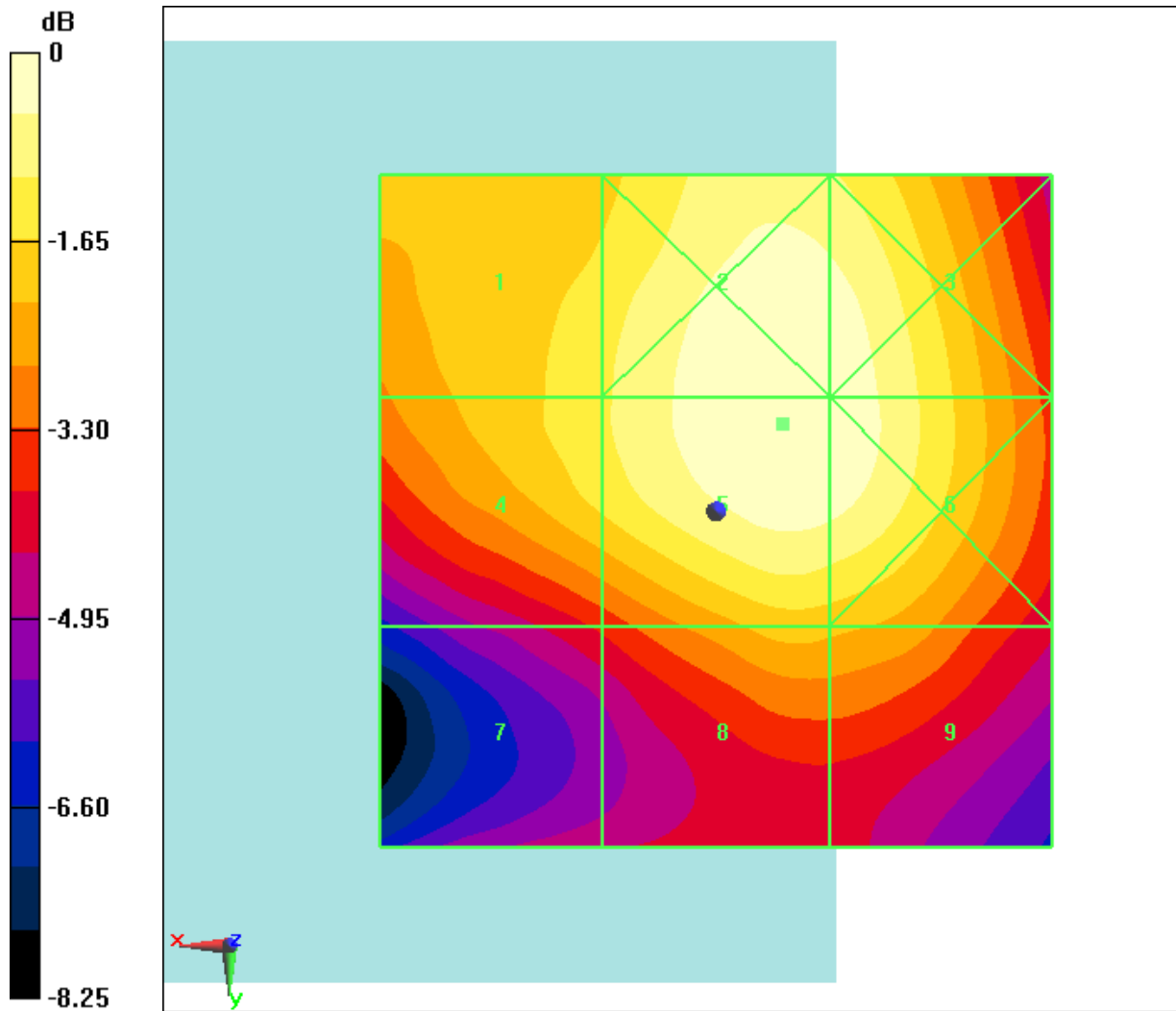
Applied MIF = -1.55 dB

RF audio interference level = 24.70 dBV/m

Emission category: **M4**

MIF scaled E-field

Grid 1 M4 23.5 dBV/m	Grid 2 M4 24.67 dBV/m	Grid 3 M4 24.57 dBV/m
Grid 4 M4 23.51 dBV/m	Grid 5 M4 24.7 dBV/m	Grid 6 M4 24.6 dBV/m
Grid 7 M4 21.02 dBV/m	Grid 8 M4 22.78 dBV/m	Grid 9 M4 22.69 dBV/m



0 dB = 17.17 V/m = 24.70 dBV/m

Fig B.21 HAC RF E-Field LTE Band41 64QAM CH39750

ANNEX C SYSTEM VALIDATION RESULT

E SCAN of Dipole 835 MHz

Date: 2020-1-12

Electronics: DAE4 Sn1331

Medium: Air

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

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

E Scan - measurement distance from the probe sensor center to CD835 Dipole = 15mm/Hearing Aid Compatibility Test (41x361x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 129.6 V/m; Power Drift = -0.05 dB

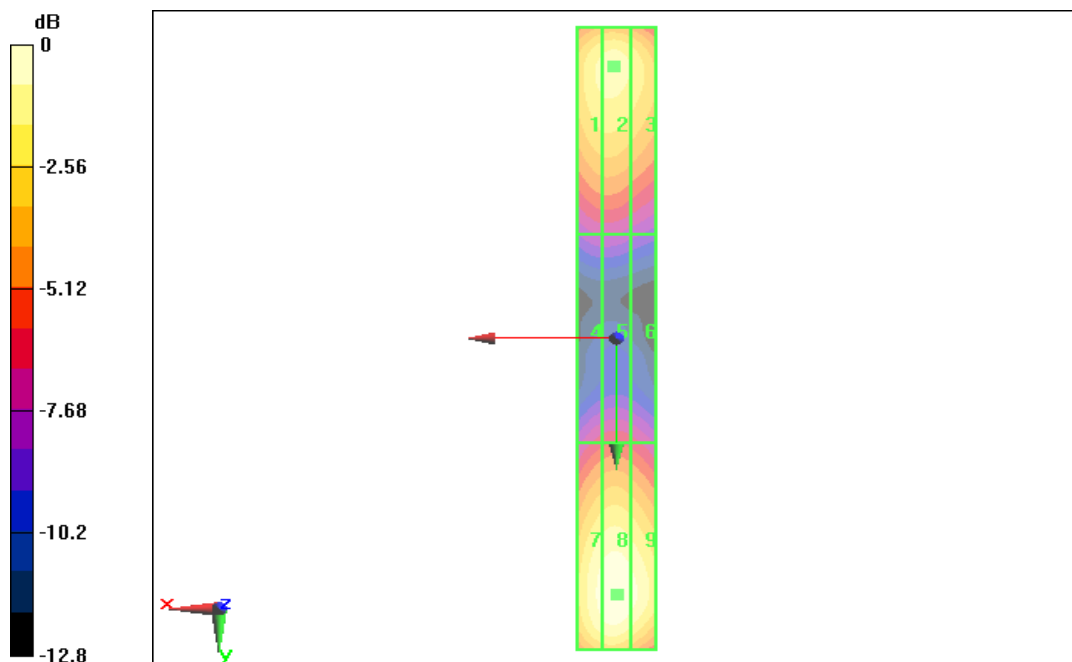
Applied MIF = 0.00 dB

RF audio interference level = 40.68 dBV/m

Emission category: M3

MIF scaled E-field

Grid 1 M3 40.25 dBV/m	Grid 2 M3 40.68 dBV/m	Grid 3 M3 40.59 dBV/m
Grid 4 M4 35.46 dBV/m	Grid 5 M4 35.81 dBV/m	Grid 6 M4 35.79 dBV/m
Grid 7 M3 40.44 dBV/m	Grid 8 M3 40.64 dBV/m	Grid 9 M3 40.52 dBV/m



0 dB = 40.68 dBV/m

E SCAN of Dipole 1880 MHz

Date: 2020-1-13

Electronics: DAE4 Sn1331

Medium: Air

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

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 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 = 157.2 V/m; Power Drift = -0.04 dB

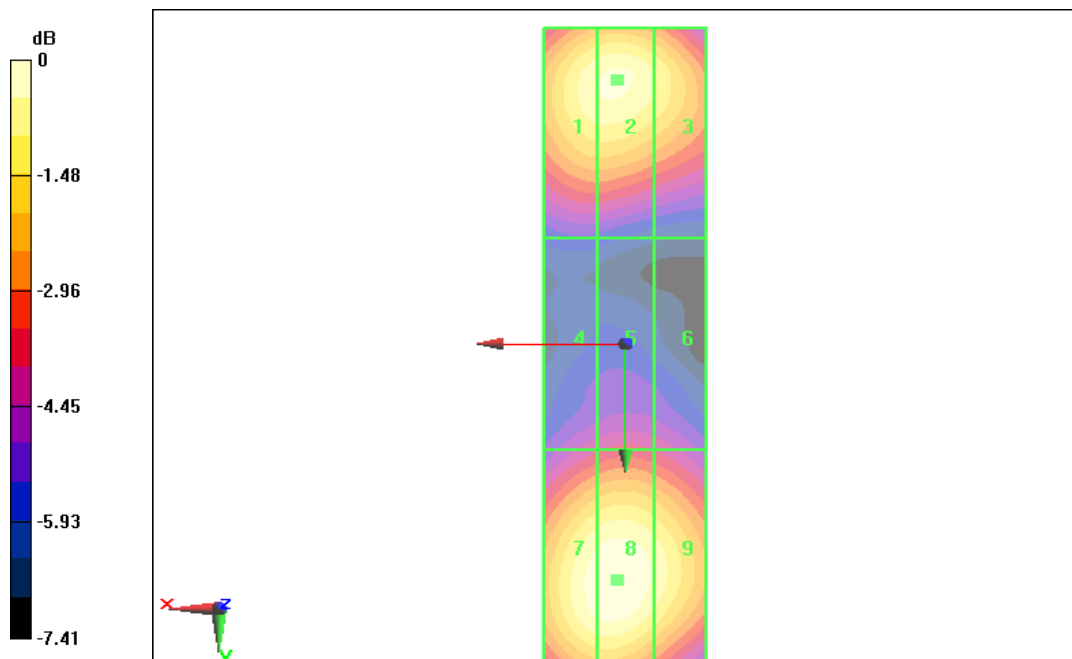
Applied MIF = 0.00 dB

RF audio interference level = 39.14 dBV/m

Emission category: M2

MIF scaled E-field

Grid 1 M2 38.81 dBV/m	Grid 2 M2 39.14 dBV/m	Grid 3 M2 39.04 dBV/m
Grid 4 M2 36.23 dBV/m	Grid 5 M2 36.41 dBV/m	Grid 6 M2 36.36 dBV/m
Grid 7 M2 38.86 dBV/m	Grid 8 M2 39.08 dBV/m	Grid 9 M2 38.88 dBV/m



0 dB = 39.14 dBV/m

E SCAN of Dipole 2600 MHz
Date: 2020-1-14

Electronics: DAE4 Sn1331

Medium: Air

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

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Probe: EF3DV3 - SN4060;ConvF(1, 1, 1)

E Scan - measurement distance from the probe sensor center to CD2600 Dipole = 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 = 62.54 V/m; Power Drift = 0.02 dB

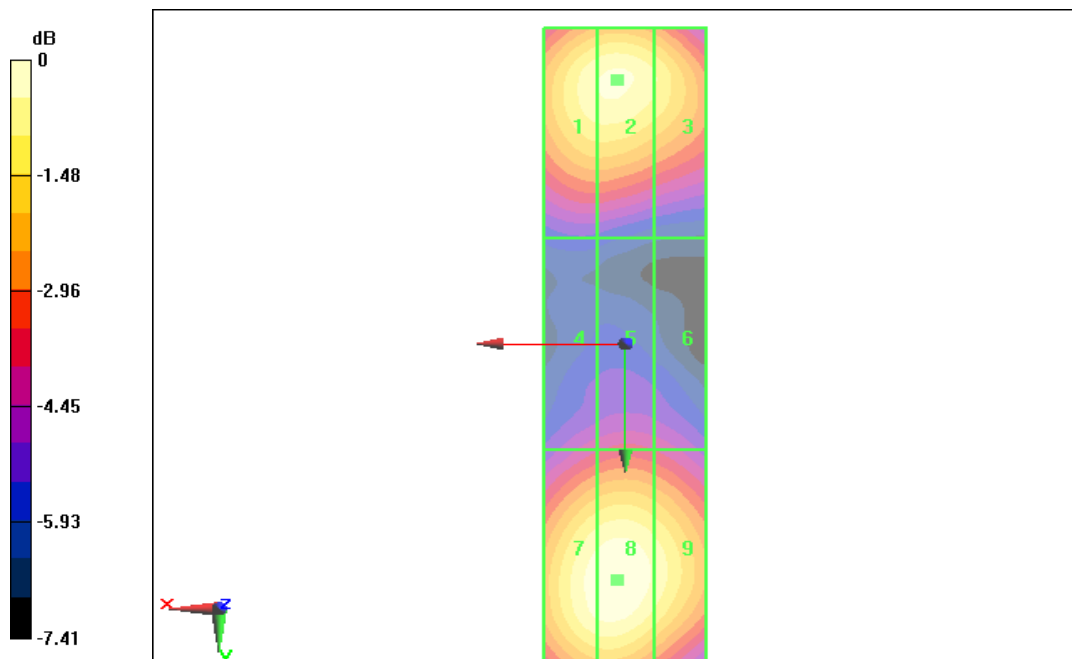
Applied MIF = 0.00 dB

RF audio interference level = 38.65 dBV/m

Emission category: M2

MIF scaled E-field

Grid 1M2 38.31 dBV/m	Grid 2M2 38.48 dBV/m	Grid 3M2 38.51 dBV/m
Grid 4M2 37.79 dBV/m	Grid 5M2 38.07 dBV/m	Grid 6M2 38.01 dBV/m
Grid 7M2 38.48 dBV/m	Grid 8M2 38.65 dBV/m	Grid 9M2 38.57 dBV/m



0 dB = 38.65 dBV/m



No.119Z62229-SEM01

ANNEX D PROBE 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
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 0108**

Client **CTTL (Auden)**

Certificate No: **EF3-4060_May19**

CALIBRATION CERTIFICATE

Object **EF3DV3- SN:4060**

Calibration procedure(s) **QA CAL-02.v9, QA CAL-25.v7
Calibration procedure for E-field probes optimized for close near field
evaluations in air**

Calibration date: **May 17, 2019**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

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 NRP	SN: 104778	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 789	14-Jan-19 (No. DAE4-789_Jan19)	Jan-20
Reference Probe ER3DV6	SN: 2328	09-Oct-18 (No. ER3-2328_Oct18)	Oct-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 20, 2019

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

Certificate No: EF3-4060_May19

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