



Appendix B. HAC Measurement Plots

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HAC Measurement plots of GSM850
HAC Measurement plots of GSM1900

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM850-128CH -Second Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 824.2 MHz;Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), $z = 8.7$
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 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 = 77.40 V/m; Power Drift = -0.06 dB

Applied MIF = 3.63 dB

RF audio interference level = 41.87 dBV/m

Emission category: M3

MIF scaled E-field

Grid 1 M4 38.72 dBV/m	Grid 2 M3 43.58 dBV/m	Grid 3 M3 43.46 dBV/m
Grid 4 M4 36.17 dBV/m	Grid 5 M3 41.87 dBV/m	Grid 6 M3 41.77 dBV/m
Grid 7 M4 31.89 dBV/m	Grid 8 M4 36.93 dBV/m	Grid 9 M4 36.95 dBV/m

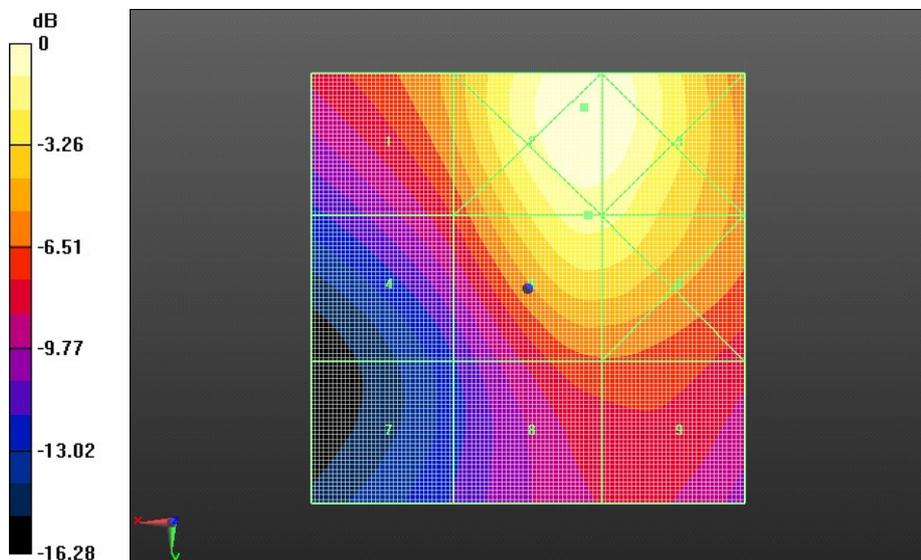
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 43.58 dBV/m

E Category: M3

Location: -6.5, -21, 8.7 mm



0 dB = 151.1 V/m = 43.59 dBV/m

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM850-190CH -Second Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz; Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), $z = 8.7$
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Interpolated grid: $dx=0.5000 \text{ mm}$, $dy=0.5000 \text{ mm}$

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 85.00 V/m; Power Drift = -0.06 dB

Applied MIF = 3.63 dB

RF audio interference level = 42.65 dBV/m

Emission category: M3

MIF scaled E-field

Grid 1 M4 39.74 dBV/m	Grid 2 M3 44.4 dBV/m	Grid 3 M3 44.24 dBV/m
Grid 4 M4 37.28 dBV/m	Grid 5 M3 42.65 dBV/m	Grid 6 M3 42.54 dBV/m
Grid 7 M4 33.35 dBV/m	Grid 8 M4 37.9 dBV/m	Grid 9 M4 37.9 dBV/m

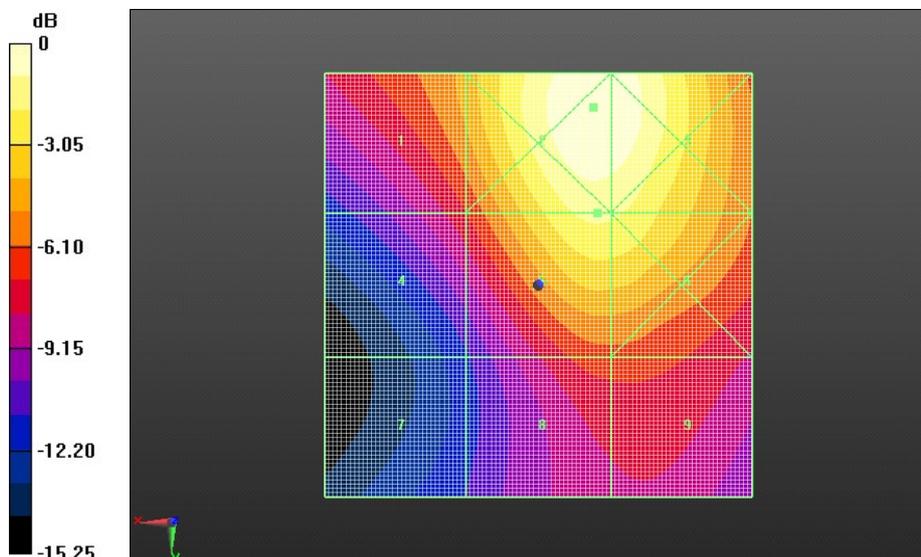
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 44.40 dBV/m

E Category: M3

Location: -6.5, -21, 8.7 mm



0 dB = 166.0 V/m = 44.40 dBV/m

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM850-251CH -Second Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 848.8 MHz;Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 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 = 91.11 V/m; Power Drift = -0.05 dB

Applied MIF = 3.63 dB

RF audio interference level = 43.18 dBV/m

Emission category: M3

MIF scaled E-field

Grid 1 M3 40.44 dBV/m	Grid 2 M3 44.96 dBV/m	Grid 3 M3 44.82 dBV/m
Grid 4 M4 37.97 dBV/m	Grid 5 M3 43.18 dBV/m	Grid 6 M3 43.08 dBV/m
Grid 7 M4 33.84 dBV/m	Grid 8 M4 38.31 dBV/m	Grid 9 M4 38.31 dBV/m

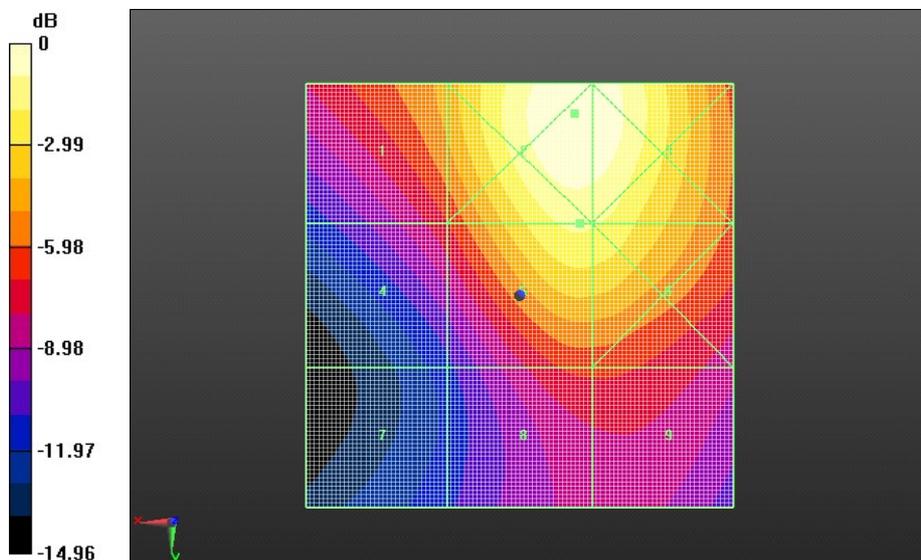
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 44.96 dBV/m

E Category: M3

Location: -6.5, -21.5, 8.7 mm



0 dB = 177.0 V/m = 44.96 dBV/m

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM850-128CH -Main Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 824.2 MHz; Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), $z = 8.7$
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Interpolated grid: $dx=0.5000 \text{ mm}$, $dy=0.5000 \text{ mm}$

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 44.50 V/m; Power Drift = -0.03 dB

Applied MIF = 3.63 dB

RF audio interference level = 35.64 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 32.39 dBV/m	Grid 2 M4 35.27 dBV/m	Grid 3 M4 35.5 dBV/m
Grid 4 M4 33.19 dBV/m	Grid 5 M4 35.64 dBV/m	Grid 6 M4 35.73 dBV/m
Grid 7 M4 34.1 dBV/m	Grid 8 M4 35.97 dBV/m	Grid 9 M4 35.98 dBV/m

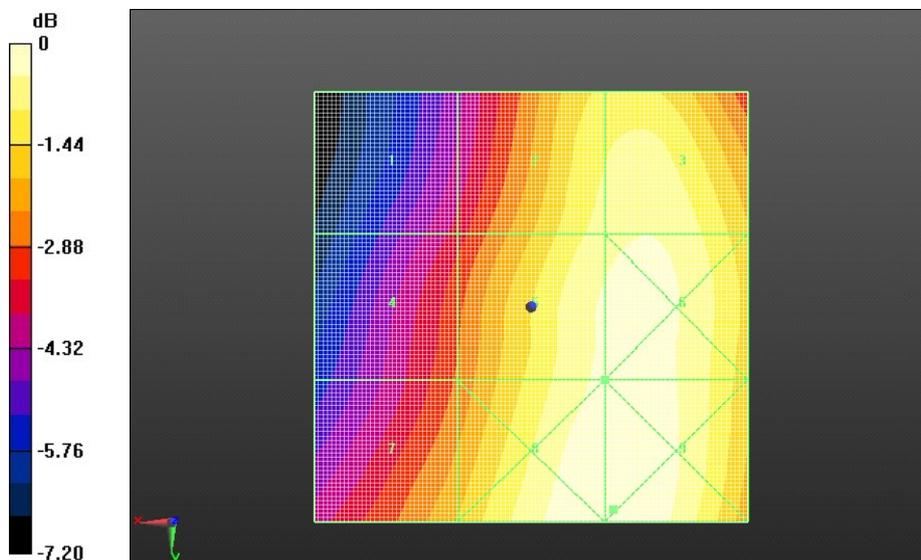
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 35.98 dBV/m

E Category: M4

Location: -9.5, 23.5, 8.7 mm



0 dB = 62.95 V/m = 35.98 dBV/m

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM850-190CH -Main Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 836.6 MHz; Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), $z = 8.7$
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 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 = 45.85 V/m; Power Drift = -0.03 dB

Applied MIF = 3.63 dB

RF audio interference level = 36.04 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 32.49 dBV/m	Grid 2 M4 35.72 dBV/m	Grid 3 M4 36.04 dBV/m
Grid 4 M4 33.34 dBV/m	Grid 5 M4 36.04 dBV/m	Grid 6 M4 36.2 dBV/m
Grid 7 M4 34.33 dBV/m	Grid 8 M4 36.41 dBV/m	Grid 9 M4 36.42 dBV/m

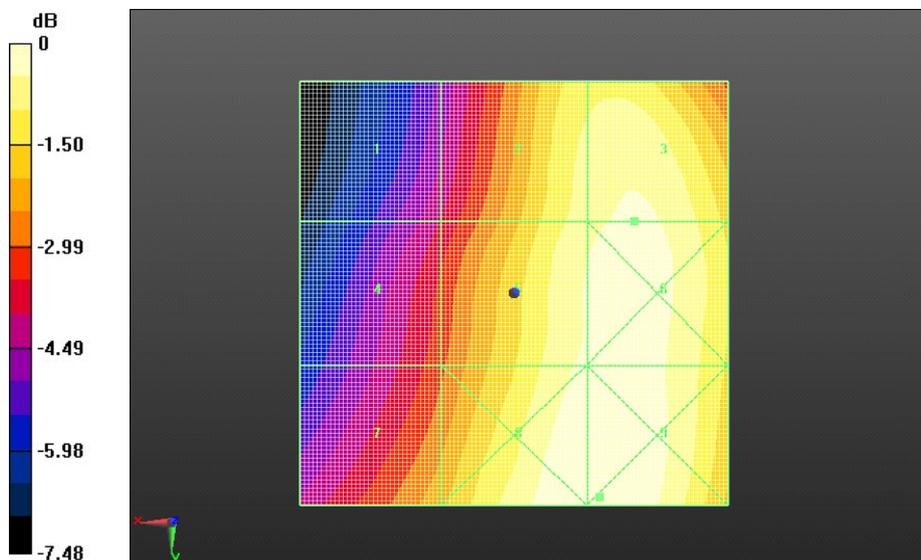
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 36.42 dBV/m

E Category: M4

Location: -10, 24, 8.7 mm



0 dB = 66.24 V/m = 36.42 dBV/m

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM850-251CH -Main Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 848.8 MHz; Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), $z = 8.7$
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Interpolated grid: $dx=0.5000 \text{ mm}$, $dy=0.5000 \text{ mm}$

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 46.90 V/m; Power Drift = 0.01 dB

Applied MIF = 3.63 dB

RF audio interference level = 36.30 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 32.76 dBV/m	Grid 2 M4 35.98 dBV/m	Grid 3 M4 36.3 dBV/m
Grid 4 M4 33.41 dBV/m	Grid 5 M4 36.1 dBV/m	Grid 6 M4 36.39 dBV/m
Grid 7 M4 34.39 dBV/m	Grid 8 M4 36.48 dBV/m	Grid 9 M4 36.55 dBV/m

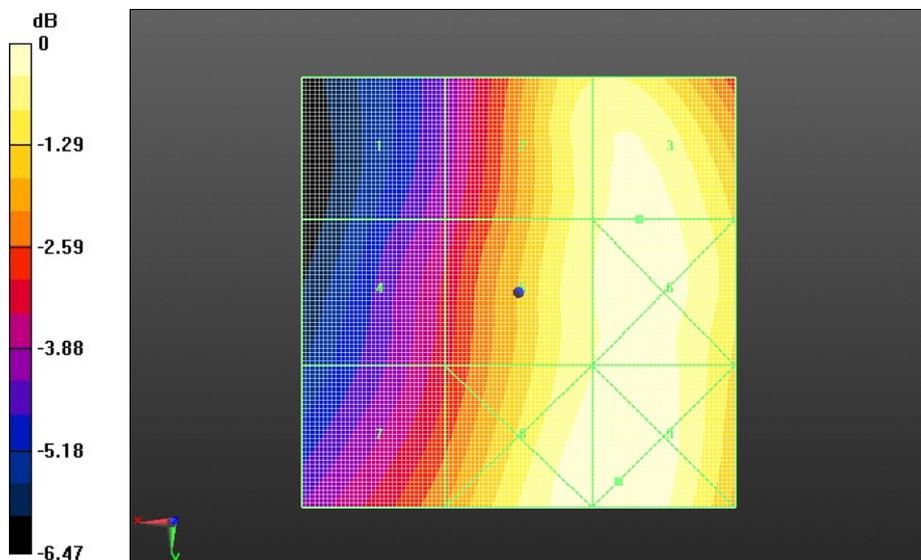
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 36.55 dBV/m

E Category: M4

Location: -11.5, 22, 8.7 mm



0 dB = 67.19 V/m = 36.55 dBV/m

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM1900-512CH -Main Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1850.2 MHz; Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), $z = 8.7$
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 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 = 4.941 V/m; Power Drift = 0.18 dB

Applied MIF = 3.63 dB

RF audio interference level = 25.39 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 23.55 dBV/m	Grid 2 M4 25.38 dBV/m	Grid 3 M4 25.39 dBV/m
Grid 4 M4 19.05 dBV/m	Grid 5 M4 23.31 dBV/m	Grid 6 M4 24.04 dBV/m
Grid 7 M4 24.75 dBV/m	Grid 8 M4 27.22 dBV/m	Grid 9 M4 27.27 dBV/m

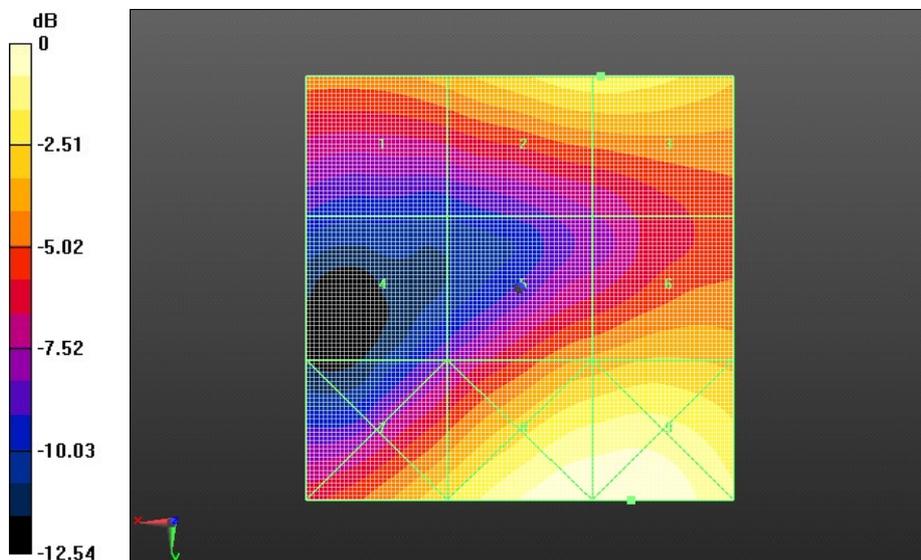
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 27.27 dBV/m

E Category: M4

Location: -13, 25, 8.7 mm



0 dB = 23.10 V/m = 27.27 dBV/m

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM1900-661CH -Main Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1880 MHz;Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 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 = 5.376 V/m; Power Drift = -0.15 dB

Applied MIF = 3.63 dB

RF audio interference level = 26.99 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 24.53 dBV/m	Grid 2 M4 26.97 dBV/m	Grid 3 M4 26.99 dBV/m
Grid 4 M4 19.21 dBV/m	Grid 5 M4 23.63 dBV/m	Grid 6 M4 24.09 dBV/m
Grid 7 M4 25.68 dBV/m	Grid 8 M4 28.29 dBV/m	Grid 9 M4 28.29 dBV/m

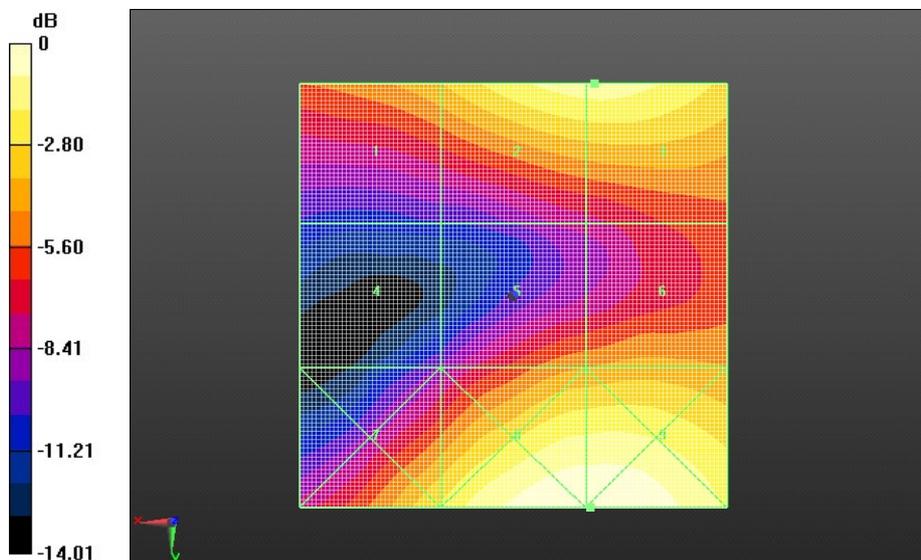
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 28.29 dBV/m

E Category: M4

Location: -9, 25, 8.7 mm



0 dB = 25.97 V/m = 28.29 dBV/m

Test Laboratory: HUAWEI SAR/HAC Lab

HAC_ER3DV6_H1511-GSM1900-810CH -Main Antenna

DUT: H1511; Type: Smart Phone; Serial: SAR1

Communication System: UID 10021 - DAB, GSM-FDD (TDMA, GMSK); Frequency: 1909.8 MHz; Duty Cycle: 1:8.6896

Medium parameters used: $\sigma = 0 \text{ S/m}$, $\epsilon_r = 1$; $\rho = 0 \text{ kg/m}^3$

Phantom section: RF Section

DASY Configuration:

- Probe: ER3DV6 - SN2441; ConvF(1, 1, 1); Calibrated: 2014-11-21;
- Sensor-Surface: (Fix Surface), $z = 8.7$
- Electronics: DAE4 Sn852; Calibrated: 2015-4-27
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1053
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Device E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - ER3D: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Interpolated grid: $dx=0.5000 \text{ mm}$, $dy=0.5000 \text{ mm}$

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 6.039 V/m; Power Drift = -0.07 dB

Applied MIF = 3.63 dB

RF audio interference level = 26.06 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 23.01 dBV/m	Grid 2 M4 25.98 dBV/m	Grid 3 M4 26.06 dBV/m
Grid 4 M4 18.31 dBV/m	Grid 5 M4 23.35 dBV/m	Grid 6 M4 23.96 dBV/m
Grid 7 M4 23.36 dBV/m	Grid 8 M4 26.95 dBV/m	Grid 9 M4 27.04 dBV/m

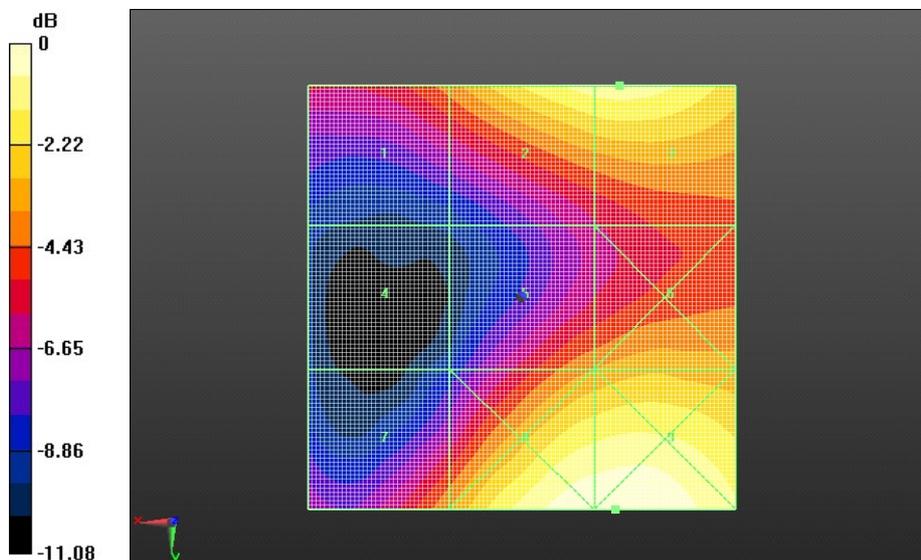
Category	Limits for E-Field Emissions < 960MHz	Limits for E-Field Emissions > 960MHz
M1	50 dBV/m - 55 dB V/m	40 dBV/m - 45 dB V/m
M2	45 dBV/m - 50 dB V/m	35 dBV/m - 40 dB V/m
M3	40 dBV/m - 45 dB V/m	30 dBV/m - 35 dB V/m
M4	<40 dBV/m	<30 dBV/m

Cursor:

Total = 27.04 dBV/m

E Category: M4

Location: -11, 25, 8.7 mm



0 dB = 22.49 V/m = 27.04 dBV/m