Annex A: Measurement data and plots

A.1 MIF validation plots

Date/Time: 12:00:00 AM

Test Laboratory: BlackBerry RTS

MIF_measurements_03_18-24_14

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

DASY Configuration:

- Probe: ER3DV6 - SN2286; ; Calibrated: 1/17/2014
- Sensor-Surface: 0mm (Fix Surface), z = 2.5
- Electronics: DAE3 Sn473; Calibrated: 1/15/2014
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA
- DASY52 52.8.6(1115); SEMCAD X 14.6.9(7117)

Configuration/MIF Measurements/MIF_AM80%_1KHz_Measurement

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-1.29 dB		0.00 dB	Power High
PMF	3.81 dB	1.551	0.00 dB	Power High
Detector Level	10.61 dBm		0.00 dB	Power High
RFAIP	9.32 dBm		0.00 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_AM10%_1KHz_Measurement

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-9.22 dB		0.00 dB	Power OK
PMF	0.78 dB	1.094	0.00 dB	Power OK
Detector Level	10.46 dBm		0.00 dB	Power OK
RFAIP	1.24 dBm		0.00 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_AM1%_1KHz_Measurement

Calibration Factors: 1.090, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-19.18 dB		0.00 dB	Power OK
PMF	0.08 dB	1.010	0.00 dB	Power OK
Detector Level	10.43 dBm		0.00 dB	Power OK
RFAIP	-8.75 dBm		0.00 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_GSM_Measurement

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	3.44 dB		0.00 dB	Power OK
PMF	9.86 dB	3.112	0.01 dB	Power OK
Detector Level	-0.64 dBm		0.00 dB	Power OK
RFAIP	2.80 dBm		0.01 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_WCDMA_Voice_AMR12_2kps_Measurement

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-25.91 dB		0.18 dB	Power OK
PMF	0.06 dB	1.007	0.00 dB	Power OK
Detector Level	0.11 dBm		0.02 dB	Power OK
RFAIP	-25.80 dBm		0.19 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11b_Rate_1Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark

MIF	-12.65 dB		0.02 dB	Power OK
PMF	0.40 dB	1.047	0.03 dB	Power OK
Detector Level	4.02 dBm		0.02 dB	Power OK
RFAIP	-8.63 dBm		0.04 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11b_Rate_2Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-11.97 dB		0.01 dB	Power OK
PMF	0.45 dB	1.053	0.01 dB	Power OK
Detector Level	4.06 dBm		0.01 dB	Power OK
RFAIP	-7.91 dBm		0.02 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11b_Rate_5.5Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-9.49 dB		0.00 dB	Power OK
PMF	0.65 dB	1.078	0.02 dB	Power OK
Detector Level	4.08 dBm		0.00 dB	Power OK
RFAIP	-5.41 dBm		0.01 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11b_Rate_11Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-8.71 dB		0.04 dB	Power OK
PMF	0.78 dB	1.094	0.04 dB	Power OK
Detector Level	3.89 dBm		0.05 dB	Power OK
RFAIP	-4.82 dBm		0.09 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11g_Rate_6Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark

MIF	-10.27 dB		0.01 dB	Power OK
PMF	0.81 dB	1.098	0.02 dB	Power OK
Detector Level	4.47 dBm		0.00 dB	Power OK
RFAIP	-5.80 dBm		0.02 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11g_Rate_9Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-9.52 dB		0.02 dB	Power OK
PMF	0.90 dB	1.109	0.02 dB	Power OK
Detector Level	4.40 dBm		0.01 dB	Power OK
RFAIP	-5.12 dBm		0.03 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11g_Rate_18Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-8.31 dB		0.01 dB	Power OK
PMF	1.08 dB	1.133	0.05 dB	Power OK
Detector Level	4.16 dBm		0.01 dB	Power OK
RFAIP	-4.15 dBm		0.02 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11g_Rate_54Mbps

Calibration Factors: 1.089, 1.088; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-8.68 dB		0.01 dB	Power OK
PMF	1.91 dB	1.246	0.04 dB	Power OK
Detector Level	3.46 dBm		0.01 dB	Power OK
RFAIP	-5.22 dBm		0.01 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11a_Rate_6Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark

MIF	-10.40 dB		0.04 dB	Power OK
PMF	0.82 dB	1.100	0.03 dB	Power OK
Detector Level	0.13 dBm		0.02 dB	Power OK
RFAIP	-10.27 dBm		0.05 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11a_Rate_24Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-10.43 dB		0.02 dB	Power OK
PMF	0.81 dB	1.098	0.03 dB	Power OK
Detector Level	0.11 dBm		0.01 dB	Power OK
RFAIP	-10.32 dBm		0.03 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11a_Rate_54Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-10.43 dB		0.02 dB	Power OK
PMF	0.81 dB	1.098	0.03 dB	Power OK
Detector Level	0.09 dBm		0.01 dB	Power OK
RFAIP	-10.34 dBm		0.02 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11n_Rate_6.5Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-10.40 dB		0.03 dB	Power OK
PMF	0.83 dB	1.100	0.03 dB	Power OK
Detector Level	0.13 dBm		0.03 dB	Power OK
RFAIP	-10.27 dBm		0.06 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11n_Rate_39Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	Value [log]	[linear]	Fluctuation	Remark

MIF	-10.43 dB		0.02 dB	Power OK
PMF	0.82 dB	1.099	0.02 dB	Power OK
Detector Level	0.17 dBm		0.01 dB	Power OK
RFAIP	-10.26 dBm		0.03 dB	(MIF+CF+Detector Level)

Configuration/MIF Measurements/MIF_802.11n_Rate_65Mbps

Calibration Factors: 1.089, 1.089; MIF Scale: 0.00 dB; Coupling Factor (CF): 0.00 dB

Quantity	**Value [log]**	**[linear]**	**Fluctuation**	**Remark**
MIF	-10.43 dB		0.01 dB	Power OK
PMF	0.81 dB	1.098	0.02 dB	Power OK
Detector Level	0.16 dBm		0.00 dB	Power OK
RFAIP	-10.27 dBm		0.02 dB	(MIF+CF+Detector Level)

A.2 Dipole validation

Date/Time: 7/15/2014 9:51:37 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_validation_07_15_14

DUT: HAC-Dipole 835 MHz; Type: CD835V3; Serial: 1089

Communication System: UID 0, CW For MIF; Frequency: 835 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 C63.19-2007)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/17/2014;
- Sensor-Surface: (Fix Surface), z = 9.7
- Electronics: DAE3 Sn472; Calibrated: 3/18/2014
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

CD835 Dipole E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - measurement distance from the probe sensor center to CD835 = 15mm/Hearing Aid Compatibility Test at 15mm distance (41x361x1):

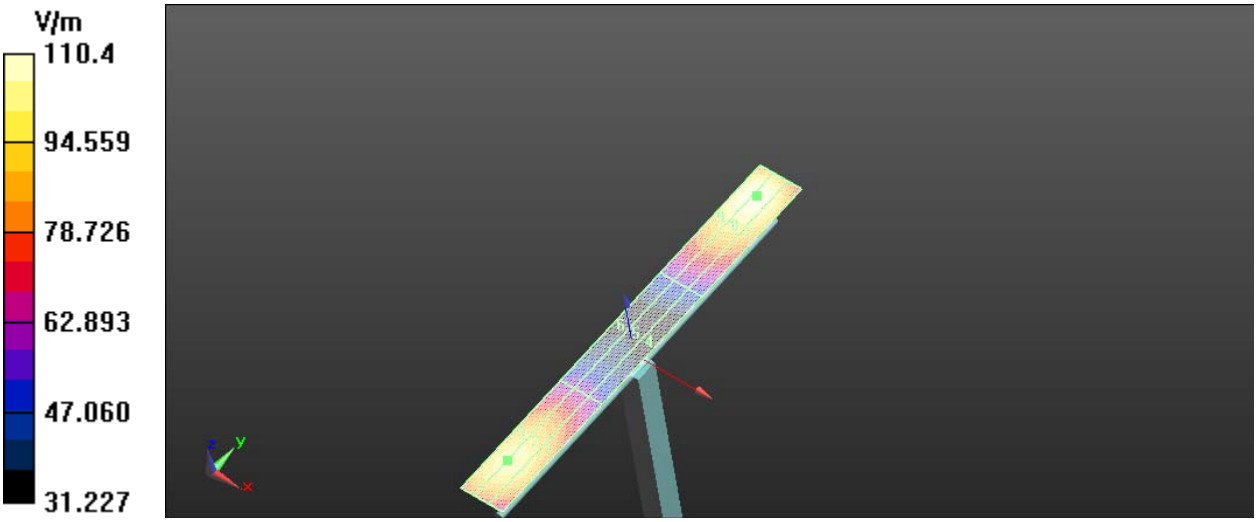
Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 104.3 V/m; Power Drift = 0.02 dB
PMR not calibrated. PMF = 1.000 is applied.
E-field emissions = 110.4 V/m
Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 **M4** **99.47 V/m**	Grid 2 **M4** **103.8 V/m**	Grid 3 **M4** **103.8 V/m**
Grid 4 **M4** **58.97 V/m**	Grid 5 **M4** **60.73 V/m**	Grid 6 **M4** **60.55 V/m**

Grid 7 **M4** **104.9 V/m**	Grid 8 **M4** **110.4 V/m**	Grid 9 **M4** **110.1 V/m**

Cursor:
Total = 110.4 V/m
E Category: M4
Location: -2, 78, 9.7 mm



Date/Time: 7/15/2014 10:18:37 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_validation_07_15_14

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1068

Communication System: UID 0, CW For MIF; 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 C63.19-2007)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/17/2014;
- Sensor-Surface: (Fix Surface), z = 9.7
- Electronics: DAE3 Sn472; Calibrated: 3/18/2014
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

CD1880 Dipole E-Field measurement (E-field scan for ANSI C63.19-2011 compliance)/E Scan - measurement distance from the probe sensor center to CD1880 = 15mm/Hearing Aid Compatibility Test at 15mm distance (41x181x1):

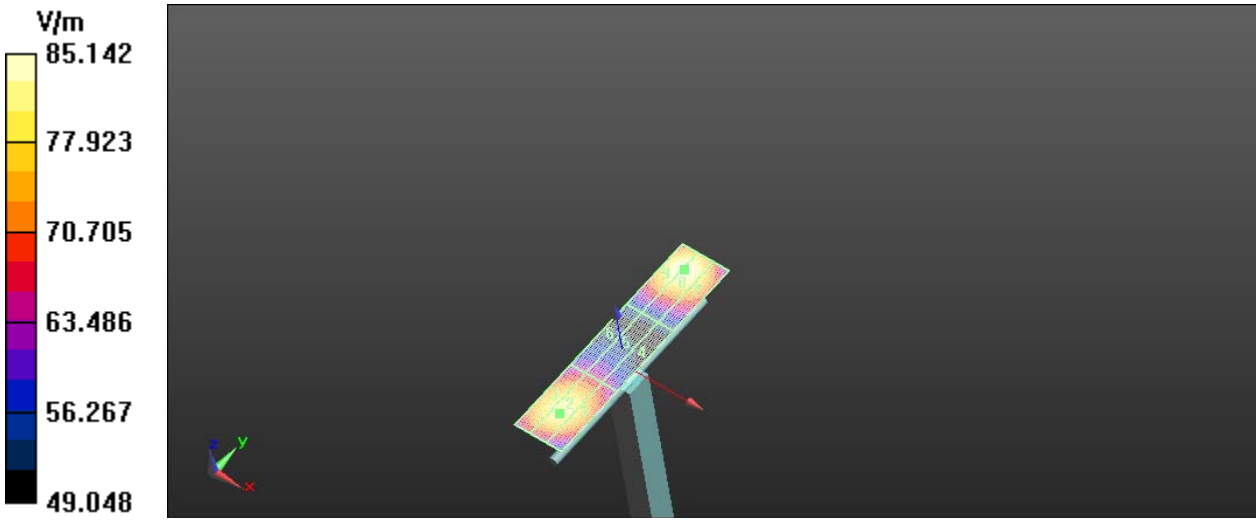
Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 147.5 V/m; Power Drift = -0.05 dB
PMR not calibrated. PMF = 1.000 is applied.
E-field emissions = 85.14 V/m
Near-field category: M3 (AWF 0 dB)

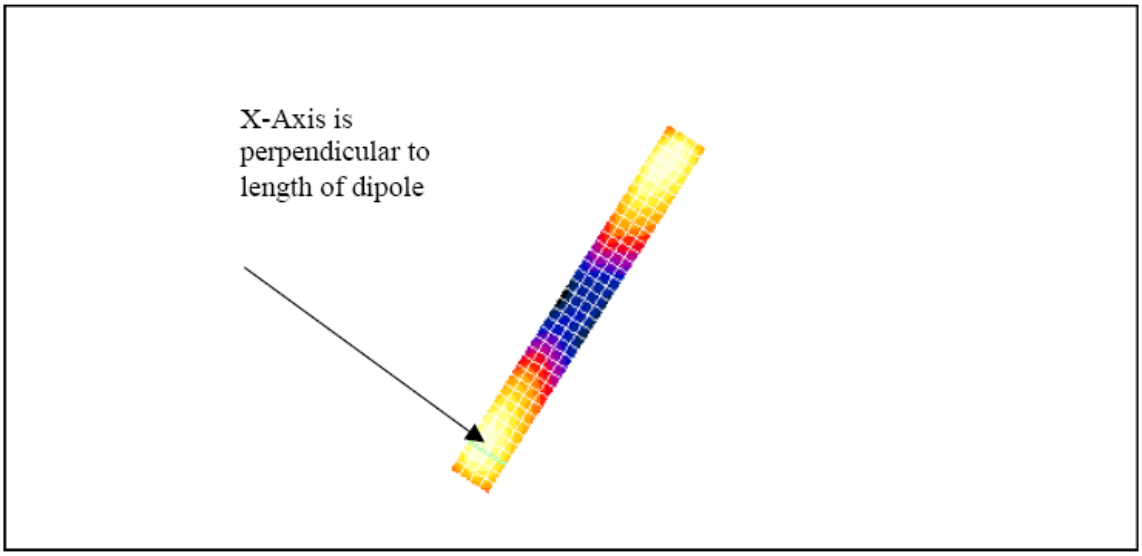
PMF scaled E-field

Grid 1 **M3** **80.00 V/m**	Grid 2 **M3** **82.16 V/m**	Grid 3 **M3** **81.30 V/m**
Grid 4 **M3** **65.54 V/m**	Grid 5 **M3** **66.50 V/m**	Grid 6 **M3** **65.53 V/m**

Grid 7 **M3**	Grid 8 **M3**	Grid 9 **M3**
80.34 V/m	**85.14 V/m**	**85.09 V/m**

Cursor:
Total = 85.14 V/m
E Category: M3
Location: -3, 37, 9.7 mm





The green line in this figure shows the axis along which the points lie.

Comparison of 5mm and 2mm step sizes

An additional set of measurements was taken: dipole validations were performed using 5mm and 2mm step sizes. The delta between the two readings is insignificant for both field types (< 0.4% for E and 0% for H), demonstrating that 5mm is sufficient. The plots follow.

Date/Time: 14/07/2005 11:35:24 AM

Lab: RIM Testing Services (RTS)

Dipole Validation 1880 MHz_E-Field 07_14_05

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: H Device Section

DASY4 Configuration:
- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: HAC Test Arch; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (5x19x1):
Measurement grid: dx=5mm, dy=5mm
Maximum value of Total (measured) = 134.8 V/m

E Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (41x181x1):
Measurement grid: dx=5mm, dy=5mm
Maximum value of Total field (slot averaged) = 131.0 V/m
Hearing Aid Near-Field Category: M2 (AWF 0 dB)

E in V/m (Time averaged)

Grid 1 **123.2**	Grid 2 **138.1**	Grid 3 **138.4**
Grid 4 **80.9**	Grid 5 **92.3**	Grid 6 **92.2**
Grid 7 **119.8**	Grid 8 **131.0**	Grid 9 **130.7**

E in V/m (Slot averaged)

Grid 1 **123.2**	Grid 2 **138.1**	Grid 3 **138.4**
Grid 4 **80.9**	Grid 5 **92.3**	Grid 6 **92.2**
Grid 7 **119.8**	Grid 8 **131.0**	Grid 9 **130.7**

Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19

Date/Time: 14/07/2005 11:35:24 AM

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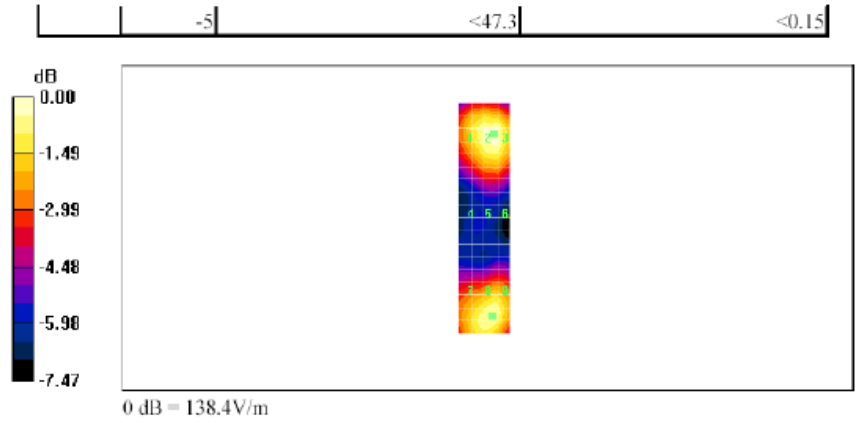


0 dB = 138.4V/m

Date/Time: 14/07/2005 11:44:51 AM

Lab: RIM Testing Services (RTS)

Dipole Validation 1880 MHz_2mm step_E-Field 07_14_05

DUT: HAC Dipole 1880 MHz; Type: CD1880V3

Communication System: CW; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: H Device Section

DASY4 Configuration:
- Probe: ER3DV6 - SN2285; ConvF(1, 1, 1); Calibrated: 10/12/2004
- Sensor-Surface: 0mm (Fix Surface)Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn472; Calibrated: 03/01/2005
- Phantom: HAC Test Arch; Type: SD HAC P01 BA;
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

E Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (11x46x1):
Measurement grid: dx=2mm, dy=2mm
Maximum value of Total (measured) = 138.0 V/m

E Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (101x451x1):
Measurement grid: dx=2mm, dy=2mm
Maximum value of Total field (slot averaged) = 131.2 V/m
Hearing Aid Near-Field Category: M2 (AWF 0 dB)

E in V/m (Time averaged)

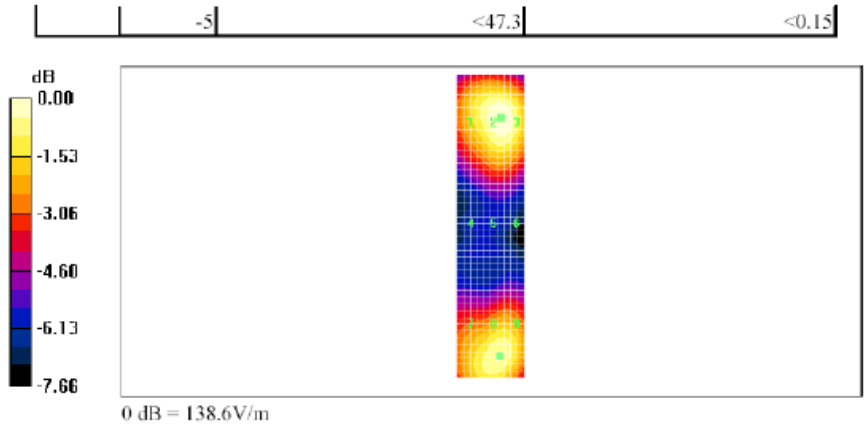
Grid 1 **123.1**	Grid 2 **138.6**	Grid 3 **138.6**
Grid 4 **81.4**	Grid 5 **92.1**	Grid 6 **91.6**
Grid 7 **121.3**	Grid 8 **131.2**	Grid 9 **131.0**

E in V/m (Slot averaged)

Grid 1 **123.1**	Grid 2 **138.6**	Grid 3 **138.6**
Grid 4 **81.4**	Grid 5 **92.1**	Grid 6 **91.6**
Grid 7 **121.3**	Grid 8 **131.2**	Grid 9 **131.0**

Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19

Date/Time: 14/07/2005 11:44:51 AM Page 2 of 2



0 dB = 138.6V/m

file://C:\Program%20Files\DASY4\Print_Templates\Dipole%20Validation%201880%20... 14/07/2005

A.3 RF emission field plots

Date/Time: 7/15/2014 4:23:54 PM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFEB30D

Communication System: UID 0, GSM 850; Communication System Band: GSM 850;
Frequency: 824.2 MHz, Frequency: 836.8 MHz, Frequency: 848.8 MHz; MIF: 3.44 dB
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)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/17/2014;
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn472; Calibrated: 3/18/2014
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Device E-Field GSM850 measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_Low_Chan/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 = 57.72 V/m; Power Drift = -0.02 dB
Applied MIF = 3.44 dB
RF audio interference level = 36.91 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **35.62 dBV/m**	Grid 2 **M4** **36.78 dBV/m**	Grid 3 **M4** **36.78 dBV/m**
Grid 4 **M4** **35.69 dBV/m**	Grid 5 **M4** **36.91 dBV/m**	Grid 6 **M4** **36.91 dBV/m**
Grid 7 **M4** **35.8 dBV/m**	Grid 8 **M4** **36.85 dBV/m**	Grid 9 **M4** **36.84 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 = 36.91 dBV/m
E Category: M4
Location: -8.5, 0.5, 8.7 mm

Device E-Field GSM850 measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_Mid_Chan/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 = 59.53 V/m; Power Drift = -0.02 dB
Applied MIF = 3.44 dB
RF audio interference level = 37.52 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **35.31 dBV/m**	Grid 2 **M4** **37.19 dBV/m**	Grid 3 **M4** **37.19 dBV/m**
Grid 4 **M4**	Grid 5 **M4**	Grid 6 **M4**

35.68 dBV/m	**37.52 dBV/m**	**37.52 dBV/m**
Grid 7 **M4** **36.08 dBV/m**	Grid 8 **M4** **37.59 dBV/m**	Grid 9 **M4** **37.59 dBV/m**

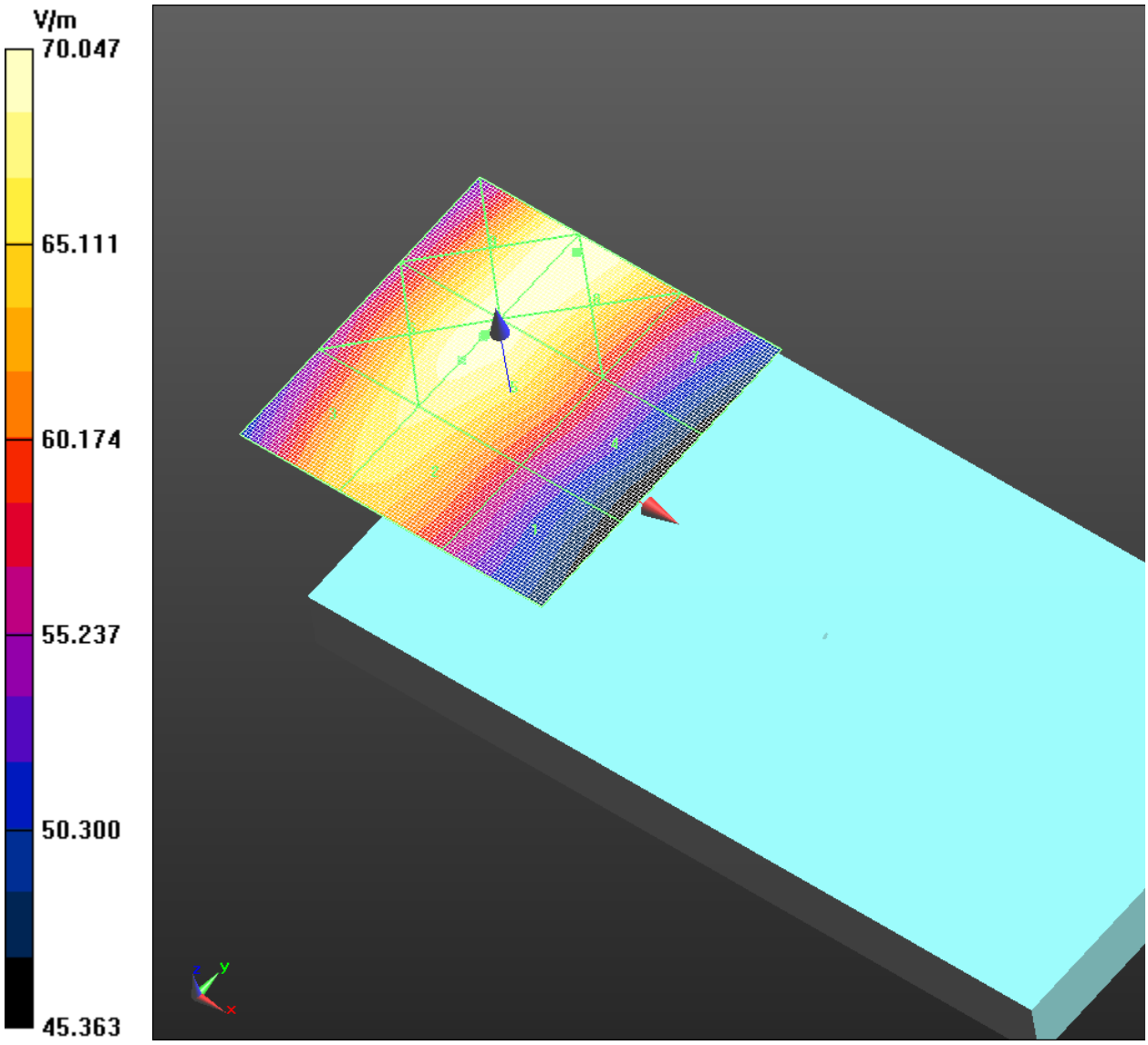
Cursor:
Total = 37.59 dBV/m
E Category: M4
Location: -7, 22.5, 8.7 mm

Device E-Field GSM850 measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_High_Chan/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 = 54.38 V/m; Power Drift = 0.03 dB
Applied MIF = 3.44 dB
RF audio interference level = 36.74 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **34.63 dBV/m**	Grid 2 **M4** **36.4 dBV/m**	Grid 3 **M4** **36.4 dBV/m**
Grid 4 **M4** **34.96 dBV/m**	Grid 5 **M4** **36.74 dBV/m**	Grid 6 **M4** **36.74 dBV/m**
Grid 7 **M4** **35.27 dBV/m**	Grid 8 **M4** **36.81 dBV/m**	Grid 9 **M4** **36.8 dBV/m**

Cursor:
Total = 36.81 dBV/m
E Category: M4
Location: -7, 22.5, 8.7 mm



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Test Laboratory: BlackBerry RTS

HAC RF_E-Field_GSM 1900

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFEB30D

Communication System: UID 0, GSM 1900; Communication System Band: GSM 1900;
Frequency: 1850.2 MHz, Frequency: 1880 MHz, Frequency: 1909.8 MHz; MIF: 3.44 dB
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)

DASY Configuration:

- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn472; Calibrated: 3/18/2014
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Device E-Field GSM 1900 measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_Low_Chan/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 = 20.50 V/m; Power Drift = -0.02 dB
Applied MIF = 3.44 dB
RF audio interference level = 29.43 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **29.99 dBV/m**	Grid 2 **M3** **31.57 dBV/m**	Grid 3 **M3** **31.46 dBV/m**
Grid 4 **M4** **27.32 dBV/m**	Grid 5 **M4** **29.43 dBV/m**	Grid 6 **M4** **29.35 dBV/m**
Grid 7 **M4**	Grid 8 **M4**	Grid 9 **M4**

23.85 dBV/m	**27.81 dBV/m**	**27.97 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 = 31.57 dBV/m
E Category: M3
Location: -4.5, -25, 8.7 mm

Device E-Field GSM 1900 measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_Mid_Chan/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 = 20.69 V/m; Power Drift = 0.21 dB
Applied MIF = 3.44 dB
RF audio interference level = 29.72 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **29.19 dBV/m**	Grid 2 **M3** **31.36 dBV/m**	Grid 3 **M3** **31.34 dBV/m**
Grid 4 **M4** **26.77 dBV/m**	Grid 5 **M4** **29.72 dBV/m**	Grid 6 **M4** **29.72 dBV/m**
Grid 7 **M4** **23.6 dBV/m**	Grid 8 **M4** **28.05 dBV/m**	Grid 9 **M4** **28.17 dBV/m**

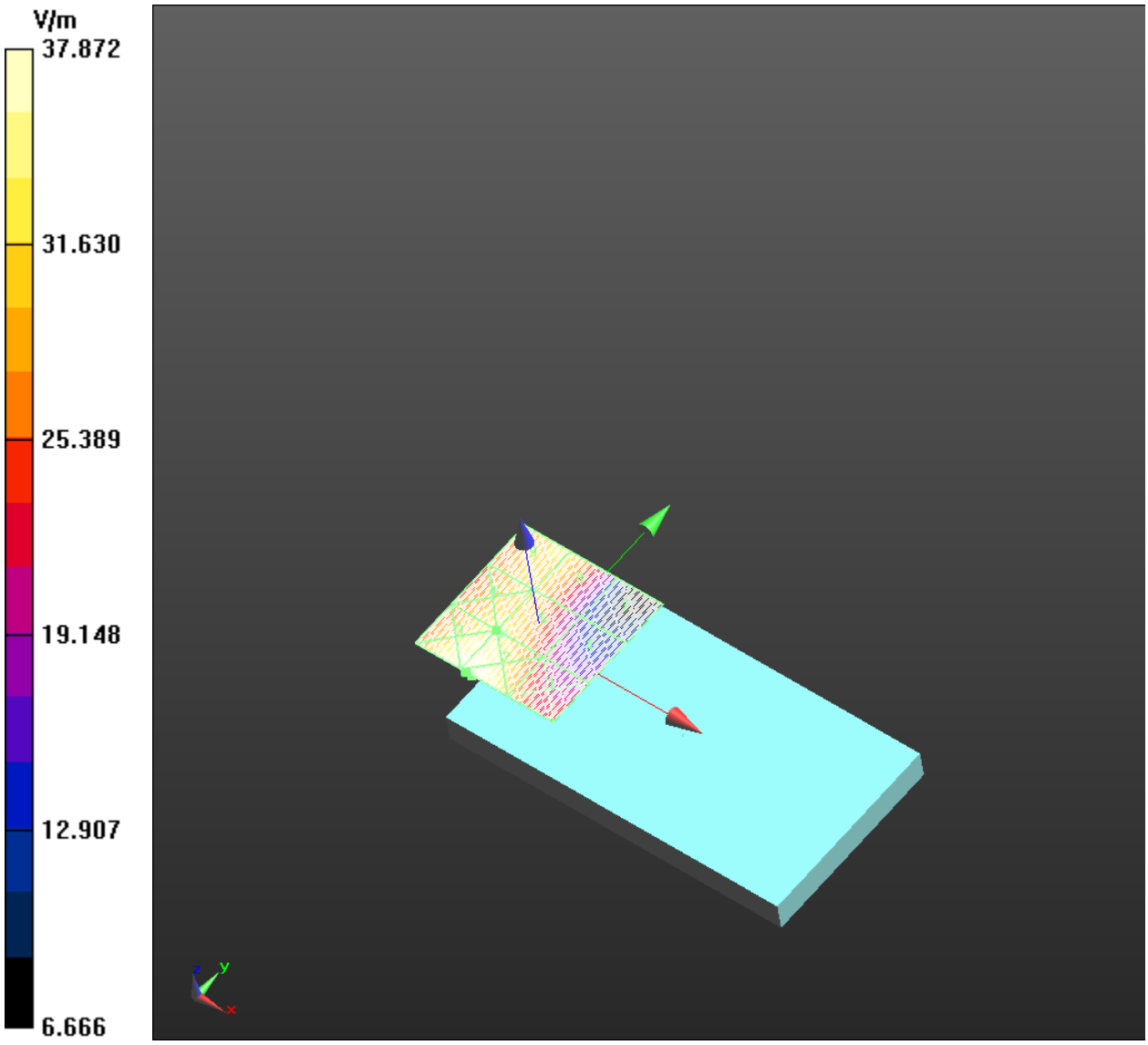
Cursor:
Total = 31.36 dBV/m
E Category: M3
Location: -7, -25, 8.7 mm

Device E-Field GSM 1900 measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_High_Chan/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 = 21.76 V/m; Power Drift = -0.10 dB
Applied MIF = 3.44 dB
RF audio interference level = 29.62 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **28.79 dBV/m**	Grid 2 **M3** **30.67 dBV/m**	Grid 3 **M3** **30.64 dBV/m**
Grid 4 **M4** **26.84 dBV/m**	Grid 5 **M4** **29.62 dBV/m**	Grid 6 **M4** **29.62 dBV/m**
Grid 7 **M4** **24.54 dBV/m**	Grid 8 **M4** **29.36 dBV/m**	Grid 9 **M4** **29.47 dBV/m**

Cursor:
Total = 30.67 dBV/m
E Category: M3
Location: -6.5, -25, 8.7 mm



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Test Laboratory: BlackBerry RTS

HAC RF_E-Field_UMTS V

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFEB30D

Communication System: UID 0, WCDMA FDD V; Communication System Band: UMTS band V; Frequency: 826.4 MHz, Frequency: 836.4 MHz, Frequency: 846.6 MHz; MIF: -25.91 dB
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)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/17/2014;
  - Modulation Compensation:
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn472; Calibrated: 3/18/2014
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Device E-Field UMTS band V measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_Low_Chan/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 = 71.23 V/m; Power Drift = 0.10 dB
Applied MIF = -25.91 dB
RF audio interference level = 9.60 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **8.13 dBV/m**	Grid 2 **M4** **9.39 dBV/m**	Grid 3 **M4** **9.38 dBV/m**
Grid 4 **M4**	Grid 5 **M4**	Grid 6 **M4**

8.24 dBV/m	**9.6 dBV/m**	**9.59 dBV/m**
Grid 7 **M4** **8.31 dBV/m**	Grid 8 **M4** **9.53 dBV/m**	Grid 9 **M4** **9.52 dBV/m**

Cursor:
Total = 9.60 dBV/m
E Category: M4
Location: -7.5, 2, 8.7 mm

Device E-Field UMTS band V measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_Mid_Chan/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 = 75.68 V/m; Power Drift = -0.03 dB
Applied MIF = -25.91 dB
RF audio interference level = 10.04 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **8.03 dBV/m**	Grid 2 **M4** **9.94 dBV/m**	Grid 3 **M4** **9.94 dBV/m**
Grid 4 **M4** **8.28 dBV/m**	Grid 5 **M4** **10.04 dBV/m**	Grid 6 **M4** **10.04 dBV/m**
Grid 7 **M4** **8.47 dBV/m**	Grid 8 **M4** **10.03 dBV/m**	Grid 9 **M4** **10.02 dBV/m**

Cursor:
Total = 10.04 dBV/m
E Category: M4
Location: -8.5, 5, 8.7 mm

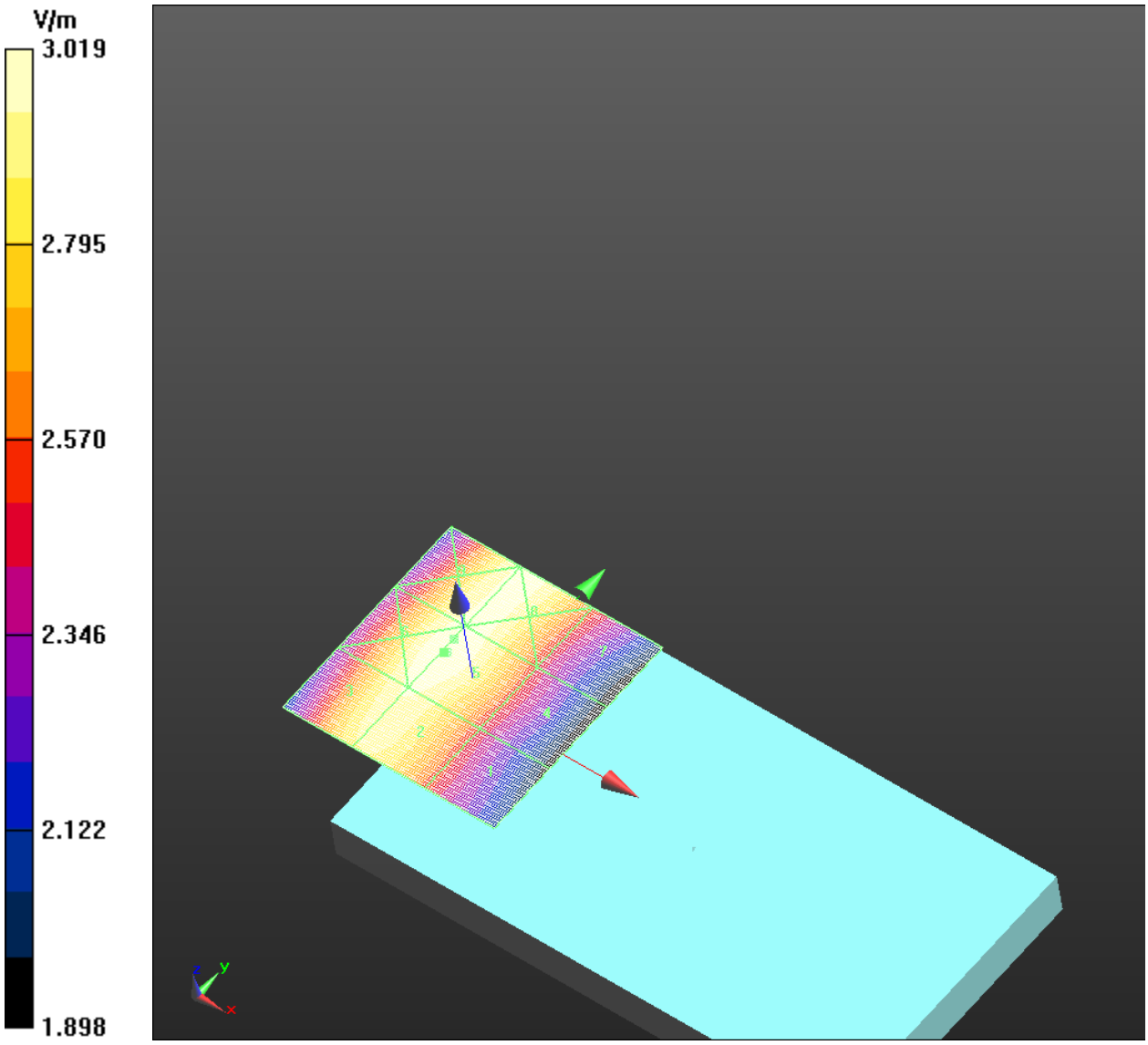
Device E-Field UMTS band V measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_High_Chan/Hearing Aid

Compatibility Test (101x101x1): Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 76.76 V/m; Power Drift = 0.06 dB
Applied MIF = -25.91 dB
RF audio interference level = 10.28 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **8.6 dBV/m**	Grid 2 **M4** **10.07 dBV/m**	Grid 3 **M4** **10.07 dBV/m**
Grid 4 **M4** **8.58 dBV/m**	Grid 5 **M4** **10.28 dBV/m**	Grid 6 **M4** **10.28 dBV/m**
Grid 7 **M4** **8.71 dBV/m**	Grid 8 **M4** **10.17 dBV/m**	Grid 9 **M4** **10.15 dBV/m**

Cursor:
Total = 10.28 dBV/m
E Category: M4
Location: -8, 1.5, 8.7 mm



Date/Time: 7/15/2014 5:29:08 PM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_UMTS II

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFEB30D

Communication System: UID 0, WCDMA FDD II; Communication System Band: UMTS FDD II; Frequency: 1852.4 MHz, Frequency: 1880 MHz, Frequency: 1907.6 MHz; MIF: -25.91 dB
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)

DASY Configuration:

- Probe: ER3DV6 - SN2286; ConvF(1, 1, 1); Calibrated: 1/17/2014;
  - Modulation Compensation:
- Sensor-Surface: (Fix Surface), z = 8.7
- Electronics: DAE3 Sn472; Calibrated: 3/18/2014
- Phantom: HAC RF Test Arch with AMCC; Type: SD HAC P01 BA
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Device E-Field UMTS band II measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_Low_Chan/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 = 32.45 V/m; Power Drift = -0.17 dB
Applied MIF = -25.91 dB
RF audio interference level = 3.87 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **2.43 dBV/m**	Grid 2 **M4** **3.87 dBV/m**	Grid 3 **M4** **3.79 dBV/m**
Grid 4 **M4**	Grid 5 **M4**	Grid 6 **M4**

0.2 dBV/m	**3.64 dBV/m**	**3.72 dBV/m**
Grid 7 **M4** **0.77 dBV/m**	Grid 8 **M4** **4.96 dBV/m**	Grid 9 **M4** **4.99 dBV/m**

Cursor:
Total = 4.99 dBV/m
E Category: M4
Location: -10, 25, 8.7 mm

Device E-Field UMTS band II measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_Mid_Chan/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 = 27.43 V/m; Power Drift = 0.03 dB
Applied MIF = -25.91 dB
RF audio interference level = 3.76 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **2.41 dBV/m**	Grid 2 **M4** **3.76 dBV/m**	Grid 3 **M4** **3.58 dBV/m**
Grid 4 **M4** **-0.54 dBV/m**	Grid 5 **M4** **2.87 dBV/m**	Grid 6 **M4** **3.04 dBV/m**
Grid 7 **M4** **0.39 dBV/m**	Grid 8 **M4** **4.81 dBV/m**	Grid 9 **M4** **4.86 dBV/m**

Cursor:
Total = 4.86 dBV/m
E Category: M4
Location: -10.5, 25, 8.7 mm

Device E-Field UMTS band II measurement with ER probe/E Scan - ER3D - 2011: 15 mm from Probe Center to the Device_High_Chan/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 = 24.58 V/m; Power Drift = 0.02 dB
Applied MIF = -25.91 dB
RF audio interference level = 4.63 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 **M4** **3.44 dBV/m**	Grid 2 **M4** **5.05 dBV/m**	Grid 3 **M4** **4.96 dBV/m**
Grid 4 **M4** **-0.05 dBV/m**	Grid 5 **M4** **2.23 dBV/m**	Grid 6 **M4** **2.23 dBV/m**
Grid 7 **M4** **-0.1 dBV/m**	Grid 8 **M4** **4.56 dBV/m**	Grid 9 **M4** **4.63 dBV/m**

Cursor:
Total = 5.05 dBV/m
E Category: M4
Location: -5, -25, 8.7 mm