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Annex A: Measurement data and plots

A.1 MIF validation plots

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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)

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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
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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
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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
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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
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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)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_20MHz_BW_QPSK_RB1_Offset0_Measurement

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-14.58 dB		0.07 dB	Power OK
PMF	1.82 dB	1.234	0.36 dB	Power OK
Detector Level	5.25 dBm		0.09 dB	Power OK
RFAIP	-9.34 dBm		0.16 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_20MHz_BW_QPSK_RB1_Offset50_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	-14.57 dB		0.07 dB	Power OK
PMF	1.84 dB	1.237	0.41 dB	Power OK
Detector Level	4.96 dBm		0.07 dB	Power OK
RFAIP	-9.60 dBm		0.14 dB	(MIF+CF+Detector Level)

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Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_20MHz_BW_QPSK_RB1_Offset99_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	-14.47 dB		0.07 dB	Power OK
PMF	1.72 dB	1.219	0.38 dB	Power OK
Detector Level	4.60 dBm		0.04 dB	Power OK
RFAIP	-9.87 dBm		0.11 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_20MHz_BW_QPSK_RB50_Offset0_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	-21.01 dB		0.22 dB	Power OK
PMF	0.16 dB	1.019	0.02 dB	Power OK
Detector Level	3.93 dBm		0.10 dB	Power OK
RFAIP	-17.08 dBm		0.32 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_20MHz_BW_QPSK_RB100_Offset0_Measurement

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-21.97 dB		0.33 dB	Power OK
PMF	0.15 dB	1.017	0.02 dB	Power OK
Detector Level	3.89 dBm		0.08 dB	Power OK
RFAIP	-18.08 dBm		0.41 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_15MHz_BW_QPSK_RB1_Offset0_Measurement

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-14.75 dB		0.04 dB	Power OK
PMF	1.68 dB	1.213	0.24 dB	Power OK
Detector Level	5.14 dBm		0.07 dB	Power OK
RFAIP	-9.61 dBm		0.11 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_10MHz_BW_QPSK_RB1_Offset0_Measurem

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-14.93 dB		0.03 dB	Power OK
PMF	1.51 dB	1.190	0.15 dB	Power OK
Detector Level	4.98 dBm		0.06 dB	Power OK
RFAIP	-9.95 dBm		0.09 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_5MHz_BW_QPSK_RB1_Offset0_Measureme

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-14.74 dB		0.00 dB	Power OK
PMF	1.57 dB	1.198	0.08 dB	Power OK
Detector Level	4.93 dBm		0.00 dB	Power OK
RFAIP	-9.81 dBm		0.01 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_3MHz_BW_QPSK_RB1_Offset0_Measureme

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

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Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-14.70 dB		0.05 dB	Power OK
PMF	1.55 dB	1.196	0.25 dB	Power OK
Detector Level	4.98 dBm		0.08 dB	Power OK
RFAIP	-9.71 dBm		0.14 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

QPSK_Measurements/MIF_LTE_1.4MHz_BW_QPSK_RB1_Offset0_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	-14.84 dB		0.04 dB	Power OK
PMF	1.39 dB	1.174	0.11 dB	Power OK
Detector Level	5.11 dBm		0.06 dB	Power OK
RFAIP	-9.74 dBm		0.10 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

16QAM_Measurements/MIF_LTE_20MHz_BW_16QAM_RB1_Offset0_Measurement

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-10.58 dB		0.02 dB	Power OK
PMF	2.48 dB	1.331	0.15 dB	Power OK
Detector Level	4.20 dBm		0.04 dB	Power OK
RFAIP	-6.38 dBm		0.06 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

16QAM_Measurements/MIF_LTE_20MHz_BW_16QAM_RB1_Offset50_Measurement

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-10.56 dB		0.05 dB	Power OK

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PMF	2.50 dB	1.333	0.12 dB	Power OK
Detector Level	4.03 dBm		0.08 dB	Power OK
RFAIP	-6.53 dBm		0.13 dB	(MIF+CF+Detector Level)

Configuration/MIF_ LTE

16QAM_Measurements/MIF_LTE_20MHz_BW_16QAM_RB1_Offset99_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	-10.55 dB		0.04 dB	Power OK
PMF	2.50 dB	1.333	0.12 dB	Power OK
Detector Level	3.65 dBm		0.05 dB	Power OK
RFAIP	-6.90 dBm		0.09 dB	(MIF+CF+Detector Level)

Configuration/MIF_ LTE

16QAM_Measurements/MIF_LTE_20MHz_BW_16QAM_RB24_Offset0_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	-16.41 dB		0.05 dB	Power OK
PMF	0.58 dB	1.069	0.07 dB	Power OK
Detector Level	3.07 dBm		0.10 dB	Power OK
RFAIP	-13.33 dBm		0.15 dB	(MIF+CF+Detector Level)

Configuration/MIF_ LTE

16QAM_Measurements/MIF_LTE_20MHz_BW_16QAM_RB100_Offset0_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	-17.67 dB		0.07 dB	Power OK
PMF	0.34 dB	1.040	0.03 dB	Power OK
Detector Level	2.81 dBm		0.10 dB	Power OK
RFAIP	-14.86 dBm		0.16 dB	(MIF+CF+Detector Level)

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Configuration/MIF_LTE

16QAM_Measurements/MIF_LTE_15MHz_BW_16QAM_RB1_Offset0_Measurement

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-10.07 dB		0.05 dB	Power OK
PMF	2.36 dB	1.313	0.21 dB	Power OK
Detector Level	4.25 dBm		0.06 dB	Power OK
RFAIP	-5.82 dBm		0.11 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

16QAM_Measurements/MIF_LTE_10MHz_BW_16QAM_RB1_Offset0_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	-10.03 dB		0.04 dB	Power OK
PMF	2.37 dB	1.313	0.17 dB	Power OK
Detector Level	4.19 dBm		0.08 dB	Power OK
RFAIP	-5.85 dBm		0.12 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

16QAM_Measurements/MIF_LTE_5MHz_BW_16QAM_RB1_Offset0_Measurement

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-10.98 dB		0.04 dB	Power OK
PMF	2.62 dB	1.353	0.32 dB	Power OK
Detector Level	3.78 dBm		0.08 dB	Power OK
RFAIP	-7.20 dBm		0.13 dB	(MIF+CF+Detector Level)

Configuration/MIF_LTE

16QAM_Measurements/MIF_LTE_3MHz_BW_16QAM_RB1_Offset0_Measurement

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

Quantity	Value [log]	[linear]	Fluctuation	Remark
MIF	-10.15 dB		0.03 dB	Power OK
PMF	2.35 dB	1.311	0.20 dB	Power OK
Detector Level	4.19 dBm		0.07 dB	Power OK
RFAIP	-5.96 dBm		0.10 dB	(MIF+CF+Detector Level)

Configuration/MIF_ LTE

16QAM_Measurements/MIF_LTE_1.4MHz_BW_16QAM_RB1_Offset0_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	-10.41 dB		0.05 dB	Power OK
PMF	2.97 dB	1.407	0.30 dB	Power OK
Detector Level	3.98 dBm		0.08 dB	Power OK
RFAIP	-6.43 dBm		0.14 dB	(MIF+CF+Detector Level)

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A.2 Dipole validation

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Date/Time: 5/20/2014 9:54:02 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_validation_05_20_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, $\epsilon_r = 1$; $\rho = 0$ kg/m³

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), $z = 9.7$
- 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 = 105.9 V/m; Power Drift = 0.10 dB

PMR not calibrated. PMF = 1.000 is applied.

E-field emissions = 111.5 V/m

Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 M4 103.1 V/m	Grid 2 M4 108.6 V/m	Grid 3 M4 108.6 V/m
Grid 4 M4 61.87 V/m	Grid 5 M4 63.39 V/m	Grid 6 M4 62.65 V/m

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Grid 7 M4 107.0 V/m	Grid 8 M4 111.5 V/m	Grid 9 M4 111.0 V/m
--------------------------------------	--------------------------------------	--------------------------------------

Cursor:

Total = 111.5 V/m

E Category: M4

Location: -1.5, 78, 9.7 mm

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Date/Time: 6/2/2014 8:59:56 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_validation_06_02_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, $\epsilon_r = 1$; $\rho = 0$ kg/m³

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 = 106.9 V/m; Power Drift = -0.04 dB

PMR not calibrated. PMF = 1.000 is applied.

E-field emissions = 109.7 V/m

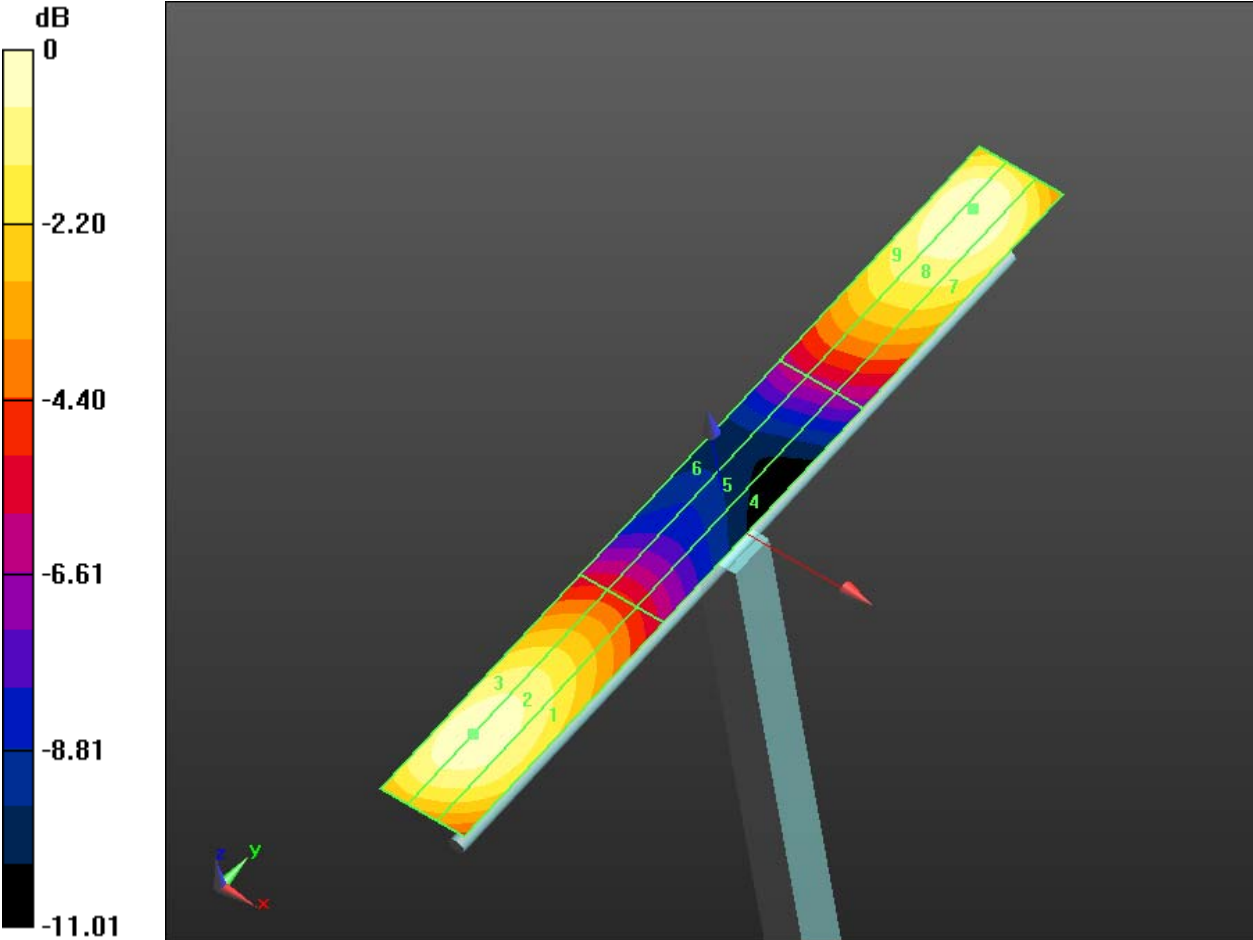
Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

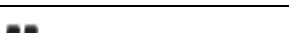
Grid 1 M4 101.4 V/m	Grid 2 M4 107.3 V/m	Grid 3 M4 107.3 V/m
Grid 4 M4	Grid 5 M4	Grid 6 M4

60.99 V/m	62.43 V/m	61.82 V/m
Grid 7 M4	Grid 8 M4	Grid 9 M4
105.0 V/m	109.7 V/m	109.3 V/m

Cursor:
 Total = 109.7 V/m
 E Category: M4
 Location: -2, 78, 9.7 mm



0 dB = 109.7 V/m = 40.80 dBV/m

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Date/Time: 5/20/2014 9:47:56 AM

Test Laboratory: BlackBerry RTS

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, $\epsilon_r = 1$; $\rho = 0$ kg/m³

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), $z = 9.7$
- 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 = 149.0 V/m; Power Drift = -0.05 dB

PMR not calibrated. PMF = 1.000 is applied.

E-field emissions = 86.37 V/m

Near-field category: M3 (AWF 0 dB)

PMF scaled E-field

Grid 1 M3 81.46 V/m	Grid 2 M3 84.28 V/m	Grid 3 M3 84.12 V/m
Grid 4 M3	Grid 5 M3	Grid 6 M3

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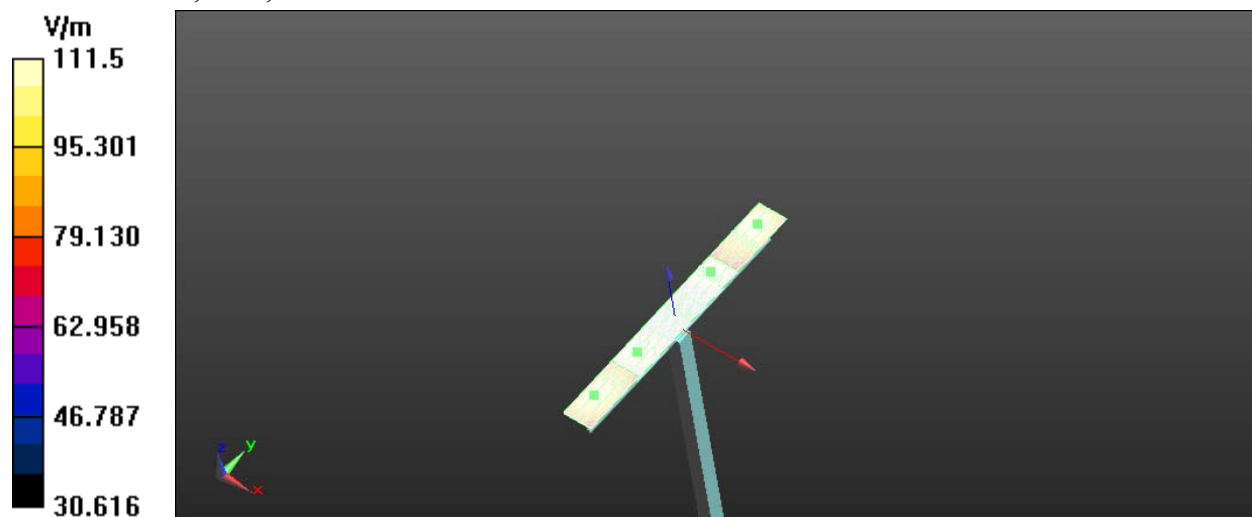
66.23 V/m	67.31 V/m	66.39 V/m
Grid 7 M3	Grid 8 M3	Grid 9 M3
80.98 V/m	86.37 V/m	86.27 V/m

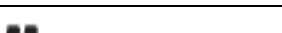
Cursor:

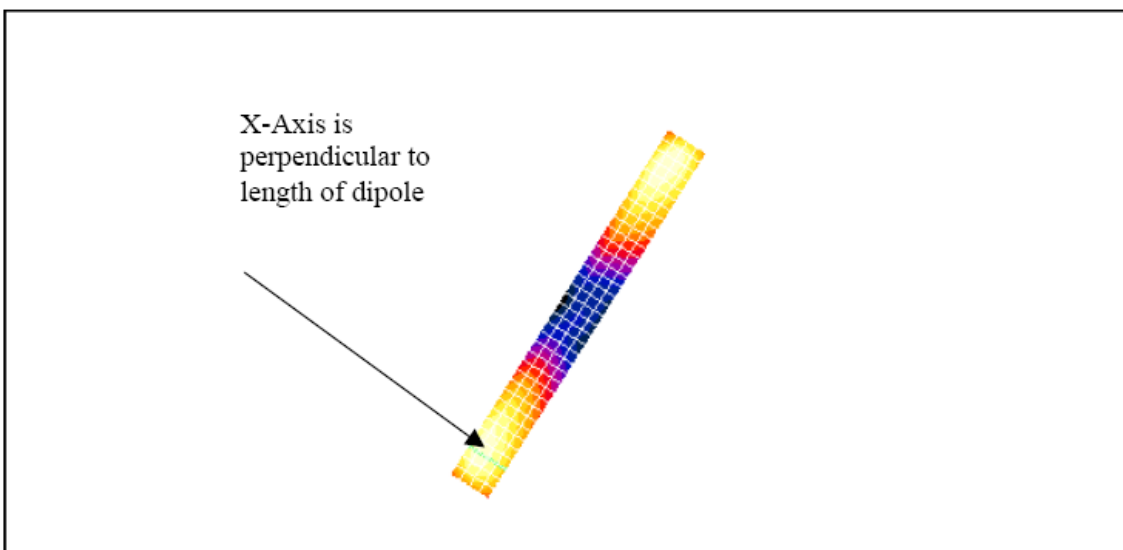
Total = 86.37 V/m

E Category: M3

Location: -2.5, 36.5, 9.7 mm



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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.

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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, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

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) E in V/m (Slot averaged)

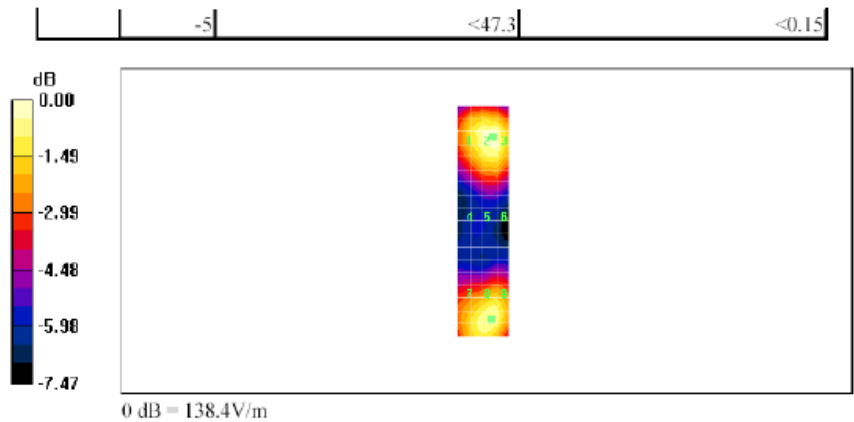
Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
123.2	138.1	138.4	123.2	138.1	138.4
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
80.9	92.3	92.2	80.9	92.3	92.2
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
119.8	131.0	130.7	119.8	131.0	130.7

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

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

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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, $\epsilon_r = 1$; $\rho = 1000$ kg/m³
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) E in V/m (Slot averaged)

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

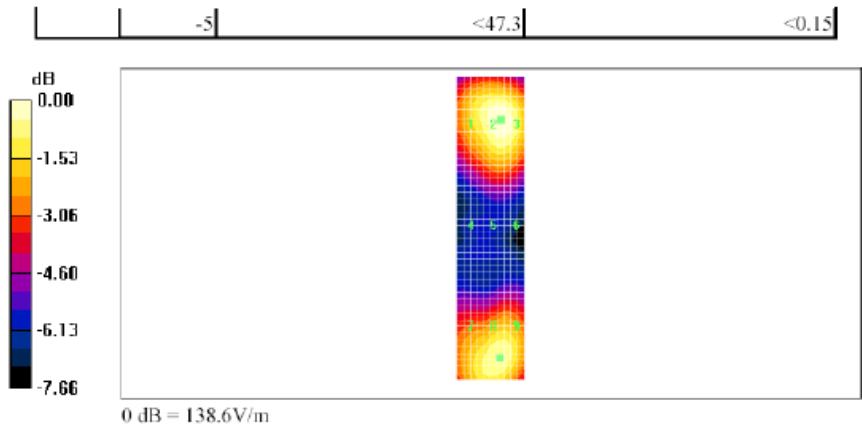
Category	AWF (dB)	Limits for E-Field Emissions (V/m)	Limits for H-Field Emissions (A/m)
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.15 - 0.25
M4	0	<63.1	<0.19

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Lab: RIM Testing Services (RTS)

HAC_H_Dipole_CW 1880_5 mm step_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, $\epsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Dipole Section

DASY4 Configuration:

- Probe: H3DV6 - SN6105; ; 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

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (5x19x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of Total (measured) = 0.406 A/m

H Scan 10mm above CD 1880 MHz/Hearing Aid Compatibility Test (41x181x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of Total field (slot averaged) = 0.406 A/m

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

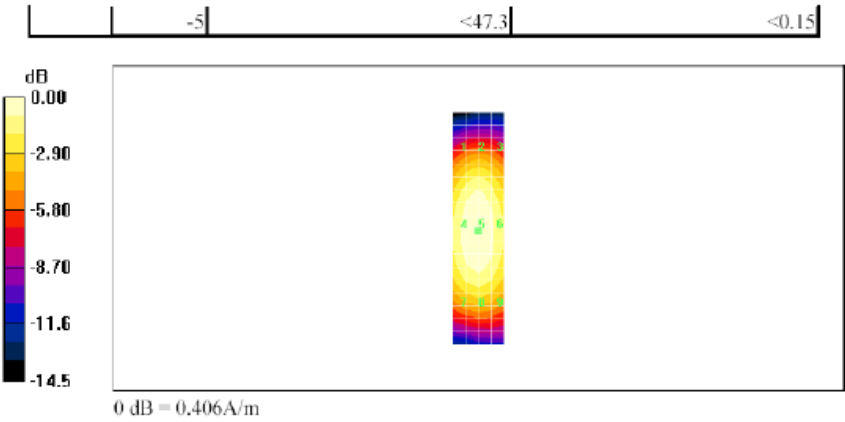
H in A/m (Time averaged) H in A/m (Slot averaged)

Grid 1	Grid 2	Grid 3	Grid 1	Grid 2	Grid 3
0.342	0.359	0.344	0.342	0.359	0.344
Grid 4	Grid 5	Grid 6	Grid 4	Grid 5	Grid 6
0.389	0.406	0.389	0.389	0.406	0.389
Grid 7	Grid 8	Grid 9	Grid 7	Grid 8	Grid 9
0.363	0.378	0.363	0.363	0.378	0.363

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

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A.3 RF emission field plots

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Date/Time: 5/20/2014 10:41:59 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_GSM850

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFF3D40

Communication System: UID 0, GSM 850; Frequency: 824.2 MHz, Frequency: 836.8 MHz,
Frequency: 848.8 MHz

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

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 = 35.16 V/m; Power Drift = -0.17 dB

Applied MIF = 3.44 dB

RF audio interference level = 32.61 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 33.53 dBV/m	Grid 2 M4 33.88 dBV/m	Grid 3 M4 33.57 dBV/m
Grid 4 M4	Grid 5 M4	Grid 6 M4

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32.02 dBV/m	32.61 dBV/m	32.43 dBV/m
Grid 7 M4	Grid 8 M4	Grid 9 M4
30.3 dBV/m	31.24 dBV/m	31.06 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 = 33.88 dBV/m

E Category: M4

Location: -2.5, -25, 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 = 36.97 V/m; Power Drift = 0.01 dB

Applied MIF = 3.44 dB

RF audio interference level = 33.73 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4	Grid 2 M4	Grid 3 M4
34.61 dBV/m	35.12 dBV/m	34.79 dBV/m
Grid 4 M4	Grid 5 M4	Grid 6 M4
32.92 dBV/m	33.73 dBV/m	33.52 dBV/m
Grid 7 M4	Grid 8 M4	Grid 9 M4
30.7 dBV/m	31.99 dBV/m	31.86 dBV/m

Cursor:

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Total = 35.12 dBV/m

E Category: M4

Location: -3.5, -25, 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 = 32.38 V/m; Power Drift = -0.03 dB

Applied MIF = 3.44 dB

RF audio interference level = 32.51 dBV/m

Emission category: M4

MIF scaled E-field

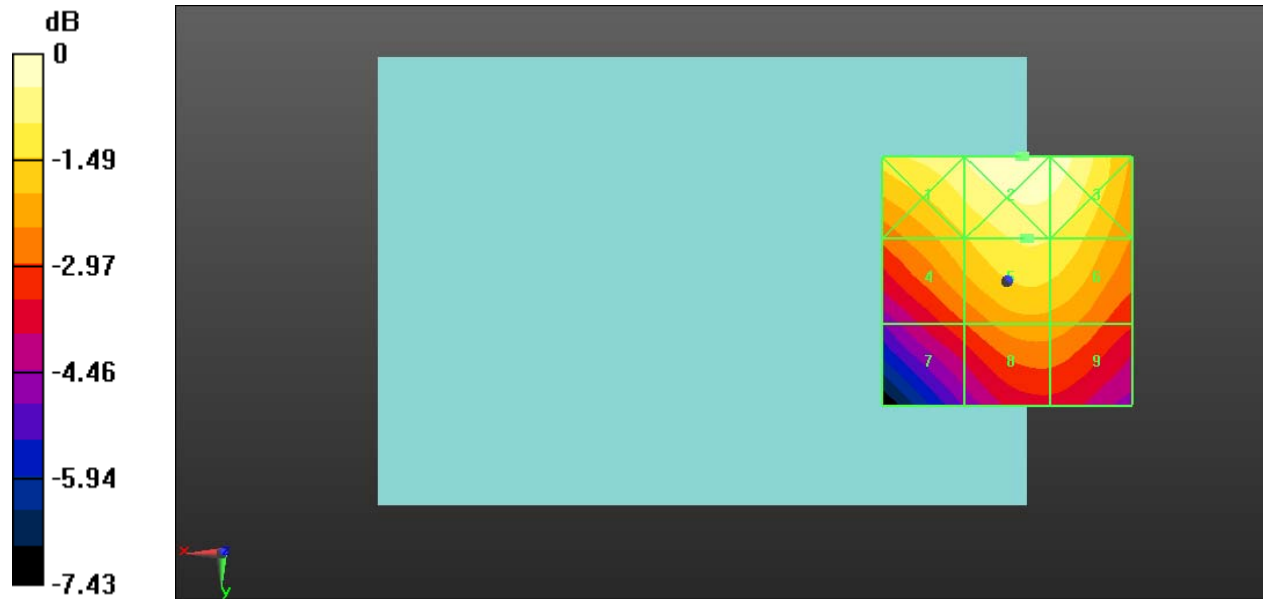
Grid 1 M4 33.33 dBV/m	Grid 2 M4 34.03 dBV/m	Grid 3 M4 33.79 dBV/m
Grid 4 M4 31.46 dBV/m	Grid 5 M4 32.51 dBV/m	Grid 6 M4 32.39 dBV/m
Grid 7 M4 29.02 dBV/m	Grid 8 M4 30.46 dBV/m	Grid 9 M4 30.38 dBV/m

Cursor:

Total = 34.03 dBV/m

E Category: M4

Location: -3.5, -25, 8.7 mm



0 dB = 49.44 V/m = 33.88 dBV/m

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Date/Time: 5/20/2014 10:59:01 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_GSM1900

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFF3D40

Communication System: UID 0, GSM 1900; Frequency: 1850.2 MHz, Frequency: 1880 MHz,
Frequency: 1909.8 MHz

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

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 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 = 8.799 V/m; Power Drift = 0.21 dB

Applied MIF = 3.44 dB

RF audio interference level = 23.92 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 16.34 dBV/m	Grid 2 M4 17.29 dBV/m	Grid 3 M4 17.63 dBV/m
Grid 4 M4 21.57 dBV/m	Grid 5 M4 23.92 dBV/m	Grid 6 M4 23.91 dBV/m

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Author Data Daoud Attayi	Dates of Test March 18-24, May 20-June 02, 2014	Report No RTS-6057-1405-07	FCC ID L6ARGY180LW

Grid 7 M4	Grid 8 M4	Grid 9 M4
24.6 dBV/m	26.93 dBV/m	26.87 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 = 26.93 dBV/m

E Category: M4

Location: -6, 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 = 10.02 V/m; Power Drift = 0.17 dB

Applied MIF = 3.44 dB

RF audio interference level = 24.44 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4	Grid 2 M4	Grid 3 M4
17.02 dBV/m	19.07 dBV/m	19.16 dBV/m
Grid 4 M4	Grid 5 M4	Grid 6 M4
22.24 dBV/m	24.44 dBV/m	24.43 dBV/m
Grid 7 M4	Grid 8 M4	Grid 9 M4
24.04 dBV/m	26.64 dBV/m	26.56 dBV/m

Cursor:

Total = 26.64 dBV/m

E Category: M4

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Location: -6.5, 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_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 = 9.176 V/m; Power Drift = -0.03 dB

Applied MIF = 3.44 dB

RF audio interference level = 23.08 dBV/m

Emission category: M4

MIF scaled E-field

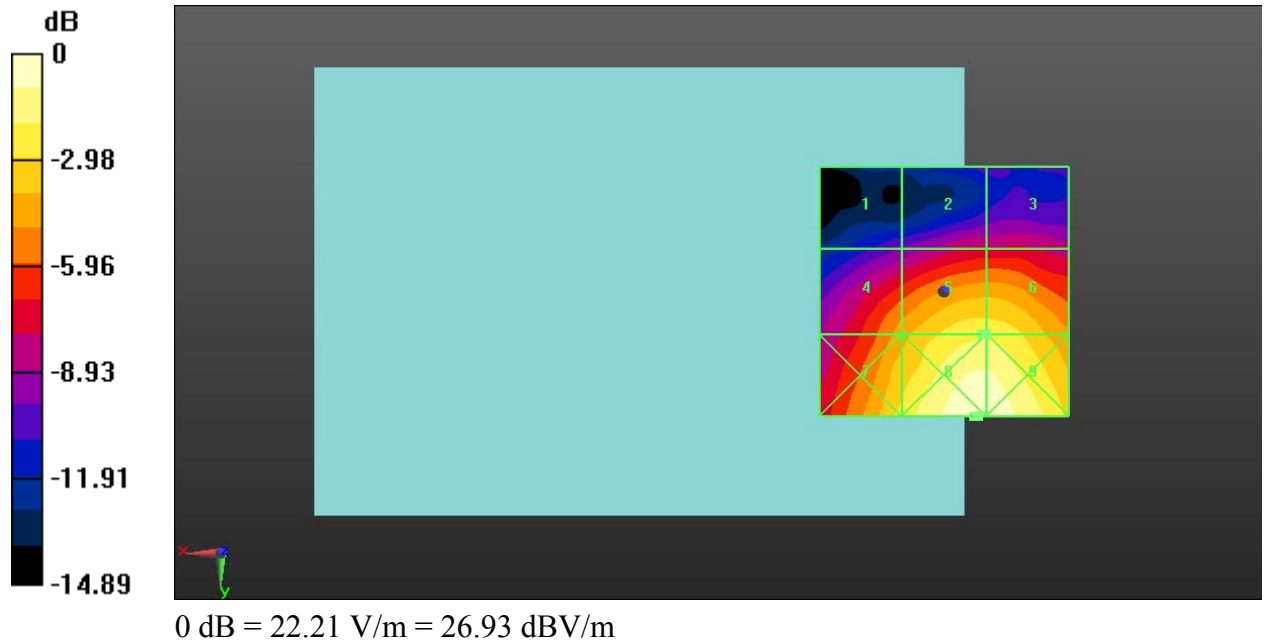
Grid 1 M4 17.16 dBV/m	Grid 2 M4 18.22 dBV/m	Grid 3 M4 18.22 dBV/m
Grid 4 M4 20.85 dBV/m	Grid 5 M4 23.08 dBV/m	Grid 6 M4 23.08 dBV/m
Grid 7 M4 22.53 dBV/m	Grid 8 M4 25.23 dBV/m	Grid 9 M4 25.21 dBV/m

Cursor:

Total = 25.23 dBV/m

E Category: M4

Location: -7, 25, 8.7 mm



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Date/Time: 5/20/2014 11:38:35 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_UMTS_Band_V

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFF3D40

Communication System: UID 0, WCDMA FDD V; Frequency: 826.4 MHz, Frequency: 836.4 MHz, Frequency: 846.6 MHz

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

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 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 = 40.16 V/m; Power Drift = -0.04 dB

Applied MIF = -25.91 dB

RF audio interference level = 4.75 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 5.56 dBV/m	Grid 2 M4 6.01 dBV/m	Grid 3 M4 5.48 dBV/m
Grid 4 M4 4.08 dBV/m	Grid 5 M4 4.75 dBV/m	Grid 6 M4 4.4 dBV/m

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Grid 7 M4 2.39 dBV/m	Grid 8 M4 3.32 dBV/m	Grid 9 M4 3.06 dBV/m
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Cursor:

Total = 6.01 dBV/m

E Category: M4

Location: 0, -25, 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 = 41.70 V/m; Power Drift = 0.01 dB

Applied MIF = -25.91 dB

RF audio interference level = 5.35 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 6.1 dBV/m	Grid 2 M4 6.66 dBV/m	Grid 3 M4 6.27 dBV/m
Grid 4 M4 4.47 dBV/m	Grid 5 M4 5.35 dBV/m	Grid 6 M4 5.16 dBV/m
Grid 7 M4 2.45 dBV/m	Grid 8 M4 3.75 dBV/m	Grid 9 M4 3.65 dBV/m

Cursor:

Total = 6.66 dBV/m

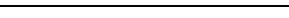
E Category: M4

Location: -1, -25, 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

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Reference Value = 40.78 V/m; Power Drift = 0.01 dB

Applied MIF = -25.91 dB

RF audio interference level = 5.25 dBV/m

Emission category: M4

MIF scaled E-field

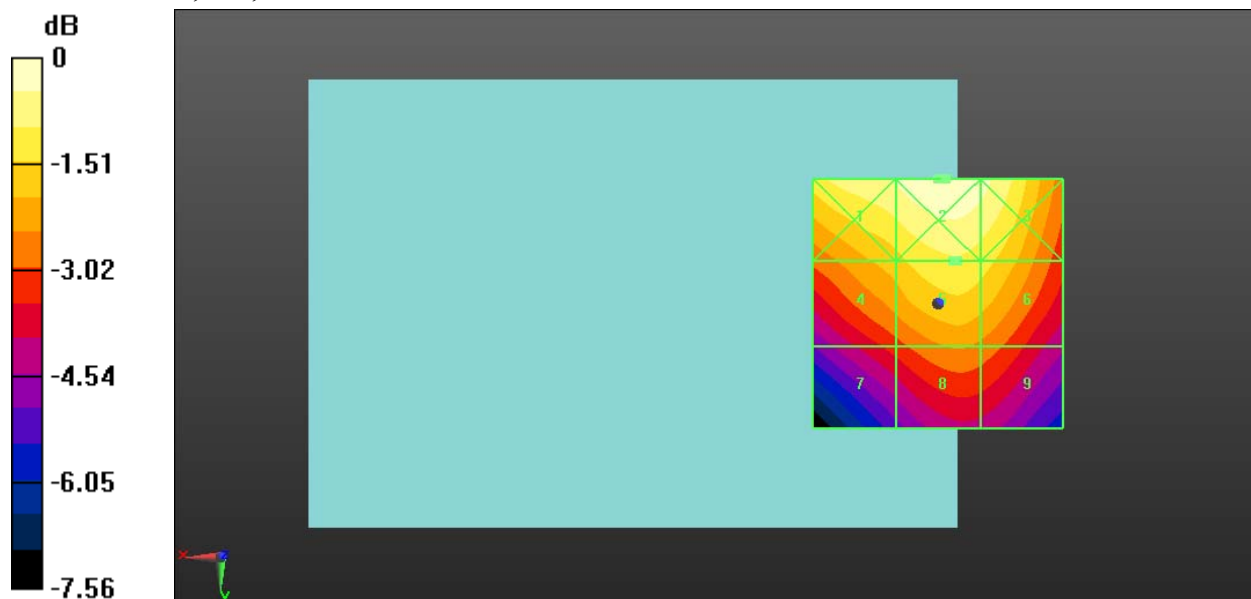
Grid 1 M4 6.19 dBV/m	Grid 2 M4 6.79 dBV/m	Grid 3 M4 6.39 dBV/m
Grid 4 M4 4.36 dBV/m	Grid 5 M4 5.25 dBV/m	Grid 6 M4 4.96 dBV/m
Grid 7 M4 2.15 dBV/m	Grid 8 M4 3.28 dBV/m	Grid 9 M4 3.02 dBV/m

Cursor:

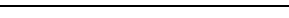
Total = 6.79 dBV/m

E Category: M4

Location: -1.5, -25, 8.7 mm



0 dB = 1.999 V/m = 6.02 dBV/m

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Date/Time: 5/20/2014 11:53:02 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_UMTS_Band_IV

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFF3D40

Communication System: UID 0, WCDMA FDD IV; Frequency: 1712.4 MHz, Frequency: 1732.6 MHz, Frequency: 1752.6 MHz

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

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; Serial
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Device E-Field UMTS band IV 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 = 4.572 V/m; Power Drift = -0.09 dB

Applied MIF = -25.91 dB

RF audio interference level = -1.42 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 -3.37 dBV/m	Grid 2 M4 -1.42 dBV/m	Grid 3 M4 -1.53 dBV/m
Grid 4 M4 -7.12 dBV/m	Grid 5 M4 -6.08 dBV/m	Grid 6 M4 -6.08 dBV/m

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Grid 7 M4 -1.08 dBV/m	Grid 8 M4 0.46 dBV/m	Grid 9 M4 0.36 dBV/m
--	---------------------------------------	---------------------------------------

Cursor:

Total = 0.46 dBV/m

E Category: M4

Location: -5.5, 25, 8.7 mm

Device E-Field UMTS band IV 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 = 5.762 V/m; Power Drift = -0.01 dB

Applied MIF = -25.91 dB

RF audio interference level = -2.36 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 -3.27 dBV/m	Grid 2 M4 -2.36 dBV/m	Grid 3 M4 -2.85 dBV/m
Grid 4 M4 -6.99 dBV/m	Grid 5 M4 -5.06 dBV/m	Grid 6 M4 -5.12 dBV/m
Grid 7 M4 -0.9 dBV/m	Grid 8 M4 0.64 dBV/m	Grid 9 M4 0.48 dBV/m

Cursor:

Total = 0.64 dBV/m

E Category: M4

Location: -4.5, 25, 8.7 mm

Device E-Field UMTS band IV 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

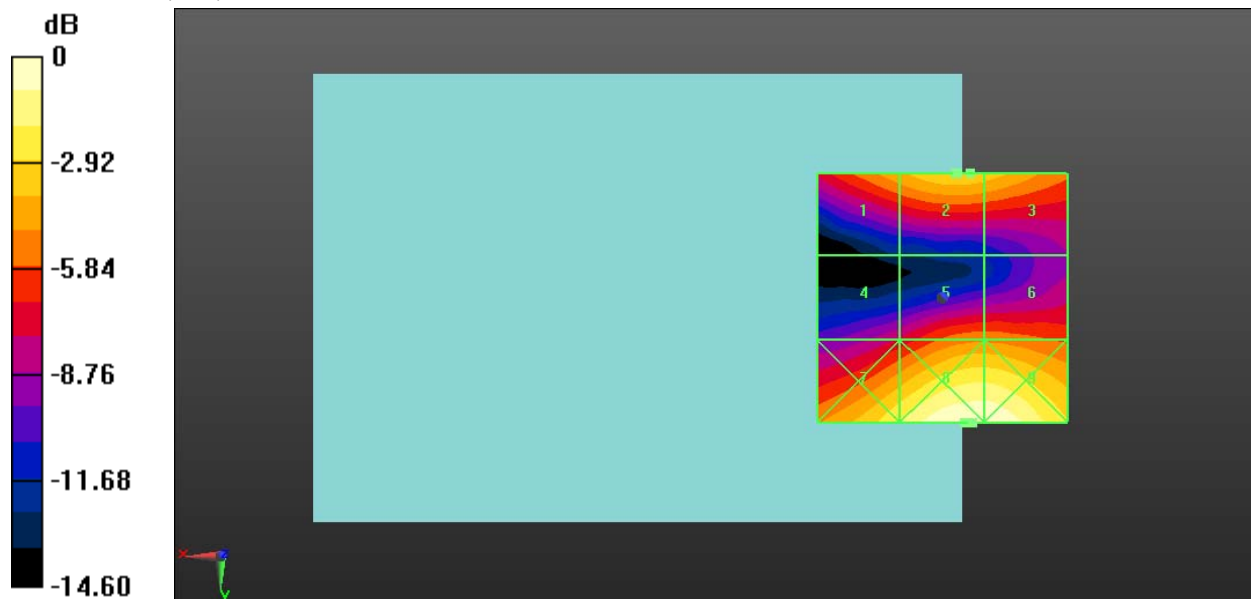
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 5.608 V/m; Power Drift = -0.17 dB
Applied MIF = -25.91 dB
RF audio interference level = -4.03 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 M4 -5.07 dBV/m	Grid 2 M4 -4.03 dBV/m	Grid 3 M4 -4.35 dBV/m
Grid 4 M4 -8.42 dBV/m	Grid 5 M4 -6.01 dBV/m	Grid 6 M4 -6.02 dBV/m
Grid 7 M4 -2.96 dBV/m	Grid 8 M4 -1.15 dBV/m	Grid 9 M4 -1.19 dBV/m

Cursor:

Total = -1.15 dBV/m
E Category: M4
Location: -6, 25, 8.7 mm



0 dB = 1.055 V/m = 0.47 dBV/m

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Date/Time: 5/20/2014 12:07:30 PM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_UMTS_Band_II

DUT: BlackBerry Smartphone; Type: Sample ; Serial: 2FFF3D40

Communication System: UID 0, WCDMA FDD II; Frequency: 1852.4 MHz, Frequency: 1880 MHz, Frequency: 1907.6 MHz

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

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 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 = 12.13 V/m; Power Drift = -0.23 dB

Applied MIF = -25.91 dB

RF audio interference level = -2.74 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4	Grid 2 M4	Grid 3 M4
-8.64 dBV/m	-7.6 dBV/m	-7.62 dBV/m

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Grid 4 M4 -5.2 dBV/m	Grid 5 M4 -2.74 dBV/m	Grid 6 M4 -2.74 dBV/m
Grid 7 M4 -1.94 dBV/m	Grid 8 M4 0.35 dBV/m	Grid 9 M4 0.27 dBV/m

Cursor:

Total = 0.35 dBV/m

E Category: M4

Location: -6, 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 = 15.36 V/m; Power Drift = 0.17 dB

Applied MIF = -25.91 dB

RF audio interference level = -1.42 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 -8.72 dBV/m	Grid 2 M4 -6.51 dBV/m	Grid 3 M4 -6.42 dBV/m
Grid 4 M4 -3.72 dBV/m	Grid 5 M4 -1.42 dBV/m	Grid 6 M4 -1.45 dBV/m
Grid 7 M4 -1.57 dBV/m	Grid 8 M4 0.73 dBV/m	Grid 9 M4 0.65 dBV/m

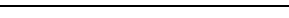
Cursor:

Total = 0.73 dBV/m

E Category: M4

Location: -6, 25, 8.7 mm

Device E-Field UMTS band II measurement with ER probe/E Scan - ER3D -

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**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 = 13.38 V/m; Power Drift = -0.08 dB

Applied MIF = -25.91 dB

RF audio interference level = -2.61 dBV/m

Emission category: M4

MIF scaled E-field

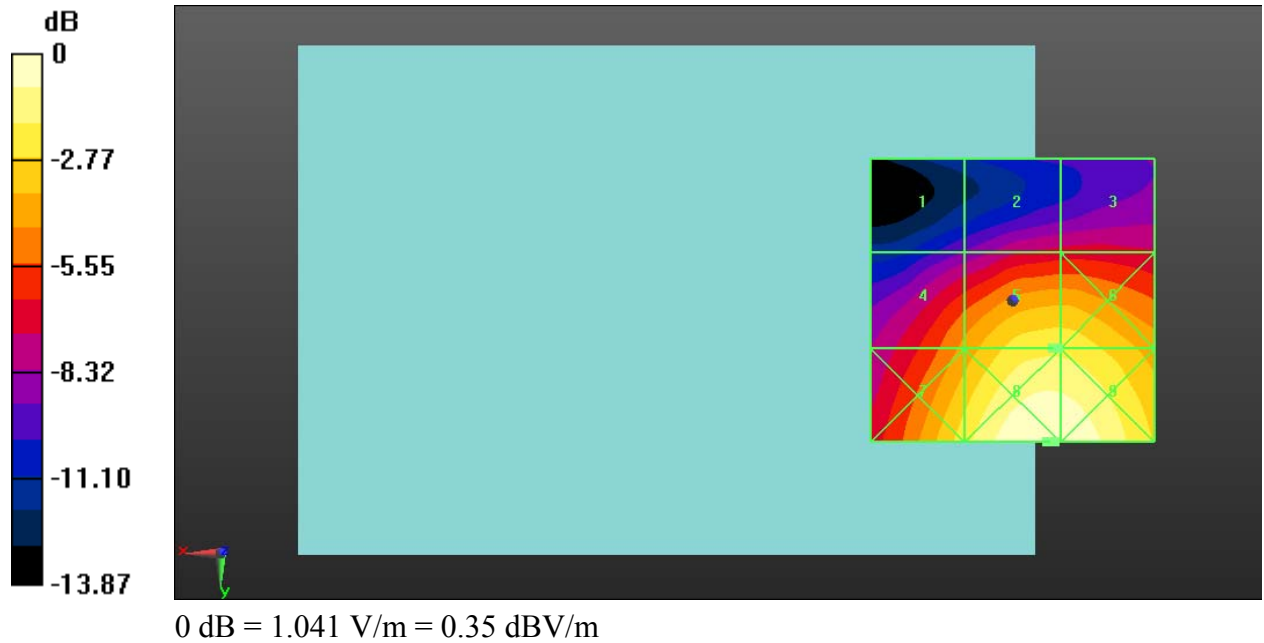
Grid 1 M4 -9.04 dBV/m	Grid 2 M4 -7.38 dBV/m	Grid 3 M4 -7.37 dBV/m
Grid 4 M4 -5.41 dBV/m	Grid 5 M4 -2.61 dBV/m	Grid 6 M4 -2.62 dBV/m
Grid 7 M4 -3.33 dBV/m	Grid 8 M4 -0.54 dBV/m	Grid 9 M4 -0.56 dBV/m

Cursor:

Total = -0.54 dBV/m

E Category: M4

Location: -7.5, 25, 8.7 mm



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Date/Time: 6/2/2014 9:56:27 AM

Test Laboratory: BlackBerry RTS

HAC RF_E-Field_GSM_850_Rev2

DUT: BlackBerry Smartphone; Type: Sample; Serial: 2FFF3D40

Communication System: UID 0, GSM 850; Frequency: 824.2 MHz, Frequency: 836.8 MHz,
Frequency: 848.8 MHz

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

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 Rev 2 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 = 33.70 V/m; Power Drift = -0.14 dB

Applied MIF = 3.44 dB

RF audio interference level = 32.50 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 33.18 dBV/m	Grid 2 M4 33.57 dBV/m	Grid 3 M4 33.17 dBV/m
Grid 4 M4 31.8 dBV/m	Grid 5 M4 32.5 dBV/m	Grid 6 M4 32.18 dBV/m

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Grid 7 M4 30.38 dBV/m	Grid 8 M4 31.17 dBV/m	Grid 9 M4 30.9 dBV/m
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Cursor:

Total = 33.57 dBV/m

E Category: M4

Location: 0, -25, 8.7 mm

Device E-Field GSM850 Rev 2 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 = 40.41 V/m; Power Drift = 0.09 dB

Applied MIF = 3.44 dB

RF audio interference level = 34.26 dBV/m

Emission category: M4

MIF scaled E-field

Grid 1 M4 35.16 dBV/m	Grid 2 M4 35.71 dBV/m	Grid 3 M4 35.27 dBV/m
Grid 4 M4 33.44 dBV/m	Grid 5 M4 34.26 dBV/m	Grid 6 M4 34.06 dBV/m
Grid 7 M4 31.36 dBV/m	Grid 8 M4 32.58 dBV/m	Grid 9 M4 32.51 dBV/m

Cursor:

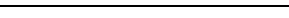
Total = 35.71 dBV/m

E Category: M4

Location: -0.5, -25, 8.7 mm

Device E-Field GSM850 Rev 2 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

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Device Reference Point: 0, 0, -6.3 mm
Reference Value = 37.53 V/m; Power Drift = -0.16 dB
Applied MIF = 3.44 dB
RF audio interference level = 33.80 dBV/m
Emission category: M4

MIF scaled E-field

Grid 1 M4 34.71 dBV/m	Grid 2 M4 35.36 dBV/m	Grid 3 M4 34.99 dBV/m
Grid 4 M4 32.89 dBV/m	Grid 5 M4 33.8 dBV/m	Grid 6 M4 33.63 dBV/m
Grid 7 M4 30.43 dBV/m	Grid 8 M4 31.79 dBV/m	Grid 9 M4 31.66 dBV/m

Cursor:
Total = 35.36 dBV/m
E Category: M4
Location: -2, -25, 8.7 mm



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Author Data

Daoud Attayi

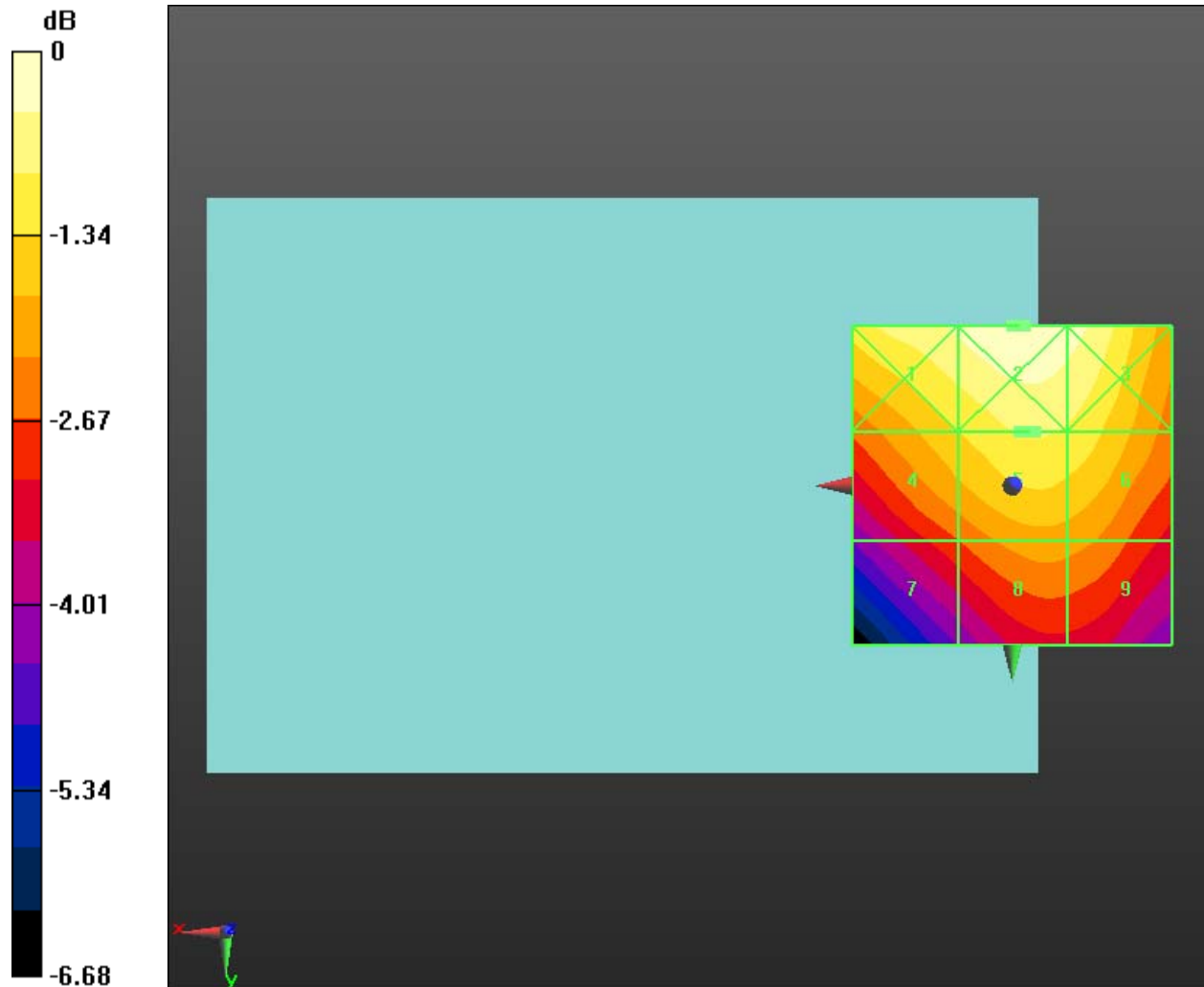
Dates of Test

March 18-24, May 20-June 02, 2014

Report No

RTS-6057-1405-07

FCC ID

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0 dB = 47.68 V/m = 33.57 dBV/m