EMI Test Report

Tested in accordance with
Federal Communications Commission (FCC)
Personal Communications Services
CFR 47, Parts 15, Subpart B
&
Industry Canada (IC), ICES-003

A division of Research In Motion Limited

REPORT NO.: RTS-2068-1005-32

PRODUCT MODEL NO.: RCZ31CW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARCZ30CW
IC: 2503A-RCZ30CW

DATE: May 20, 2010

Statement of Performance:

The BlackBerry® smartphone, model RCZ31CW, part number CER-27171-003 Rev 1 and accessories performs within the requirements of the test standards when configured and operated per RIM's instructions.

Declaration:

We hereby certify that:
The test data reported herein is an accurate record of the performance of the sample(s) tested.
The test results are valid for the tested unit (s) only.
The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating parameters.
The test methods were consistent with the methods described in the relevant standards.

Documented by:

Heng Lin
Regulatory Compliance Specialist
Date: May 20, 2010

Reviewed by:

Michael Cino
Regulatory Compliance Associate
Date: May 20, 2010

Reviewed and Approved by:

Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance
Date: May 21, 2010

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A. Scope

This report details the results of compliance tests that were performed in accordance with the requirements of:

- FCC CFR 47 Part 15, Subpart B, October 01, 2009 Class B Digital Devices, Unintentional Radiators
- IC ICES-003 Issue 4, February 2004, Class B Digital Devices, Unintentional Radiators

B. Associated Documents

None

C. Product Identification

Manufactured by Research In Motion Limited whose headquarters is located at:

295 Phillip Street
Waterloo, Ontario
Canada, N2L 3W8
Phone: 519 888 7465
Fax: 519 888 6906

The equipment under test (EUT) was tested at the following locations:

RIM Testing Services EMI test facilities

305 Phillip Street
Waterloo, Ontario
Canada, N2L 3W8
Phone: 519 888 7465
Fax: 519 888 6906

440 Phillip Street
Waterloo, Ontario,
Canada , N2L 5R9
Phone: 519 888 7465
Fax: 519 888 6906

The testing was performed from April 01 to 26, and May 17 to 19, 2010.

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN
1	RCZ31CW	CER-27171-003 Rev 1	21BE03E5
2	RCZ31CW	CER-27171-003 Rev 1	21BE0489

Radiated Emissions testing was performed on sample 1.
AC conducted testing was performed on sample 2.

BlackBerry® smartphone Accessories Tested

1) Folding Blade Charger, part number HDW-17955-001 with an output voltage of 5.0 volts dc, 700 mA and attached USB cable with a lead length of 1.80 meters.
2) Captive Cable Charger part number HDW-17957-003 with an output voltage of 5.0 volts dc, 700 mA and attached USB cable with a lead length of 1.80 meters.
3) Fixed Blade Charger, part number HDW-24481-001 (Model Number: RIM-C-4ADUUS-001), with an output voltage of 5.0 volts dc.
4) Alternate Fixed Blade Charger, part number HDW-24481-001 (Model Number: PSM04A-050QRIM-R), with an output voltage of 5.0 volts dc.
5) BlackBerry® Remote Stereo Gateway, part number HDW-16007-001.
6) USB Y-Cable, part number HDW-19137-002, lead lengths of 26 cm and 11 cm.
7) Stereo Headset, part number HDW-14322-003 with a lead length of 1.3 metres.
8) Premium Stereo Headset, part number HDW-15766-005, 1.3 meters long.
9) Alternate Stereo Headset, part number HDW-24529-001, with a lead length of 1.1 meters.
10) USB Data Cable, part number HDW-06610-013, 0.30 metres long.
11) USB Data Cable, part number HDW-06610-009, 1.00 metre long.
12) USB Data Cable, part number HDW-06610-005, 1.50 metres long.
13) Bluetooth Headset, part number HDW-23439-001.

D. Support Equipment Used for the Testing of the EUT

1) IBM Thinkpad Lenovo T60p laptop, type 8742-C2U, product ID 8742C2U

E. Summary of Results

SPECIFICATION		TEST TYPE	Meets Requirement	Test Data APPENDIX
FCC CFR 47	IC			
Part 15, Subpart B	ICES-003	Conducted AC Line Emission	Yes	1
Part 15, Subpart B	ICES-003	Radiated Unintentional Spurious Emissions	Yes	2

a) AC CONDUCTED EMISSIONS

The conducted emissions were measured using the test procedure outlined in CISPR Recommendation 22 through a 50 Ohm Line Impedance Stabilization Network (LISN), which was inserted in the power line to the equipment to provide the specified impedance for measurements. The EUT was placed on a nonconductive wooden table, 80 cm high that was positioned 40 cm from a vertical ground plane. The RF output of the network was connected to an EMI receiver system with characteristics that duplicate those of the receiver specified in CISPR Publication 16.
BlackBerry® smartphone was in battery charging mode. The input voltage was 120 V, 60 Hz.

The following test configurations were measured:

1. The BlackBerry® smartphone in CDMA Cellular band idle mode and audio playback mode and communicating with the Bluetooth Headset was connected to Folding Blade Charger.
2. The BlackBerry® smartphone in CDMA PCS idle mode and video playback mode with the Alternate Stereo Headset attached, was connected to Folding Blade Charger.
3. The BlackBerry® smartphone in CDMA AWS idle mode with Premium Stereo Headset attached, was connected to Fixed Blade Charger via the 1.5m USB cable.
4. The BlackBerry® smartphone in CDMA PCS idle mode with the Stereo Headset attached and was connected to Folding Blade Charger.
5. The BlackBerry® smartphone in CDMA PCS idle mode with the Alternate Stereo Headset attached, was connected to Alternate Fixed Blade Charger.
6. The BlackBerry® smartphone in CDMA Cellular idle mode and Audio playback mode with the Alternate Stereo Headset attached, was connected to Captive Cable Charger.

The sample EUT's conducted emissions were compared with respect to the FCC CFR 47 Part 15, Subpart B, and IC ICES-003, Class B limit. The sample EUT had a worse case test margin of 8.19 dB below the QP limit at 2.27 MHz using the quasi-peak detector, test configuration 2.

Measurement Uncertainty ±3.0 dB

To view the test data/plots, see APPENDIX 1.

b) RADIATED EMISSIONS

The radiated emissions from the EUT were measured using the methods outlined in CISPR Recommendation 22. The EUT was placed on a nonconductive styrofoam table, 80 cm high that was positioned on a remote controlled turntable. The test distance used between the EUT and the receiving antenna was three metres. The turntable was rotated to determine the azimuth of the peak emissions. Then the emissions were maximized by elevating the antenna in the range of 1 to 4 metres. The maximum emission level was recorded. The frequency range measured was from 30 MHz to 5.0 GHz. Both the horizontal and vertical polarizations of the emissions were measured.
The measurements were done in a semi-anechoic chamber. The FCC registration number is **778487** and the Industry Canada(IC) file number is **2503B-1**. The EUT was configured and operated to produce the maximum radiated emissions while still keeping within RIM's specifications.
The BlackBerry® smartphone was in battery charging mode for all configurations. The ac input voltage was 120V, 60Hz.

The following test configurations were measured:

1. The BlackBerry® smartphone in CDMA PCS idle mode, was connected to the Laptop via the1.0m USB Cable.
2. The BlackBerry® smartphone in CDMA AWS idle mode with the Alternate Stereo Headset attached was connected to the Folding Blade Charger.
3. The BlackBerry® smartphone in CDMA PCS idle mode, audio playback mode, and communicating with the Bluetooth Stereo Gateway was connected to the Laptop via the 1.5m USB cable.
4. The BlackBerry® smartphone in CDMA Cellular idle mode with the Premium Stereo Headset attached was connected to the Laptop via the 0.3m USB Cable.
5. The BlackBerry® smartphone in CDMA Cellular idle mode, audio playback mode, and communicating with the Visor Mount, was connected to Folding Blade Charger.
6. The BlackBerry® smartphone in Bluetooth Tx mode with the Stereo Headset attached, was connected to Alternate Fixed Blade Charger.
7. The BlackBerry® smartphone in CDMA Cellular mode and communicating with the Bluetooth Headset, was connected to Captive Cable Charger.
8. The BlackBerry® smartphone in 802.11 b/g TX mode with the Premium Stereo Headset attached, was connected to Captive Cable Charger.
9. The BlackBerry® smartphone CDMA Cellular mode with the Premium Stereo Headset attached, was connected to Alternate Fixed Blade Charger.

The system's radiated emission levels were compared with respect to the FCC CFR 47 Part 15, Subpart B, and IC ICES-003, Class B limit.
The system met the requirements with a worse case emission test margin of 8.28 dB at 873.500 MHz using test configuration 8.

Sample Calculation:

Field Strength (dBµV/m) is calculated as follows:
FS = Measured Level (dBµV) + A.F. (dB/m) + Cable Loss (dB) - Preamp (dB) + Filter Loss (dB)

Measurement Uncertainty ±4.6 dB

To view the test data see APPENDIX 2.

F. Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Preamplifier	Sonoma	310N/11909A	185831	10-11-14	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	10-11-06	Radiated Emissions
EMC Analyzer	Rohde & Schwarz	ESIB 40	3942A00517	10-11-30	Radiated Emissions
Digital Multimeter	Hewlett Packard	34401A	US36042324	10-10-08	Conducted/Radiated Emissions
Environment Monitor	Control Company	1870	230355190	11-01-08	Radiated Emissions
Environment Monitor	Control Company	1870	80117164	11-01-08	Conducted/Radiated Emissions
L.I.S.N.	Rohde & Schwarz	ENV216	100060	11-12-10	Conducted Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017401	10-09-11	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030101	10-07-22	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	10-11-30	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	112394	10-11-30	Radiated/Conducted Emissions
EMI Test Receiver	Rohde & Schwarz	ESU 40	100162	10-11-30	Radiated/Conducted Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100368	10-11-26	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100370	10-11-30	Radiated/Conducted Emissions

APPENDIX 1 - AC CONDUCTED EMISSIONS TEST DATA

AC Conducted Emissions Test Results

The following test were performed by Heng Lin

Test Configuration 1

Date of the test: April 26, 2010
The environmental conditions were: Temperature: 24 °C
Pressure: 998 mB
Humidity: 22 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP)
0.182	L1	32.25	10.99	43.24	64.42	54.42	-21.18
0.330	L1	25.98	10.12	36.10	59.45	49.45	-23.35
0.461	N	17.78	9.94	27.72	46.68	36.68	-18.96
0.461	L1	27.69	9.93	37.62	56.68	46.68	-19.06
0.816	N	14.17	9.82	23.99	46.00	36.00	-22.01
0.839	L1	28.57	9.81	38.39	56.00	46.00	-17.61
2.000	N	21.21	9.83	31.04	46.00	36.00	-14.96
2.108	L1	35.18	9.83	45.01	56.00	46.00	-10.99
2.184	N	22.57	9.84	32.40	46.00	36.00	-13.60
2.229	L1	36.67	9.83	46.51	56.00	46.00	-9.49
3.575	L1	26.01	9.89	35.90	56.00	46.00	-20.10
3.678	L1	24.92	9.89	34.81	56.00	46.00	-21.19
4.133	N	12.63	9.91	22.54	46.00	36.00	-23.46
4.290	N	14.42	9.91	24.32	46.00	36.00	-21.68

All other emission levels had a test margin of greater than 25 dB.

Measurements were done with the quasi-peak detector.

See figure 1-1 and figure 1-2 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 1

Figure 1-1: L1 lines

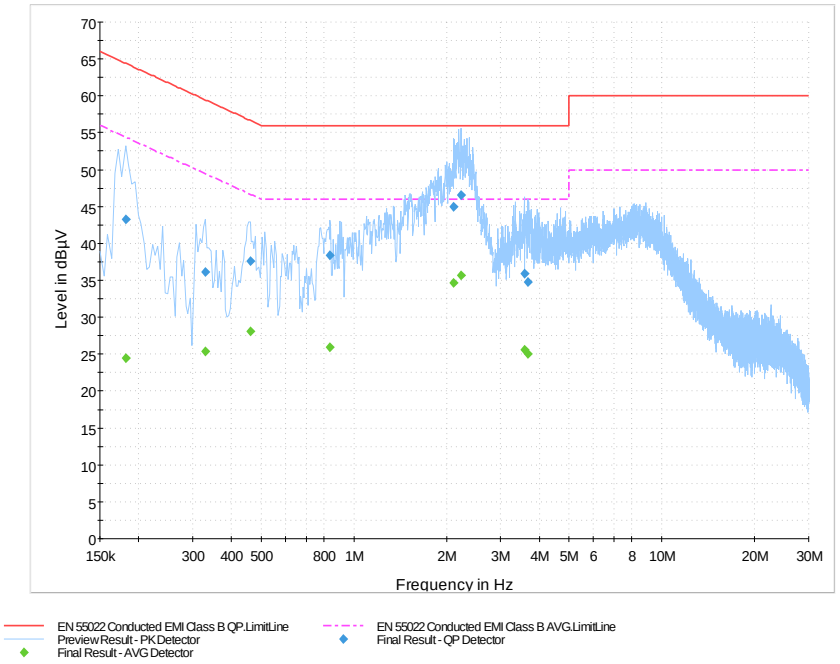
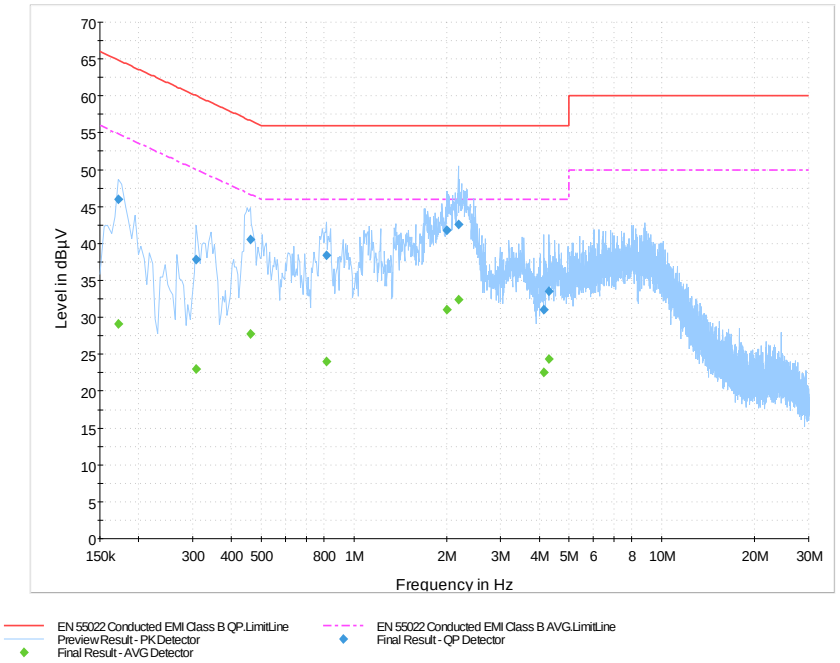


Figure 1-2: N Lines



AC Conducted Emissions Test Results cont'd

Test configuration 2

Date of the test: April 26, 2010
The environmental conditions were: Temperature: 24 °C
Pressure: 998 mB
Humidity: 22 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP)
(MHz)		(dBµV)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)
0.177	L1	41.53	11.02	52.55	64.63	54.63	-12.08
0.177	N	36.65	11.05	47.70	64.63	54.63	-16.93
0.267	L1	29.70	10.39	40.09	61.21	51.21	-21.12
0.326	N	29.65	10.14	39.79	59.57	49.57	-19.78
0.461	N	31.11	9.94	41.05	56.68	46.68	-15.64
0.510	N	30.55	9.91	40.46	56.00	46.00	-15.54
0.510	L1	26.97	9.90	36.87	56.00	46.00	-19.13
1.095	L1	29.74	9.80	39.55	56.00	46.00	-16.46
1.217	N	29.61	9.80	39.41	56.00	46.00	-16.59
1.487	N	29.90	9.81	39.71	56.00	46.00	-16.29
2.076	N	34.40	9.83	44.23	56.00	46.00	-11.77
2.234	N	36.64	9.84	46.48	56.00	46.00	-9.52
2.270	L1	37.97	9.84	47.81	56.00	46.00	**-8.19**
2.585	N	31.49	9.86	41.35	56.00	46.00	-14.65
3.377	L1	28.51	9.89	38.40	56.00	46.00	-17.60
4.722	N	25.89	9.91	35.80	56.00	46.00	-20.20
6.612	L1	28.70	9.94	38.63	60.00	50.00	-21.37
9.654	N	26.01	9.98	35.99	60.00	50.00	-24.01

All other emission levels had a test margin of greater than 25 dB.

Measurements were done with the quasi-peak detector.

See figure 1-3 and figure 1-4 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 2

Figure 1-3: L1 lines

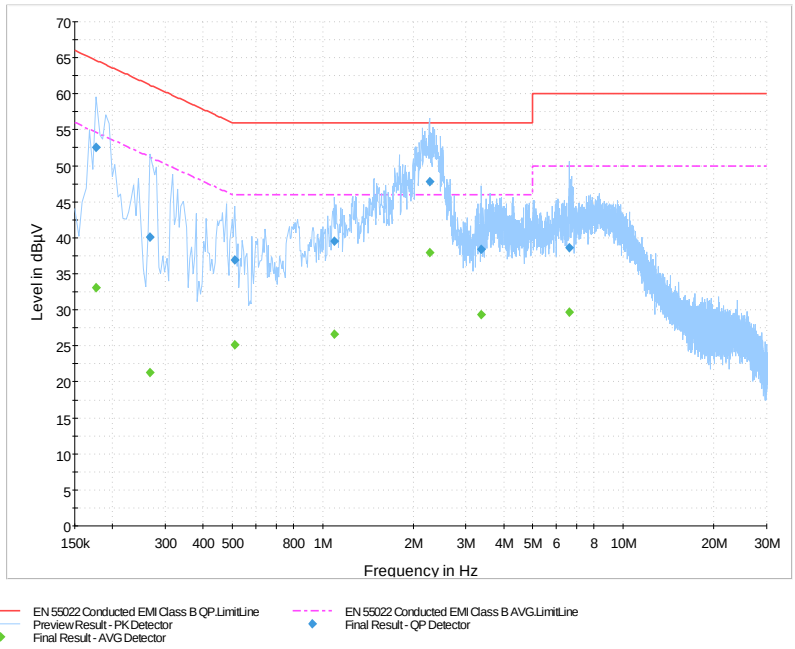
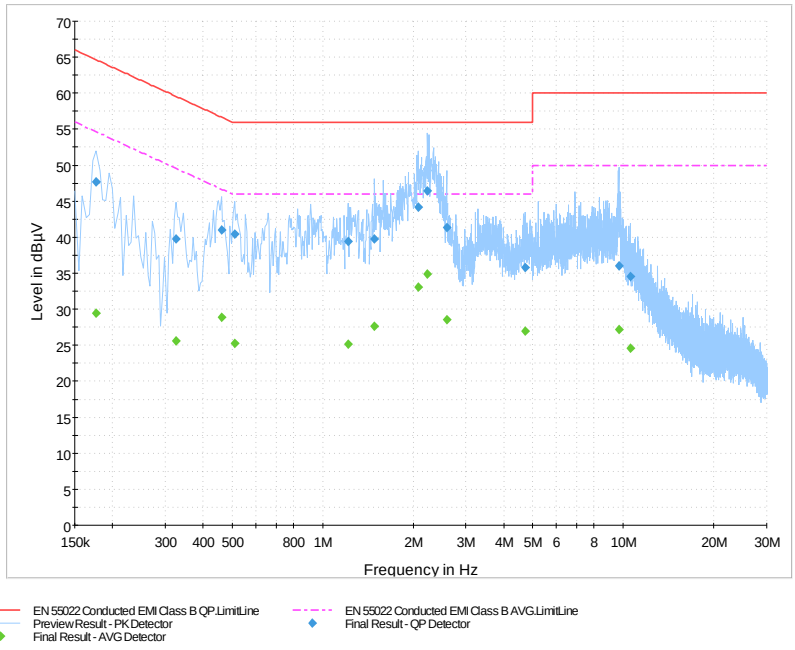


Figure 1-4: N Lines



AC Conducted Emissions Test Results cont'd

Test configuration 3

Date of the test: April 26, 2010
The environmental conditions were: Temperature: 24 °C
Pressure: 998 mB
Humidity: 22 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP)
(MHz)		(dBµV)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)
0.362	L1	30.60	10.07	40.67	58.69	48.69	-18.02
0.402	L1	24.47	10.01	34.48	57.81	47.81	-23.33
0.623	N	21.30	9.86	31.15	56.00	46.00	-24.85
0.861	L1	27.35	9.81	37.17	56.00	46.00	-18.83
3.210	L1	25.18	9.88	35.07	56.00	46.00	-20.93
3.570	N	22.99	9.90	32.89	56.00	46.00	-23.11
3.741	N	23.71	9.90	33.61	56.00	46.00	-22.39
4.218	N	24.66	9.91	34.56	56.00	46.00	-21.44
4.578	N	24.48	9.91	34.39	56.00	46.00	-21.61
All other emission levels had a test margin of greater than 25 dB.							
Measurements were done with the quasi-peak detector.							
See figure 1-5 and figure 1-6 for the measurement plot of the L1 and N lines of AC power line conducted emissions.							

AC Conducted Emissions Test Graphs

Test Configuration 3

Figure 1-5: L1 lines

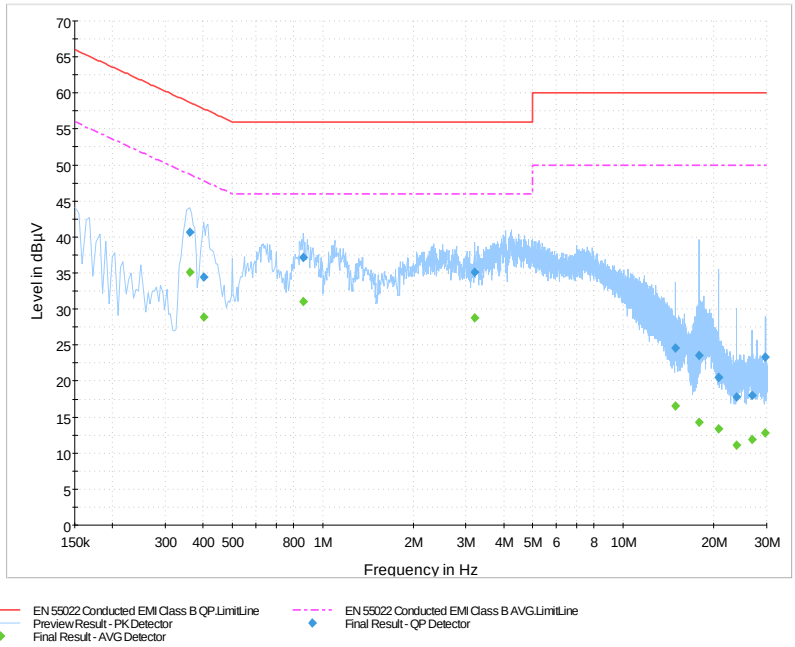
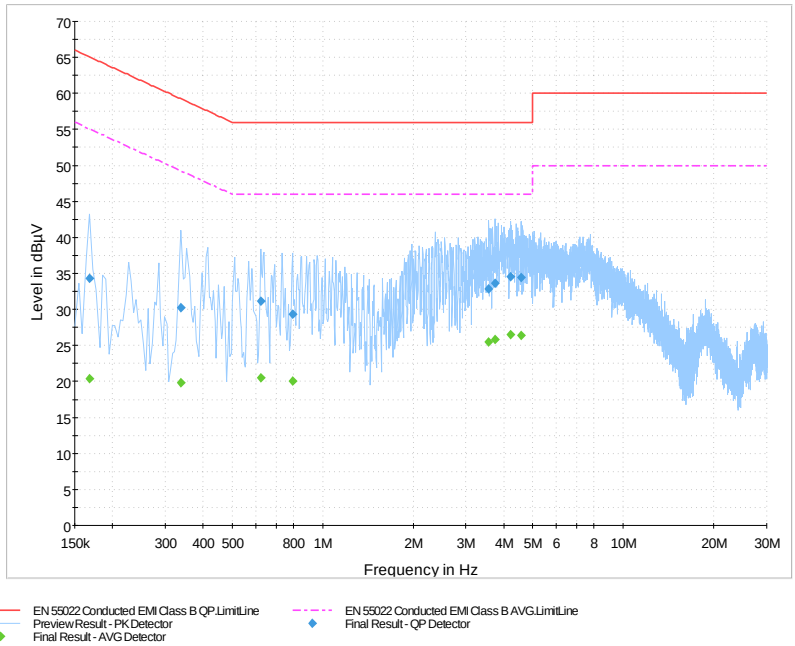


Figure 1-6: N Lines



AC Conducted Emissions Test Results cont'd

Test configuration 4

Date of the test: April 26, 2010
The environmental conditions were: Temperature: 24 °C
Pressure: 998 mB
Humidity: 22 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP)
(MHz)		(dBµV)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)
0.177	N	32.86	11.05	43.91	64.63	54.63	-20.72
0.452	N	33.15	9.94	43.10	56.85	46.85	-13.75
0.461	L1	28.67	9.93	38.60	56.68	46.68	-18.08
0.825	N	28.29	9.82	38.11	56.00	46.00	-17.89
1.118	N	29.30	9.81	39.11	56.00	46.00	-16.89
1.212	L1	30.47	9.80	40.27	56.00	46.00	-15.73
2.072	N	33.35	9.83	43.18	56.00	46.00	-12.82
2.117	L1	32.75	9.83	42.58	56.00	46.00	-13.42
2.283	N	32.53	9.84	42.37	56.00	46.00	-13.63
2.400	L1	31.93	9.84	41.78	56.00	46.00	-14.23
3.291	N	24.66	9.89	34.55	56.00	46.00	-21.45
3.444	L1	27.22	9.89	37.11	56.00	46.00	-18.90
4.475	N	24.10	9.91	34.01	56.00	46.00	-21.99
4.646	L1	26.11	9.90	36.01	56.00	46.00	-19.99
All other emission levels had a test margin of greater than 25 dB.							
Measurements were done with the quasi-peak detector.							
See figure 1-7 and figure 1-8 for the measurement plot of the L1 and N lines of AC power line conducted emissions.							

AC Conducted Emissions Test Graphs

Test Configuration 4

Figure 1-7: L1 lines

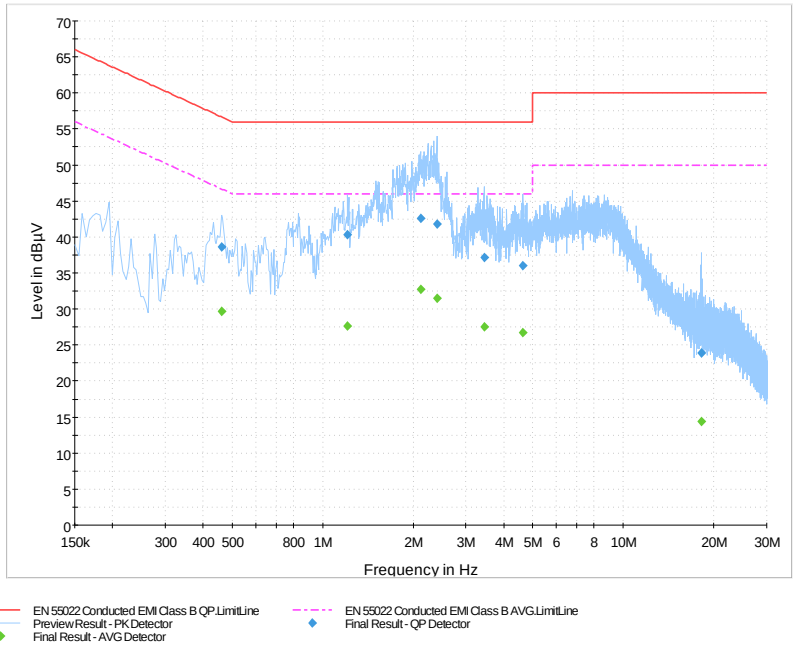
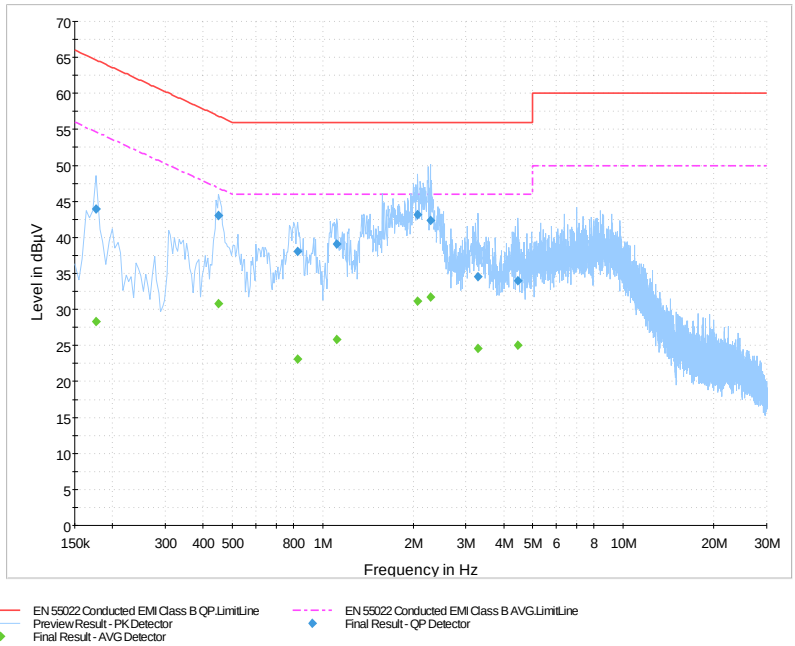


Figure 1-8: N Lines



AC Conducted Emissions Test Results cont'd

Test configuration 5

Date of the test: May 19, 2010
The environmental conditions were: Temperature: 24 °C
Pressure: 1019 mB
Humidity: 23 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP)
(MHz)		(dBµV)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)
0.164	L1	32.91	11.11	44.02	65.28	55.28	-21.27
0.654	L1	30.37	9.84	40.22	56.00	46.00	-15.79
0.686	N	24.31	9.84	34.15	56.00	46.00	-21.85
0.731	L1	30.47	9.83	40.30	56.00	46.00	-15.70
0.749	N	21.60	9.83	31.43	56.00	46.00	-24.57
0.816	L1	29.78	9.82	39.59	56.00	46.00	-16.41
0.902	L1	30.19	9.81	39.99	56.00	46.00	-16.01
0.978	L1	27.89	9.80	37.69	56.00	46.00	-18.31
1.064	L1	29.03	9.80	38.83	56.00	46.00	-17.17
All other emission levels had a test margin of greater than 25 dB.							
Measurements were done with the quasi-peak detector.							
See figure 1-9 and figure 1-10 for the measurement plot of the L1 and N lines of AC power line conducted emissions.							

AC Conducted Emissions Test Graphs

Test Configuration 5

Figure 1-9: L1 lines

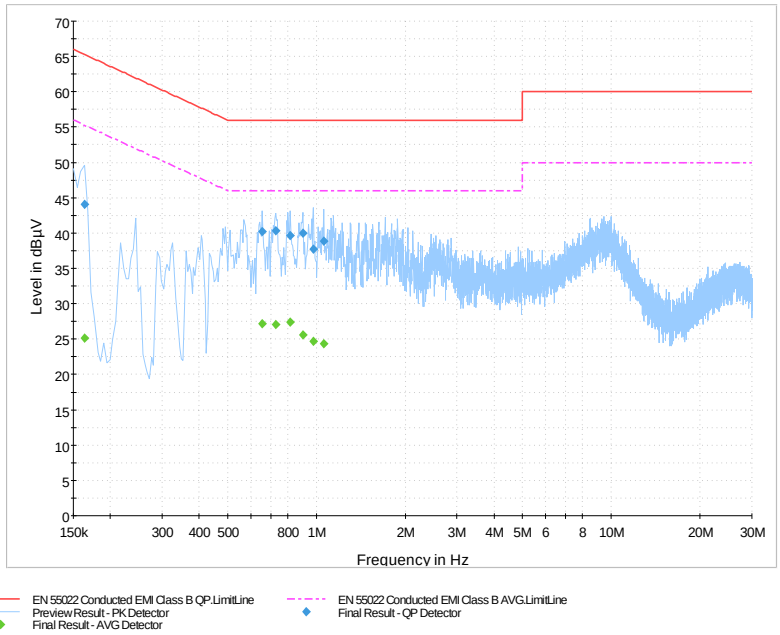
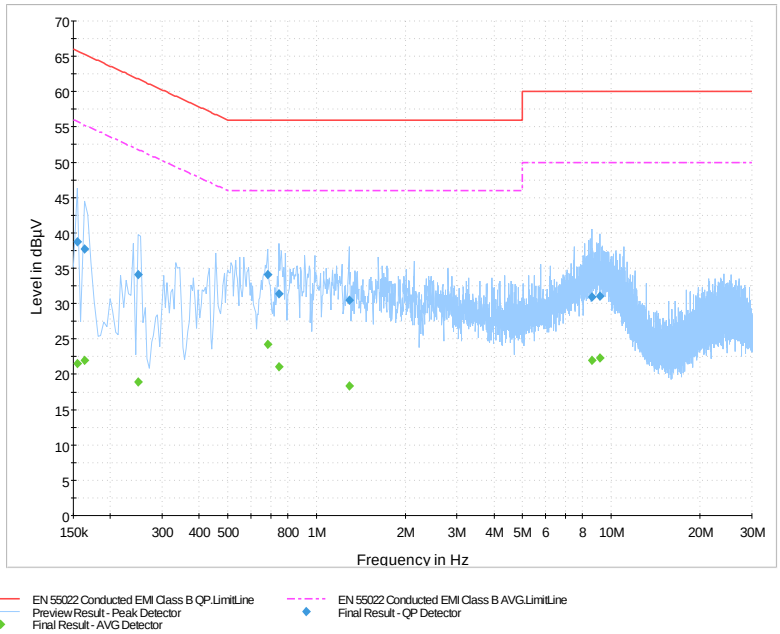


Figure 1-10: N Lines



AC Conducted Emissions Test Results cont'd

Test configuration 6

Date of the test: May 17, 2010
The environmental conditions were: Temperature: 24 °C
Pressure: 998 mB
Humidity: 22 %

Frequency	Line	Reading (QP)	Correction Factor	Corrected Reading (QP)	Limit (QP)	Limit (AV)	Margin (QP)
(MHz)		(dBµV)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)
1.181	L1	31.03	9.80	40.83	56.00	46.00	-15.17
1.199	N	28.09	9.80	37.90	56.00	46.00	-18.10
1.473	L1	32.05	9.80	41.85	56.00	46.00	-14.15
1.928	N	27.67	9.83	37.50	56.00	46.00	-18.50
2.117	L1	34.55	9.83	44.38	56.00	46.00	-11.62
2.175	N	30.76	9.84	40.60	56.00	46.00	-15.41
2.346	N	31.33	9.84	41.17	56.00	46.00	-14.83
2.607	L1	35.08	9.86	44.93	56.00	46.00	-11.07
3.062	N	29.28	9.88	39.16	56.00	46.00	-16.84
3.408	L1	32.59	9.89	42.47	56.00	46.00	-13.53
3.642	L1	34.94	9.89	44.83	56.00	46.00	-11.17
3.948	N	29.50	9.90	39.41	56.00	46.00	-16.60
4.083	N	30.74	9.90	40.64	56.00	46.00	-15.36
7.413	L1	34.36	9.97	44.34	60.00	50.00	-15.66
7.598	N	29.79	9.98	39.77	60.00	50.00	-20.23
10.523	L1	31.67	9.97	41.63	60.00	50.00	-18.37
All other emission levels had a test margin of greater than 25 dB.							
Measurements were done with the quasi-peak detector.							
See figure 1-11 and figure 1-12 for the measurement plot of the L1 and N lines of AC power line conducted emissions.							

AC Conducted Emissions Test Graphs

Test Configuration 6

Figure 1-11: L1 lines

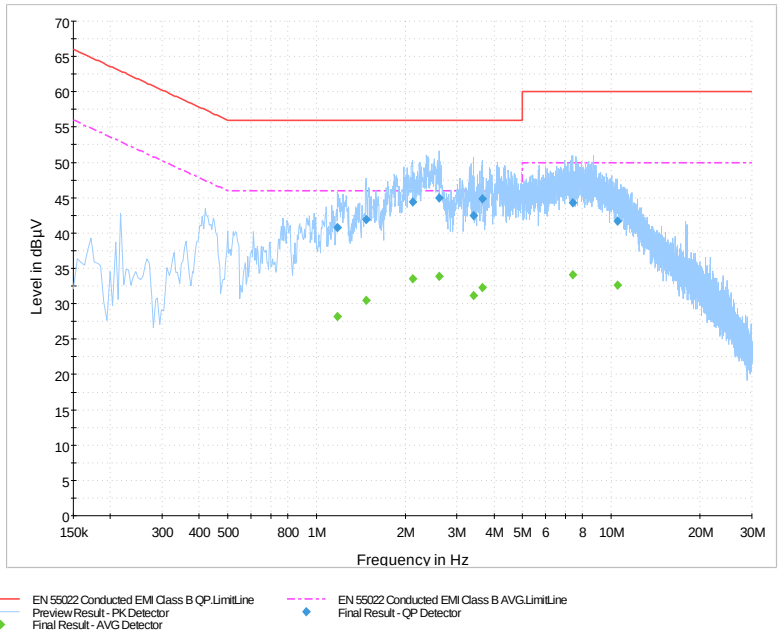
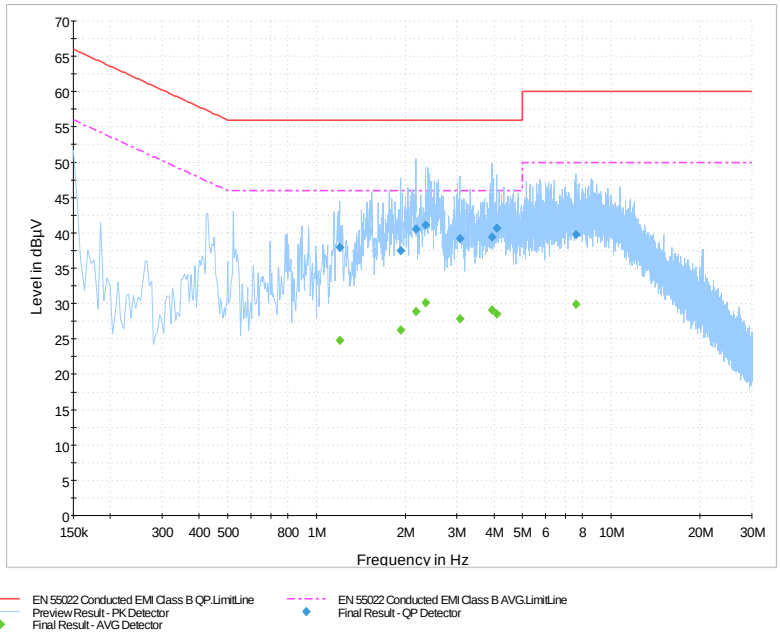


Figure 1-12: N Lines



APPENDIX 2 - RADIATED EMISSIONS TEST DATA

Radiated Emissions Test Results

Radiated Emissions Test Results cont'd

The following tests were performed by: Kevin Rose

Test Configuration 1

Date of the test: April 01, 2010
The environmental conditions were: Temperature: 26 °C
Pressure: 1007 mB
Humidity: 22 %

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading +corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
61.250	V	3.14	284	Q.P.	49.24	-22.82	26.42	40.00	-13.58
73.000	V	1.40	77	Q.P.	46.26	-21.95	24.31	40.00	-15.69
166.000	H	2.01	216	Q.P.	45.41	-18.99	26.42	43.50	-17.08
216.050	H	1.00	83	Q.P.	48.03	-16.18	31.85	46.00	-14.15
243.450	H	1.20	273	Q.P.	48.08	-17.05	31.03	46.00	-14.97
365.050	V	2.37	38	Q.P.	40.47	-12.80	27.67	46.00	-18.33
426.050	H	2.30	96	Q.P.	38.96	-10.59	28.37	46.00	-17.63
750.150	V	1.40	211	Q.P.	27.23	-3.51	23.72	46.00	-22.28
All other emission levels had a test margin greater than 25 dB.									

Radiated Emissions Test Results cont'd

Test Configuration 2

Date of the test: April 01, 2010
The environmental conditions were: Temperature: 26 °C
Pressure: 1007 mB
Humidity: 22 %

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
49.600	V	1.40	220.00	Q.P.	46.08	-22.81	23.27	40.00	-16.73
119.450	H	1.00	12.00	Q.P.	37.14	-18.47	18.67	43.50	-24.83
475.200	V	1.40	164.00	Q.P.	40.01	-9.61	30.40	46.00	-15.60
513.400	V	1.64	86.00	Q.P.	37.23	-9.26	27.97	46.00	-18.03
597.150	H	1.00	12.00	Q.P.	32.40	-6.70	25.70	46.00	-20.30
825.650	V	1.40	28.00	Q.P.	28.94	-3.21	25.73	46.00	-20.27
All other emission levels had a test margin greater than 25 dB.									

Radiated Emissions Test Results cont'd

Test Configuration 3

Date of the test: April 05, 2010
The environmental conditions were: Temperature: 27 °C
Pressure: 1009 mB
Humidity: 23 %

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
30.500	H	2.67	7.00	Q.P.	33.74	-18.62	15.12	40.00	-24.88
54.100	V	1.40	292.00	Q.P.	47.93	-23.11	24.82	40.00	-15.18
56.350	V	1.88	259.00	Q.P.	49.67	-23.10	26.57	40.00	-13.43
56.800	H	3.99	202.00	Q.P.	38.34	-22.96	15.38	40.00	-24.62
91.200	V	1.46	45.00	Q.P.	44.01	-20.44	23.57	43.50	-19.93
93.600	V	1.50	65.00	Q.P.	40.50	-20.15	20.35	43.50	-23.15
214.750	H	1.38	255.00	Q.P.	42.19	-16.06	26.13	43.50	-17.37
214.750	V	2.89	293.00	Q.P.	40.00	-16.06	23.94	43.50	-19.56
214.800	V	2.43	335.00	Q.P.	37.67	-16.06	21.61	43.50	-21.89
215.800	V	2.29	353.00	Q.P.	45.59	-16.15	29.44	43.50	-14.06
243.950	H	1.11	102.00	Q.P.	40.77	-17.05	23.72	46.00	-22.28
365.150	V	1.71	58.00	Q.P.	36.71	-12.80	23.91	46.00	-22.09
366.100	H	2.42	210.00	Q.P.	36.05	-12.81	23.24	46.00	-22.76
425.850	H	2.32	98.00	Q.P.	39.17	-10.58	28.59	46.00	-17.41
749.200	V	1.53	194.00	Q.P.	25.65	-3.57	22.08	46.00	-23.92
749.250	V	1.61	222.00	Q.P.	26.31	-3.57	22.74	46.00	-23.26
865.650	H	3.86	7.00	Q.P.	23.12	-1.20	21.92	46.00	-24.08
876.550	H	2.34	250.00	Q.P.	23.32	-1.81	21.51	46.00	-24.49
All other emission levels had a test margin greater than 25 dB.									

Radiated Emissions Test Results cont'd

Test Configuration 4

Date of the test: April 05, 2010
The environmental conditions were: Temperature: 26 °C
Pressure: 1007 mB
Humidity: 22%

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
42.650	V	1.49	79.00	Q.P.	42.57	-21.76	20.81	40.00	-19.19
61.200	V	1.74	240.00	Q.P.	47.13	-22.81	24.32	40.00	-15.68
66.500	V	2.19	249.00	Q.P.	43.79	-22.48	21.31	40.00	-18.69
143.200	V	1.84	155.00	Q.P.	40.69	-19.14	21.55	43.50	-21.95
144.000	H	1.95	36.00	Q.P.	46.69	-19.14	27.55	43.50	-15.95
166.350	H	1.21	136.00	Q.P.	39.07	-18.94	20.13	43.50	-23.37
182.750	H	2.23	259.00	Q.P.	42.04	-18.69	23.35	43.50	-20.15
183.400	V	3.10	345.00	Q.P.	39.63	-18.70	20.93	43.50	-22.57
210.300	H	1.24	202.00	Q.P.	45.60	-15.71	29.89	43.50	-13.61
244.050	H	1.13	264.00	Q.P.	42.78	-17.05	25.73	46.00	-20.27
336.050	V	1.53	210.00	Q.P.	39.07	-11.89	27.18	46.00	-18.82
365.350	V	2.46	10.00	Q.P.	38.53	-12.81	25.72	46.00	-20.28
365.500	H	2.19	221.00	Q.P.	38.48	-12.80	25.68	46.00	-20.32
426.150	H	2.35	96.00	Q.P.	39.50	-10.60	28.90	46.00	-17.10
428.900	H	2.44	92.00	Q.P.	40.05	-10.74	29.31	46.00	-16.69
432.150	H	2.07	228.00	Q.P.	42.07	-10.76	31.31	46.00	-14.69
528.200	H	2.34	97.00	Q.P.	37.84	-8.44	29.40	46.00	-16.60
666.050	H	1.24	208.00	Q.P.	29.54	-5.92	23.62	46.00	-22.38
All other emission levels had a test margin greater than 25 dB.									

Radiated Emissions Test Results cont'd

Test Configuration 5

Date of the test: April 05, 2010
The environmental conditions were: Temperature: 26 °C
Pressure: 1007 mB
Humidity: 22%

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
38.150	V	3.53	50.00	Q.P.	35.99	-20.77	15.22	40.00	-24.78
56.450	V	1.43	97.00	Q.P.	48.37	-23.06	25.31	40.00	-14.69
142.550	H	1.52	22.00	Q.P.	37.85	-19.13	18.72	43.50	-24.78
261.600	H	1.21	353.00	Q.P.	44.94	-15.83	29.11	46.00	-16.89
453.250	V	1.88	272.00	Q.P.	34.81	-10.03	24.78	46.00	-21.22
453.600	H	2.03	236.00	Q.P.	39.87	-10.02	29.85	46.00	-16.15
523.550	H	2.20	97.00	Q.P.	35.29	-8.61	26.68	46.00	-19.32
535.400	V	1.72	105.00	Q.P.	30.36	-8.32	22.04	46.00	-23.96
All emission levels had a test margin greater than 25 dB.									

Radiated Emissions Test Results cont'd

Test Configuration 6

Date of the test: April 05, 2010
The environmental conditions were: Temperature: 25 °C
Pressure: 1012 mB
Humidity: 21%

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
55.700	V	3.30	210.00	Q.P.	44.88	-21.49	23.39	40.00	-16.61
101.500	H	2.80	354.00	Q.P.	38.74	-17.92	20.82	43.50	-22.68
171.350	V	1.47	306.00	Q.P.	40.41	-16.89	23.52	43.50	-19.98
214.850	V	1.43	266.00	Q.P.	37.26	-14.50	22.76	43.50	-20.74
218.850	V	1.40	286.00	Q.P.	38.21	-14.72	23.49	46.00	-22.51
All emission levels had a test margin greater than 25 dB.									

Radiated Emissions Test Results cont'd

Test Configuration 7

Date of the test: April 01, 2010
The environmental conditions were: Temperature: 26 °C
Pressure: 1007 mB
Humidity: 22%

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
38.950	V	1.40	89.00	Q.P.	47.80	-21.00	26.80	40.00	-13.20
56.100	V	1.64	112.00	Q.P.	49.97	-23.18	26.79	40.00	-13.21
411.100	H	2.14	354.00	Q.P.	43.01	-10.98	32.03	46.00	-13.97
492.900	H	1.00	7.00	Q.P.	36.87	-9.28	27.59	46.00	-18.41
All emission levels had a test margin greater than 25 dB.									

Radiated Emissions Test Results cont'd

Test Configuration 8

Date of the test: April 06, 2010
The environmental conditions were: Temperature: 25 °C
Pressure: 1008 mB
Humidity: 30%

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
51.700	V	1.53	115.00	Q.P.	46.76	-21.44	25.32	40.00	-14.68
143.050	H	1.99	354.00	Q.P.	50.04	-16.72	33.32	43.50	-10.18
265.800	V	1.38	62.00	Q.P.	46.43	-14.07	32.36	46.00	-13.64
338.800	V	1.60	285.00	Q.P.	35.94	-9.23	26.71	46.00	-19.29
502.300	V	1.37	254.00	Q.P.	28.79	-6.55	22.24	46.00	-23.76
802.600	H	1.54	164.00	Q.P.	25.93	-1.37	24.56	46.00	-21.44
870.300	V	1.91	161.00	Q.P.	26.02	0.30	26.32	46.00	-19.68
873.500	V	1.55	18.00	Q.P.	37.46	0.26	37.72	46.00	**-8.28**
All emission levels had a test margin greater than 25 dB.									

Radiated Emissions Test Results cont'd

Test Configuration 9

Date of the test: May 19, 2010
The environmental conditions were: Temperature: 24 °C
Pressure: 1003 mB
Humidity: 22%

Frequency (MHz)	Antenna Pol. (V/H)	Antenna Height (metres)	Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dBµV)	Correction Factor for preamp/antenna / cables/ filter (dB/m)	Field Strength Level (reading+corr) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
30.400	H	3.02	208.00	Q.P.	34.14	-18.57	15.57	40.00	-24.43
36.050	V	2.96	197.00	Q.P.	44.12	-20.21	23.91	40.00	-16.09
37.700	V	1.40	220.00	Q.P.	49.47	-20.66	28.81	40.00	-11.19
All emission levels had a test margin greater than 25 dB.									