EMI Test Report

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

RIM Testing Services (RTS)

A division of Research In Motion Limited

REPORT NO.: RTS-0373-0606-01

PRODUCT MODEL NO.: RBF20CW
TYPE NAME: BlackBerry
FCC ID: L6ARRBF20CW
IC: 2503A-RBF20CW

DATE: 31-July-2006

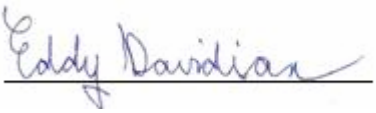
Statement of Performance:

The BlackBerry Handheld, model RBF20CW, ASY-11785-XYZ Rev K_ASY-11783-001 Rev G, and accessories when configured and operated per RIM's operation instructions, performs within the requirements of the test standards.

Declaration:

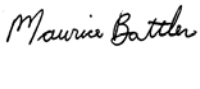
We hereby certify that:
The test data reported herein is an accurate record of the performance of the sample(s) tested.
The test results are valid for the tested unit (s) only.
The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating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

Tested by:



Edward A. Davidian
Compliance Specialist
Date: July 31, 2006

Reviewed by:



Maurice Battler
Compliance Specialist
Date: July 31, 2006

Tested by:

Masud S. Attayi, P.Eng.
Senior Compliance Engineer,
Date: July 31, 2006

Approved by:

Paul G. Cardinal, Ph.D.
Manager
Date: August 1, 2006

Table of Contents

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, Dec. 08, 2003, Class B Digital Devices, Unintentional Radiators
IC ICES-003 Issue 3, Class B Digital Devices, Unintentional Radiators

B. Associated Documents

None.

C. Product Identification

The equipment under test (EUT) was tested at the RIM Testing Services (RTS) EMI test facility, located at:

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

The testing was performed June 26–29, 2006. The sample EUT included:

1. BlackBerry model number RBF20CW, ASY-11785-XYZ Rev K_ASY-11783-001 Rev G, Sample 04.

The transmit frequency bands operating in North America for the Handheld are: Cellular 824 to 849 MHz, PCS 1850 to 1910 MHz and Bluetooth 2402 to 2480 MHz.

BlackBerry Handheld Accessories Tested

1) External Charger part number ASY-07042-002 with a dc output of 4.2 volts, 0.75 amps for charging the internal battery and 5.1 volts, 0.75 amps for charging an external battery.
2) Folding Blade Charger part number ASY-07040-001 with an output voltage of 5.0 volts dc, 0.75 amps and attached USB cable with a lead length of 1.80 metres.
3) Captive Cable Charger part number ASY-07559-001 with an output voltage of 5.0 volts dc, 0.5 amps and attached USB cable with a lead length of 1.80 metres.
4) Travel Charger part number ASY-04078-001 with an output voltage of 5.0 volts dc, 0.5 amps.
5) Rapid Charger part number ASY-07041-001 with an output voltage of 5.0 volts dc, 1.6 amps and attached USB cable with a lead length of 1.80 metres.
6) Alternative Folding Blade Charger part number ASY-12709-001 with an output voltage of 5.0 volts dc, 0.75 amps and attached USB cable with a lead length of 1.80 metres.
7) USB data cable, model number HDW-06610-001, 1.45 metres long.
8) Headset, model number HDW-03458-001. The lead length was 1.25 metres long.

D. Support Equipment Used for the Testing of the EUT

1) PC System, Myraid, model EN-P3B-7, serial number CCC0004078
2) Monitor, ViewSonic, model number VCDTS23103-2M, serial number 4B022952648
3) Printer, HP, model number C5884A, serial number US8251W0VQ

E. Test Voltage

The ac input voltage was 120 volts, 60 Hz where applicable. This configuration was per RIM's specifications.

F. Test Results Chart

SPECIFICATION	Test Type	MEETS REQUIREMENTS	Performed By
FCC CFR 47 Part 15, Subpart B IC ICES-003 Radiated Unintentional Spurious Emissions	Class B	Yes	Masud Attayi & Edward Davidian
FCC CFR 47 Part 15, Subpart B IC ICES-003 Conducted AC Line Emission	Class B	Yes	Masud Attayi & Edward Davidian

G. Modifications to EUT

No modifications were required on the EUT.

H. Summary of Results

a) AC LINE 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 styrofoam 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.
The following test configurations were measured:

1. The Handheld in Cell band idle mode and battery charging mode, was connected via the detachable USB cable to the External Charger, part number ASY-07042-002. The ac input to the External Charger was 120 volts, 60 Hz.
2. The Handheld in Cell band idle mode and battery charging mode was connected to the Folding Blade Charger, part number ASY-07040-001. The ac input to the Folding Blade Charger was 120 volts, 60 Hz.
3. The Handheld in Bluetooth band idle mode and battery charging mode was connected to the Captive Cable Charger, part number ASY-07559-001. The ac input to the Captive Cable Charger was 120 volts, 60 Hz.
4. The Handheld in PCS band idle mode and battery charging mode was connected to the Travel Charger, part number ASY-04078-001. The ac input to the Travel Charger was 120 volts, 60 Hz.
5. The Handheld in PCS band idle mode and battery charging mode was connected to the Rapid Charger, part number ASY-07041-001. The ac input to the Rapid Charger 120 volts, 60 Hz.
6. The Handheld in PCS band idle mode and battery charging mode was connected to the Alternative Folding Blade Charger, part number ASY-12709-001. The ac input to the Rapid Charger was 120 volts, 60 Hz.

The sample EUT's conducted emissions were compared with respect to the FCC CFR 47 Part 15, Subpart B (CISPR 22) and IC ICES-003, Class B limit. The sample EUT had a worse case test margin of 12.30 dB below the limit at 0.615 MHz using the quasi peak detector with the Folding Blade Charger, test configuration 2.

Measurement Uncertainty ±2.0 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 1.0 GHz. Both the horizontal and vertical polarisations of the emissions were measured.
The measurements were done in a semi-anechoic chamber. The semi-anechoic chamber FCC registration number is **778487** and the Industry Canada file number is **IC4240**.
The EUT was configured and operated to produce the maximum radiated emissions while still keeping within RIM's specifications.

The following test configurations were measured:

1. The Handheld in battery charging mode was connected to the External Charger, part number ASY-07042-002 via the detachable USB cable model number HDW-06610-001. The ac input was 120 volts, 60Hz.
2. The Handheld in battery charging mode was connected to the Folding Blade Charger, part number ASY-07040-001. The ac input was 120 volts, 60 Hz.
3. The Handheld in battery charging mode was connected to the Captive Cable Charger, part number ASY-07559-001. The ac input was 120 volts, 60 Hz.
4. The Handheld in battery charging mode was connected to the Travel Charger, part number ASY-04078-001. The ac input was 120 volts, 60 Hz.
5. The Handheld in battery charging mode was connected to the Rapid Charger, part number ASY-07041-001.
6. The Handheld in CDMA 2000 idle mode was connected to the support PC via the USB data cable for charging and data link. The ac input was 120 volts, 60 Hz.
7. The Handheld in EVDO idle mode was connected to the support PC via the USB data cable for charging and data link. The ac input was 120 volts, 60 Hz.
8. The Handheld in battery charging mode was connected to the Alternative Folding Blade Charger, part number ASY-12709-001. The ac input was 120 volts, 60 Hz.

The system's radiated emission levels in idle mode 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 5.52 dB at 36.019 MHz for test configuration 6, and at 704.238 MHz for test configuration 7.

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 ±4.0 dB

To view the test data see APPENDIX 2.

I. Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Preamplifier	Sonoma	310N/11909A	185831	06-11-27	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	06-11-25	Radiated Emissions
EMI Receiver	Agilent	8546A	3942A00517	06-10-11	Conducted/Radiated Emissions
RF Filter Section	Agilent	85460A	3704A00481	06-10-11	Conducted/Radiated Emissions
Digital Multimeter	Hewlett Packard	34401A	US36042324	06-09-13	Conducted/Radiated Emissions
Environment Monitor	Control Company	1870	230355190	06-12-23	Conducted/Radiated Emissions
L.I.S.N.	Emco	3816/2	1120	06-08-18	Conducted Emissions
Impulse Limiter	Rohde & Schwarz	ESHS-Z2	836248/052	06-11-15	Conducted Emissions
Hybrid Log Antenna	TDK	HLP-3003C	17401	06-07-21	Radiated Emissions
Universal Radio Communication Tester	R&S	CMU 200	837493/073	07-03-20	Radiated/Conducted Emission
EMI Test Receiver	R&S	ESIB 40	100255	07-05-11	Radiated Emission

APPENDIX 1 - AC LINE CONDUCTED EMISSIONS TEST DATA

AC Conducted Emissions Test Results

The environmental test conditions were: Temperature 23ºC
Pressure 1012mb
Relative Humidity 32%

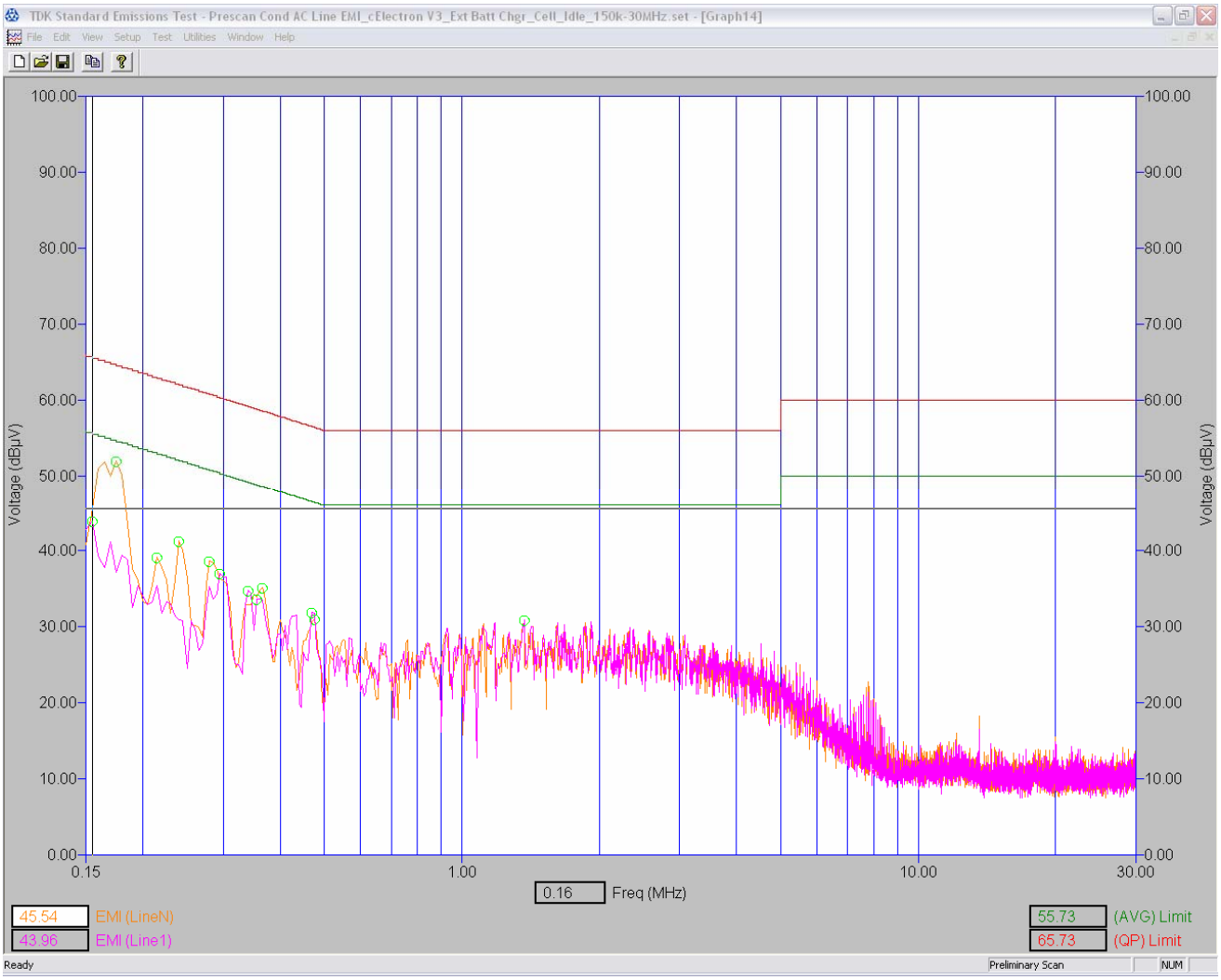
Test Configuration 1

FCC CFR 47 Part 15, Subpart B (CISPR 22), IC ICES-003, Class B

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)	Margin (AV) Limits (dB)
0.171	L1	39.65	8.92	48.57	65.73	55.73	-17.16	-7.16
0.172	N	39.67	8.90	48.57	64.72	54.72	-16.15	-6.15
0.227	N	29.14	8.88	38.02	63.01	53.01	-24.99	-14.99
0.239	N	29.04	8.88	37.92	62.10	52.10	-24.18	-14.18
0.282	L1	26.31	8.86	35.17	60.38	50.38	-25.21	-15.21
0.286	N	26.31	8.87	35.18	60.82	50.82	-25.64	-15.64
0.343	L1	20.56	8.76	29.32	59.20	49.20	-29.88	-19.88
0.347	L1	22.13	8.73	30.86	58.84	48.84	-27.99	-17.99
0.370	N	22.6	8.70	31.30	58.61	48.61	-27.31	-17.31
0.474	L1	22.67	8.22	30.89	56.51	46.51	-25.63	-15.63
0.474	N	20.98	8.19	29.17	56.43	46.43	-27.26	-17.26
1.391	L1	17.24	9.23	26.47	56.00	46.00	-29.53	-19.53

See graph 1 for the measurement plot.

Test Configuration 1



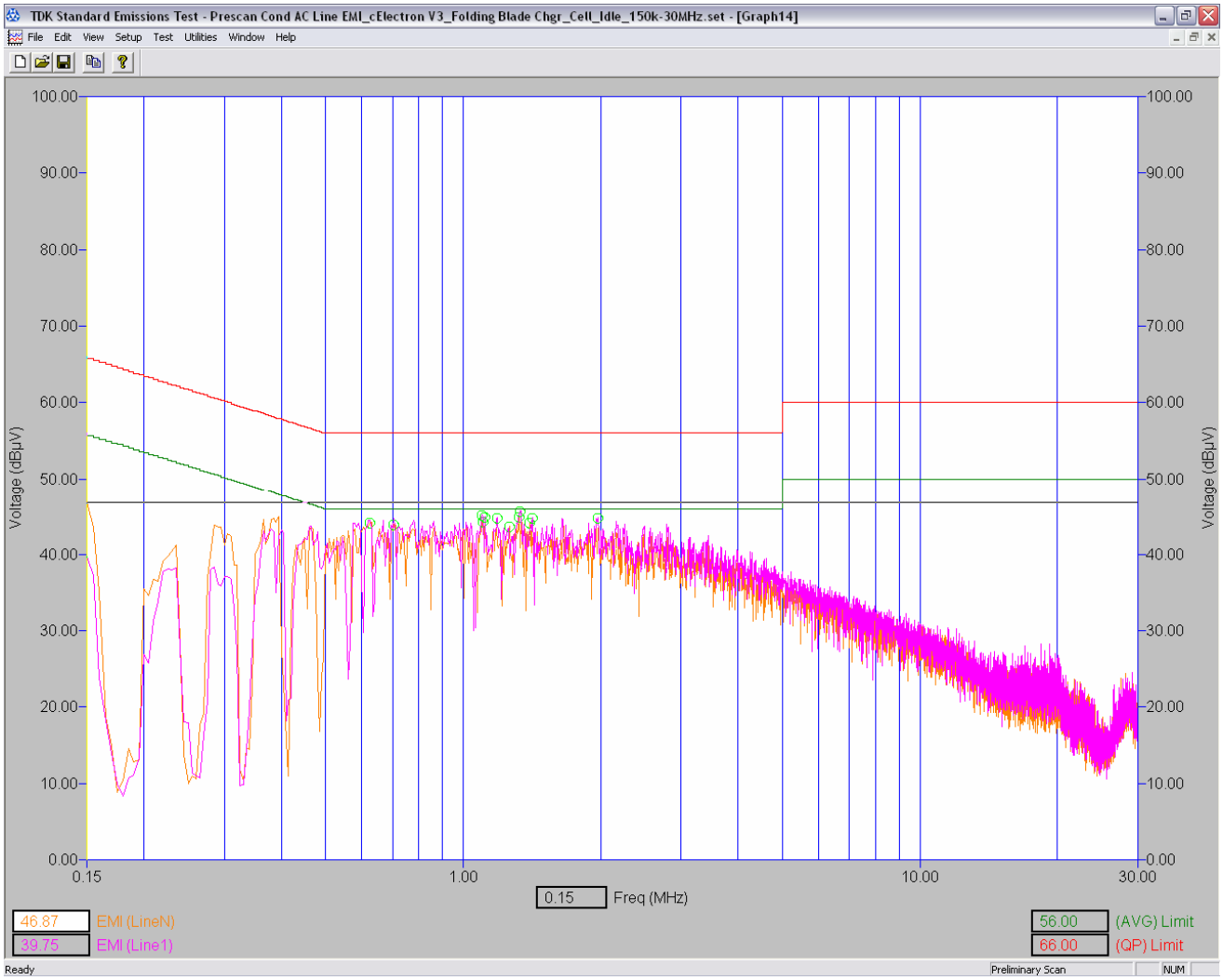
Test Configuration 2

FCC CFR 47 Part 15, Subpart B (CISPR 22), IC ICES-003, Class B

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)	Margin (AV) Limits (dB)
0.615	N	35.24	8.46	43.70	56.00	46.00	**-12.30**	-2.30
0.691	N	33.67	8.60	42.27	56.00	46.00	-13.73	-3.73
1.088	L1	33.81	9.10	42.91	56.00	46.00	-13.09	-3.09
1.091	N	31.29	9.11	40.40	56.00	46.00	-15.60	-5.60
1.092	L1	33.34	9.11	42.45	56.00	46.00	-13.55	-3.55
1.169	L1	31.85	9.15	41.00	56.00	46.00	-15.00	-5.00
1.246	N	30.92	9.18	40.10	56.00	46.00	-15.90	-5.90
1.323	N	33.02	9.21	42.23	56.00	46.00	-13.77	-3.77
1.324	L1	33.85	9.21	43.06	56.00	46.00	-12.94	-2.94
1.396	N	31.60	9.24	40.84	56.00	46.00	-15.16	-5.16
1.435	L1	29.05	9.25	38.30	56.00	46.00	-17.70	-7.70
1.974	L1	28.28	9.43	37.71	56.00	46.00	-18.29	-8.29

See graph 2 for the measurement plot.

Test Configuration 2



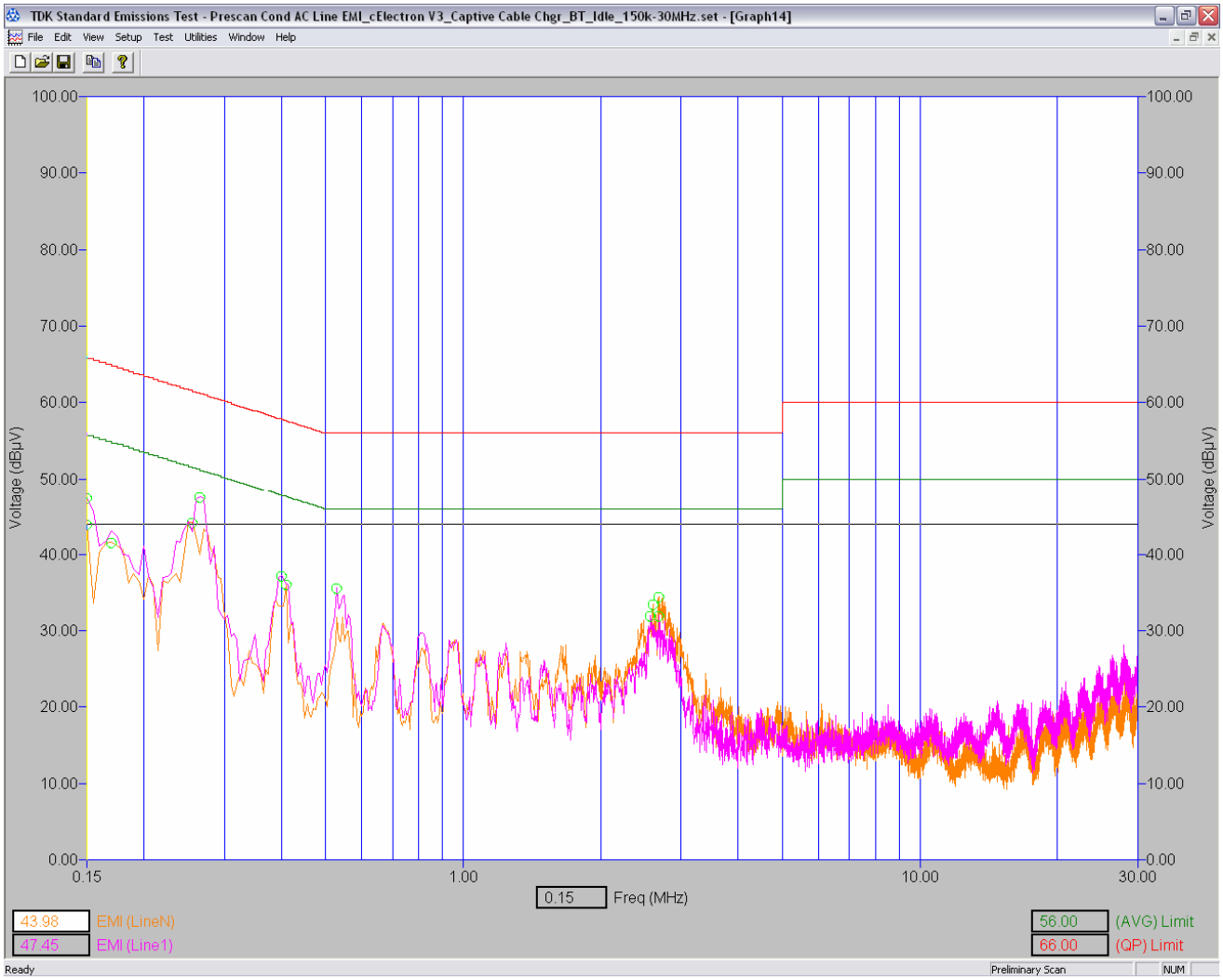
Test Configuration 3

FCC CFR 47 Part 15, Subpart B (CISPR 22), IC ICES-003, Class B

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor for Impulse Limiter, LISN, Cable (dB)	Level (QP) (reading + Corr.Factor) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)	Margin (AV) Limits (dB)
0.150	N	40.92	8.92	49.83	66.00	56.00	-16.17	-6.17
0.151	L1	42.67	8.92	51.59	66.00	56.00	-14.41	-4.41
0.152	N	40.61	8.91	49.53	64.96	56.00	-16.47	-6.47
0.265	L1	34.49	8.87	43.36	61.27	51.27	-17.91	-7.91
0.266	N	33.32	8.87	42.19	61.59	51.59	-19.40	-9.40
0.400	L1	25.31	8.63	33.94	57.85	47.85	-23.91	-13.91
0.407	N	23.42	8.57	31.99	57.65	47.65	-25.66	-15.66
0.532	L1	23.84	8.17	32.01	56.00	46.00	-23.99	-13.99
2.573	L1	17.60	9.63	27.23	56.00	46.00	-28.77	-18.77
2.607	N	20.09	9.64	29.73	56.00	46.00	-26.27	-16.27
2.678	N	20.10	9.66	29.76	56.00	46.00	-26.24	-16.24

See graph 3 for the measurement plot.

Test Configuration 3



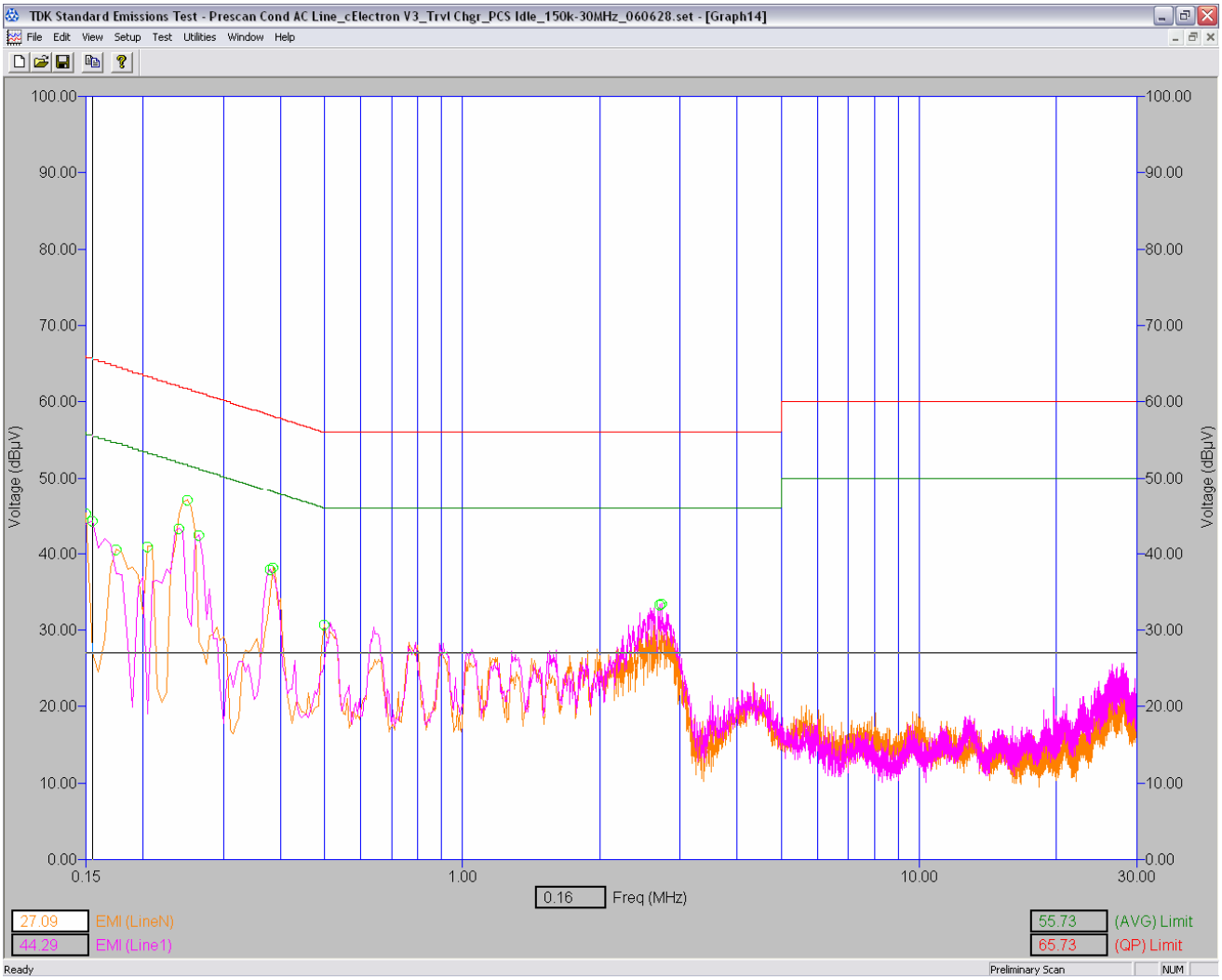
Test Configuration 4

FCC CFR 47 Part 15, Subpart B (CISPR 22), IC ICES-003, Class B

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor for Impulse Limiter, LISN, Cable (dB)	Level (QP) (reading + Corr.Factor) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)	Margin (AV) Limits (dB)
0.150	N	33.74	8.92	42.92	65.73	55.73	-23.08	-13.08
0.150	L1	34.00	8.92	42.66	66.00	56.00	-23.07	-13.07
0.162	N	27.71	8.90	36.61	64.72	54.72	-28.11	-18.11
0.193	N	22.15	8.89	31.04	63.41	53.41	-32.37	-22.37
0.252	N	31.98	8.87	40.85	61.76	51.76	-20.90	-10.90
0.255	L1	32.18	8.87	41.05	61.27	51.27	-20.22	-10.22
0.256	L1	32.21	8.88	41.09	62.10	52.10	-21.01	-11.01
0.381	L1	24.59	8.67	33.36	58.28	48.17	-24.92	-14.92
0.383	N	24.69	8.66	33.25	58.17	48.28	-24.92	-14.92
0.508	N	20.06	8.06	28.12	56.00	46.00	-27.88	-17.88
2.716	L1	19.51	9.66	29.17	56.00	46.00	-26.83	-16.83
2.730	L1	18.62	9.67	28.29	56.00	46.00	-27.71	-17.71

See graph 4 for the measurement plot.

Test Configuration 4



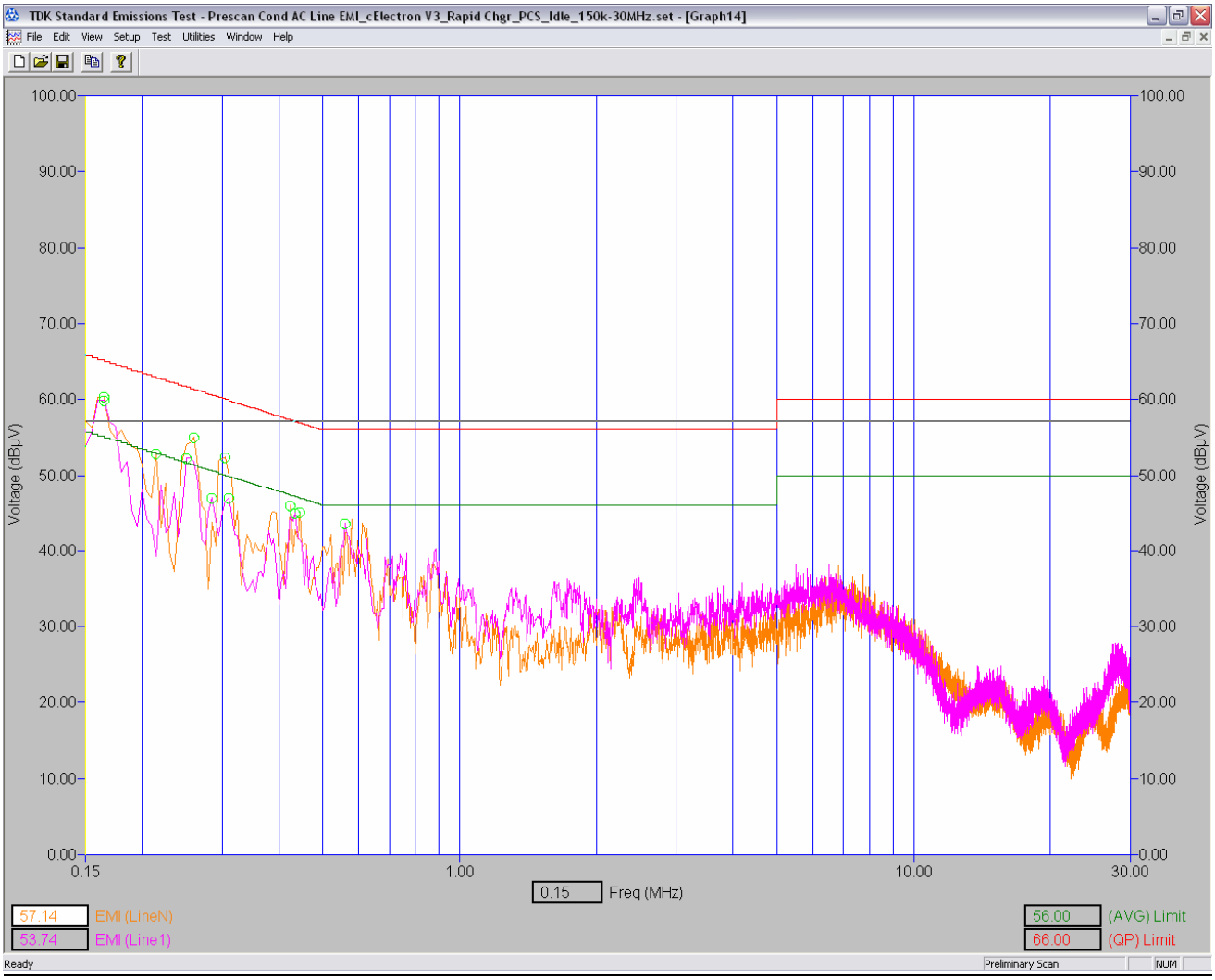
Test Configuration 5

FCC CFR 47 Part 15, Subpart B (CISPR 22), IC ICES-003, Class B

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor for Impulse Limiter, LISN, Cable (dB)	Level (QP) (reading + Corr.Factor) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)	Margin (AV) Limits (dB)
0.170	N	41.49	8.91	50.40	65.21	55.21	-14.81	-4.81
0.170	L1	41.97	8.91	50.88	65.21	55.21	-14.33	-4.33
0.218	N	29.57	8.88	38.45	63.01	53.01	-24.56	-14.56
0.255	L1	36.49	8.87	45.36	61.76	51.76	-16.39	-6.39
0.257	N	39.97	8.87	48.84	61.43	51.43	-12.59	-2.59
0.293	L1	29.46	8.86	38.32	60.67	50.67	-22.35	-12.35
0.293	N	34.50	8.85	43.35	60.11	50.11	-16.76	-6.76
0.305	L1	31.46	8.83	40.29	59.97	49.97	-19.68	-9.68
0.430	N	31.35	8.48	39.83	57.35	47.35	-17.52	-7.52
0.440	L1	30.74	8.42	37.67	57.16	46.97	-17.87	-7.87
0.440	N	29.25	8.36	39.10	56.97	47.16	-19.49	-9.49
0.561	L1	28.60	8.28	36.88	56.00	46.00	-19.12	-9.12

See graph 5 for the measurement plot.

Test Configuration 5



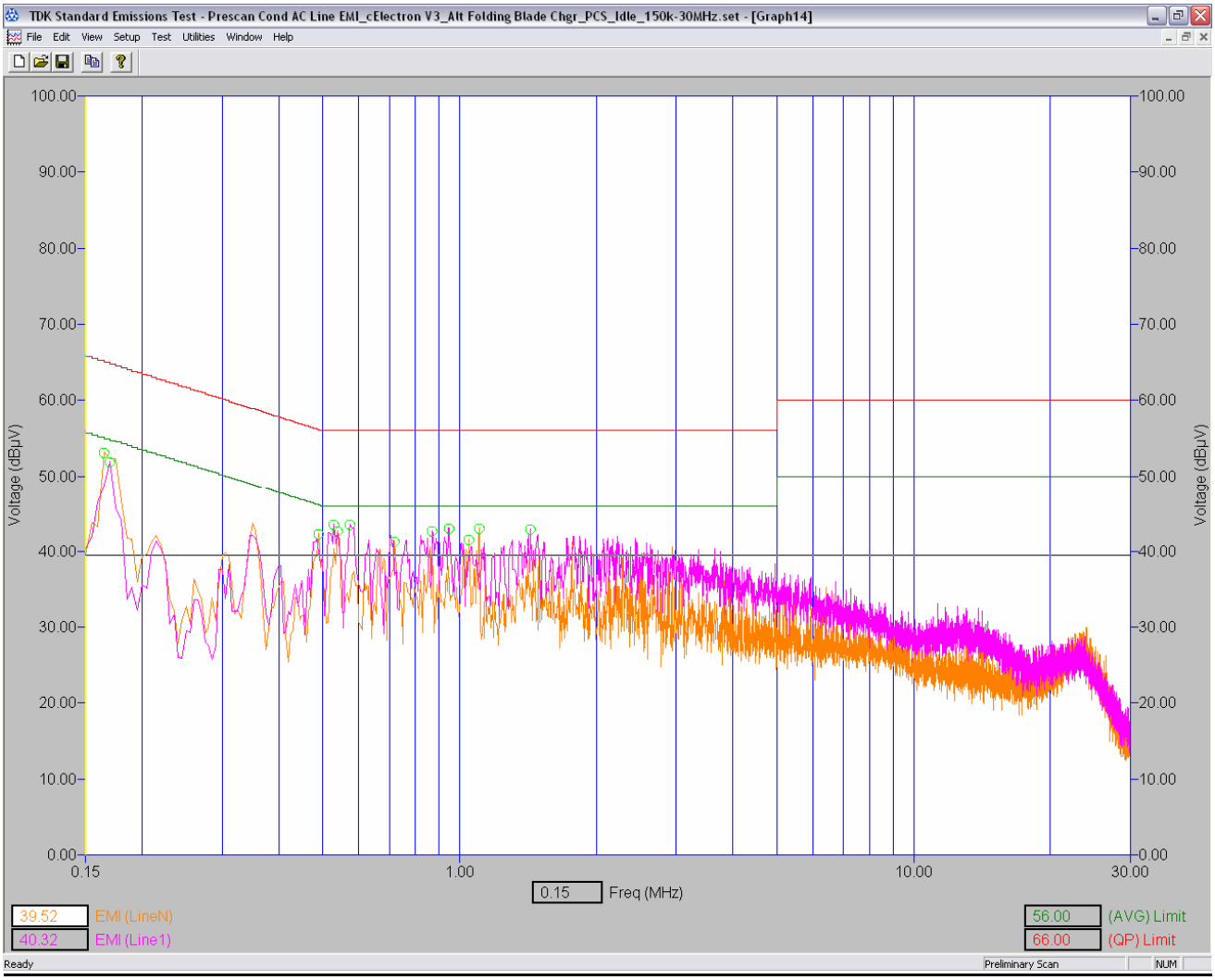
Test Configuration 6

FCC CFR 47 Part 15, Subpart B (CISPR 22), IC ICES-003, Class B

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor for Impulse Limiter, LISN, Cable (dB)	Level (QP) (reading + Corr.Factor) (dB)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)	Margin (AV) Limits (dB)
0.173	N	35.71	8.91	44.62	65.21	55.21	-20.59	-10.59
0.176	L1	27.39	8.91	36.30	64.96	54.96	-28.66	-18.66
0.479	N	28.89	8.11	37.00	56.17	46.17	-19.17	-9.17
0.531	L1	29.12	8.17	37.29	56.00	46.00	-18.71	-8.71
0.532	N	28.64	8.21	36.85	56.00	46.00	-19.15	-9.15
0.577	L1	27.47	8.33	35.80	56.00	46.00	-20.20	-10.20
0.721	N	18.38	8.62	27.00	56.00	46.00	-29.00	-19.00
0.877	L1	26.54	8.95	35.49	56.00	46.00	-20.51	-10.51
0.937	L1	24.68	9.05	33.73	56.00	46.00	-22.27	-12.27
1.040	N	18.06	9.08	27.14	56.00	46.00	-28.86	-18.86
1.096	N	15.58	9.11	24.69	56.00	46.00	-31.31	-21.31
1.421	L1	22.10	9.25	31.35	56.00	46.00	-24.65	-14.65

See graph 6 for the measurement plot.

Test Configuration 6



APPENDIX 2 - RADIATED EMISSIONS TEST DATA

Radiated Emissions Test Results

The environmental test conditions were: Temperature 26ºC
Pressure 1013mb
Relative Humidity 35%

Test Configuration 1

FCC CFR 47 Part 15, Subpart B, Class B

Test Distance was 3.0 metres.

For this test configuration, all the emission levels had a test margin of greater than 25 dB
.

Test Configuration 2

FCC CFR 47 Part 15, Subpart B, Class B

Test Distance was 3.0 metres.

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)
824.157	V	150	119	Q.P.	22.62	-1.31	21.31	46.00	-24.69
848.825	H	338	295	Q.P.	21.99	-0.48	21.51	46.00	-24.49
886.002	V	224	82	Q.P.	21.9	-0.03	21.87	46.00	-24.13
909.062	H	275	96	Q.P.	21.68	0.10	21.78	46.00	-24.22
914.757	H	235	12	Q.P.	21.99	0.26	22.25	46.00	-23.75
925.851	V	146	68	Q.P.	21.92	0.39	22.31	46.00	-23.69
942.995	H	106	133	Q.P.	21.76	0.82	22.58	46.00	-23.42

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

Test Configuration 3

FCC CFR 47 Part 15, Subpart B, Class B

Test Distance was 3.0 metres.

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)
45.342	V	354	238	Q.P.	36.92	-21.56	15.36	40.00	-24.64
52.061	H	399	300	Q.P.	52.73	-21.89	30.84	40.00	-9.16
52.187	V	326	360	Q.P.	48.32	-21.86	26.46	40.00	-13.54
109.492	H	265	272	Q.P.	47.23	-18.48	28.75	43.50	-14.75
123.048	H	98	272	Q.P.	40.89	-18.24	22.65	43.50	-20.85
134.276	H	98	121	Q.P.	40.07	-17.84	22.23	43.50	-21.27
165.505	H	98	111	Q.P.	38.84	-17.69	21.15	43.50	-22.35
176.412	H	99	290	Q.P.	41.01	-17.48	23.53	43.50	-19.97
881.367	V	311	284	Q.P.	23.32	-0.19	23.13	46.00	-22.87

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

Test Configuration 4

FCC CFR 47 Part 15, Subpart B, Class B

Test Distance was 3.0 metres.

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)
52.717	V	152	21	Q.P.	45.09	-21.82	23.27	40.00	-16.73
52.875	V	399	82	Q.P.	41.97	-21.79	20.18	40.00	-19.82
53.226	V	320	96	Q.P.	42.14	-21.77	20.37	40.00	-19.63
53.588	V	140	21	Q.P.	48.39	-21.72	26.67	40.00	-13.33
56.323	V	276	336	Q.P.	42.26	-21.79	20.47	40.00	-19.53
136.406	H	107	105	Q.P.	39.51	-17.81	21.70	43.50	-21.80
137.788	H	275	100	Q.P.	41.48	-17.79	23.69	43.50	-19.81
182.898	H	292	249	Q.P.	37.03	-17.15	19.88	43.50	-23.62
183.944	H	187	268	Q.P.	38.61	-17.10	21.51	43.50	-21.99
188.456	H	271	91	Q.P.	37.05	-16.67	20.38	43.50	-23.12
188.625	H	191	281	Q.P.	38.82	-16.65	22.17	43.50	-21.33

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

Test Configuration 5

FCC CFR 47 Part 15, Subpart B, Class B

Test Distance was 3.0 metres

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)
82.541	H	238	58	Q.P.	39.12	-20.54	18.58	40.00	-21.42
82.755	V	341	249	Q.P.	38.11	-20.47	17.64	40.00	-22.36
164.196	V	177	360	Q.P.	42.71	-17.69	25.02	43.50	-18.48
864.491	H	381	100	Q.P.	22.23	-0.50	21.73	46.00	-24.27
872.743	H	221	31	Q.P.	22.3	-0.40	21.90	46.00	-24.10
912.094	H	263	351	Q.P.	21.84	0.18	22.02	46.00	-23.98

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

Test Configuration 6

FCC CFR 47 Part 15, Subpart B, Class B

Test Distance was 3.0 metres

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)
30.438	V	389	183	Q.P.	45.23	-18.11	27.12	40.00	-12.88
30.464	H	395	169	Q.P.	43.15	-18.13	25.02	40.00	-14.98
31.814	V	394	8	Q.P.	46.84	-18.47	28.37	40.00	-11.63
31.924	H	399	184	Q.P.	47.68	-18.45	29.23	40.00	-10.77
32.597	V	398	239	Q.P.	44.73	-18.62	26.11	40.00	-13.89
33.282	H	121	170	Q.P.	51.74	-18.72	33.02	40.00	-6.98
33.895	H	275	234	Q.P.	37.93	-18.89	19.04	40.00	-20.96
34.797	V	390	174	Q.P.	44.75	-19.09	25.66	40.00	-14.34
36.019	V	144	179	Q.P.	53.95	-19.47	34.48	40.00	**-5.52**
36.096	H	397	128	Q.P.	49.86	-19.47	30.39	40.00	-9.61
84.051	H	228	165	Q.P.	46.91	-20.26	26.65	40.00	-13.35
84.082	V	142	271	Q.P.	40.52	-20.26	20.26	40.00	-19.74

Test Configuration 7

FCC CFR 47 Part 15, Subpart B, Class B

Test Distance was 3.0 metres

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)
36.126	V	399	293	Q.P.	43.05	-19.50	23.55	40.00	-16.45
129.514	V	141	109	Q.P.	42.18	-17.91	24.27	43.50	-19.23
129.559	H	153	262	Q.P.	47.63	-17.91	29.72	43.50	-13.78
176.689	H	126	86	Q.P.	45.16	-17.47	27.69	43.50	-15.81
604.028	H	204	53	Q.P.	41.8	-5.28	36.52	46.00	-9.48
704.238	V	199	351	Q.P.	43.88	-3.40	40.48	46.00	**-5.52**
704.762	V	196	347	Q.P.	42.73	-3.39	39.34	46.00	-6.66
900.468	H	120	328	Q.P.	34.84	-0.02	34.82	46.00	-11.18
901.311	V	192	360	Q.P.	37.72	0.00	37.72	46.00	-8.28
901.252	H	189	328	Q.P.	35.14	0.00	35.14	46.00	-10.86
905.600	H	187	328	Q.P.	35.43	0.06	35.49	46.00	-10.51
960.110	V	201	55	Q.P.	38.73	1.65	40.38	54.00	-13.62

Test Configuration 8

FCC CFR 47 Part 15, Subpart B, Class B

Test Distance was 3.0 metres

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)
859.023	V	212	300	Q.P.	22.1	-0.46	21.64	46.00	-24.36
863.816	H	201	351	Q.P.	22.3	-0.49	21.81	46.00	-24.19
901.287	H	196	26	Q.P.	21.79	-0.01	21.78	46.00	-24.22
908.218	V	166	359	Q.P.	21.47	0.09	21.56	46.00	-24.44
927.202	H	341	138	Q.P.	21.78	0.41	22.19	46.00	-23.81
945.484	H	195	226	Q.P.	21.82	0.91	22.73	46.00	-23.27
947.426	H	165	82	Q.P.	21.61	1.00	22.61	46.00	-23.39
947.719	V	353	231	Q.P.	21.57	1.00	22.57	46.00	-23.43

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