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

Research In Motion Limited

REPORT NO.: RIM-0110-0410-05

PRODUCT MODEL NO.: RAR20CN
TYPE NAME: BlackBerry Wireless Handheld
FCC ID: L6ARAR20CN
IC: 2503A-RAR20CN

Date: 15 December 2004

Statement of Performance:

The BlackBerry Wireless Handheld, model RAR20CN ASY-07338-001 Rev. B 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 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 and Reviewed by:

Masud S. Attayi, P.Eng.
Senior Compliance Engineer

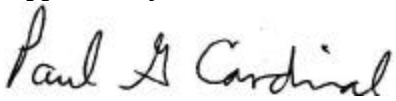
Date: December 15, 2004

Reviewed by:

Paul Lock
Senior Compliance Specialist

Date: December 15, 2004

Approved by:



Paul G. Cardinal, Ph.D.
Manager, Compliance and Certification

Date: December 15, 2004

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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, Oct. 1, 2000, Class B Digital Devices, Unintentional Radiators
IC ICES-003 Issue 3, Class B Digital Devices, Unintentional Radiators

B) **Product Identification**

The equipment under test (EUT) was tested at the Research In Motion (RIM) EMI test facility, located at:

305 Phillip Street
Waterloo, Ontario
Canada, N2L 3W8
Phone: 519 888 7465
Fax: 519 888 6906
Web Site: www.rim.com

The testing began on October 22, 2004 and was completed on November 25, 2004. The sample EUT included:

1. BlackBerry Wireless Handheld, model number RAR20CN, ASY-07338-001 Rev. B, PIN number 3004B2FF, FCC ID L6ARAR20CN, IC: 2503A-RAR20CN.
2. Travel Charger, model number PSM05R-050CH, part number ASY-03746-003 with an output voltage of 5.0 volts dc, 0.5 amps and attached USB cable with a lead length of 0.71 metres.
3. External Battery Charger model number BCM6710A, part number ASY-06630-001 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.
4. North American Travel Charger, model number PSM04A-050RIM, part number ASY-07040-001 with an output voltage of 5.0 volts dc, 0.85 amps and attached USB cable with a lead length of 0.73 metres.
5. Travel Charger, model number PSM05R-050Q, part number ASY-04078-001 with an output of 5.0 volts dc, 0.5 amps.
6. Rapid Battery Travel Charger, model number PSM08R-050RIM, 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 0.85 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.

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

C) 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 24B022952648
3) Printer, H/P, model number C5884A, serial number US8251W0VQ

D) Test Voltage

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

E) Test Results Chart

SPECIFICATION	Test Type	MEETS REQUIREMENTS	Performed By
FCC CFR 47 Part 15, Subpart B IC ICES-003	Class B	Yes	Masud Attayi

F) Modifications to EUT

No modifications were required on the EUT.

G) **Summary of Results**

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.
The following test configurations were measured:

1. The Handheld in battery charging mode was connected to the Travel Charger, part number ASY-03746-003. The ac input to the Travel Charger was 120 volts, 60 Hz**.**
2. The Handheld in battery charging mode, was connected via the detachable USB cable to the External Battery Charger, part number ASY-06630-001. The ac input to the External Battery Charger was 120 volts, 60 Hz.
3. The Handheld in battery charging mode was connected to the North American Travel Charger, part number ASY-07040-001. The ac input to the North American Travel Charger was 120 volts, 60 Hz.
4. The Handheld in battery charging mode was connected via the detachable USB cable 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 battery charging mode was connected to the Rapid Battery Travel Charger, part number ASY-07041-001. The ac input to the Rapid Battery Travel 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 1.35 dB at 0.151 MHz with the Rapid Battery Travel Charger test configuration.

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 wooden table, 80 cm high that was positioned on a remotely rotatable 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. At this point 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 Travel Charger, part number ASY-03746-003.
2. The Handheld in battery charging mode was connected to the External Battery Charger, part number ASY-06630-001 via the detachable USB cable model number HDW-06610-001.
3. The Handheld in battery charging mode was connected to the North American Travel Charger, part number ASY-07040-001.
4. The Handheld in battery charging mode was connected to the Travel Charger, part number ASY-04078-001 via the detachable USB cable model number HDW-06610-001.
5. The Handheld in battery charging mode was connected to the Rapid Battery Travel Charger, part number ASY-07041-001.
6. The Handheld was connected to the support PC via the USB data cable for charging and data link.

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 **passed** with a worse case emission test margin of 1.3 dB at 76.73 MHz with the Rapid Battery Travel Charger test configuration.

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.

H) **Compliance Test Equipment Used**

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Preamplifier	Sonoma	310N/11909A	185831	04-11-05	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	04-11-05	Radiated Emissions
EMI Receiver	Agilent	85462A	3942A00517	05-08-30	Conducted/Radiated Emissions
RF Filter Section	Agilent	85460A	3704A00481	05-08-30	Conducted/Radiated Emissions
L.I.S.N.	Emco	3816/2	1120	05-08-18	Conducted Emissions
Impulse Limiter	Rohde & Schwarz	ESHS-Z2	836248/052	05-11-12	Conducted Emissions
Environment Monitor	Control Company	1870	230355190	06-01-11	Radiated Emissions
Hybrid Log Antenna	TDK	HLP-3003C	17301	04-12-16	Radiated Emissions

APPENDIX 1

AC CONDUCTED EMISSIONS TEST DATA/PLOTS

AC Conducted Emissions Test Results

November 02, 2004

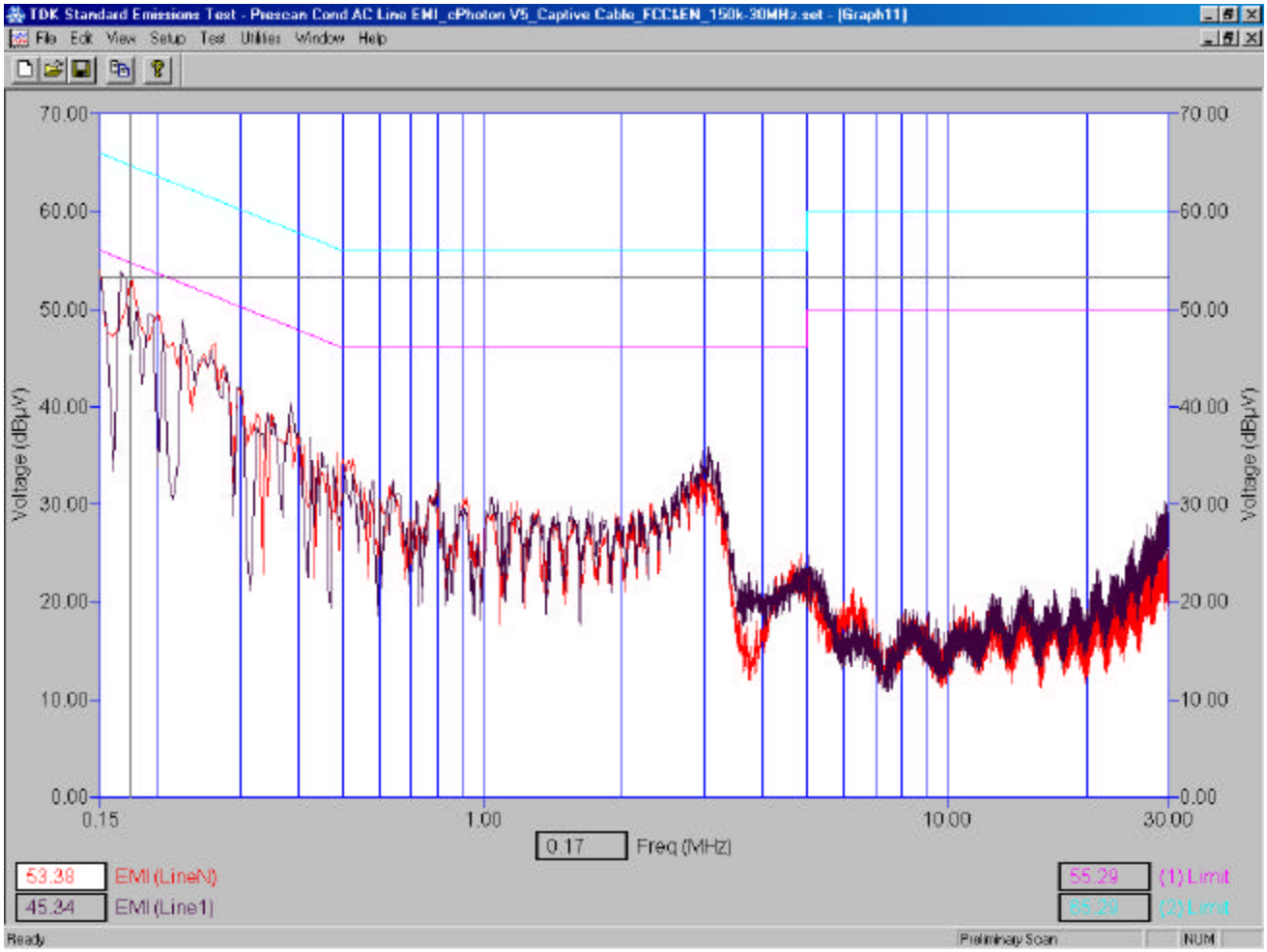
FCC CFR 47 Part 15, Subpart C (CISPR 22), IC ICES-003, Class B

Operating Mode: The Handheld in battery charging mode was connected to the Travel Charger, part number ASY-03746-003. The ac input to the Travel Charger was 120 volts, 60 Hz.

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factors for Impulse Limiter, LISN, Cable (dB)	QP Level (reading + Corr.Factor) (dB)	(QP) Limit (dBµV)	(AVG) Limit (dBµV)	Margin (QP) Limits (dB)	Margin (AVG) Limits (dB)
0.154	N	38.73	9.82	48.55	66.00	56.00	-17.45	-7.45
0.155	L1	39.02	9.82	48.84	66.00	56.00	-17.16	-7.16
0.158	L1	38.54	9.82	48.36	65.21	55.21	-16.84	-6.84
0.159	N	23.91	9.83	33.74	64.72	54.72	-30.98	-20.98
0.168	L1	37.27	9.83	47.10	64.49	54.49	-17.39	-7.39
0.175	L1	36.4	9.83	46.23	64.04	54.04	-17.81	-7.81
0.194	L1	33.91	9.83	43.74	63.41	53.41	-19.66	-9.66
0.219	L1	31.09	9.84	40.93	62.63	52.63	-21.71	-11.71
0.254	N	33.57	9.84	43.41	61.27	51.27	-17.86	-7.86
0.291	N	25.49	9.85	35.34	60.24	50.24	-24.90	-14.90

See graph 1 for the measurement plot.

AC Conducted Emissions Test Graph 1



The Handheld in battery charging mode was connected to the Travel Charger, part number ASY-03746-003. The ac input to the Travel Charger was 120 volts, 60 Hz.

AC Conducted Emissions Test Results cont'd

November 02, 2004

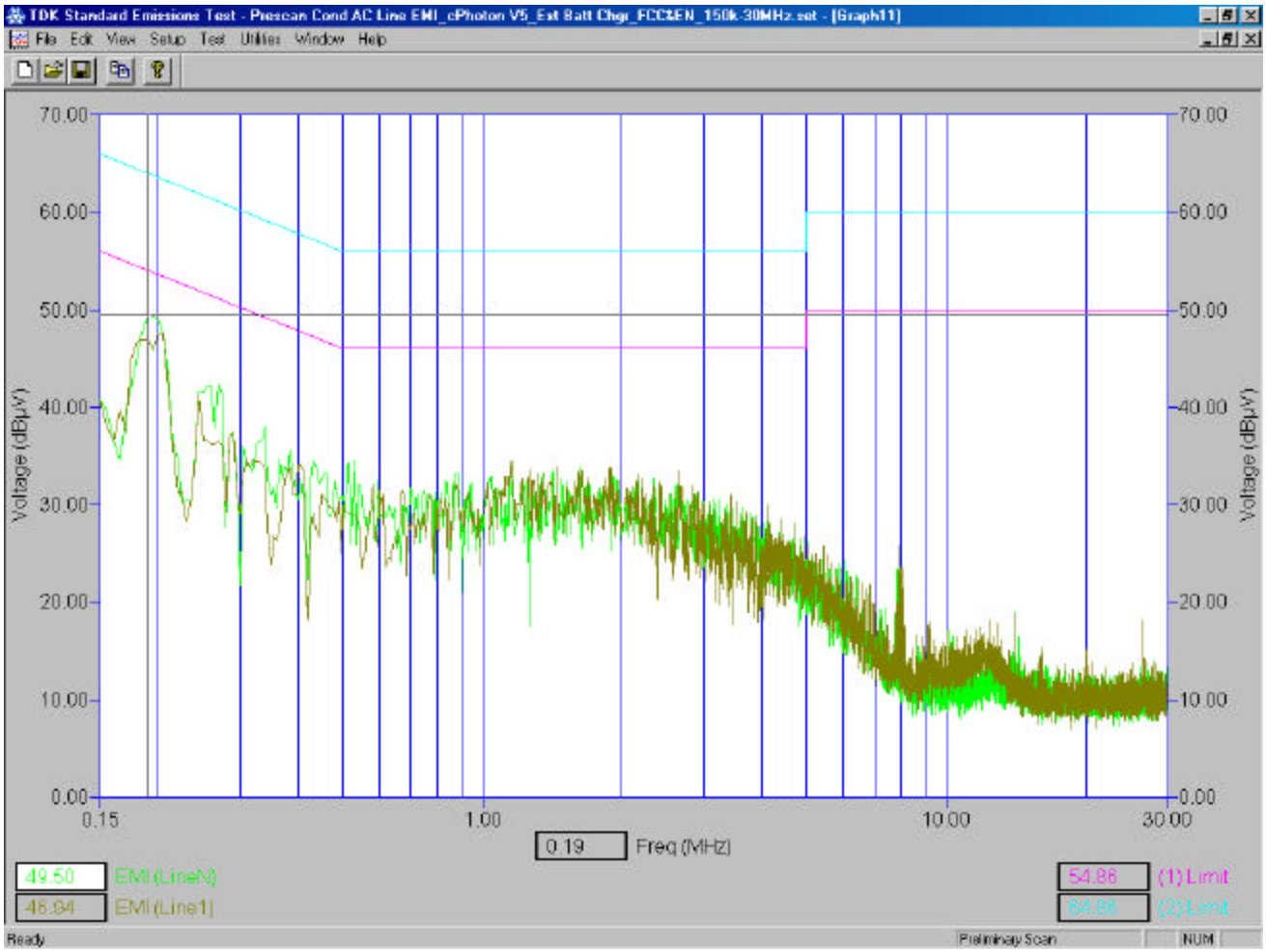
FCC CFR 47 Part 15, Subpart C (CISPR 22), IC ICES-003, Class B

Operating Mode: The Handheld in battery charging mode was connected via the detachable USB cable model number HDW-06610-001 to the External Battery Charger model number BCM6710A, ASY-06630-001. The ac input to the External Battery Charger was 120 volts, 60 Hz.

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factors for Impulse Limiter, LISN, Cable (dB)	QP Level (reading + Corr.Factor) (dB)	(QP) Limit (dBµV)	(AVG) Limit (dBµV)	Margin (QP) Limits (dB)	Margin (AVG) Limits (dB)
0.188	N	36.24	9.83	46.07	64.04	54.04	-17.97	-7.97
0.190	L1	36.77	9.83	46.60	63.61	53.61	-17.01	-7.01
0.244	L1	27.86	9.84	37.70	61.92	51.92	-24.22	-14.22
0.253	N	29.12	9.84	38.96	61.43	51.43	-22.47	-12.47
0.259	N	28.13	9.84	37.97	61.12	51.12	-23.14	-13.14
0.528	N	23.46	9.84	33.30	56.00	46.00	-22.70	-12.70
1.151	N	18.05	9.90	27.95	56.00	46.00	-28.05	-18.05
1.167	L1	21.25	9.90	31.15	56.00	46.00	-24.85	-14.85
1.446	L1	20.61	9.89	30.50	56.00	46.00	-25.50	-15.50
1.872	L1	19.19	9.88	29.07	56.00	46.00	-26.93	-16.93
1.887	L1	19.36	9.88	29.24	56.00	46.00	-26.76	-16.76

All other emission levels had a test margin of greater than 25 dB.
See graph 2 for the measurement plot.

AC Conducted Emissions Test Graph 2



The Handheld in battery charging mode was connected via the detachable USB cable model number HDW-06610-001 to the External Battery Charger. The ac input to the External Battery Charger was 120 volts, 60 Hz.

AC Conducted Emissions Test Results cont'd

November 12, 2004

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

Operating Mode: The Handheld in battery charging mode was connected to the North American Travel Charger model number PSM04A-050RIM, ASY-07040-001. The ac input to the North American Travel Charger was 120 volts, 60 Hz.

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factors for Impulse Limiter, LISN, Cable (dB)	Level (QP) (reading + Corr.Factor) (dB)	Limit (QP) (dBµV)	Margin (QP) Limits (dB)
0.151	L1	47.55	9.82	57.37	66.00	-8.63
0.155	N	48.19	9.82	58.01	66.00	-7.99
0.158	L1	47.78	9.83	57.61	64.49	-6.88
0.213	N	37.98	9.84	47.82	62.63	-14.82
0.216	L1	38.09	9.84	47.93	62.63	-14.71
0.784	N	26.47	9.86	36.33	56.00	-19.67
0.845	L1	27.85	9.87	37.72	56.00	-18.28
0.992	L1	28.94	9.85	38.79	56.00	-17.21
1.670	N	26.23	9.89	36.12	56.00	-19.88
2.351	N	26.36	9.90	36.26	56.00	-19.74
3.187	N	24.72	9.92	34.55	56.00	-21.45
3.377	L1	22.62	9.93	32.46	56.00	-23.54

Measurements were done with the quasi-peak detector.
See graph 3 for the measurement plot.

AC Conducted Emissions Test Results cont'd

November 02, 2004

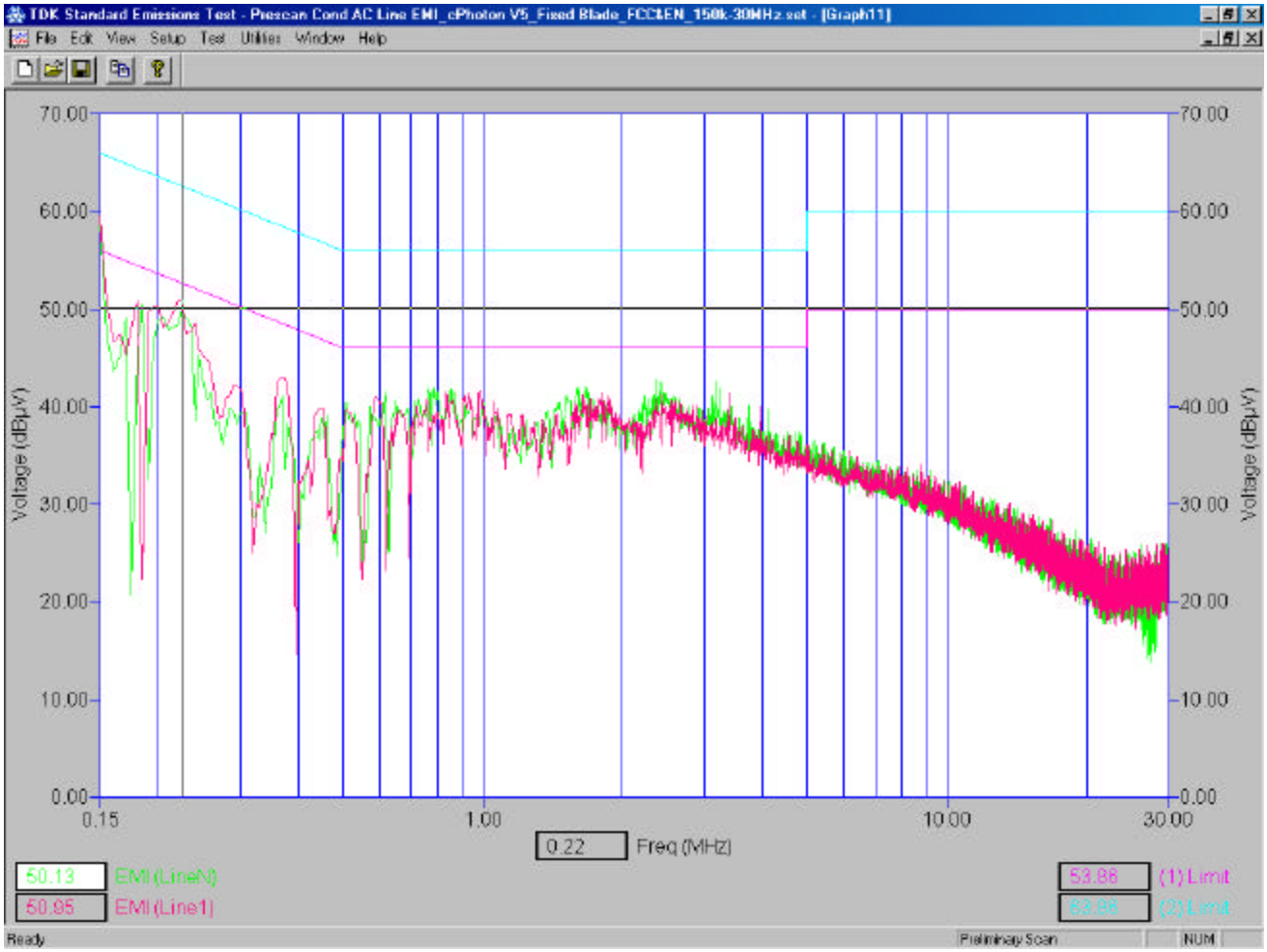
FCC CFR 47 Part 15, Subpart C (CISPR 22), IC ICES-003, Class B

Operating Mode: The Handheld in battery charging mode was connected to the North American Travel Charger model number PSM04A-050RIM, ASY-07040-001. The ac input to the North American Travel Charger was 120 volts, 60 Hz.

Frequency (MHz)	Line	Reading (AVE.) (dBµV)	Correction Factors for Impulse Limiter, LISN, Cable (dB)	Level (AVE.) (reading + Corr.Factor) (dB)	Limit (AVE.) (dBµV)	Margin (AVE.) Limits (dB)
0.150	L1	33.63	9.82	43.45	56.00	-12.55
0.151	N	26.78	9.82	36.60	56.00	-19.40
0.194	L1	4.55	9.83	14.38	54.49	-40.11
0.213	L1	21.56	9.84	31.40	52.63	-21.24
0.218	N	19.86	9.84	29.70	52.63	-22.94
0.780	N	14.24	9.86	24.10	46.00	-21.90
0.824	L1	12.18	9.87	22.05	46.00	-23.95
0.969	L1	11.14	9.85	20.99	46.00	-25.01
1.650	N	12.88	9.89	22.77	46.00	-23.23
2.356	N	10.64	9.90	20.54	46.00	-25.46
3.181	N	10.76	9.92	20.59	46.00	-25.41
3.381	L1	9.73	9.93	19.57	46.00	-26.43

Measurements were done with the average detector.
See graph 3 for the measurement plot.

AC Conducted Emissions Test Graph 3



The Handheld in battery charging mode was connected to the North American Travel Charger model number PSM04A-050RIM, ASY-07040-001. The ac input to the North American Travel Charger was 120 volts, 60 Hz.

AC Conducted Emissions Test Results cont'd

November 02, 2004

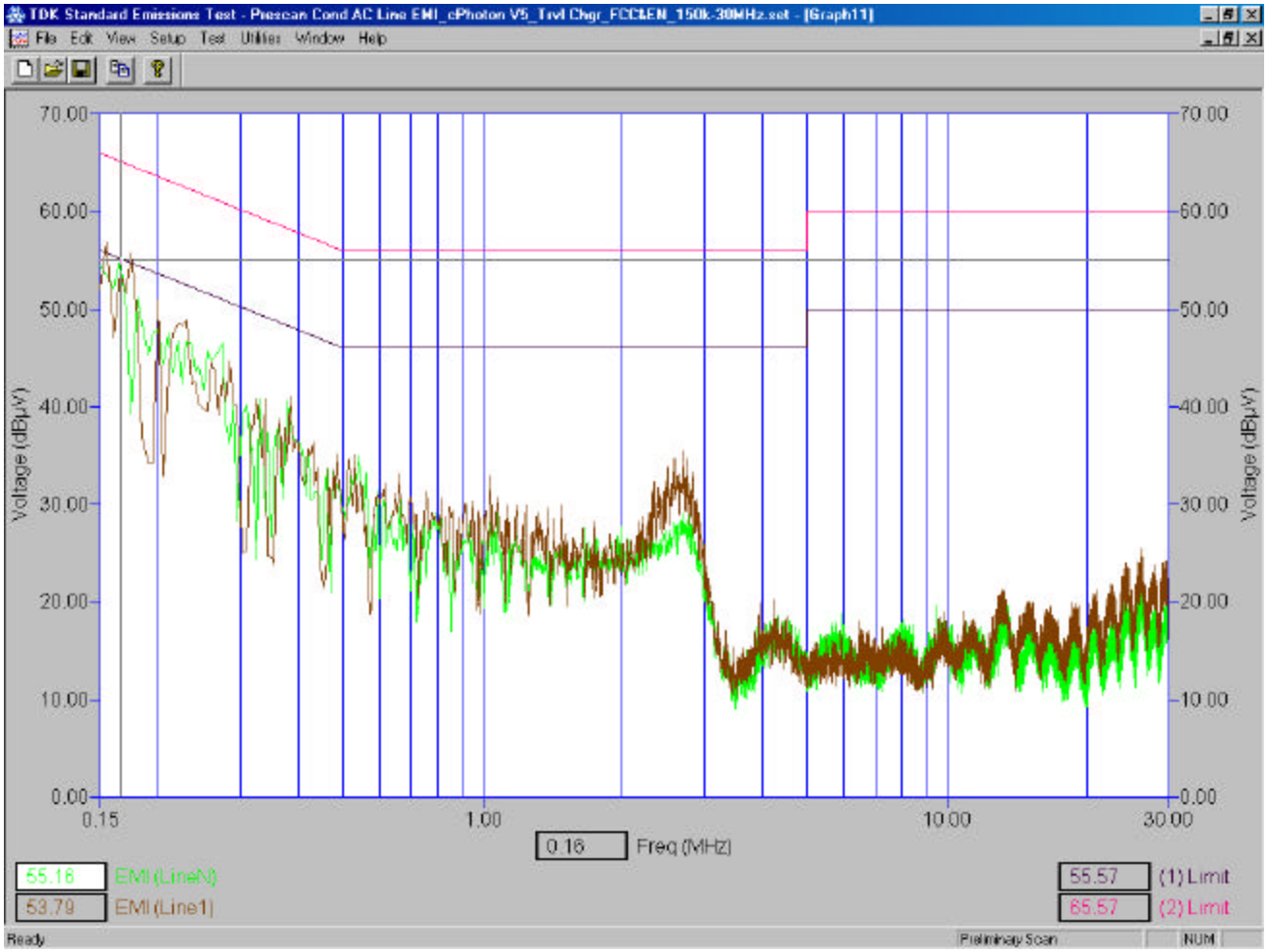
FCC CFR 47 Part 15, Subpart C (CISPR 22), IC ICES-003, Class B

Operating Mode: The Handheld in battery charging mode was connected to the Travel Charger, model number PSM05R-050Q, part number ASY-04078-001 via the USB data cable, model number HDW-06610-001. The ac input to the Travel Charger was 120 volts, 60 Hz.

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factors for Impulse Limiter, LISN, Cable (dB)	QP Level (reading + Corr.Factor) (dB)	(QP) Limit (dBµV)	(AVG) Limit (dBµV)	Margin (QP) Limits (dB)	Margin (AVG) Limits (dB)
0.153	L1	40.36	9.82	50.18	65.73	55.73	-15.55	-5.55
0.154	N	39.09	9.82	48.91	65.21	55.21	-16.29	-6.29
0.159	L1	39.15	9.83	48.98	64.72	54.72	-15.74	-5.74
0.172	N	37.31	9.83	47.14	64.49	54.49	-17.35	-7.35
0.198	L1	33.99	9.83	43.82	63.61	53.61	-19.79	-9.79
0.219	N	32.30	9.84	42.14	62.45	52.45	-20.31	-10.31
0.238	L1	30.74	9.84	40.58	62.45	52.45	-21.87	-11.87
0.262	L1	30.07	9.84	39.91	61.43	51.43	-21.52	-11.52
0.268	N	29.53	9.85	39.38	60.97	50.97	-21.59	-11.59
0.271	L1	28.66	9.85	38.51	60.67	50.67	-22.16	-12.16
0.317	N	25.01	9.84	34.85	59.45	49.45	-24.60	-14.60
0.386	N	24.39	9.83	34.22	58.28	48.28	-24.06	-14.06

See graph 4 for the measurement plot.

AC Conducted Emissions Test Graph 4



The Handheld in battery charging mode was connected to the Travel Charger, model number PSM05R-050Q, part number ASY-04078-001 via the USB data cable, model number HDW-06610-001. The ac input to the Travel Charger was 120 volts, 60 Hz.

AC Conducted Emissions Test Results cont'd

November 12, 2004

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

Operating Mode: The Handheld in battery charging mode was connected to the Rapid Battery Travel Charger, model number PSM08R-050RIM, part number ASY-07041-001. The ac input to the Rapid Battery Travel Charger was 120 volts, 60 Hz.

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factors for Impulse Limiter, LISN, Cable (dB)	Level (QP) (reading + Corr.Factor) (dB)	Limit (QP) (dBµV)	Margin (QP) Limits (dB)
0.151	L1	54.56	9.82	64.38	65.73	-1.35
0.160	L1	53.13	9.83	62.96	64.72	-1.76
0.175	N	49.58	9.83	59.41	64.26	-4.85
0.195	L1	50.67	9.83	60.50	64.04	-3.54
0.222	N	48.86	9.84	58.70	62.63	-3.94
0.229	L1	49.02	9.84	58.86	62.45	-3.59
0.236	N	48.48	9.84	58.32	62.10	-3.78
0.268	N	46.82	9.84	56.66	61.12	-4.45
0.279	N	45.63	9.85	55.48	60.67	-5.19
0.284	L1	22.91	9.85	32.76	60.67	-27.91
0.350	N	42.24	9.84	52.08	59.08	-7.00
0.413	L1	39.61	9.83	49.44	57.55	-8.11
0.457	N	38.22	9.83	48.05	56.60	-8.55
0.577	N	34.18	9.84	44.02	56.00	-11.98

Measurements were done with the quasi-peak detector.
See graph 5 for the measurement plot.

AC Conducted Emissions Test Results cont'd

November 02, 2004

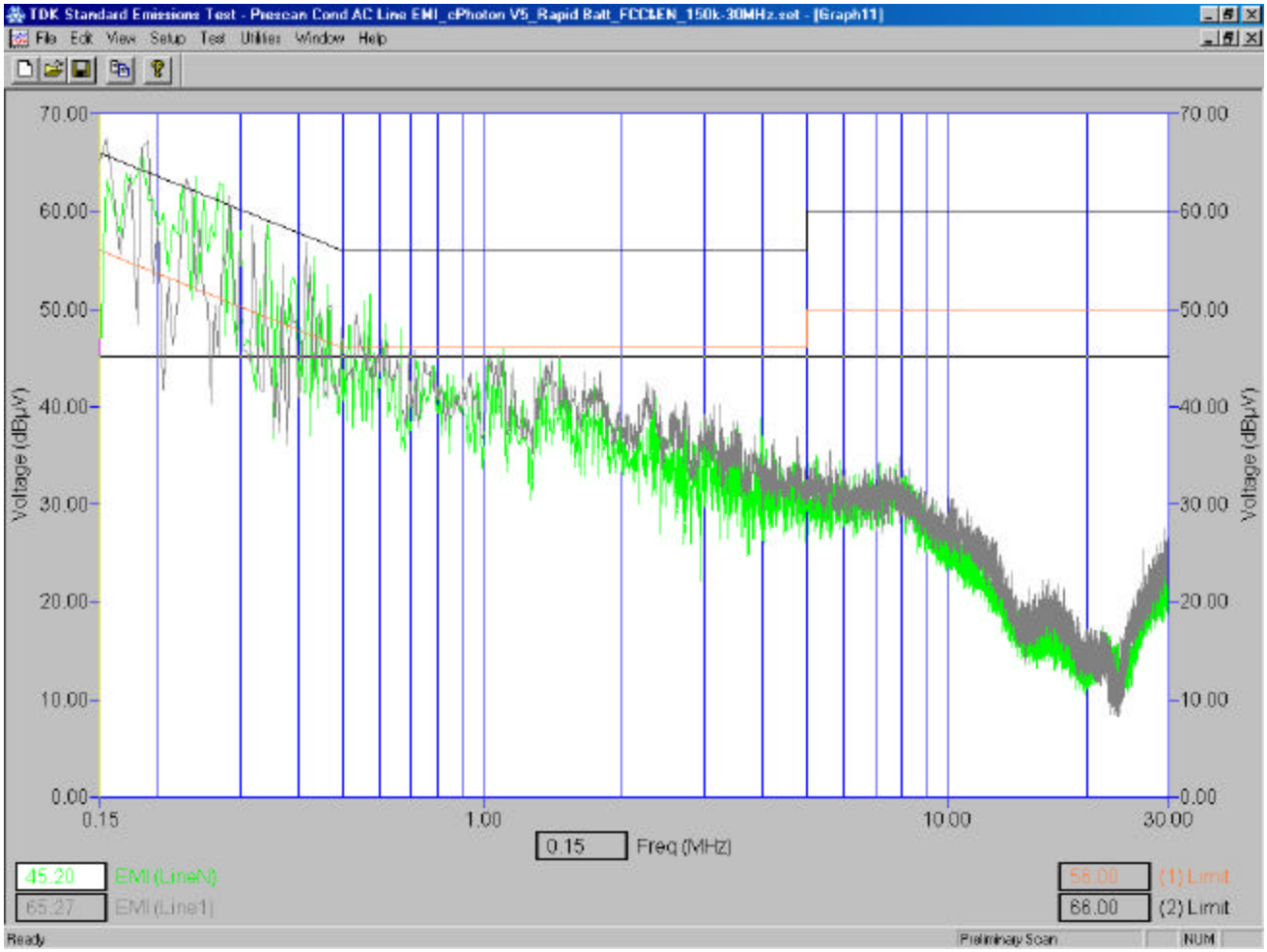
FCC CFR 47 Part 15, Subpart C (CISPR 22), IC ICES-003, Class B

Operating Mode: The Handheld in battery charging mode was connected to the Rapid Battery Travel Charger, model number PSM08R-050RIM, part number ASY-07041-001. The ac input to the Rapid Battery Travel Charger was 120 volts, 60 Hz.

Frequency (MHz)	Line	Reading (AVE.) (dBµV)	Correction Factors for Impulse Limiter, LISN, Cable (dB)	Level (AVE.) (reading + Corr.Factor) (dB)	Limit (AVE.) (dBµV)	Margin (AVE.) Limits (dB)
0.151	L1	9.82	20.26	30.08	55.73	-25.65
0.175	L1	9.83	23.94	33.77	54.72	-20.95
0.178	L1	9.83	22.48	32.31	54.04	-21.73
0.192	N	9.83	21.60	31.43	54.26	-22.83
0.224	N	9.84	11.20	21.04	52.63	-31.60
0.240	N	9.84	15.96	25.80	52.10	-26.30
0.265	N	9.84	22.88	32.72	51.12	-18.39
0.273	L1	9.85	25.81	35.66	50.67	-15.01
0.275	N	9.85	23.41	33.26	50.67	-17.41
0.343	N	9.84	16.16	26.00	49.08	-23.08
0.420	L1	9.83	13.62	23.45	47.55	-24.10
0.464	N	9.83	18.31	28.14	46.60	-18.46
0.570	N	9.84	12.70	22.54	46.00	-23.46

Measurements were done with the average detector.
See graph 5 for the measurement plot.

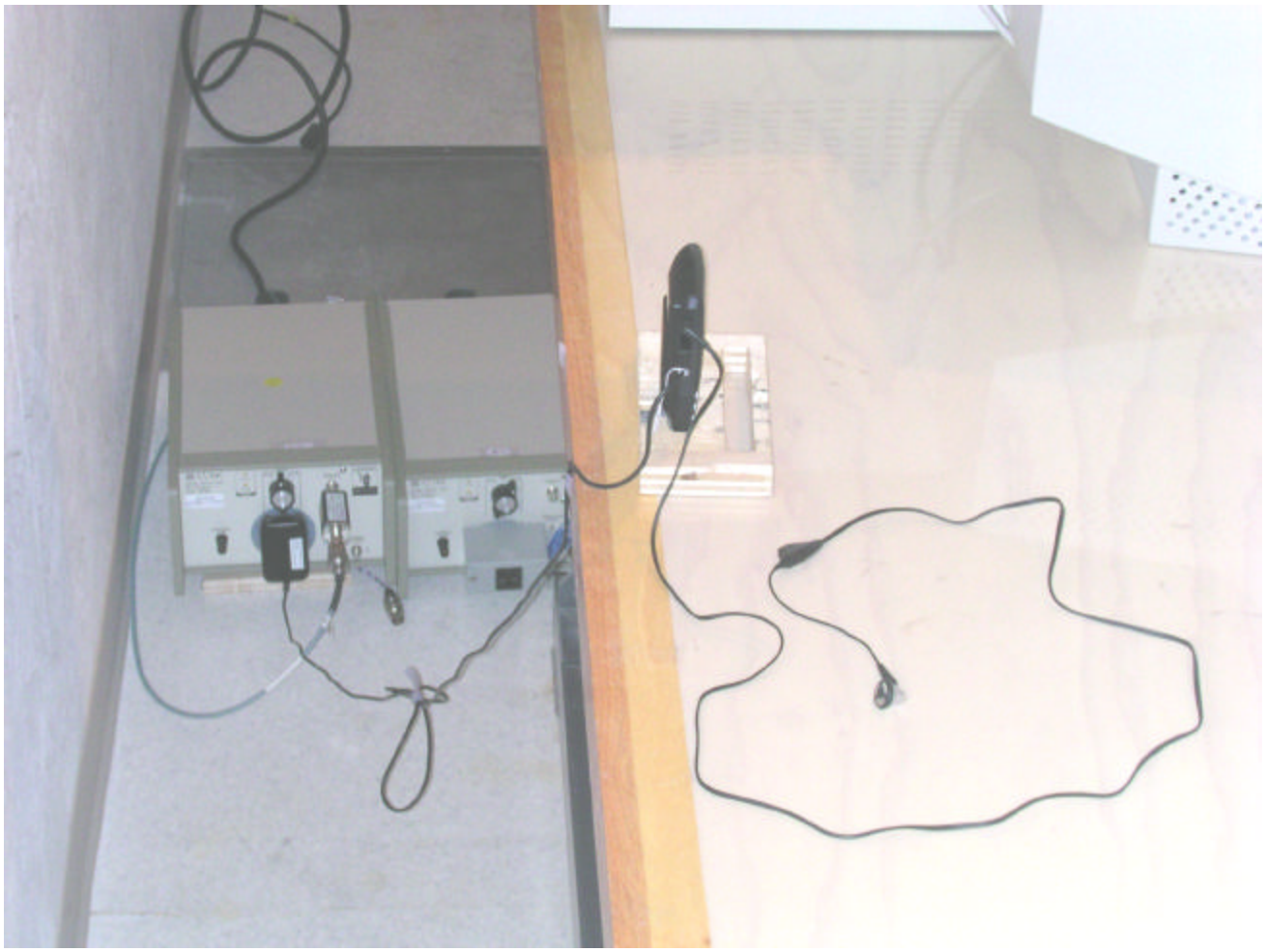
AC Conducted Emissions Test Graph 5



The Handheld in battery charging mode was connected to the Rapid Battery Travel Charger, model number PSM08R-050RIM, part number ASY-07041-001. The ac input to the Rapid Battery Travel Charger was 120 volts, 60 Hz.

AC Conducted Emission Test-Setup Photo

FCC CFR 47 Part 15, Subpart B, Class B



APPENDIX 2

RADIATED EMISSIONS TEST DATA

Radiated Emissions Test Results

FCC CFR 47 Part 15, Subpart B, Class B October 22, 2004

Operating Mode: The Handheld was connected to the Travel Charger, part number ASY-03746-003. The ac input to the Travel Charger was 120 volts, 60 Hz. The Handheld was operating in battery charging mode. The Headset was connected to the Handheld.

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 Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
31.125	H	3.99	65	Q.P.	38.02	-17.67	20.35	40.00	-19.65
32.519	V	3.99	90	Q.P.	38.16	-18.29	19.87	40.00	-20.13
36.686	H	2.80	80	Q.P.	45.39	-19.53	25.86	40.00	-14.14
37.488	V	3.04	89	Q.P.	43.98	-19.73	24.25	40.00	-15.75
49.047	V	3.26	250	Q.P.	46.17	-21.94	24.23	40.00	-15.77
49.959	H	3.14	264	Q.P.	45.63	-22.08	23.55	40.00	-16.45
52.928	H	3.17	248	Q.P.	41.62	-22.35	19.27	40.00	-20.73
82.045	H	2.34	85	Q.P.	39.04	-20.70	18.34	40.00	-21.66
83.694	V	2.20	28	Q.P.	42.60	-20.57	22.03	40.00	-17.97
170.414	H	1.90	168	Q.P.	45.78	-17.88	27.90	43.50	-15.60
174.561	V	1.74	170	Q.P.	45.74	-17.72	28.02	43.50	-15.48

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

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B October 22, 2004

Operating Mode: The Handheld was connected via the detachable USB cable model number HDW-06610-001 to the External Battery Charger, part number ASY-06630-001. The ac input to the External Battery Charger was 120 volts, 60 Hz. The Handheld was operating in battery charging mode. The Headset was connected to the Handheld.

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 Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
126.253	V	1.64	295	Q.P.	39.85	-17.58	22.27	43.50	-21.23
922.107	V	1.64	135	Q.P.	21.03	0.07	21.10	46.00	-24.90

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

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B October 22, 2004

Operating Mode: The Handheld was connected to the North American Travel Charger, part number ASY-07040-001. The ac input to the North American Travel Charger was 120 volts, 60 Hz. The Handheld was operating in battery charging mode. The Headset was connected to the Handheld.

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 Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
36.27	V	2.52	56	Q.P.	42.49	-19.41	23.08	40.00	-16.92
36.57	H	2.79	75	Q.P.	42.30	-19.56	22.74	40.00	-17.26

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

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B October 25, 2004

Operating Mode: The Handheld was connected via the detachable USB cable model number HDW-06610-001 to the Travel Charger, part number ASY-04078-001. The ac input to the Travel Charger was 120 volts, 60 Hz. The Handheld was operating in battery charging mode. The Headset was connected to the Handheld.

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 Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
41.172	H	2.72	251	Q.P.	44.70	-20.56	24.14	40.00	-15.86
41.290	V	3.50	109	Q.P.	44.66	-20.59	24.07	40.00	-15.93
52.891	H	3.52	257	Q.P.	42.02	-22.35	19.67	40.00	-20.33
55.066	V	3.49	242	Q.P.	40.91	-22.55	18.36	40.00	-21.64
123.134	H	1.89	272	Q.P.	38.52	-17.70	20.82	43.50	-22.68
125.552	V	1.65	285	Q.P.	39.06	-17.57	21.49	43.50	-22.01
871.407	V	3.99	13	Q.P.	22.43	-0.78	21.65	46.00	-24.35

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

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B November 25, 2004

Operating Mode: The Handheld was connected to the Rapid Battery Travel Charger, part number ASY-07041-001. The ac input to the Rapid Battery Travel Charger was 120 volts, 60 Hz. The Handheld was operating in battery charging mode. The Headset was connected to the Handheld.

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 Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
36.679	V	3.92	176	Q.P.	41.45	-17.38	24.07	40.00	-15.93
36.859	H	2.56	352	Q.P.	38.93	-17.53	21.40	40.00	-18.60
75.314	H	2.27	231	Q.P.	51.41	-19.97	31.44	40.00	-8.56
76.732	V	1.46	43	Q.P.	58.31	-19.64	38.67	40.00	-1.33
105.894	V	2.44	208	Q.P.	39.67	-17.77	21.90	43.50	-21.60
115.942	H	2.94	96	Q.P.	44.31	-18.21	26.10	43.50	-17.40
151.741	H	2.3	160	Q.P.	40.37	-17.75	22.62	43.50	-20.88
159.567	H	1.99	174	Q.P.	37.84	-17.70	20.14	43.50	-23.36
174.473	V	1.45	42	Q.P.	37.57	-17.86	19.71	43.50	-23.79

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

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B October 25, 2004

Operating Mode: The Handheld was connected to the support PC via the detachable USB cable model number HDW-06610-001 for charging and data link. The Headset was connected to the Handheld. The ac input to the support PC was 120 volts, 60 Hz.

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 Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dBµV/m)	Limit @ 3.0 m (dBµV/m)	Test Margin (dB)
42.148	V	3.63	191	Q.P.	44.38	-20.75	23.63	40.00	-16.37
42.177	H	3.99	191	Q.P.	43.98	-20.77	23.21	40.00	-16.79
43.157	V	3.73	204	Q.P.	43.24	-20.97	22.27	40.00	-17.73
44.121	H	3.19	37	Q.P.	45.12	-21.16	23.96	40.00	-16.04
129.520	H	1.60	120	Q.P.	47.97	-17.74	30.23	43.50	-13.27
129.530	V	1.45	106	Q.P.	47.41	-17.74	29.67	43.50	-13.83
360.055	H	2.17	32	Q.P.	38.54	-10.14	28.40	46.00	-17.60
603.574	H	1.19	178	Q.P.	45.49	-5.28	40.21	46.00	-5.79
604.126	V	1.41	181	Q.P.	46.32	-5.28	41.04	46.00	-4.96
701.081	V	1.99	86	Q.P.	36.94	-3.49	33.45	46.00	-12.55
704.316	H	2.03	89	Q.P.	39.33	-3.43	35.90	46.00	-10.10
905.531	V	2.00	191	Q.P.	33.46	-0.18	33.28	46.00	-12.72

Radiated Emissions Test Photo