

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-0086-0406-09

PRODUCT MODEL NO.: RAP40GW
TYPE NAME: BlackBerry Wireless Handheld
FCC ID: L6ARAP40GW
IC: 2503A-RAP40GW

Date: _____ 25 June 2004 _____

Statement of Performance:

The BlackBerry Wireless Handheld, model RAP40GW ASY-07029-001 revision 1G tested with the following accessories: Travel Charger part number ASY-03746-003, External Travel Charger part number ASY-06630-001, North American Travel Charger part number ASY-07040-001, Travel Charger part number ASY-04078-001, Rapid Battery Travel Charger part number ASY-07041-001, USB Data Cable, model number HDW-04162-001 and Audio Headset part number HDW-03458-001 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.

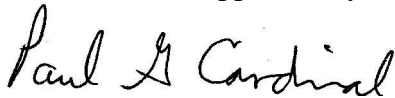
The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating parameters.

The test methods were consistent with the methods described in the relevant standards.

Tested by:

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

Date: June 30, 2004

Reviewed and Approved by:

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

Date: July 08, 2004

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A) Scope

This report details the results of compliance tests which 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 June 03, 2004 and was completed on June 23, 2004. The sample EUT included,

1. BlackBerry Wireless Handheld, model number RAP40GW, ASY-07029-001 revision 1G, RF PCB version 003, PIN 200FA58C, FCC ID L6ARAP40GW, IC: 2503A-RAP40GW.
2. Travel Charger, model number PSM05R-050CH, part number ASY-03746-003 with an output voltage of 5.0 volts dc and attached USB data 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 and attached USB data 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.
6. Rapid Battery Travel Charger, model number PSM08R-050RIM, part number ASY-07041-001 with an output voltage of 5.0 volts dc and attached USB data cable with a lead length of 0.85 metres.
7. USB data cable, model number HDW-04162-001, 1.45 metres long.
8. Headset, model number HDW-03458-001. The lead length was 1.25 metres long.

The transmit frequency ranges for the BlackBerry Wireless Handheld model number RAP40GW are: GSM850 824 to 849 MHz, GSM 880 to 915 MHz, DCS 1710 to 1785 MHz, PCS 1850 to 1910 MHz, Bluetooth 2402 to 2480 MHz.

D) Support Equipment Used for the Testing of the EUT

- 1) Rohde & Schwarz, Universal Radio Communication Tester, model CMU 200, serial number 837493/073
- 2) PC System, Myraid, model EN-P3B-7, serial number CCC0004078
- 3) Monitor, ViewSonic, model number VCDTS23103-2M, serial number 24B022952648
- 4) Printer, H/P, model number C5884A, serial number US8251W0VQ

E) Test Voltage

The ac input voltage was 120 volts, 60 Hz and 230 volts, 50 Hz. This configuration was per manufacturer's specifications.

F) 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

G) Modifications to EUT

No modifications were required on the EUT.

H) Summary of Results

a) AC CONDUCTED EMISSIONS

The conducted emissions were measured while 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 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 to the Travel Charger, part number ASY-04078-001 via the USB data cable. 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 9.20 dB at 0.177 MHz.

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.
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.
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 worst case emission test margin of 0.1 dB at 156.00 MHz.

Sample Calculation:

Field Strength (dB μ V/M) is calculated as follows:

$$FS = \text{Measured Level (dB}\mu\text{V)} + \text{A.F. (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp (dB)} + \text{Filter Loss (dB)}$$

Measurement Uncertainty ± 4.0 dB

To view the test data see APPENDIX 2.

I) Compliance Test Equipment Used

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL / SERIAL NUMBER</u>		<u>CAL DUE DATE</u> (YY MO DD)	<u>USE</u>
Preamplifier	Sonoma	310N/11909A	185831	04-11-05	Radiated Emissions
Preamplifier system	TDK	PA-02	080010	04-11-05	Radiated Emissions
Hybrid Log Antenna	TDK	HLP-3003C	017401	04-12-16	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	05-05-29	Radiated Emissions
EMI Receiver	Agilent	85462A	3942A00517	04-09-02	Conducted/Radiated Emissions
RF Filter Section	Agilent	85460A	3704A00481	04-09-02	Conducted/Radiated Emissions
L.I.S.N.	Emco	3816/2	1120	04-08-25	Conducted Emissions
L.I.S.N.	Emco	3816/2	1118	04-08-25	Conducted Emissions
Impulse Limiter	Rohde & Schwarz	ESHS-Z2	836248/052	04-11-03	Conducted Emissions

APPENDIX 1

AC CONDUCTED EMISSIONS TEST DATA/PLOTS



AC Conducted Emissions Test Results

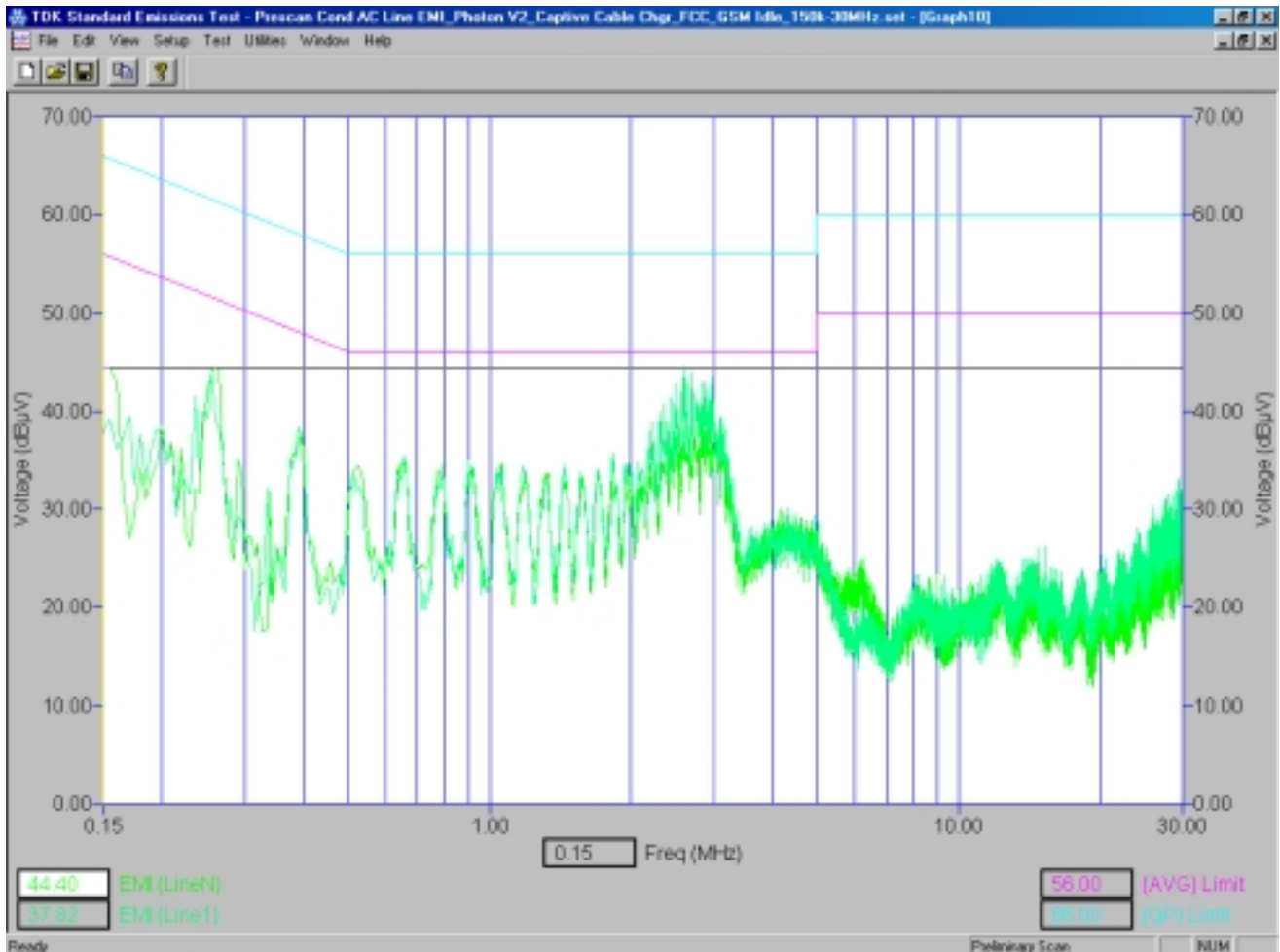
June 03, 2004

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 Ave. Limits (dB)
2.571	L1	26.57	9.91	36.48	56.0	46.0	-19.52	-9.52
2.588	N	22.45	9.91	32.36	56.0	46.0	-23.64	-13.64
2.590	L1	26.42	9.91	36.33	56.0	46.0	-19.67	-9.67
2.703	L1	27.03	9.91	36.94	56.0	46.0	-19.06	-9.06
2.710	N	22.80	9.91	32.71	56.0	46.0	-23.29	-13.29
2.839	N	23.20	9.89	33.09	56.0	46.0	-22.91	-12.91
2.850	L1	26.35	9.89	36.24	56.0	46.0	-19.76	-9.76
2.870	N	23.76	9.89	33.64	56.0	46.0	-22.36	-12.36
2.872	L1	26.33	9.88	36.2	56.0	46.0	-19.80	-9.80
2.893	N	23.89	9.87	33.76	56.0	46.0	-22.24	-12.24
2.983	L1	25.88	9.83	35.71	56.0	46.0	-20.29	-10.29
3.030	N	22.41	9.84	32.25	56.0	46.0	-23.75	-13.75

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

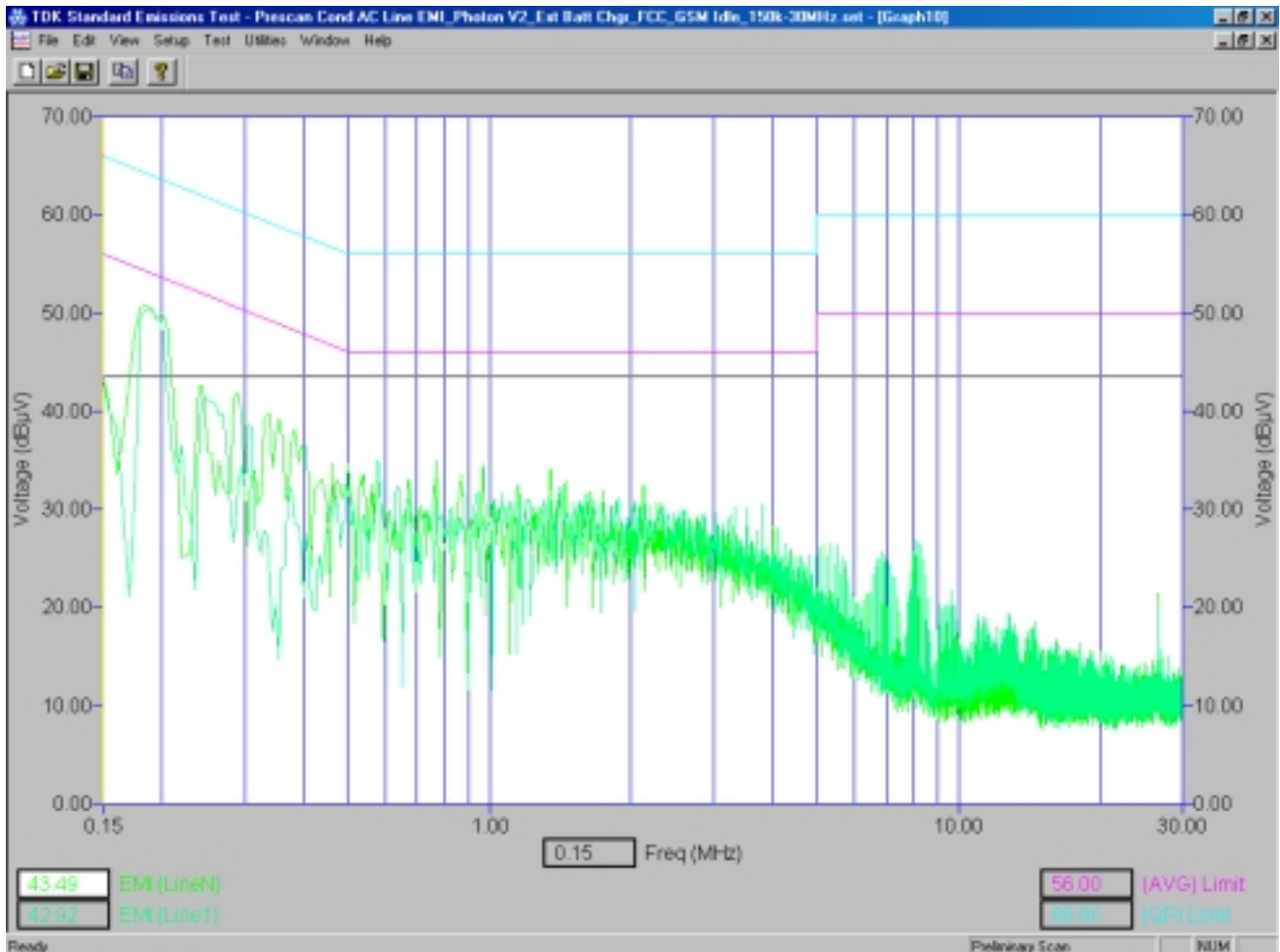
June 03, 2004

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 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 Ave. Limits (dB)
0.150	L1	33.17	9.82	42.99	66.0	56.0	-23.01	-13.01
0.188	L1	36.54	9.83	46.37	64.3	54.3	-17.89	-7.89
0.189	N	36.84	9.83	46.67	64.3	54.3	-17.59	-7.59
0.243	L1	25.17	9.84	35.01	61.9	51.9	-26.91	-16.91
0.244	N	27.30	9.84	37.14	61.9	51.9	-24.78	-14.78
0.279	N	24.92	9.85	34.77	60.5	50.5	-25.76	-15.76
0.304	L1	22.59	9.85	32.44	60.0	50.0	-27.53	-17.53
0.332	N	27.07	9.84	36.91	59.3	49.3	-22.41	-12.41
0.374	N	21.73	9.84	31.57	58.8	48.8	-27.28	-17.28
0.379	N	23.34	9.83	33.17	58.2	48.2	-25.00	-15.00
0.500	L1	19.84	9.83	29.67	56.1	46.1	-26.41	-16.41
0.562	L1	20.00	9.85	29.85	56.0	46.0	-26.15	-16.15

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 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

June 04, 2004

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

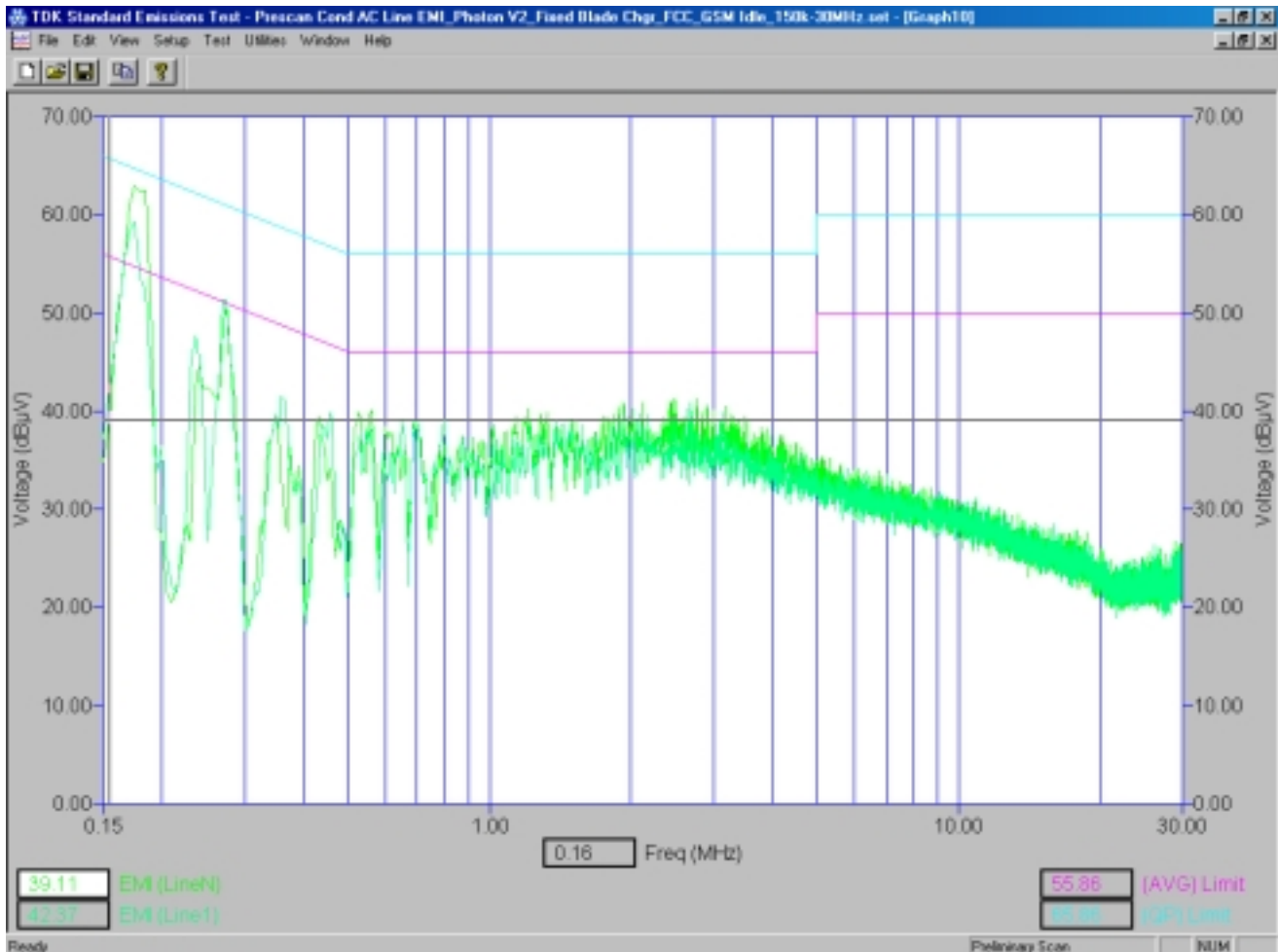
Operating Mode: The Handheld in battery charging mode was connected to the North American Travel Charger model number PSM04A-050RIM, ASY-07040-001. The ac input to the North American Travel Charger was 120 volts, 60 Hz

Freq. (MHz)	Line	Reading QP (dBμV)	Reading Ave. (dBμV)	Correction Factors for Impulse Limiter, LISN, Cable (dB)	QP Level (reading + Corr.Factor) (dB)	Ave. Level (reading + Corr.Factor) (dB)	(QP) Limit (dBμV)	(AVG) Limit (dBμV)	Margin QP Limits (dB)	Margin Ave. Limits (dB)
0.177	N	45.22	33.10	9.83	55.05	42.93	64.7	54.7	-9.65	-11.77
0.177	L1	45.67	33.50	9.83	55.50	43.33	64.7	54.7	-9.20	-11.37
0.227	L1	37.21	6.59	9.84	47.05	16.43	62.3	52.3	-15.25	-35.87
0.227	N	37.31	7.81	9.84	47.15	17.65	62.3	52.3	-15.15	-34.65
0.262	L1	32.57	5.42	9.85	42.42	15.27	61.0	51.0	-18.55	-35.73
0.262	N	34.64	17.87	9.85	44.49	27.72	61.0	51.0	-16.48	-23.28
2.424	N	22.68	-	9.90	32.58	-	56.0	46.0	-23.42	-
2.455	N	22.77	-	9.90	32.67	-	56.0	46.0	-23.33	-
2.466	N	22.77	-	9.90	32.67	-	56.0	46.0	-23.33	-
2.644	L1	22.28	-	9.91	32.19	-	56.0	46.0	-23.81	-
2.673	L1	22.19	-	9.91	32.10	-	56.0	46.0	-23.90	-
2.752	N	23.77	-	9.91	33.68	-	56.0	46.0	-22.32	-
3.157	L1	21.55	-	9.91	31.45	-	56.0	46.0	-24.55	-

The Average and Quasi-Peak detectors were used for the measurements.

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

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

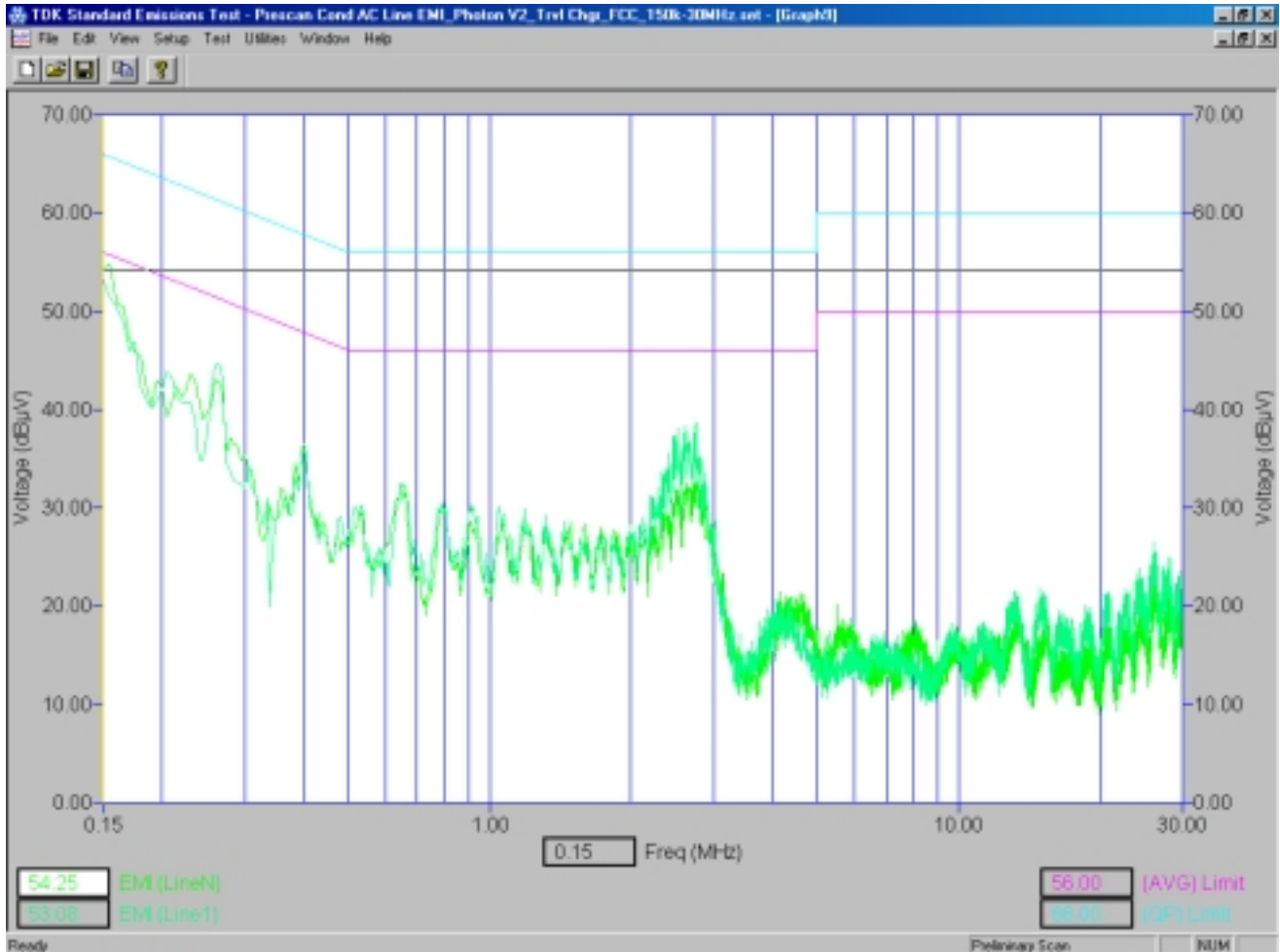
June 03, 2004

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-04162-001. 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 Ave. Limits (dB)
0.155	N	36.70	9.82	46.52	65.7	55.7	-19.21	-9.21
0.155	L1	35.41	9.82	45.23	66.0	56.0	-20.77	-10.77
0.231	N	26.85	9.84	36.69	62.5	52.5	-25.76	-15.76
0.256	N	30.29	9.84	40.13	61.4	51.4	-21.30	-11.30
0.257	L1	29.92	9.84	39.76	61.3	51.3	-21.51	-11.51
0.392	N	22.37	9.83	32.20	57.9	47.9	-25.65	-15.65
2.515	L1	23.58	9.90	33.48	56.0	46.0	-22.52	-12.52
2.602	L1	23.61	9.91	33.52	56.0	46.0	-22.48	-12.48
2.725	N	18.24	9.91	28.15	56.0	46.0	-27.85	-17.85
2.741	L1	21.37	9.91	31.28	56.0	46.0	-24.72	-14.72
2.747	N	17.97	9.91	27.88	56.0	46.0	-28.12	-18.12
2.749	L1	21.34	9.91	31.25	56.0	46.0	-24.75	-14.75

All other emission levels had a test margin of greater than 25 dB.
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-04162-001. The ac input to the Travel Charger was 120 volts, 60 Hz.



AC Conducted Emissions Test Results cont'd

June 23, 2004

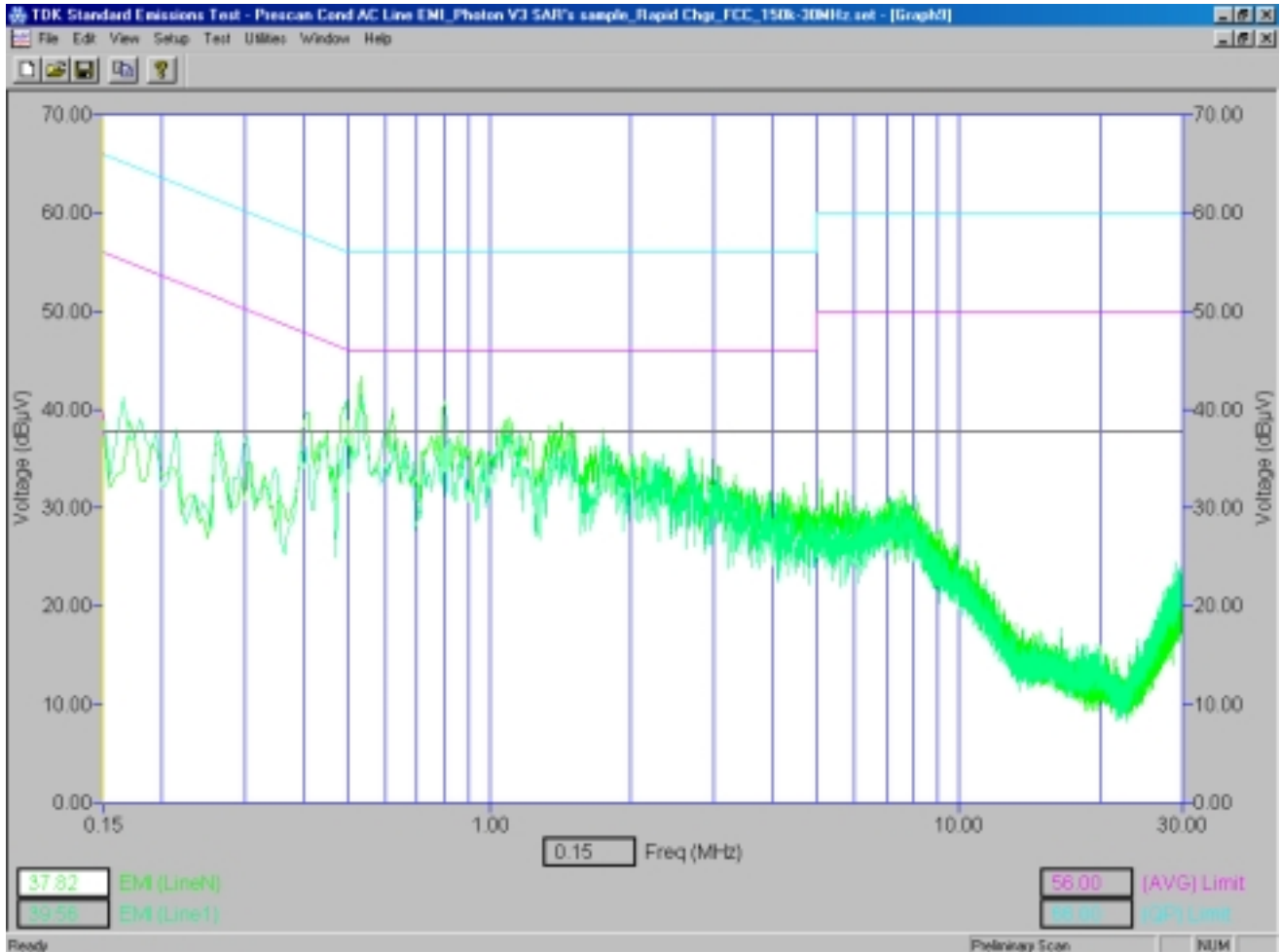
FCC CFR 47 Part 15, Subpart C (CISPR 22), IC ICES-003, Class B

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)	QP Level (reading + Corr.Factor) (dB)	(QP) Limit (dBµV)	(AVG) Limit (dBµV)	Margin QP Limits (dB)	Margin Ave. Limits (dB)
0.491	N	30.63	9.83	40.46	56.1	46.1	-15.62	-5.62
0.527	N	29.55	9.84	39.39	56.0	46.0	-16.61	-6.61
0.529	L1	27.29	9.84	37.13	56.0	46.0	-18.87	-8.87
0.627	N	26.29	9.85	36.14	56.0	46.0	-19.86	-9.86
0.798	N	25.7	9.86	35.56	56.0	46.0	-20.44	-10.44
0.823	L1	21.61	9.87	31.48	56.0	46.0	-24.52	-14.52
1.091	L1	23.36	9.90	33.26	56.0	46.0	-22.74	-12.74
1.096	N	26.05	9.90	35.95	56.0	46.0	-20.05	-10.05
1.157	L1	20.44	9.90	30.34	56.0	46.0	-25.66	-15.66
1.410	N	23.52	9.89	33.41	56.0	46.0	-22.59	-12.59
1.465	L1	22.16	9.89	32.05	56.0	46.0	-23.95	-13.95
1.747	L1	20.9	9.88	30.78	56.0	46.0	-25.22	-15.22

All other emission levels had a test margin of greater than 25 dB.
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, Subpart B Class B



APPENDIX 2

RADIATED EMISSIONS TEST DATA

Radiated Emissions Test Results

FCC CFR 47 Part 15, Subpart B, Class B

June 22, 2004

Operating Mode: The Handheld model number RAP40GW, ASY-07029-001 revision 1G was connected to the Travel Charger, part number ASY-03746-003. The ac input to the Travel Charger was 230 volts, 50 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		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
38.175	V	1.40	152	Q.P.	52.61	-19.94	32.67	40.0	-7.33
77.951	V	1.98	66	Q.P.	51.23	-21.08	30.14	40.0	-9.86
112.481	H	2.71	121	Q.P.	59.15	-18.58	40.56	43.5	-2.94
112.767	V	3.95	329	Q.P.	46.60	-18.55	28.04	43.5	-15.46
121.067	V	1.75	77	Q.P.	45.22	-17.87	27.36	43.5	-16.14
147.448	H	2.31	155	Q.P.	52.07	-18.37	33.70	43.5	-9.80
155.984	H	2.22	144	Q.P.	55.90	-18.28	37.62	43.5	-5.88
155.999	V	2.41	260	Q.P.	46.07	-18.28	27.79	43.5	-15.71
164.465	H	1.99	329	Q.P.	50.96	-18.04	32.92	43.5	-10.58
173.494	H	1.58	0	Q.P.	50.66	-17.76	32.90	43.5	-10.60
182.061	H	1.79	160	Q.P.	48.20	-17.08	31.12	43.5	-12.38
216.481	V	1.46	291	Q.P.	43.65	-15.63	28.03	46.0	-17.97

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B

June 22, 2004

Operating Mode: The Handheld model number RAP40GW, ASY-07029-001 revision 1G was connected to the External Battery Charger, part number ASY-06630-001. The ac input to the External Battery Charger was 230 volts, 50 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		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
112.438	H	2.78	135	Q.P.	55.61	-18.58	37.03	43.5	-6.47
112.489	V	1.45	333	Q.P.	50.46	-18.59	31.87	43.5	-11.63
121.273	V	1.58	295	Q.P.	47.99	-17.83	30.16	43.5	-13.34
130.096	V	1.54	283	Q.P.	49.32	-17.77	31.55	43.5	-11.95
138.728	V	1.95	266	Q.P.	44.99	-18.07	26.92	43.5	-16.58
138.841	H	2.19	164	Q.P.	55.38	-18.08	37.30	43.5	-6.20
147.547	H	2.26	183	Q.P.	52.63	-18.39	34.24	43.5	-9.26
155.998	H	2.14	167	Q.P.	59.52	-18.28	41.24	43.5	-2.26
156.017	V	1.94	264	Q.P.	50.78	-18.28	32.50	43.5	-11.00
207.987	H	1.03	163	Q.P.	51.85	-15.68	36.17	43.5	-7.33
208.029	V	1.98	197	Q.P.	47.01	-15.68	31.33	43.5	-12.17
216.583	H	1.74	173	Q.P.	50.01	-15.63	34.38	46.0	-11.62

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B

June 22, 2004

Operating Mode: The Handheld model number RAP40GW, ASY-07029-001 revision 1G 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		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
112.504	V	1.40	305	Q.P.	48.00	-18.58	29.42	43.5	-14.08
121.09	V	1.50	294	Q.P.	47.87	-17.86	30.01	43.5	-13.49
121.294	H	2.90	182	Q.P.	52.35	-17.84	34.51	43.5	-8.99
130.001	H	1.37	168	Q.P.	53.26	-17.76	35.50	43.5	-8.00
138.771	V	2.44	257	Q.P.	49.37	-18.08	31.29	43.5	-12.21
138.773	H	2.34	159	Q.P.	58.15	-18.08	40.07	43.5	-3.43
147.427	H	2.29	329	Q.P.	56.74	-18.38	38.36	43.5	-5.14
147.537	V	2.22	223	Q.P.	49.95	-18.38	29.57	43.5	-13.93
156.002	H	2.18	144	Q.P.	56.55	-18.28	38.27	43.5	-5.23
207.989	V	2.27	221	Q.P.	44.65	-15.68	28.97	43.5	-14.53
216.565	V	1.76	214	Q.P.	46.33	-15.63	30.70	46.0	-15.30
216.661	H	1.62	164	Q.P.	49.74	-15.63	34.11	46.0	-11.89

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B

June 22, 2004

Operating Mode: The Handheld model number RAP40GW, ASY-07029-001 revision 1G was connected to the Travel Charger, part number ASY-07078-001. The ac input to the Travel Charger was 230 volts, 50 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		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)
	Pol. (V/H)	Height (metres)							
45.143	V	1.73	176	Q.P.	48.00	-21.34	47.51	40.0	-13.83
78.002	V	2.02	360	Q.P.	47.87	-21.10	50.59	40.0	-10.51
112.406	V	1.55	314	Q.P.	52.35	-18.58	49.35	43.5	-12.74
121.308	H	2.93	167	Q.P.	53.26	-17.84	54.66	43.5	-6.68
130.107	H	1.57	173	Q.P.	49.37	-17.77	52.54	43.5	-8.73
138.822	H	2.02	149	Q.P.	58.15	-18.08	56.36	43.5	-5.22
139.058	V	2.50	271	Q.P.	56.74	-18.09	43.89	43.5	-17.7
147.508	H	2.30	183	Q.P.	49.95	-18.39	56.45	43.5	-5.44
147.55	V	2.35	262	Q.P.	56.55	-18.38	49.39	43.5	-12.49
155.975	V	2.16	264	Q.P.	44.65	-18.28	52.89	43.5	-8.89
156.002	H	2.21	178	Q.P.	46.33	-18.28	60.73	43.5	-1.05
216.542	H	1.71	173	Q.P.	49.74	-15.63	48.67	46.0	-12.96

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B

June 22, 2004

Operating Mode: The Handheld model number RAP40GW, ASY-07029-001 revision 1G was connected to the Rapid Battery Travel Charger, part number ASY-07041-001. The ac input to the Rapid Battery Travel Charger was 230 volts, 50 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		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
75.722	V	1.46	28	Q.P.	58.11	-21.43	36.68	40.0	-3.32
112.493	V	2.24	189	Q.P.	45.53	-18.58	26.95	43.5	-16.55
112.502	H	2.88	97	Q.P.	54.01	-18.58	35.43	43.5	-8.07
129.986	V	1.40	310	Q.P.	47.49	-17.76	29.73	43.5	-13.77
147.508	H	2.25	147	Q.P.	53.14	-18.38	34.76	43.5	-8.74
155.999	H	2.14	173	Q.P.	57.62	-18.28	39.34	43.5	-4.16
156.007	V	1.97	275	Q.P.	49.45	-18.28	31.17	43.5	-12.33
164.529	H	1.88	184	Q.P.	50.85	-18.04	32.81	43.5	-10.69
173.322	H	1.89	158	Q.P.	51.37	-17.76	33.61	43.5	-9.89
208.027	V	1.80	201	Q.P.	46.67	-15.68	30.99	43.5	-12.51
216.454	H	1.60	147	Q.P.	51.20	-15.63	35.57	46.0	-10.43
216.552	V	1.88	203	Q.P.	46.16	-15.63	30.53	46.0	-15.47

Radiated Emissions Test Results cont'd

FCC CFR 47 Part 15, Subpart B, Class B

June 23, 2004

Operating Mode: The Handheld was connected to the support PC via the USB data cable 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		Test Angle (Deg.)	Detector (Q.P. or Peak)	Measured Level (dB μ V)	Correction Factors for preamp/antenna/cables/ filter (dB/m)	Field Strength Level (reading+corr.) (dB μ V/m)	Limit @ 3.0 m (dB μ V/m)	Test Margin (dB)
	Pol. (V/H)	Height (metres)							
32.814	V	1.52	198	Q.P.	53.16	-18.33	34.83	40.0	-5.17
36.073	V	1.86	227	Q.P.	52.67	-19.38	33.29	40.0	-6.71
72.003	H	1.95	143	Q.P.	53.62	-21.67	31.95	40.0	-8.05
72.052	V	2.75	4	Q.P.	49.48	-21.67	27.81	40.0	-12.19
112.434	V	1.40	188	Q.P.	51.46	-18.59	32.87	43.5	-10.63
121.137	V	1.40	193	Q.P.	47.17	-17.86	29.31	43.5	-14.19
121.191	H	2.68	140	Q.P.	50.32	-17.86	32.46	43.5	-11.04
130.595	H	1.83	203	Q.P.	44.77	-17.79	26.98	43.5	-16.52
147.374	H	2.31	0	Q.P.	53.13	-18.37	34.76	43.5	-8.74
156.016	H	2.11	360	Q.P.	61.69	-18.28	43.41	43.5	-0.09
164.433	H	1.89	358	Q.P.	53.82	-18.04	35.78	43.5	-7.72
216.615	V	2.35	52	Q.P.	43.86	-15.63	28.23	46.0	-17.77

Radiated Emissions Test Photos

