EMI Test Report

Tested in accordance with
Federal Communications Commission (FCC)
Personal Communications Services
CFR 47, Parts 15.107, 15.109
&
Industry Canada (IC), ICES-003

RTS Testing Services™

A division of Research In Motion Limited

REPORT NO.: RTS-6026-1302-43

PRODUCT MODEL NO.: RFP121LW
TYPE NAME: BlackBerry® smartphone
FCC ID: L6ARFP120LW
IC: 2503A- RFP120LW

DATE: March 08, 2013

RTS is accredited
according to
EN ISO/IEC 17025 by:

592

Statement of Performance:

The BlackBerry® smartphone, model RFP121LW, part number CER-54352-001 Rev2-906-00 and accessories when configured and operated per RIM's operation instructions, and 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.

Documented by:

Mahmood Ahmed
Regulatory Compliance Specialist

Reviewed by:

Savtej S, Sandhu
Regulatory Compliance Specialist

Reviewed and Approved by:

Masud S. Attayi, P.Eng.
Manager, Regulatory Compliance

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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, 2012 Class B Digital Devices, Unintentional Radiators
- IC ICES-003 Issue 5, August 2012, Information Technology Equipment (ITE) – Limits and methods of measurement

B. Associated Documents

1) MultiSourceDeclaration_ RFP121LW_b3694.
2) MultiSourceDeclaration_ RFP121LW_b3901.
3) RFP121LW_HW_Declaration_CER-53012-001_Rev2-906-00.

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	440 Phillip Street
Waterloo, Ontario	Waterloo, Ontario
Canada, N2L 3W8	Canada, N2L 5R9
Phone: 519 888 7465	Phone: 519 888 7465
Fax: 519 888 6906	Fax: 519 888 6906

The testing was performed on January 24-25 and February 06-15, 2013

The sample EUT included:

SAMPLE	MODEL	CER NUMBER	PIN	Software
1a	RFP121LW	CER-54352-001 Rev1-906-00	2641D667	OS Version 127.0.1.3427 Bundle: 3427
1b	RFP121LW	CER-54352-001 Rev1-906-00	2641D667	OS Version 127.0.1.3694 Bundle: 3694
1c	RFP121LW	CER-54352-001 Rev1-906-00	2641D667	MFIb180
2	RFP121LW	CER-54352-001 Rev2-906-00	267031FD	OS Version 127.0.1.3901 Bundle: 3901
3	RFP121LW	CER-54352-001 Rev2-906-00	26703201	OS Version 127.0.1.3901 Bundle: 3901

AC conducted testing was performed on sample 3
Radiated Emissions testing was performed on samples 1a, 1b, 1c and 2

To view the differences between software bundles 3427 to 3901, see documents MultiSourcDelclaration_RFP121LW_b3694 and MultiSourceDeclaration_RFP121LW_b3901 .

Only the characteristics that may have been affected by the changes from RFP121LW Rev1 to RFP121LW Rev2-906-00 were re-tested.
For more details, refer to RFP121LW_HW_Declaration_ CER-54352-001_Rev2-906-01

BlackBerry® smartphone Accessories Tested

1) Fixed Blade Charger Rev2, part number HDW-24481-001 (model number RIM-C-4ADUUS-001 with an output voltage of 5.0 volts dc, 750mA.
2) Alt.1 Fixed Blade Charger Rev3, part number HDW-24481-001 (model number PSM04A-050QRIM-R), with an output voltage of 5.0 volts dc, 750mA
3) Alt.2 Fixed Blade Charger Rev C, part number HDW-47725-001 with an output voltage of 5.0 volts dc, 850mA
4) Alt.3 Fixed Blade Charger Rev A, part number HDW-46445-001 with an output voltage of 5.0 volts dc, 850mA
5) Folding Blade Charger Rev1, part number HDW-34724-001 with an output voltage of 5.0 volts dc and current of 1.8 Amps
6) World Wide Travel Charger Rev 1, part number HDW 34725-001 with an output voltage of 5.0 volts, dc, 2A
7) Alt.1 World Wide Travel Charger, part number HDW-34725-002 with an output voltage of 5.0 volts, dc, 2A
8) Wired Headset, part number HDW-44306-003, with a lead length of 1.1 metres
9) Alt.1 Wired Headset, part number HDW-44306-003,with a lead length of 1.1 metres
10) Alt.2 Wired Headset, part number HDW-49299-001, with a lead length of 1.1 metres
11) 12 V DC Charger, part number HDW-46705-001, with an output of 5 volts, 1A
12) Alt.1 12 V DC Charger, part number HDW-46706-001, with an output of 5 volts, 1.8A
13) USB Data Cable, part number HDW-28109-003, Rev1 1.2 metre long.
14) Alt.1 USB Data Cable, part number HDW-28109-003 Rev1, 1.2 metre long.
15) Alt.2 USB Data Cable, part number HDW-28109-005 Rev1, 1.2 metre long.
16) Alt.3 USB Data Cable, part number HDW-50071-001 RevB, 1.2 metre long.
17) Alt.4 USB Data Cable, part number HDW-50071-001 RevB, 1.2 metre long.
18) Alt.5 USB Data Cable, part number HDW-51800-001 RevB, 1.2 metre long
19) Alt.6 USB Data Cable, part number HDW-51800-001 RevB, 1.2 metre long
20) USB Data Cable, part number HDW-48415-001, Rev1, 1.0 metre long
21) Alt.1 USB Data Cable, part number HDW-48415-001, Rev1, 1.0 metre long.
22) USB Y-Cable, part number HDW-19137-002, lead lengths of 26 cm and 11 cm
23) HDMI Cable, part number HDW 29572-001, with a lead length of 1.83m
24) External Battery Charger, part number HDW-53182-001
25) Bat. NS1, part number BAT-49702-002

D. Support Equipment Used for the Testing of the EUT

1) IBM Thinkpad Lenovo T60p laptop, type 8742-C2U, product ID 8742C2U
2) Samsung Monitor, Model Number S22A350H, Product Number LS22A3500HS/2A
3) Phillips Monitor, Model Number MWE12244T, Product ID 2444E1SB/27
4) 12 V DC Battery, Enerwatt AhM Series, WP12-12

E. Summary of Results

SPECIFICATION		TEST TYPE	Meets Requirement	Test Data APPENDIX
FCC CFR 47	IC			
Part 15.107	ICES-003,6.1	Conducted AC Line Emission	Yes	1
Part 15.109	ICES-003,6.1	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.

Test Configuration	Operating Mode(s)	Charger + Accessories
1	GSM 850 Idle, Charging and Audio Playback	Fixed Blade Charger + Wired Headset + 1.2m USB Cable
2	PCS 1900 Idle Charging and Video Playback	Alt.1 Fixed Blade Charger + Alt.1 Wired Headset + Alt.1 1.2m USB Cable
3	Bluetooth Tx, Charging and Audio Playback	Alt.2 Fixed Blade Charger + Alt.3 Wired Headset + Alt.2 1.2m USB cable
4	802.11b Tx, Charging and Video Playback	Alt.3 Fixed Blade Charger + Wired Headset + 1.0m USB Cable
5	802.11a Tx, Charging and Video Playback	Folding Blade Charger + Alt.1 Wired Headset
6	UMTS Band 2 idle, Charging and Audio Playback	Folding Blade Charger + Alt.2 Wired Headset + HDMI Cable + Monitor (Samsung)
7	UMTS Band 5 idle, Charging	Alt. 3Fixed Blade Charger + Alt. 2Wired Headset + Alt.1 1.0m USB Cable
8	UMTS Band 2 HSDPA+ Idle, Charging	World Wide Travel Charger + Alt.1 Wired Headset

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Test Configuration	Operating Mode(s)	Charger + Accessories
9	UMTS Band 5 HSDPA+ Idle, Charging and Video Playback	Alt.1 World Wide Travel Charger + Wired Headset
10	NFC Tx, Charging	Fixed Blade Charger + Alt.2 Wired Headset + Alt.5 1.2m USB Cable
11	UMTS 4 DC HSDPA Idle, Charging	Alt.1 Fixed Blade Charger + Alt. 2Wired Headset + Alt.4 1.2m USB Cable
12	LET B 4 Idle, Charging and Audio Playback	Folding Blade Charger + Wired Headset + Y – Cable + EBC
13	LET B 5 Idle, Charging and Video Playback	Alt.3 Fixed Blade Charger + Wired Headset + Alt.6 1.2m USB Cable
14	UMTS B 4 Idle, Charging	Alt.2 Fixed Blade Charger + Alt.2 Wired Headset + Alt.3 1.2m USB Cable

The sample EUT's conducted emissions were compared with respect to the FCC CFR 47 Part 15.107, Class B Limit, and IC ICES-003, 6.1. The sample EUT had a worst case test margin of 7.49 dB below the QP limit at 0.501 MHz using the QP detector and a test margin of 3.20 dB below the AVG limit at 0.501 MHz using the AVG detector in Test Configuration 6.

Measurement Uncertainty ±3.2 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 radiated emissions were measured up to the fifth harmonic of the highest frequency of the band tested. 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.

Test Configuration	Operating Mode(s)	Charger + Accessories
1	GSM 850 Idle, Charging and Audio Playback	Fixed Blade Charger + Wired Headset + 1.2m USB Cable
2	PCS 1900 Idle Charging and Video Playback	Alt.1Fixed Blade Charger + Alt1. Wired Headset + Alt.1 1.2m USB Cable
3	Bluetooth Tx, Charging and Audio Playback	Alt.2 Fixed Blade Charger + Alt.2 Wired Headset + Alt.2 1.2m USB Cable
4	802.11b Tx, Charging and Video Playback	Alt.3 Fixed Blade Charger + Wired Headset + 1.0m USB Cable
5	802.11a Tx, Charging and Video Playback	Alt.1Fixed Blade Charger + Alt1. Wired Headset + Alt.1 1.0m USB Cable
6	LTE B 17 Idle, Charging and Audio Playback	Fixed Blade Charger + Alt.2 Wired Headset + Alt.3 1.2m USB Cable
7	LTE B 5 Idle, Charging	Alt. 2 Wired Headset + Alt.4 1.2m USB Cable + Laptop
8	UMTS Band 2 HSDPA+ Idle, Charging	Alt.1 12 V DC Charger + Alt.1 Wired Headset + DC Battery
9	UMTS Band 4 HSDPA+ Idle, Charging and Video Playback	Alt.2Fixed Blade Charger + Wired Headset + Alt.6 1.2m USB Cable

Test Configuration	Operating Mode(s)	Charger + Accessories
10	UMTS Band 2 DC HSDPA+ Idle, Charging	Folding Blade Charger + Alt.1 Wired Headset + Y-Cable + EBC
11	UMTS Band 5 DC HSDPA+ Idle, Charging and Video Playback	World Wide Travel Charger + Wired Headset + HDMI Cable + Phillips Monitor
12	NFC Tx, Charging	Alt.1 World Wide Travel Charger + Alt.2 Wired Headset
13	UMTS Band 4 DC HSDPA+ Idle, Charging	12 V CD Charger + Alt.2 Wired Headset + Alt.5 1.2m USB Cable + DC Battery

The system's radiated emission levels were compared with respect to the FCC CFR 47 Part 15.109, Class B limit and IC ICES-003, 6.2.
The system met the requirements with a worst case emission test margin of 2.92 dB below the QP limit at 742.550 MHz using QP in Test Configuration 11.
To view the test data see APPENDIX 2.

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 ±4.5 d
B

F. Compliance Test Equipment Used

UNIT	MANUFACTURER	MODEL	SERIAL NUMBER	CAL DUE DATE (YY MM DD)	USE
Preamplifier	Sonoma	310N/11909A	185831	13-10-10	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	13-10-10	Radiated Emissions
EMI Receiver	Rohde & Schwarz	ESIB 40	100255	13-11-30	Radiated Emissions
Digital Multimeter	Hewlett Packard	34401A	US36042324	13-11-13	Conducted/Radiated Emissions
Environment Monitor	OMEGA	iTHX-SD	0380561	13-10-30	Radiated Emission
Environment Monitor	OMEGA	iTHX-SD	0380567	13-10-30	Radiated Emission
L.I.S.N.	Rohde & Schwarz	ENV216	100060	13-10-25	Conducted Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017401	13-08-23	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030101	14-07-08	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	13-11-26	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	112394	13-11-24	Radiated/Conducted Emissions
EMI Test Receiver	Rohde & Schwarz	ESU 40	100162	13-11-29	Radiated/Conducted Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100368	13-12-04	Radiated Emissions
Bluetooth Tester	Rohde & Schwarz	CBT	100737	14-12-05	Radiated/Conducted Emissions

G. Test Software used

SOFTWARE	COMPANY	VERSION	USE
EMC32	Rohde & Schwarz	8.52.0	Radiated Emissions
TDK Standard Emission Test	TDK RF Solutions	8.53.1.62	Radiated Emissions

APPENDIX 1 - AC CONDUCTED EMISSIONS TEST DATA

AC Conducted Emissions Test Results

The following tests were performed by Mahmood Ahmed

Test Configuration 1

Date of the test: February 06, 2013
The environmental conditions were: Temperature: 24.2 °C
Humidity: 19.8 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.168	L1	37.68	11.08	48.76	65.10	55.10	-16.34
0.614	L1	32.31	9.85	42.16	56.00	46.00	-13.84
1.113	L1	29.18	9.80	38.98	56.00	46.00	-17.02
1.280	L1	27.69	9.80	37.50	56.00	46.00	-18.51
3.737	L1	31.08	9.89	40.97	56.00	46.00	-15.03
3.791	L1	29.54	9.90	39.44	56.00	46.00	-16.56
3.957	L1	27.49	9.90	37.39	56.00	46.00	-18.61
4.182	L1	29.20	9.90	39.10	56.00	46.00	-16.90
4.236	L1	23.62	9.90	33.52	56.00	46.00	-22.48
4.403	L1	24.20	9.90	34.10	56.00	46.00	-21.90
4.457	L1	26.32	9.90	36.23	56.00	46.00	-19.77
4.682	L1	26.10	9.90	36.00	56.00	46.00	-20.00

All other emissions are at least 25 dB below the limit.
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

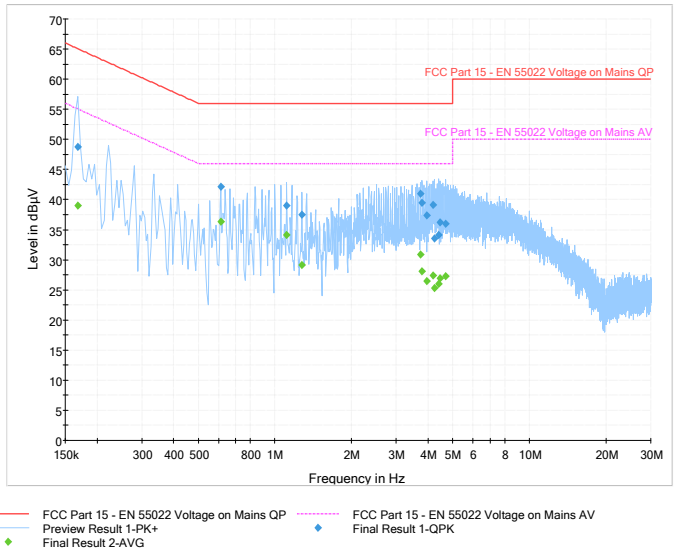
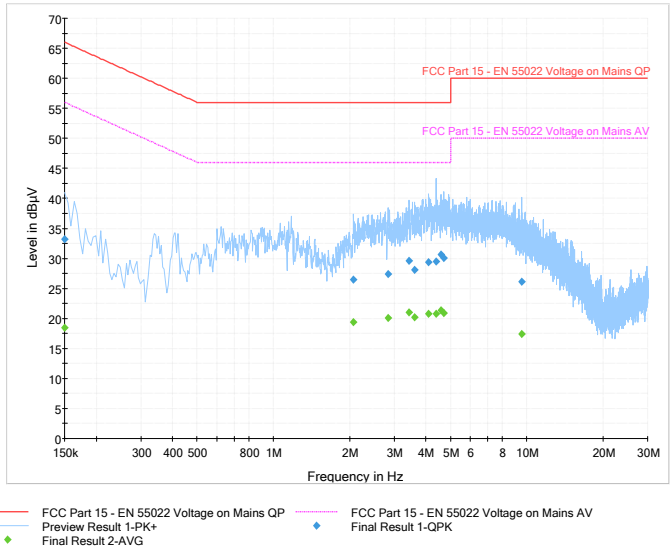


Figure 1-2: N Lines



AC Conducted Emissions Test Results cont'd

Test Configuration 2

Date of the test: February 06, 2013
The environmental conditions were: Temperature: 24.2 °C
Humidity: 19.8 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
10.145	L1	31.42	9.97	41.39	60.00	50.00	-18.61
10.275	L1	31.95	9.97	41.92	60.00	50.00	-18.08
10.509	L1	31.76	9.97	41.73	60.00	50.00	-18.27
10.761	N	26.00	9.98	35.99	60.00	50.00	-24.01
10.928	N	26.69	9.99	36.68	60.00	50.00	-23.32
11.031	N	26.99	9.99	36.99	60.00	50.00	-23.01
11.063	L1	32.14	9.98	42.12	60.00	50.00	-17.88
11.153	L1	33.08	9.99	43.07	60.00	50.00	-16.93
11.270	N	26.97	10.00	36.97	60.00	50.00	-23.03
11.328	N	27.39	10.00	37.39	60.00	50.00	-22.61
11.387	N	27.62	10.00	37.62	60.00	50.00	-22.38
11.562	L1	33.33	10.00	43.33	60.00	50.00	-16.67
11.607	N	28.08	10.01	38.10	60.00	50.00	-21.91
11.747	N	26.82	10.02	36.84	60.00	50.00	-23.16
11.756	N	27.15	10.02	37.17	60.00	50.00	-22.83
11.918	L1	33.84	10.02	43.86	60.00	50.00	-16.14
11.936	N	26.59	10.03	36.62	60.00	50.00	-23.38
12.467	L1	31.12	10.04	41.16	60.00	50.00	-18.84

All other emissions are at least 25 dB below the limit.
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

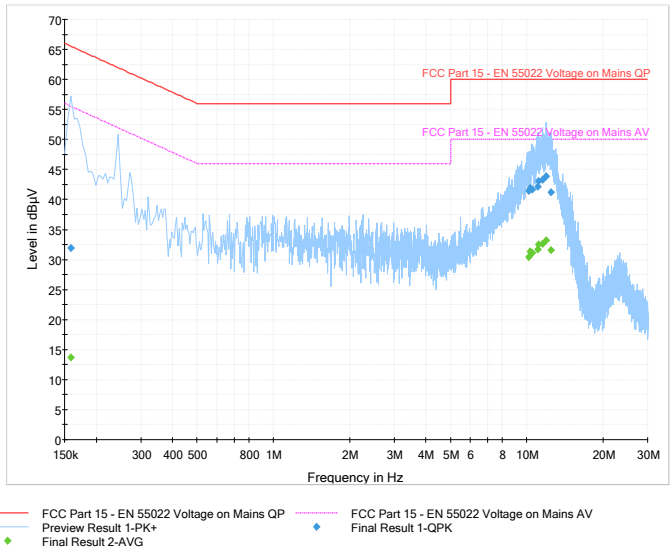
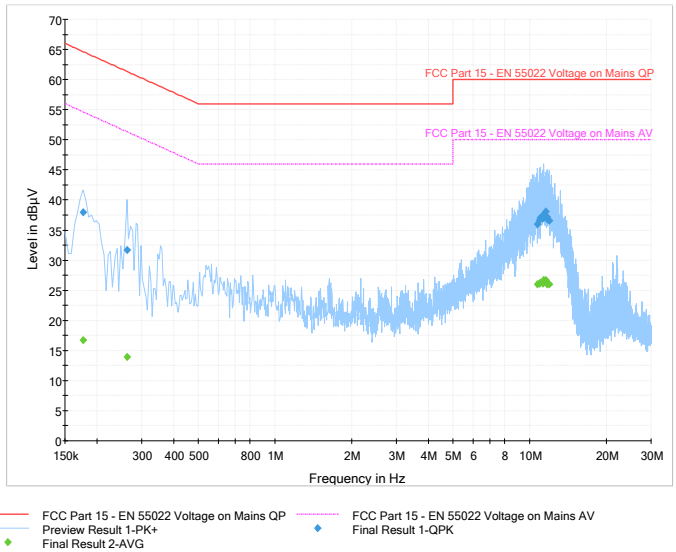


Figure 1-4: N Lines



AC Conducted Emissions Test Results cont'd

Test Configuration 3

Date of the test: February 06, 2013
The environmental conditions were: Temperature: 24.2 °C
Humidity: 19.8 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.429	N	22.48	9.98	32.45	57.30	47.30	-24.85
1.140	N	24.85	9.80	34.65	56.00	46.00	-21.35
1.235	L1	30.42	9.80	40.22	56.00	46.00	-15.78
1.622	L1	27.46	9.81	37.27	56.00	46.00	-18.73
2.967	L1	23.43	9.87	33.30	56.00	46.00	-22.70

All other emissions are at least 25 dB below the limit.
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

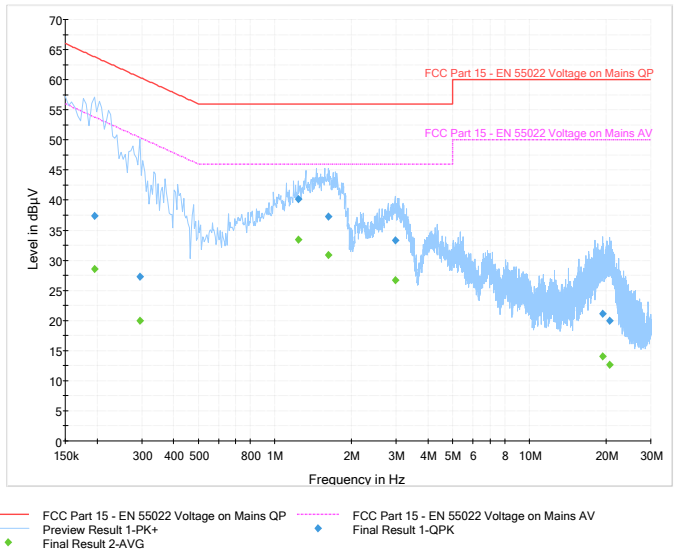
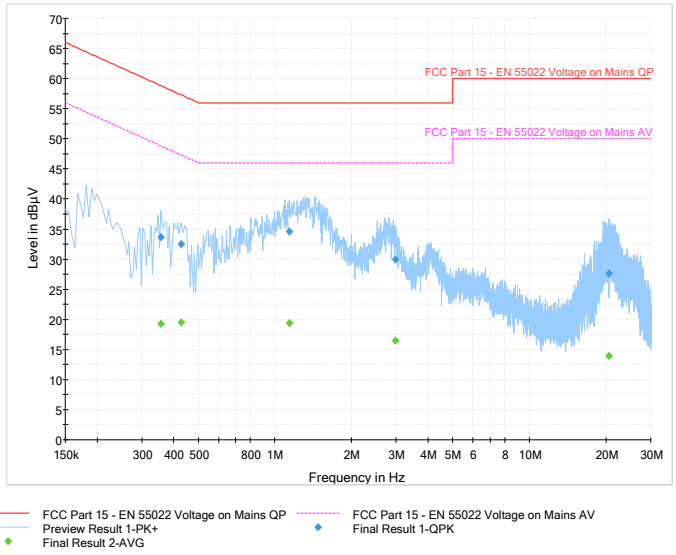


Figure 1-6: N Lines



AC Conducted Emissions Test Results cont'd

Test Configuration 4

Date of the test: February 06, 2013
The environmental conditions were: Temperature: 25.1 °C
Humidity: 23.0 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.159	L1	31.06	11.14	42.20	65.50	55.50	-23.30
0.722	N	22.07	9.83	31.90	56.00	46.00	-24.10
0.906	N	23.30	9.81	33.12	56.00	46.00	-22.89
1.041	L1	29.02	9.80	38.82	56.00	46.00	-17.18
1.176	L1	29.71	9.80	39.51	56.00	46.00	-16.49
2.040	N	22.47	9.83	32.30	56.00	46.00	-23.71
2.112	L1	31.93	9.83	41.76	56.00	46.00	-14.24
2.171	N	21.52	9.83	31.36	56.00	46.00	-24.64
2.288	L1	29.89	9.84	39.73	56.00	46.00	-16.28
2.355	L1	25.79	9.84	35.64	56.00	46.00	-20.37

All other emissions are at least 25 dB below the limit.
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

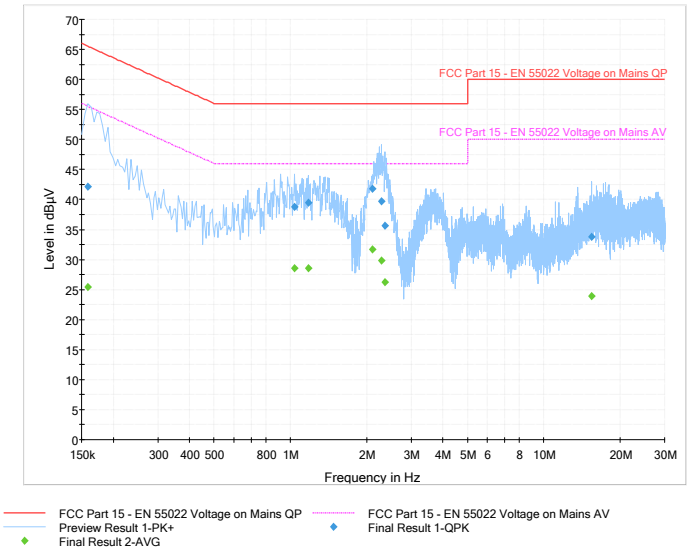
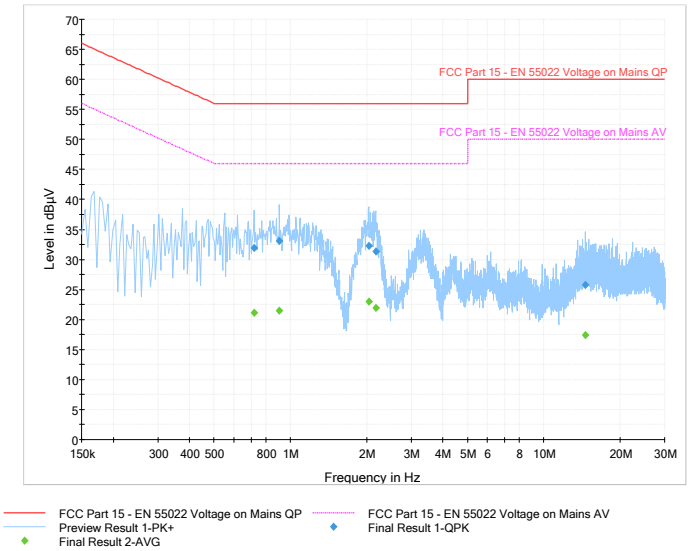


Figure 1-8: N Lines



AC Conducted Emissions Test Results cont'd

Test Configuration 5

Date of the test: February 06, 2013
The environmental conditions were: Temperature: 24.5 °C
Humidity: 19.4 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Margin (QP) Limits (dB)
0.150	N	40.93	11.23	52.16	66.00	-13.84
0.344	L1	28.46	10.10	38.55	59.10	-20.55
0.501	N	37.44	9.92	47.36	56.00	-8.65
0.537	L1	33.17	9.89	43.06	56.00	-12.94
0.596	L1	28.88	9.86	38.74	56.00	-17.26
0.780	N	31.99	9.83	41.82	56.00	-14.18
1.109	N	32.85	9.81	42.66	56.00	-13.34
1.982	N	30.39	9.83	40.22	56.00	-15.78
2.292	L1	21.48	9.84	31.32	56.00	-24.68
3.566	L1	24.69	9.89	34.58	56.00	-21.42

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (AV) (dBµV)	Limit (AV) (dBµV)	Margin (AV) Limits (dB)
0.150	N	33.51	11.23	44.74	46.00	-11.26
0.344	L1	22.88	10.10	32.97	39.10	-16.13
0.429	L1	14.42	9.97	24.39	37.30	-22.91
0.447	L1	14.67	9.94	24.61	36.90	-22.29
0.501	N	32.22	9.92	42.14	36.00	-3.86
0.537	L1	27.38	9.89	37.27	36.00	-8.73
0.596	L1	22.99	9.86	32.85	36.00	-13.15
0.780	N	26.71	9.83	36.53	36.00	-9.47
1.109	N	27.75	9.81	37.55	36.00	-8.45
1.982	N	24.81	9.83	34.64	36.00	-11.36
2.292	L1	15.11	9.84	24.95	36.00	-21.05
3.566	L1	19.01	9.89	28.91	36.00	-17.09

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector and the average 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

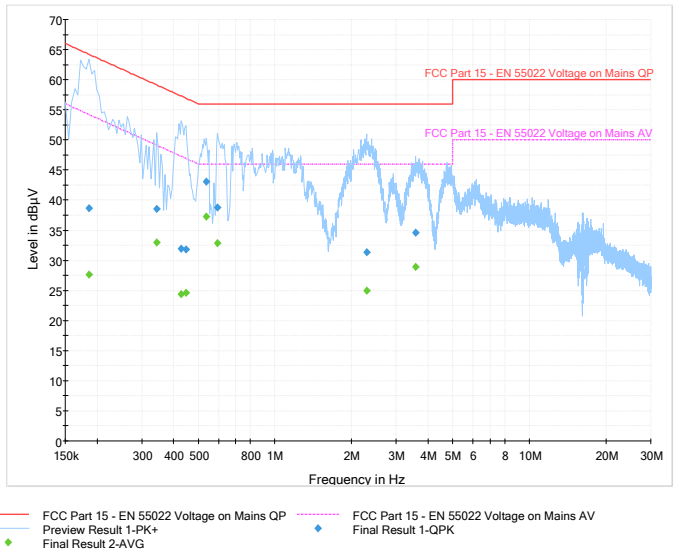
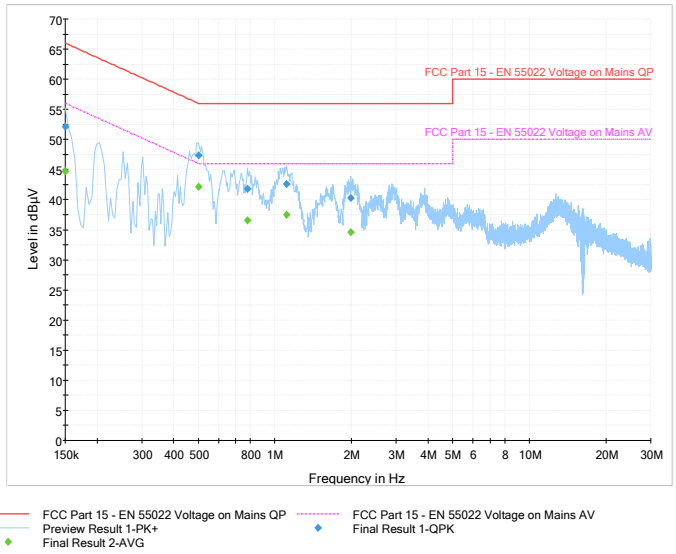


Figure 1-10: N Lines



Test Configuration 6

Date of the test: February 15, 2013
The environmental conditions were: Temperature: 24.8 °C
Humidity: 18.8 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Margin (QP) Limits (dB)
0.155	L1	44.35	11.17	55.52	65.80	-10.28
0.195	N	35.68	10.92	46.60	63.80	-17.20
0.204	L1	40.91	10.83	51.74	63.40	-11.66
0.258	L1	34.76	10.45	45.21	61.50	-16.29
0.402	N	32.24	10.02	42.26	57.80	-15.54
0.501	N	38.59	9.92	48.51	56.00	**-7.49**
0.519	L1	37.77	9.90	47.67	56.00	-8.33
0.749	N	30.92	9.83	40.75	56.00	-15.25
1.707	L1	29.83	9.81	39.64	56.00	-16.36
3.350	N	33.17	9.89	43.06	56.00	-12.94
3.399	N	32.89	9.89	42.78	56.00	-13.22
3.453	N	31.22	9.89	41.11	56.00	-14.89
3.521	N	34.17	9.89	44.07	56.00	-11.93
3.548	L1	33.00	9.89	42.89	56.00	-13.11
3.575	N	32.98	9.90	42.88	56.00	-13.12
3.651	L1	31.16	9.89	41.06	56.00	-14.94
9.272	N	33.64	9.98	43.62	60.00	-16.38
10.271	L1	32.50	9.97	42.47	60.00	-17.53
10.775	L1	32.29	9.97	42.26	60.00	-17.74
11.004	N	33.28	9.99	43.27	60.00	-16.73

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (AV) (dBµV)	Limit (AV) (dBµV)	Margin (AV) Limits (dB)
0.155	L1	31.90	11.17	43.07	45.80	-12.73
0.195	N	26.65	10.92	37.57	43.80	-16.23
0.204	L1	31.44	10.83	42.27	43.40	-11.13
0.258	L1	26.85	10.45	37.30	41.50	-14.20
0.402	N	27.01	10.02	37.03	37.80	-10.77
0.501	N	32.88	9.92	42.80	36.00	**-3.20**
0.519	L1	32.04	9.90	41.94	36.00	-4.06
0.749	N	21.64	9.83	31.47	36.00	-14.54
1.707	L1	22.70	9.81	32.51	36.00	-13.49
3.350	N	21.85	9.89	31.74	36.00	-14.26
3.399	N	23.47	9.89	33.36	36.00	-12.64
3.453	N	22.73	9.89	32.63	36.00	-13.38
3.521	N	23.54	9.89	33.43	36.00	-12.57
3.548	L1	22.73	9.89	32.62	36.00	-13.38
3.575	N	22.95	9.90	32.85	36.00	-13.16
3.651	L1	22.75	9.89	32.64	36.00	-13.36
9.272	N	27.45	9.98	37.43	40.00	-12.57
10.271	L1	25.41	9.97	35.38	40.00	-14.62
10.775	L1	26.56	9.97	36.53	40.00	-13.47
11.004	N	26.60	9.99	36.59	40.00	-13.41
18.542	N	15.90	10.24	26.14	40.00	-23.86

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector and the average 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

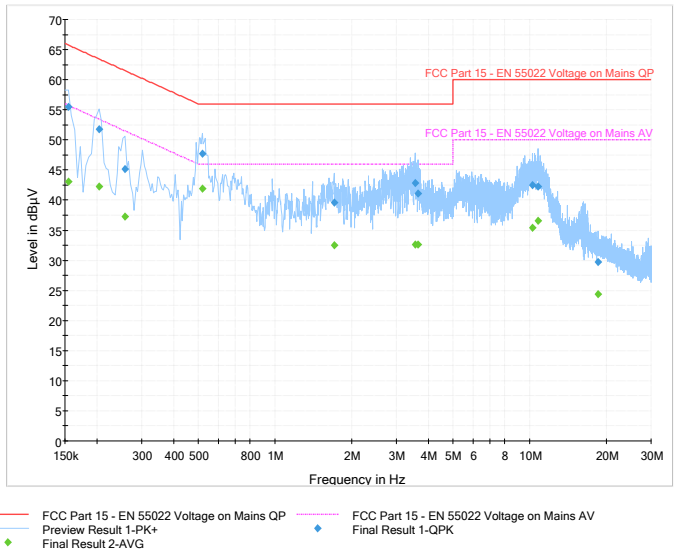
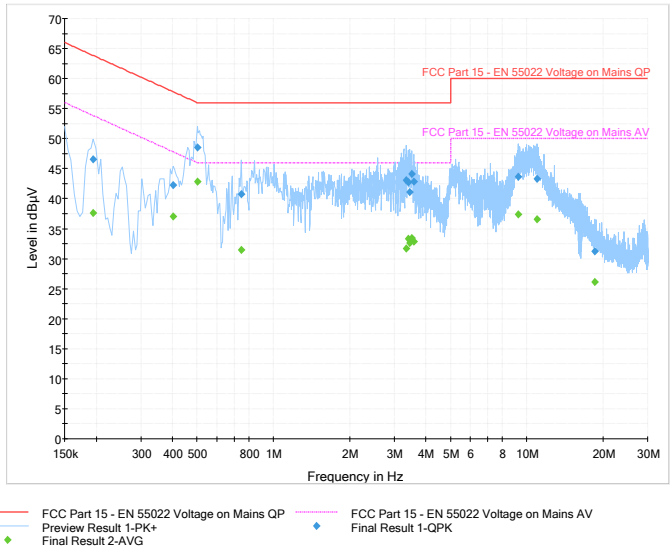


Figure 1-12: N Lines



Test Configuration 7

Date of the test: February 06, 2013
The environmental conditions were: Temperature: 24.5 °C
Humidity: 19.4 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.407	L1	23.62	10.00	33.63	57.70	47.70	-24.07
0.717	L1	24.28	9.83	34.11	56.00	46.00	-21.89
1.073	N	21.58	9.81	31.39	56.00	46.00	-24.62
1.181	N	21.42	9.80	31.22	56.00	46.00	-24.78
3.017	L1	22.68	9.87	32.55	56.00	46.00	-23.45
14.280	L1	25.26	10.07	35.33	60.00	50.00	-24.67
14.438	L1	27.81	10.07	37.88	60.00	50.00	-22.12

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector.
See figure 1-13 and figure 1-14 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 7

Figure 1-13: L1 lines

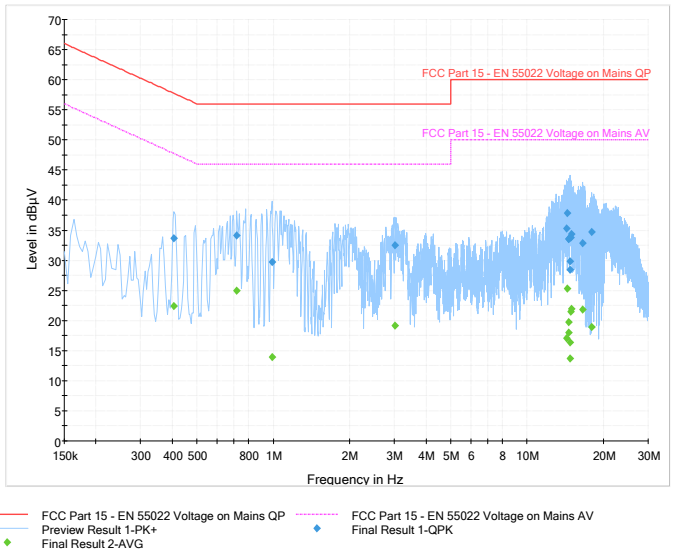
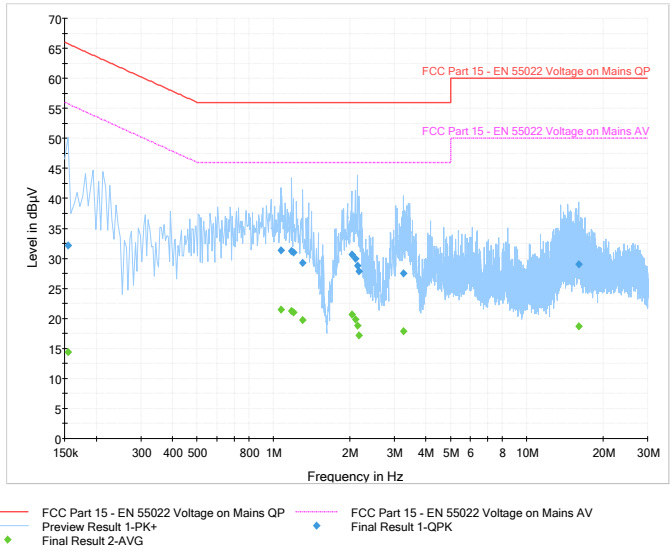


Figure 1-14: N Lines



Test Configuration 8

Date of the test: February 13, 2013
The environmental conditions were: Temperature: 25.3 °C
Humidity: 18.9 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.443	N	24.08	9.96	34.04	57.00	47.00	-22.96
0.456	L1	23.44	9.93	33.38	56.80	46.80	-23.42

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector.
See figure 1-15 and figure 1-16 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 8

Figure 1-15: L1 lines

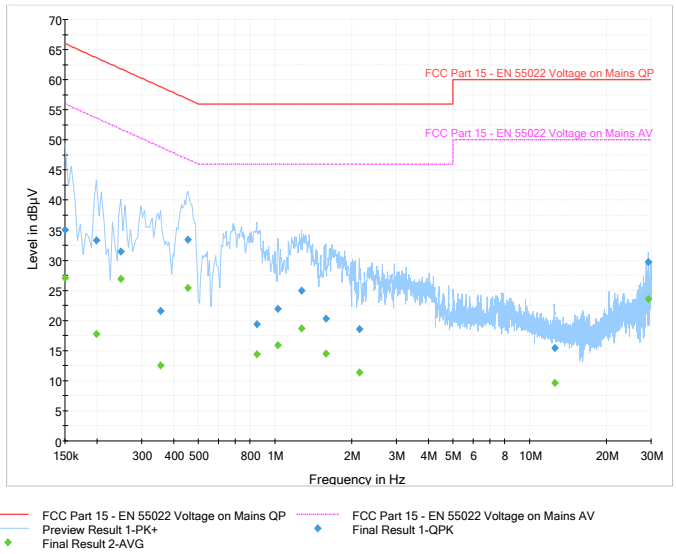
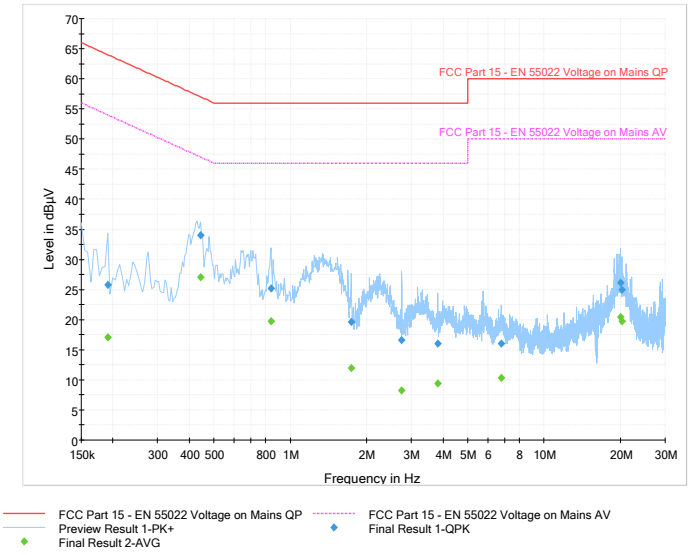


Figure 1-16: N Lines



Test Configuration 9

Date of the test: February 13, 2013
The environmental conditions were: Temperature: 25.0 °C
Humidity: 19.4 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.150	N	33.18	11.23	44.41	66.00	56.00	-21.59
0.425	N	26.10	9.98	36.08	57.40	47.40	-21.32
0.461	L1	21.91	9.93	31.84	56.70	46.70	-24.86

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector.
See figure 1-17 and figure 1-18 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 9

Figure 1-17: L1 lines

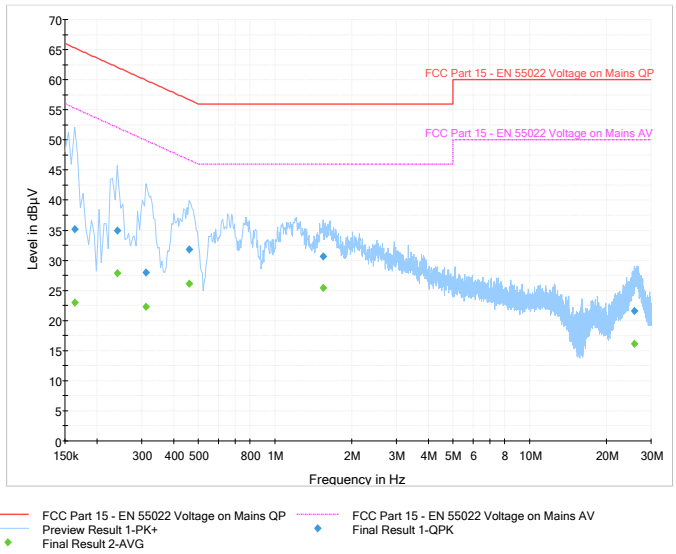
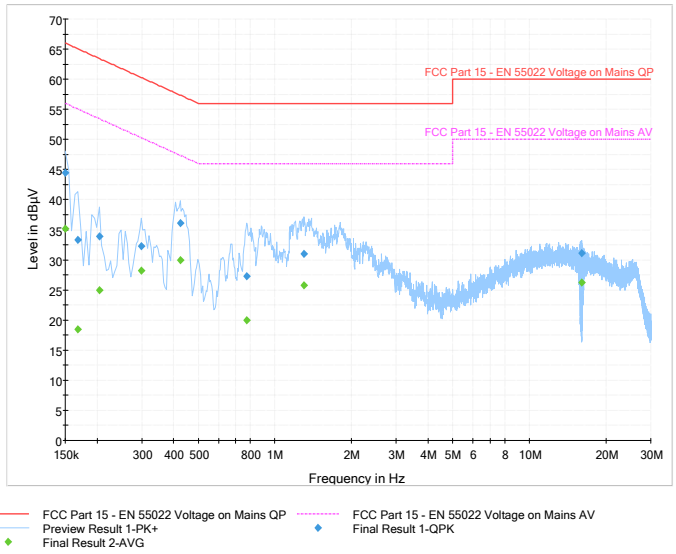


Figure 1-18: N Lines



Test Configuration 10

Date of the test: February 13, 2013
The environmental conditions were: Temperature: 25.5 °C
Humidity: 18.2 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.618	L1	27.61	9.85	37.47	56.00	46.00	-18.53
1.073	L1	28.36	9.80	38.16	56.00	46.00	-17.84
1.352	L1	25.54	9.80	35.34	56.00	46.00	-20.66
3.381	L1	24.55	9.89	34.44	56.00	46.00	-21.56
3.773	L1	26.21	9.90	36.11	56.00	46.00	-19.89
3.953	N	21.21	9.90	31.11	56.00	46.00	-24.89

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector.
See figure 1-19 and figure 1-20 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 10

Figure 1-19: L1 lines

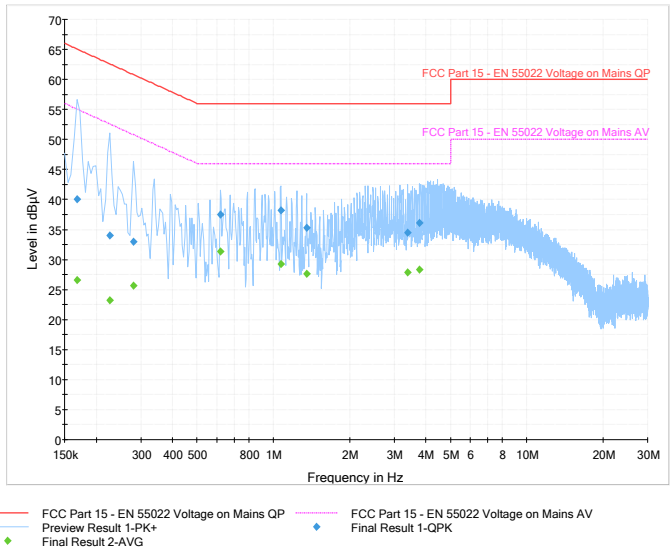
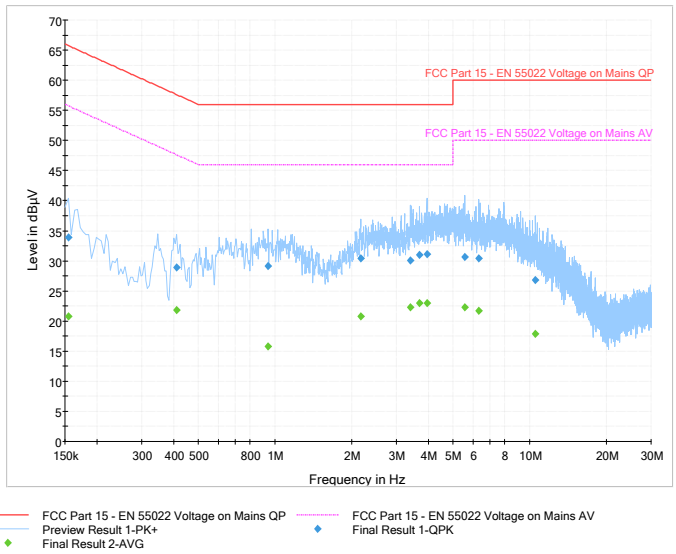


Figure 1-20: N Lines



Test Configuration 11

Date of the test: February 12, 2013
The environmental conditions were: Temperature: 24.6 °C
Humidity: 20.0 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.155	L1	36.20	11.17	47.37	65.80	55.80	-18.43
0.281	L1	28.87	10.29	39.16	60.80	50.80	-21.64
0.704	L1	29.72	9.83	39.56	56.00	46.00	-16.44
0.987	L1	28.23	9.80	38.03	56.00	46.00	-17.97
10.518	L1	33.72	9.97	43.69	60.00	50.00	-16.31
10.847	N	25.15	9.99	35.14	60.00	50.00	-24.86
10.905	N	25.04	9.99	35.03	60.00	50.00	-24.97
11.135	N	25.65	10.00	35.64	60.00	50.00	-24.36
11.202	N	25.36	10.00	35.36	60.00	50.00	-24.64
11.261	N	25.38	10.00	35.38	60.00	50.00	-24.62
11.279	L1	34.16	9.99	44.15	60.00	50.00	-15.85
11.432	L1	34.86	10.00	44.86	60.00	50.00	-15.14
11.571	L1	33.81	10.00	43.81	60.00	50.00	-16.19
11.720	L1	33.50	10.01	43.51	60.00	50.00	-16.49
11.864	L1	34.01	10.01	44.02	60.00	50.00	-15.98
12.134	L1	32.35	10.03	42.37	60.00	50.00	-17.63
12.435	L1	32.55	10.04	42.59	60.00	50.00	-17.41
12.678	L1	30.40	10.05	40.44	60.00	50.00	-19.56

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector.
See figure 1-21 and figure 1-22 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 11

Figure 1-21: L1 lines

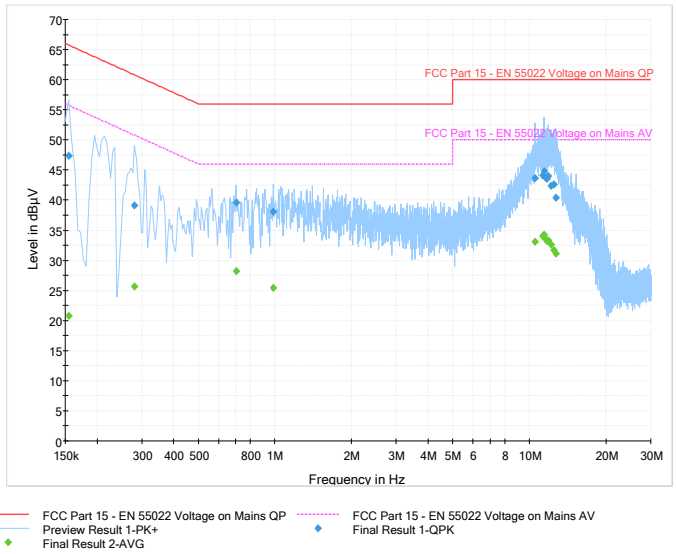
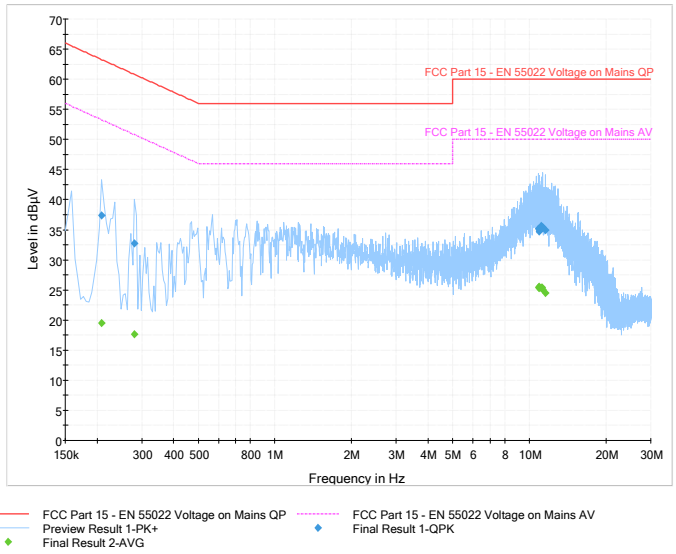


Figure 1-22: N Lines



Test Configuration 12

Date of the test: February 12, 2013
The environmental conditions were: Temperature: 24.6 °C
Humidity: 20.0 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.398	L1	30.01	10.01	40.03	57.90	47.90	-17.87
1.037	N	23.50	9.81	33.31	56.00	46.00	-22.69
1.091	L1	26.41	9.80	36.22	56.00	46.00	-19.79
1.122	N	23.30	9.80	33.10	56.00	46.00	-22.90
1.257	N	22.61	9.80	32.42	56.00	46.00	-23.58
1.271	N	22.53	9.80	32.33	56.00	46.00	-23.67
2.040	L1	29.26	9.83	39.08	56.00	46.00	-16.92
2.045	N	24.00	9.83	33.83	56.00	46.00	-22.18
2.126	L1	26.05	9.83	35.88	56.00	46.00	-20.12
2.148	N	24.39	9.83	34.22	56.00	46.00	-21.78
2.238	N	21.77	9.84	31.61	56.00	46.00	-24.39
15.455	L1	26.84	10.07	36.91	60.00	50.00	-23.09
15.540	L1	27.23	10.07	37.30	60.00	50.00	-22.70
15.603	L1	25.91	10.07	35.98	60.00	50.00	-24.02
15.729	L1	27.15	10.08	37.23	60.00	50.00	-22.77
15.788	L1	26.80	10.08	36.88	60.00	50.00	-23.12
17.579	L1	25.12	10.20	35.32	60.00	50.00	-24.68
17.858	L1	27.69	10.21	37.90	60.00	50.00	-22.10

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector and the average detector.
See figure 1-23 and figure 1-24 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 12

Figure 1-23: L1 lines

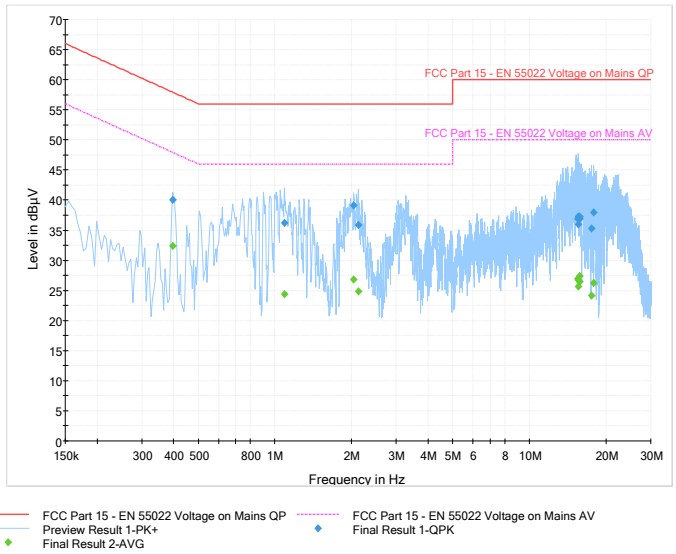
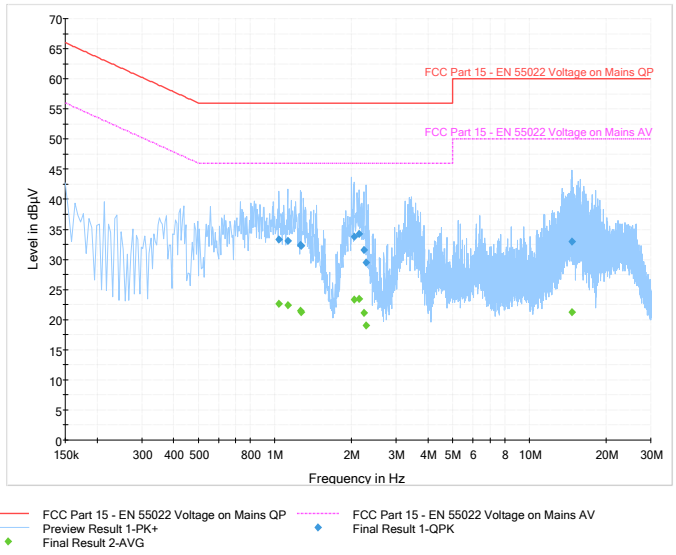


Figure 1-24: N Lines



Test Configuration 13

Date of the test: February 12, 2013
The environmental conditions were: Temperature: 24.6 °C
Humidity: 20.0 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.150	L1	32.82	11.20	44.02	66.00	56.00	-21.98
0.150	N	30.43	11.23	41.67	66.00	56.00	-24.33
0.402	L1	28.46	10.01	38.46	57.80	47.80	-19.34
0.452	N	24.58	9.94	34.52	56.80	46.80	-22.28
1.055	L1	30.05	9.80	39.85	56.00	46.00	-16.15
2.099	L1	31.08	9.83	40.91	56.00	46.00	-15.09
2.211	L1	29.39	9.83	39.23	56.00	46.00	-16.78
15.941	L1	33.39	10.08	43.47	60.00	50.00	-16.53
16.310	L1	28.60	10.13	38.73	60.00	50.00	-21.27

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector.
See figure 1-25 and figure 1-26 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 13

Figure 1-25: L1 lines

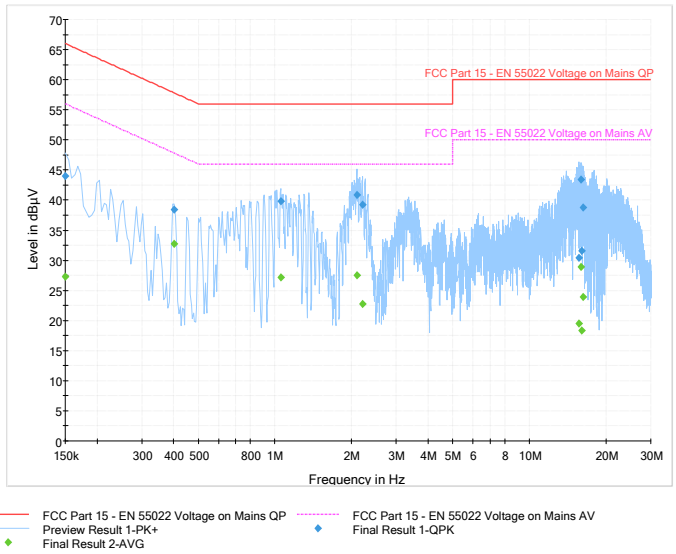
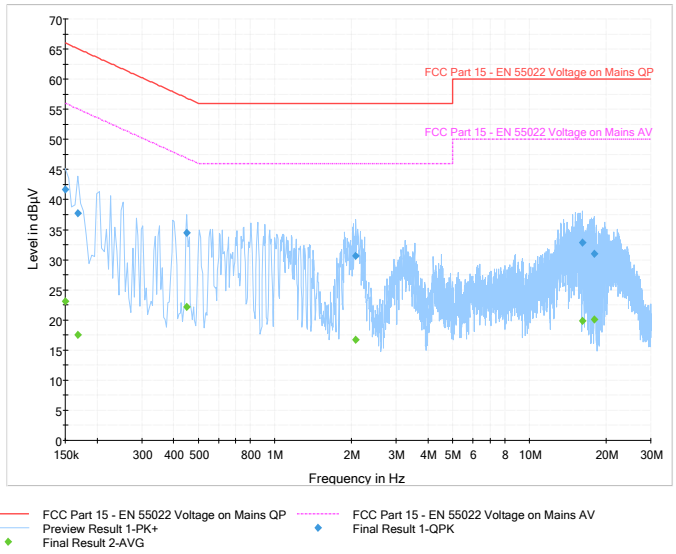


Figure 1-26: N Lines



Test Configuration 14

Date of the test: February 12, 2013
The environmental conditions were: Temperature: 24.6 °C
Humidity: 20.0 %

Frequency (MHz)	Line	Reading (QP) (dBµV)	Correction Factor (dB)	Corrected Reading (QP) (dBµV)	Limit (QP) (dBµV)	Limit (AV) (dBµV)	Margin (QP) Limits (dB)
0.303	L1	25.29	10.16	35.45	60.20	50.20	-24.75
0.438	N	26.91	9.96	36.88	57.10	47.10	-20.22
1.190	N	24.88	9.80	34.68	56.00	46.00	-21.32
1.460	N	23.00	9.81	32.81	56.00	46.00	-23.20
1.559	N	23.67	9.81	33.48	56.00	46.00	-22.52
1.716	L1	24.80	9.81	34.61	56.00	46.00	-21.39

All other emissions are at least 25 dB below the limit.
Measurements were done with the quasi-peak detector.
See figure 1-27 and figure 1-28 for the measurement plot of the L1 and N lines of AC power line conducted emissions.

AC Conducted Emissions Test Graphs

Test Configuration 14

Figure 1-27: L1 lines

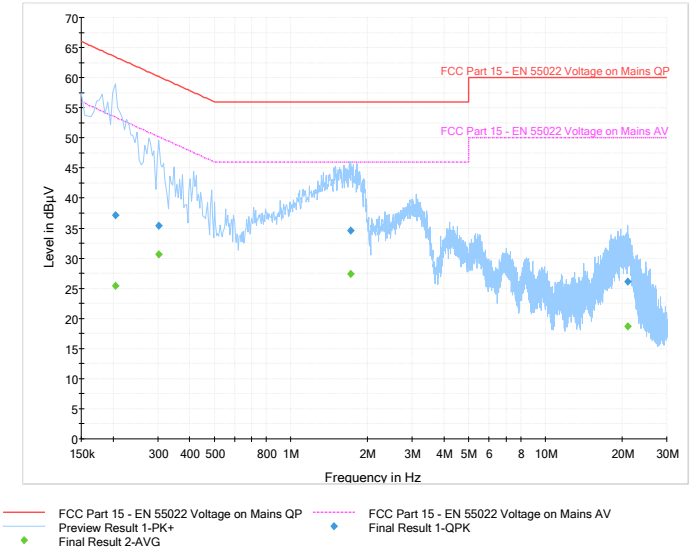
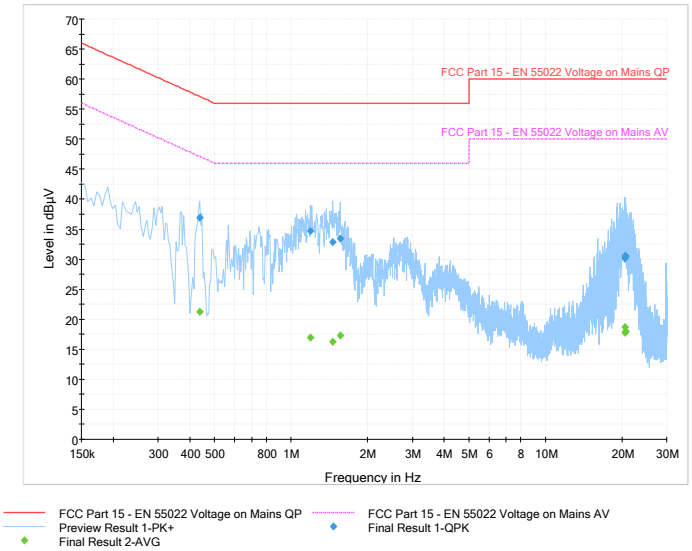


Figure 1-28: N Lines



APPENDIX 2 - RADIATED EMISSIONS TEST DATA

Radiated Emissions Test Results

The following tests were performed by Savtej Sandhu and Feras Obeid.

Test Configuration 1

Date of the test: January 24, 2013
The environmental conditions were: Temperature: 25.2 °C
Humidity: 15.0 %

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)
42.400	V	1.44	124.00	Q.P.	36.85	-15.23	21.62	40.00	-18.38
48.450	V	1.41	302.00	Q.P.	31.40	-16.35	15.05	40.00	-24.95
85.800	V	1.40	159.00	Q.P.	42.65	-13.75	28.90	40.00	-11.10
140.150	V	1.43	262.00	Q.P.	33.86	-11.79	22.07	43.50	-21.43
345.650	V	2.76	353.00	Q.P.	26.16	-1.94	24.22	46.00	-21.78

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 2

Date of the test: January 24, 2013
The environmental conditions were: Temperature: 25.2 °C
Humidity: 15.0 %

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)
43.050	V	1.44	69.00	Q.P.	36.57	-15.37	21.20	40.00	-18.80
53.750	V	2.44	36.00	Q.P.	33.28	-16.98	16.30	40.00	-23.70
54.700	V	1.96	104.00	Q.P.	37.89	-16.89	21.00	40.00	-19.00
68.650	V	1.60	82.00	Q.P.	38.87	-16.09	22.78	40.00	-17.22
90.050	V	2.40	12.00	Q.P.	34.80	-13.17	21.63	43.50	-21.87
878.250	V	2.58	214.00	Q.P.	23.62	7.55	31.17	46.00	-14.83

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 3

Date of the test: January 24, 2013
The environmental conditions were: Temperature: 25.2 °C
Humidity: 14.6 %

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)
42.350	V	2.72	33.00	Q.P.	31.66	-15.22	16.44	40.00	-23.56
51.900	V	1.54	314.00	Q.P.	38.82	-16.98	21.84	40.00	-18.16
971.950	V	2.79	352.00	Q.P.	22.93	9.64	32.57	54.00	-21.43
972.000	V	3.87	54.00	Q.P.	22.92	9.65	32.57	54.00	-21.43

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 4

Date of the test: January 25, 2013
The environmental conditions were: Temperature: 25.2 °C
Humidity: 14.6 %

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)
54.200	V	2.92	58.00	Q.P.	38.59	-17.01	21.58	40.00	-18.42
69.250	V	2.04	112.00	Q.P.	34.54	-16.02	18.52	40.00	-21.48
81.650	V	1.45	6.00	Q.P.	43.56	-14.18	29.38	40.00	-10.62
98.500	H	2.76	190.00	Q.P.	37.45	-12.30	25.15	43.50	-18.35
130.300	H	2.20	11.00	Q.P.	30.59	-11.89	18.70	43.50	-24.80
145.900	V	1.57	234.00	Q.P.	31.28	-11.62	19.66	43.50	-23.84

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 5

Date of the test: January 25, 2013
The environmental conditions were: Temperature: 25.2 °C
Humidity: 15.0 %

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)
40.850	V	1.48	162.00	Q.P.	31.52	-14.97	16.55	40.00	-23.45
54.850	V	2.59	140.00	Q.P.	34.81	-16.86	17.95	40.00	-22.05
80.900	V	2.93	44.00	Q.P.	33.80	-14.30	19.50	40.00	-20.50
97.550	H	2.98	186.00	Q.P.	32.53	-12.35	20.18	43.50	-23.32
972.300	V	2.66	332.00	Q.P.	22.93	9.61	32.54	54.00	-21.46

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 6

Date of the test: February 06, 2013
The environmental conditions were: Temperature: 25.1 °C
Humidity: 15.1 %

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)
48.750	V	1.54	40.00	Q.P.	41.11	-16.34	24.77	40.00	-15.23
85.850	V	1.84	292.00	Q.P.	35.44	-13.74	21.70	40.00	-18.30
127.000	V	1.79	101.00	Q.P.	30.71	-11.73	18.98	43.50	-24.52
188.800	V	1.49	139.00	Q.P.	28.99	-10.09	18.90	43.50	-24.60
265.650	H	1.13	347.00	Q.P.	33.77	-8.36	25.41	46.00	-20.59

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 7

Date of the test: February 08, 2013
The environmental conditions were: Temperature: 25.1 °C
Humidity: 15.1 %

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)
36.150	V	1.86	73.00	Q.P.	34.32	-13.58	20.74	40.00	-19.26
57.200	V	1.41	96.00	Q.P.	37.06	-16.94	20.12	40.00	-19.88
128.200	H	1.89	350.00	Q.P.	38.57	-11.76	26.81	43.50	-16.69
216.000	H	1.80	300.00	Q.P.	39.12	-8.81	30.31	43.50	-13.19
239.950	V	3.18	178.00	Q.P.	31.78	-9.81	21.97	46.00	-24.03
240.000	V	1.71	73.00	Q.P.	39.32	-9.81	29.51	46.00	-16.49
432.000	H	2.07	353.00	Q.P.	39.67	-2.65	37.02	46.00	-8.98
864.000	V	2.01	354.00	Q.P.	35.22	6.43	41.65	46.00	-4.35

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 8

Date of the test: February 11, 2013
The environmental conditions were: Temperature: 25.1 °C
Humidity: 15.1 %

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)
30.150	V	1.46	282.00	Q.P.	31.56	-11.71	19.85	40.00	-20.15
32.300	V	1.49	165.00	Q.P.	43.23	-12.38	30.85	40.00	-9.15
35.750	V	3.90	215.00	Q.P.	31.79	-13.49	18.30	40.00	-21.70
85.300	V	1.44	145.00	Q.P.	33.00	-13.85	19.15	40.00	-20.85
153.850	H	2.78	317.00	Q.P.	34.97	-11.89	23.08	43.50	-20.42
341.200	V	2.56	182.00	Q.P.	23.52	-2.40	21.12	46.00	-24.88

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 9

Date of the test: February 08, 2013
The environmental conditions were: Temperature: 25.1 °C
Humidity: 15.1 %

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)
43.350	V	1.48	159.00	Q.P.	32.84	-15.46	17.38	40.00	-22.62
82.550	V	1.76	234.00	Q.P.	29.29	-14.13	15.16	40.00	-24.84
139.950	V	1.81	64.00	Q.P.	34.06	-11.78	22.28	43.50	-21.22
175.050	V	1.68	262.00	Q.P.	30.24	-10.85	19.39	43.50	-24.11
432.000	H	2.64	302.00	Q.P.	25.87	-2.65	23.22	46.00	-22.78

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 10

Date of the test: February 13, 2013
The environmental conditions were: Temperature: 25.1 °C
Humidity: 15.1 %

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)
30.300	V	1.49	69.00	Q.P.	36.60	-11.77	24.83	40.00	-15.17
35.350	V	1.60	144.00	Q.P.	33.71	-13.43	20.28	40.00	-19.72
63.500	V	1.47	221.00	Q.P.	45.94	-16.60	29.34	40.00	-10.66
82.350	V	1.73	345.00	Q.P.	33.94	-14.13	19.81	40.00	-20.19
217.600	H	1.48	164.00	Q.P.	36.96	-9.03	27.93	46.00	-18.07
483.200	H	1.84	181.00	Q.P.	35.17	-0.84	34.33	46.00	-11.67
771.200	H	1.13	86.00	Q.P.	23.90	4.98	28.88	46.00	-17.12

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 11

Date of the test: February 13, 2013
The environmental conditions were: Temperature: 25.1 °C
Humidity: 15.1 %

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)
100.550	H	1.49	353.00	Q.P.	52.48	-12.14	40.34	43.50	-3.16
111.700	V	3.79	236.00	Q.P.	39.47	-11.35	28.12	43.50	-15.38
128.400	H	1.67	7.00	Q.P.	41.97	-11.77	30.20	43.50	-13.30
385.000	H	2.28	7.00	Q.P.	32.71	-4.05	28.66	46.00	-17.34
742.550	H	1.54	24.00	Q.P.	38.85	4.23	43.08	46.00	**-2.92**
891.050	H	1.70	283.00	Q.P.	27.10	7.64	34.74	46.00	-11.26

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 12

Date of the test: January 25, 2013
The environmental conditions were: Temperature: 25.2 °C
Humidity: 15.0 %

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)
40.700	V	2.00	310.00	Q.P.	32.00	-14.93	17.07	40.00	-22.93
50.650	V	1.45	335.00	Q.P.	33.50	-16.72	16.78	40.00	-23.22

All other emissions are at least 25 dB below the limit.

Radiated Emissions Test Results cont'd

Test Configuration 13

Date of the test: February 13, 2013
The environmental conditions were: Temperature: 25.1 °C
Humidity: 15.1 %

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)
30.000	H	3.04	244.00	Q.P.	28.68	-11.64	17.04	40.00	-22.96
88.900	V	1.48	268.00	Q.P.	40.72	-13.34	27.38	43.50	-16.12
119.600	H	2.83	12.00	Q.P.	39.82	-11.24	28.58	43.50	-14.92

All other emissions are at least 25 dB below the limit.