FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

DEACTIVATOR BOARD

MODEL NUMBER: COUNTERPOINT ID

FCC ID: DO4CPID
IC: 3356B-CPID

REPORT NUMBER: 10181914B

ISSUE DATE: 2014-04-02

Prepared for
CHECKPOINT SYSTEMS
101 WOLF DRIVE
THOROFARE
NJ, 08086, USA

Prepared by
UL LLC
1285 WALT WHITMAN RD.
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NVLAP LAB CODE 100255-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	2/21/14	Initial Issue	M. Antola
A	3/7/14	Revised model number	M. Antola
B	4/2/14	Updated radiated emissions data	M. Antola

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UL LLC FORM NO: CCSUP4701D
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: CHECKPOINT SYSTEMS
101 WOLF DRIVE
THOROFARE, NJ, 08086, USA

EUT DESCRIPTION: DEACTIVATOR BOARD

MODEL: COUNTERPOINT ID

SERIAL NUMBER: NON-SERIALIZED PRODUCTION UNIT

DATE TESTED: 2/4/14 – 4/2/14

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	Pass
INDUSTRY CANADA RSS-210 Issue 8, Annex 2	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations of these calculations. The results show that the equipment is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation, as described by the referenced documents. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL By:

Bob DeLisi
WiSE Principal Engineer
UL

Tested By:

Mike Antola
WiSE Project Lead
UL

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.3-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 1285 Walt Whitman Rd. Melville, NY 11747, USA.

UL Melville is accredited by NVLAP, Laboratory Code 100255-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/1002550.htm.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	± 3.3 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.00 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a transmitter, Model: Counterpoint iD, designed to detect and/or deactivate security tags. The EUT is intended to operate over the frequency range 7.4-9.8MHz in discrete bands. See summary table below. All radiated testing was performed with the EUT set to the lowest band (Index 1) and highest band (Index 7). All other tests were performed in one representative band only.

Index	Frequency Range	16 Frequencies in the range
0	default table 7.6 to 8.7 MHz (DMS index 0)	FREQ_8610, FREQ_8555, FREQ_8500, FREQ_8446, FREQ_8391, FREQ_8337, FREQ_8282, FREQ_8227, FREQ_8173, FREQ_8118, FREQ_8063, FREQ_8009, FREQ_7954, FREQ_7899, FREQ_7845, FREQ_7790
1	7.4 to 9.0 MHz (DMS index 1) FCC only	FREQ_7400, FREQ_7500, FREQ_7600, FREQ_7700, FREQ_7800, FREQ_7900, FREQ_8000, FREQ_8100, FREQ_8200, FREQ_8300, FREQ_8400, FREQ_8500, FREQ_8600, FREQ_8700, FREQ_8800, FREQ_8900
2	7.4 to 8.8 MHz (DMS index 2)	FREQ_7400, FREQ_7490, FREQ_7580, FREQ_7670, FREQ_7760, FREQ_7850, FREQ_7940, FREQ_8030, FREQ_8120, FREQ_8200, FREQ_8300, FREQ_8390, FREQ_8480, FREQ_8570, FREQ_8660, FREQ_8750
3	7.8 to 9.4 MHz (DMS index 3) FCC only	FREQ_7800, FREQ_7900, FREQ_8000, FREQ_8100, FREQ_8200, FREQ_8300, FREQ_8400, FREQ_8500, FREQ_8600, FREQ_8700, FREQ_8800, FREQ_8900, FREQ_9000, FREQ_9100, FREQ_9200, FREQ_9300
4	7.8 to 9.8 MHz (DMS index 4) FCC only	FREQ_7800, FREQ_7940, FREQ_8060, FREQ_8190, FREQ_8320, FREQ_8450, FREQ_8570, FREQ_8710, FREQ_8840, FREQ_8970, FREQ_9100, FREQ_9230, FREQ_9360, FREQ_9480, FREQ_9620, FREQ_9750
5	7.5 to 8.6 MHz (DMS index 5)	FREQ_7500, FREQ_7580, FREQ_7640, FREQ_7710, FREQ_7790, FREQ_7850, FREQ_7940, FREQ_8000, FREQ_8060, FREQ_8140, FREQ_8200, FREQ_8280, FREQ_8350, FREQ_8420, FREQ_8480, FREQ_8570
6	7.7 to 8.8 MHz (DMS index 6)	FREQ_7700, FREQ_7760, FREQ_7830, FREQ_7900, FREQ_7970, FREQ_8030, FREQ_8100, FREQ_8190, FREQ_8250, FREQ_8320, FREQ_8400, FREQ_8480, FREQ_8540, FREQ_8610, FREQ_8680, FREQ_8750
7	8.5 to 9.8 MHz (DMS index 7) FCC only	FREQ_8500, FREQ_8600, FREQ_8680, FREQ_8750, FREQ_8840, FREQ_8920, FREQ_9000, FREQ_9100, FREQ_9160, FREQ_9230, FREQ_9320, FREQ_9400, FREQ_9480, FREQ_9560, FREQ_9640, FREQ_9720

The EUT conform to part 15.205(d)(1) of CFR 47.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an inductive loop antenna, Type: Counterpoint pad, which contains one turn of the coil. The antenna has dimension of 12" x 12" which is representative of the worse-case antenna type (i.e. yields the highest field strength) that could be used with this device, per the manufacturer. List of supported antennas are provided below.

Antenna Type	Antenna Structure	Antenna Size
Counterpoint pad	1 turn loop	12" x 12"
Royston antenna	1 turn loop	13" x 6"
NCR 7876	2 turn loop	8.5" x 6.5"
NCR 7878	1 turn loop	6" x 6"
Conveyor Deactivation Pad	1 turn loop	9.8" x 9.8"
Handheld deactivator	1 turn loop	10" x 8"
Hand scan antenna	1 turn loop	6.8" x 1.5"
Sheet deactivator	1 turn loop	9.4" x 9.4"
Magellan 8400/9800	1 turn loop	8" x 8"
Metrologic MS2420	1 turn loop	8" x 8"
Motorola MP6000	1 turn loop	8" x 8"

Two versions of connectors are available with this product – molex connector and RJ12 connector. It is required that if the molex connector option is used, then the system is to be installed by professional Checkpoint personnel only. When the RJ12 option is used, the connection can be made by the end-user since this is considered a unique connector under this configuration. Refer to separate antenna exhibit for details.

5.3. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was version 0.16RC.

The EUT driver software installed during testing was DMS version 1.08.095.

The test utility software used during testing was DMS version 1.08.095.

5.4. WORST-CASE CONFIGURATION AND MODE

The EUT was initially investigated in each of the three orthogonal axes to determine the worst-case orientation. It was determined that the X-axis (lying flat on the table) yielded the highest readings, thus all testing was performed in this axis. Testing was performed on the min and max channel bands.

5.5. MODIFICATIONS

No modifications were made during testing.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Antenna	Checkpoint	12"x12" Antenna Pad	0732489000L2693275	-
Power Adapter	ENG	3A-124DA12	N/A	-

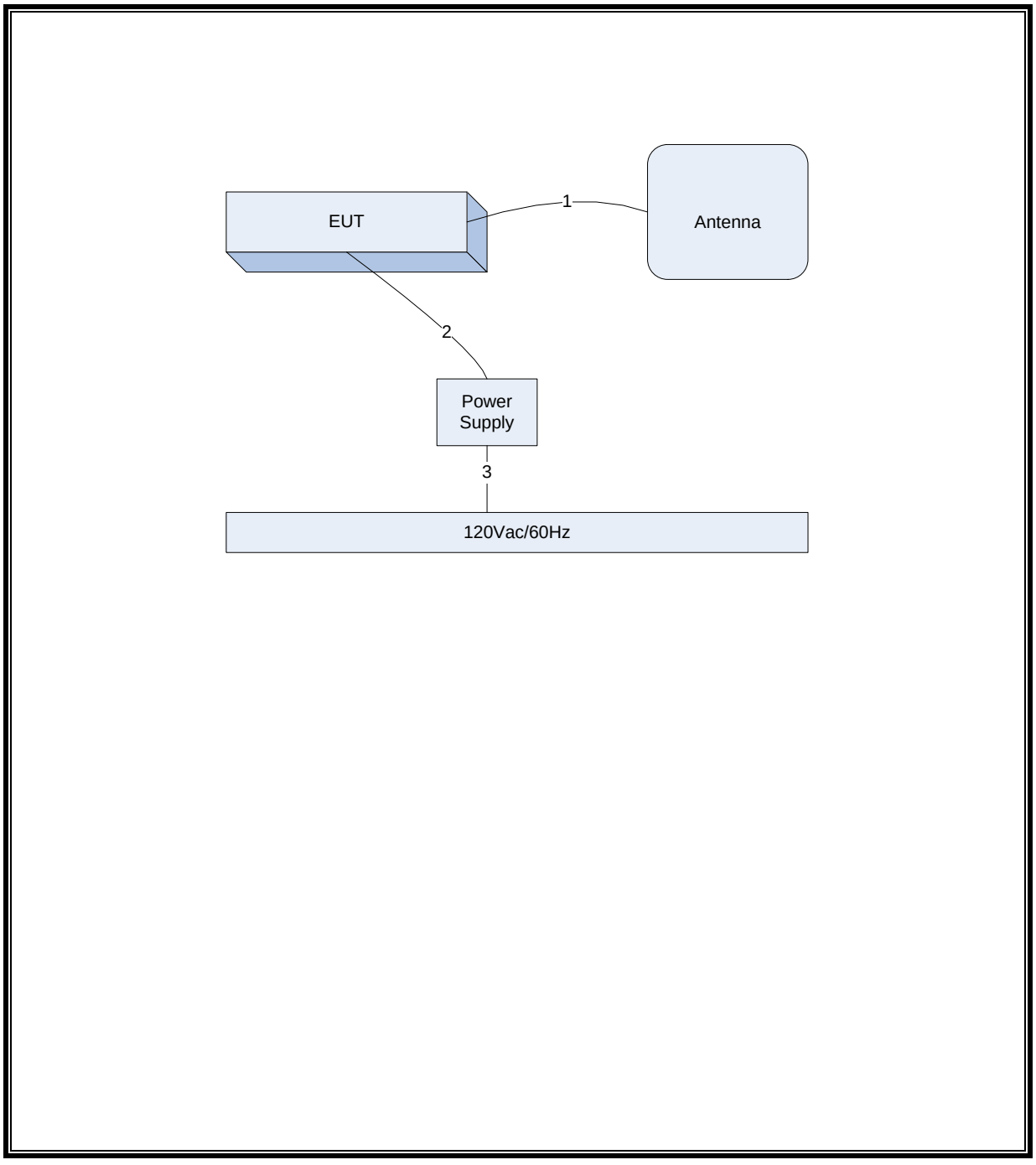
I/O CABLES

I/O CABLE LIST					
Cable No.	**Port**	**# of Identica Ports**	**Cable Type**	**Cable Length**	**Remarks**
1	RF Interface	1	Shielded	<3M	None
2	DC	1	Unshielded	<3M	None
3	AC	1	Unshielded	<3M	None

TEST SETUP

The EUT is evaluated as a stand-alone device during the tests. Test software exercised the radio module.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

RADIATED EMISSIONS / 6dB BANDWIDTH / DUTY CYCLE					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due
9kHz-30MHz					
EMI Receiver	Rohde & Schwarz	ESCI7	75141	2013-01-30	2014-01-31
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2013-01-30	2014-01-31
Active Loop Antenna	EMCO	6507	ME5A-288	2013-12-02	2014-12-02
Switch Driver	HP	11713A	ME7A-627	N/A	N/A
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A
RF Switch Box	UL	1	44398	N/A	N/A
Measurement Software	UL	Version 9.5	44740	N/A	N/A
Temp/Humidity/ Pressure Meter	Cole Parmer	99760-00	4268	2012-12-21	2014-12-21
Multimeter	Fluke	83III	ME5B-305	2013-01-28	2014-01-31
30-1000MHz					
EMI Receiver	Rohde & Schwarz	ESCI7	75141	2013-01-30	2014-01-31
Bicon Antenna	Schaffner	VBA6106A	43441	2013-11-27	2014-11-27
Log-P Antenna	Schaffner	UPA6109	44067	2013-07-09	2014-07-09
Switch Driver	HP	11713A	ME7A-627	N/A	N/A
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A
RF Switch Box	UL	1	44398	N/A	N/A
Measurement Software	UL	Version 9.5	44740	N/A	N/A
Temp/Humidity/ Pressure Meter	Cole Parmer	99760-00	4268	2012-12-21	2014-12-21
Multimeter	Fluke	83III	ME5B-305	2013-01-28	2014-01-31

CONDUCTED EMISSIONS					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due
Conducted Emissions – GP 1					
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2013-01-29	2014-01-31
LISN	Solar	9252-50-R-24-BNC	ME5A-636	2013-01-31	2014-01-31
Switch Driver	HP	11713A	44397	N/A	N/A
RF Switch Box	UL	4	44404	N/A	N/A
Measurement Software	UL	Version 9.5	44736	N/A	N/A
Temp/Humidity/ Pressure Meter	Cole Parmer	99760-00	43734	2012-03-13	2014-03-13
Multimeter	Fluke	83III	ME5B-305	2013-01-28	2014-01-31

7. DUTY CYCLE

LIMITS

FCC §15.35 (c)
The measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to notification or verification.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer or radiated field strength. The RBW is set to 8 MHz and the VBW is set to 50 MHz. The sweep time is coupled and the span is set to 0 Hz. The number of pulses is measured and calculated in a 100 ms scan.

CALCULATION

Average Reading = Peak Reading (dBuV/m) + 20log (Duty Cycle), Where Duty Cycle is
(# of long pulses * long pulse width) + (# of short pulses * short pulse width) / 100 or T

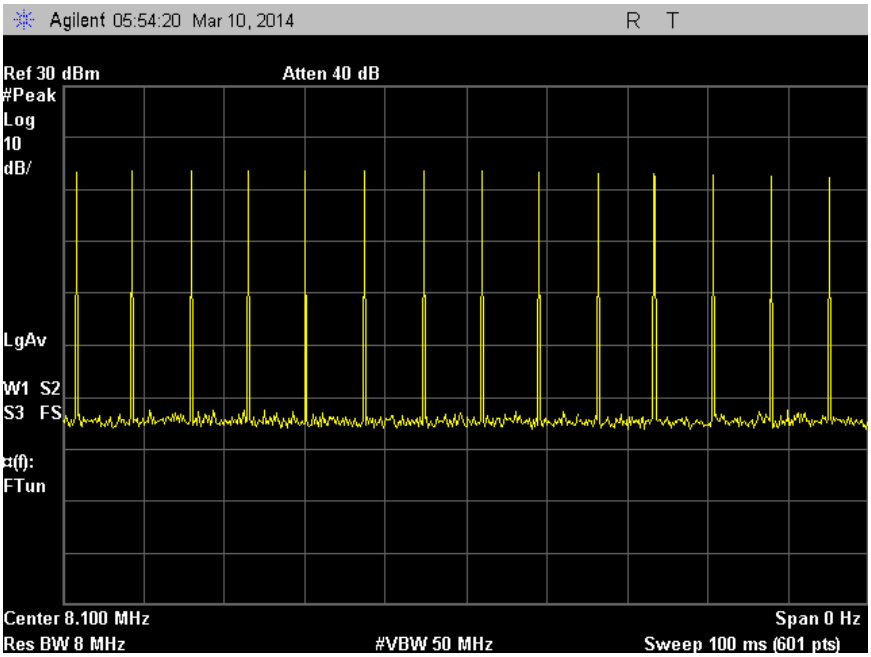
RESULTS

No non-compliance noted:

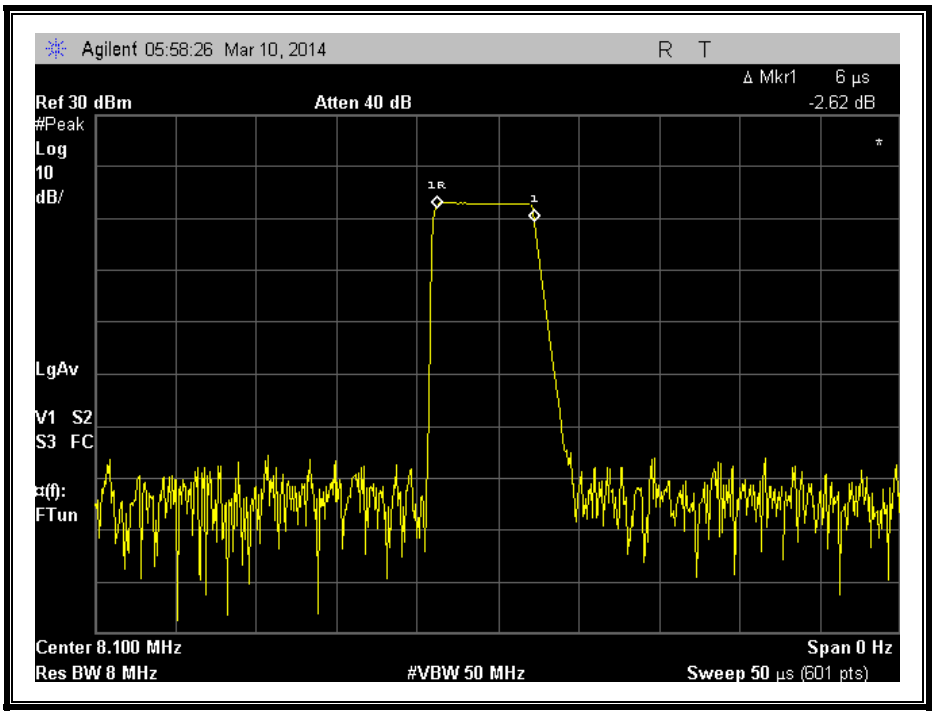
One Period (ms)	Total Pulse Width (ms)	# of Long Pulses	Short Width (ms)	# of Short Pulses	Duty Cycle	20*Log Duty Cycle (dB)
100	0.006	14	0.00	0	0.001	-61.51

ONE PERIOD

PULSES IN A 100ms WINDOW



SINGLE PULSE WIDTH



8. 6dB BANDWIDTH

LIMITS

None; for reporting purposes only.

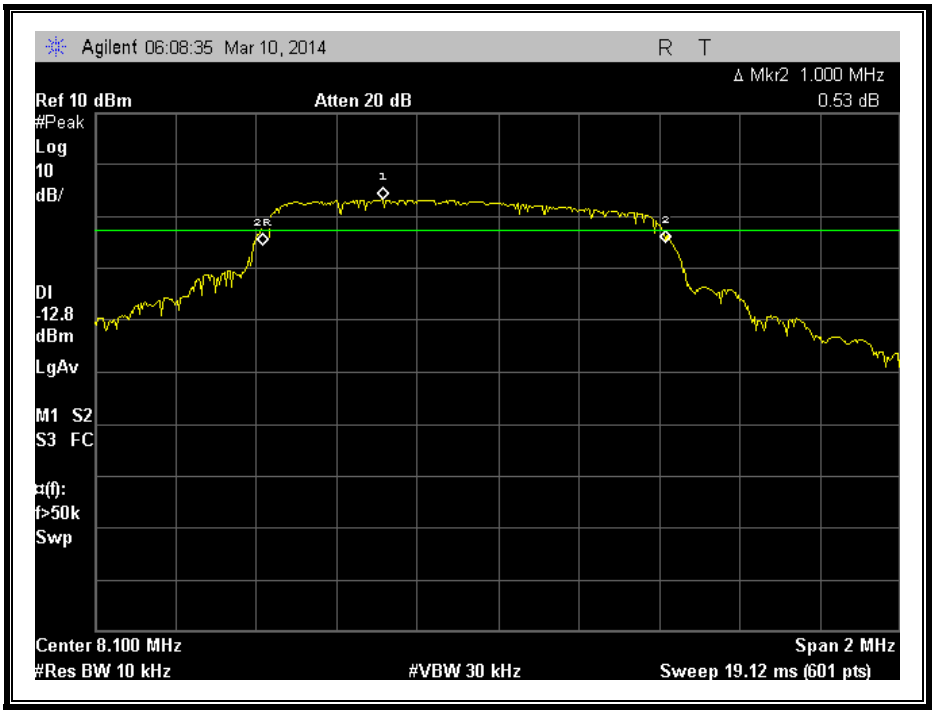
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 6dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

RESULTS

Frequency (MHz)	6dB Bandwidth (KHz)
8.1	1000

6dB BANDWIDTH



9. 99% BANDWIDTH

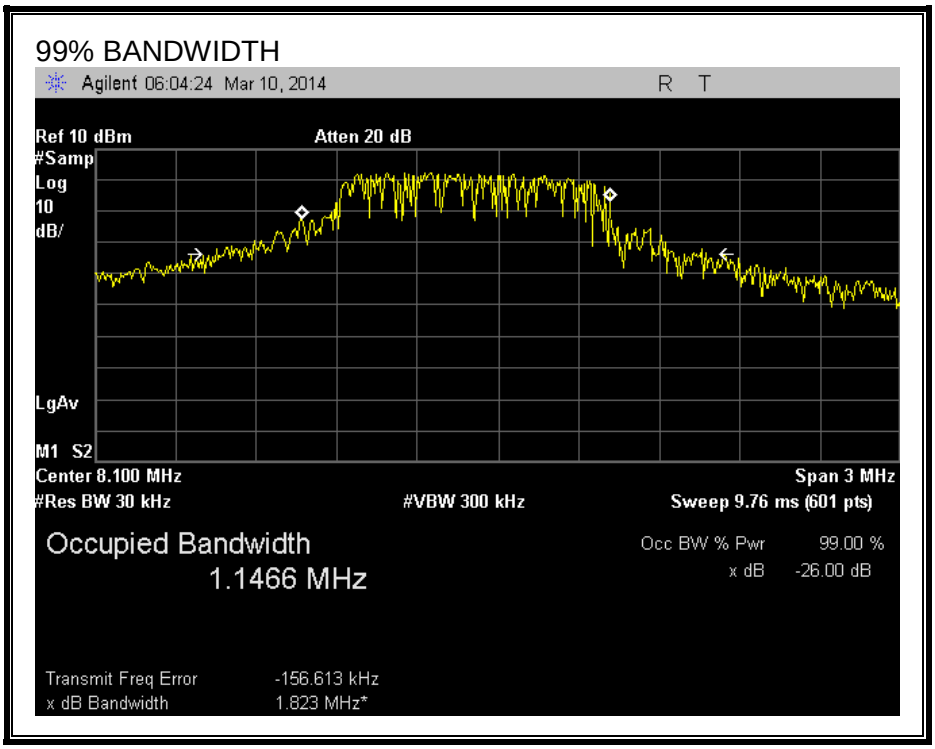
LIMITS

None; for reporting purposes only.

RESULTS

Frequency (MHz)	99% Bandwidth (MHz)
8.1	1.1466

99% BANDWIDTH



10. RADIATED EMISSION TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMIT

§15.223
IC RSS-210, Section 2.6 (Transmitter)
IC RSS-GEN, Section 6 (Receiver)

(a) The field strength of any emissions within the band 1.705–10 MHz shall not exceed 100 microvolts/ meter at 30 meters. However, if the bandwidth of the emissions is less than 10% of the center frequency, the field strength shall not exceed 15 microvolts/meter or (the bandwidth of the device in kHz) divided by (the center frequency of the device in MHz) microvolts/meter at a distance of 30 meters, whichever is the higher level. For the purpose of this Section, bandwidth is determined at the points 6 dB down from the modulated carrier. The emission limits in this paragraph are based on measurement instrumentation employing an average detector. The provisions in Section 15.35(b) for limiting peak emissions apply.

(b) The field strength of any emissions appearing outside of the 1.705– 10 MHz shall not exceed the general radiated emission limits in § 15.209 as follows:
§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.
§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

In addition:

§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

TEST PROCEDURE

ANSI C63.4

The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 9.8 MHz; therefore, the frequency range was investigated from 30 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz.

The emission bandwidth of the EUT is 1MHz. As required by RSS-GEN, peak measurements on the fundamental were made with a 1MHz RBW and 3MHz VBW. Average measurement was derived by applying the duty cycle correction factor (refer to Section 7.0) to this peak measurement.

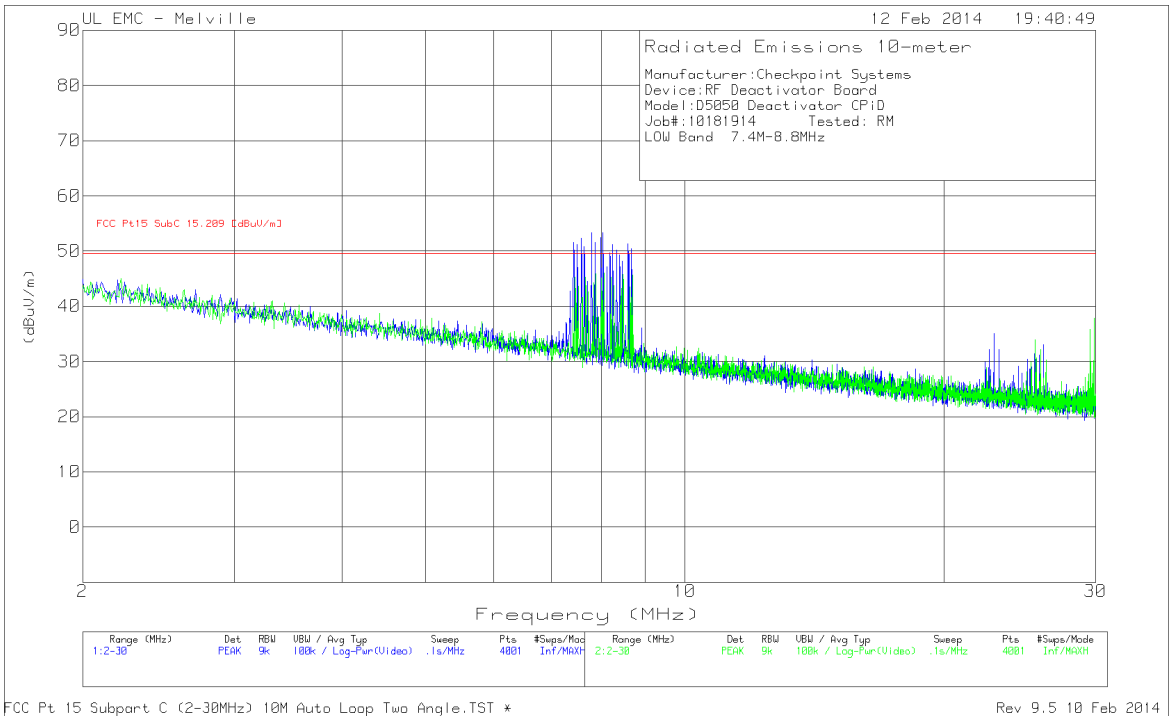
RESULTS

No non-compliance noted:

NOTE: The EUT was initially tested as a stand-alone PCB, outside its enclosure. Even though the enclosure is completely made of plastic, spot checks were conducted to determine what effects the enclosure has on the field strength measurements. Results with and without the enclosure were identical.

10.1.1. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.009 – 30 MHz)

LOW CHANNEL - PLOT



NOTE: No emissions detected above the system noise floor below 2MHz

LOW CHANNEL - DATA

Manufacturer:Checkpoint Systems
Device:RF Deactivator Board
Model:D5050 Deactivator CPiD
Job#:10181914 Tested: RM
LOW Band 7.4M-8.8MHz

Radiated Emission Data

0 Degrees 2 - 30MHz

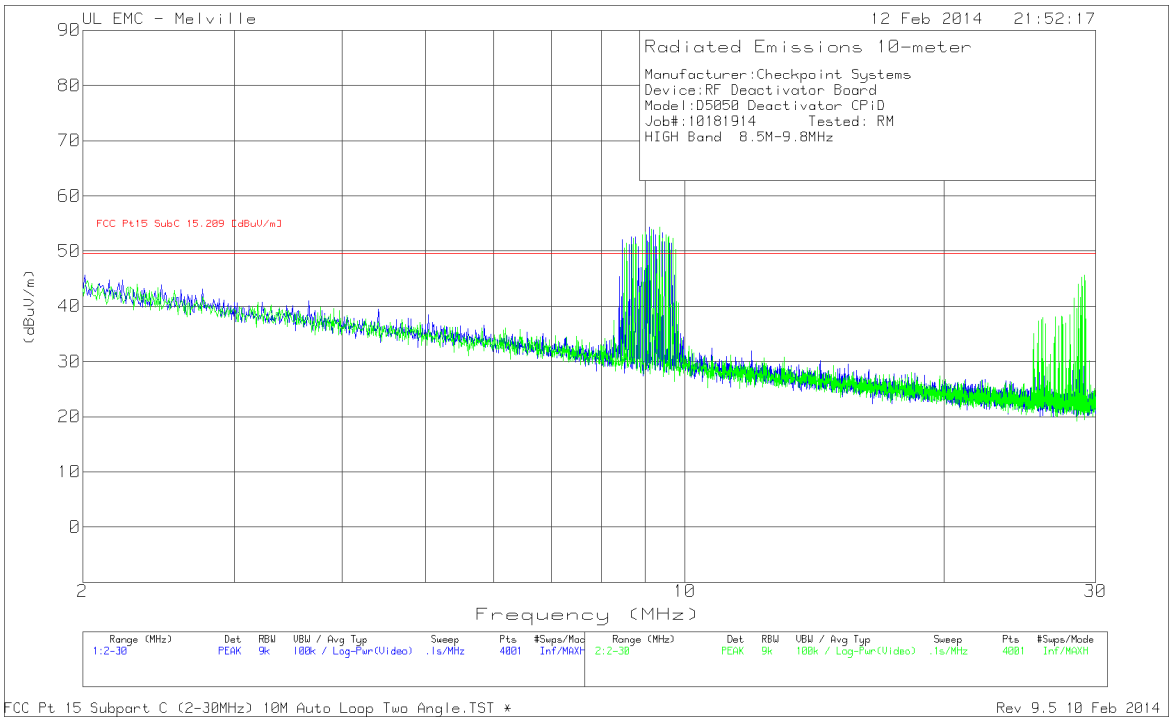
Test Frequency (MHz)	Meter Reading (dBuV)	Detector	AF [dB/m]	GL [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Corrected Average Reading (dBuV/m)	FCC Pt15 SubC 15.209 [dBuV/m]	Margin (dB)	FCC Pt15 SubC 15.223 [dBuV/m]	Margin (dB)	FCC Pt15 SubC Peak [dBuV/m]	Margin (dB)	Azimuth [Degs]
7.96	51.28	PK	16.4	0.4	-61.51	68.08	6.57	-	-	60	-53.43	80	-11.92	281
7.425	46.23	PK	16.5	0.4	-61.51	63.13	1.62	-	-	60	-58.38	80	-16.87	116
7.586	46.27	PK	16.4	0.4	-61.51	63.07	1.56	-	-	60	-58.44	80	-16.93	44
7.803	49	PK	16.4	0.4	-61.51	65.8	4.29	-	-	60	-55.71	80	-14.20	135
8.041	50.66	PK	16.4	0.4	-61.51	67.46	5.95	-	-	60	-54.05	80	-12.54	94
8.251	51.79	PK	16.5	0.4	-61.51	68.69	7.18	-	-	60	-52.82	80	-11.31	338
8.594	51.44	PK	16.5	0.4	-61.51	68.34	6.83	-	-	60	-53.17	80	-11.66	244
7.502	46.31	PK	16.4	0.4	-61.51	63.11	1.60	-	-	60	-58.40	80	-16.89	130
7.866	49.11	PK	16.4	0.4	-61.51	65.91	4.40	-	-	60	-55.60	80	-14.09	175
7.992	51.43	PK	16.4	0.4	-61.51	68.23	6.72	-	-	60	-53.28	80	-11.77	253
26.054	6.82	QP	16.8	0.7	-	24.32	-	49.5	-25.18	-	-	-	-	324
23.074	3.35	QP	16.8	0.7	-	20.85	-	49.5	-28.65	-	-	-	-	34

90 Degrees 2 - 30MHz

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	AF [dB/m]	GL [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Corrected Average Reading (dBuV/m)	FCC Pt15 SubC 15.209 [dBuV/m]	Margin (dB)	FCC Pt15 SubC 15.223 [dBuV/m]	Margin (dB)	FCC Pt15 SubC Peak [dBuV/m]		Azimuth [Degs]
7.46	56.49	PK	16.5	0.4	-61.51	73.39	11.88	-	-	60	-48.12	80	-6.61	269
7.67	57.43	PK	16.4	0.4	-61.51	74.23	12.72	-	-	60	-47.28	80	-5.77	149
7.887	58.11	PK	16.4	0.4	-61.51	74.91	13.40	-	-	60	-46.60	80	-5.09	262
8.062	58.54	PK	16.4	0.4	-61.51	75.34	13.83	-	-	60	-46.17	80	-4.66	275
8.209	61.76	PK	16.4	0.4	-61.51	78.56	17.05	-	-	60	-42.95	80	-1.44	12
8.482	59.9	PK	16.5	0.4	-61.51	76.8	15.29	-	-	60	-44.71	80	-3.20	114
8.699	59.16	PK	16.5	0.4	-61.51	76.06	14.55	-	-	60	-45.45	80	-3.94	40
26.041	7.53	QP	16.8	0.7	-	25.03	-	49.5	-24.47	-	-	-	-	17
29.5613	6.47	QP	16.6	0.7	-	23.77	-	49.5	-25.73	-	-	-	-	15

PK - Peak detector (Maximized)
QP - Quasi-Peak detector

HIGH CHANNEL - PLOT



NOTE: No emissions detected above the system noise floor below 2MHz

HIGH CHANNEL – DATA

Manufacturer:Checkpoint Systems
Device:RF Deactivator Board
Model:D5050 Deactivator CPiD
Job#:10181914 Tested: RM
HIGH Band 8.5M-9.8MHz

Radiated Emission Data

0 Degrees 2 - 30MHz

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	AF [dB/m]	GL [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Corrected Average Reading (dBuV/m)	FCC Pt15 SubC 15.209 [dBuV/m]	Margin (dB)	FCC Pt15 SubC 15.223 [dBuV/m]	Margin (dB)	FCC Pt15 SubC Peak [dBuV/m]	Margin (dB)	Azimuth [Degs]
8.461	51.36	PK	16.5	0.4	-61.51	68.26	6.75	-	-	60	-53.25	80	-11.74	328
8.629	51.24	PK	16.5	0.4	-61.51	68.14	6.63	-	-	60	-53.37	80	-11.86	133
8.678	51.37	PK	16.5	0.4	-61.51	68.27	6.76	-	-	60	-53.24	80	-11.73	133
8.769	50.2	PK	16.6	0.4	-61.51	67.2	5.69	-	-	60	-54.31	80	-12.80	359
8.839	49.44	PK	16.6	0.4	-61.51	66.44	4.93	-	-	60	-55.07	80	-13.56	111
9.035	46.81	PK	16.6	0.4	-61.51	63.81	2.30	-	-	60	-57.70	80	-16.19	279
9.105	45.89	PK	16.6	0.4	-61.51	62.89	1.38	-	-	60	-58.62	80	-17.11	219
9.203	43.78	PK	16.6	0.4	-61.51	60.78	-0.73	-	-	60	-60.73	80	-19.22	219
9.259	42.91	PK	16.6	0.4	-61.51	59.91	-1.60	-	-	60	-61.60	80	-20.09	8
9.42	41.96	PK	16.6	0.5	-61.51	59.06	-2.45	-	-	60	-62.45	80	-20.94	323
9.476	40.29	PK	16.6	0.5	-61.51	57.39	-4.12	-	-	60	-64.12	80	-22.61	138
9.651	38.52	PK	16.6	0.5	-61.51	55.62	-5.89	-	-	60	-65.89	80	-24.38	132

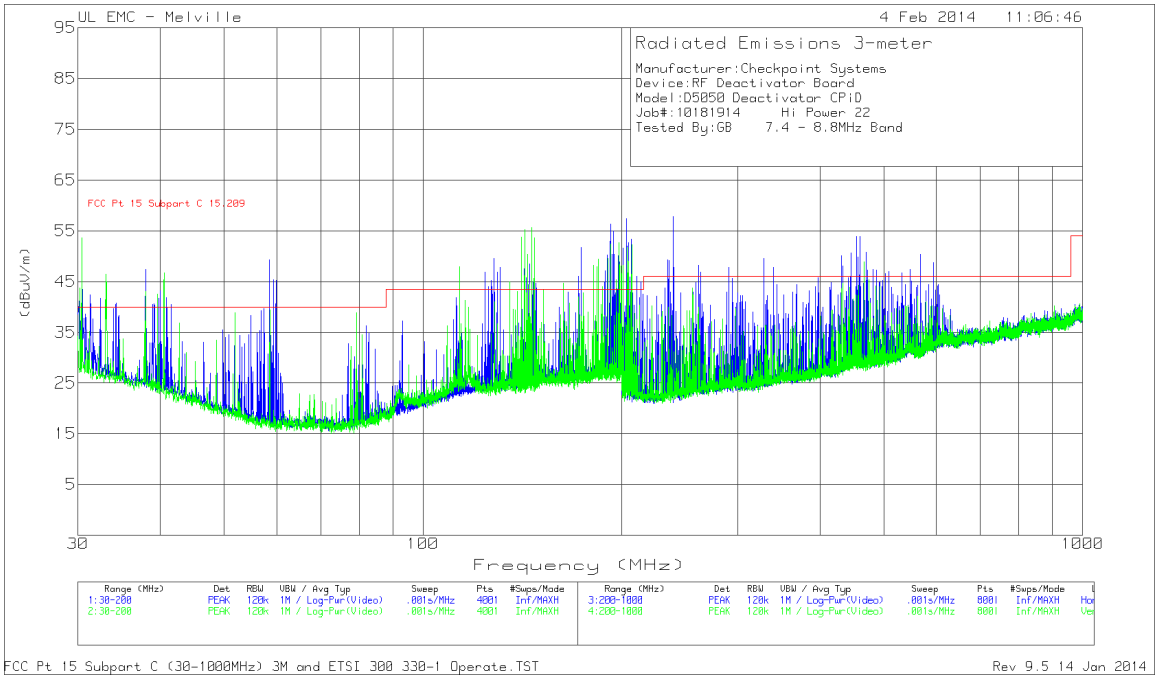
90 Degrees 2 - 30MHz

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	AF [dB/m]	GL [dB]	DCF [dB]	Corrected Reading (dBuV/m)	Corrected Average Reading (dBuV/m)	FCC Pt15 SubC 15.209 [dBuV/m]	Margin (dB)	FCC Pt15 SubC 15.223 [dBuV/m]	Margin (dB)	FCC Pt15 SubC Peak [dBuV/m]	Margin (dB)	Azimuth [Degs]
8.503	61.21	PK	16.5	0.4	-61.51	78.11	16.60	-	-	60	-43.40	80	-1.89	8
8.566	60.27	PK	16.5	0.4	-61.51	77.17	15.66	-	-	60	-44.34	80	-2.83	344
8.713	58.81	PK	16.5	0.4	-61.51	75.71	14.20	-	-	60	-45.80	80	-4.29	359
8.783	54.36	PK	16.6	0.4	-61.51	71.36	9.85	-	-	60	-50.15	80	-8.64	206
8.93	55.37	PK	16.6	0.4	-61.51	72.37	10.86	-	-	60	-49.14	80	-7.63	39
8.993	54.31	PK	16.6	0.4	-61.51	71.31	9.80	-	-	60	-50.20	80	-8.69	39
9.147	51.85	PK	16.6	0.4	-61.51	68.85	7.34	-	-	60	-52.66	80	-11.15	3
9.364	46.28	PK	16.6	0.5	-61.51	63.38	1.87	-	-	60	-58.13	80	-16.62	119
9.511	46.02	PK	16.6	0.5	-61.51	63.12	1.61	-	-	60	-58.39	80	-16.88	65
9.581	46.97	PK	16.6	0.5	-61.51	64.07	2.56	-	-	60	-57.44	80	-15.93	65
9.7	42.38	PK	16.6	0.5	-61.51	59.48	-2.03	-	-	60	-62.03	80	-20.52	210
29.11	11.2	QP	16.6	0.7	-	28.5	-	49.5	-21	-	-	-	-	338
28.3945	8.26	QP	16.7	0.7	-	25.66	-	49.5	-23.84	-	-	-	-	3
28.6189	9.96	QP	16.7	0.8	-	27.46	-	49.5	-22.04	-	-	-	-	354
28.8645	11.08	QP	16.6	0.8	-	28.48	-	49.5	-21.02	-	-	-	-	89
28.943	6.8	QP	16.6	0.8	-	24.2	-	49.5	-25.3	-	-	-	-	38
29.167	8.73	QP	16.6	0.7	-	26.03	-	49.5	-23.47	-	-	-	-	359

PK - Peak detector (Maximized)
QP - Quasi-Peak detector

10.1.2. TX SPURIOUS EMISSION 30 TO 1000 MHz (LOW CHANNEL)

HORIZONTAL & VERTICAL PLOT



HORIZONTAL VERTICAL DATA

Manufacturer:Checkpoint Systems
Device:RF Deactivator Board
Model:D5050 Deactivator CPiD
Job#:10181914 Hi Power 22
Tested By:GB 7.4 - 8.8MHz Band

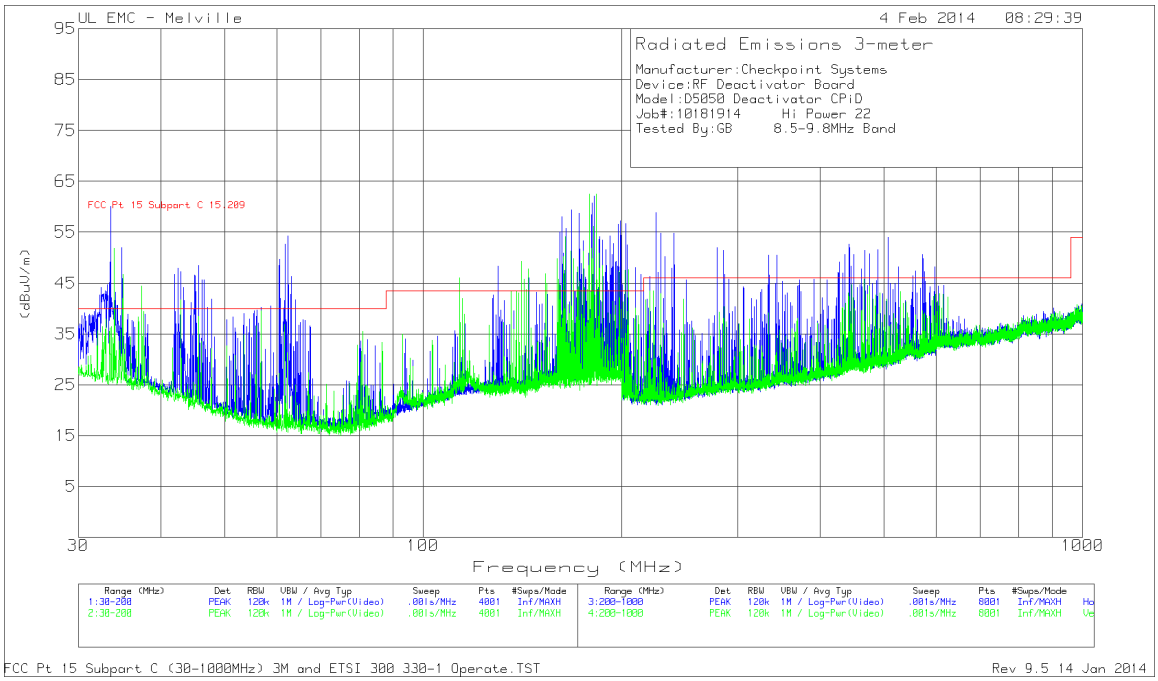
Radiated Emission Data

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	AF [dB/m]	GL-3M [dB]	Corrected Reading (dBuV/m)	FCC Pt 15 Subpart C 15.209	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
30.16	20.96	QP	17.6	0	38.56	40	-1.44	291	214	H
53.7438	2.7	QP	8.3	0.1	11.1	40	-28.9	332	386	H
81.049	4.45	QP	7.1	0.3	11.85	40	-28.15	88	338	H
126.88	11.75	QP	14	0.5	26.25	43.5	-17.25	113	243	H
146.1125	7.61	QP	14.3	0.7	22.61	43.5	-20.89	278	331	H
191.855	16.33	QP	15.6	0.7	32.63	43.5	-10.87	183	172	H
191.855	16.47	QP	15.6	0.7	32.77	43.5	-10.73	183	172	H
34.935	-1.12	QP	16	0	14.88	40	-25.12	305	352	V
59.2225	7.13	QP	7.1	0.2	14.43	40	-25.57	263	218	V
80.1825	2.38	QP	7	0.3	9.68	40	-30.32	182	395	V
112.6	1.85	QP	12.7	0.5	15.05	43.5	-28.45	310	192	V
142.34	-4.01	QP	14.2	0.5	10.69	43.5	-32.81	256	387	V
143.913	10.77	QP	14.3	0.6	25.67	43.5	-17.83	180	277	V
162.8225	7.06	QP	14.8	0.6	22.46	43.5	-21.04	270	303	V
198.815	13.15	QP	15.7	0.8	29.65	43.5	-13.85	235	237	V
240.2975	9.46	QP	11.3	0.8	21.56	46	-24.44	0	147	H
203.8383	29.66	QP	11.1	0.9	41.66	43.5	-1.84	0	147	H
266.4006	0.09	QP	12.4	1	13.49	46	-32.51	179	302	H
347.8813	0.99	QP	14.7	1.3	16.99	46	-29.01	45	319	H
436.5513	11.23	QP	16.5	1.5	29.23	46	-16.77	316	174	H
482.3513	7.85	QP	17.2	1.5	26.55	46	-19.45	240	233	H
577.5188	3.68	QP	19.2	1.7	24.58	46	-21.42	28	170	H
205.4994	28.35	QP	11	0.9	40.25	43.5	-3.25	327	111	H
204.8787	24.79	QP	11	1	36.79	43.5	-6.71	327	111	H
207.2	14.45	QP	10.9	0.7	26.05	43.5	-17.45	188	274	V
432.145	-0.06	QP	16.2	1.5	17.64	46	-28.36	338	288	V
445.3002	9.67	QP	16.8	1.4	27.87	46	-18.13	185	111	V
567.6375	-1.78	QP	18.8	1.8	18.82	46	-27.18	57	149	V
380.5438	6.08	QP	15	1.3	22.38	46	-23.62	104	216	V

QP - Quasi-Peak detector

10.1.3. TX SPURIOUS EMISSION 30 TO 1000 MHz (HIGH CHANNEL)

HORIZONTAL & VERTICAL PLOT



HORIZONTAL & VERTICAL DATA

Manufacturer:Checkpoint Systems
Device:RF Deactivator Board
Model:D5050 Deactivator CPiD
Job#:10181914 Hi Power 22
Tested By:GB 8.5-9.8MHz Band

Radiated Emission Data

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	AF [dB/m]	GL-3M [dB]	Corrected Reading (dBuV/m)	FCC Pt 15 Subpart C 15.209	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
33.97	17.24	QP	16.1	0.1	33.44	40	-6.56	310	297	H
44.475	5.82	QP	12	0.2	18.02	40	-21.98	116	379	H
59.3275	11.66	QP	7	0.2	18.86	40	-21.14	339	165	H
63.026	15	QP	6.7	0.3	22	40	-18	230	236	H
77.82	1.94	QP	6.6	0.3	8.84	40	-31.16	208	272	H
95.395	0.82	QP	10	0.4	11.22	43.5	-32.28	355	347	H
129.3175	2.07	QP	14.1	0.5	16.67	43.5	-26.83	194	151	H
151.2313	2.05	QP	14.4	0.7	17.15	43.5	-26.35	45	400	H
164.135	11.9	QP	14.8	0.7	27.4	43.5	-16.1	216	188	H
186	4.36	QP	15.7	0.7	20.76	43.5	-22.74	324	309	H
195.295	12.17	QP	15.6	0.9	28.67	43.5	-14.83	30	131	H
34.375	4.97	QP	16.1	0.1	21.17	40	-18.83	352	189	V
63.0188	4.57	QP	6.7	0.3	11.57	40	-28.43	135	143	V
115.4713	7.16	QP	13.1	0.4	20.66	43.5	-22.84	220	120	V
140.7375	-2.45	QP	14.1	0.7	12.35	43.5	-31.15	344	237	V
178.125	15.88	QP	15.2	0.6	31.68	43.5	-11.82	182	290	V
180.275	13.74	QP	15.5	0.8	30.04	43.5	-13.46	322	255	V
225.3	14.24	QP	10.8	0.8	25.84	46	-20.16	46	280	H
242.855	6.84	QP	11.4	1	19.24	46	-26.76	221	232	H
360.135	5.21	QP	14.7	1.2	21.11	46	-24.89	304	347	H
444.6788	8.56	QP	16.8	1.4	26.76	46	-19.24	329	268	H
525.5938	13.83	QP	18.2	1.5	33.53	46	-12.47	88	202	H
214	-1.9	QP	10.7	0.9	9.7	43.5	-33.8	1	185	V
336.75	-1.46	QP	14	1.2	13.74	46	-32.26	62	183	V
361.3063	2.71	QP	14.7	1.2	18.61	46	-27.39	63	291	V
429.0125	0.25	QP	15.9	1.5	17.65	46	-28.35	67	313	V
534.145	3.89	QP	18.7	1.6	24.19	46	-21.81	211	204	V

QP - Quasi-Peak detector

11. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207
IC RSS-GEN, Section 7.2.2

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

TEST PROCEDURE

ANSI C63.4

Testing was performed on low and high channels with antenna connected for reference only. Testing was then repeated with antenna port fitted with a termination.

RESULTS

No non-compliance noted:

WORST EMISSIONS – LOW CHANNEL, ANTENNA CONNECTED

Frequency (MHz)	Meter Reading (dBuV)	Det	Line 1 G/L (dB)	Corrected Reading (dBuV)	Class B QPK Limit (dBuV)	Margin (dB)	Class B Avg Limit (dBuV)	Margin (dB)
.17726	43.33	PK	10	53.33	64.61	-11.28	54.61	-1.28
7.44982	62.89	PK	10.4	73.29	60	13.29	50	23.29
7.64321	66.29	PK	10.4	76.69	60	16.69	50	26.69
8.001	66.59	PK	10.4	76.99	60	16.99	50	26.99
8.33945	64.07	PK	10.4	74.47	60	14.47	50	24.47
8.72624	56.56	PK	10.4	66.96	60	6.96	50	16.96
22.97966	39.16	PK	11.4	50.56	60	-9.44	50	.56
25.06836	44.67	PK	11.7	56.37	60	-3.63	50	6.37
26.1127	47.77	PK	11.8	59.57	60	-.43	50	9.57
29.8066	45.18	PK	12	57.18	60	-2.82	50	7.18
7.45345	51.02	QP	10.4	61.42	60	1.42	50	11.42
7.649895	52.05	QP	10.4	62.45	60	2.45	50	12.45
7.994073	51.93	QP	10.4	62.33	60	2.33	50	12.33
8.336523	50.8	QP	10.4	61.2	60	1.2	50	11.2
8.730018	45.72	QP	10.4	56.12	60	-3.88	50	6.12

PK - Peak detector

QP - Quasi-Peak detector

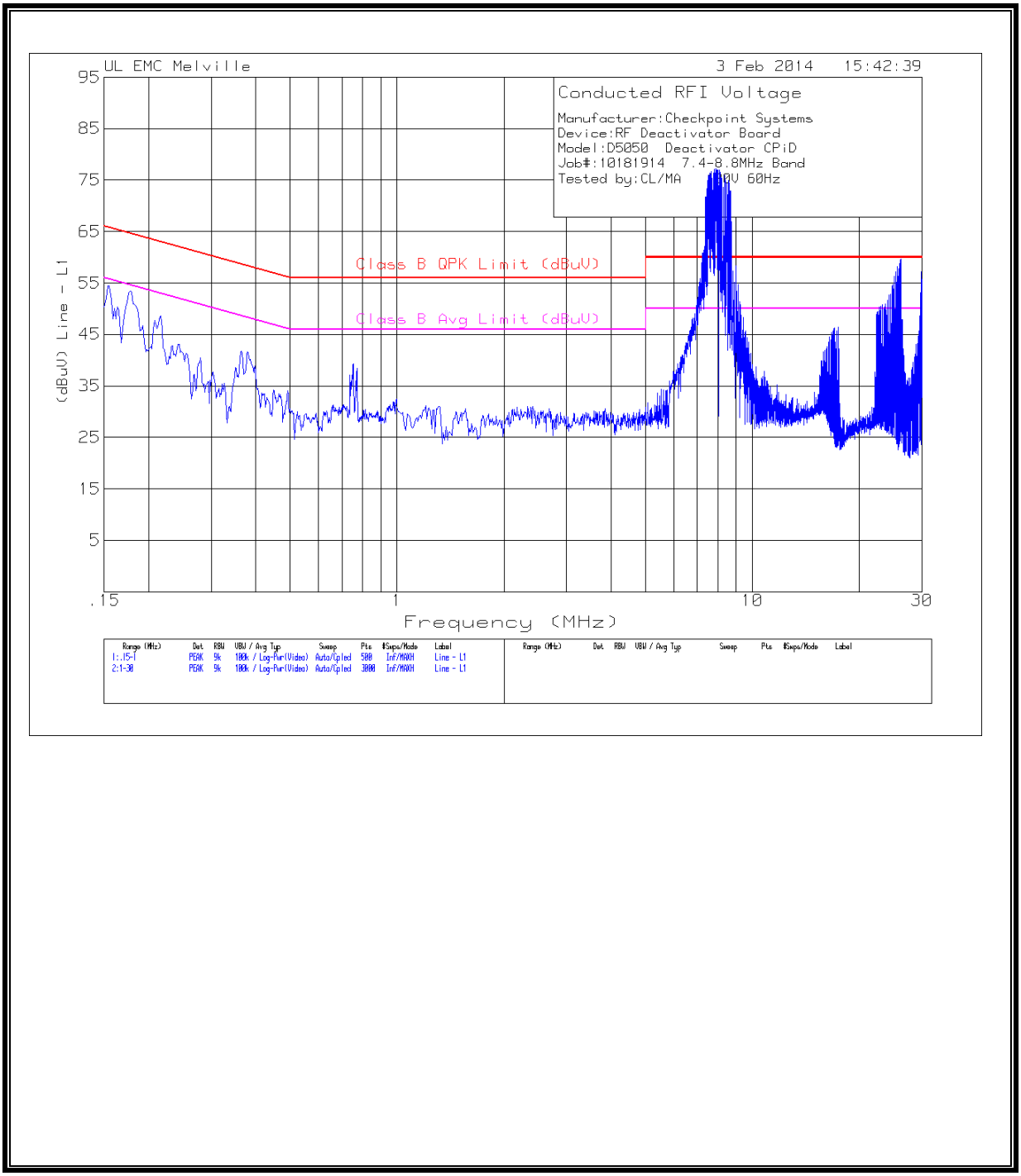
WORST EMISSIONS – LOW CHANNEL, ANTENNA CONNECTED (CONT)

Frequency (MHz)	Meter Reading (dBuV)	Det	Line 2 G/L (dB)	Corrected Reading (dBuV)	Class B QPK Limit (dBuV)	Margin (dB)	Class B Avg Limit (dBuV)	Margin (dB)
.17726	43.01	PK	10	53.01	64.61	-11.6	54.61	-1.6
7.3918	61.85	PK	10.4	72.25	60	12.25	50	22.25
7.65288	66.03	PK	10.4	76.43	60	16.43	50	26.43
8.07836	66.33	PK	10.4	76.73	60	16.73	50	26.73
8.36846	64.95	PK	10.5	75.45	60	15.45	50	25.45
8.74558	52.39	PK	10.5	62.89	60	2.89	50	12.89
24.21741	39.67	PK	11.6	51.27	60	-8.73	50	1.27
25.00067	42.35	PK	11.7	54.05	60	-5.95	50	4.05
25.88063	46.47	PK	11.8	58.27	60	-1.73	50	8.27
29.82594	45.14	PK	12	57.14	60	-2.86	50	7.14
7.406595	47.65	QP	10.4	58.05	60	-1.95	50	8.05
7.66334	51.72	QP	10.4	62.12	60	2.12	50	12.12
8.079183	51.79	QP	10.4	62.19	60	2.19	50	12.19
8.374778	50.04	QP	10.5	60.54	60	.54	50	10.54
8.738945	44.84	QP	10.5	55.34	60	-4.66	50	5.34

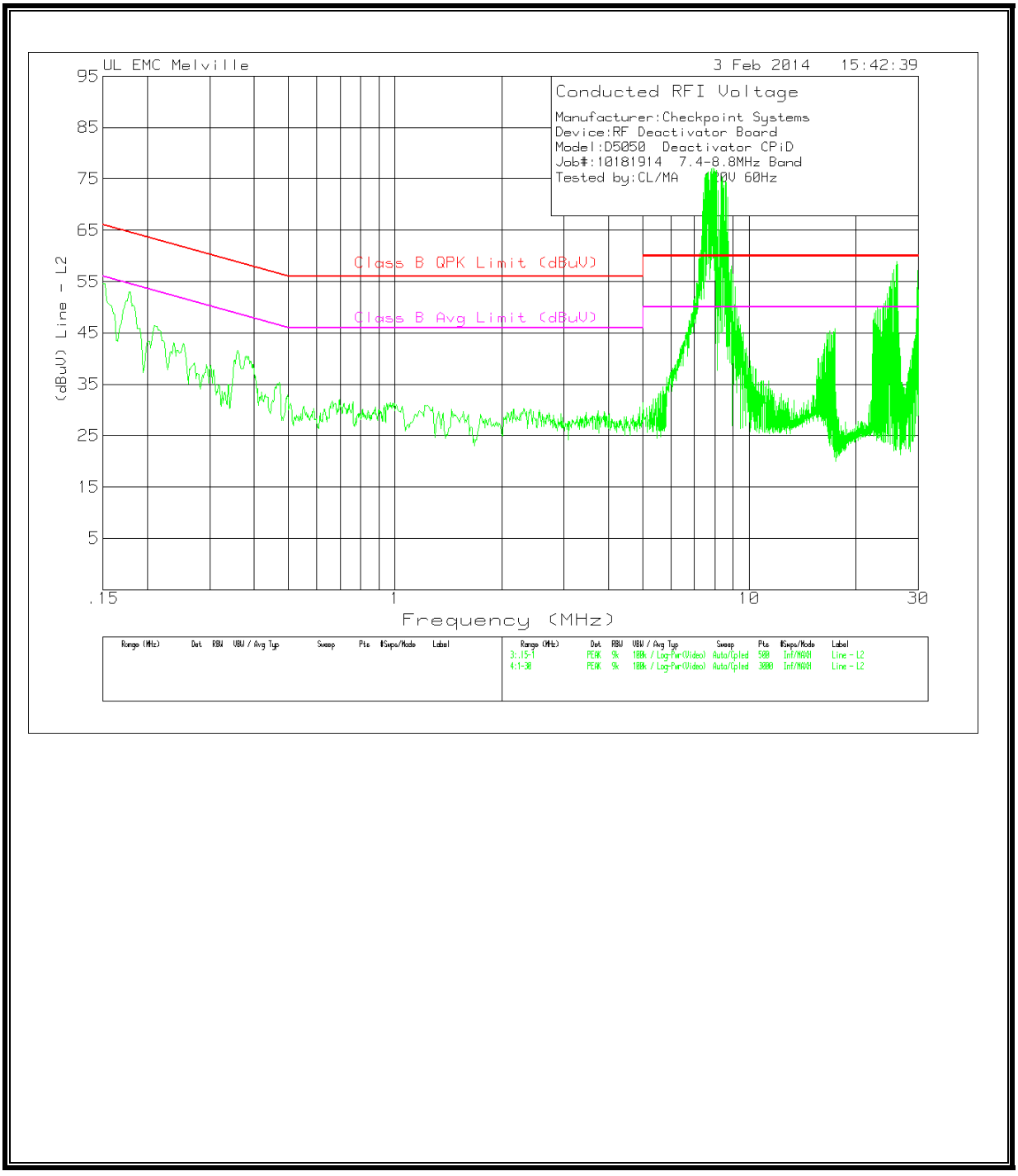
PK - Peak detector

QP - Quasi-Peak detector

LINE 1 RESULTS



LINE 2 RESULTS



WORST EMISSIONS – HIGH CHANNEL, ANTENNA CONNECTED

Frequency (MHz)	Meter Reading (dBuV)	Det	Line 1 G/L (dB)	Corrected Reading (dBuV)	Class B QPK Limit (dBuV)	Margin (dB)	Class B Avg Limit (dBuV)	Margin (dB)
7.843715	30.23	QP	10.4	40.63	60	-19.37	50	-9.37
8.202333	37.19	QP	10.4	47.59	60	-12.41	50	-2.41
8.418358	50.71	QP	10.4	61.11	**60**	**1.11**	**50**	**11.11**
8.80273	53.64	QP	10.4	64.04	**60**	**4.04**	**50**	**14.04**
9.219928	54.26	QP	10.5	64.76	**60**	**4.76**	**50**	**14.76**
9.541923	53.29	QP	10.5	63.79	**60**	**3.79**	**50**	**13.79**
9.604758	52.09	QP	10.5	62.59	**60**	**2.59**	**50**	**12.59**
9.81279	37.3	QP	10.6	47.9	60	-12.1	50	-2.1
10.1123	30.34	QP	10.6	40.94	60	-19.06	50	-9.06
10.1806	31.26	QP	10.6	41.86	60	-18.14	50	-8.14
25.17325	30.21	QP	11.7	41.91	60	-18.09	50	-8.09
25.7792	27.88	QP	11.7	39.58	60	-20.42	50	-10.42
26.9825	27.18	QP	11.8	38.98	60	-21.02	50	-11.02
28.92325	26.9	QP	11.9	38.8	60	-21.2	50	-11.2

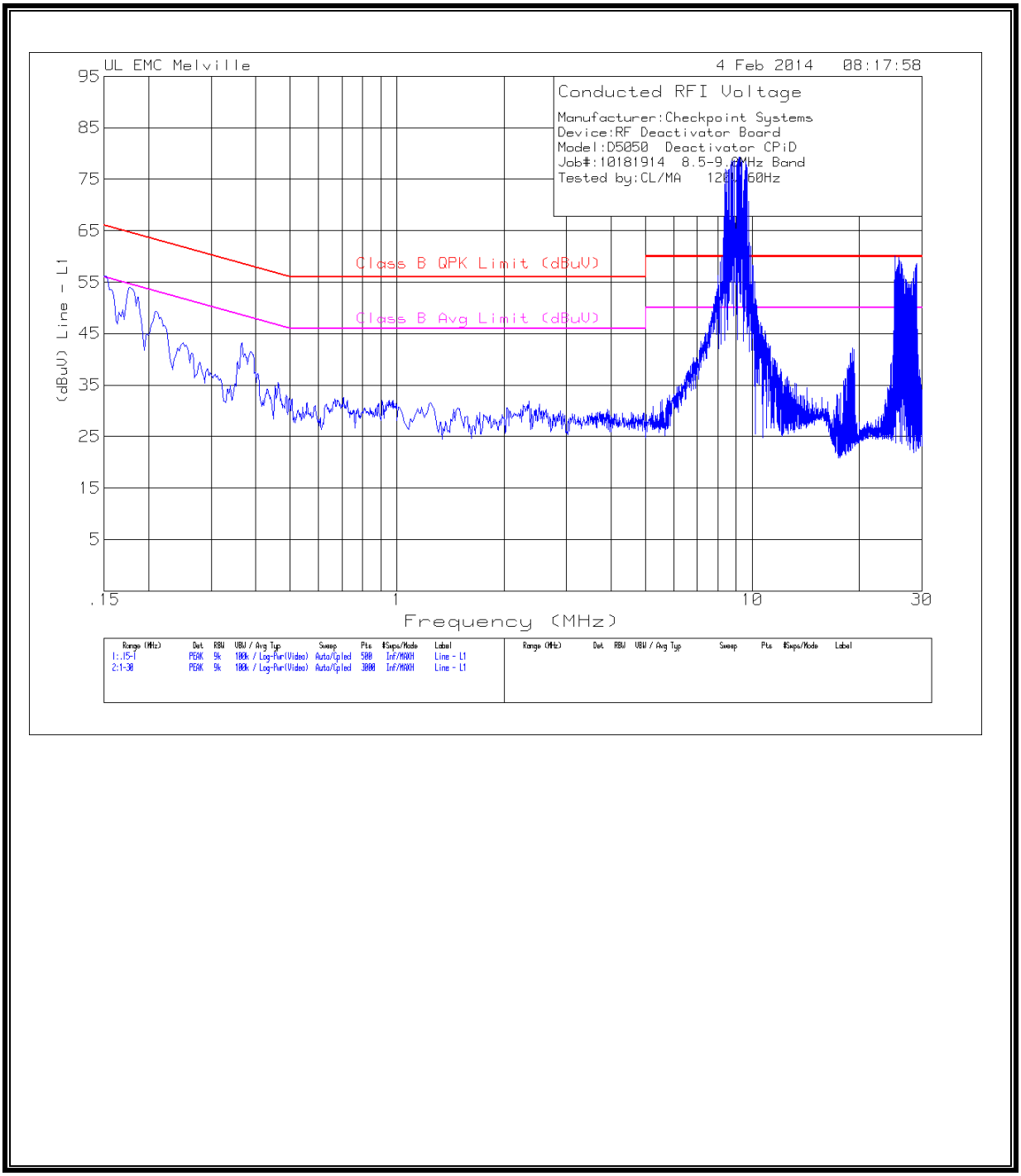
QP - Quasi-Peak detector

WORST EMISSIONS – HIGH CHANNEL, ANTENNA CONNECTED

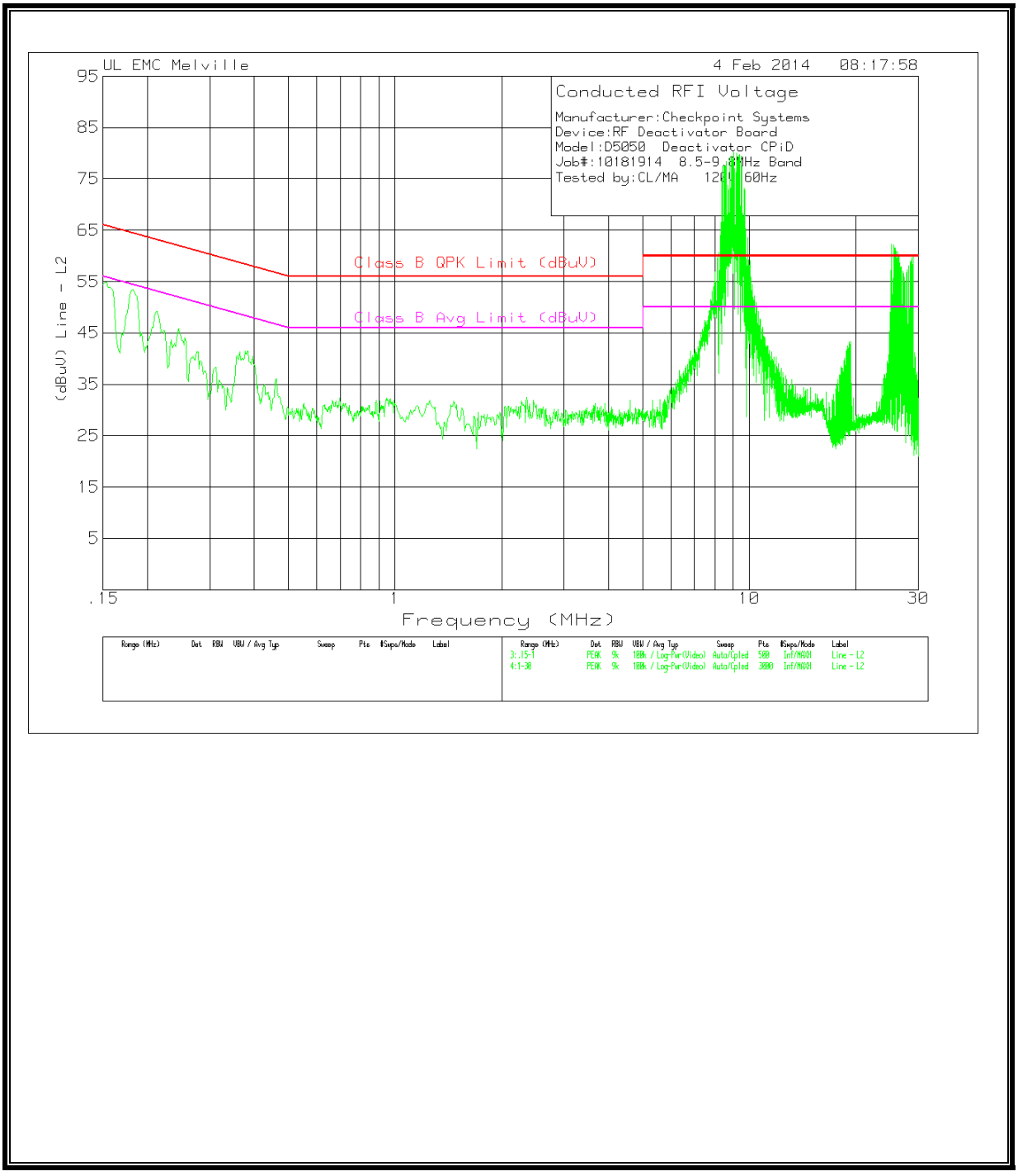
Frequency (MHz)	Meter Reading (dBuV)	Det	Line 2 G/L (dB)	Corrected Reading (dBuV)	Class B QPK Limit (dBuV)	Margin (dB)	Class B Avg Limit (dBuV)	Margin (dB)
7.839808	30.79	QP	10.4	41.19	60	-18.81	50	-8.81
8.138898	37.14	QP	10.4	47.54	60	-12.46	50	-2.46
8.332695	47.37	QP	10.5	57.87	60	-2.13	50	7.87
8.60627	53.35	QP	10.5	63.85	60	3.85	50	13.85
8.947853	54.18	QP	10.5	64.68	60	4.68	50	14.68
9.39933	54.59	QP	10.6	65.19	60	5.19	50	15.19
9.7153	44.95	QP	10.6	55.55	60	-4.45	50	5.55
9.964933	33.78	QP	10.6	44.38	60	-15.62	50	-5.62
10.178725	31.25	QP	10.7	41.95	60	-18.05	50	-8.05
10.438725	26.94	QP	10.7	37.64	60	-22.36	50	-12.36
25.179525	31.57	QP	11.7	43.27	60	-16.73	50	-6.73
25.2394	27.93	QP	11.7	39.63	60	-20.37	50	-10.37
25.523925	29.85	QP	11.8	41.65	60	-18.35	50	-8.35
25.736275	31.05	QP	11.8	42.85	60	-17.15	50	-7.15
26.229875	30.25	QP	11.8	42.05	60	-17.95	50	-7.95
26.499875	27.52	QP	11.8	39.32	60	-20.68	50	-10.68
26.7678	25.68	QP	11.9	37.58	60	-22.42	50	-12.42
27.456475	23.89	QP	11.9	35.79	60	-24.21	50	-14.21
28.166125	28.06	QP	11.9	39.96	60	-20.04	50	-10.04
28.682675	27.4	QP	12	39.4	60	-20.6	50	-10.6
28.92075	28.06	QP	12	40.06	60	-19.94	50	-9.94

QP - Quasi-Peak detector

LINE 1 RESULTS



LINE 2 RESULTS

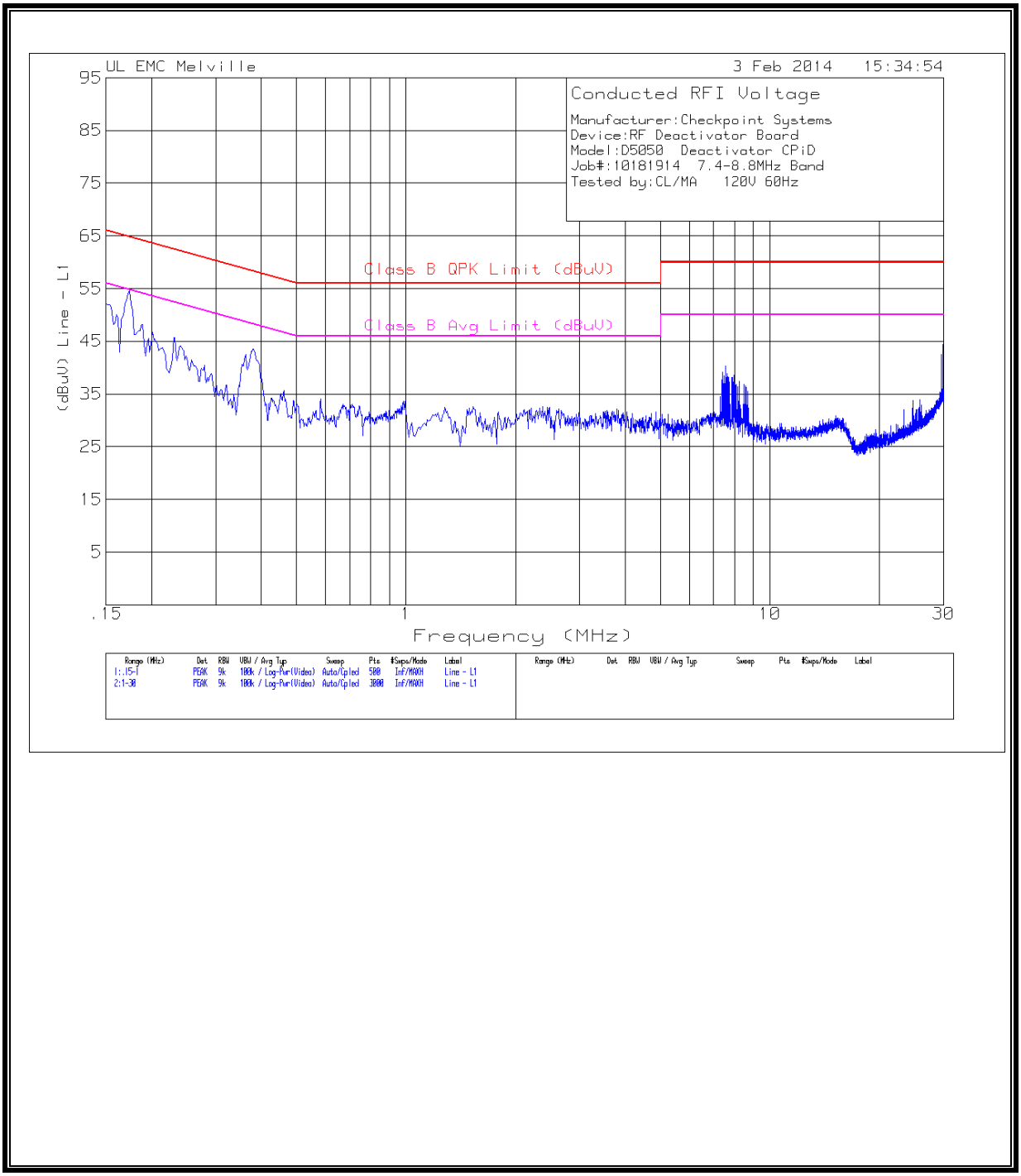


WORST EMISSIONS –WITH ANTENNA PORT TERMINATED

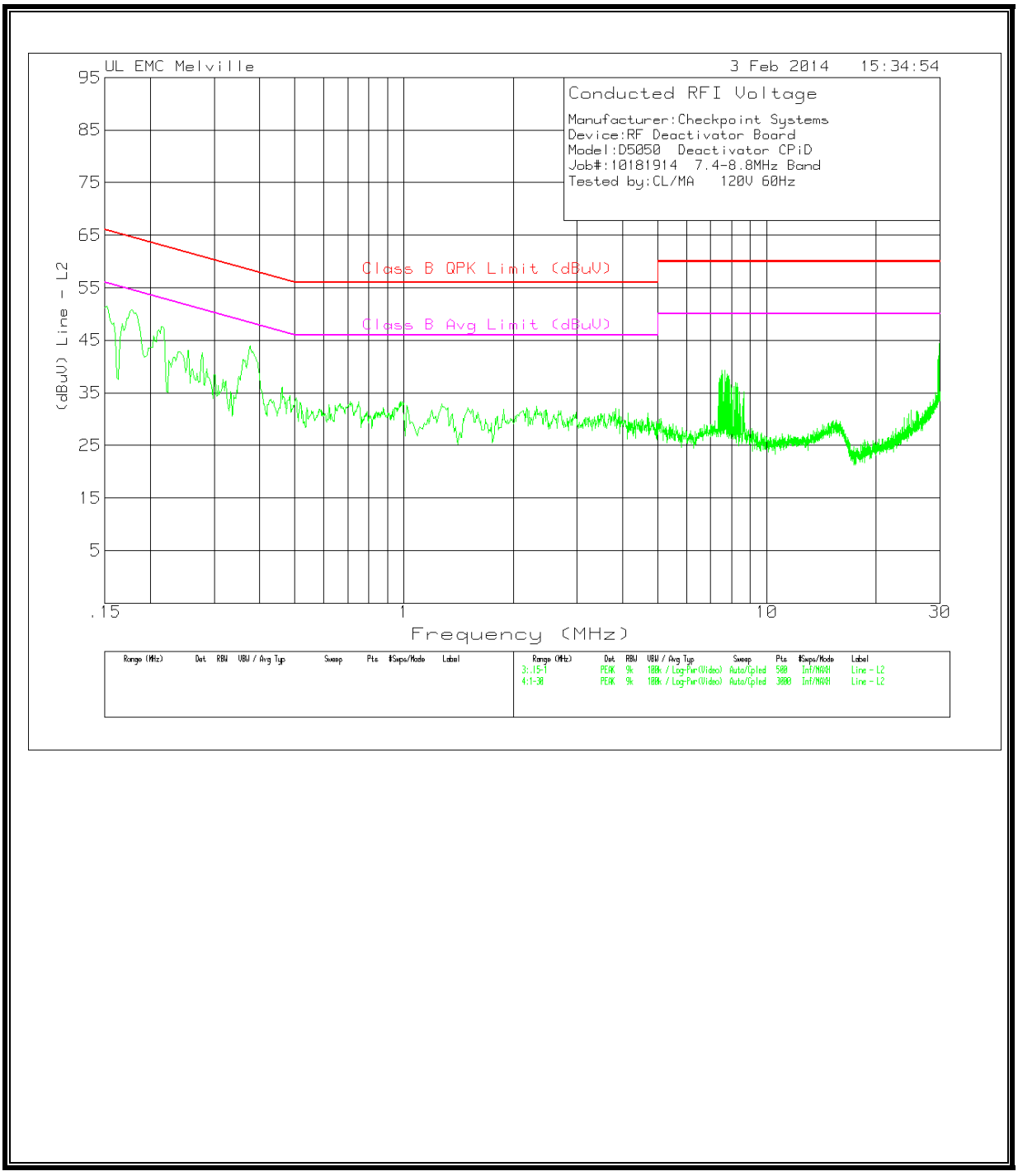
Frequency (MHz)	Meter Reading (dBuV)	Det	Line 1 G/L (dB)	Corrected Reading (dBuV)	Class B QPK Limit (dBuV)	Margin (dB)	Class B Avg Limit (dBuV)	Margin (dB)
.17385	44.52	PK	10	54.52	64.77	-10.25	54.77	-.25
.38166	33.53	PK	10	43.53	58.24	-14.71	48.24	-4.71
.99489	23.43	PK	10	33.43	56	-22.57	46	-12.57
2.37312	22.46	PK	10.1	32.56	56	-23.44	46	-13.44
7.53685	29.92	PK	10.4	40.32	60	-19.68	50	-9.68
29.59387	30.43	PK	12	42.43	60	-17.57	50	-7.57
Frequency (MHz)	**Meter Reading (dBuV)**	**Det**	**Line 2 G/L (dB)**	**Corrected Reading (dBuV)**	**Class B QPK Limit (dBuV)**	**Margin (dB)**	**Class B Avg Limit (dBuV)**	**Margin (dB)**
.18237	40.18	PK	10	50.18	64.38	-14.2	54.38	-4.2
.37655	33.9	PK	10	43.9	58.36	-14.46	48.36	-4.46
.98637	22.83	PK	10.1	32.93	56	-23.07	46	-13.07
2.46982	21.68	PK	10.1	31.78	56	-24.22	46	-14.22
7.54652	28.11	PK	10.4	38.51	60	-21.49	50	-11.49
29.65188	30.04	PK	12	42.04	60	-17.96	50	-7.96

PK - Peak detector

LINE 1 RESULTS



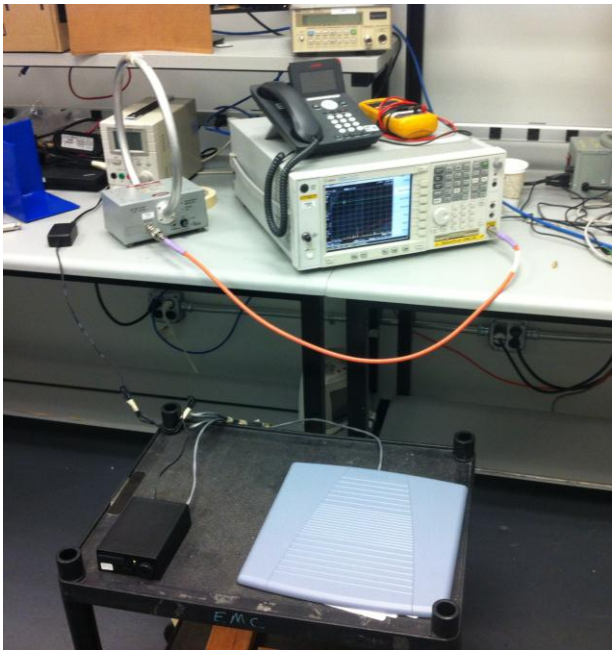
LINE 2 RESULTS



12. SETUP PHOTOS

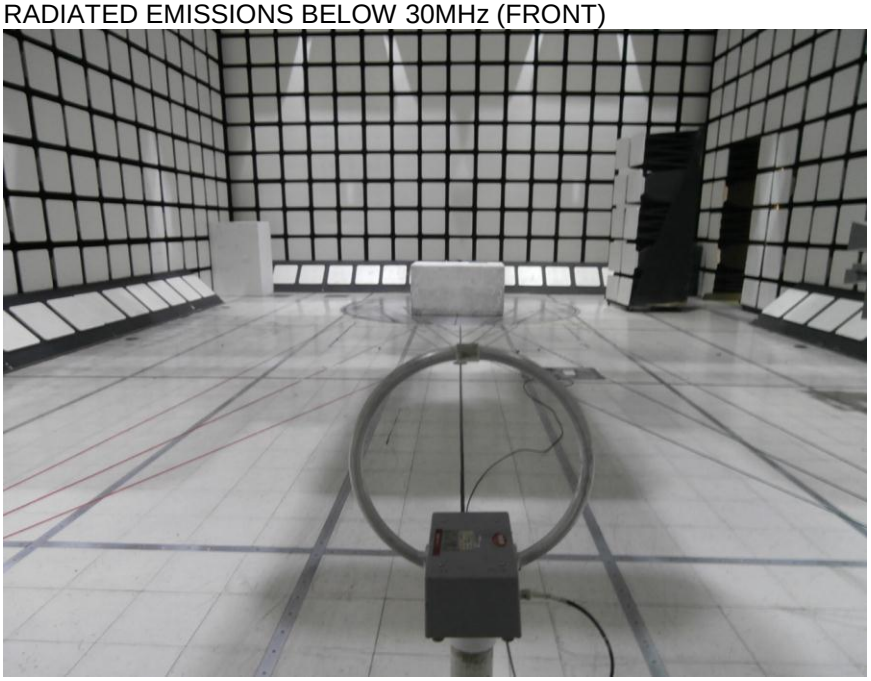
BENCH TESTS

BENCH TESTS

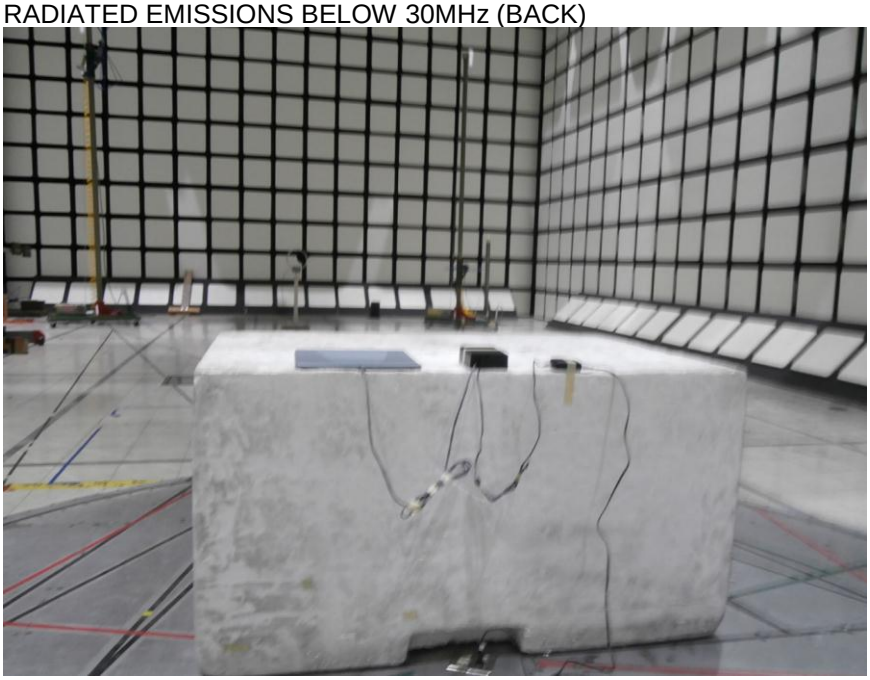


RADIATED EMISSION BELOW 30 MHz

RADIATED EMISSIONS BELOW 30MHz (FRONT)

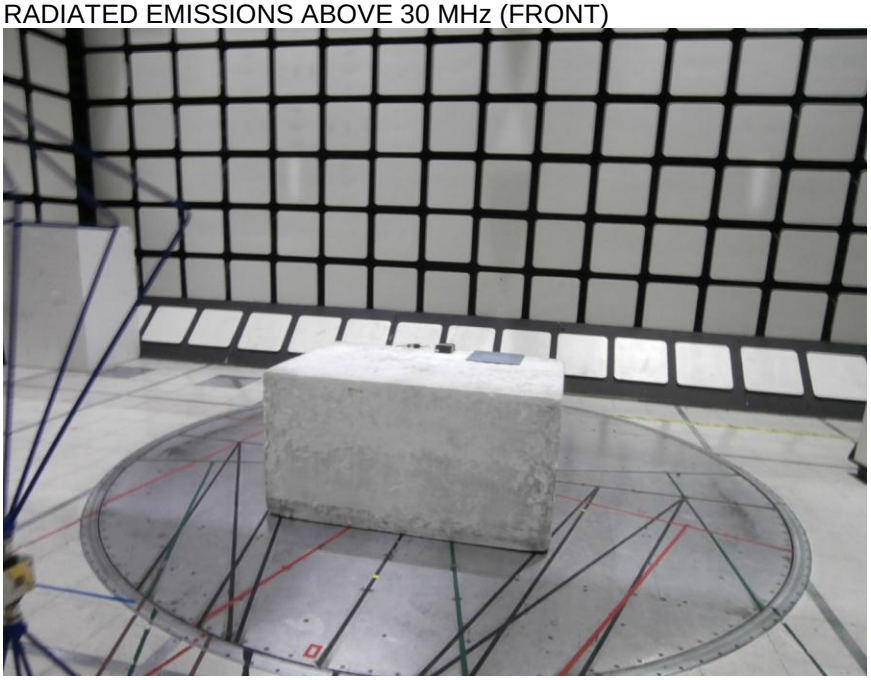


RADIATED EMISSIONS BELOW 30MHz (BACK)



RADIATED EMISSION ABOVE 30 MHz

RADIATED EMISSIONS ABOVE 30 MHz (FRONT)



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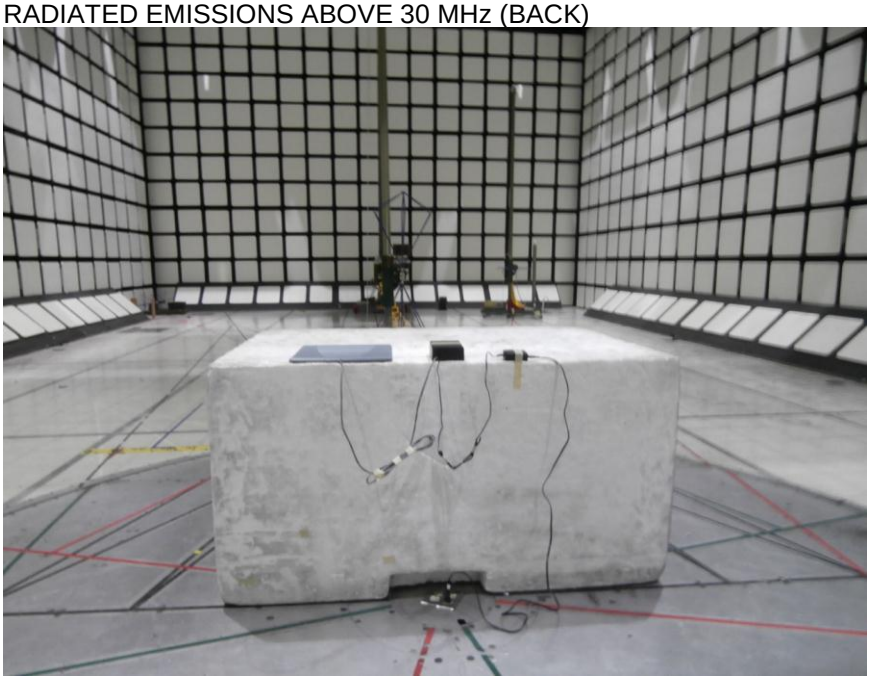
RADIATED EMISSIONS ABOVE 30 MHz (BACK)



AC MAINS LINE CONDUCTED EMISSION

LINE CONDUCTED EMISSION (FRONT W/ANTENNA)

LINE CONDUCTED EMISSION (FRONT W/TERMINATION)

LINE CONDUCTED EMISSION (BACK W/ANTENNA)

LINE CONDUCTED EMISSION (BACK W/TERMINATION)

END OF REPORT