

**Nemko Test Report:** 115120-1TRFWL

**Applicant:** Aztech Associates Inc.  
805 Bayridge Drive  
Kingston, ON  
K7P 1T5

**Apparatus:** In Home Display Module

**FCC ID:** SCLS0000552

**In Accordance With:** FCC Part 15 Subpart C, 15.247  
FHSS System and Digitally Modulated Radiators  
902-928MHz, 2400 - 2483.5 MHz, 5725-5850MHz

**Authorized By:** Andrey Adelberg, EMC/Wireless Specialist

**Date:** October 31, 2008

**Total Number of Pages:** 26

## TABLE OF CONTENTS

|                                                                                                                   |           |
|-------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Section 1 : Report Summary .....</b>                                                                           | <b>3</b>  |
| <b>Section 2 : Equipment Under Test.....</b>                                                                      | <b>4</b>  |
| 2.1 Identification of Equipment Under Test (EUT).....                                                             | 4         |
| 2.2 Accessories .....                                                                                             | 4         |
| 2.3 EUT Description.....                                                                                          | 4         |
| 2.4 Technical Specifications of the EUT .....                                                                     | 5         |
| 2.5 EUT Setup diagram .....                                                                                       | 5         |
| 2.6 Operation of the EUT during testing .....                                                                     | 5         |
| 2.7 Modifications incorporated in the EUT .....                                                                   | 5         |
| <b>Section 3 : Test Conditions .....</b>                                                                          | <b>6</b>  |
| 3.1 Specifications .....                                                                                          | 6         |
| 3.2 Deviations From Laboratory Test Procedures .....                                                              | 6         |
| 3.3 Test Environment .....                                                                                        | 6         |
| 3.4 Measurement Uncertainty.....                                                                                  | 6         |
| 3.5 Test Equipment.....                                                                                           | 7         |
| <b>Section 4 : Results Summary .....</b>                                                                          | <b>8</b>  |
| 4.1 FCC Part 15 Subpart C : Test Results .....                                                                    | 8         |
| <b>Appendix A : Test Results.....</b>                                                                             | <b>9</b>  |
| Clause 15.207(a) Powerline Conducted Emissions .....                                                              | 9         |
| Clause 15.247(a)(1)(i) Frequency hopping systems operating in the 902-928 MHz band .....                          | 13        |
| Clause 15.247(b)(2) Maximum peak output power of Frequency hopping systems operating in the 902-928 MHz band..... | 16        |
| Clause 15.247(b)(4) Maximum peak output power .....                                                               | 18        |
| Clause 15.247(d) Radiated Emissions Not in Restricted Bands .....                                                 | 19        |
| <b>Appendix B : Setup Photographs .....</b>                                                                       | <b>25</b> |
| <b>Appendix C : Block Diagram of Test Setups.....</b>                                                             | <b>26</b> |

## Section 1 : Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C. Radiated tests were conducted in accordance with ANSI C63.4-2003.

The assessment summary is as follows:

|                                |                                                                   |
|--------------------------------|-------------------------------------------------------------------|
| <b>Apparatus Assessed:</b>     | In Home Display Module                                            |
| <b>Specification:</b>          | FCC Part 15 Subpart C, 15.247                                     |
| <b>Compliance Status:</b>      | Complies                                                          |
| <b>Exclusions:</b>             | None                                                              |
| <b>Non-compliances:</b>        | None                                                              |
| <b>Report Release History:</b> | Original Release                                                  |
| <b>Test Location:</b>          | Nemko Canada Inc.<br>303 River Road<br>Ottawa, Ontario<br>K1V 1H2 |
| <b>Registration Number:</b>    | 176392 (3m Semi-Anechoic Chamber)                                 |
| <b>Tests Performed By:</b>     | Jason Nixon, Wireless/Telecom Specialist                          |
| <b>Test Dates:</b>             | October 17, 2008                                                  |

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Nemko Canada Inc. authorizes the applicant to reproduce this report provided it is reproduced in its entirety and for use by the company's employees only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko Canada Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



---

## **Section 2 : Equipment Under Test**

### **2.1 Identification of Equipment Under Test (EUT)**

The following information identifies the EUT under test:

|                       |                                   |
|-----------------------|-----------------------------------|
| Type of Equipment:    | Frequency hopping spread spectrum |
| Brand Name:           | Aztech                            |
| Model Name or Number: | S0000552                          |
| Serial Number:        | ATZS0104E3 & ATZS0104EB           |
| Nemko Sample Number:  | 1 & 2                             |
| FCC ID:               | SCLS0000552                       |
| Date of Receipt:      | October 17, 2008                  |

### **2.2 Accessories**

The following information identifies accessories used to exercise the EUT during testing:

|                       |                      |
|-----------------------|----------------------|
| Description:          | DC Power adapter     |
| Brand Name:           | AC/DC Travel Charger |
| Model Name or Number: | TC-28I5005A/C5       |
| Serial Number:        | None                 |
| Nemko Sample Number:  | 5                    |

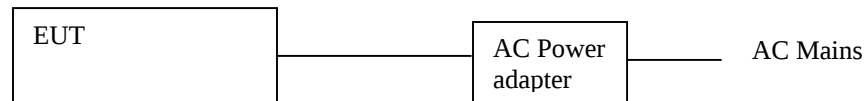
### **2.3 EUT Description**

The EUT is a FHSS transceiver that is used to monitor the electrical power meter of a home and display the power consumption.

## 2.4 Technical Specifications of the EUT

|                                   |                                          |
|-----------------------------------|------------------------------------------|
| <b>Operating Band:</b>            | 902-928MHz                               |
| <b>Operating Frequency:</b>       | Tx: 902.8-914.8MHz<br>Rx: 915.2-927.6MHz |
| <b>Modulation:</b>                | FSK                                      |
| <b>Occupied Bandwidth:</b>        | 328.53kHz                                |
| <b>Channel Spacing:</b>           | 404.8kHz                                 |
| <b>Emission Designator:</b>       | F1D                                      |
| <b>Antenna Data:</b>              | Integral PCB trace antenna               |
| <b>Power Supply Requirements:</b> | 120VAC 60Hz                              |

## 2.5 EUT Setup diagram



## 2.6 Operation of the EUT during testing

The EUT employed test modes to allow the hopping to be stopped and for continuous transmission on any of the hopping channels.

## 2.7 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

## **Section 3 : Test Conditions**

### **3.1 Specifications**

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.247

FHSS System and Digitally Modulated Radiators

902-928MHz, 2400 - 2483.5 MHz, 5725-5850MHz

### **3.2 Deviations From Laboratory Test Procedures**

No deviations were made from laboratory test procedures.

### **3.3 Test Environment**

All tests were performed under the following environmental conditions:

|                    |   |                          |
|--------------------|---|--------------------------|
| Temperature range  | : | 15 – 30 °C               |
| Humidity range     | : | 20 - 75 %                |
| Pressure range     | : | 86 - 106 kPa             |
| Power supply range | : | +/- 5% of rated voltages |

### **3.4 Measurement Uncertainty**

Nemko Canada measurement uncertainty has been calculated using guidance of UKAS LAB 34:2003 and TIA-603-B Nov 7, 2002. All calculations have been performed to provide a confidence level of 95% and can be found in Nemko Canada document MU-003.

### 3.5 Test Equipment

| Equipment                  | Manufacturer     | Model No.  | Asset/Serial No. | Cal. Date   | Next Cal.   |
|----------------------------|------------------|------------|------------------|-------------|-------------|
| 3m EMI Test Chamber        | TDK              | SAC-3      | FA002047         | May 06/08   | May 06/09   |
| Bilog                      | Sunol            | JB3        | FA002108         | Jan. 21/08  | Jan. 21/09  |
| Flush Mount Turntable      | Sunol            | FM2022     | FA002082         | NCR         | NCR         |
| Controller                 | Sunol            | SC104V     | FA002060         | NCR         | NCR         |
| Mast                       | Sunol            | TLT2       | FA002061         | NCR         | NCR         |
| LISN                       | Rohde & Schwarz  | ENV216     | FA002023         | Sept. 02/08 | Sept. 02/09 |
| Receiver/Spectrum Analyzer | Rohde & Schwarz  | ESU 26     | FA002043         | Dec. 07/07  | Dec. 07/08  |
| 50 Coax cable              | HUBER + SUHNER   | None       | FA002015         | Aug. 05/08  | Aug. 05/09  |
| 50 Coax cable              | HUBER + SUHNER   | None       | FA002022         | July 07/08  | July 07/09  |
| 50 Coax cable              | HUBER + SUHNER   | None       | FA002074         | July 07/08  | July 07/09  |
| International Power Supply | California Inst. | 3001i      | FA001021         | Jan. 16/08  | Jan. 16/09  |
| Horn Antenna #2            | EMCO             | 3115       | FA000825         | Jan. 15/08  | Jan. 15/09  |
| 1 – 18 GHz Amplifier       | JCA              | JCA118-503 | FA002091         | Oct 2/08    | Oct 2/09    |
| Spectrum Analyzer          | Rohde & Schwarz  | FSU        | FA001877         | Aug 28/08   | Aug 28/09   |

COU – Calibrate on Use

NCR – No Calibration Required

## Section 4 : Results Summary

This section contains the following:

### FCC Part 15 Subpart C : Test Results

The column headed 'Required' indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N No : not applicable / not relevant.

Y Yes : Mandatory i.e. the apparatus shall conform to these tests.

N/T Not Tested, mandatory but not assessed. (See Report Summary)

### 4.1 FCC Part 15 Subpart C : Test Results

| Part 15           | Test Description                                                                                                           | Required | Result |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|----------|--------|
| 15.31(e)          | Variation of power supply                                                                                                  | Y        | PASS   |
| 15.207(a)         | Powerline Conducted Emissions                                                                                              | Y        | PASS   |
| 15.209(a)         | Radiated Emissions within Restricted Bands                                                                                 | Y        | PASS   |
| 15.247(a)(1)      | Frequency hopping systems                                                                                                  | —        | —      |
| 15.247(a)(1)(i)   | Frequency hopping systems operating in the 902-928 MHz band                                                                | Y        | PASS   |
| 15.247(a)(1)(ii)  | Frequency hopping systems operating in the 5725-5850 MHz band                                                              | N        |        |
| 15.247(a)(1)(iii) | Frequency hopping systems operating in the 2400-2483.5 MHz band                                                            | N        |        |
| 15.247(a)(2)      | Systems using digital modulation techniques                                                                                | N        |        |
| 15.247(b)(1)      | Maximum peak output power of Frequency hopping systems operating in the 2400-2483.5 MHz band and 5725-5850 MHz band        | N        |        |
| 15.247(b)(2)      | Maximum peak output power of Frequency hopping systems operating in the 902-928 MHz band                                   | Y        | PASS   |
| 15.247(b)(3)      | Maximum peak output power of systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands | N        |        |
| 15.247(b)(4)      | Maximum peak output power                                                                                                  | Y        | PASS   |
| 15.247(c)(1)      | Fixed point-to-point Operation with directional antenna gains greater than 6 dBi                                           | N        |        |
| 15.247(c)(2)      | Transmitters operating in the 2400-2483.5 MHz band that emit multiple directional beams                                    | N        |        |
| 15.247(d)         | Radiated Emissions Not in Restricted Bands                                                                                 | Y        | PASS   |
| 15.247(e)         | Power Spectral Density for Digitally Modulated Devices                                                                     | N        |        |
| 15.247(f)         | Time of Occupancy for Hybrid Systems                                                                                       | N        |        |

Notes:



**Nemko Canada Inc.**

---

## Appendix A : Test Results

### Clause 15.207(a) Powerline Conducted Emissions

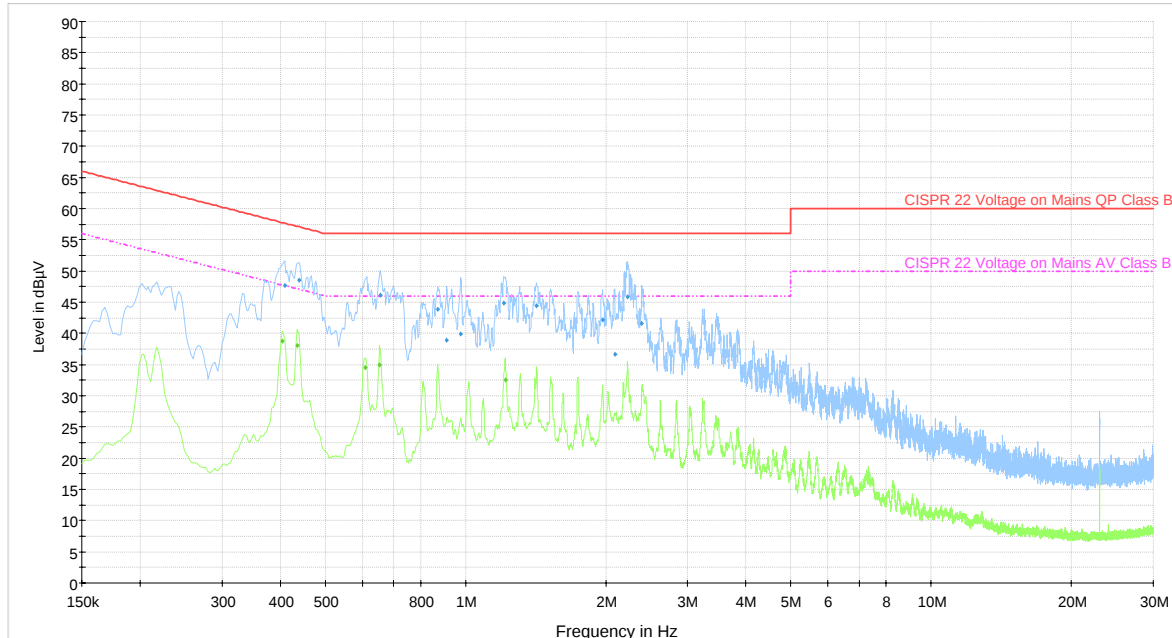
| Frequency of Conducted limit (dB $\mu$ V)        |            |           |
|--------------------------------------------------|------------|-----------|
| Emission (MHz)                                   | Quasi-peak | Average   |
| 0.15-0.5                                         | 66 to 56*  | 56 to 46* |
| 0.5-5                                            | 56         | 46        |
| 5-30                                             | 60         | 50        |
| * Decreases with the logarithm of the frequency. |            |           |

**Test Results:** Pass

### Additional Observations:

All plots were obtained using a sweeping receiver with an IF of 9kHz using a Peak and Average detector. The plots have been corrected with the cable loss and LISN loss to show compliance.

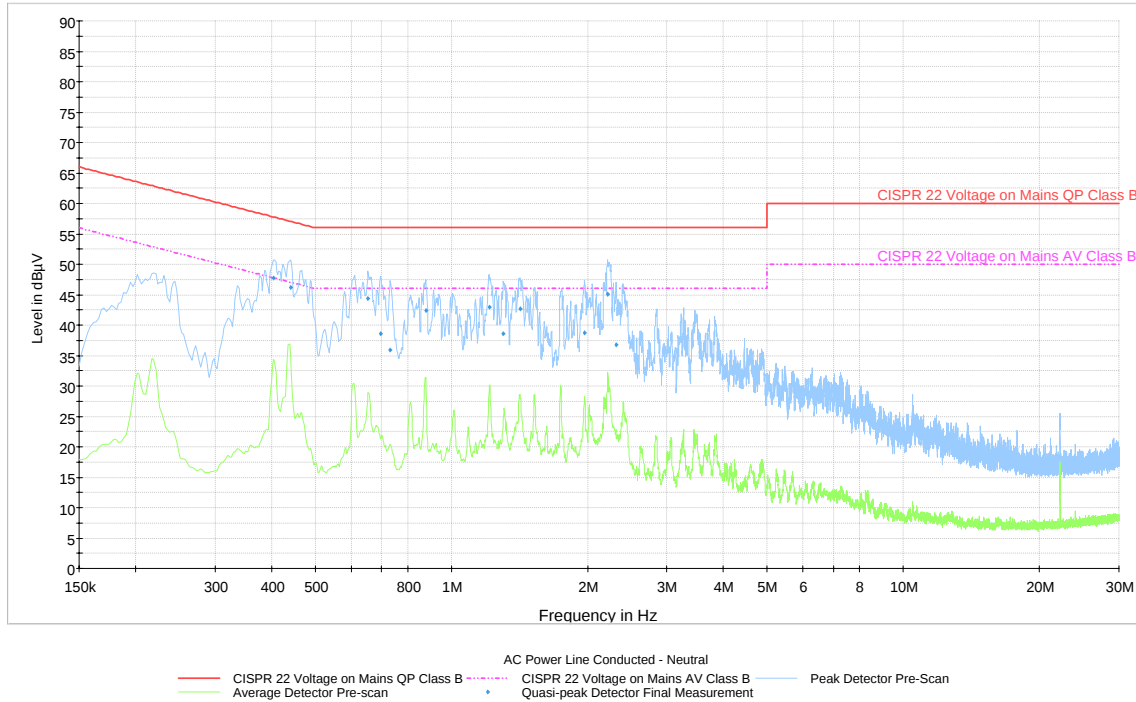
## Phase



AC Power Line Conducted - Line  
 — CISPR 22 Voltage on Mains QP Class B — CISPR 22 Voltage on Mains AV Class B — Peak Detector Pre-scan  
 — Average Detector Pre-scan — Quasi-peak Final Measurement — Average Detector Final Measurement

| Frequency<br>MHz | QuasiPeak<br>dBμV | Line | Corr.<br>dB | Margin<br>dB | Limit<br>dBμV |
|------------------|-------------------|------|-------------|--------------|---------------|
| 0.4088           | 47.70             | L1   | 10.02       | 10.00        | 57.67         |
| 0.4380           | 48.59             | L1   | 10.04       | 8.50         | 57.10         |
| 0.6563           | 46.13             | L1   | 10.08       | 9.90         | 56.00         |
| 0.8723           | 43.82             | L1   | 10.10       | 12.20        | 56.00         |
| 0.9105           | 38.86             | L1   | 10.09       | 17.10        | 56.00         |
| 0.9758           | 39.90             | L1   | 10.01       | 16.10        | 56.00         |
| 1.2098           | 44.80             | L1   | 10.00       | 11.20        | 56.00         |
| 1.4190           | 44.46             | L1   | 10.01       | 11.50        | 56.00         |
| 1.9703           | 42.10             | L1   | 10.04       | 13.90        | 56.00         |
| 2.0895           | 36.59             | L1   | 10.04       | 19.40        | 56.00         |
| 2.2290           | 45.90             | L1   | 10.05       | 10.10        | 56.00         |
| 2.3910           | 41.60             | L1   | 10.06       | 14.40        | 56.00         |
| Frequency<br>MHz | Average<br>dBμV   | Line | Corr.<br>dB | Margin<br>dB | Limit<br>dBμV |
| 0.4043           | 38.75             | L1   | 10.02       | 9.00         | 47.77         |
| 0.4358           | 38.05             | L1   | 10.04       | 9.10         | 47.14         |
| 0.6090           | 34.50             | L1   | 10.08       | 11.50        | 46.00         |
| 0.6540           | 34.90             | L1   | 10.08       | 11.10        | 46.00         |
| 1.2165           | 32.60             | L1   | 10.00       | 13.40        | 46.00         |

## Neutral



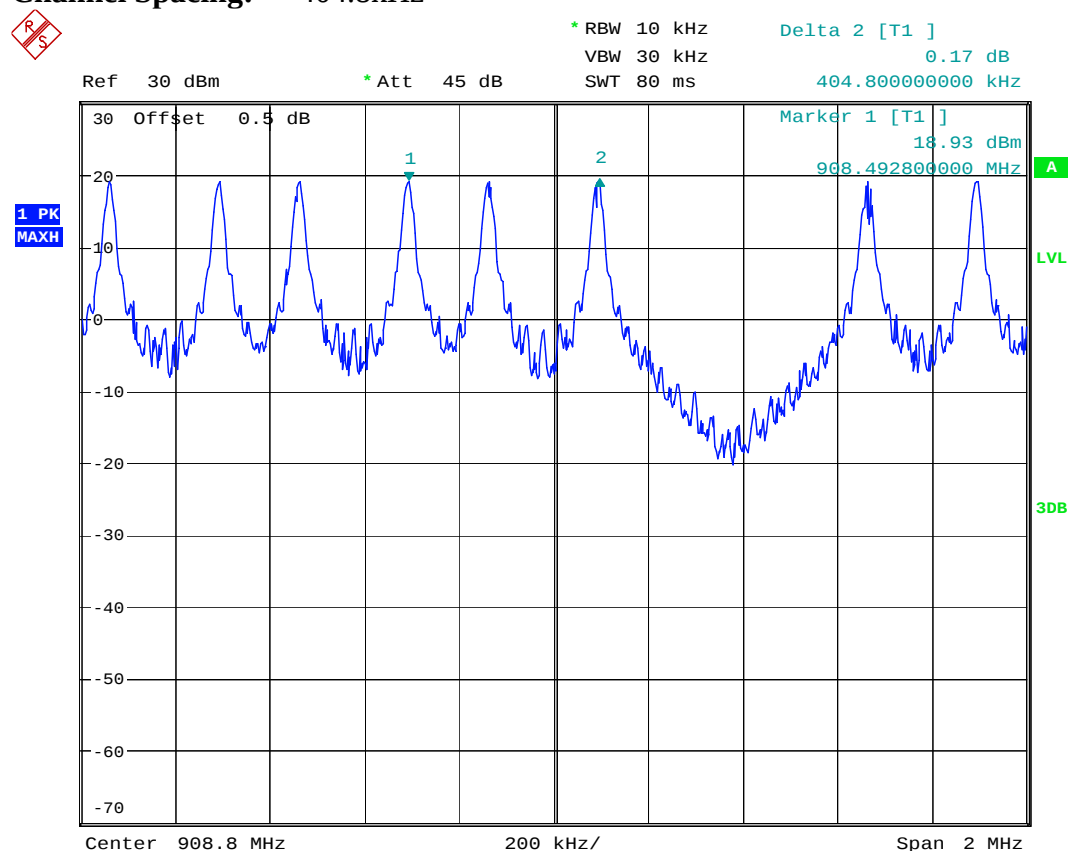
| Frequency<br>MHz | QuasiPeak<br>dBμV | Line | Corr.<br>dB | Margin<br>dB | Limit<br>dBμV |
|------------------|-------------------|------|-------------|--------------|---------------|
| 0.4043           | 47.77             | N    | 10.00       | 10.00        | 57.77         |
| 0.4403           | 46.19             | N    | 10.03       | 10.90        | 57.06         |
| 0.6540           | 44.37             | N    | 10.08       | 11.60        | 56.00         |
| 0.6968           | 38.52             | N    | 10.08       | 17.50        | 56.00         |
| 0.7328           | 35.92             | N    | 10.09       | 20.10        | 56.00         |
| 0.8768           | 42.41             | N    | 10.10       | 13.60        | 56.00         |
| 1.2120           | 42.94             | N    | 9.98        | 13.10        | 56.00         |
| 1.3020           | 38.64             | N    | 9.98        | 17.40        | 56.00         |
| 1.4213           | 42.66             | N    | 9.99        | 13.30        | 56.00         |
| 1.9725           | 38.71             | N    | 10.02       | 17.30        | 56.00         |
| 2.2178           | 45.06             | N    | 10.03       | 10.90        | 56.00         |
| 2.3145           | 36.81             | N    | 10.03       | 19.20        | 56.00         |

### Clause 15.247(a)(1) Frequency hopping systems

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

**Test Results:** Pass

**Channel Spacing:** 404.8kHz



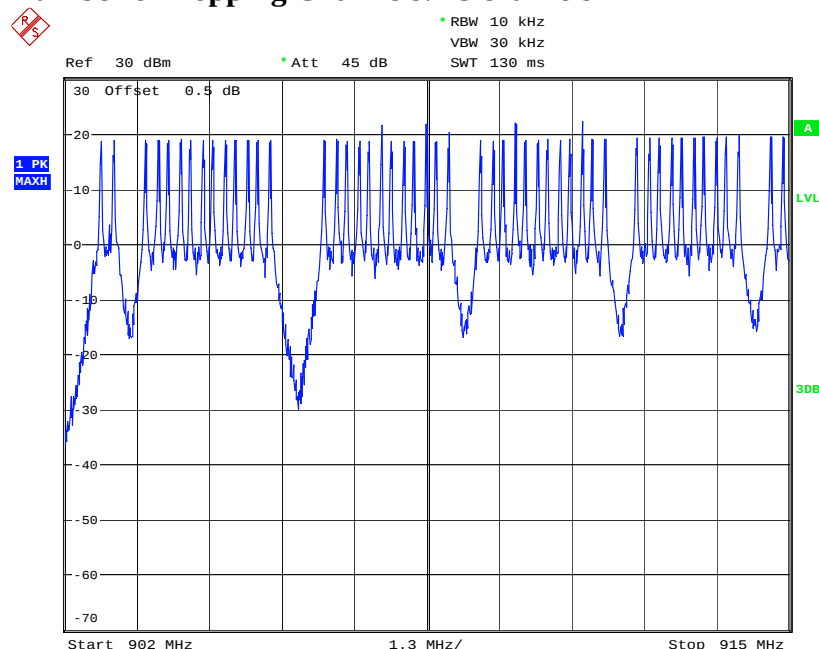
Date: 17.OCT.2008 15:07:28

### Clause 15.247(a)(1)(i) Frequency hopping systems operating in the 902-928 MHz band

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

**Test Results:** Pass

**Number of Hopping Channels:** 25 channels



Date: 17.OCT.2008 15:15:50



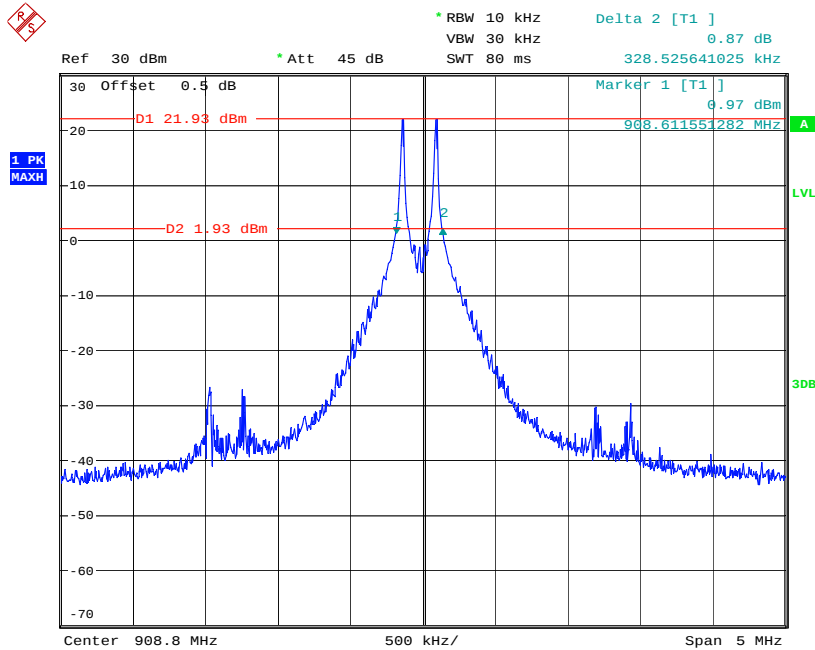
**Nemko Canada Inc.**

## APPENDIX A : TEST RESULTS

Report Number: 115120-1TRFWL

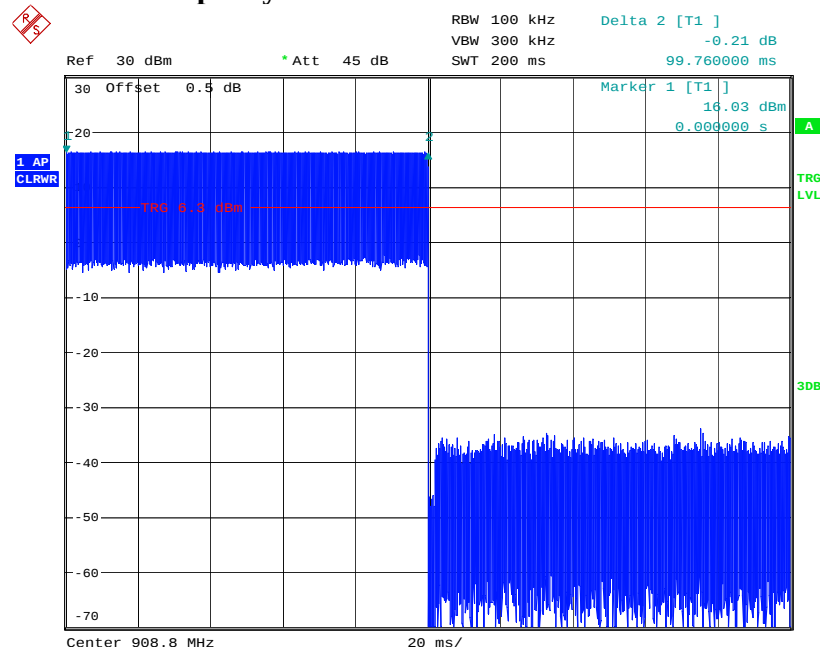
Specification: FCC Part 15 Subpart C, 15.247

**20dB Bandwidth:** 328.53kHz

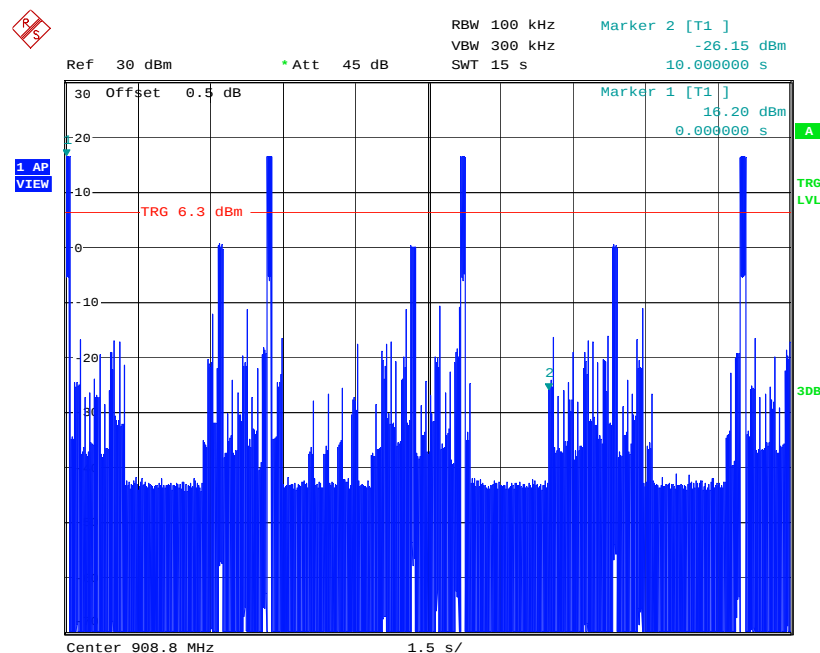


Date: 17.OCT.2008 14:49:26

**Time of Occupancy:  $99.76 \times 3 = 299.28\text{msec}$  in 10seconds**



Date: 17.OCT.2008 15:19:29



Date: 17.OCT.2008 15:24:22

**Clause 15.247(b)(2) Maximum peak output power of Frequency hopping systems operating in the 902-928 MHz band**

For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

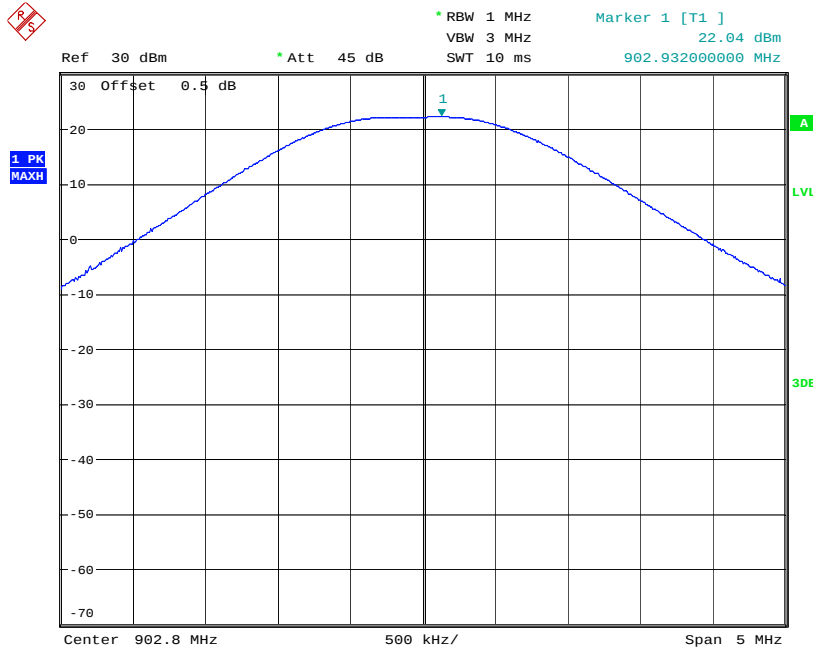
**Test Results:** Pass

**Conducted Output Power:**

The output power was measured at +/-15% of the supply voltage and found that there was no change.

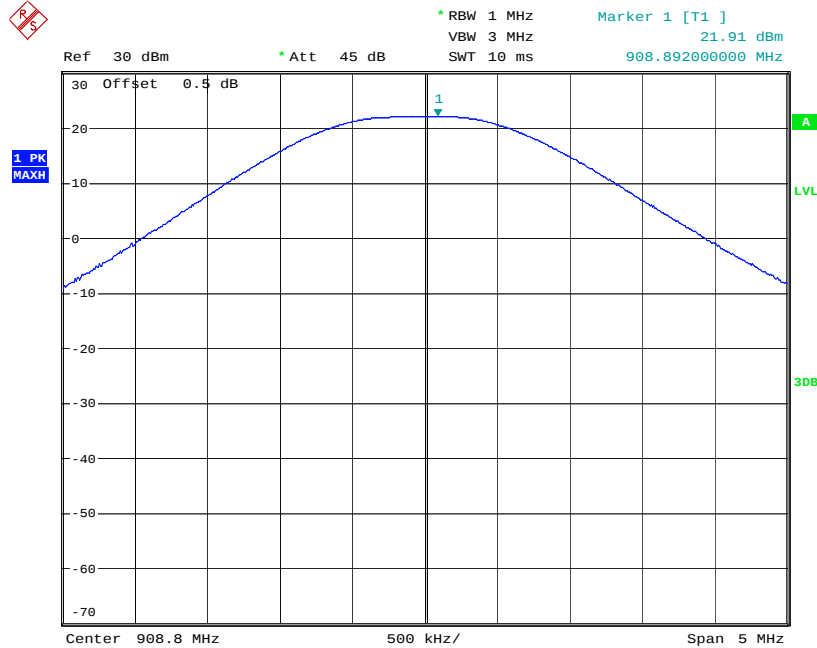
| Channel Range | Measured Output Power (W) |
|---------------|---------------------------|
| Low           | 0.160                     |
| Mid           | 0.155                     |
| High          | 0.186                     |

**Low Channel:**



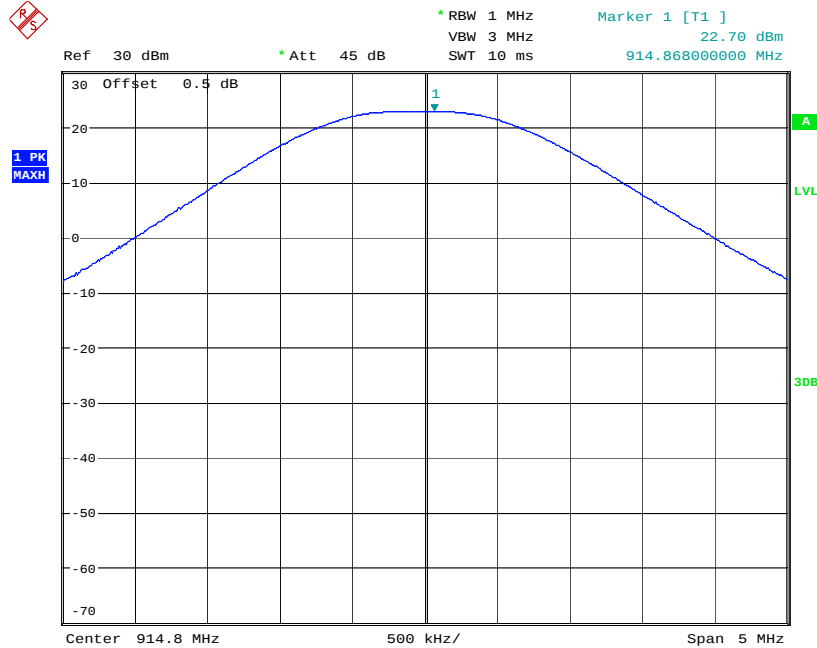
Date: 17.OCT.2008 14:46:01

## Mid Channel:



Date: 17.OCT.2008 14:46:51

## High Channel:



Date: 17.OCT.2008 14:51:55



**Nemko Canada Inc.**

Report Number: 115120-1TRFWL

Specification: FCC Part 15 Subpart C, 15.247

**Clause 15.247(b)(4) Maximum peak output power**

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Test Results:** Pass

$$\text{Limit EIRP output power} = 24\text{dBm} + 6\text{dBi} = 30\text{dBm EIRP}$$

**Radiated Output Power:**

| Ch. | Freq. | Pol<br>V/H | Rx<br>dBuV | Corr.<br>dB | F.S.<br>dBuV/m | F.S<br>V/m  | EIRP<br>Watts | EIRP<br>dBm |
|-----|-------|------------|------------|-------------|----------------|-------------|---------------|-------------|
| low | 902.8 | V          | 88.71      | 24.92       | 113.63         | 0.480021707 | 0.069126      | 18.40       |
|     | 902.8 | H          | 92.79      | 25.27       | 118.06         | 0.799946379 | 0.191974      | 22.83       |
| mid | 908.8 | V          | 88.26      | 25.03       | 113.29         | 0.461936712 | 0.064016      | 18.06       |
|     | 908.8 | H          | 95.25      | 25.43       | 120.68         | 1.08163935  | 0.350983      | 25.45       |
| hi  | 914.8 | V          | 88.17      | 25.08       | 113.25         | 0.459735909 | 0.063407      | 18.02       |
|     | 914.8 | H          | 91.46      | 25.58       | 117.04         | 0.710899856 | 0.151614      | 21.81       |

Note: Corr. Value includes cable loss and antenna factor.

**Additional Observations:**

All Measurements were performed at 3m using a 1MHz RBW/VBW.

---

**Clause 15.247(d) Radiated Emissions Not in Restricted Bands**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

**Test Results:** Pass

**Additional Observations:**

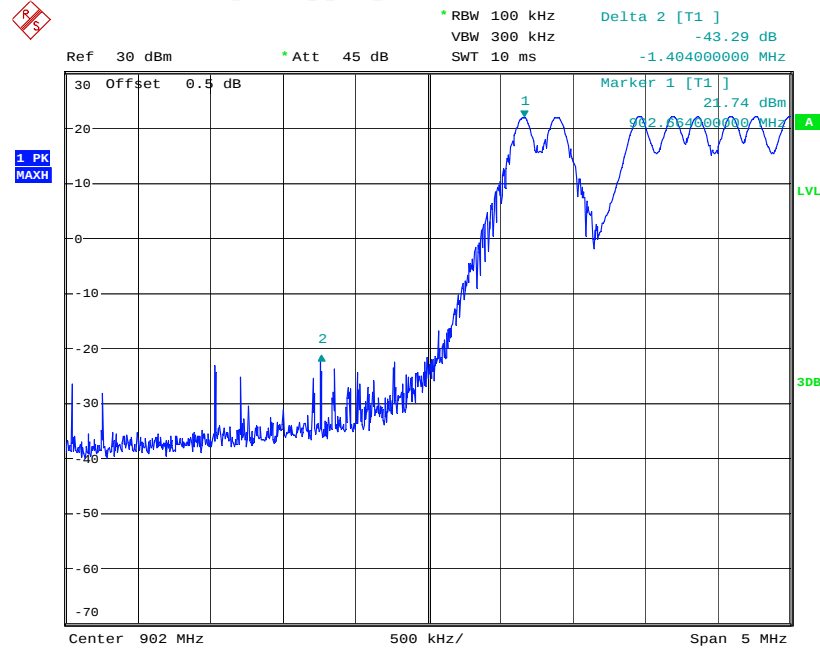
The spectrum was searched from 30MHz to 10GHz.

Measurements were performed using a Peak Detector with 100kHz RBW/ 300kHz VBW below 1GHz and a Peak detector with 1MHz RBW/3MHz VBW and a Peak detector with 1MHz RBW/10Hz VBW for the Average detector above 1 GHz.

Measurements from 30MHz to 8GHz were performed at 3m and above 8GHz at 1m.

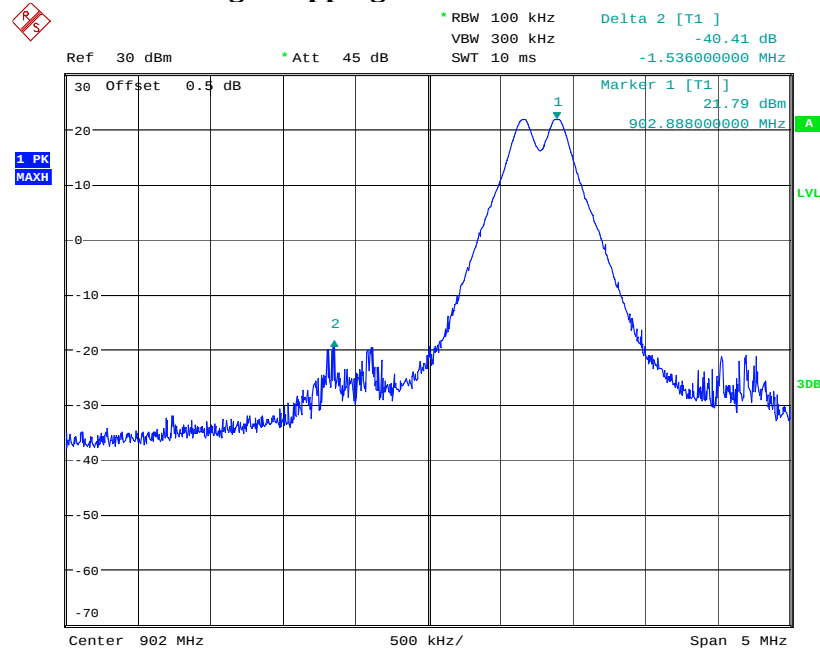
All radiated measurements were tested to show compliance with the requirements of 15.209.

### Lower Band Edge Hopping On:



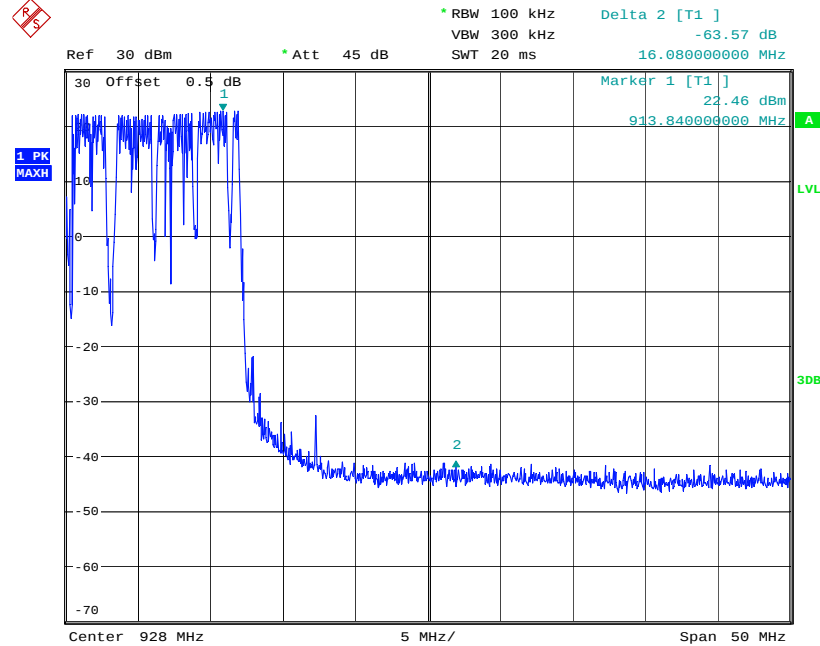
Date: 17.OCT.2008 14:56:56

### Lower Band Edge Hopping Off:



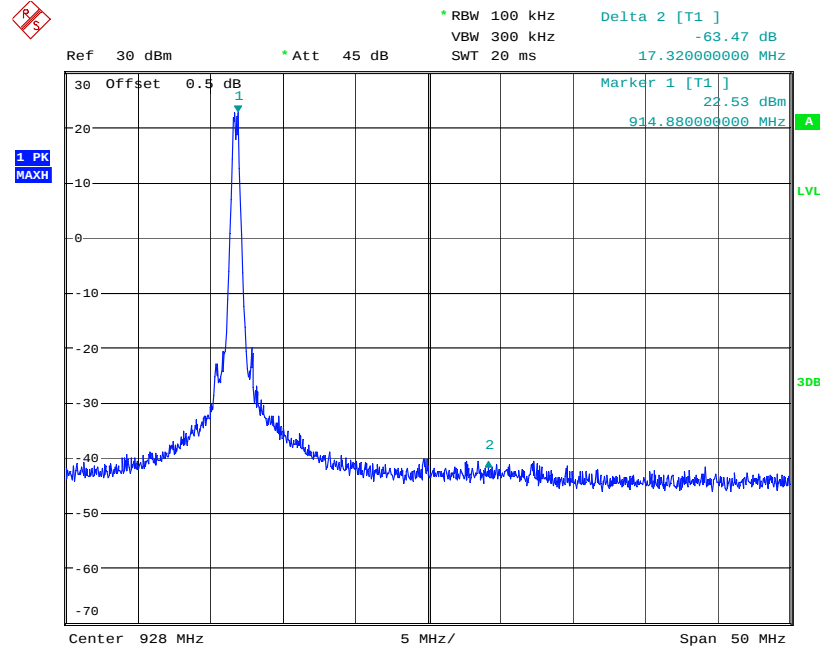
Date: 17.OCT.2008 14:55:24

### Upper Band Edge Hopping On:



Date: 17.OCT.2008 14:57:40

### Upper Band Edge Hopping Off:



Date: 17.OCT.2008 14:54:30



**Nemko Canada Inc.**

**Low Channel**

**Average**

| Frequency (MHz) | Pol (V/H) | Rcvd Level (dBuV/m) | Corr. (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|-----------|---------------------|------------|-------------------------|----------------|-------------|
| 1805.6          | V         | 67.1                | -15.77     | 51.33                   | 54             | 2.67        |
| 1805.6          | H         | 67.81*              | -15.77     | 52.04                   | 54             | 1.96        |
| 2708.4          | V         | 61.91*              | -11.56     | 50.35                   | 54             | 3.65        |
| 2708.4          | H         | 58.94*              | -11.56     | 47.38                   | 54             | 6.62        |
| 3611.2          | V         | 59.19*              | -8.93      | 50.26                   | 54             | 3.74        |
| 3611.2          | H         | 61.11*              | -8.93      | 52.18                   | 54             | 1.82        |
| 4514            | V         | 57.98               | -6.73      | 51.25                   | 54             | 2.75        |
| 4514            | H         | 58.68*              | -6.73      | 51.95                   | 54             | 2.05        |
| 5416.8          | V         | 53.56               | -2.71      | 50.85                   | 54             | 3.15        |
| 5416.8          | H         | 53.77               | -2.71      | 51.06                   | 54             | 2.94        |
| 6319.6          | V         | 40.84               | 0.13       | 40.97                   | 54             | 13.03       |
| 6319.6          | H         | 42.38               | 0.13       | 42.51                   | 54             | 11.49       |
| 7222.4          | V         | 45.04               | 1.20       | 46.24                   | 54             | 7.76        |
| 7222.4          | H         | 45.65               | 1.20       | 46.85                   | 54             | 7.15        |
| 8125.2          | V         | 59.24*              | -7.73      | 51.51                   | 54             | 2.49        |
| 8125.2          | H         | 57.95*              | -7.73      | 50.22                   | 54             | 3.78        |
| 9028            | V         | 59.59*              | -5.93      | 53.66                   | 54             | 0.34        |
| 9028            | H         | 59.83*              | -5.93      | 53.90                   | 54             | 0.10        |

\* Measurement performed with Peak Detector

**Peak**

| Frequency (MHz) | Pol (V/H) | Rcvd Level (dBuV/m) | Corr. (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|-----------|---------------------|------------|-------------------------|----------------|-------------|
| 1805.6          | V         | 70.29               | -15.77     | 54.52                   | 74             | 19.48       |
| 4514            | V         | 65.27               | -6.73      | 58.54                   | 74             | 15.46       |
| 5416.8          | V         | 63                  | -2.71      | 60.29                   | 74             | 13.71       |
| 5416.8          | H         | 62.59               | -2.71      | 59.88                   | 74             | 14.12       |
| 6319.6          | V         | 54.78               | 0.13       | 54.91                   | 74             | 19.09       |
| 6319.6          | H         | 54.7                | 0.13       | 54.83                   | 74             | 19.17       |
| 7222.4          | V         | 57.83               | 1.20       | 59.03                   | 74             | 14.97       |
| 7222.4          | H         | 58.07               | 1.20       | 59.27                   | 74             | 14.73       |

### Mid Channel Average

| Frequency (MHz) | Pol (V/H) | Rcvd Level (dBuV/m) | Corr. (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|-----------|---------------------|------------|-------------------------|----------------|-------------|
| 1817.6          | V         | 68.81               | -15.77     | 53.04                   | 54             | 0.96        |
| 1817.6          | H         | 67.71*              | -15.77     | 51.94                   | 54             | 2.06        |
| 2726.4          | V         | 61.68*              | -11.56     | 50.12                   | 54             | 3.88        |
| 2726.4          | H         | 58.01*              | -11.56     | 46.45                   | 54             | 7.55        |
| 3635.2          | V         | 58.42*              | -8.93      | 49.49                   | 54             | 4.51        |
| 3635.2          | H         | 60.25*              | -8.93      | 51.32                   | 54             | 2.68        |
| 4544            | V         | 58.05               | -6.73      | 51.32                   | 54             | 2.68        |
| 4544            | H         | 59.64*              | -6.73      | 52.91                   | 54             | 1.09        |
| 5452.8          | V         | 49.68               | -2.71      | 46.97                   | 54             | 7.03        |
| 5452.8          | H         | 52.16               | -2.71      | 49.45                   | 54             | 4.55        |
| 6361.6          | V         | 43.35               | 0.13       | 43.48                   | 54             | 10.52       |
| 6361.6          | H         | 41.87               | 0.13       | 42.00                   | 54             | 12.00       |
| 7270.4          | V         | 43.98               | 1.20       | 45.18                   | 54             | 8.82        |
| 7270.4          | H         | 45.38               | 1.20       | 46.58                   | 54             | 7.42        |
| 8179.2          | V         | 58.75*              | -7.73      | 51.02                   | 54             | 2.98        |
| 8179.2          | H         | 57.31*              | -7.73      | 49.58                   | 54             | 4.42        |
| 9088            | V         | 47.34               | -5.93      | 41.41                   | 54             | 12.59       |
| 9088            | H         | 48.06               | -5.93      | 42.13                   | 54             | 11.87       |

\*Measurement performed with a Peak Detector

### Peak

| Frequency (MHz) | Pol (V/H) | Rcvd Level (dBuV/m) | Corr. (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|-----------|---------------------|------------|-------------------------|----------------|-------------|
| 1817.6          | V         | 71.66               | -15.77     | 55.89                   | 74             | 18.11       |
| 4544            | V         | 65.46               | -6.73      | 58.73                   | 74             | 15.27       |
| 5452.8          | V         | 59.73               | -2.71      | 57.02                   | 74             | 16.98       |
| 5452.8          | H         | 61.38               | -2.71      | 58.67                   | 74             | 15.33       |
| 6361.6          | V         | 55.89               | 0.13       | 56.02                   | 74             | 17.98       |
| 6361.6          | H         | 54.62               | 0.13       | 54.75                   | 74             | 19.25       |
| 7270.4          | V         | 56.51               | 1.20       | 57.71                   | 74             | 16.29       |
| 7270.4          | H         | 58.14               | 1.20       | 59.34                   | 74             | 14.66       |
| 9088            | V         | 60.31               | -5.93      | 54.38                   | 74             | 19.62       |
| 9088            | H         | 60.87               | -5.93      | 54.94                   | 74             | 19.06       |

### High Channel Average

| Frequency (MHz) | Pol (V/H) | Rcvd Level (dBuV/m) | Corr. (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|-----------|---------------------|------------|-------------------------|----------------|-------------|
| 1829.6          | V         | 68.5                | -15.77     | 52.73                   | 54             | 1.27        |
| 1829.6          | H         | 65.49*              | -15.77     | 49.72                   | 54             | 4.28        |
| 2744.4          | V         | 64.61*              | -11.56     | 53.05                   | 54             | 0.95        |
| 2744.4          | H         | 57.97*              | -11.56     | 46.41                   | 54             | 7.59        |
| 3659.2          | V         | 59.16*              | -8.93      | 50.23                   | 54             | 3.77        |
| 3659.2          | H         | 59.86*              | -8.93      | 50.93                   | 54             | 3.07        |
| 4574            | V         | 57.97               | -6.73      | 51.24                   | 54             | 2.76        |
| 4574            | H         | 59.66*              | -6.73      | 52.93                   | 54             | 1.07        |
| 5488.8          | V         | 47.73               | -2.71      | 45.02                   | 54             | 8.98        |
| 5488.8          | H         | 49.89               | -2.71      | 47.18                   | 54             | 6.82        |
| 6403.6          | V         | 48.77               | 0.13       | 48.90                   | 54             | 5.10        |
| 6403.6          | H         | 44.52               | 0.13       | 44.65                   | 54             | 9.35        |
| 7318.4          | V         | 44.65               | 1.20       | 45.85                   | 54             | 8.15        |
| 7318.4          | H         | 43.17               | 1.20       | 44.37                   | 54             | 9.63        |
| 8233.2          | V         | 58.52*              | -7.73      | 50.79                   | 54             | 3.21        |
| 8233.2          | H         | 60.46*              | -7.73      | 52.73                   | 54             | 1.27        |
| 9148            | V         | 48.37               | -5.93      | 42.44                   | 54             | 11.56       |
| 9148            | H         | 49.87               | -5.93      | 43.94                   | 54             | 10.06       |

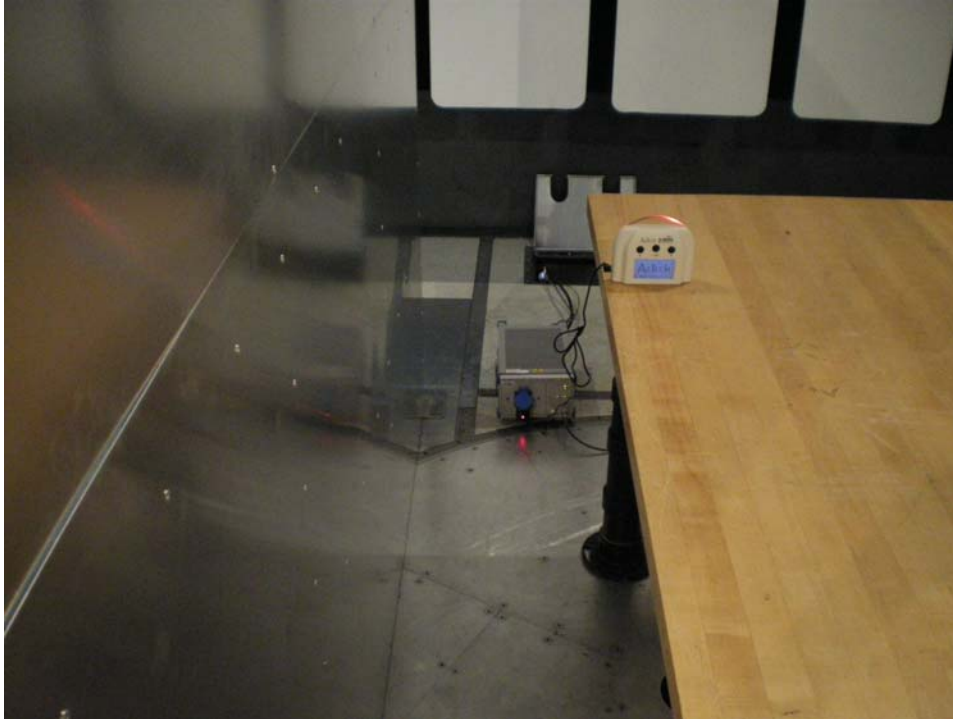
\*Measurements were performed using a peak detector

### Peak

| Frequency (MHz) | Pol (V/H) | Rcvd Level (dBuV/m) | Corr. (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|-----------|---------------------|------------|-------------------------|----------------|-------------|
| 1829.6          | V         | 71.74               | -15.77     | 55.97                   | 74             | 18.03       |
| 4574            | V         | 64.94               | -6.73      | 58.21                   | 74             | 15.79       |
| 5488.8          | V         | 59.05               | -2.71      | 56.34                   | 74             | 17.66       |
| 5488.8          | H         | 60.28               | -2.71      | 57.57                   | 74             | 16.43       |
| 6403.6          | V         | 59.65               | 0.13       | 59.78                   | 74             | 14.22       |
| 6403.6          | H         | 56.24               | 0.13       | 56.37                   | 74             | 17.63       |
| 7318.4          | V         | 57.18               | 1.20       | 58.38                   | 74             | 15.62       |
| 7318.4          | H         | 56.3                | 1.20       | 57.50                   | 74             | 16.50       |
| 9148            | V         | 61.89               | -5.93      | 55.96                   | 74             | 18.04       |
| 9148            | H         | 63.46               | -5.93      | 57.53                   | 74             | 16.47       |

## **Appendix B : Setup Photographs**

### **Conducted Emissions Setup:**

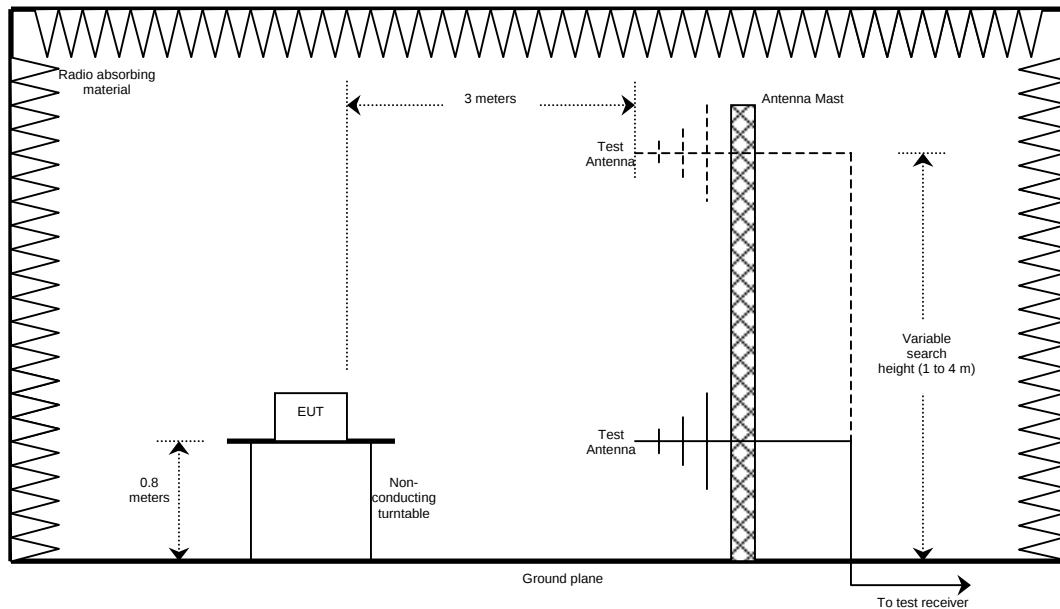


### **Spurious Emissions Setup:**

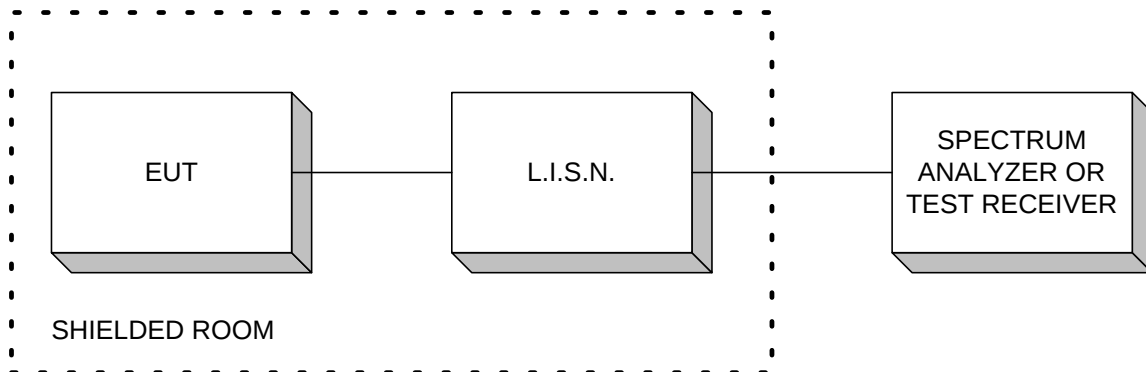


## Appendix C : Block Diagram of Test Setups

### Radiated Emissions above 30MHz Test Site



### Conducted Emissions Test Site



### Transmitter power, PSD, Occupied Bandwidth, Conducted Spurious emissions, frequency hopping Setup

