



**Test Report:**

1W04434.1

**Applicant:**

EXI Wireless Systems Inc.  
Suite 100 – 13551 Commerce Pk.  
Richmond, B.C.  
V6V 2L1

**Equipment Under Test:  
(EUT)**

eLink Tag Tester

**FCC ID:**

HE7TTG

**In Accordance With:**

**FCC Part 15, Subpart C, 15.209**

**Tested By:**

Nemko Canada Inc.  
3325 River Road, R.R. 5  
Ottawa, Ontario K1V 1H2

**Authorized By:**

G. Westwell, Wireless Technologist

**Date:**

December 18, 2001

**Total Number of Pages:**

11

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## **Table Of Contents**

|                                                         |           |
|---------------------------------------------------------|-----------|
| <b>Section 1. Summary Of Test Results.....</b>          | <b>3</b>  |
| <b>Section 2. General Equipment Specification .....</b> | <b>5</b>  |
| <b>Section 3. Radiated Emissions.....</b>               | <b>7</b>  |
| <b>Section 4. Block Diagrams.....</b>                   | <b>10</b> |
| <b>Section 5. Test Equipment List .....</b>             | <b>11</b> |

*EQUIPMENT: eLink Tag Tester*

*FCC ID: HE7TTG*

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## **Section 1. Summary Of Test Results**

### **General**

**All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15, Subpart C for low power devices. All tests were conducted using measurement procedure ANSI C63.4-1992. Radiated Emissions were made on an open area test site. A description of the test facility is on file with the FCC.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE  
TEST SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".



TESTED BY:

Russell Grant, Wireless Group Manager

DATE: December 18, 2001

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada. The tests included in this report are within the scope of this accreditation. The results apply only to the samples tested.

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This report applies only to the items tested.

*EQUIPMENT: eLink Tag Tester**FCC ID: HE7TTG*

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**Summary Of Test Data**

| <b>Name Of Test</b>           | <b>Para. No.</b> | <b>Result</b> |
|-------------------------------|------------------|---------------|
| Powerline Conducted Emissions | 15.207           | N/A           |
| Radiated Emissions            | 15.209           | Complies      |

**Footnotes For N/A's:**

Batteries

**Test Conditions:****Indoor**

Temperature: 22 °C

Humidity: 52 %

**Outdoor**

Temperature: 20 °C

Humidity: 56 %

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## **Section 2. General Equipment Specification**

**Manufacturer:** EXI Wireless Systems Inc.

**Model No.:** eLink

**Serial No.:** None

**Date Received In Laboratory:** December 11, 2001

**Nemko Identification No.:** Item #1

**Tx:** Fixed 307 kHz

**Rx:** 433.92 Tuned RF

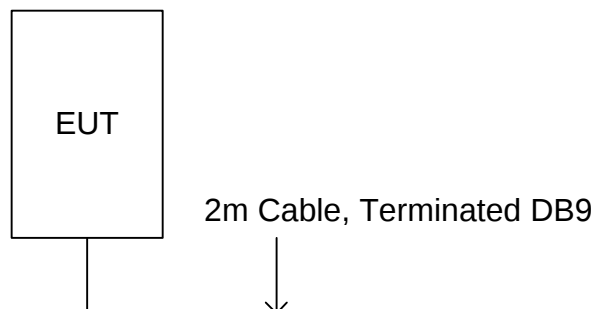
Uses no LO or IF

Pulse Width Modulated

65K3L1D

9VDC Battery Powered

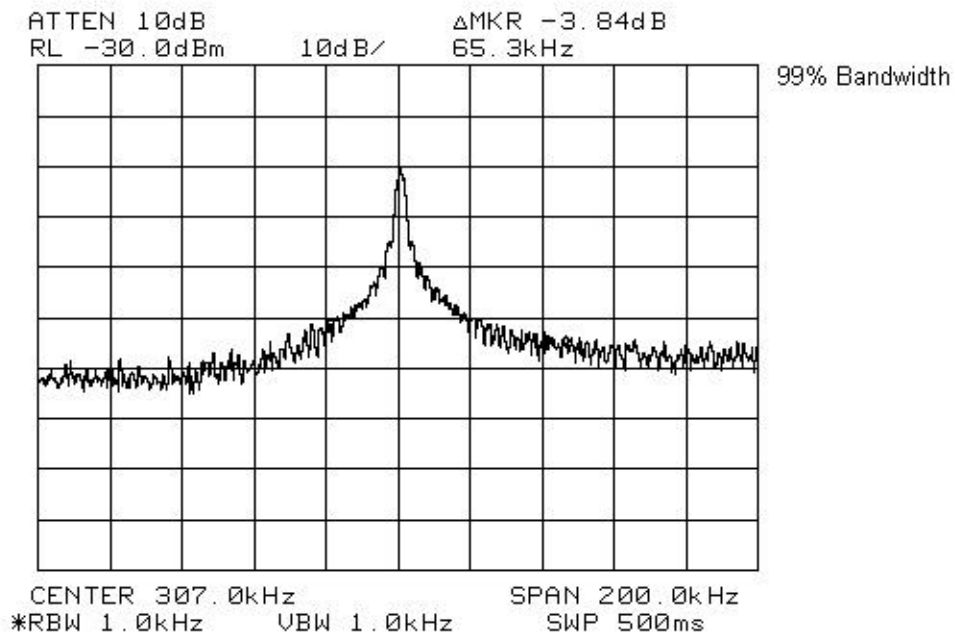
**EUT Configuration:**



EQUIPMENT: eLink Tag Tester

FCC ID: HE7TTG

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**Section 3. Radiated Emissions****Para. No.: 15.209****Test Performed By:** Russell Grant**Date of Test:** December 12, 2001**Minimum Standard:**

| <b>Fundamental<br/>(MHz)</b> | <b>Field Strength<br/>(<math>\mu</math>V/m)</b> | <b>Field Strength<br/>(dB<math>\mu</math>V)</b> |
|------------------------------|-------------------------------------------------|-------------------------------------------------|
| 0.009 - 0.490                | 2400/F(kHz) @ 300m                              | —                                               |
| 0.490 - 1.705                | 24000/F(kHz) @ 30m                              | —                                               |
| 1.705 - 30                   | 30 @ 30m                                        | —                                               |
| 30 - 88                      | 100                                             | 40.0                                            |
| 88 - 216                     | 150                                             | 43.5                                            |
| 216 - 960                    | 200                                             | 46.0                                            |
| Above 960                    | 500                                             | 54.0                                            |

**Test Results:** Complies.**Measurement Data:** See attached table.

The spectrum was searched up to 2 GHz.

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FCC ID: HE7TTG

**Radiated Emissions Table**

| Frequency of Emission (MHz) | 1 m Reading (dBuV) | 2 m Reading (dBuV) | Extrapolated Field Strength (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------------------|--------------------|--------------------|--------------------------------------|----------------|-------------|
| 0.307                       | 77                 | 59                 | -71.1                                | 17.9           | 89.0        |
| 0.614                       | 73                 | 55                 | -15.3                                | 31.8           | 47.2        |
| 0.921                       | 76                 | 57                 | -17.2                                | 28.3           | 45.5        |
| 1.228                       | 70                 | 51                 | -23.2                                | 25.8           | 49.1        |
| 1.535                       | 66                 | 47                 | -27.2                                | 23.9           | 51.1        |
| 1.842                       | 60                 | 43                 | -23.4                                | 29.5           | 53.0        |
| 2.149                       | 61                 | 43                 | -27.3                                | 29.5           | 56.9        |
| 2.456                       | 56                 | 38                 | -32.3                                | 29.5           | 61.9        |
| 2.763                       | 59                 | 42                 | -24.4                                | 29.5           | 54.0        |
| 3.070                       | 55                 | *                  | -4.1                                 | 29.5           | 33.6        |
| 3.377                       | 56                 | *                  | -3.1                                 | 29.5           | 32.6        |
| 3.684                       | 52                 | *                  | -7.1                                 | 29.5           | 36.6        |
| 3.991                       | 54                 | *                  | -5.1                                 | 29.5           | 34.6        |
| 4.298                       | 51                 | *                  | -8.1                                 | 29.5           | 37.6        |
| 4.605                       | 52                 | *                  | -7.1                                 | 29.5           | 36.6        |
| 4.912                       | 50                 | *                  | -9.1                                 | 29.5           | 38.6        |
| 5.219                       | 50                 | *                  | -9.1                                 | 29.5           | 38.6        |
| 5.526                       | 45                 | *                  | -14.1                                | 29.5           | 43.6        |
| 5.833                       | 48                 | *                  | -11.1                                | 29.5           | 40.6        |
| 6.140                       | 44                 | *                  | -15.1                                | 29.5           | 44.6        |
| 6.447                       | 47                 | *                  | -12.1                                | 29.5           | 41.6        |
| 6.754                       | 43                 | *                  | -16.1                                | 29.5           | 45.6        |
| 7.061                       | 47                 | *                  | -12.1                                | 29.5           | 41.6        |
| 7.675                       | 45                 | *                  | -14.1                                | 29.5           | 43.6        |
| 8.289                       | 43                 | *                  | -16.1                                | 29.5           | 45.6        |
| 8.903                       | 42                 | *                  | -17.1                                | 29.5           | 46.6        |
| 9.517                       | 42                 | *                  | -17.1                                | 29.5           | 46.6        |

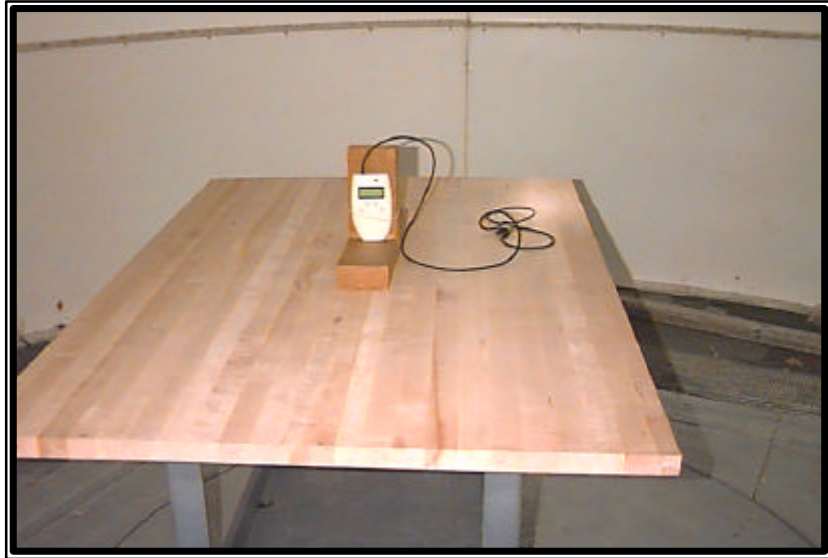
**Notes:**  
Measured spectrum analyzer RBW=VBW=10kHz, Peak Detector  
Fundamental at 307 kHz was extrapolated to 300 m  
All unwanted emissions extrapolated to 30 m  
\* denotes emissions which were extrapolated using inverse square law extrapolation of 40 db/decade  
otherwise measurements were extrapolated from readings at 1 and 2 m

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## **Radiated Emissions Photographs**

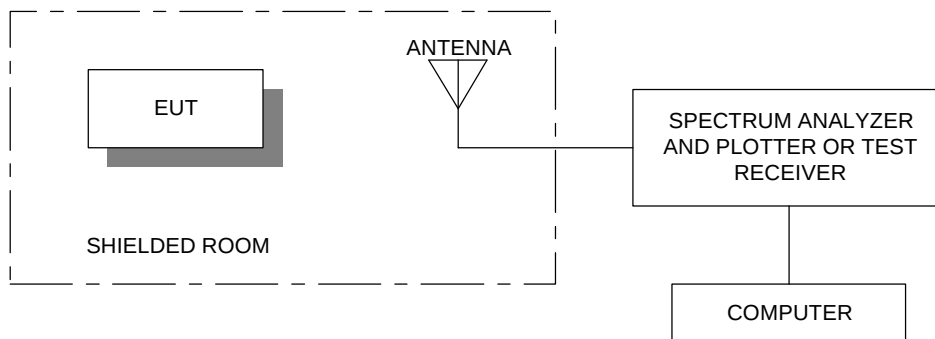


EQUIPMENT: eLink Tag Tester

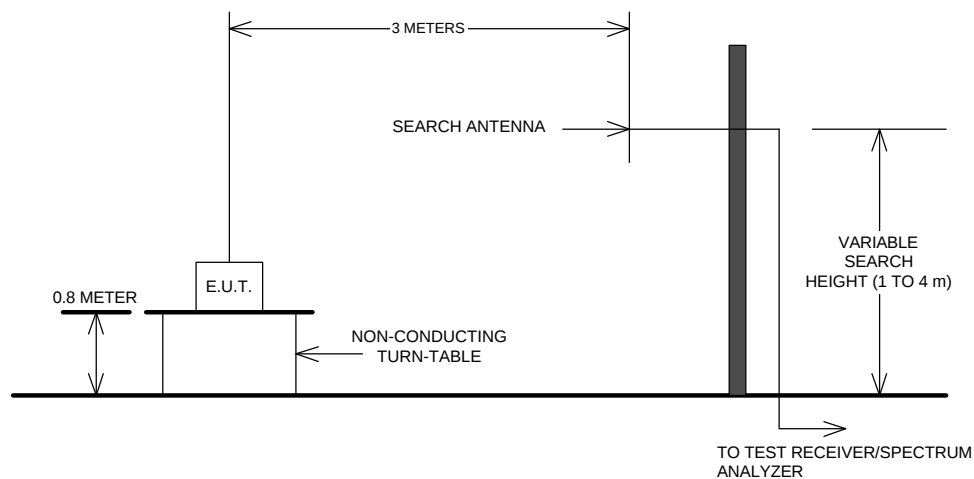
FCC ID: HE7TTG

## Section 4. Block Diagrams

### Radiated Prescan



### Test Site For Radiated Emissions



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**Section 5. Test Equipment List**

| <b>CAL CYCLE</b> | <b>EQUIPMENT</b>            | <b>MANUFACTURER</b> | <b>MODEL</b> | <b>SERIAL</b> | <b>LAST CAL.</b> | <b>NEXT CAL.</b> |
|------------------|-----------------------------|---------------------|--------------|---------------|------------------|------------------|
| 1 Year           | Spectrum Analyzer           | Hewlett Packard     | 8565E        | FA000981      | June 08/01       | June 08/02       |
| 1 Year           | Spectrum Analyzer-1         | Hewlett Packard     | 8566B        | 2311A02238    | Nov. 27/01       | Nov. 27/02       |
| 1 Year           | Spectrum Analyzer Display-1 | Hewlett Packard     | 8566B        | 2314A04759    | Nov. 27/01       | Nov. 27/02       |
| 1 Year           | Horn Antenna                | EMCO #2             | 3115         | 4336          | Dec. 1/01        | Dec. 1/02        |
| 1 Year           | Dipole Antenna Set          | EMCO #2             | 3121C        | FA001349      | Apr. 3/01        | Apr. 3/02        |
| 1 Year           | Active Loop Antenna         | Rohde & Schwarz     | HFH2-Z2      | FA000631      | March 20/01      | March 20/02      |

NA: Not Applicable

NCR: No Cal Required

COU: CAL On Use