

## EMISSION TEST REPORT

Report Number: 3137752BOX-001

Project Number: 3137752

Testing performed on the  
908MHz Z-Wave Motion Sensor

Model: US

To


FCC Part 15 Subpart C 15.249

For

Express Controls

Test Performed by:  
Intertek – ETL SEMKO  
70 Codman Hill Road  
Boxborough, MA 01719

Test Authorized by:  
Express Controls  
74A Averill Road  
Brookline, NH 03033

Prepared by:   
Kouma Sinn

Date: 3/11/08

Reviewed by:   
Michael Murphy

Date: 3/12/08

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## 1.0 Job Description

### 1.1 Client Information:

This equipment under test (EUT) has been tested at the request of:

|                   |  |
|-------------------|--|
| <b>Company:</b>   | Express Controls<br>74A Averill Road<br>Brookline, NH 03033          |
| <b>Contact:</b>   | Eric Ryherd  |
| <b>Telephone:</b> | 603-930-8822   |
| <b>Fax:</b>       | Not Available  |
| <b>Email:</b>     | <a href="mailto:Eric@EpressControls.com">Eric@EpressControls.com</a> |

### 1.2 Equipment Under Test:

|                                |  |
|--------------------------------|--|
| <b>Equipment Type:</b>         | 908MHz Z-Wave Motion Sensor                            |
| <b>Model Number(s):</b>        | US   |
| <b>Serial number(s):</b>       | 3  |
| <b>Manufacturer:</b>           | Express Controls                                       |
| <b>EUT receive date:</b>       | March 6, 2008  |
| <b>EUT received condition:</b> | A production unit was received with no visible damage. |
| <b>Test start date:</b>        | March 6, 2008  |
| <b>Test end date:</b>          | March 6, 2008  |

### 1.3 Test Plan Reference:

Tested according to the standards listed and ANSI C63.4:2003

### 1.4 Test Configuration:

#### 1.4.1 EUT Voltage Range:

The EUT powers from three AAA batteries.

#### 1.4.2 Cables:

None

#### 1.4.3 Support Equipment:

None

**1.4.4 Block Diagram:**



**1.5 Mode(s) of Operation:**

The EUT was transmitting continuously throughout testing.

**1.6 Modifications Required For Compliance:**

None

## 2.0 Test Summary:

| TEST STANDARD                                | RESULTS   |         |
|--|---|---------|
| FCC Part 15 Subpart C<br>15.249              |   |         |
| SUB-TEST                                     | TEST PARAMETER  | COMMENT |
| The 20 dB bandwidth                          | No limits   | Pass    |
| Fundamental Field Strength<br>FCC 15.249(a)  | The fundamental field strength shall not exceed 50 millivolts/meter at a distance of 3 meters   | Pass    |
| Radiated Spurious Emissions<br>FCC 15.249(d) | The field strength of harmonics emissions shall not exceed 500 microvolts/meter. Any other spurious emissions including harmonics that fall in the restricted band shall not exceed the general limits of 15.209. | Pass    |
| AC Line-Conducted Emissions<br>FCC 15.207    | EUT powers from three AAA batteries – Testing is not applicable   | --      |

REVISION SUMMARY – The following changes have been made to this Report:

| <u>Date</u> | <u>Project No.</u> | <u>Project Handler</u> | <u>Page(s)</u> | <u>Item</u> | <b>Description of Change</b> |
|-------------|--------------------|------------------------|----------------|-------------|------------------------------|
|-------------|--------------------|------------------------|----------------|-------------|------------------------------|

### 3.0 Sample Calculations:

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where  
 FS = Field Strength in dB $\mu$ V/m  
 RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V  
 CF = Cable Attenuation Factor in dB  
 AF = Antenna Factor in dB  
 AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

RA = 52.0 dB $\mu$ V  
 AF = 7.4 dB/m  
 CF = 1.6 dB  
 AG = 29.0 dB  
 FS = 32 dB $\mu$ V/m

$$\text{Level in } \mu\text{V/m} = [10(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

The following is how net line-conducted readings were determined:

$$NF = RF + LF + CF + AF$$

Where NF = Net Reading in dB $\mu$ V  
 RF = Reading from receiver in dB $\mu$ V  
 LF = LISN Correction Factor in dB  
 CF = Cable Correction Factor in dB  
 AF = Attenuator Loss Factor in dB

To convert from dB $\mu$ V to  $\mu$ V or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where UF = Net Reading in } \mu\text{V}$$

#### Example:

$$NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 \text{ dB}\mu\text{V}$$

$$UF = 10^{(49.1 \text{ dB}\mu\text{V} / 20)} = 254 \mu\text{V/m}$$

#### **4.0 Measurement Uncertainty:**

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes.

The expanded uncertainty ( $k = 2$ ) for radiated emissions from 30 to 1000 MHz has been determined to be:

$\pm 3.5$  dB at 10m and  $\pm 3.8$  dB at 3m

The expanded uncertainty ( $k = 2$ ) for mains conducted emissions from 150 kHz to 30 MHz has been determined to be:

$\pm 2.6$  dB

The expanded uncertainty ( $k = 2$ ) for telecom port conducted emissions from 150 kHz to 30 MHz has been determined to be:

$\pm 3.2$  for ISN and voltage probe measurements

$\pm 3.1$  for current probe measurements

## 5.0 Site Description:

### Test Site(s): 2

Our OATS are 3m and 10m sheltered emissions measurement ranges located in a light commercial environment in Boxborough, Massachusetts. They meet the technical requirements of ANSI C63.4-2003 and CISPR 22:1993/EN 55022:1994 for radiated and conducted emission measurements. The shelter structure is entirely fiberglass and plastic, with outside dimensions of 33 ft x 57 ft. The structure resembles a quonset hut with a center ceiling height of 16.5 ft.

The testing floor is covered by a galvanized sheet metal groundplane that is earth-grounded via copper rods around the perimeter of the site. The joints between individual metal sheets are bridged with a 2 inch wide metal strips to provide low RF impedance contact throughout. The sheets are screwed in place with stainless steel, round-head screws every three inches. Site illumination and HVAC are provided from beneath the ground reference plane through flush entry ports, the port covers are electrically bonded to the ground plane.

A flush metal turntable with 12 ft. diameter and 5000 lb. load capacity (12,000 lb. in Site 3) is provided for floor-standing equipment. A wooden table 80 cm high is used for table-top equipment. The turntable is electrically connected to the ground plane with three copper straps. The straps are connected to the turntable at the center of it with ground braid. The copper strap is directly connected to the groundplane at the edges of the turntable. The turntable is located on the south end of the structure and the antennas are mounted 3 and 10 meters away to the north. The antenna mast is a non-conductive with remote control of antenna height and polarization. The antenna height is adjustable from 1 to 4 meters.

All final radiated emission measurements are performed with the testing personnel and measurement equipment located below the ground reference plane. The site has a full basement underneath the turntable where support equipment may be remotely located. Operation of the antenna, turntable and equipment under test is controlled by remote controls that manipulate the antenna height and polarization and with a turntable control. Test personnel are located below the ellipse when measurements are performed, however the site maintains the ability of having personnel manipulate cables while monitoring test equipment. Ambient radiated emissions are 6 dB or more below the relevant FCC emission limits.

AC mains power is brought to the equipment under test through a power line filter, to remove ambient conducted noise. 50 Hz (240 VAC single phase), 60 Hz power (120 VAC single phase, 208 VAC three phase), and 60 Hz (480 VAC three phase) are available. Conducted emission measurements are performed with a Line Impedance Stabilization Network (LISN) or Artificial Mains Network (AMN) bonded to the ground reference plane. A removable vertical groundplane (2 meter X 2 meter area) is used for line-conducted measurements for table top equipment. The vertical groundplane is electrically connected to the reference groundplane.





**Test Results:** No limits

**Test Standard:** FCC 15.249

**Test:** 20 dB Bandwidth

**Performance Criterion:** Not Applicable

**EUT Operating Voltage:** Three fully charged AAA batteries

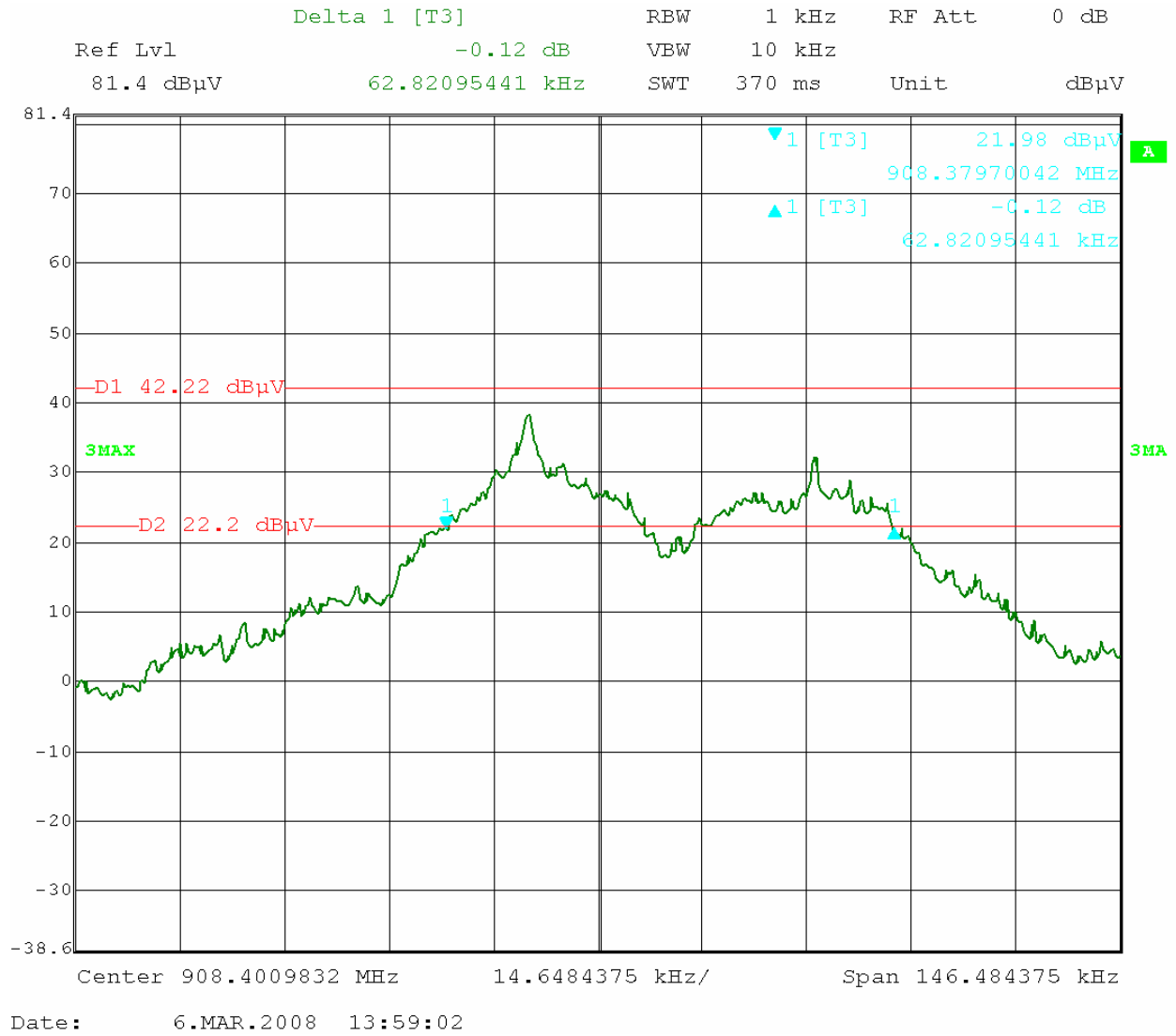
**Test Environment:**

|  |               |    |                       |    |                 |      |
|--|---------------|----|-----------------------|----|-----------------|------|
| Environmental Conditions During Testing: | Ambient (°C): | 22 | Humidity (%):         | 25 | Pressure (hPa): | 1050 |
| Pretest Verification Performed:          | Yes           |    | Equipment under Test: | US |                 |      |
| Test Engineer(s):                        | Kouma Sinn    |    | EUT Serial Number:    | 3  |                 |      |

**Test Equipment Used:**

| TEST EQUIPMENT LIST |                                   |                  |           |            |               |
|---------------------|-----------------------------------|------------------|-----------|------------|---------------|
| Item                | Equipment Type                    | Make             | Model No. | Serial No. | Next Cal. Due |
| 1                   | Digital 4 Line Barometer          | Mannix           | 0ABA116   | BAR2       | 05/20/2008    |
| 2                   | Spectrum Analyzer 20Hz - 40 GHz   | Rohde & Schwartz | FSEK-30   | 100225     | 11/26/2008    |
| 3                   | 3 Meter In floor cable for site 2 | ITS              | RG214B/U  | S2 3M FLR  | 09/17/2008    |
| 4                   | ANTENNA                           | EMCO             | 3142      | 9711-1225  | 06/05/2008    |

## Test Results:



**Test Results:** Pass

**Test Standard:** FCC 15.249(a)

**Test:** Fundamental Field Strength

**Performance Criterion:** Not Applicable

**EUT Operating Voltage:** Three fully charged AAA batteries

**Test Environment:**

|  |               |    |                       |    |                 |      |
|--|---------------|----|-----------------------|----|-----------------|------|
| Environmental Conditions During Testing: | Ambient (°C): | 22 | Humidity (%):         | 25 | Pressure (hPa): | 1050 |
| Pretest Verification Performed:          | Yes           |    | Equipment under Test: | US |                 |      |
| Test Engineer(s):                        | Kouma Sinn    |    | EUT Serial Number:    | 3  |                 |      |

**Test Equipment Used:**

| TEST EQUIPMENT LIST |                                   |                 |           |                |               |
|---------------------|-----------------------------------|-----------------|-----------|----------------|---------------|
| Item                | Equipment Type                    | Make            | Model No. | Serial No.     | Next Cal. Due |
| 1                   | Digital 4 Line Barometer          | Mannix          | 0ABA116   | BAR2           | 05/20/2008    |
| 2                   | Spectrum Analyzer                 | Hewlett Packard | 8591E     | 3308A0144<br>5 | 02/15/2009    |
| 3                   | 3 Meter In floor cable for site 2 | ITS             | RG214B/U  | S2 3M FLR      | 09/17/2008    |
| 4                   | ANTENNA                           | EMCO            | 3142      | 9711-1225      | 06/05/2008    |

**Software Utilized:**

| Name           | Manufacturer          | Version          |
|----------------|-----------------------|------------------|
| EXCEL 2000     | Microsoft Corporation | 9.0.6926 SP-3    |
| EMI BOXBOROUGH | Intertek              | 2/07/05 Revision |

**Test Details:**

| Test Point     | Standard Limit (as published) | Compliance Level   | Pass/Fail | Comment |
|----------------|-------------------------------|--------------------|-----------|---------|
| Around the EUT | 15.249                        | Below 15.249 Limit | Pass      | None    |

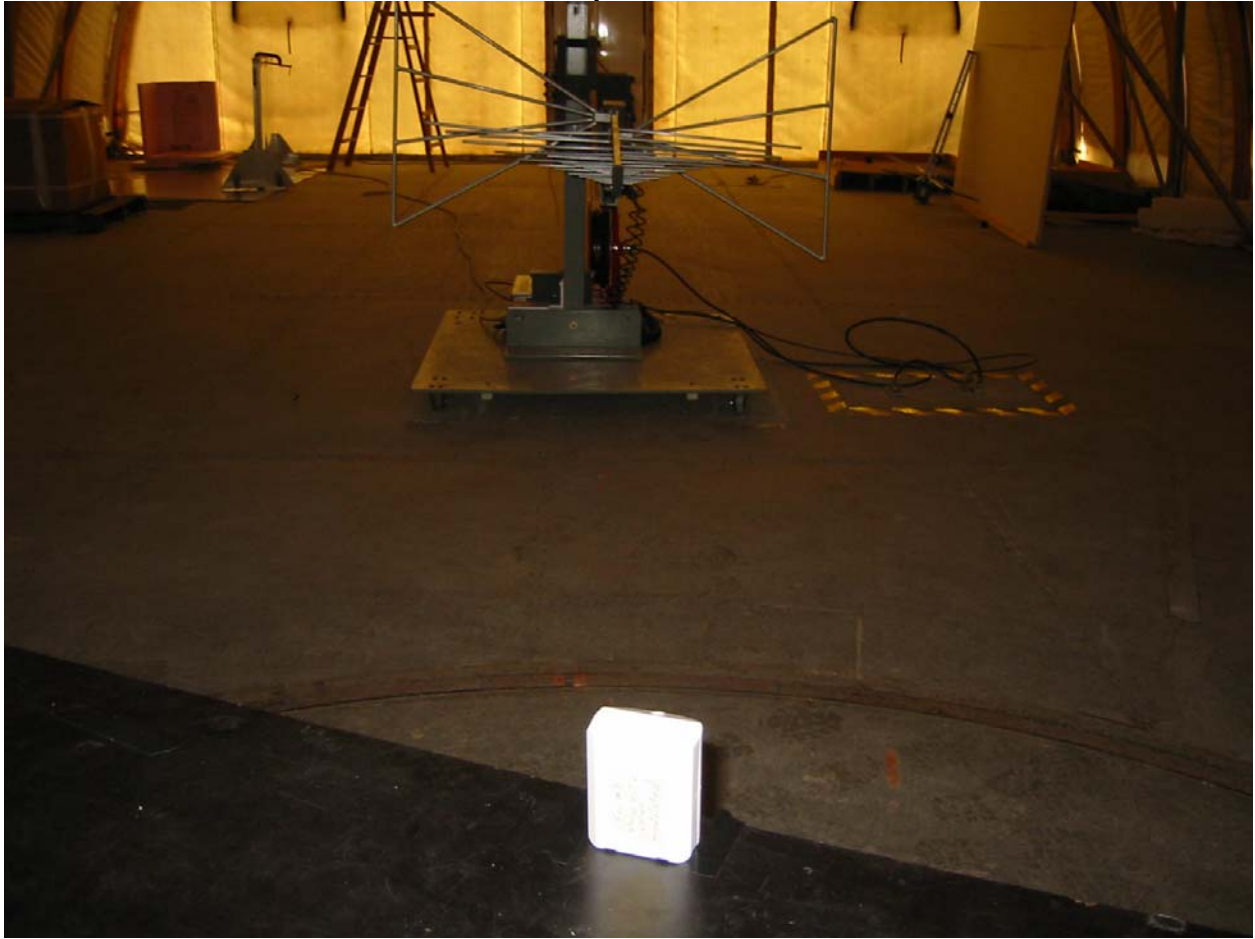
## Test Results:

### Fundamental Field Strength

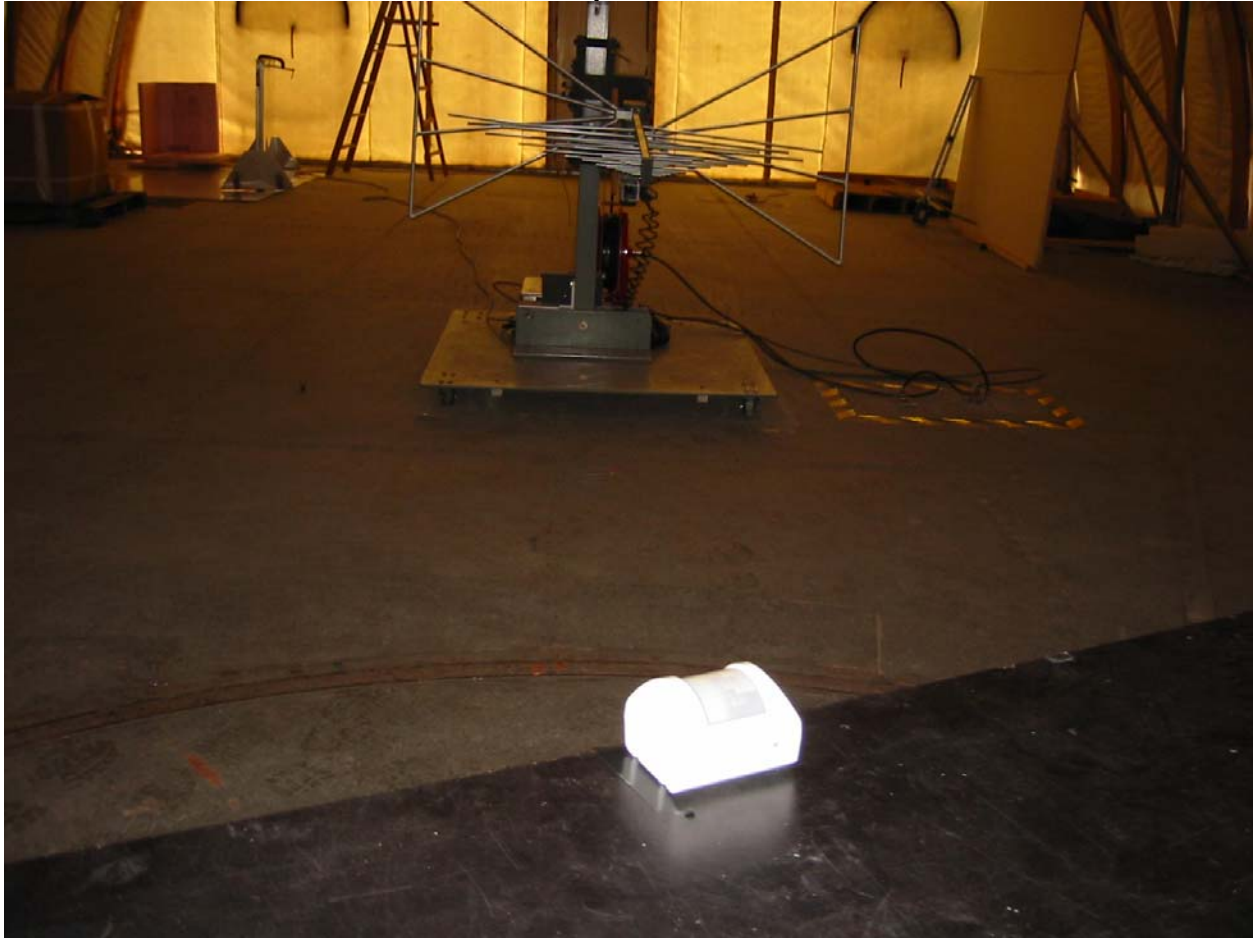
Company: Express Control  
 Model #: US  
 Serial #: 3  
 Engineers: Kouma Sinn  
 Project #: 3137752  
 Standard: FCC Part 15 Subpart C 15.249  
 Receiver: HP 8591E (SA0001)  
 PreAmp: PRE7 11-05-08.txt  
 PreAmp Used? (Y or N): N  
 Date(s): 03/06/08  
 Location: 2  
 Antenna & Cables: N  
 Bands: N, LF, HF, SHF  
 Antenna: LOG4 06-05-08 V3.txt LOG4 06-05-08 H3.txt  
 Cable(s): S2 3M FLR 9-17-08.txt NONE.  
 Barometer: BAR2  
 Temp/Humidity/Pressure: 22C 25% 1050mbar  
 Limit Distance (m): 3  
 Test Distance (m): 3  
 Voltage/Frequency: 3 AAA batteries  
 Frequency Range: Fundamental  
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)  
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

| Detector Type | Ant. Pol. (V/H) | Frequency MHz | Reading dB(uV) | Antenna Factor dB(1/m) | Cable Loss dB | Pre-amp Factor dB | Distance Factor dB | Net dB(uV/m) | Limit dB(uV/m) | Margin dB | Bandwidth   | EUT Position |
|---------------|-----------------|---------------|----------------|------------------------|---------------|-------------------|--------------------|--------------|----------------|-----------|-------------|--------------|
| PK            | V               | 908.392       | 56.9           | 23.4                   | 4.5           | 0.0               | 0.0                | 84.9         | 94.0           | -9.1      | 120/300 kHz | stand        |
| PK            | H               | 908.392       | 58.4           | 23.5                   | 4.5           | 0.0               | 0.0                | 86.4         | 94.0           | -7.6      | 120/300 kHz | stand        |
| PK            | H               | 908.392       | 60.2           | 23.5                   | 4.5           | 0.0               | 0.0                | 88.2         | 94.0           | -5.8      | 120/300 kHz | flat         |
| PK            | V               | 908.392       | 57.6           | 23.4                   | 4.5           | 0.0               | 0.0                | 85.5         | 94.0           | -8.5      | 120/300 kHz | side         |

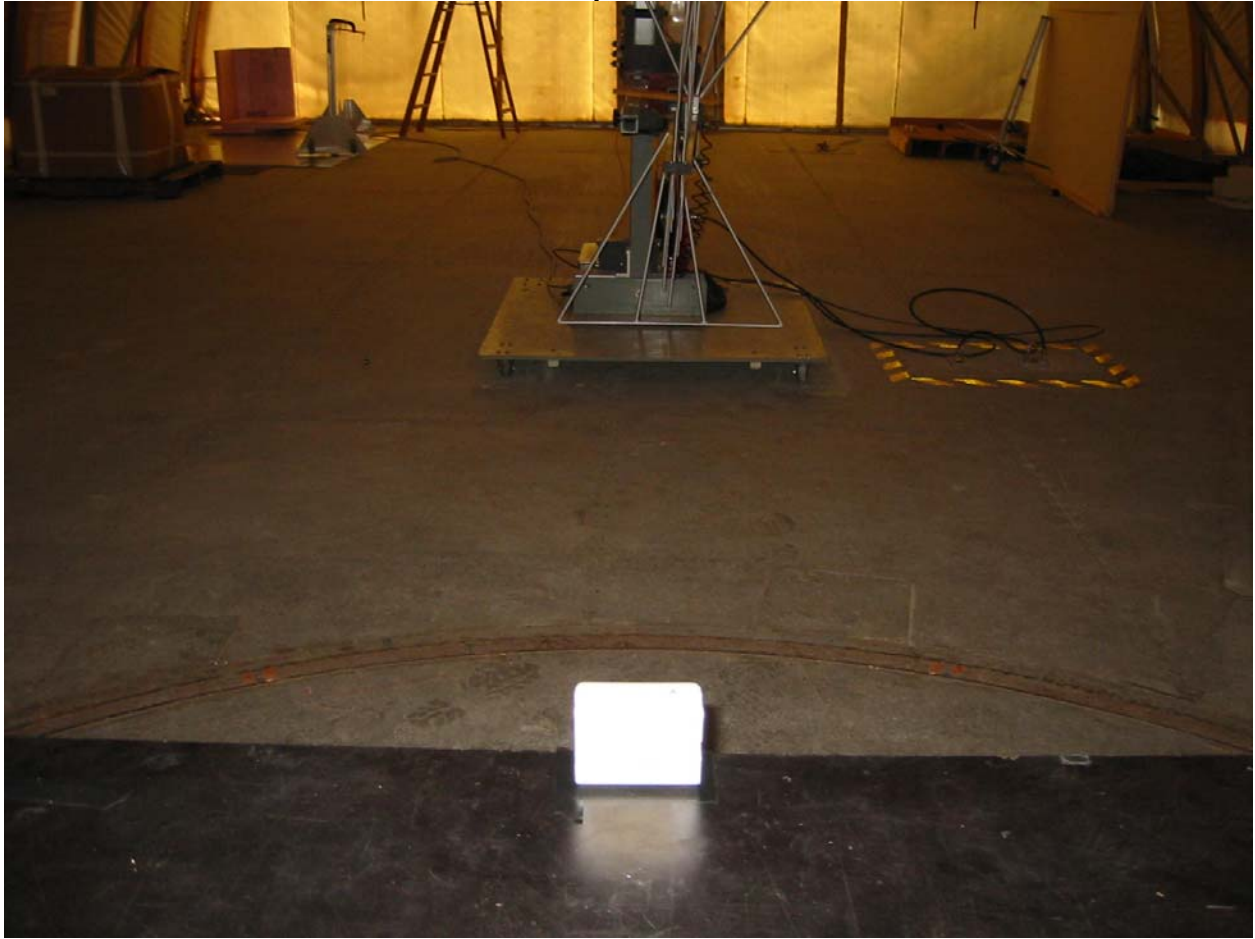
Setup Photo 1



**Setup Photo 2**



Setup Photo 3



**Test Results:** Pass

**Test Standard:** FCC 15.249(d)

**Test:** Harmonics and Spurious Emissions

**Performance Criterion:** Not Applicable

**EUT Operating Voltage:** Three fully charged AAA batteries

**Test Environment:**

|  |               |  |                       |    |                 |  |
|--|---------------|--|-----------------------|----|-----------------|--|
| Environmental Conditions During Testing: | Ambient (°C): |  | Humidity (%):         |    | Pressure (hPa): |  |
| Pretest Verification Performed:          | Yes           |  | Equipment under Test: | US |                 |  |
| Test Engineer(s):                        | Kouma Sinn    |  | EUT Serial Number:    | 3  |                 |  |

**Test Equipment Used:**

| TEST EQUIPMENT LIST |                                      |                  |                   |                |               |
|---------------------|--------------------------------------|------------------|-------------------|----------------|---------------|
| Item                | Equipment Type                       | Make             | Model No.         | Serial No.     | Next Cal. Due |
| 1                   | Digital 4 Line Barometer             | Mannix           | 0ABA116           | BAR2           | 05/20/2008    |
| 2                   | ANTENNA                              | EMCO             | 3142              | 9711-1225      | 06/05/2008    |
| 3                   | Spectrum Analyzer                    | Hewlett Packard  | 8591E             | 3308A0144<br>5 | 02/15/2009    |
| 4                   | Spectrum Analyzer<br>20Hz - 40 GHz   | Rohde & Schwartz | FSEK-30           | 100225         | 11/26/2008    |
| 5                   | 40GHz Cable                          | Megaphase        | TM40-K1K1-<br>197 | 7030801<br>001 | 05/23/2008    |
| 6                   | 40 GHz Cable                         | Megaphase        | TM40-K1K1-<br>197 | 7030801<br>002 | 05/23/2008    |
| 7                   | HORN ANTENNA                         | EMCO             | 3115              | 9602-4675      | 09/24/2008    |
| 8                   | 3 Meter In floor<br>cable for site 2 | ITS              | RG214B/U          | S2 3M FLR      | 09/17/2008    |
| 9                   | Cable, BNC - BNC,<br>4' long         | Pomona           | RG-58C/U          | CBL016         | 09/18/2008    |
| 10                  | Pre-Amp                              | Miteq            | NSP4000-NFG       | 1260417        | 03/25/2008    |



**Software Utilized:**

| <b>Name</b>    | <b>Manufacturer</b>   | <b>Version</b>   |
|----------------|-----------------------|------------------|
| EXCEL 2000     | Microsoft Corporation | 9.0.6926 SP-3    |
| EMI BOXBOROUGH | Intertek              | 2/07/05 Revision |

**Test Details:**

| <b>Test Point</b> | <b>Standard Limit<br/>(as published)</b> | <b>Compliance<br/>Level</b> | <b>Pass/Fail</b> | <b>Comment</b> |
|-------------------|--|-----------------------------|------------------|----------------|
| Around the EUT    | 15.249                                   | Below 15.249 Limit          | Pass             | None           |

## Test Results:

### 30-1000MHz Spurious Emissions

Company: Express Control      Antenna & Cables: N      Bands: N, LF, HF, SHF  
 Model #: US      Antenna: LOG4 06-05-08 V3.txt LOG4 06-05-08 H3.txt  
 Serial #: 3      Cable(s): S2 3M FLR 9-17-08.txt CBL016 9-18-08.txt  
 Engineers: Kouma Sinn      Location: 2      Barometer: BAR2  
 Project #: 3137752      Date(s): 03/06/08  
 Standard: FCC Part 15 Subpart C 15.249      Temp/Humidity/Pressure: 20C      26%      1050mbar  
 Receiver: HP 8591E (SA0001)      Limit Distance (m): 3  
 PreAmp: PRE7 11-05-08.txt      Test Distance (m): 3  
 PreAmp Used? (Y or N): y      Voltage/Frequency: 3 AAA batteries      Frequency Range: 30-1000MHz  
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)  
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

| Detector Type  | Ant. Pol. (V/H) | Frequency MHz | Reading dB(uV) | Antenna Factor dB(1/m) | Cable Loss dB | Pre-amp Factor dB | Distance Factor dB | Net dB(uV/m) | Limit dB(uV/m) | Margin dB | Bandwidth |
|--|-----------------|---------------|----------------|------------------------|---------------|-------------------|--------------------|--------------|----------------|-----------|-----------|
| No emissions were detected at 3 meters or from the near field probe. |                 |               |                |                        |               |                   |                    |              |                |           |           |

### 1000-9083.92MHz Radiated Emissions

Company: Express Controls      Antenna & Cables: If      Bands: N, LF, HF, SHF  
 Model #: US      Antenna: Horn2 V1m 9-24-2008.txt Horn2 H1m 9-24-2008.txt  
 Serial #: 3      Cable(s): MEG001 05-23-08.txt MEG002 05-23-08.txt  
 Engineers: Kouma Sinn      Location: 2      Barometer: BAR2  
 Project #: 3137752      Date(s): 03/06/08  
 Standard: FCC Part 15 Subpart C 15.249      Temp/Humidity/Pressure: 22C      25%      1050mbar  
 Receiver: R0S0001      Limit Distance (m): 3  
 PreAmp: Miteg2-3-25-08.txt      Test Distance (m): 3  
 PreAmp Used? (Y or N): y      Voltage/Frequency: AAA batteries      Frequency Range: 1000.00-9083.92MHz  
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)  
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

| Detector Type  | Ant. Pol. (V/H) | Frequency MHz | Reading dB(uV) | Antenna Factor dB(1/m) | Cable Loss dB | Pre-amp Factor dB | Distance Factor dB | Net dB(uV/m) | Limit dB(uV/m) | Margin dB | Bandwidth |     |
|--|-----------------|---------------|----------------|------------------------|---------------|-------------------|--------------------|--------------|----------------|-----------|-----------|-----|
| Used 1.5GHz High Pass Filter REA005 from 1000.00-9083.92MHz. Peak and Average detectors were used.   |                 |               |                |                        |               |                   |                    |              |                |           |           |     |
| PK   | H               | 1816.820      | 40.9           | 27.0                   | 5.1           | 28.7              | 0.0                | 44.3         | 74.0           | -29.7     | 1/3MHz    | FCC |
| AVG  | H               | 1816.820      | 37.6           | 27.0                   | 5.1           | 28.7              | 0.0                | 40.9         | 54.0           | -13.1     | 1/3MHz    |     |
| PK   | V               | 1816.820      | 44.6           | 27.0                   | 5.1           | 28.7              | 0.0                | 48.0         | 74.0           | -26.0     | 1/3MHz    |     |
| AVG  | V               | 1816.820      | 42.7           | 27.0                   | 5.1           | 28.7              | 0.0                | 46.0         | 54.0           | -8.0      | 1/3MHz    |     |
| PK   | V               | 2725.179      | 37.2           | 29.6                   | 6.4           | 28.6              | 0.0                | 44.6         | 74.0           | -29.4     | 1/3MHz    | RB  |
| AVG  | V               | 2725.179      | 32.6           | 29.6                   | 6.4           | 28.6              | 0.0                | 39.9         | 54.0           | -14.1     | 1/3MHz    | RB  |
| Notes: No other harmonic emissions were detected. Readings below are the noise floors of the measurement instrument. Peak and Average detectors were used. |                 |               |                |                        |               |                   |                    |              |                |           |           |     |
| PK   | V               | 3633.568      | 35.2           | 31.9                   | 7.5           | 28.5              | 0.0                | 46.1         | 74.0           | -27.9     | 1/3MHz    | RB  |
| AVG  | V               | 3633.568      | 24.4           | 31.9                   | 7.5           | 28.5              | 0.0                | 35.3         | 54.0           | -18.7     | 1/3MHz    | RB  |
| PK   | V               | 4541.960      | 36.1           | 32.9                   | 8.5           | 28.4              | 0.0                | 49.1         | 74.0           | -24.9     | 1/3MHz    | RB  |
| AVG  | V               | 4541.960      | 23.7           | 32.9                   | 8.5           | 28.4              | 0.0                | 36.7         | 54.0           | -17.3     | 1/3MHz    | RB  |
| PK   | V               | 5450.352      | 33.6           | 34.5                   | 9.5           | 28.3              | 0.0                | 49.3         | 74.0           | -24.7     | 1/3MHz    | RB  |
| AVG  | V               | 5440.353      | 24.4           | 34.5                   | 9.5           | 28.3              | 0.0                | 40.0         | 54.0           | -14.0     | 1/3MHz    | RB  |
| PK   | V               | 6358.744      | 33.7           | 35.0                   | 10.4          | 28.2              | 0.0                | 50.9         | 74.0           | -23.1     | 1/3MHz    | RB  |
| AVG  | V               | 6358.744      | 24.4           | 35.0                   | 10.4          | 28.2              | 0.0                | 41.5         | 54.0           | -12.5     | 1/3MHz    |     |
| PK   | V               | 7267.136      | 32.8           | 36.7                   | 11.2          | 28.1              | 0.0                | 52.7         | 74.0           | -21.3     | 1/3MHz    |     |
| AVG  | V               | 7267.136      | 24.4           | 36.7                   | 11.2          | 28.1              | 0.0                | 44.2         | 54.0           | -9.8      | 1/3MHz    |     |
| PK   | V               | 8175.528      | 33.0           | 37.6                   | 12.1          | 28.0              | 0.0                | 54.6         | 74.0           | -19.4     | 1/3MHz    | RB  |
| AVG  | V               | 8175.528      | 23.7           | 37.6                   | 12.1          | 28.0              | 0.0                | 45.4         | 54.0           | -8.6      | 1/3MHz    | RB  |
| PK   | V               | 9083.920      | 32.4           | 38.3                   | 12.8          | 27.9              | 0.0                | 55.6         | 74.0           | -18.4     | 1/3MHz    | RB  |
| AVG  | V               | 9083.920      | 22.3           | 38.3                   | 12.8          | 27.9              | 0.0                | 45.5         | 54.0           | -8.5      | 1/3MHz    | RB  |