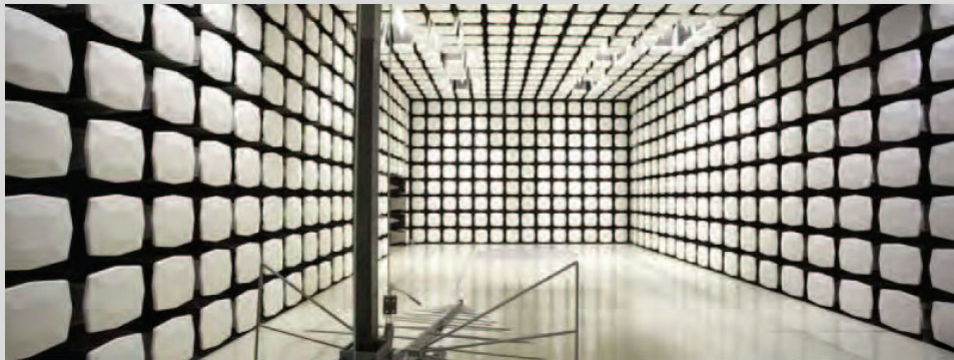




**Zonar Systems, LLC**  
**ZPassV2 RFID Reader**

**Report #: ZONA0038**



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – [www.nwemc.com](http://www.nwemc.com)

California – Minnesota – Oregon – New York – Washington



22975 NW Evergreen Parkway  
Suite 400  
Hillsboro, Oregon 97124

**Certificate of Test**  
Last Date of Test: April 26, 2012  
Zonar Systems, LLC  
Model: ZPassV2 RFID Reader

**Emissions**

| Test Description              | Specification   | Test Method      | Pass/Fail |
|-------------------------------|-----------------|------------------|-----------|
| Field Strength of Fundamental | FCC 15.209:2012 | ANSI C63.10.2009 | Pass      |
| Spurious Radiated Emissions   | FCC 15.209:2012 | ANSI C63.10.2009 | Pass      |

**Deviations From Test Standards**

None

**Approved By:**

Tim O'Shea, Operations Manager



NVLAP Lab Code: 200630-0

**Test Facility**

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.  
22975 NW Evergreen Parkway, Suite 400  
Hillsboro, OR 97124  
Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

*This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.*

*Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.*



## Revision History

| Revision Number | Description | Date | Page Number |
|-----------------|-------------|------|-------------|
| 00              | None        |      |             |

---

**United States**

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Accredited by A2LA to ISO / IEC Guide 65 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025. The scope includes radio, ITE, and medical standards from around the world. See: <http://www.nwemc.com/accreditations/>

---

**Canada**

**IC** - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

---

**European Union**

**European Commission** – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

---

**Australia/New Zealand**

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

---

**Korea**

**KCC / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

---

**Japan**

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

---

**Taiwan**

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

---

**Singapore**

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

---

**Hong Kong**

**OFTA** – Recognized by OFTA as a CAB for the acceptance of test data.

---

**Vietnam**

**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

---

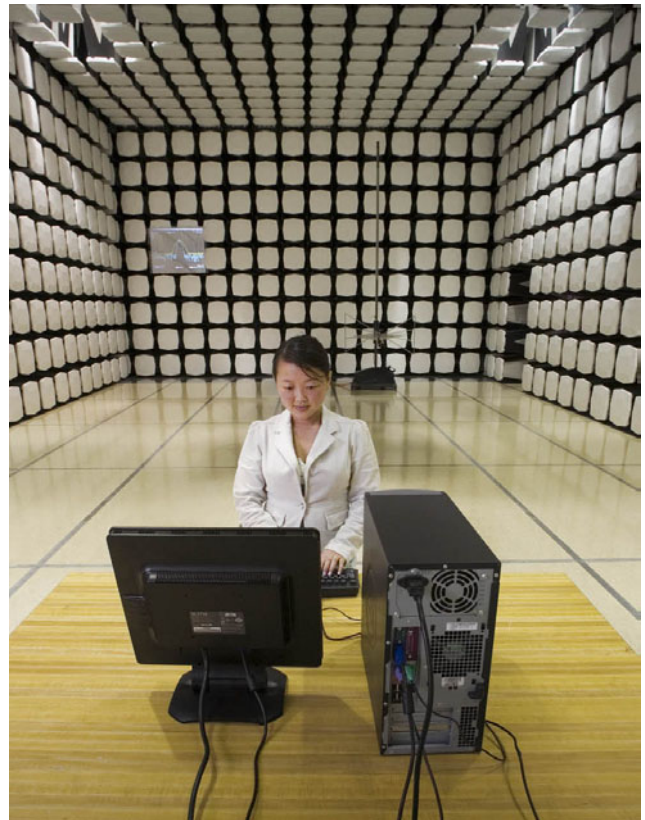
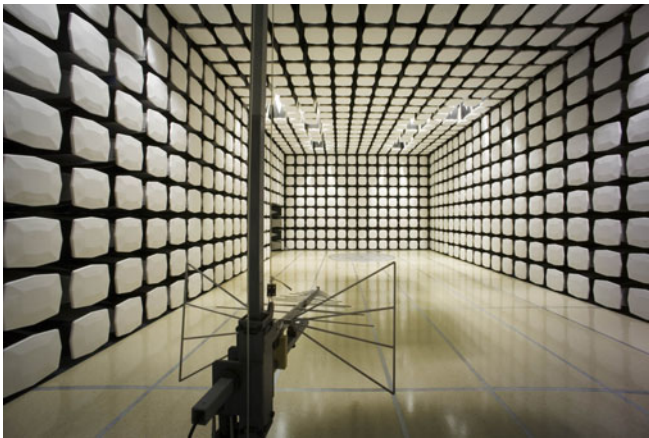
**Russia**

**GOST** – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

---



|   |   |  |   |  |
|---|---|--|---|--|
| <b>Oregon</b><br>Labs EV01-EV12<br>22975 NW Evergreen Pkwy, #400<br>Hillsboro, OR 97124<br>(503) 844-4066 | <b>California</b><br>Labs OC01-OC13<br>41 Tesla<br>Irvine, CA 92618<br>(949) 861-8918 | <b>New York</b><br>Labs WA01-WA04<br>4939 Jordan Rd.<br>Elbridge, NY 13060<br>(315) 685-0796 | <b>Minnesota</b><br>Labs MN01-MN08<br>9349 W Broadway Ave.<br>Brooklyn Park, MN 55445<br>(763) 425-2281 | <b>Washington</b><br>Labs SU01-SU07<br>14128 339 <sup>th</sup> Ave. SE<br>Sultan, WA 98294<br>(360) 793-8675 |
| <b>VCCI</b>   |   |  |   |  |
| C-1071, R-1025, G-84,<br>C-2687, T-1658, R-2318   | R-1943, G-85,<br>C-2766, T-1659, G-548  |  | R-3125, G-86,<br>G-141, C-3464, T-1634  | R-871, G-83,<br>C-3265, T-1511   |
| <b>Industry Canada</b>  |   |  |   |  |
| 2834D-1, 2834D-2  | 2834B-1, 2834B-2, 2834B-3   |  | 2834E-1   | 2834C-1  |





## Product Description

### Client and Equipment Under Test (EUT) Information

|                                 |                                 |
|---------------------------------|---------------------------------|
| <b>Company Name:</b>            | Zonar Systems, LLC              |
| <b>Address:</b>                 | 18200 Cascade Ave. S Suite, 200 |
| <b>City, State, Zip:</b>        | Seattle, WA 98188               |
| <b>Test Requested By:</b>       | Ryan Schoelerman                |
| <b>Model:</b>                   | ZPassV2 RFID Reader             |
| <b>First Date of Test:</b>      | April 25, 2012                  |
| <b>Last Date of Test:</b>       | April 26, 2012                  |
| <b>Receipt Date of Samples:</b> | April 25, 2012                  |
| <b>Equipment Design Stage:</b>  | Production                      |
| <b>Equipment Condition:</b>     | No Damage                       |

### Information Provided by the Party Requesting the Test

|  |
|--|
| <b>Functional Description of the EUT (Equipment Under Test):</b> |
| 125 kHz RFID reader device                                       |
| <b>Testing Objective:</b>  |
| To demonstrate compliance to FCC 15.209 requirements.            |

**Configuration 1 ZONA0038**

| <b>EUT</b>         |                     |                          |                      |
|--------------------|---------------------|--------------------------|----------------------|
| <b>Description</b> | <b>Manufacturer</b> | <b>Model/Part Number</b> | <b>Serial Number</b> |
| RFID unit          | Zonar Systems, LLC  | ZPassV2                  | 2001020              |

| <b>Remote Equipment Outside of Test Setup Boundary</b> |                     |                          |                      |
|--|---------------------|--------------------------|----------------------|
| <b>Description</b>                                     | <b>Manufacturer</b> | <b>Model/Part Number</b> | <b>Serial Number</b> |
| Basestation  | Zonar Systems, LLC  | V2J                      | 1017                 |
| High Gain GPS antenna                                  | Zonar Systems, LLC  | V2J                      | 8063624              |
| Power Adapter  | Unknown             | SMP-1000A012             | None                 |

| <b>Cables</b>     |               |                   |                |                     |                     |
|-------------------|---------------|-------------------|----------------|---------------------|---------------------|
| <b>Cable Type</b> | <b>Shield</b> | <b>Length (m)</b> | <b>Ferrite</b> | <b>Connection 1</b> | <b>Connection 2</b> |
| DC Power          | No            | 2.0m              | No             | Power Adapter       | Basestation         |
| I/O               | No            | 1.8m              | No             | Basestation         | EUT                 |

**PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.**



**Equipment Modifications**

| Item | Date      | Test                          | Modification                         | Note  | Disposition of EUT                                |
|------|-----------|-------------------------------|--------------------------------------|---|---|
| 1    | 4/25/2012 | Field Strength of Fundamental | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Northwest EMC following the test. |
| 2    | 4/26/2012 | Spurious Radiated Emissions   | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed.                  |



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

### MODES OF OPERATION

Transmitting

### POWER SETTINGS INVESTIGATED

120VAC/60Hz

### CONFIGURATIONS INVESTIGATED

ZONA0038 - 1

### FREQUENCY RANGE INVESTIGATED

Start Frequency | 110 kHz | Stop Frequency | 140 kHz

### SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

### TEST EQUIPMENT

| Description       | Manufacturer | Model                   | ID  | Last Cal. | Interval |
|-------------------|--------------|-------------------------|-----|-----------|----------|
| Spectrum Analyzer | Agilent      | E4443A                  | AFB | 1/31/2012 | 12 mo    |
| Antenna, Loop     | EMCO         | 6502                    | AOA | 6/28/2011 | 24 mo    |
| EV11 Cables       | N/A          | 3m Test Distance Cables | EVM | 3/15/2012 | 12 mo    |

### MEASUREMENT BANDWIDTHS

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|-----------------------|-----------------|-----------------------|--------------------|
| 0.01 - 0.15           | 1.0             | 0.2                   | 0.2                |
| 0.15 - 30.0           | 10.0            | 9.0                   | 9.0                |
| 30.0 - 1000           | 100.0           | 120.0                 | 120.0              |
| Above 1000            | 1000.0          | N/A                   | 1000.0             |

### MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

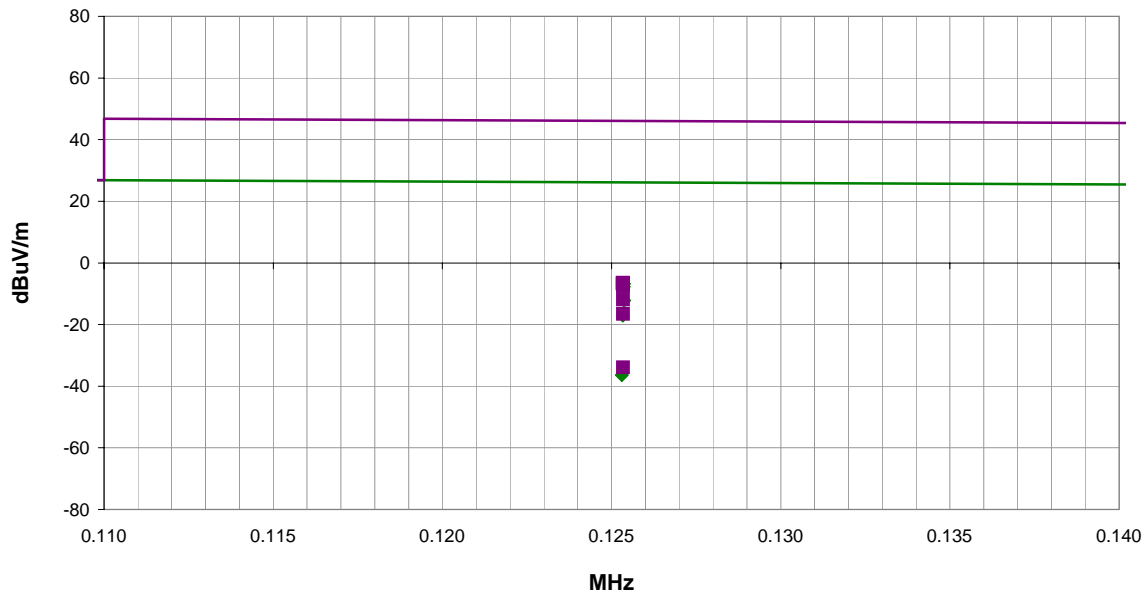
### TEST DESCRIPTION

The antenna to be used with the EUT were tested (Integral). The EUT was transmitting and receiving while set at the only channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and orientation in 3 orthogonal plane, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.10:2009). An active loop antenna was used for this test in order to provide sufficient measurement sensitivity.

|                          |  |                   |           |                          |
|--------------------------|--|-------------------|-----------|--------------------------|
| Work Order:              | ZONA0038   | Date:             | 04/25/12  | <i>Rodney Le Pelouin</i> |
| Project:                 | None   | Temperature:      | 23 °C     |                          |
| Job Site:                | EV11   | Humidity:         | 46% RH    |                          |
| Serial Number:           | 2001020  | Barometric Pres.: | 1008 mbar |                          |
| EUT: ZPassV2 RFID Reader |  |                   |           | Tested by: Rod Pelouin   |
| Configuration:           | 1  |                   |           |                          |
| Customer:                | Zonar Systems, LLC   |                   |           |                          |
| Attendees:               | None   |                   |           |                          |
| EUT Power:               | 120VAC/60Hz  |                   |           |                          |
| Operating Mode:          | Transmitting   |                   |           |                          |
| Deviations:              | None   |                   |           |                          |
| Comments:                | Powered from Remote V2J with GPS fix from external antenna |                   |           |                          |

|                     |                 |             |                  |
|---------------------|-----------------|-------------|------------------|
| Test Specifications | FCC 15.209:2012 | Test Method | ANSI C63.10:2009 |
|---------------------|-----------------|-------------|------------------|

|       |   |                   |   |                   |      |         |      |
|-------|---|-------------------|---|-------------------|------|---------|------|
| Run # | 6 | Test Distance (m) | 3 | Antenna Height(s) | 1-4m | Results | Pass |
|-------|---|-------------------|---|-------------------|------|---------|------|



| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) |
|------------|------------------|-------------|-------------------------|-------------------|------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|
| 0.125      | 62.8             | 10.5        | 1.9                     | 286.0             | 3.0                    | 0.0                       | Horz                     | AV       | -80.0                    | -6.7              | 25.7                 | -32.3                  |
| 0.125      | 62.7             | 10.5        | 1.9                     | 280.0             | 3.0                    | 0.0                       | Horz                     | AV       | -80.0                    | -6.8              | 25.7                 | -32.4                  |
| 0.125      | 62.4             | 10.5        | 2.1                     | 283.0             | 3.0                    | 0.0                       | Vert                     | AV       | -80.0                    | -7.1              | 25.7                 | -32.7                  |
| 0.125      | 62.4             | 10.5        | 2.1                     | 286.0             | 3.0                    | 0.0                       | Vert                     | AV       | -80.0                    | -7.1              | 25.7                 | -32.7                  |
| 0.125      | 61.7             | 10.5        | 1.9                     | 199.0             | 3.0                    | 0.0                       | Horz                     | AV       | -80.0                    | -7.8              | 25.7                 | -33.4                  |
| 0.125      | 61.6             | 10.5        | 1.9                     | 16.0              | 3.0                    | 0.0                       | Horz                     | AV       | -80.0                    | -7.9              | 25.7                 | -33.5                  |
| 0.125      | 57.3             | 10.5        | 1.9                     | 199.0             | 3.0                    | 0.0                       | Vert                     | AV       | -80.0                    | -12.2             | 25.7                 | -37.8                  |
| 0.125      | 52.4             | 10.5        | 2.6                     | -5.0              | 3.0                    | 0.0                       | Horz                     | AV       | -80.0                    | -17.1             | 25.7                 | -42.7                  |
| 0.125      | 63.0             | 10.5        | 1.9                     | 280.0             | 3.0                    | 0.0                       | Horz                     | PK       | -80.0                    | -6.5              | 45.7                 | -52.1                  |
| 0.125      | 63.0             | 10.5        | 1.9                     | 286.0             | 3.0                    | 0.0                       | Horz                     | PK       | -80.0                    | -6.5              | 45.7                 | -52.1                  |
| 0.125      | 62.6             | 10.5        | 2.1                     | 286.0             | 3.0                    | 0.0                       | Vert                     | PK       | -80.0                    | -6.9              | 45.7                 | -52.5                  |
| 0.125      | 62.6             | 10.5        | 2.1                     | 283.0             | 3.0                    | 0.0                       | Vert                     | PK       | -80.0                    | -6.9              | 45.7                 | -52.5                  |
| 0.125      | 62.0             | 10.5        | 1.9                     | 199.0             | 3.0                    | 0.0                       | Horz                     | PK       | -80.0                    | -7.5              | 45.7                 | -53.1                  |
| 0.125      | 61.9             | 10.5        | 1.9                     | 16.0              | 3.0                    | 0.0                       | Horz                     | PK       | -80.0                    | -7.6              | 45.7                 | -53.2                  |
| 0.125      | 57.6             | 10.5        | 1.9                     | 199.0             | 3.0                    | 0.0                       | Vert                     | PK       | -80.0                    | -11.9             | 45.7                 | -57.5                  |
| 0.125      | 33.1             | 10.5        | 2.6                     | 258.0             | 3.0                    | 0.0                       | Horz                     | AV       | -80.0                    | -36.4             | 25.7                 | -62.0                  |
| 0.125      | 52.9             | 10.5        | 2.6                     | -5.0              | 3.0                    | 0.0                       | Horz                     | PK       | -80.0                    | -16.6             | 45.7                 | -62.2                  |
| 0.125      | 35.5             | 10.5        | 2.6                     | 258.0             | 3.0                    | 0.0                       | Horz                     | PK       | -80.0                    | -34.0             | 45.7                 | -79.6                  |

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

### MODES OF OPERATION

Transmitting

### POWER SETTINGS INVESTIGATED

120VAC/60Hz

### CONFIGURATIONS INVESTIGATED

ZONA0038 - 1

### FREQUENCY RANGE INVESTIGATED

Start Frequency | 10 kHz | Stop Frequency | 30 MHz

### SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

### TEST EQUIPMENT

| Description       | Manufacturer | Model                   | ID  | Last Cal. | Interval |
|-------------------|--------------|-------------------------|-----|-----------|----------|
| Spectrum Analyzer | Agilent      | E4443A                  | AFB | 1/31/2012 | 12 mo    |
| EV11 Cables       | N/A          | 3m Test Distance Cables | EVM | 3/15/2012 | 12 mo    |
| Antenna, Loop     | EMCO         | 6502                    | AOA | 6/28/2011 | 24 mo    |

### MEASUREMENT BANDWIDTHS

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|-----------------------|-----------------|-----------------------|--------------------|
| 0.01 - 0.15           | 1.0             | 0.2                   | 0.2                |
| 0.15 - 30.0           | 10.0            | 9.0                   | 9.0                |
| 30.0 - 1000           | 100.0           | 120.0                 | 120.0              |
| Above 1000            | 1000.0          | N/A                   | 1000.0             |

### MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

### TEST DESCRIPTION

The antenna to be used with the EUT was tested (Integral). The EUT was transmitting and receiving while set at the channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and orientation in 3 orthogonal plane, and manipulating the EUT in 3 orthogonal planes (per ANSI C63.10:2009). An active loop antenna was used for this test in order to provide sufficient measurement sensitivity.



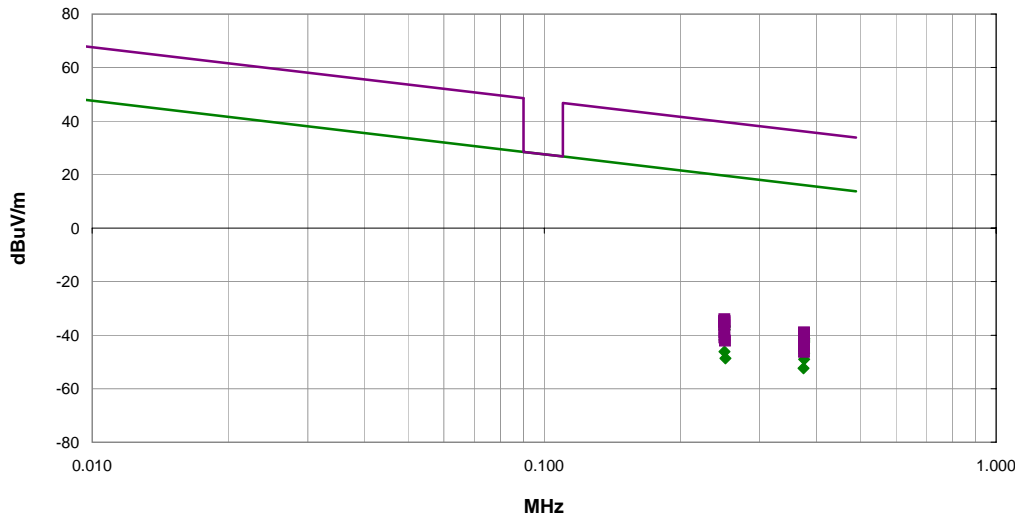
# SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2012.03.23  
PSA-ESCI Version 2011.12.21

|                          |  |                         |             |                          |
|--------------------------|--|-------------------------|-------------|--------------------------|
| Work Order:              | ZONA0038   | Date:                   | 04/26/12    | <i>Rodney Le Pelouin</i> |
| Project:                 | None   | Temperature:            | 22 °C       |                          |
| Job Site:                | EV11   | Humidity:               | 45.8% RH    |                          |
| Serial Number:           | 2001020  | Barometric Pres.:       | 1005.1 mbar |                          |
| EUT: ZPassV2 RFID Reader |  | Tested by: Rod Peloquin |             |                          |
| Configuration:           | 1  |                         |             |                          |
| Customer:                | Zonar Systems, LLC   |                         |             |                          |
| Attendees:               | None   |                         |             |                          |
| EUT Power:               | 120VAC/60Hz  |                         |             |                          |
| Operating Mode:          | Transmitting   |                         |             |                          |
| Deviations:              | None   |                         |             |                          |
| Comments:                | Powered from Remote V2J with GPS fix from external antenna |                         |             |                          |

|                     |                 |             |                  |
|---------------------|-----------------|-------------|------------------|
| Test Specifications | FCC 15.209:2012 | Test Method | ANSI C63.10:2009 |
|---------------------|-----------------|-------------|------------------|

|       |   |                   |   |                   |           |         |      |
|-------|---|-------------------|---|-------------------|-----------|---------|------|
| Run # | 6 | Test Distance (m) | 3 | Antenna Height(s) | 1.85 - 4m | Results | Pass |
|-------|---|-------------------|---|-------------------|-----------|---------|------|



PK AV QP

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                                     |
|------------|------------------|-------------|-------------------------|-------------------|------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|--|
| 0.251      | 33.1             | 10.3        | 1.8                     | 287.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -36.6             | 19.6                 | -56.2                  | EUT Vert., Ant par to EUT                    |
| 0.251      | 33.0             | 10.3        | 2.2                     | 284.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -36.7             | 19.6                 | -56.3                  | EUT on Side, Ant perp to EUT, par to ground  |
| 0.251      | 32.7             | 10.3        | 1.9                     | 298.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -37.0             | 19.6                 | -56.6                  | EUT on Side, Ant par to EUT                  |
| 0.251      | 32.5             | 10.3        | 2.4                     | 289.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -37.2             | 19.6                 | -56.8                  | EUT Vert., Ant perp to EUT, par to ground    |
| 0.376      | 28.4             | 10.3        | 1.9                     | 286.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -41.3             | 16.1                 | -57.4                  | EUT Vert., Ant par to EUT                    |
| 0.376      | 28.3             | 10.3        | 2.1                     | 285.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -41.4             | 16.1                 | -57.5                  | EUT on Side, Ant perp to EUT, par to ground  |
| 0.251      | 31.7             | 10.3        | 1.9                     | 202.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -38.0             | 19.6                 | -57.6                  | EUT on Side, Ant perp to EUT, perp to ground |
| 0.376      | 28.2             | 10.3        | 1.9                     | 294.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -41.5             | 16.1                 | -57.6                  | EUT on Side, Ant par to EUT                  |
| 0.251      | 31.6             | 10.3        | 1.9                     | 213.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -38.1             | 19.6                 | -57.7                  | EUT Vert., Ant perp to EUT, perp to ground   |
| 0.376      | 27.7             | 10.3        | 1.9                     | 288.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -42.0             | 16.1                 | -58.1                  | EUT Vert., Ant perp to EUT, par to ground    |
| 0.376      | 27.4             | 10.3        | 1.9                     | 197.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -42.3             | 16.1                 | -58.4                  | EUT Vert., Ant perp to EUT, perp to ground   |
| 0.376      | 27.0             | 10.3        | 1.9                     | 191.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -42.7             | 16.1                 | -58.8                  | EUT on Side, Ant perp to EUT, perp to ground |
| 0.251      | 27.9             | 10.3        | 1.9                     | 214.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -41.8             | 19.6                 | -61.4                  | EUT Horz., Ant perp to EUT, par to ground    |
| 0.376      | 22.9             | 10.3        | 1.9                     | 228.0             | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -46.8             | 16.1                 | -62.9                  | EUT Horz., Ant perp to EUT, par to ground    |
| 0.376      | 20.7             | 10.3        | 3.0                     | 47.0              | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -49.0             | 16.1                 | -65.1                  | EUT Horz., Ant par to EUT                    |
| 0.251      | 23.5             | 10.3        | 3.1                     | 41.0              | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -46.2             | 19.6                 | -65.8                  | EUT Horz., Ant par to EUT                    |
| 0.252      | 21.0             | 10.3        | 1.9                     | 0.0               | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -48.7             | 19.6                 | -68.2                  | EUT Horz., Ant perp to EUT, perp to ground   |
| 0.375      | 17.3             | 10.3        | 1.9                     | 0.0               | 3.0                    | 0.0                       | Loop                     | AV       | -80.0                    | -52.4             | 16.1                 | -68.5                  | EUT Horz., Ant perp to EUT, perp to ground   |
| 0.251      | 35.6             | 10.3        | 2.2                     | 284.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -34.1             | 39.6                 | -73.7                  | EUT on Side, Ant perp to EUT, par to ground  |
| 0.251      | 35.0             | 10.3        | 1.8                     | 287.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -34.7             | 39.6                 | -74.3                  | EUT Vert., Ant par to EUT                    |
| 0.251      | 34.8             | 10.3        | 2.4                     | 289.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -34.9             | 39.6                 | -74.5                  | EUT Vert., Ant perp to EUT, par to ground    |
| 0.251      | 34.7             | 10.3        | 1.9                     | 298.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -35.0             | 39.6                 | -74.6                  | EUT on Side, Ant par to EUT                  |
| 0.251      | 34.2             | 10.3        | 1.9                     | 202.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -35.5             | 39.6                 | -75.1                  | EUT on Side, Ant perp to EUT, perp to ground |
| 0.376      | 30.7             | 10.3        | 2.1                     | 285.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -39.0             | 36.1                 | -75.1                  | EUT on Side, Ant perp to EUT, par to ground  |
| 0.376      | 30.4             | 10.3        | 1.9                     | 286.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -39.3             | 36.1                 | -75.4                  | EUT Vert., Ant par to EUT                    |
| 0.376      | 30.4             | 10.3        | 1.9                     | 288.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -39.3             | 36.1                 | -75.4                  | EUT Vert., Ant perp to EUT, par to ground    |
| 0.376      | 30.1             | 10.3        | 1.9                     | 294.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -39.6             | 36.1                 | -75.7                  | EUT on Side, Ant par to EUT                  |
| 0.376      | 29.9             | 10.3        | 1.9                     | 197.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -39.8             | 36.1                 | -75.9                  | EUT on Side, Ant perp to EUT, perp to ground |
| 0.251      | 33.3             | 10.3        | 1.9                     | 213.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -36.4             | 39.6                 | -76.0                  | EUT Vert., Ant perp to EUT, perp to ground   |
| 0.376      | 29.7             | 10.3        | 1.9                     | 191.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -40.0             | 36.1                 | -76.1                  | EUT on Side, Ant perp to EUT, perp to ground |
| 0.251      | 30.8             | 10.3        | 1.9                     | 214.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -38.9             | 39.6                 | -78.5                  | EUT Horz., Ant perp to EUT, par to ground    |
| 0.376      | 26.8             | 10.3        | 1.9                     | 228.0             | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -42.9             | 36.1                 | -79.0                  | EUT Horz., Ant perp to EUT, par to ground    |
| 0.376      | 25.6             | 10.3        | 3.0                     | 47.0              | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -44.1             | 36.1                 | -80.2                  | EUT Horz., Ant par to EUT                    |
| 0.251      | 28.7             | 10.3        | 3.1                     | 41.0              | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -41.0             | 39.6                 | -80.6                  | EUT Horz., Ant par to EUT                    |
| 0.251      | 27.6             | 10.3        | 1.9                     | 0.0               | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -42.1             | 39.6                 | -81.7                  | EUT Horz., Ant perp to EUT, perp to ground   |
| 0.376      | 23.4             | 10.3        | 1.9                     | 0.0               | 3.0                    | 0.0                       | Loop                     | PK       | -80.0                    | -46.3             | 36.1                 | -82.4                  | EUT Horz., Ant perp to EUT, perp to ground   |

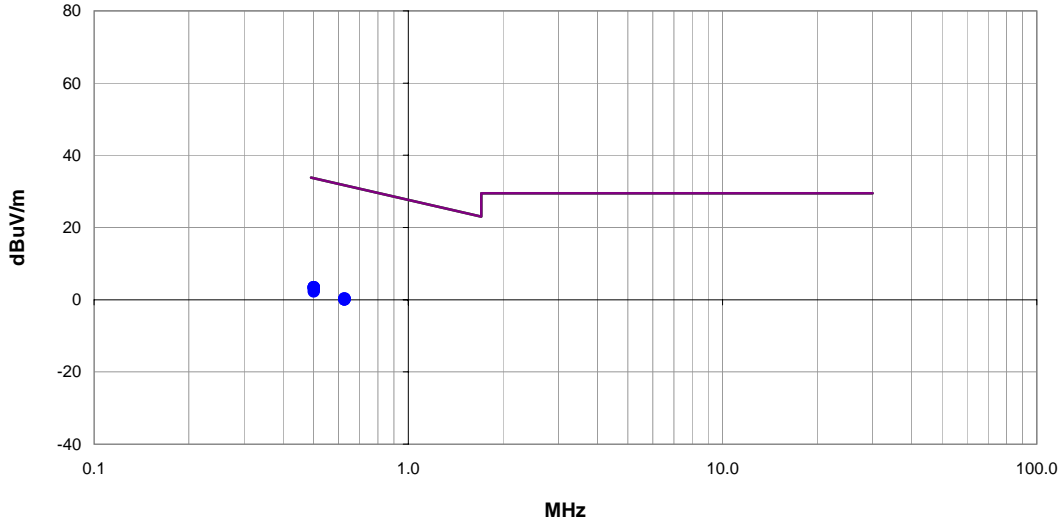


## SPURIOUS RADIATED EMISSIONS

|                 |  |                   |             |                     |
|-----------------|--|-------------------|-------------|---------------------|
| Work Order:     | ZONA0038   | Date:             | 04/26/12    | <i>Rod Peloquin</i> |
| Project:        | None   | Temperature:      | 22 °C       |                     |
| Job Site:       | EV11   | Humidity:         | 46% RH      |                     |
| Serial Number:  | 2001020  | Barometric Pres.: | 1005.1 mbar |                     |
| EUT:            | ZPassV2 RFID Reader  |                   |             |                     |
| Configuration:  | 1  |                   |             |                     |
| Customer:       | Zonar Systems, LLC   |                   |             |                     |
| Attendees:      | None   |                   |             |                     |
| EUT Power:      | 120VAC/60Hz  |                   |             |                     |
| Operating Mode: | Transmitting   |                   |             |                     |
| Deviations:     | None   |                   |             |                     |
| Comments:       | Powered from Remote V2J with GPS fix from external antenna |                   |             |                     |

| Test Specifications | Test Method      |
|---------------------|------------------|
| FCC 15.209:2012     | ANSI C63.10:2009 |

| Run # | 7 | Test Distance (m) | 3 | Antenna Height(s) | 1.85 - 4m | Results | Pass |
|-------|---|-------------------|---|-------------------|-----------|---------|------|
|-------|---|-------------------|---|-------------------|-----------|---------|------|



■ PK ◆ AV ● QP

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                                     |
|------------|------------------|-------------|-------------------------|-------------------|------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|--|
| 0.501      | 33.1             | 10.3        | 2.0                     | 262.0             | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 3.4               | 33.6                 | -30.2                  | EUT Vert., Ant perp to EUT, par to ground    |
| 0.501      | 33.1             | 10.3        | 1.9                     | 196.0             | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 3.4               | 33.6                 | -30.2                  | EUT on Side, Ant perp to EUT, perp to ground |
| 0.501      | 33.0             | 10.3        | 1.9                     | 261.0             | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 3.3               | 33.6                 | -30.3                  | EUT Vert., Ant par to EUT                    |
| 0.501      | 32.9             | 10.3        | 1.9                     | 290.0             | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 3.2               | 33.6                 | -30.4                  | EUT Vert., Ant perp to EUT, perp to ground   |
| 0.501      | 32.0             | 10.3        | 1.9                     | 0.0               | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 2.3               | 33.6                 | -31.3                  | EUT on Side, Ant perp to EUT, par to ground  |
| 0.627      | 30.0             | 10.3        | 1.9                     | 196.0             | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 0.3               | 31.7                 | -31.4                  | EUT on Side, Ant perp to EUT, perp to ground |
| 0.627      | 29.9             | 10.3        | 2.0                     | 262.0             | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 0.2               | 31.7                 | -31.5                  | EUT Vert., Ant perp to EUT, par to ground    |
| 0.627      | 29.8             | 10.3        | 1.9                     | 1.0               | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 0.1               | 31.7                 | -31.6                  | EUT Vert., Ant par to EUT                    |
| 0.627      | 29.8             | 10.3        | 1.9                     | 260.0             | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 0.1               | 31.7                 | -31.6                  | EUT Vert., Ant perp to EUT, perp to ground   |
| 0.627      | 29.8             | 10.3        | 1.9                     | 0.0               | 3.0                    | 0.0                       | Loop                     | QP       | -40.0                    | 0.1               | 31.7                 | -31.6                  | EUT on Side, Ant perp to EUT, par to ground  |