1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

LOW-POWER LICENCE-EXEMPT RADIO COMMUNICATION DEVICES
(ALL FREQUENCY BANDS: CATEGORY I EQUIPMENT)

RADIO STANDARDS SPECIFICATION
RSS-210, ISSUE 6
SEPTEMBER 2005

THE FOLLOWING **"MEETS"** THE ABOVE TEST SPECIFICATION

Formal Name:	e-Guard Monitor
Kind of Equipment:	Wireless Sensor/Monitor
Test Configuration:	Cable with Pin Connector (Tested at 3.6 vdc)
Model Number(s):	WVN05P
Model(s) Tested:	WVN05P
Serial Number(s):	NA
Date of Tests:	January 2, 3, 4, 5 and February 15 & 16, 2007
Test Conducted For:	VenTek, LLC 9470 Meridian Way West Chester, Ohio 45069

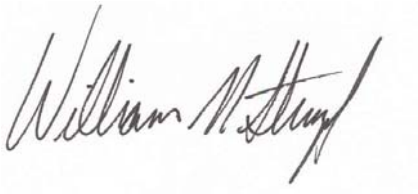
NOTICE: "This test report relates only to the items tested and must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government". Please see the "Additional Description of Equipment Under Test" page listed inside of this report.

SIGNATURE PAGE

Report By:

Arnom C. Rowe
Test Engineer
EMC-001375-NE

Reviewed By:



William Stumpf
OATS Manager

Approved By:

Brian Mattson
General Manager

Company Official:

VenTek, LLC

1250 Peterson Dr., Wheeling, IL 60090

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:1999

NVLAP LAB CODE: 100276-0

D.L.S. Electronic Systems, Inc.
Wheeling, IL

is recognized by the National Voluntary Laboratory Accreditation Program for conformance with criteria set forth in NIST Handbook 150:2001 and all requirements of ISO/IEC 17025:1999.
Accreditation is granted for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

2006-10-01 through 2007-09-30
Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2005-05-19)

1.0 SUMMARY OF TEST REPORT

It was found that the e-Guard Monitor, Model Number(s) WVN05P, **''meets''** the radio interference radiated emission requirements of the RSS-210 Issue 6, September 2005. The Power Line Conducted emissions test was not required because the e-Guard Monitor is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

2.0 INTRODUCTION

On January 2, 3, 4, 5 and February 15 & 16, 2007, a series of radio frequency interference measurements was performed on e-Guard Monitor, Model Number(s) WVN05P, Serial Number: NA. The tests were performed according to the procedures of RSS-210, Issue 6, September 2005. Tests were completed by personnel of D.L.S. Electronic Systems, Inc. who are responsible to Donald L. Sweeney, Senior EMC Engineer.

3.0 TEST FACILITY

All emission tests were performed at D.L.S. Electronic Systems, Inc. and set up according to Canadian Standards Association Standard CAN/CSA-CEI/IEC CISPR 22:02.

D.L.S. Electronic Systems, Inc. is a full service EMC/Safety Testing Laboratory accredited to ISO 17025. NVLAP Certificate and Scope can be viewed at http://www.dlsemc.com/certificate. Our facilities are registered with the FCC, Industry Canada, and VCCI.

4.0 TEST EQUIPMENT (Bandwidths and Detector Function)

A list of the equipment used can be found in Table 1. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

1250 Peterson Dr., Wheeling, IL 60090

5.0 DESCRIPTION OF TEST SAMPLE: (See also Paragraph 6.0)

5.1 Description:

VenTek's Wireless Monitor provides a simple and cost effective means for monitoring sensor inputs through V-Bus. It is compatible with all VenTek sensors including: Pressure, Temperature, Current, Vibration and Humidity. Data packets are transmitted at 418 MHz to receivers or repeaters up to 600 feet away. VenTek offers a simple software solution to monitor all of the sensors on any Windows Based PC system, utilizing either our OPC/DDE driver through serial or our Manager based receiver with TCP/IP through Serial or 10/100 Ethernet porting.

This is a sensor monitor that is connected to one of 5 sensors and broadcast at 418MHz to a remote receiver. The data is used for predictive maintenance

5.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

Length 3.03" x Width 2.5" x depth 1.22"

5.3 LINE FILTER USED:

NA

5.4 INTERNAL CLOCK FREQUENCIES:

8, 418 MHz

5.0 DESCRIPTION OF TEST SAMPLE: (CON'T)

5.5 DESCRIPTION OF ALL CIRCUIT BOARDS:

1. Radio Board	PN: EA00130-08
2. Vibration V-Bus Board	PN: EA00138-08
3. Pressure V-Bus Board	PN: EA00134-08
4. Temperature V-Bus Board	PN: EA00133-08
5. Temp / Humid V-Bus Board	PN: EA00136-08
6. Current V-Bus Board	PN: EA00137-08
7. Antenna	PN: ANT1N44RM
8. Antenna	PN: ANT1N44SM
9. Antenna	PN: ANT1N44SD

1250 Peterson Dr., Wheeling, IL 60090

6.0 ADDITIONAL DESCRIPTION OF TEST SAMPLE:
(See also Paragraph 5.0)

1: There were no additional descriptions noted at the time of test.

NOTE:

Tested 3 Antennas: 1) Monopole,
2) 90 Degree Monopole
3) Dipole

Tested with 5 Sensors: 1) Current Sensor S1WP-01
2) Humidity/Temperature Sensor S1WHT-01
3) Pressure Sensor S1WP-01
4) Temperature Sensor S1WT-01
5) Vibration Sensor S1WV-01

Radiated Spurious emissions were tested with the worst-case 90 degree Monopole & Dipole Antennas only.

I certify that the above, as described in paragraph 5.0, describes the equipment tested and will be manufactured as stated.

By: _____ _____
Signature Title

For: _____ _____
Company Date

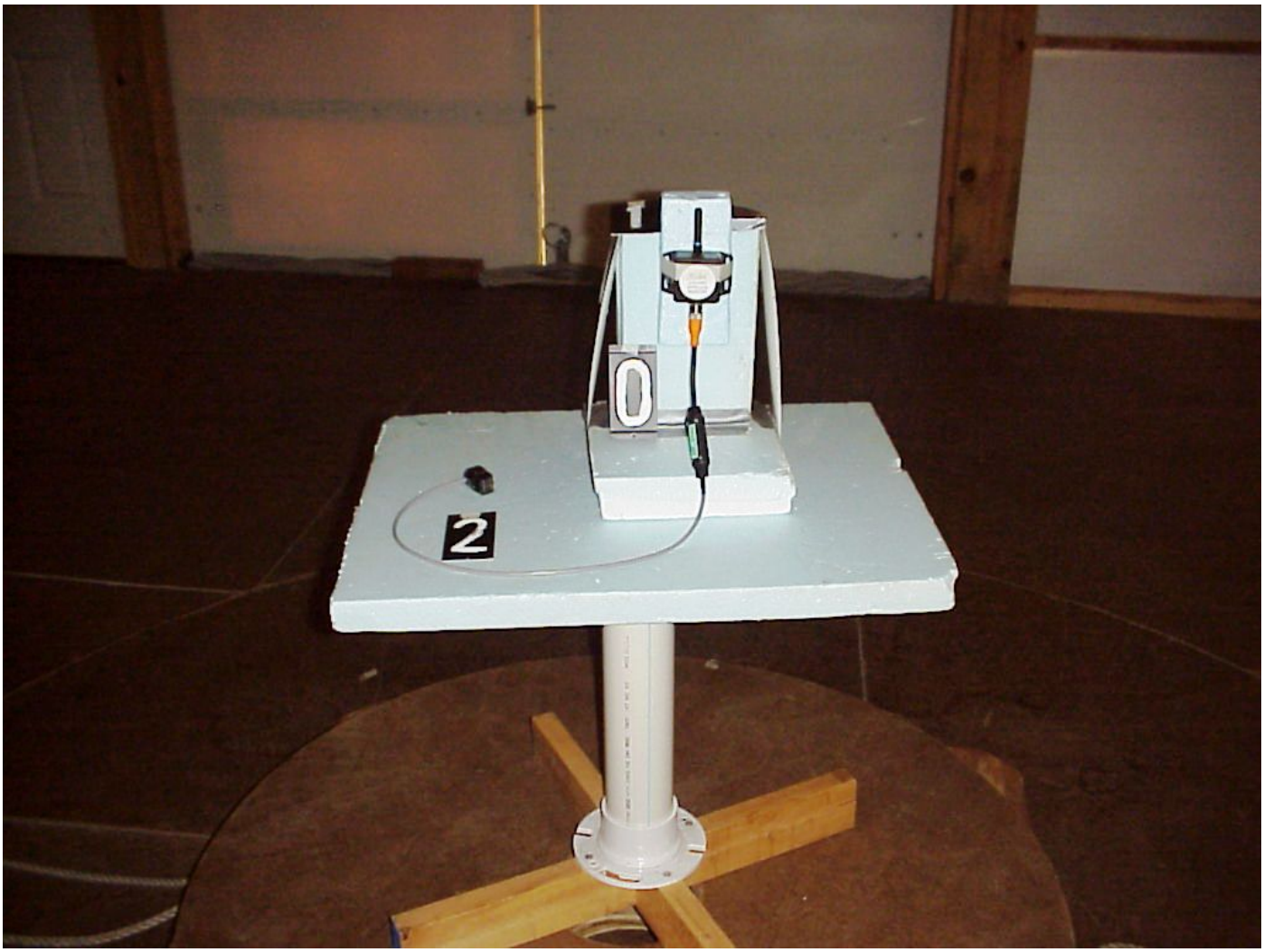
7.0 PHOTO INFORMATION AND TEST SET-UP

Item 0 e-Guard Monitor
Model Number: WVN05P, Serial Number: NA

Item 1 Antenna

Item 2 Sensor

8.0 RADIATED PHOTOS TAKEN DURING TESTING



90 DEGREE MONOPOLE ANTENNA

8.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)

MONOPOLE ANTENNA

8.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)

DIPOLE ANTENNA

9.0 CONCLUSION

It was found that the e-Guard Monitor, Model Number(s) WVN05P **''meets''** the radio interference radiated emission requirements of RSS-210 Issue 6, September 2005.The Power Line Conducted emissions test was not required because the e-Guard Monitor is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

RSS-210, ISSUE 6, ANNEX 1

AND

RSS-GEN, ISSUE 1

APPENDIX A

1.0 SUPPLY VOLTAGE – (RSS-GEN, Issue 1, Section 4.1)

Tests were performed with the test sample's supply voltage set at **3.6 vdc.**

2.0 FREQUENCY RANGE

The measured frequency range of the e-Guard Monitor is **418.028 MHz**.

3.0 TYPES OF MODULATION – (RSS-GEN, Issue 1, Sections 3.2 & 4.1)

Modulation used: **Digital Pulsed.**

APPENDIX A

4.0 PULSED OPERATION (Duty Cycle Correction Factor) (RSS-GEN, Issue 1, Section 4.3)

The radiated emission tests made at D.L.S. Electronic Systems, Inc. for the e-Guard Monitor, Model Number WVN05P, are shown by the graphs on the following pages. The actual total "on time" during the 100 msec is 13.78752 msec with a total "off time" of 86.2125 msec resulting in a **17.21 Duty Cycle Correction Factor**.

To find the actual "on time" during the 100 msec period, the data word is multiplied by the number of data words per 100 msec, yielding actual on time. Taking this number and dividing it by the 100 msec period gives us the Duty Cycle. We than take the Log of the Duty Cycle and multiply it by 20. This gives us the Duty Cycle Correction Factor. The following method was used to determine the Duty Cycle Correction Factor:

Total on time during 100 msec.

1.04208 msec/pulse on time * 1 pulse = 1.04208 msec (data word on time)

721.44 usec/pulse on time * 11 pulses = 7935.84 usec (data word on time)

400.8 usec/pulse on time * 5 pulses = 2004 usec (data word on time)

280.56 usec/pulse on time * 10 pulses = 2805.6 usec (data word on time)

1042.08 usec (on time) + 7935.84 usec (on time) + 2004 usec (on time) + 2805.6 usec (on time) = 13,787.52 usec total "on time"

13.78752 msec (total "on time") / 100 msec = .1378752 Duty Cycle

20*LOG10 .1378752 = **17.21 dB Duty Cycle Correction Factor**

NOTE:

For pulsed operation, the switches were set to generate their maximum "on" time, and measurements were made with the peak detector. As stated in Docket 86-422, the duty cycle of the pulse is determined from the total "on" time for the worst case condition during 100 msec. Using the percentage of the total "on" time over a 100 msec period, the total absolute average value was determined. As stated in Section 3, a maximum of 20 dB can be used.

See the following pages for the graphs of the actual measurements that were made:

GRAPH(S) TAKEN OF THE PULSED OPERATION

RSS-GEN, Issue 1, Section 4.3

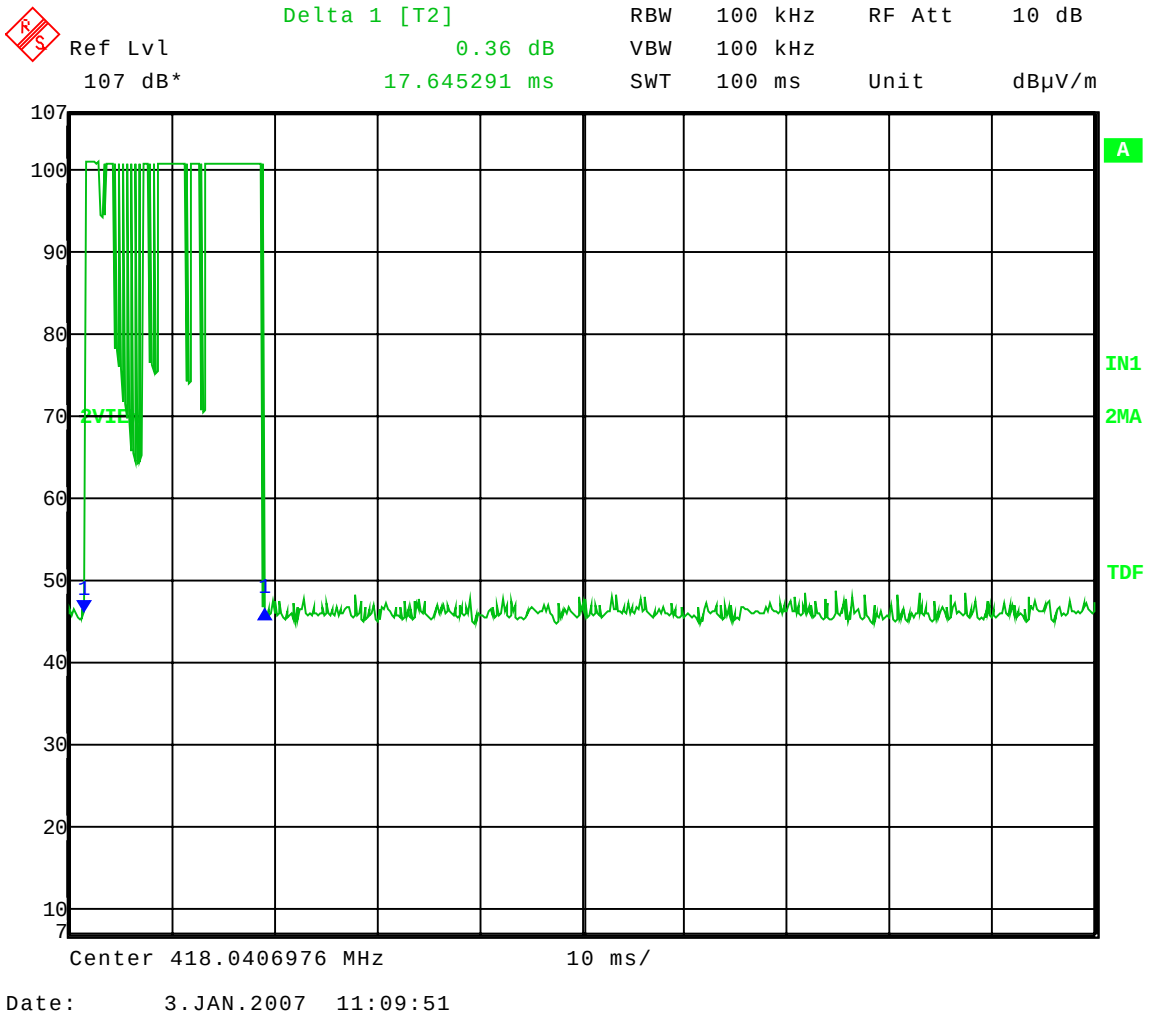
GRAPHS TAKEN OF THE PULSE TRAIN SHOWING THE FOLLOWING:

1. Number of Bits per Data Word
2. Number of Pulses per 100 msec
3. Off Time between Data Words
4. Data Word On Time

Test Date: 01-03-2007
Company: VenTek, LLC
EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Test: Duty Cycle
Operator: Craig Brandt

Comment: One pulse at 1.04208 ms
11 pulses at 721.44 µs each
Five pulses at 400.80 µs each
10 pulses at 280.56 µs each

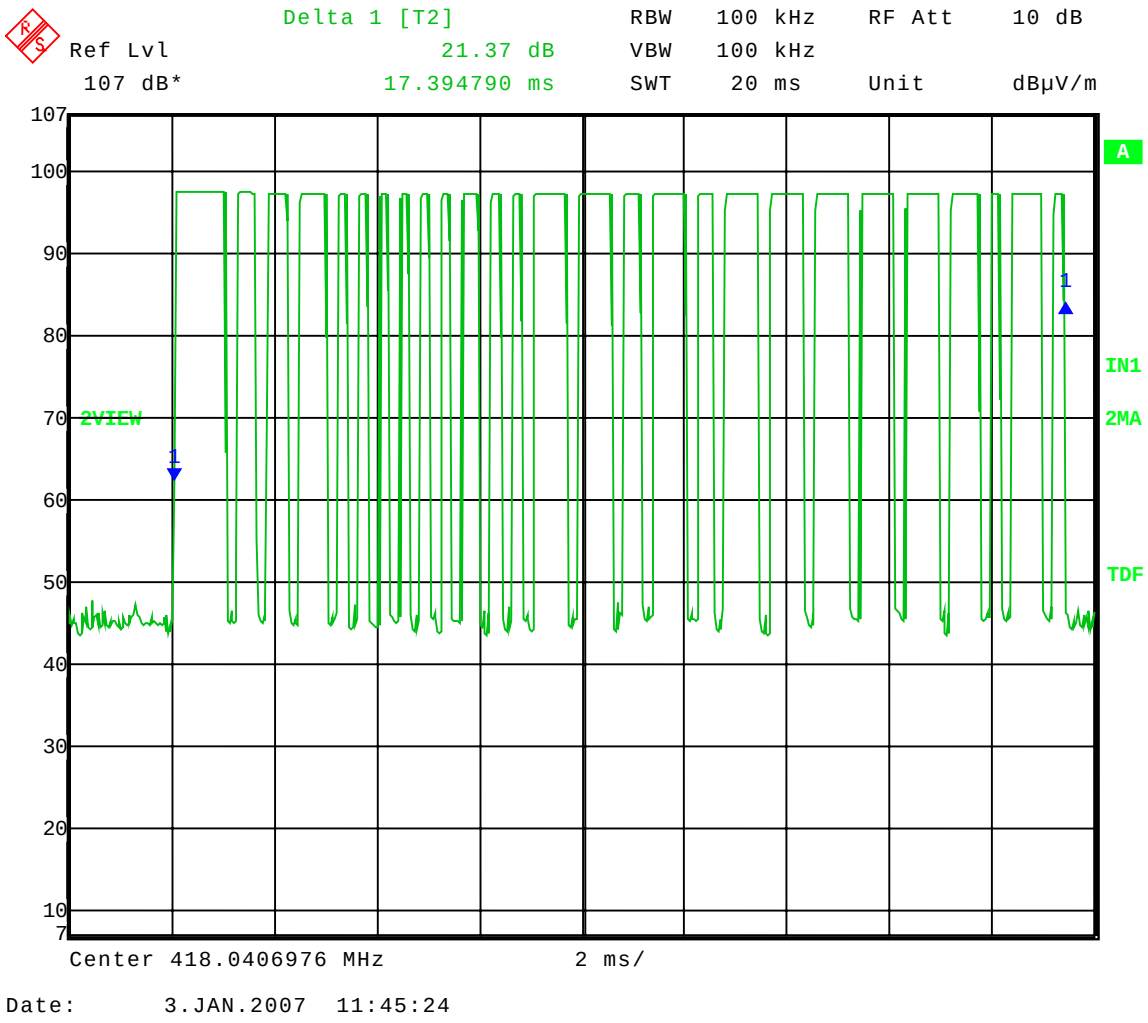
Total on Time = 13.78752 ms during 100 ms Sweep
20 log (13.78752 / 100) = -17.21
Duty Cycle Correction Factor = 17.21 dB



1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

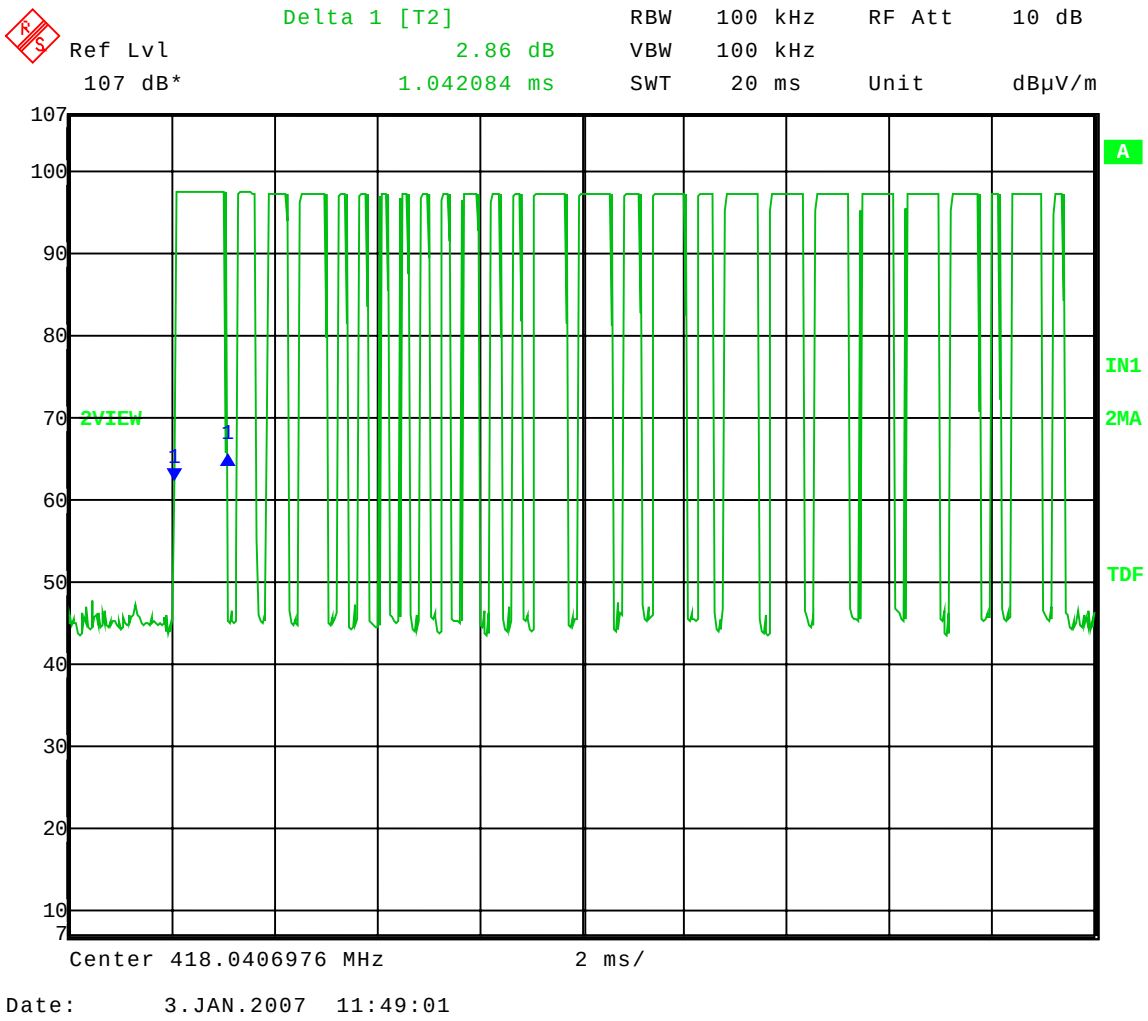
Test Date: 01-03-2007
Company: VenTek, LLC
EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Test: Duty Cycle
Operator: Craig Brandt
Comment: One complete pulse train



1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

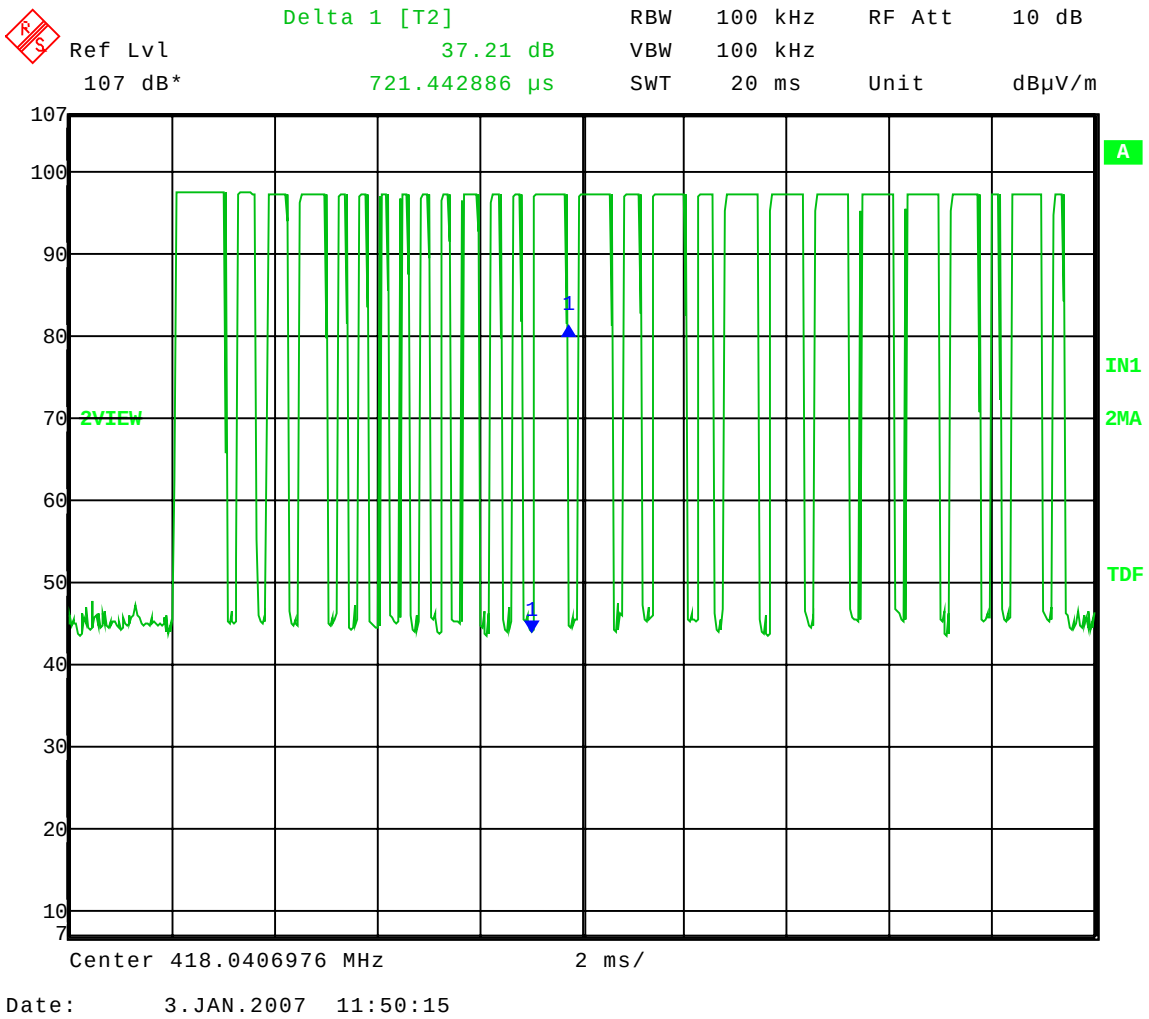
Test Date: 01-03-2007
Company: VenTek, LLC
EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Test: Duty Cycle
Operator: Craig Brandt
Comment: Pulse = 1.04208 ms pulse



1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

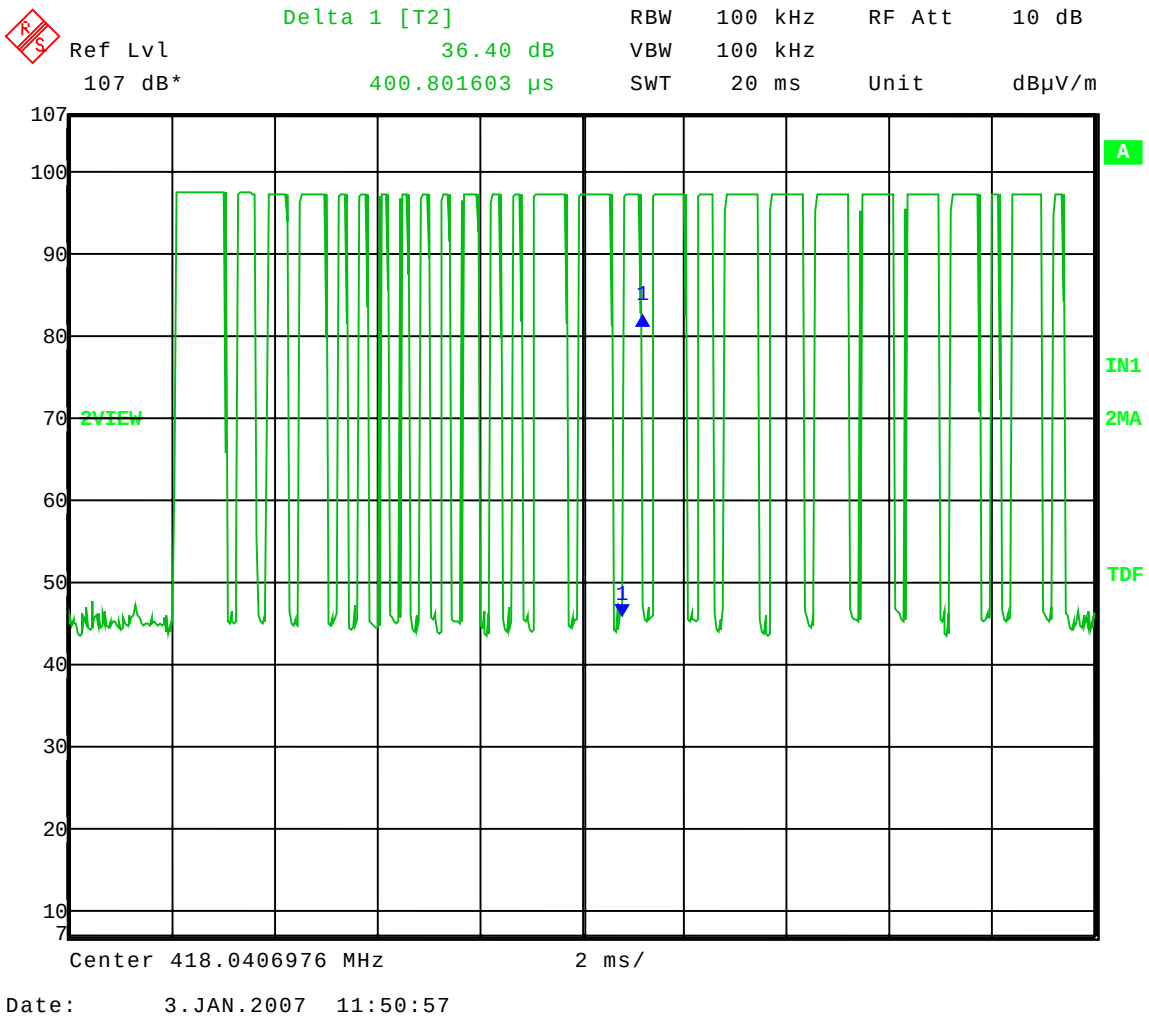
Test Date: 01-03-2007
Company: VenTek, LLC
EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Test: Duty Cycle
Operator: Craig Brandt
Comment: 721.44 µs pulse



1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

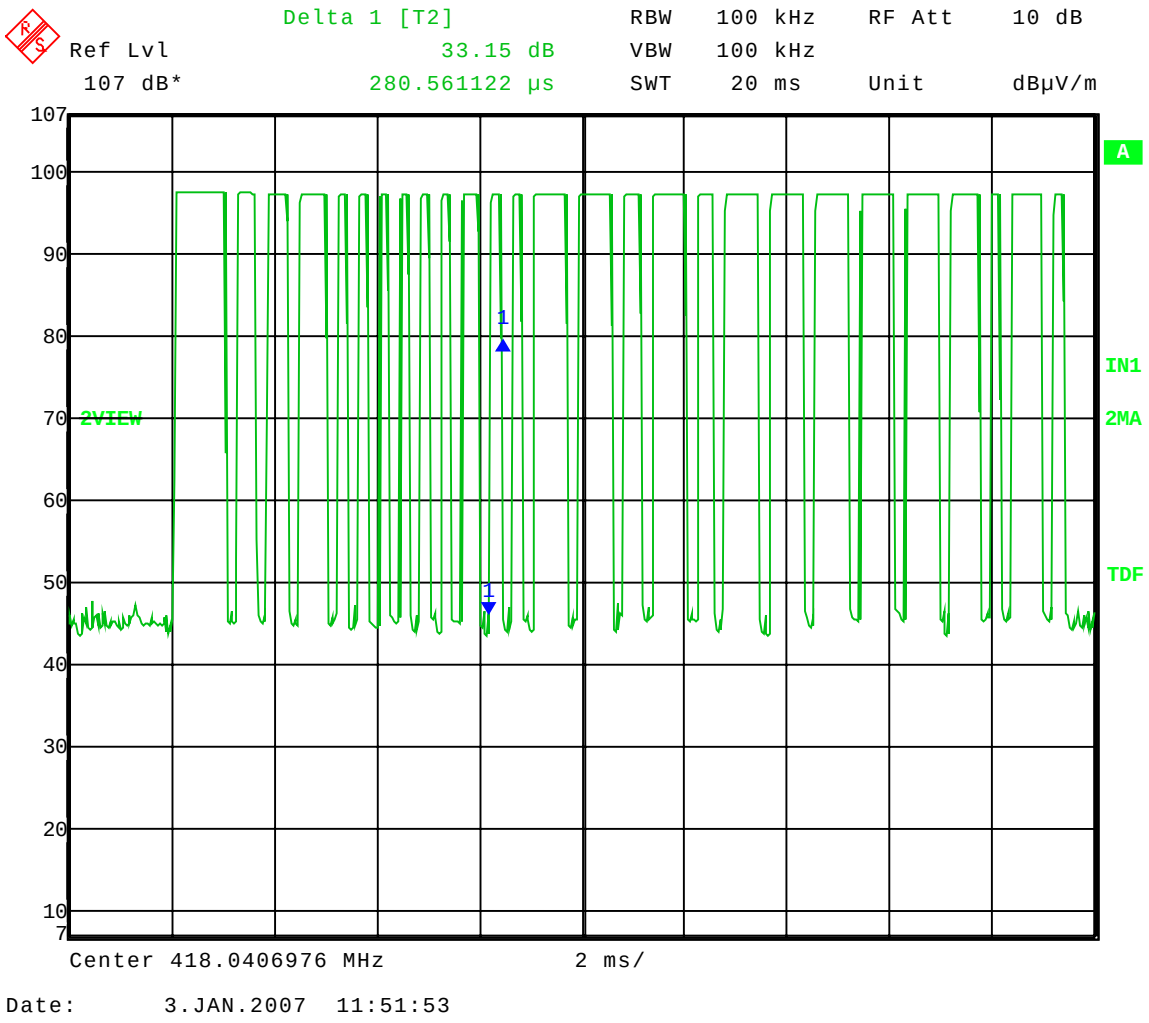
Test Date: 01-03-2007
Company: VenTek, LLC
EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Test: Duty Cycle
Operator: Craig Brandt
Comment: 400.80 µs pulse



1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

Test Date: 01-03-2007
Company: VenTek, LLC
EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Test: Duty Cycle
Operator: Craig Brandt
Comment: 280.56 µs pulse



APPENDIX A

5.0 EMISSION BANDWIDTH - (RSS-GEN, Issue 1, Section 4.4)

Where indicated, the 20 dB bandwidth is measured at the points when the spectral density of the signal is 20 dB down from the inband spectral density of the modulated signal, with the transmitter modulated by a representative signal. An alternative to the 20 dB bandwidth is the 99% emission bandwidth is determined such that below the lower and above its upper frequency limits, the mean powers emitted are each equal to .5% of the total mean power of the emission.

See the following graphs for actual measurements made:

GRAPH(S) TAKEN OF THE

99% OCCUPIED EMISSION BANDWIDTH

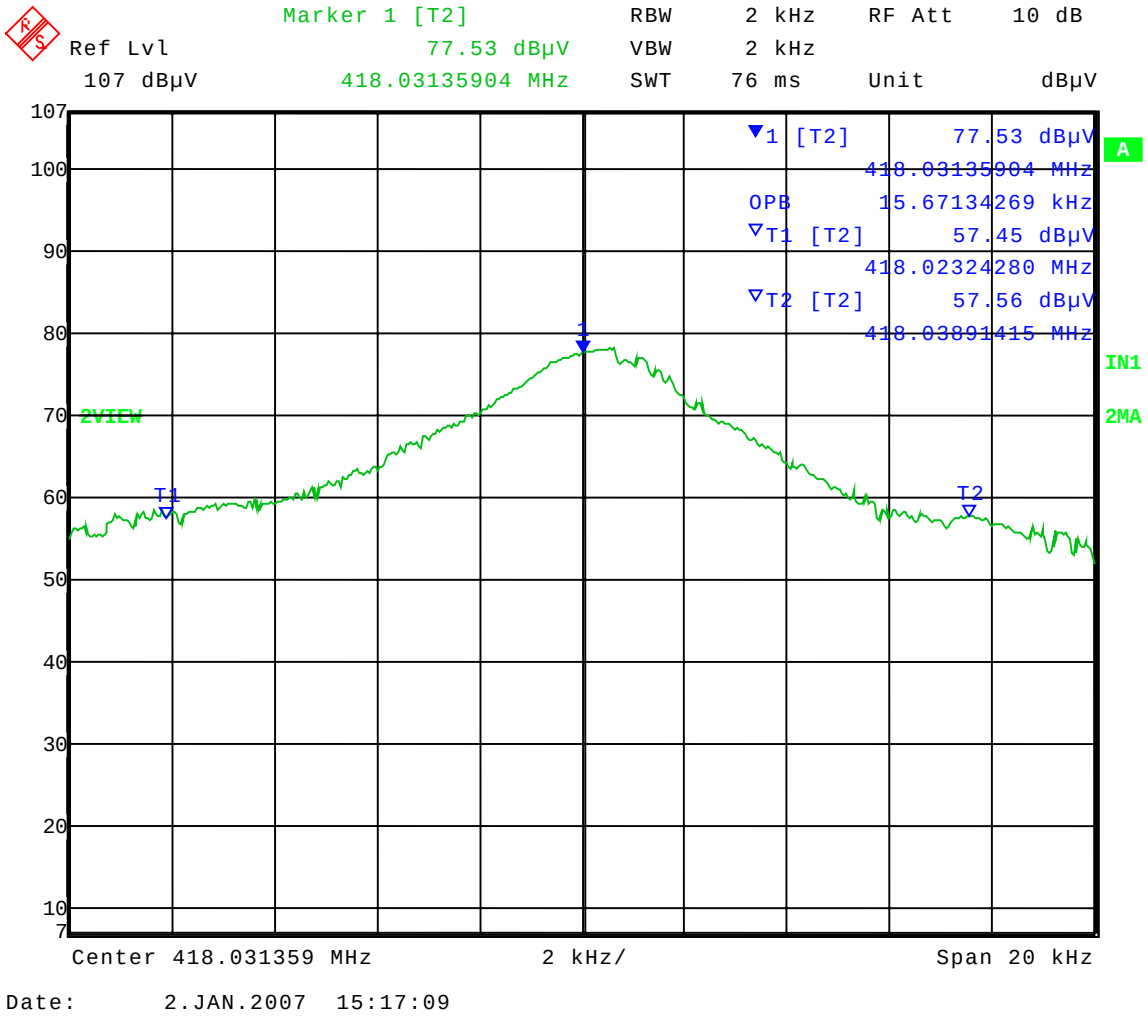
RSS-GEN, Issue 1, Section 4.4

1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

Test Date: 01-02-2007
Company: VenTek, LLC
EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Test: 99% Power Bandwidth - Radiated
Operator: Craig Brandt
Comment: Frequency: 418 MHz

99% Power Bandwidth = 15.67 kHz



APPENDIX A

6.0 TRANSMITTER AC WIRELINE CONDUCTED EMISSIONS (RSS-GEN, Issue 1, Section 7.2.2)

Name of Test:

RSS-GEN, Issue 1, Section 7.2.

Minimum Standard:

On any frequency or frequencies within the band of .45-30 MHz, the measured RF voltage shall not exceed 250 microvolts across 50 ohms.

Test Results:

The e-Guard Monitor **"meets"** the minimum requirements of RSS-GEN, Issue 1, Section 7.2.2.

Test Conditions:

The emissions were measured with a 50 ohm/50 microhenry line impedance stabilization network, Section 7.2.2.

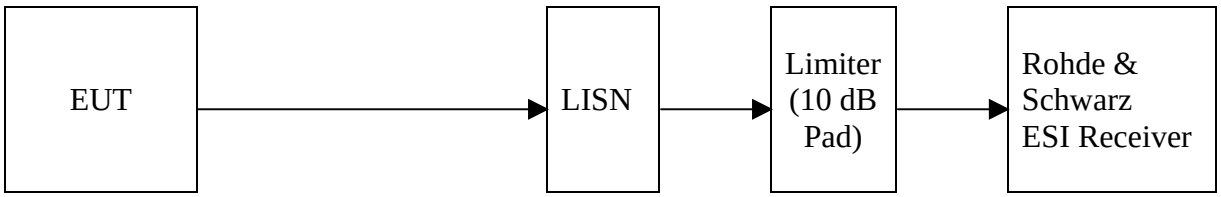
NOTE:

The Power Line Conducted emissions test was not required because the e-Guard Monitor is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

Test Equipment:

Rohde & Schwarz Receivers ESI-26/ESI-40
Solar LISN (50 ohm/50 Microhenry)
Electrometrics Limiter with internal 10 dB Pad

Block Diagram of Test Set-Up



Measurement Data:

See the following pages for the data and graphs of the actual measurements that were made:

7.0 RESTRICTED BANDS

As stated in RSS-210, Issue 6, Section 2.2, the fundamental emission from the e-Guard Monitor shall not fall within any of the bands listed below:

Frequency in MHz	Frequency in MHz	Frequency in MHz	Frequency in GHz
.090 to .110	12.51975 to 12.52025	399.9 to 410.0	5.350 to 5.46
2.1735 to 2.1905	12.57675 to 12.57725	608.0 to 614.0	7.250 to 7.75
3.0200 to 3.0260	13.36 to 13.410	960.0 to 1427.0	8.025 to 8.50
4.1250 to 4.1280	16.42 to 16.423	1435.0 to 1626.5	9.00 to 9.20
4.17725 to 4.17775	16.69475 to 16.69525	1645.5 to 1646.5	9.30 to 9.50
4.20725 to 4.20775	16.80425 to 16.80475	1660.0 to 1710.0	10.60 to 12.70
5.677 to 5.683	25.50 to 25.67	1718.8 to 1722.2	13.25 to 13.40
6.215 to 6.218	37.50 to 38.25	2200.0 to 2300.0	14.47 to 14.50
6.26775 to 6.26825	73.00 to 74.60	2310.0 to 2390.0	15.35 to 16.20
6.31175 to 6.31225	74.80 to 75.20	2655.0 to 2900.0	17.70 to 21.40
8.291 to 8.2940	108.00 to 138.0	3260.0 to 3267.0	22.01 to 23.12
8.362 to 8.3660	156.52475 to 156.52525	3332.0 to 3339.0	23.60 to 24.00
8.37625 to 8.38675	156.7 to 156.9	3345.8 to 3358.0	31.20 to 31.80
8.41425 to 8.41475	240.0 to 285.0	3500.0 to 4400.0	36.43 to 36.50
12.290 to 12.293	322.2 to 335.4	4500.0 to 5150.0	ABOVE 38.60

NOTE:

The noise floor within the Restricted Bands for the EMC Receiver and HP Spectrum Analyzer will typically lay 20 dB below the limit. See the data taken on pages 30 – 35 of this test report for the restricted bands.

APPENDIX A

8.0 RADIATED FUNDAMENTAL AND SPURIOUS EMISSIONS - (RSS-210, Issue 6, Annex 1)

Name of Test:

RSS-210 Section Number: Annex 1, Section A1.1.5, 40.66 – 40.70 MHz and 70 – above 470 MHz

Minimum Standard:

The measured RF emissions shall not exceed the required levels stated in RSS-210, Section 2.6 & 2.7, Table 2 & Annex 1, Section A1.1.5, Table 5.

Test Results:

The e-Guard Monitor "**meets**" the minimum requirements of RSS-210, Section 2.6 & 2.7, Table 2 & Annex 1, Section A1.1.5, Table 5.

Test Conditions:

The emissions were measured in an open field test site located at Genoa City, Wisconsin, Industry Canada File Number: IC 2060-1 (Site #1), IC 2060-2 (Site #2), & IC 2060-3 (Site #3), with the e-Guard Monitor set at 3 meters from the antenna using the test procedures from RSS-GEN, Section 4.

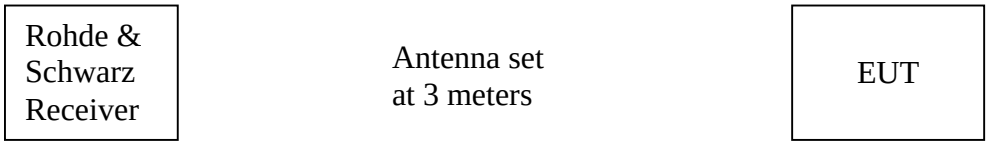
NOTE:

All radiated emissions measurements were made at a test room temperature of **72°F** at **31%** relative humidity.

Test Equipment:

Rohde & Schwarz Receivers ESI-26/ESI-40
Electro Mechanics Company 3115 Antenna

Block Diagram of Test Set-Up



Measurement Data:

See the following pages for the graphs of the actual measurements that were made:

RADIATED DATA TAKEN OF THE

FUNDAMENTAL, HARMONIC AND

RESTRICTED BANDS EMISSION

RSS-210, ANNEX 1

SECTION A1.1.5, TABLE 5

1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

Radiated Fundamental and Spurious Emissions – 30 MHz to 5 GHz
Tested at a 3 Meter Distance

EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Manufacturer: VenTek, LLC
Operating Condition: 72 deg F; 31% R.H.
Test Site: Site 3
Operator: Tim Lusha
Test Specification: RSS-210, Section A1.1.5
Date: 02/16/2007

Note: All other emissions at least 20 dB under the limit.

90 Degree Monopole Antenna

Frequency (MHz)	Measurement Detector	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Height (m)	EUT Angle (deg)	Comment
418.028	Peak	Vert	64.00	15.35	4.6	84.0	17.21	66.8	72.32	5.5	1.0	0	Fundamental
418.028	Peak	Horz	66.57	15.35	4.6	86.6	17.21	69.4	72.32	2.9	2.5	225	Fundamental
836.056	Peak	Vert	50.25	21.93	-18.0	54.2	17.21	37.0	52.32	15.3	1.0	240	Harmonic
836.056	Peak	Horz	49.80	21.93	-18.0	53.7	17.21	36.5	52.32	15.8	1.0	240	Harmonic
1254.084	Peak	Vert	61.55	24.46	-37.9	48.1	17.21	30.9	52.32	21.4	1.0	180	Harmonic
1254.084	Peak	Horz	65.87	24.46	-37.9	52.5	17.21	35.3	52.32	17.0	1.0	270	Harmonic
1672.112	Average	Vert	40.85	25.72	-38.8	27.7	N/A	27.7	54.00	26.3	1.5	315	Restricted Band
1672.112	Average	Horz	39.60	25.72	-38.8	26.5	N/A	26.5	54.00	27.5	1.0	270	Restricted Band
1672.112	Peak	Vert	53.81	25.72	-38.8	40.7	N/A	40.7	74.00	33.3	1.5	315	Restricted Band
1672.112	Peak	Horz	52.43	25.72	-38.8	39.3	N/A	39.3	74.00	34.7	1.0	270	Restricted Band
2090.140	Peak	Vert	54.66	27.33	-39.3	42.7	17.21	25.6	52.32	26.7	1.25	315	Harmonic
2090.140	Peak	Horz	55.43	27.33	-39.3	43.4	17.21	26.2	52.32	26.1	1.5	200	Harmonic
2508.168	Peak	Vert	54.82	28.43	-39.4	43.9	17.21	26.7	52.32	25.6	1.0	180	Harmonic
2508.168	Peak	Horz	50.29	28.43	-39.4	39.4	17.21	22.0	52.32	30.3	1.5	180	Harmonic
2926.196	Peak	Vert	55.30	29.85	-39.0	46.2	17.21	29.0	52.32	23.3	1.0	180	Harmonic
2926.196	Peak	Horz	51.68	29.85	-39.0	42.6	17.21	25.4	52.32	26.9	1.5	200	Harmonic

1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

Radiated Fundamental and Spurious Emissions – 30 MHz to 5 GHz
Tested at a 3 Meter Distance

EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Manufacturer: VenTek, LLC
Operating Condition: 72 deg F; 31% R.H.
Test Site: Site 3
Operator: Tim Lusha
Test Specification: RSS-210, Section A1.1.5
Date: 02/16/2007

Note: All other emissions at least 20 dB under the limit.

90 Degree Monopole Antenna

Frequency (MHz)	Measurement Detector	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Height (m)	EUT Angle (deg)	Comment
3344.224	Peak	Vert	51.68	30.79	-38.6	43.8	17.21	26.6	52.32	25.7	1.0	90	Harmonic
3344.224	Peak	Horz	52.98	30.79	-38.6	45.1	17.21	27.9	52.32	24.4	1.5	315	Harmonic
3762.252	Average	Vert	44.05	31.83	-37.8	38.1	N/A	38.1	54.00	15.9	1.5	0	Restricted Band
3762.252	Average	Horz	41.70	31.83	-37.8	35.7	N/A	35.7	54.00	18.3	1.5	165	Restricted Band
3762.252	Peak	Vert	56.51	31.83	-37.8	50.6	N/A	50.6	74.00	23.4	1.5	0	Restricted Band
3762.252	Peak	Horz	55.99	31.83	-37.8	50.0	N/A	50.0	74.00	24.0	1.5	165	Restricted Band
4180.280	Average	Vert	38.77	32.36	-36.9	34.3	N/A	34.3	54.00	19.7	1.0	225	Restricted Band
4180.280	Average	Horz	36.21	32.36	-36.9	31.7	N/A	31.7	54.00	22.3	1.5	0	Restricted Band
4180.280	Peak	Vert	52.05	32.36	-36.9	47.5	N/A	47.5	74.00	26.5	1.0	225	Restricted Band
4180.280	Peak	Horz	49.00	32.36	-36.9	44.5	N/A	44.5	74.00	29.5	1.5	0	Restricted Band

1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

Radiated Fundamental
Tested at a 3 Meter Distance

EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Manufacturer: VenTek, LLC
Operating Condition: 72 deg F; 31% R.H.
Test Site: Site 3
Operator: Tim Lusha
Test Specification: RSS-210, Section A1.1.5
Date: 02/16/2007

Note:

Straight Monopole Antenna

Frequency (MHz)	Measurement Detector	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Height (m)	EUT Angle (deg)	Comment
418.028	Peak	Vert	66.70	15.35	4.6	86.7	17.21	69.5	72.32	2.8	1.00	45	Fundamental
418.028	Peak	Horz	63.72	15.35	4.6	83.7	17.21	66.5	72.32	5.8	2.60	170	Fundamental

1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

Radiated Fundamental and Spurious Emissions – 30 MHz to 5 GHz

Tested at a 3 Meter Distance

EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Manufacturer: VenTek, LLC
Operating Condition: 72 deg F; 31% R.H.
Test Site: Site 3
Operator: Tim Lusha
Test Specification: RSS-210, Section A1.1.5
Date: 2/16/2007

Note: All other emissions at least 20 dB under the limit.

Dipole Antenna

Frequency (MHz)	Measurement Detector	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Height (m)	EUT Angle (deg)	Comment
418.028	Peak	Vert	56.35	15.35	4.6	76.3	17.21	59.1	72.32	13.2	1.00	315	Fundamental
418.028	Peak	Horz	62.35	15.35	4.6	82.3	17.21	65.1	72.32	7.2	1.00	180	Fundamental
836.056	Peak	Vert	49.07	21.93	-18.0	53.0	17.21	35.8	52.32	16.8	1.10	180	Harmonic
836.056	Peak	Horz	50.37	21.93	-18.0	54.3	17.21	38.0	52.32	14.3	1.00	325	Harmonic
1254.084	Peak	Vert	62.74	24.46	-37.9	49.3	17.21	32.1	52.32	20.2	1.20	180	Harmonic
1254.084	Peak	Horz	65.74	24.46	-37.9	52.3	17.21	35.1	52.32	17.2	1.20	190	Harmonic
1672.112	Average	Vert	39.28	25.72	-38.8	26.2	N/A	26.2	54.00	27.8	1.10	315	Restricted Band
1672.112	Average	Horz	39.58	25.72	-38.8	26.5	N/A	26.5	54.00	27.5	1.40	180	Restricted Band
1672.112	Peak	Vert	52.18	25.72	-38.8	39.1	N/A	39.1	74.00	34.9	1.10	315	Restricted Band
1672.112	Peak	Horz	51.78	25.72	-38.8	38.7	N/A	38.7	74.00	35.3	1.40	180	Restricted Band
2090.140	Peak	Vert	56.47	27.33	-39.3	44.5	17.21	27.3	52.32	25.0	1.20	180	Harmonic
2090.140	Peak	Horz	57.67	27.33	-39.3	45.7	17.21	28.5	52.32	23.8	1.10	30	Harmonic
2508.168	Peak	Vert	51.97	28.43	-39.4	41.0	17.21	23.8	52.32	28.5	1.00	180	Harmonic
2508.168	Peak	Horz	54.17	28.43	-39.4	43.2	17.21	26.0	52.32	26.3	1.10	180	Harmonic
2926.196	Peak	Vert	52.85	29.85	-39.0	43.7	17.21	26.5	52.32	25.8	1.00	75	Harmonic
2926.196	Peak	Horz	53.35	29.85	-39.0	44.2	17.21	27.0	52.32	25.3	1.20	135	Harmonic

1250 Peterson Dr., Wheeling, IL 60090

Company: VenTek, LLC
Model Tested: WVN05P
Report Number: 12975

Radiated Fundamental and Spurious Emissions – 30 MHz to 5 GHz

Tested at a 3 Meter Distance

EUT: Wireless Sensor Monitor Transmitter Model: WVN05P
Manufacturer: VenTek, LLC
Operating Condition: 72 deg F; 31% R.H.
Test Site: Site 3
Operator: Tim Lusha
Test Specification: RSS-210, Section A1.1.5
Date: 2/16/2007

Note: All other emissions at least 20 dB under the limit.

Dipole Antenna

Frequency (MHz)	Measurement Detector	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Height (m)	EUT Angle (deg)	Comment
3344.224	Peak	Vert	51.61	30.79	-38.6	43.8	17.21	26.6	52.32	25.7	1.00	225	Harmonic
3344.224	Peak	Horz	52.51	30.79	-38.6	44.7	17.21	27.5	52.32	24.8	1.10	80	Harmonic
3762.252	Average	Vert	41.47	31.83	-37.8	35.5	N/A	35.5	54.00	18.5	1.00	340	Restricted Band
3762.252	Average	Horz	43.77	31.83	-37.8	37.8	N/A	37.8	54.00	16.2	1.20	75	Restricted Band
3762.252	Peak	Vert	54.87	31.83	-37.8	48.9	N/A	48.9	74.00	25.1	1.00	340	Restricted Band
3762.252	Peak	Horz	56.17	31.83	-37.8	50.2	N/A	50.2	74.00	23.8	1.20	75	Restricted Band
4180.280	Average	Vert	36.74	32.36	-36.9	32.2	N/A	32.2	54.00	21.8	1.00	135	Restricted Band
4180.280	Average	Horz	36.84	32.36	-36.9	32.3	N/A	32.3	54.00	21.7	1.00	90	Restricted Band
4180.280	Peak	Vert	49.64	32.36	-36.9	45.1	N/A	45.1	74.00	28.9	1.00	135	Restricted Band
4180.280	Peak	Horz	49.34	32.36	-36.9	44.8	N/A	44.8	74.00	29.2	1.00	90	Restricted Band

TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	11/07
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	12/07
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	12/07
Antenna	EMCO	3104C	00054891	20 MHz – 200 MHz	2/08
Antenna	Electrometrics	LPA-25	1114	200 MHz – 1 GHz	3/07
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	3/07
Antenna	Electrometrics	3146	1205	200 MHz – 1 GHz	3/07
Antenna	EMCO	3104C	97014785	20 MHz – 200 MHz	2/08
Antenna	EMCO	3146	97024895	200 MHz – 1 GHz	3/07
Antenna	EMCO	3115	2479	1 GHz – 18 GHz	8/07
Antenna	EMCO	3115	99035731	1 GHz – 18 GHz	4/07
Antenna	Rohde & Schwarz	HUF-Z1	829381001	20 MHz – 1 GHz	2/08
Antenna	Rohde & Schwarz	HUF-Z1	829381005	20 MHz – 1 GHz	8/07

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.