




**Nemko Test Report:** 10237632RUS1


**Applicant:** Wavetronix, LLC  
78 East 1700 South  
Provo, UT 84606  
USA

**Equipment Under Test:  
(E.U.T.)** SS225

**In Accordance With:** **FCC Part 15, Subpart C, 15.249 and  
Industry Canada RSS-310, Issue 3**  
Operation within the bands 902-928 MHz,  
2400-2483.5 MHz, 5725-5875 MHz,  
and 24.0-24.25 GHz.

**Tested By:** Nemko USA Inc.  
802 N. Kealy  
Lewisville, Texas 75057-3136

**TESTED BY:**  **DATE:** 21 February 2013  
David Light, Senior Wireless Engineer

**APPROVED BY:**  **DATE:** 22 February 2013  
Mike Cantwell, Reviewer

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**Section 1. Summary Of Test Results**

Manufacturer: Wavetronix, LLC

Model No.: SS225

Serial No.: None

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

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15.249 and Industry Canada RSS-310, Issue 3. All tests were conducted using measurement procedure ANSI C63.4-2003. Radiated Emissions were made on an open area test site.

- |                                     |                            |                                     |                     |
|-------------------------------------|----------------------------|-------------------------------------|---------------------|
| <input checked="" type="checkbox"/> | New Submission             | <input checked="" type="checkbox"/> | Production Unit     |
| <input type="checkbox"/>            | Class II Permissive Change | <input type="checkbox"/>            | Pre-Production Unit |

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

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

See " Summary of Test Data".



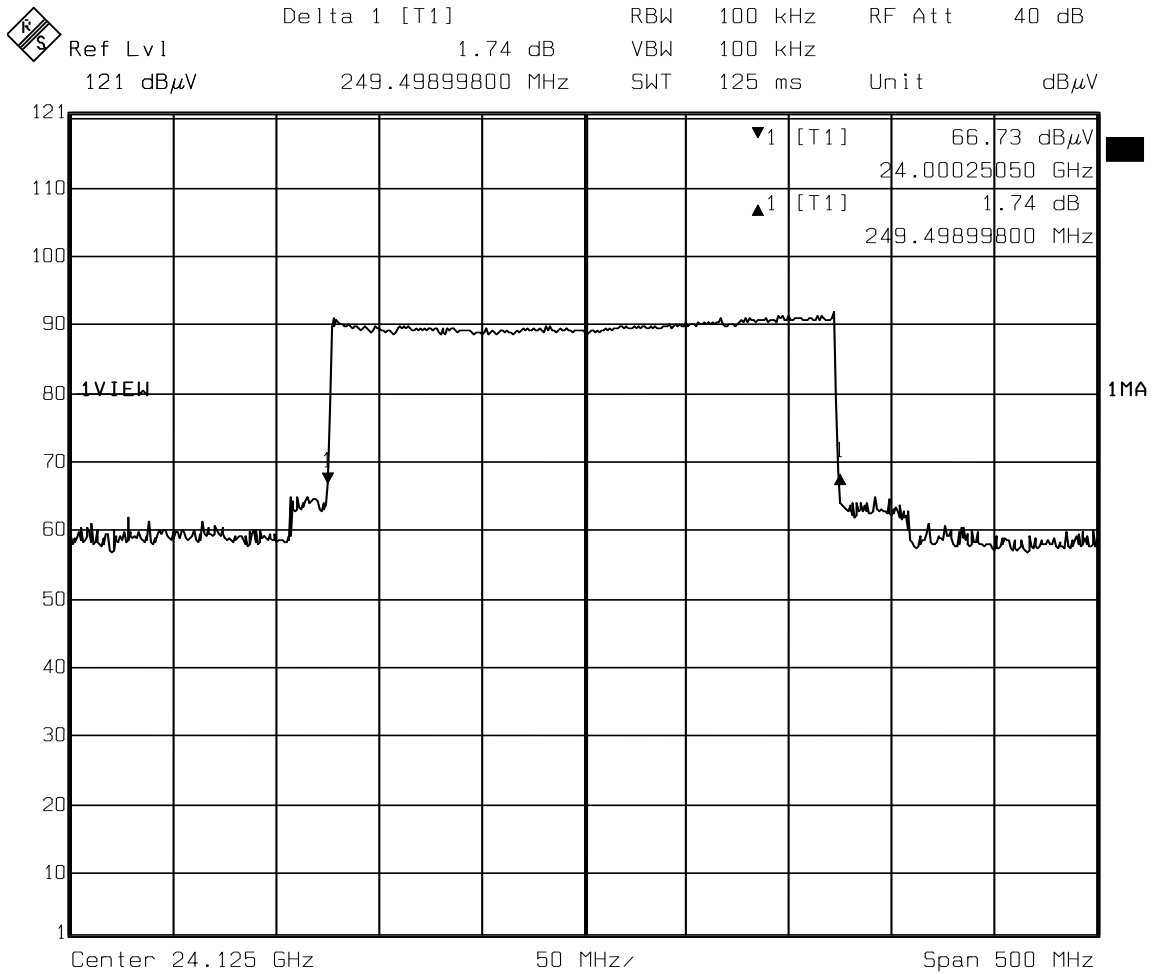
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Summary Of Test Data

NAME OF TEST	PARA. NO.	RESULT
Conducted Emissions	15.207 / RSS-General 7.2.4	Complies
Radiated Emissions	15.245 / RSS-310 3.10	Complies



**Section 2. General Equipment Specification**

**Frequency Range:** 24.0 to 24.25 GHz

**Operating Frequency(ies) of Sample:** 24.0 to 24.25 GHz

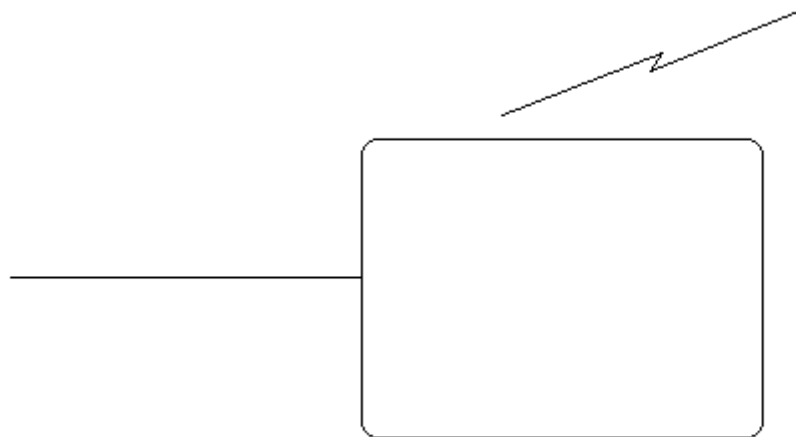
**User Frequency Adjustment:** None

**Integral Antenna** **Yes** **No**

**Description of EUT**

Traffic radar

**System Diagram**



**Section 3. Powerline Conducted Emissions**

NAME OF TEST: Powerline Conducted Emissions	PARA. NO.: 15.207 / 7.2.4
TESTED BY: David Light	DATE: 19 February 2013

**Minimum Standard:** Conducted limits.

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 mH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Quasi-peak	Limit (dBmV)	
		Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*	
0.5-5	56	46	
5-30	60	50	

\* Decreases with the logarithm of the frequency.

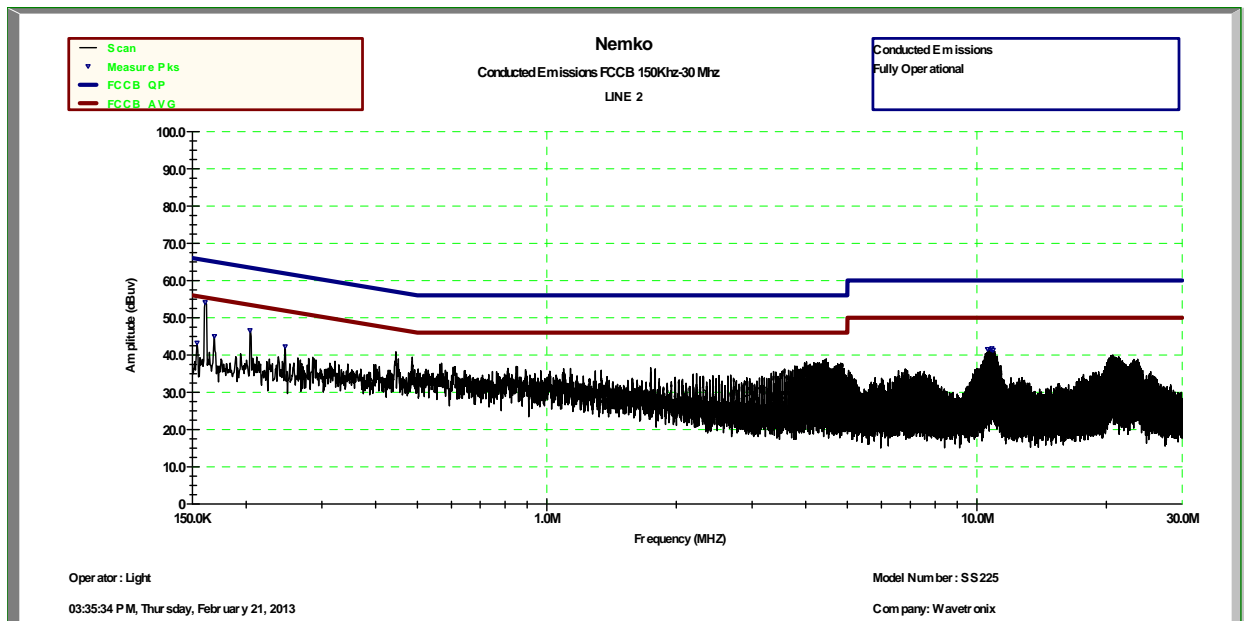
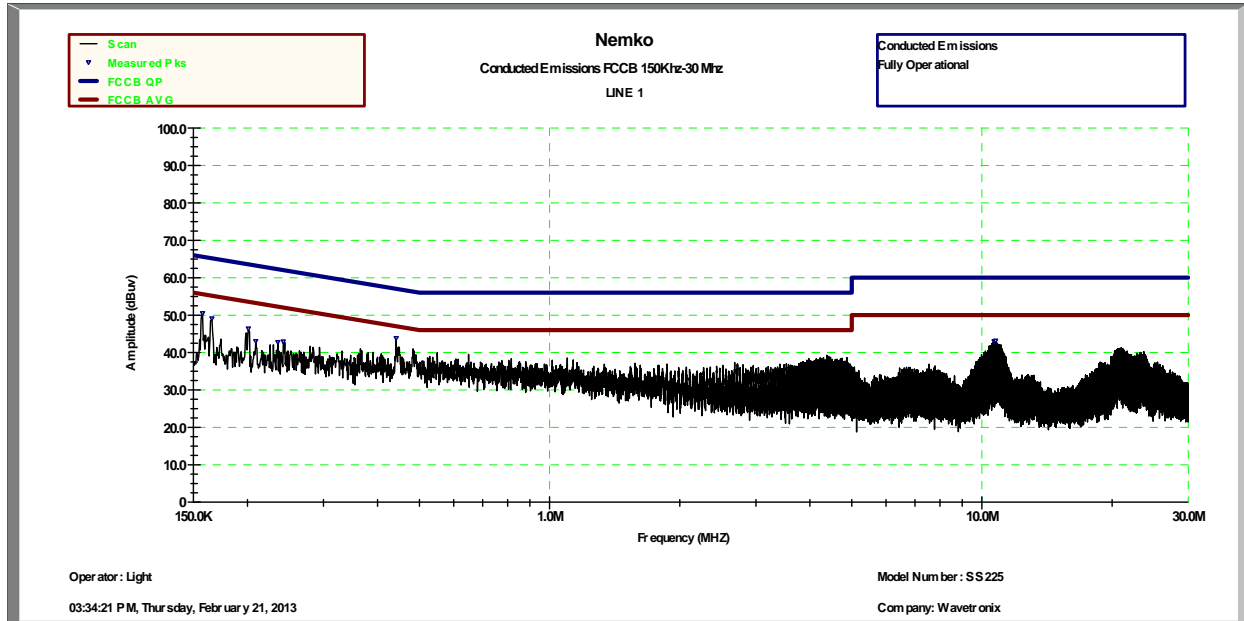
**Test Results:** Complies . See attached graph(s).

**Measurement Data:** See attached graph(s).

**Method of Measurement: (Procedure ANSI C63.4-2003)**

Measurements were made using a spectrum analyzer with 10 kHz RBW, Peak Detector. Any emissions that are close to the limit are measured using a test receiver with 10 kHz bandwidth, CISPR Quasi-Peak Detector.

Test Data – Powerline Conducted Emissions



**Section 4. Radiated Emissions**

NAME OF TEST: Radiated Emissions	PARA. NO.: 15.249
TESTED BY: David Light	DATE: 15 February 2013

**Minimum Standard:**

(a) The field strengths shall not exceed the following:

Carrier (MHz)	Field Strength (mV/m)	Field Strength (dB $\mu$ V)	Harmonic ( $\mu$ V/m)	Harmonic (dB $\mu$ V)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54
24000-24250	250	108	2500	68

(b) Field strength limits are specified at a distance of 3 metres.

(c) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated limits of 15.209 whichever is the less attenuation.

(d) ...for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

**Test Results:** Complies

**Measurement Data:** See attached table.

Spectrum Analyzer Settings:

RBW: 1 MHz  
 VBW: 1 MHz  
 Detector: Peak



**Test Data - Radiated Emissions**

Meas. Freq. (GHz)	Ant. Pol. (H/V)	Atten. (dB)	Meter Reading (dBuV)	Antenna Factor (dB)	Path Loss (dB)	RF Gain (dB)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail Unc.	Comment
24.125	V	0.0	67.6	40.4	3.2	0.0	111.2	137.5	-26.3	Pass	Peak 1 meter
24.125	V	0.0	34.0	40.4	3.2	0.0	77.6	117.5	-39.9	Pass	Average 1 meter
48.250	V	0.0	37.0	40.5	0.0	0.0	77.5	111.5	-34.0	Pass	Peak 20 cm
48.250	V	0.0	27.0	40.5	0.0	0.0	67.5	91.5	-24.0	Pass	Average 20 cm
72.375	V	0.0	49.0	43.7	0.0	0.0	92.7	111.5	-18.8	Pass	Peak 20 cm
72.375	V	0.0	40.0	43.7	0.0	0.0	83.7	91.5	-7.8	Pass	Average 20 cm
96.500	V	0.0	54.0	46.4	0.0	0.0	100.4	111.5	-11.1	Pass	Peak 20 cm
96.500	V	0.0	44.0	46.4	0.0	0.0	90.4	91.5	-1.1	Pass	Average 20 cm
24.125	H	0.0	78.0	40.4	3.2	0.0	121.6	137.5	-15.9	Pass	Peak 1 meter
24.125	H	0.0	40.6	40.4	3.2	0.0	84.2	117.5	-33.3	Pass	Average 1 meter
48.250	H	0.0	37.0	40.5	0.0	0.0	77.5	111.5	-34.0	Pass	Peak 20 cm
48.250	H	0.0	27.0	40.5	0.0	0.0	67.5	91.5	-24.0	Pass	Average 20 cm
72.375	H	0.0	49.0	43.7	0.0	0.0	92.7	111.5	-18.8	Pass	Peak 20 cm
72.375	H	0.0	40.0	43.7	0.0	0.0	83.7	91.5	-7.8	Pass	Average 20 cm
96.500	H	0.0	54.0	46.4	0.0	0.0	100.4	111.5	-11.1	Pass	Peak 20 cm
96.500	H	0.0	44.0	46.4	0.0	0.0	90.4	91.5	-1.1	Pass	Average 20 cm
24.000	V	0.0	36.0	40.4	3.2	0.0	79.6	97.5	-17.9	Pass	Peak 1 meter
24.000	V	0.0	26.5	40.4	3.2	0.0	70.1	77.5	-7.4	Pass	Average 1 meter
24.250	V	0.0	36.0	40.4	3.2	0.0	79.6	97.5	-17.9	Pass	Peak 1 meter
24.250	V	0.0	26.0	40.4	3.2	0.0	69.6	77.5	-7.9	Pass	Average 1 meter
24.000	H	0.0	36.0	40.4	3.2	0.0	79.6	97.5	-17.9	Pass	Peak 1 meter
24.000	H	0.0	27.0	40.4	3.2	0.0	70.6	77.5	-6.9	Pass	Average 1 meter
24.250	H	0.0	41.0	40.4	3.2	0.0	84.6	97.5	-12.9	Pass	Peak 1 meter
24.250	H	0.0	29.0	40.4	3.2	0.0	72.6	77.5	-4.9	Pass	Average 1 meter

**Section 5. Test Equipment List**

Asset Tag	Description	Manufacturer	Model	Serial #
704	Filter, High Pass, 5KHz	Solar Electronics	7930-5.0	933126
984	Antenna, Horn	Millitech		
985	Antenna, Horn	Millitech		
986	Harmonic Mixer	Hewlett Packard	11970V	2521A01222
987	Harmonic Mixer	Hewlett Packard	5356D	2521A00583
988	Harmonic Mixer	Hewlett Packard	11970A	2332A01929
989	Harmonic Mixer	Hewlett Packard	11970U	2332A00116
990	Antenna, Horn	Millitech		
991	Antenna, Horn	EMCO	3160-10	9704-1049
992	Antenna, Horn	EMCO	3160-09	9705-1079
993	Antenna, Horn	A.H. Systems	SAS-200/571	162
1016	Preamplifier	Hewlett Packard	8449A	2749A00159
1025	Preamplifier, 25dB	Nemko USA, Inc.	LNA25	399
1188	LISN	EMCO	3825/2	1214
1464	Spectrum Analyzer	Hewlett Packard	8563E	3551A04428
1763	Antenna, Bilog	Schaffner	CBL 6111D	22926
1767	Receiver,	Rohde & Schwartz	ESIB26	837491/0002
1783	Cable Assy,	Nemko	Chamber	
1924	3m Cable	Nemko USA	1924 RG 214	1
1948	Transient Limiter	Com-Power	LIT-153	531146
1950	Spectrum Analyzer	Rohde & Schwartz	FSP	100037

**Nemko USA, Inc.**

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and Industry Canada RSS-310  
Operation within the bands 902-928 MHz,  
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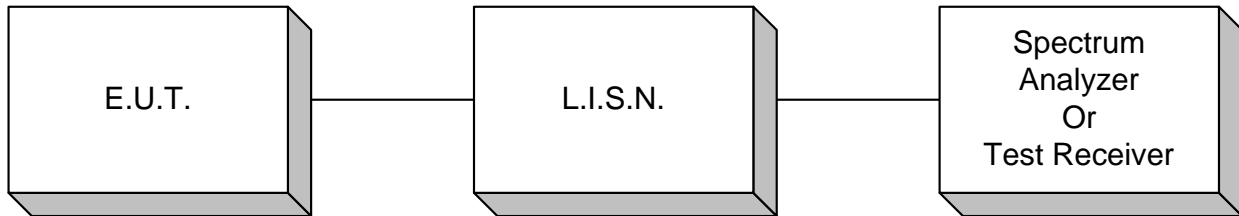
*EQUIPMENT:* SS225

REPORT NO.: 10237632RUS1

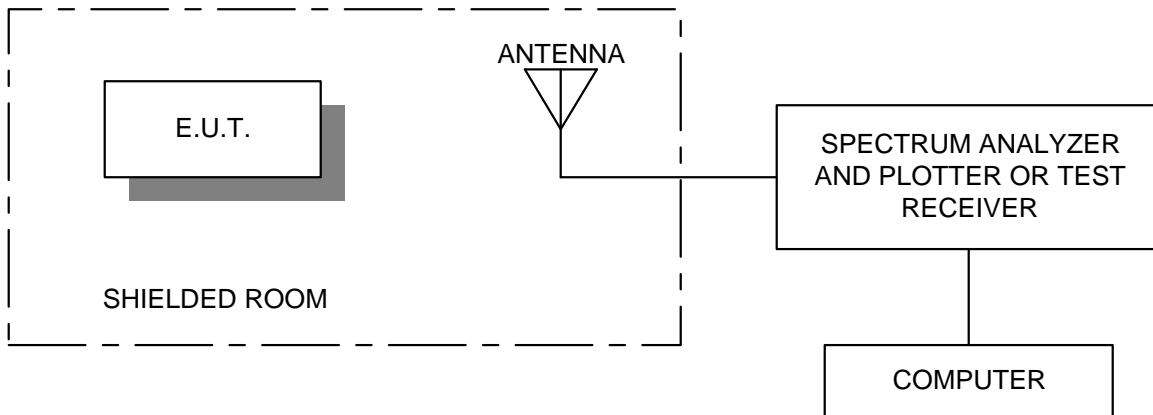
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**ANNEX A**  
**TEST DIAGRAMS**

**Conducted Emissions**



**Radiated Prescan**



Test Site For Radiated Emissions

