



**FCC CFR47 PART 15 SUBPART C
CERTIFICATION TEST REPORT**

FOR

ELECTRONIC ARTICLE SURVEILLANCE SYSTEM

MODEL NAME: ADGUARD [WG AGTR-24]

FCC ID: P9I-GUARD

REPORT NUMBER: 08U11666-1A

ISSUE DATE: DECEMBER 22, 2008

Prepared for
**WG SECURITY PRODUCTS, INC.
3031 TISCH WAY # 602
SAN JOSE, CA 95128, U.S.A.**

Prepared by
**COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	04/11/08	Initial Issue	F. Ibrahim
A	12/22/08	Updated FCC ID.	A. Zaffar

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS.....	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY.....	5
4.1. <i>MEASURING INSTRUMENT CALIBRATION.....</i>	<i>5</i>
4.2. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>5</i>
5. EQUIPMENT UNDER TEST.....	6
5.1. <i>DESCRIPTION OF EUT</i>	<i>6</i>
5.2. <i>MAXIMUM OUTPUT POWER</i>	<i>6</i>
5.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS.....</i>	<i>6</i>
5.4. <i>SOFTWARE AND FIRMWARE</i>	<i>6</i>
5.5. <i>WORST-CASE CONFIGURATION AND MODE.....</i>	<i>7</i>
5.6. <i>MODIFICATIONS.....</i>	<i>8</i>
5.7. <i>DESCRIPTION OF TEST SETUP</i>	<i>9</i>
6. TEST AND MEASUREMENT EQUIPMENT	11
7. RADIATED EMISSION TEST RESULTS.....	12
7.1. <i>LIMITS AND PROCEDURE.....</i>	<i>12</i>
7.2. <i>TX SPURIOUS EMISSIONS 0.15 TO 30 MHz</i>	<i>13</i>
7.3. <i>TX SPURIOUS EMISSION 30 TO 1000 MHz (HORIZONTAL).....</i>	<i>14</i>
7.4. <i>TX SPURIOUS EMISSION 30 TO 1000 MHz (VERTICAL).....</i>	<i>16</i>
8. AC MAINS LINE CONDUCTED EMISSIONS.....	18
9. SETUP PHOTOS.....	22

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: WG SECURITY PRODUCTS, INC.
3031 TISCH WAY # 602
SAN JOSE, CA 95128, U.S.A.

EUT DESCRIPTION: ELECTRONIC ARTICLE SURVEILLANCE SYSTEM

MODEL: ADGUARD [WG AGTR-24]

SERIAL NUMBER: CS02108

DATE TESTED: MARCH 11-27, 2008

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



FRANK IBRAHIM
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

DOUGLAS ANDERSON
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT is an electronic article surveillance system; the principle of operation is as follows:
Receiver software will send control signal to transmitter to send out 1.6mS Tx burst periodically in random sequence, and read in the received signal, which is processed to decide whether it's a tag signal or noise, then receiver software will compare tag signal sequence with transmitting sequence, if they are matched software will trigger alarm to activate visual and audio alarm.

5.2. MAXIMUM OUTPUT POWER

The transmitter has maximum peak radiated field strength at 10m distance as follows:

Frequency Range (MHz)	Mode	E field (10m distance) (dBuV/m)
0.058	Normal	94.92

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The EUT utilizes an integrated 1.8 m² loop antenna.

5.4. SOFTWARE AND FIRMWARE

Not Applicable.

5.5. WORST-CASE CONFIGURATION AND MODE

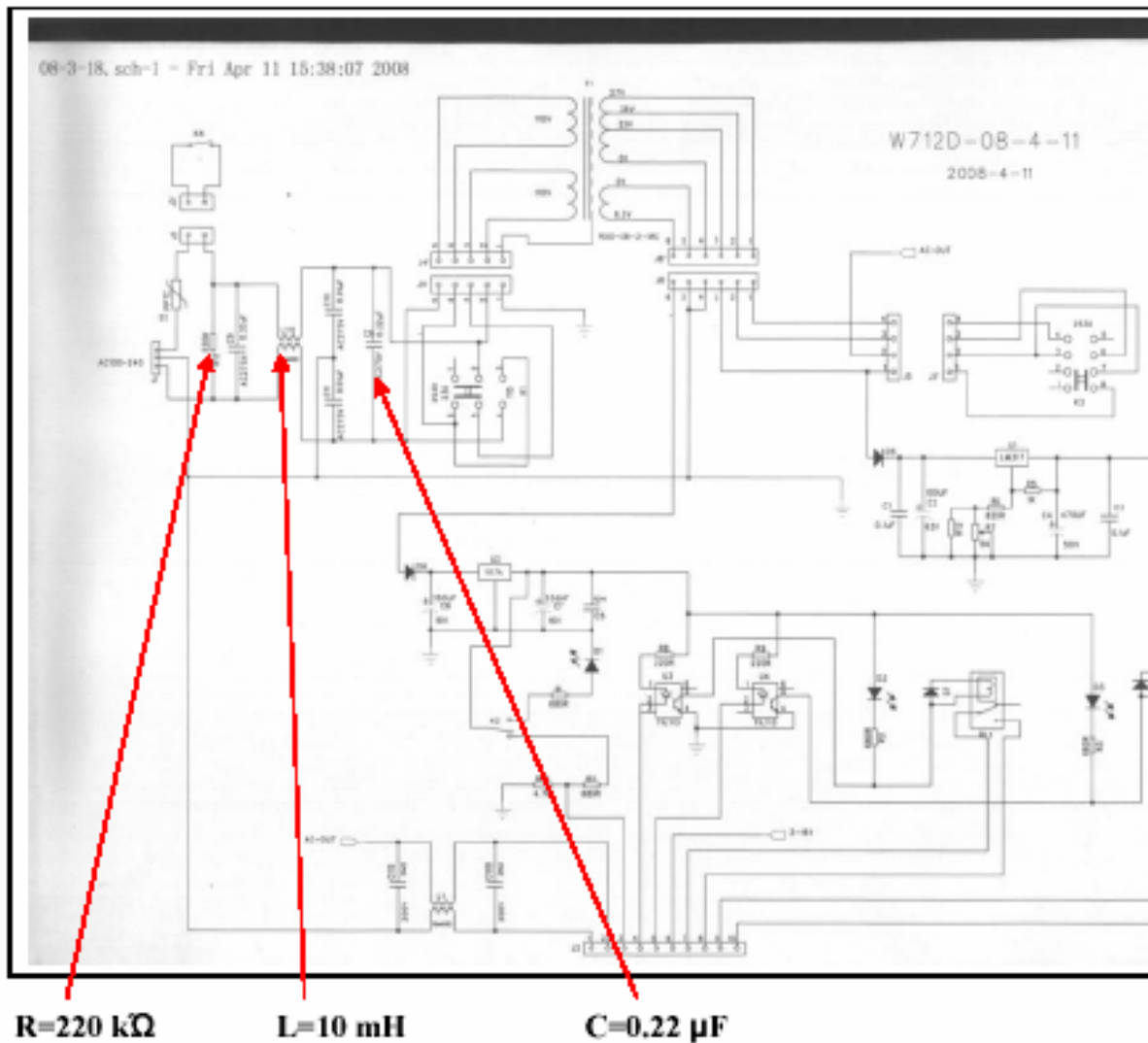
The following configurations were investigated during testing:

EUT Configuration	Description
Idle (Continuous Transmission)	Antenna assembly and control box were connected to 24 VAC power supply. No tag was placed inside the field of the antenna assembly.
Alarm ON Configuration	Antenna assembly and control box were connected to 24 VAC power supply. Tag was placed inside the field of the antenna assembly in order to trigger an alarm.

The idle configuration was found to be the worst-case for emission and therefore all final measurements were performed using the idle configuration.

5.6. MODIFICATIONS

1) Internal filtering was implemented in the power supply in order to pass power line conducted emission; Resistor, Inductor and a capacitor were added as per the following schematic diagram.



5.7. DESCRIPTION OF TEST SETUP

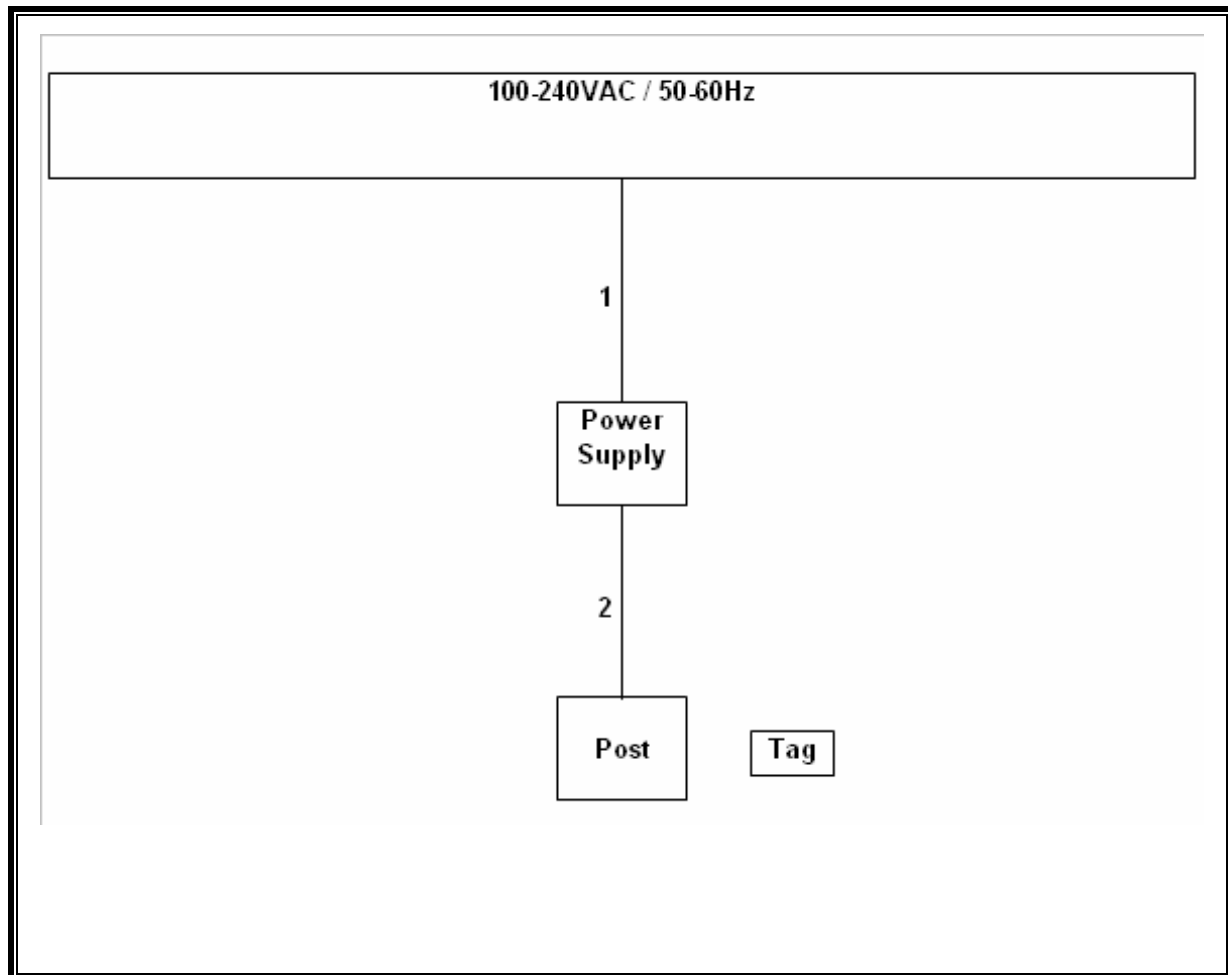
SUPPORT EQUIPMENT

The EUT is stand-alone, there are no support equipment needed to operate the EUT.

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC Input	1	3-Prong	Un-Shielded	1.5m	N/A
2	DC Output and I/O Line	1	2 and 4-Pin SIP	Un-Shielded	2m	N/A

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
RF Filter Section	HP	85420E	3705A00256	06/12/08
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	10/25/08
EMI Test Receiver	R & S	ESHS 20	827129/006	08/06/09
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	06/12/08
Preamplifier	HP	8447D	1937A02062	05/09/08
Antenna, Bilog 30MHz ~ 2Ghz	Sunol Sciences	JB1	A0022704	09/28/08
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	N02481	10/25/08
Antenna, Loop, 30 MHz	EMCO	6502	C00593	10/24/08
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4407B	C01101	01/22/09

7. RADIATED EMISSION TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.209 (a)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960 MHz	500	3
Note: The lower limit shall apply at the transition frequency.		

TEST PROCEDURE

ANSI C63.4

The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 58 kHz, while the highest frequency generated or used in the device is 24 MHz; therefore, the frequency range was investigated from 30 MHz to 1000 MHz.

RESULTS

No non-compliance noted.

7.2. TX SPURIOUS EMISSIONS 0.15 TO 30 MHz

FCC Part 15, Subpart B & C

10 Meter Distance Measurement At Open Field

Company: WG Security Product Inc.

Project #: 08U11666

Model #: Adguard

Tester: Doug Anderson

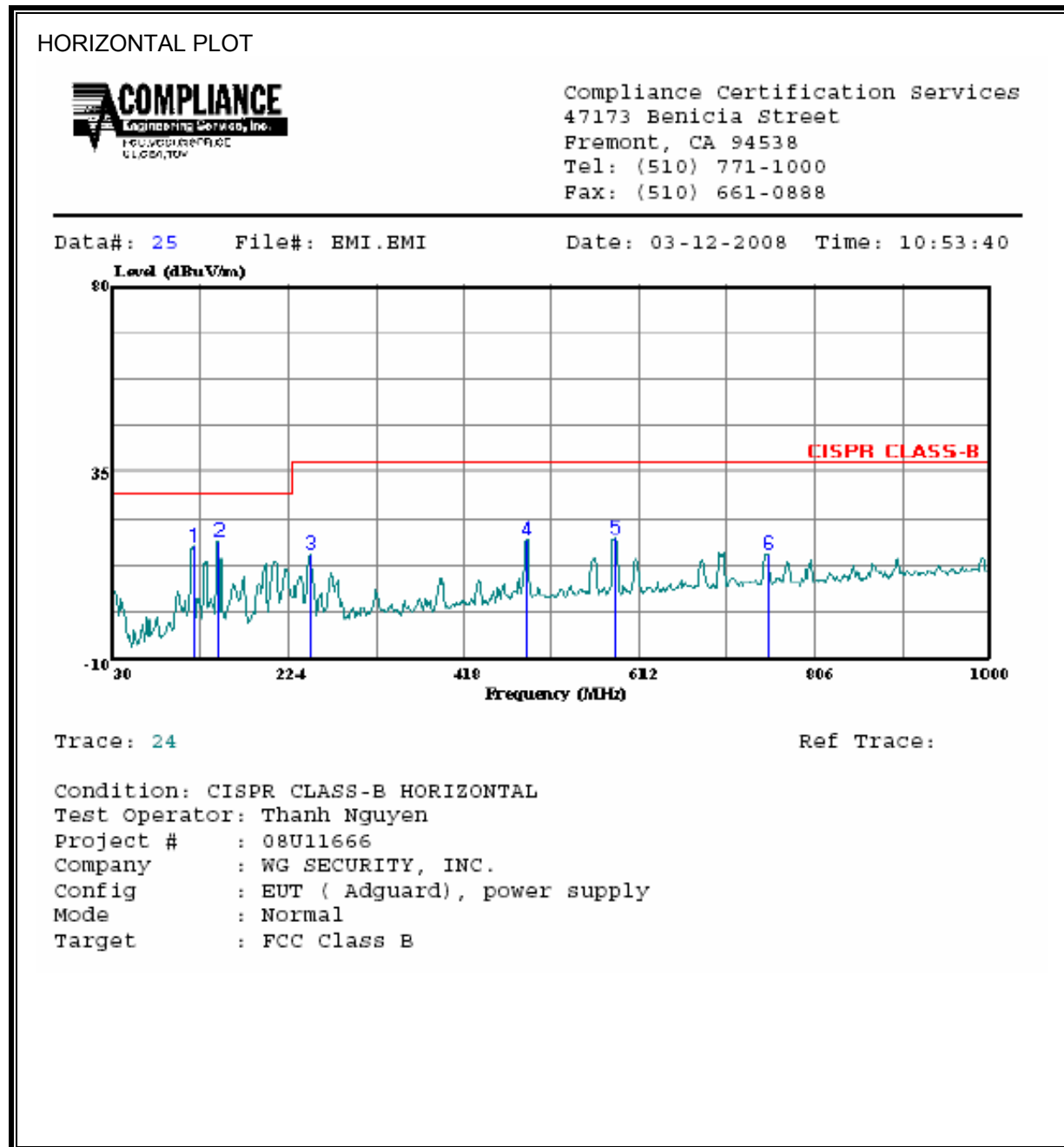
Date: 03/11/08

Frequency (MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	AV Corrected Reading (dBuV/m)	PK Limit (dBuV/m)	AV Limit (dBuV/m)	PK Margin (dB)	AV Margin (dB)	Notes
Face On:												
0.058	83.86		64.2	11.06	-59.08	35.84	16.21	52.34	32.34	-16.5	-16.1	10m distance
0.116	49.35		30.7	10.49	-59.08	0.75	-17.95	46.32	26.32	-45.6	-44.3	10m distance (Noise Floor)
0.174	65.00		51.7	10.44	-59.08	16.36	3.06	42.79	22.79	-26.4	-19.7	10m distance (Noise Floor)
0.232	60.40		50.1	10.4	-59.08	11.72	1.42	40.29	20.29	-28.6	-18.9	10m distance (Noise Floor)
0.290	59.00		48.0	10.36	-59.08	10.27	-0.73	38.36	18.36	-28.1	-19.1	10m distance (Noise Floor)
0.348	57.70		47.4	10.31	-59.08	8.93	-1.37	36.77	16.77	-27.8	-18.1	10m distance (Noise Floor)
0.406	56.70		46.6	10.27	-59.08	7.89	-2.21	35.43	15.43	-27.5	-17.6	10m distance (Noise Floor)
0.464	56.00		45.5	10.23	-59.08	7.14	-3.36	34.27	14.27	-27.1	-17.6	10m distance (Noise Floor)
Face Off:												
0.058	56.7		38.6	11.06	-59.08	8.68	-9.42	52.34	32.34	-43.7	-41.8	10m distance
0.116	48.8		30.2	10.49	-59.08	0.20	-18.40	46.32	26.32	-46.1	-44.7	10m distance (Noise Floor)
0.174	61.7		51.4	10.44	-59.08	13.06	2.76	42.79	22.79	-29.7	-20.0	10m distance (Noise Floor)
0.232	60.7		49.8	10.40	-59.08	12.02	1.12	40.29	20.29	-28.3	-19.2	10m distance (Noise Floor)
0.290	59.9		48.2	10.36	-59.08	11.17	-0.53	38.36	18.36	-27.2	-18.9	10m distance (Noise Floor)
0.348	57.6		47.5	10.31	-59.08	8.83	-1.27	36.77	16.77	-27.9	-18.0	10m distance (Noise Floor)
0.406	58.6		46.4	10.27	-59.08	9.79	-2.41	35.43	15.43	-25.6	-17.8	10m distance (Noise Floor)
0.464	55.6		45.4	10.23	-59.08	6.74	-3.46	34.27	14.27	-27.5	-17.7	10m distance (Noise Floor)

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.

P.K. = Peak
Q.P. = Quasi Peak Reading
A.F. = Antenna factor

7.3. TX SPURIOUS EMISSION 30 TO 1000 MHz (HORIZONTAL)



HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	119.240	34.63	-17.32	17.31	30.00	-12.69	Peak
2	147.370	36.18	-17.66	18.52	30.00	-11.48	Peak
3	247.280	33.94	-18.45	15.49	37.00	-21.51	Peak
4	486.870	30.96	-12.13	18.83	37.00	-18.17	Peak
5	584.840	30.09	-10.94	19.15	37.00	-17.85	Peak
6	754.590	23.64	-8.38	15.26	37.00	-21.74	Peak

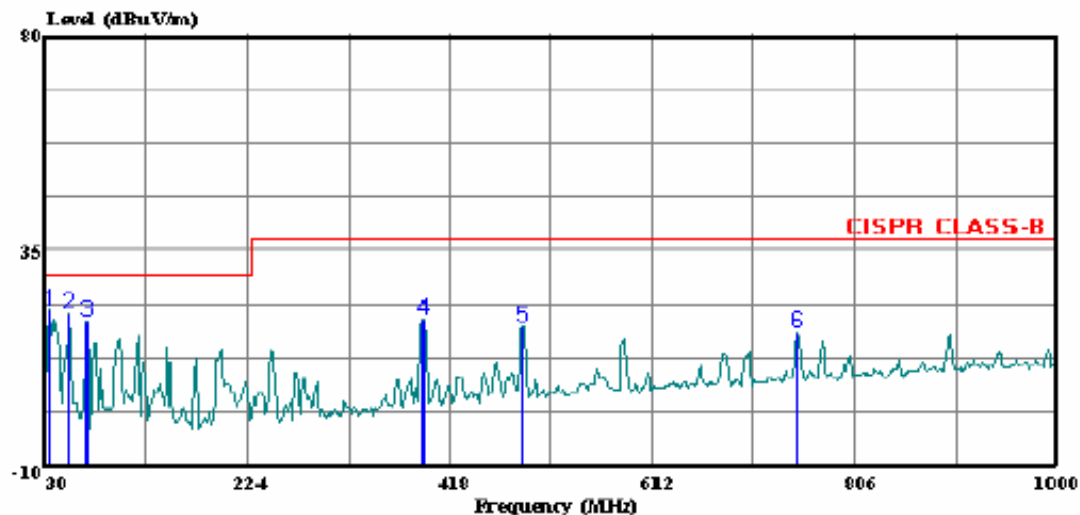
7.4. TX SPURIOUS EMISSION 30 TO 1000 MHz (VERTICAL)

VERTICAL PLOT



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 21 File#: EMI.EMI Date: 03-12-2008 Time: 10:45:30



Trace: 20

Ref Trace:

Condition: CISPR CLASS-B VERTICAL
Test Operator: Thanh Nguyen
Project # : 08U11666
Company : WG SECURITY, INC.
Config : EUT (Adguard), power supply
Mode : Normal
Target : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	33.880	34.69	-11.82	22.87	30.00	-7.13	Peak
2	53.280	45.06	-23.15	21.91	30.00	-8.09	Peak
3	70.740	43.22	-23.01	20.21	30.00	-9.79	Peak
4	392.780	34.91	-14.25	20.66	37.00	-16.34	Peak
5	486.870	31.21	-12.13	19.08	37.00	-17.92	Peak
6	751.680	26.63	-8.45	18.18	37.00	-18.82	Peak

8. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207 (a)

Frequency of emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50
* Decreases with the logarithm of the frequency.		

TEST PROCEDURE

ANSI C63.4

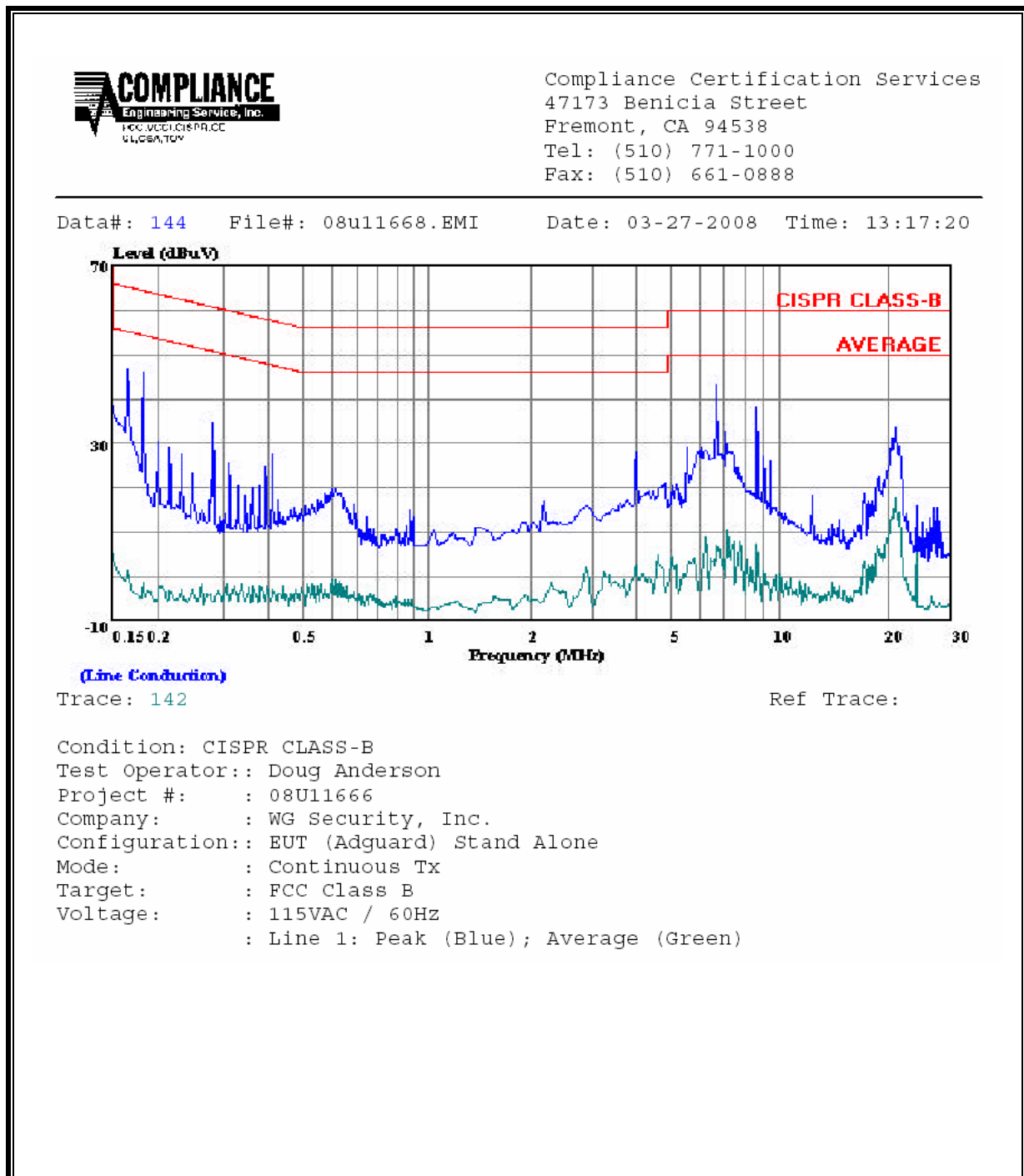
RESULTS

No non-compliance noted:

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.17	46.79	--	1.33	0.00	65.21	55.21	-18.42	-53.88	L1
0.18	46.11	--	-2.78	0.00	64.49	54.49	-18.38	-57.27	L1
6.81	43.23	--	6.93	0.00	60.00	50.00	-16.77	-43.07	L1
0.17	46.32	--	0.18	0.00	64.96	54.96	-18.64	-54.78	L2
0.18	44.06	--	-1.94	0.00	64.49	54.49	-20.43	-56.43	L2
6.95	35.09	--	12.00	0.00	60.00	50.00	-24.91	-38.00	L2
6 Worst Data									

LINE 1 RESULTS

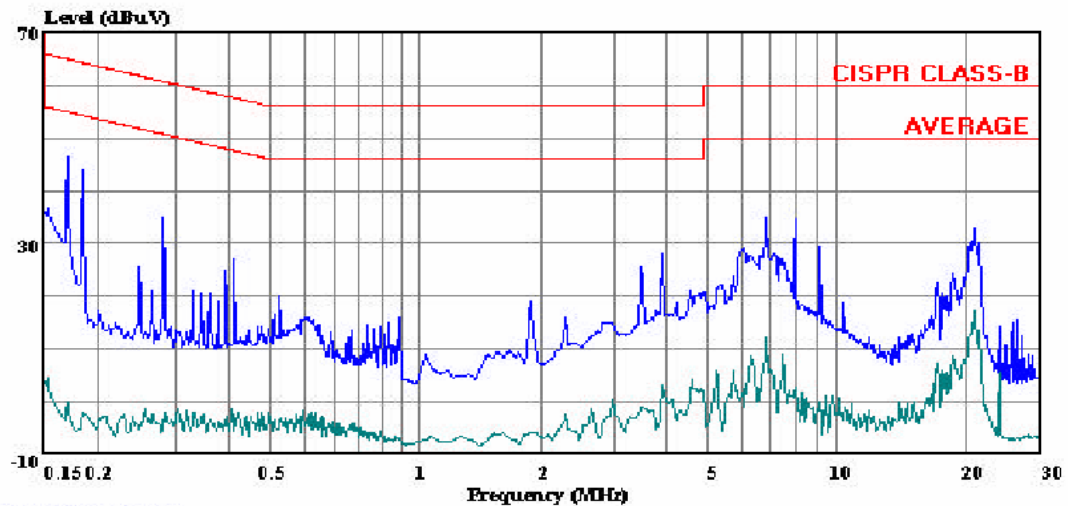


LINE 2 RESULTS



Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 151 File#: 08u11668.EMI Date: 03-27-2008 Time: 13:26:46



(Line Conduction)

Trace: 149

Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Doug Anderson
Project #: 08U11666
Company: WG Security, Inc.
Configuration: EUT (Adguard) Stand Alone
Mode: Continuous Tx
Target: FCC Class B
Voltage: 115VAC / 60Hz
Line 2: Peak (Blue); Average (Green)

9. SETUP PHOTOS

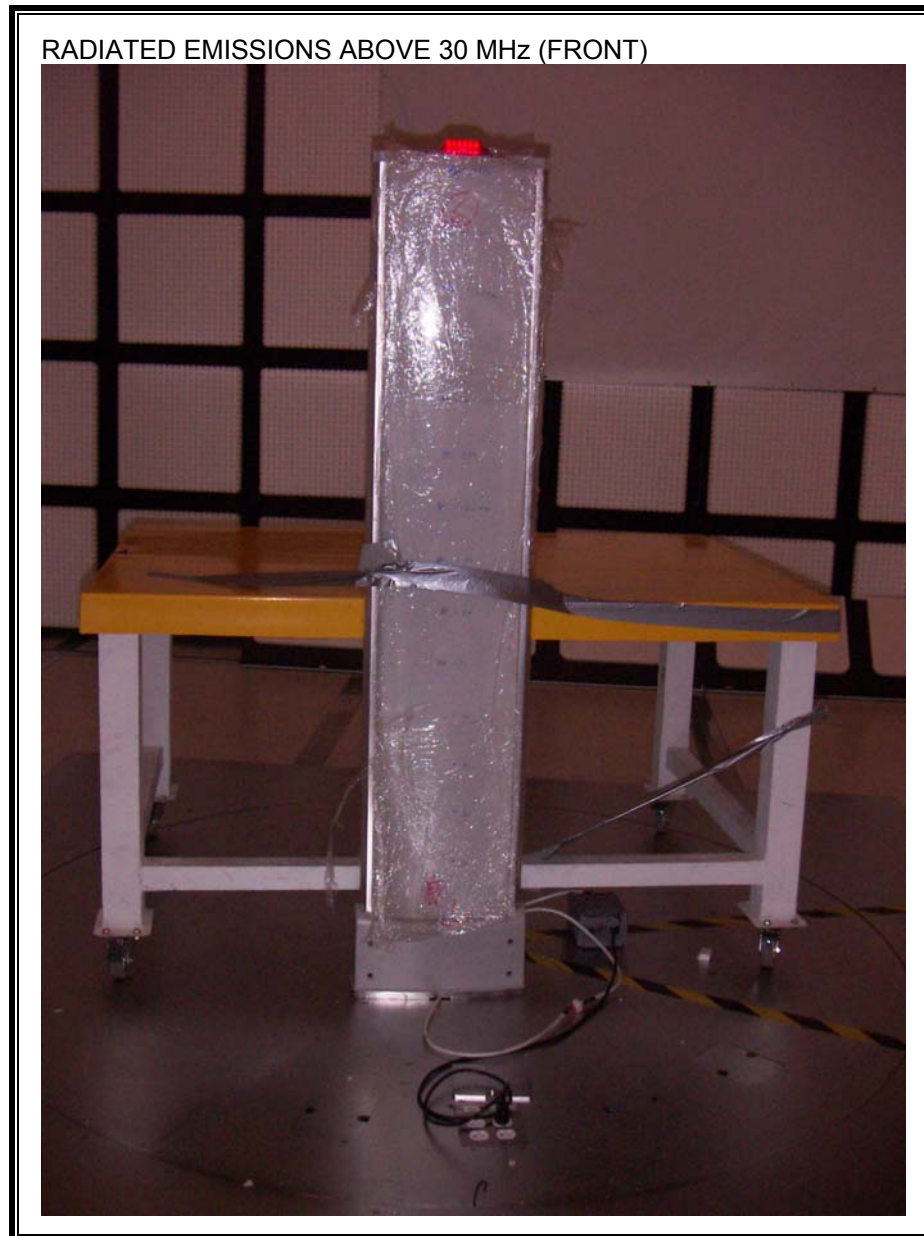
RADIATED EMISSION BELOW 30 MHz



RADIATED EMISSIONS BELOW 30MHz (SIDE)

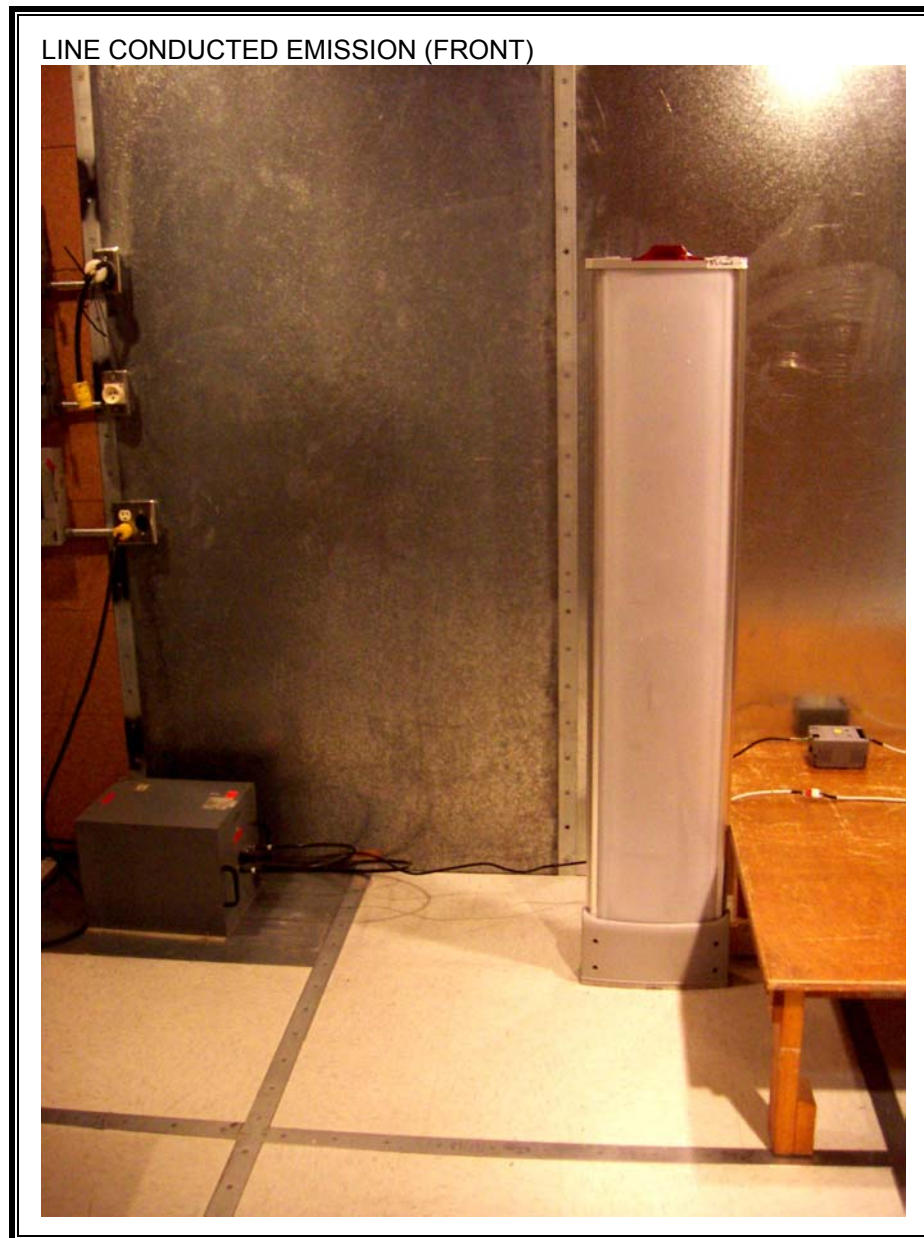


RADIATED EMISSION ABOVE 30 MHz

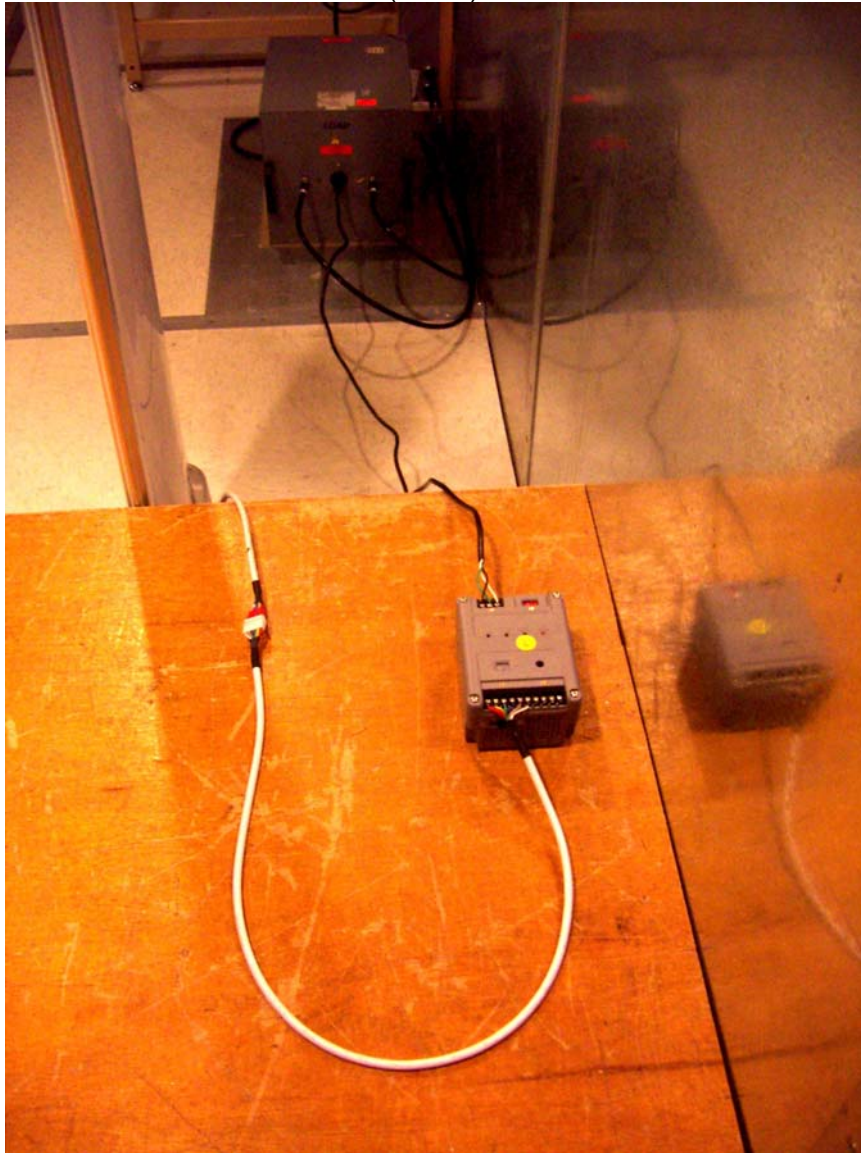




AC MAINS LINE CONDUCTED EMISSION



LINE CONDUCTED EMISSION (BACK)



END OF REPORT