



**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT
FOR**

58KHZ ELECTRONIC ARTICLE SURVEILLANCE SYSTEM

MODEL NUMBER: MGSKG58-1

BRAND NAME: 58HKZ SKY-GUARD LOOP SYSTEM

FCC ID: P9I-MGSKG58

Prepared For
WG SECURITY PRODUCTS, INC
161 SAN LAZARO AVE
SUNNYVALE, CA 94086
USA

Prepared By
Compliance Certification Services
561F Monterey Road
Morgan Hill CA 95037
USA

Report No : 02U1374-1

Revision A

Date : 8/9/02



TABLE OF CONTENTS

SECTION 1: LABORATORY INFORMATION.....	4
1.1 GENERAL CONDITION:	4
1.2 MEASUREMENT FACILITIES.....	4
1.3 LABORATORY ACCREDITATIONS AND LISTINGS	5
1.4 MEASUREMENT UNCERTAINTY	6
1.5 DEVIATION FROM MEASUREMENT SPECIFICATION	6
1.6 MEASUREMENT INSTRUMENT CALIBRATION	6
SECTION 2: PRODUCT INFORMATION.....	7
2.1 PRODUCT DESCRIPTION:	7
2.2 POWER REQUIREMENTS	7
2.3 LOCAL OSC. OR CRYSTAL:	7
2.4 SERIAL NUMBER	7
SECTION 3: TEST SUMMARY	8
3.1 APPLICABLE ELECTROMAGNETIC INTERFERENCE REQUIREMENTS:	8
3.2 SAMPLE RECEIVED DATE AND TEST PERIOD:	8
3.3 ENGINEERING JUSTIFICATION:	9
SECTION 4 ELECTROMAGNETIC INTERFERENCE TEST	10
4.1 RADIATED EMISSION TEST PROCEDURES	13
4.1.1 <i>Instrument Setting</i>	13
4.1.2 <i>Measurement Instrument Configuration</i>	14
4.1.3 <i>Measurement Equipment Used</i>	15
4.1.4 <i>Radiated Emission Test Setup Photos</i>	16
4.1.5 <i>Radiated Emission Test Result</i>	17
4.2 CONDUCTED EMISSION TEST PROCEDURES	18
4.2.1 <i>Instrument Settings</i>	18
4.2.2 <i>Measurement Instrument Configuration</i>	18
4.2.3 <i>Measurement Equipment Used</i>	19
4.2.4 <i>Conducted Emission Test Setup Photos</i>	20
4.2.5 <i>Conducted Emission Test Result</i>	21
4.3.1 <i>Instrument Settings</i>	28
4.3.2 <i>Measurement Instrument Configuration</i>	28
4.3.3 <i>Measurement Equipment Used</i>	29
4.3.4 <i>Below 30MHz Emission Test Setup photos</i>	29
4.3.5 <i>Below 30MHz Emission Test Results</i>	30

Verification Of Compliance

COMPANY NAME : WG SECURITY PRODUCTS, INC.
 161 SAN LAZARO AVENUE
 SUNNYVALE, CA 94086, USA

CONTACT PERSON : GRAHAM HANDYSIDE / VICE PRESIDENT

TELPHONE NO : (408) 241-8000

MODEM NUMBER : MGSKG58-1

DATE TESTED : 6/19/02, 7/19/02, 8/5/02, and 8/6/02

LIMIT APPLY TO : FCC PART 15 SECTION 15.209

TECHNICAL LIMITS	TEST RESULT
Radiated Emission	Passed

LIMIT APPLY TO : FCC PART 15 SECTION 15.207

AC Line Conducted Emission	Passed
----------------------------	--------

The above equipment was tested by Compliance Engineering Services Inc. for compliance with the requirement set forth in the requirements of CFR 47 PART 15 SUBPART C. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

Tested By:

FRANK IBRAHIM
 EMC ENGINEER
 COMPLIANCE CERTIFICATION SERVICES

Approved & Released For CCS By:

THU CHAN
 SENIOR EMC ENGINEER
 COMPLIANCE CERTIFICATION SERVICES

SECTION 1: LABORATORY INFORMATION

1.1 General Condition:

This report contains an assessment of an apparatus against Electromagnetic Interference Technical Requirements based upon tests carried out on the samples submitted.

With regard to this assessment, the following points should be noted:

- a) The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties. and reports conditions under which testing was conducted and results of tests performed. 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.
- b) The apparatus was set up and exercised using the configurations, modes of operation and arrangements defined in this report only.
- c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report.
- d) All testing was performed under the following environmental conditions:

·	Temperature	15°C to 35°C (54°F to 95°F)
·	Atmospheric Pressure	860mbar to 1060mbar (25.4" to 31.3")
·	Humidity	10% to 75*%

1.2 Measurement Facilities

Compliance Certification Services

561F Monterey Road

Morgan Hill CA 95037

USA

Tel: (408)463-0885, Fax: (408)463-0888

1.3 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP*	FCC Part 15, CISPR 22, AS/NZS 3548, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, CNS 13438	 200065-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	
Japan	VCCI	CISPR 22 Two OATS and one conducted Site	 R-1014, R-619, C-640
Norway	NEMKO	EN50081-1, EN50081-2, EN50082-1, EN50082-2, IEC61000-6-1, IEC61000-6-2, EN50083-2, EN50091-2, EN50130-4, EN55011, EN55013, EN55014-1, EN55104, EN55015, EN61547, EN55022, EN55024, EN61000-3-2, EN61000-3-3, EN60945, EN61326-1	 ELA 117
Norway	NEMKO	EN60601-1-2 and IEC 60601-1-2, the Collateral Standards for Electro-Medical Products. MDD, 93/42/EEC, AIMD 90/385/EEC	 ELA-171
Taiwan	BSMI	CNS 13438	 SL2-IN-E-1012
Canada	Industry Canada	RSS210 Low Power Transmitter and Receiver	 IC2324 A,B,C, and F

*No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government

1.4 Measurement Uncertainty

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

Radiated Emission	
30MHz – 200 MHz	+/- 3.3dB
200MHz – 1000MHz	+4.5/-2.9dB
1000MHz – 2000MHz	+4.6/-2.2dB
Power Line Conducted Emission	
150kHz – 30MHz	+/-2.9

Any results falling within the above values are deemed to be marginal.

1.5 Deviation from measurement specification

Not Applicable

1.6 Measurement Instrument Calibration

The measuring equipment which was utilized in performing the tests documented herein has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment which is traceable to recognized national standards.

SECTION 2: PRODUCT INFORMATION

2.1 Product Description:

The Sky Guard system is software driven EAS system that works in combination with any 58kHz tags and labels. The system's transmitter sends out 58kHz signals, exciting tags within the detection zone, and the system receiver listens for the unique signal that any 58kHz tags and labels produce, and the sequence produced is then verified and multiplied in a fraction of a second.

2.2 Power Requirements

AC	110 VAC, 200-220 VAC , 50-60Hz
DC	N/A
Battery Power	N/A
AC-DC Adaptor	N/A

2.3 Local Osc. Or Crystal:

Board Name	Local Osc. / Crystal (MHz)
Main	11.6
Communication	3.712
Communication	3.9

2.4 Serial Number

Not Applicable

SECTION 3: TEST SUMMARY

3.1 Applicable Electromagnetic Interference Requirements:

Radiated Emission Technical Requirements 15.209		
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
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
88-216	150	3
216-960	200	3
Above 960	500	3

Conducted Emission Technical Requirements 15.207	
Frequency Range	FCC limits Quasi-Peak/dBuV
450kHz-0.5 MHz	48

3.2 Sample received date and Test Period:

Sample received date	6/19/02
Test Period	From 6/19/02 To 8/6/02

3.3 Engineering Justification:

DURING TEST SOME MODIFICATIONS WERE MADE TO ACHIEVE THE LIMIT.

1. One ferrite core was added around the cable connected to J7 with 4 turns through the ferrite, the ferrite core is general-purpose ferrite with dimensions of (2.8 X 2.8 X 3.1) cm.
2. Power entry module type EMI filter was fitted to the input power terminals of the EUT.
Manufacturer: SAE
Model: FCF1-6

SECTION 4 ELECTROMAGNETIC INTERFERENCE TEST

Ambient Conditions:

	Temperature	Humidity
Radiated Emission	25 °C	65 %
Conducted Emission	25 °C	65 %

Test Configuration:

Software Used During The Tests			
File Name	<input type="checkbox"/> EMCTEST	<input type="checkbox"/> Pinging	<input type="checkbox"/> Read & Write
	<input type="checkbox"/> Terminal	<input type="checkbox"/> Music	<input type="checkbox"/> Joy-Stick
	<input checked="" type="checkbox"/> Other:		
Program Sequence	EUT transmitting and alarming with presence of a tag		

Mode of Operational Investigated:

Worse Case Emission Levels		
Mode of Operation	Radiated Emission	Conducted Emission
1 EUT transmitting and alarming with presence of a tag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>

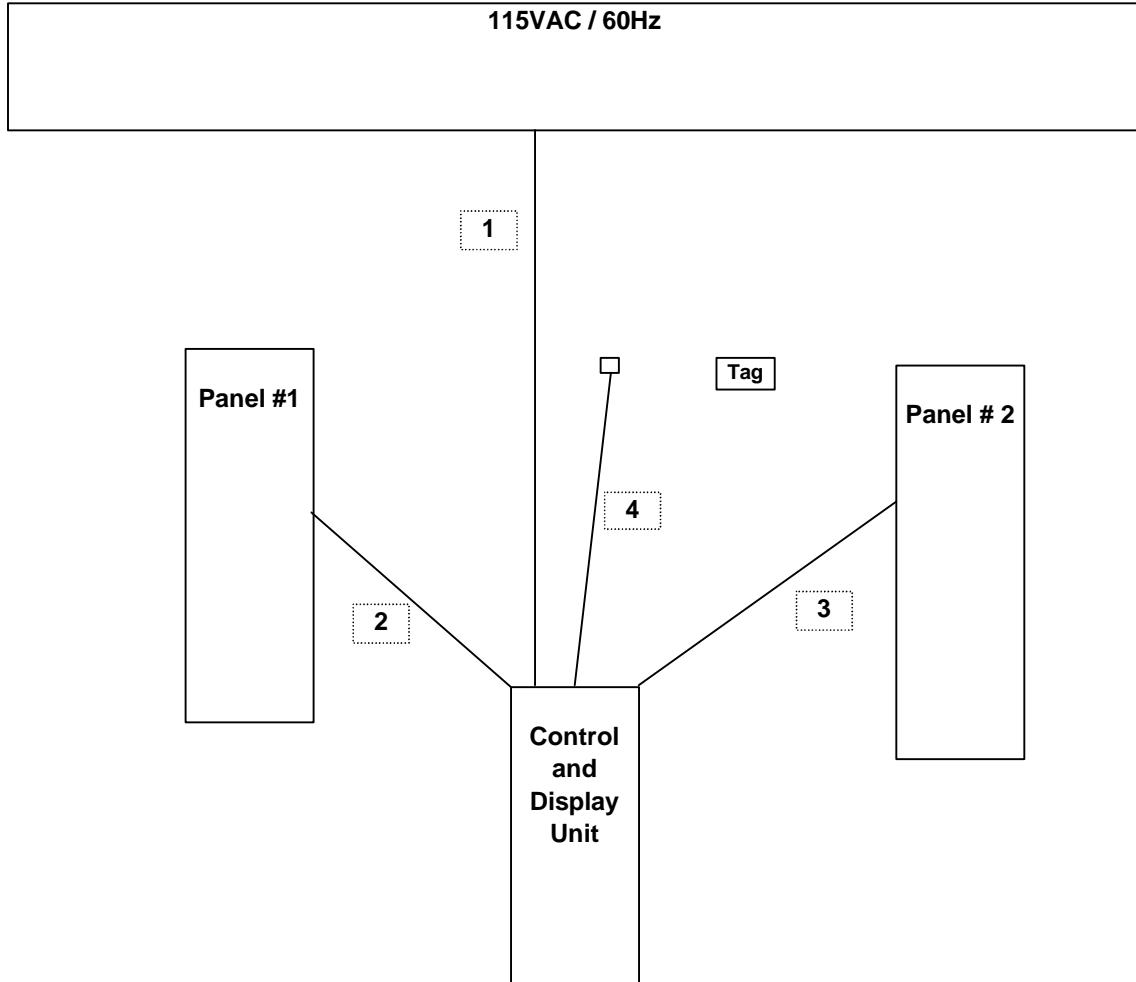
Frequency Range Investigated:

	From	To
Radiated Emissions	58KHz	1GHz
Conducted Emissions	0.45MHz	30MHz

Test Peripherals

No support equipment was used.

Test Configuration Diagram Sky Guard



I/O Cable Configuration
Sky Guard

Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	AC	1	US 115V	Un-shielded	2m	No	No	Bundled only for LC test
2	J3	1	Terminal Block	Un-shielded	3m	Yes	Yes	N/A
3	J4	1	Terminal Block	Un-shielded	4m	Yes	Yes	N/A
4	J7	1	Terminal Block	Un-shielded	5m	Yes	Yes	N/A

4.1 Radiated Emission Test Procedures

The EUT was placed on a wooden table 80 cm above the ground screen. The antenna to EUT distance was 10 meters for frequencies below 30MHz, and 3 meters for frequencies above 30MHz. During the test, the table was rotated 360 degrees to maximize emissions and the antenna was positioned from 1 to 4 meters above the ground screen to further maximize emissions. Measurements were made with the antenna polarized in both the vertical and the horizontal positions.

The EUT test configuration was according to Section 8 of ANSI C63.4/1992.

The following procedure was used to make the measurements: The frequency range of interest was monitored at a fixed antenna height and EUT azimuth. The Frequency span was set small enough to easily differentiate between broadcast stations, intermittent ambient signals and EUT emissions. The EUT was rotated through 360 degrees to maximize emissions received. During the rotation if emission increased by more than 1 dB, or if another emission appeared that was greater by 1 dB, the EUT was returned to the azimuth where the maximum occurred, and additional cable manipulation was performed to further maximize received emissions.

The antenna was moved up and down to further maximize the suspected highest amplitude signal. If the emission increased by 1 dB or more, or if another emission appeared that was greater by 1dB or more, the antenna was returned to the height where maximum signal was observed, and, cables were manipulated to produce highest emissions, noting frequency and amplitude.

4.1.1 Instrument Setting

Frequency Range	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
30 - 1000 MHz	EMI Receiver	Quasi-Peak	120kHz	N/A
30 – 1000 MHz	Spectrum Analyzer	Peak	100kHz	100kHz
Above 1000 MHz	Spectrum Analyzer	Peak	1 MHz	1 MHz

4.1.2 Measurement Instrument Configuration

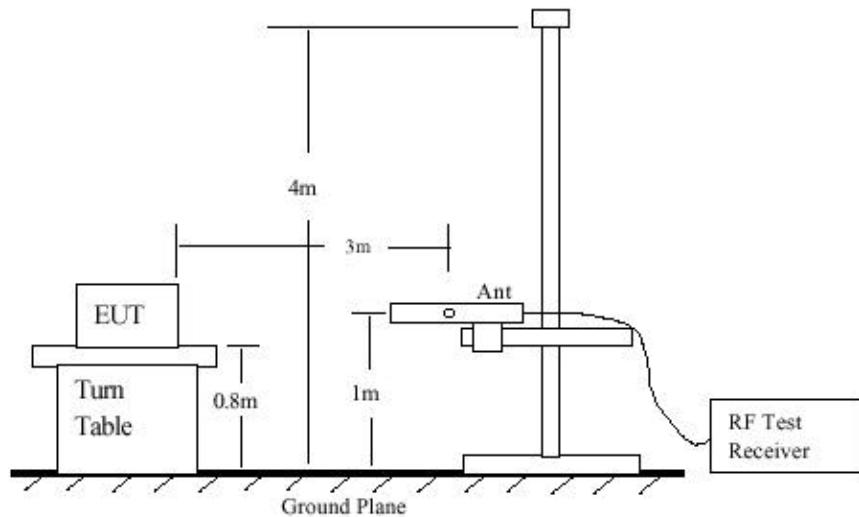


Fig 1: Radiated Emission Measurement 30 to 1000 MHz

4.1.3 Measurement Equipment Used

TEST EQUIPMENTS LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Spectrum Analyzer	HP 0.1K - 1.5GHz	8568B	2732A03661	5/16/03
Spectrum Display	HP	85662A	2816A16696	5/16/03
Quasi Peak Adapter	HP9K - 1GHz	85650A	2811A01155	5/16/03
Active Loop Antenna, (10K - 30MHz)	EMCO	6502	9202-2722	4/20/03
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1197	3/30/03
Antenna, LP	EMCO200 - 2000MHz	3146	2120	3/30/03
Pre-Amplifier, 25 dB	HP 0.1 - 1300MHz	8447D (P_1M)	2944A06833	8/21/02
EMI Test Receiver	Rohde & Schwarz	ESHS 20	827129/006	4/17/03
LISN	Fischer 9k - 100MHz	FCC-LISN-50/250-25-2	114	4/23/03
Line Filter	Lindgren 10k - 10GHz	LMF-3489	497	N.C.R.
LISN	Solar Elec. Co.	8012-50-R-24-BNC	837990	4/25/03
AC Power Source	Advanced Central Systems	AFC-10K-AFC2	J1568	N.C.R.

4.1.4 Radiated Emission Test Setup Photos

4.1.5 Radiated Emission Test Result

Sky Guard



FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 02U1374-1
Report #: 020805A01
Date & Time: 08/05/02 2:38 PM
Test Engr: Frank Ibrahim

Company: WG Security Products
EUT Description: Electronic Article Surveillance System
Test Configuration: EUT, (2 panels and display unit)
Type of Test: FCC 15.209
Mode of Operation: EUT triggered by a tag, continuous alarming

[<< Main Sheet](#)

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
194.80	48.30	16.10	2.20	27.25	39.35	43.50	-4.15	3mH	0.00	1.50	P
345.24	50.90	15.12	3.00	27.40	41.63	46.00	-4.37	3mH	0.00	1.00	P
76.50	55.00	6.82	1.36	27.61	35.57	40.00	-4.43	3mV	0.00	1.00	P
215.30	52.90	10.49	2.32	27.17	38.54	43.50	-4.96	3mH	0.00	2.00	P
185.60	48.40	15.28	2.15	27.29	38.54	43.50	-4.96	3mH	0.00	1.00	P
42.90	49.00	12.45	1.00	27.63	34.81	40.00	-5.19	3mV	0.00	1.00	P
6 Worst Data											

4.2 Conducted Emission Test Procedures

The EUT was setup and located so that the distance between the boundary of the EUT and the closest surface to the LISN was 0.8m or more.

EUT test configuration was according to Section 7 of ANSI C63.4/1992.

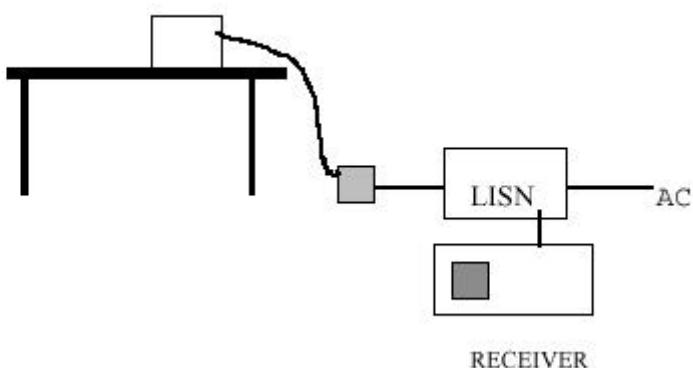
Conducted disturbance was measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz was investigated.

The EMI receiver was set to PEAK detector setting, and swept continuously over the frequency range to be investigated. The resolution bandwidth was set to 9kHz minimum. The EMI receiver input cable was connected to LINE 1 RF measurement connection on the LISN. A 50ohm terminator was connected to the unused RF port on the LISN. For each mode of EUT operation, emissions readings were maximized by manipulating cable and wire positions. The configuration for each EUT power cord which produced emissions closest to the limit was recorded. The same procedure was repeated for LINE 2 of each EUT power cord.

4.2.1 Instrument Settings

Frequency Range	Peak	Quasi-Peak	Average
0.45 – 30 MHz	10 kHz	9 kHz	10 kHz

4.2.2 Measurement Instrument Configuration



4.2.3 Measurement Equipment Used

TEST EQUIPMENTS LIST					
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date	
Spectrum Analyzer	HP 0.1K - 1.5GHz	8568B	2732A03661	5/16/03	
Spectrum Display	HP	85662A	2816A16696	5/16/03	
Quasi Peak Adapter	HP9K - 1GHz	85650A	2811A01155	5/16/03	
Active Loop Antenna, (10K - 30MHz)	EMCO	6502	9202-2722	4/20/03	
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1197	3/30/03	
Antenna, LP	EMCO200 - 2000MHz	3146	2120	3/30/03	
Pre-Amplifier, 25 dB	HP 0.1 - 1300MHz	8447D (P_1M)	2944A06833	8/21/02	
EMI Test Receiver	Rohde & Schwarz	ESHS 20	827129/006	4/17/03	
LISN	Fischer 9k - 100MHz	FCC-LISN-50/250-25-2	114	4/23/03	
Line Filter	Lindgren 10k - 10GHz	LMF-3489	497	N.C.R.	
LISN	Solar Elec. Co.	8012-50-R-24-BNC	837990	4/25/03	
AC Power Source	Advanced Central Systems	AFC-10K-AFC2	J1568	N.C.R.	

4.2.4 Conducted Emission Test Setup Photos

Sky Guard



4.2.5 Conducted Emission Test Result

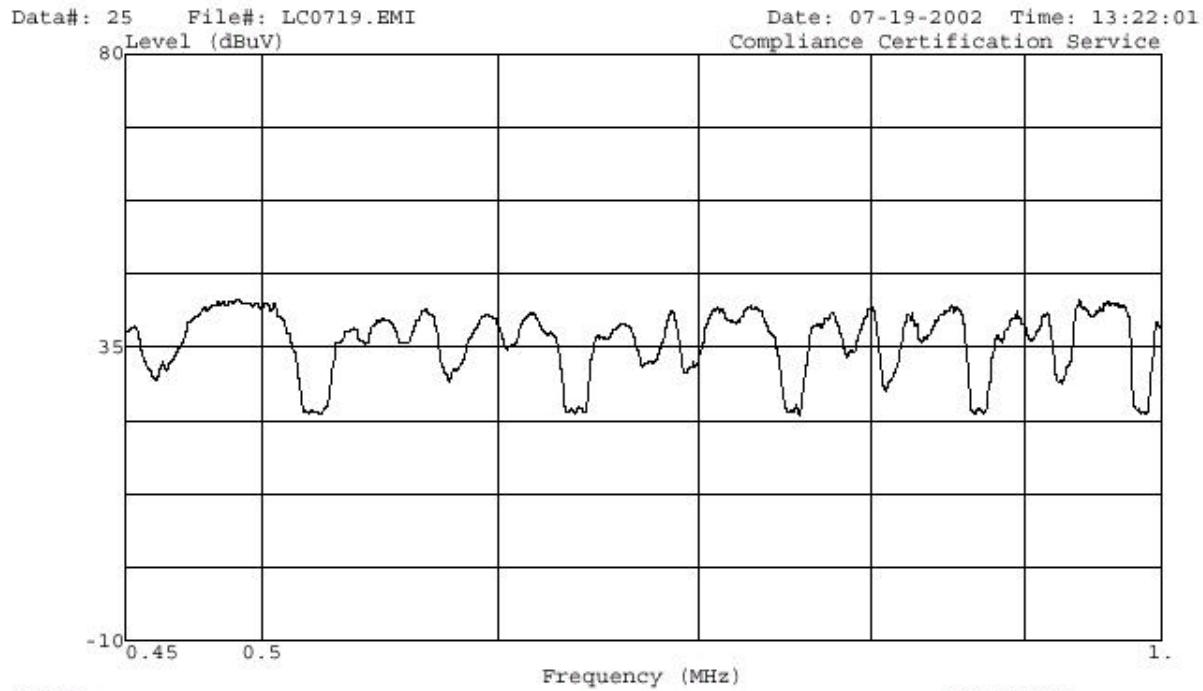
Sky Guard

CONDUCTED EMISSIONS DATA (115VAC 60Hz)										
Freq. (MHz)	Reading			New QP (dBuV/m)	Closs (dB)	Limit QP	FCC_B AV	Margin		Remark
	PK (dBuV)	QP (dBuV)	AV (dBuV)					QP (dB)	AV (dB)	
3.42	59.40	58.26	30.80	45.26	0.00	48.00	--	-2.74	--	L1
4.01	60.10	59.48	31.98	46.48	0.00	48.00	--	-1.52	--	L1
4.71	60.20	59.86	32.05	46.86	0.00	48.00	--	-1.14	--	L1
4.65	63.74	60.18	37.75	47.18	0.00	48.00	--	-0.82	--	L2
6.37	56.48	53.98	30.62	40.98	0.00	48.00	--	-7.02	--	L2
15.19	60.04	57.16	35.38	44.16	0.00	48.00	--	-3.84	--	L2
6 Worst Data										

Note: New QP readings are the QP readings - 13dB (Applying the 13dB relaxation rule for broadband noise)



561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888



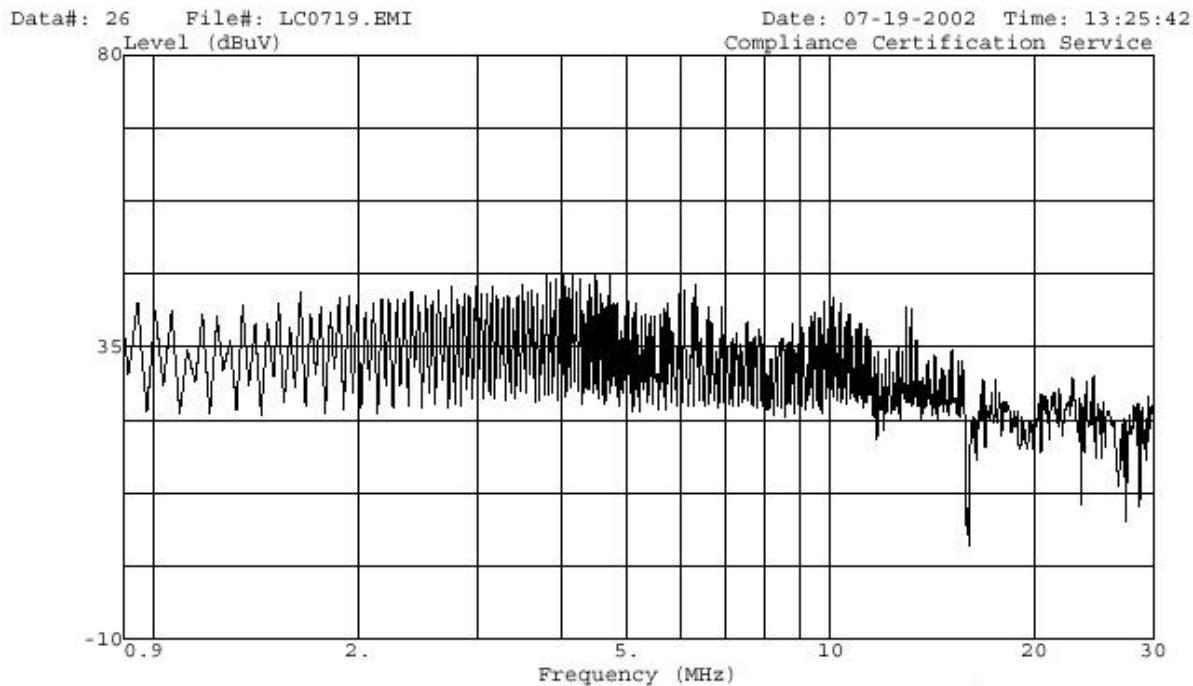
Trace:
 Project # : 02U1374-1
 Test Engineer: Frank Ibrahim
 Company : WG Security Products, Inc.
 EUT : Electronic Article Surveillance
 : NAS5000
 Test Config : Two Panels, Display Unit
 Type of Test : FCC CLASS B
 Mode of Op. : Idle
 : L1: (QP - AV)
 : 115VAC, 60Hz
 : Using EMI filter

Ref Trace:

Note: Delta L1 between Quasi-Peak – Average Readings.450KHz-1MHz.



561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888



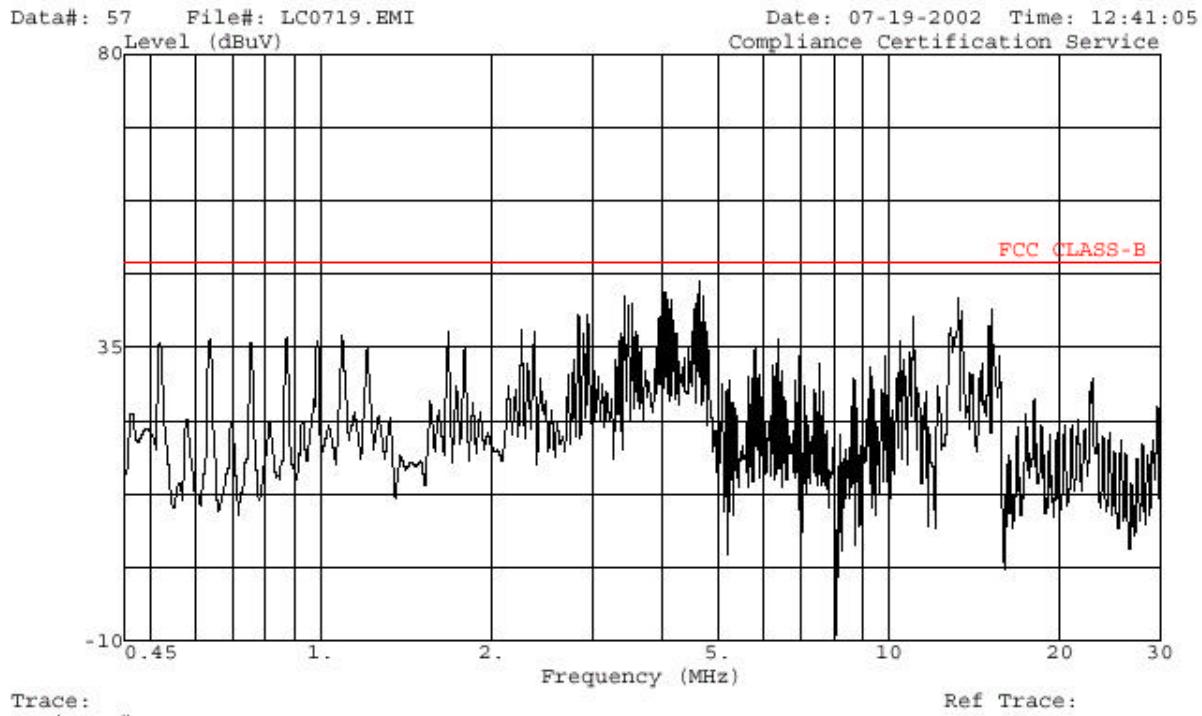
Trace:
 Project # : 02U1374-1
 Test Engineer: Frank Ibrahim
 Company : WG Security Products, Inc.
 EUT : Electronic Article Surveillance
 : NAS5000
 Test Config : Two Panels, Display Unit
 Type of Test : FCC CLASS B
 Mode of Op. : Idle
 : L1: (QP - AV)
 : 115VAC 60HZ
 : Using EMI filter

Ref Trace:

Note: Delta L1 between Quasi-Peak – Average Readings.900KHz-30MHz.



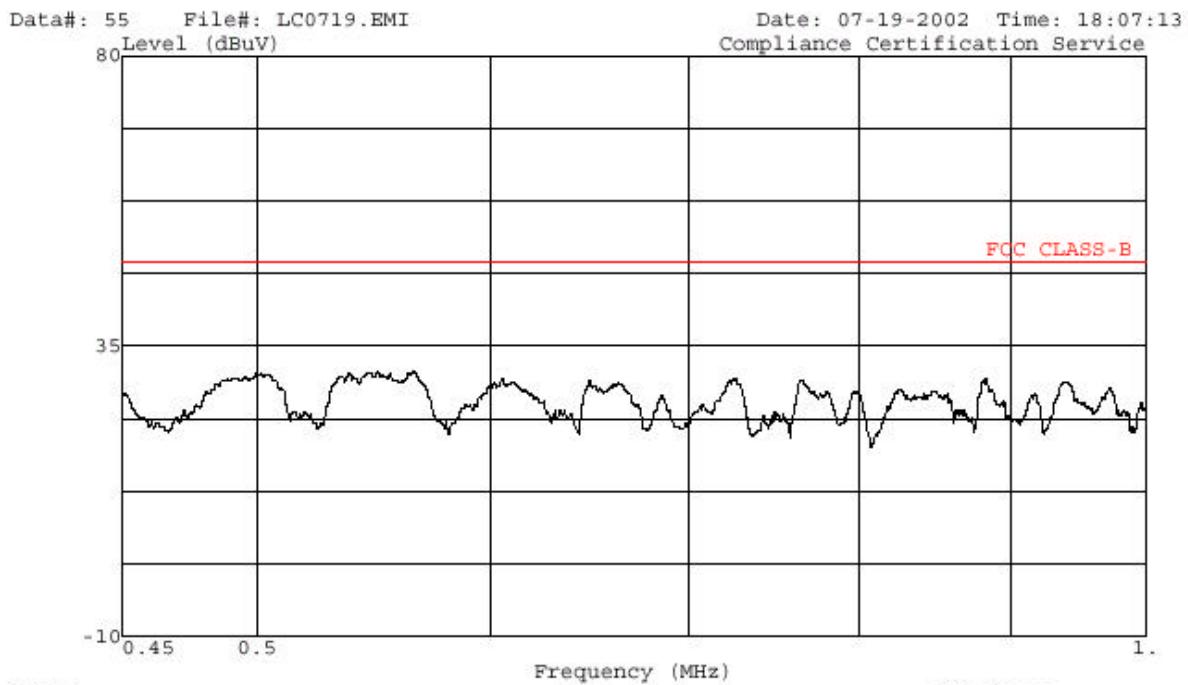
561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888



Note: New Quasi-Peak Readings Applied to 13dB Rule: Quasi-Peak Readings – 13dB.



561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888



Trace:

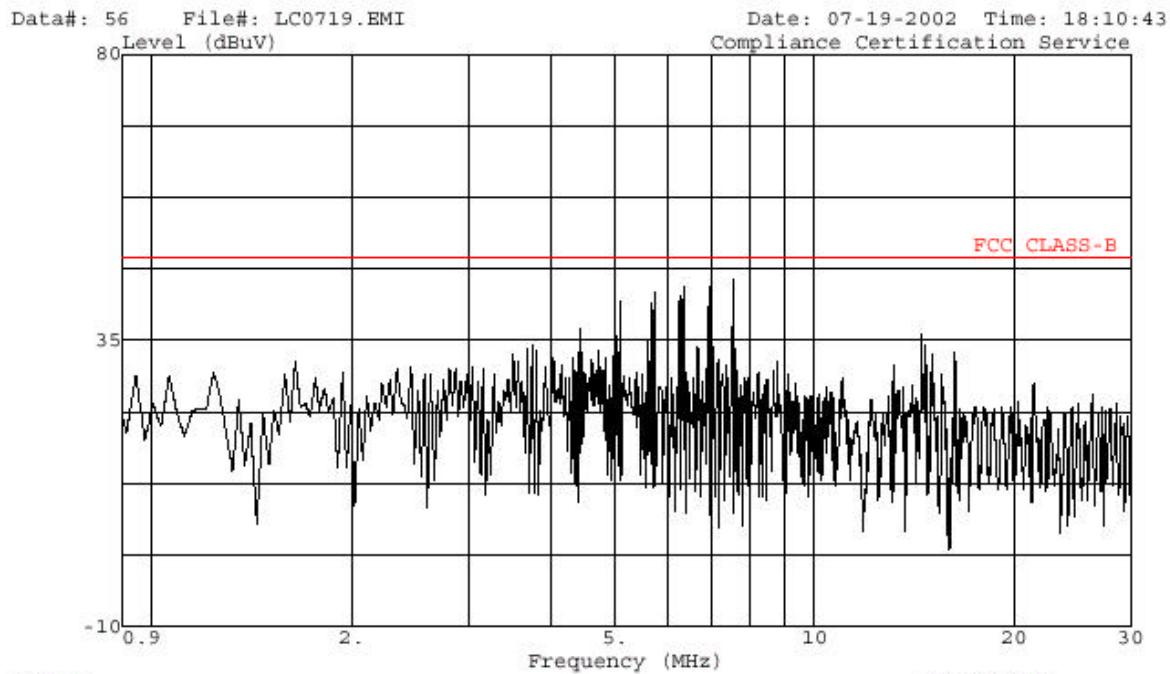
Ref Trace:

Project # : 02U1374-1
 Test Engineer: Frank Ibrahim
 Company : WG Security Products, Inc.
 EUT : Electronic Article Surveillance
 : NAS5000
 Test Config : Two Panels, Display Unit
 Type of Test : FCC CLASS B
 Mode of Op. : Idle
 : QP-AV : L2
 : 115VAC 60HZ

Note: Delta L2 between Quasi-Peak – Average Readings.450KHz-1MHz.



561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888



Trace:

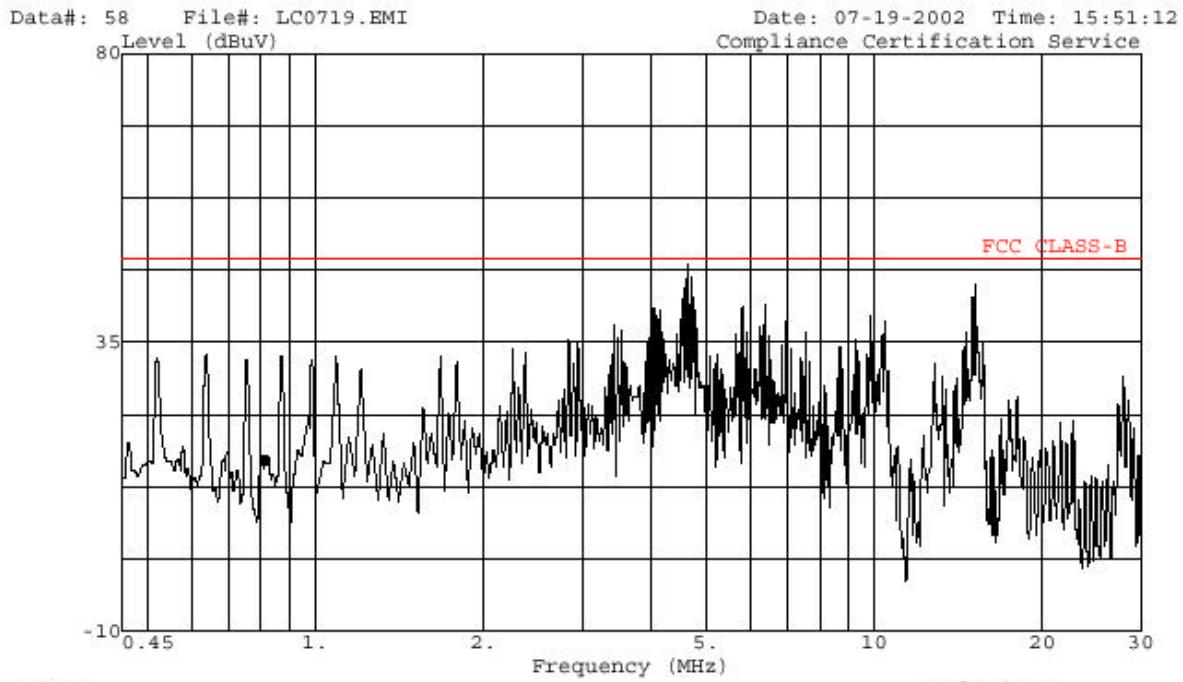
Project # : 02U1374-1
Test Engineer: Frank Ibrahim
Company : WG Security Products, Inc.
EUT : Electronic Article Surveillance
: NAS5000
Test Config : Two Panels, Display Unit
Type of Test : FCC CLASS B
Mode of Op. : Idle
: QP-AV : L2
: 115VAC 60HZ

Ref Trace:

Note: Delta L2 between Quasi-Peak – Average Readings.900KHz-30MHz.



561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888



Trace:
 Project # : 02U1374-1
 Test Engineer: Frank Ibrahim
 Company : WG Security Products, Inc.
 EUT : Electronic Article Surveillance
 : NAS5000
 Test Config : Two Panels, Display Unit
 Type of Test : FCC CLASS B
 Mode of Op. : Idle
 : QP-13 : L2
 : 115VAC 60HZ

Ref Trace:

Note: New Quasi-Peak Readings Applied to 13dB Rule: Quasi-Peak Readings – 13dB.

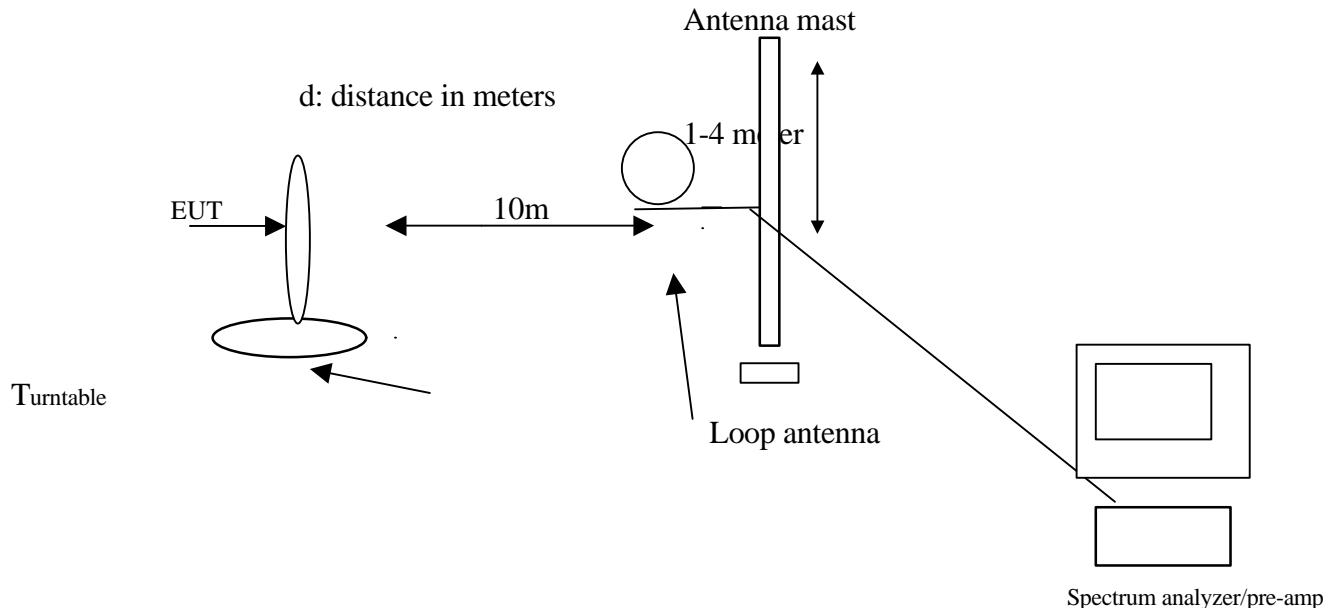
4.3FCC Testing below 30MHz.

4.3.1 Instrument Settings

Frequency Range	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
9kHz - 150 kHz	EMI Receiver	Quasi-Peak	3kHz	3kHz
.150MHz -30 MHz	EMI Receiver	Quasi-Peak	100kHz	100kHz
9kHz - 150 kHz	Spectrum Analyzer	Peak	100Hz	100Hz
.150MHz- 30 MHz	Spectrum Analyzer	Peak	9kHz	9kHz

4.3.2 Measurement Instrument Configuration

Radiated BELOW 30MHz



4.3.3 Measurement Equipment Used

TEST EQUIPMENTS LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Active Loop Antenna, (10K - 30MHz)	HP 0.1K - 1.5GHz	8568B	2732A03661	5/16/03
	HP	85662A	2816A16696	5/16/03
	HP9K - 1GHz	85650A	2811A01155	5/16/03
	EMCO	6502	9202-2722	4/20/03
	Eaton30 - 200MHz	94455-1	1197	3/30/03
	EMCO200 - 2000MHz	3146	2120	3/30/03
	HP 0.1 - 1300MHz	8447D (P_1M)	2944A06833	8/21/02
	Rohde & Schwarz	ESHS 20	827129/006	4/17/03
	Fischer 9k - 100MHz	FCC-LISN-50/250-25-2	114	4/23/03
	Lindgren 10k - 10GHz	LMF-3489	497	N.C.R.
Pre-Amplifier, 25 dB	Solar Elec. Co.	8012-50-R-24-BNC	837990	4/25/03
EMI Test Receiver	Advanced Central Systems	AFC-10K-AFC2	J1568	N.C.R.
LISN				
Line Filter				
LISN				
AC Power Source				

4.3.4 Below 30MHz Emission Test Setup photos

Sky Guard



4.3.5 Below 30MHz Emission Test Results

Sky Guard

 FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSMI, DHHS, NVLAP		Project #: 02U1374-1 Report #: 020619A01 Date& Time: 06/19/02 10:02 AM Test Engr: Frank Ibrahim									
561F MONTEREY ROAD, SAN JOSE, CA 95037-9001 PHONE: (408) 463-0885 FAX: (408) 463-0888											
Company: WG Security Products											
EUT Description: Electronic Article Surveillance System											
Test Configuration: Two Panels and display unit											
Type of Test: FCC 15.209											
Mode of Operation: TX ON											
<input checked="" type="radio"/> A-Site		<input type="radio"/> B-Site		<input type="radio"/> C-Site		<input type="radio"/> F-Site		<input type="radio"/> 6 W orst Data		<input type="radio"/> Descending	
Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
0.058	78.40	12.40	0.86		31.66	52.34	-20.68	10mV	0.00	1.00	P
0.058	46.50	12.40	0.86		-0.24	32.34	-32.58	10mV	0.00	1.00	Av
0.116	28.40	11.40	0.86		-19.34	46.32	-65.66	10mV	0.00	1.00	P
0.116	24.70	11.40	0.86		-23.04	26.32	-49.36	10mV	0.00	1.00	Av
0.174	50.10	11.00	0.86		1.96	42.79	-40.83	10mV	0.00	1.00	P
0.174	39.50	11.00	0.86		-8.64	22.79	-31.43	10mV	0.00	1.00	Av
0.232	44.80	10.90	0.86		-3.44	40.29	-43.73	10mV	0.00	1.00	P
0.232	37.50	10.90	0.86		-10.74	20.29	-31.03	10mV	0.00	1.00	Av
0.290	49.00	10.80	0.86		0.66	38.36	-37.70	10mV	0.00	1.00	P
0.290	36.10	10.80	0.86		-12.24	18.36	-30.60	10mV	0.00	1.00	Av
0.348	41.30	10.70	0.86		-7.14	36.77	-43.91	10mV	0.00	1.00	P
0.348	31.70	10.70	0.86		-16.74	16.77	-33.51	10mV	0.00	1.00	Av
0.406	47.30	10.70	0.86		-1.14	35.43	-36.57	10mV	0.00	1.00	P
0.406	35.90	10.70	0.86		-12.54	15.43	-27.97	10mV	0.00	1.00	Av
0.464	37.40	10.60	0.86		-11.14	34.27	-45.41	10mV	0.00	1.00	P
0.464	27.70	10.60	0.86		-20.84	14.27	-35.11	10mV	0.00	1.00	Av
0.523	30.20	10.60	0.86		21.66	33.24	-11.58	10mV	0.00	1.00	QP

Note: Readings for frequencies 58kHz to 464kHz are corrected for distance with -60dB correction factor.

Reading at 523kHz is corrected for distance with -20dB correction factor.

END OF REPORT