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

DEACTIVATOR

MODEL NUMBER: WGFP58-1

BRAND NAME: WG FAST PAD

FCC ID: P9I-WGFP58

Prepared For
WG SECURITY PRODUCTS, INC
3031 TISCH WAY STE 602
SAN JOSE, CA 95128 USA

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

Report No: 03U2280-1
Revision A
Date: 2/25/04

TABLE OF CONTENTS

Verification Of Compliance

COMPANY NAME : WG SECURITY PRODUCTS, INC.
3031 TISCH WAY STE 602
SAN JOSE CA 95128, USA

MODEL NUMBER : WGFP58-1

DATE TESTED : 1/23/04 – 2/13/04

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:

BEN DU
EMC TECHNICIAN
COMPLIANCE CERTIFICATION SERVICES

Approved & Released For CCS By:

THU CHAN
EMC SUPERVISOR
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. This document 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 15ºC to 35ºC (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

The open area test sites and conducted measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

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

NVLAP®

LAB CODE:200065-0

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	+3.5/-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

DEACTIVATOR.

2.2 Power Requirements

AC	**110V/ 60Hz**
DC	**N/A**
Battery Power	**N/A**
AC-DC Adaptor	**N/A**

2.3 Local Osc. Or Crystal

Board Name	**Local Osc. Or Crystal**
Deactivating MCU Board	22.1184 MHz

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 For Class B Device		
Frequency Range	**FCC / CISPR 22 limits Quasi-Peak/dBuV**	**FCC / CISPR 22 limits Average/dBuV**
150kHz –0.5MHz	66-56	56-46
0.5MHz-5MHz	56	46
5MHz- 30MHz	60	50

3.2 Engineering Justification

N/A.

3.3 Sample Received date and Test Period

Sample received date	1/23/04
Test Period	1/23/04 – 2/13/04

SECTION 4 ELECTROMAGNETIC INTERFERENCE TEST

Ambient Conditions:

	Temperature	Humidity
Radiated Emission	22 ° C	60 %
Conducted Emission	22 ° C	60 %

Test Configuration:

Software Used During The Tests			
File Name	☐ EMCTEST	☐ Pinging	☐ Read & Write
	☐ Terminal	☐ Music	☐ Joy-Stick
	☒ Other:		
Program Sequence	Deactivation		

Mode of Operational Investigated:

Worse Case Emission Levels			
	Mode of Operation	Radiated Emission	Conducted Emission
1	ALARMING	☒	☒
2		☐	☐
3		☐	☐

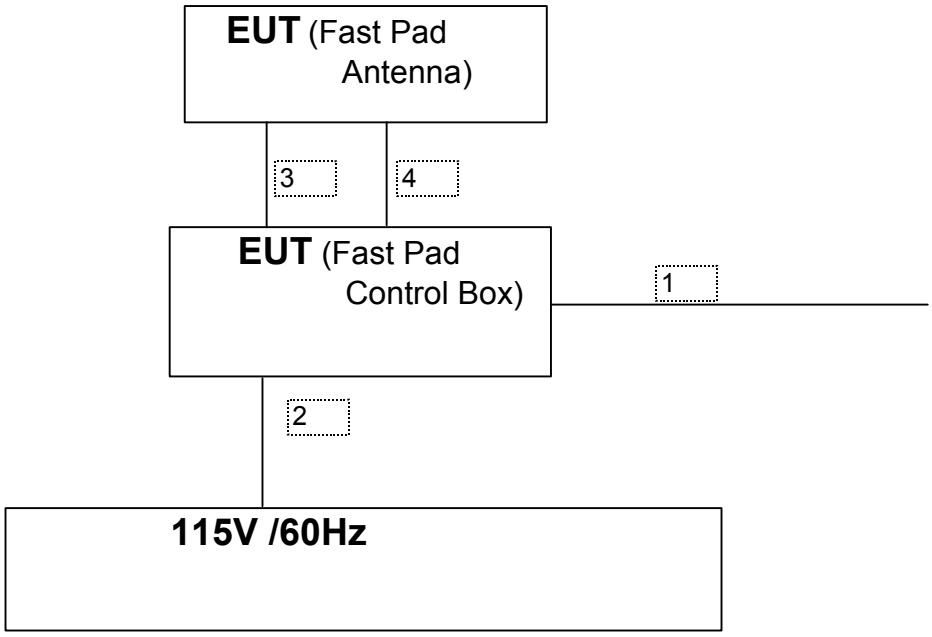
Frequency Range Investigated:

	From	To
Radiated Emissions	10KHz	30 MHz
Radiated Emissions	30MHz	1000 MHz
Conducted Emissions	0.15 MHz	30MHz

Test Peripherals

No support equipment was used.

Test Configuration Diagram



I/O Cable Configuration

TEST I / O CABLES								
Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	Ethernet	1	RJ45	Un-shielded	30m	No	No	To Company's network
2	AC	1	US 115V	Un-shielded	2m	No	No	Bundled AC Cable for LC test
3	Antenna 1	1	7-pin Connector	Un-shielded	1.5m	Yes	No	Freom Antenna To Control Box
4	Antenna 2	1	4-pin Connector	Un-shielded	1.5m	Yes	No	Freom Antenna To Control Box

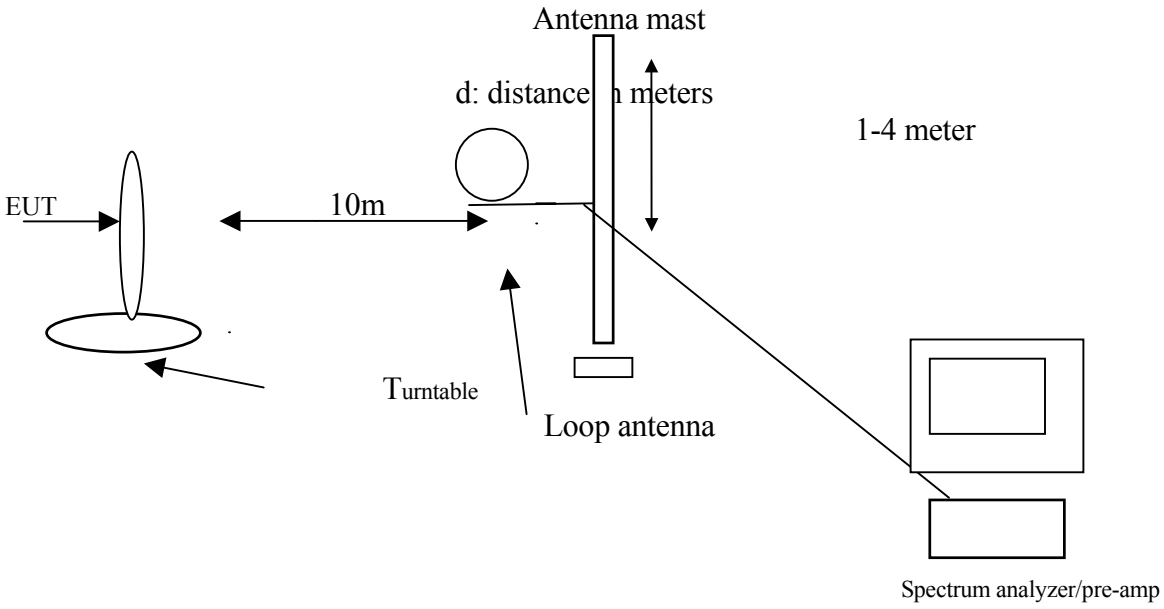
4.1 Radiated Emission Test Procedures - below 30MHz

4.1.1. 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

4.1.2. Measurement Instrument Configuration

Radiated BELOW 30MHz



4.1.3. Measurement Equipment Used

TEST EQUIPMENT LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Antenna, Loop 9 kHz ~ 30 MHz	EMCO	6502	9202-2722	4/23/2004
SA Display Section 3	HP	85662A	2314A04793	7/16/2004
SA RF Section, 1.5 GHz	HP	85680A	2314A02604	7/16/2004
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/20/2004
RF Filter Section	HP	85420E	3705A00256	11/20/2004
Antenna, 30 -1000MHz	Sunol Sciences	JB1	A121003	12/22/2004
Line Filter	Lindgren	LMF-3489	497	CNR
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/13/2004
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	10/13/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	7/17/2004

Below 30MHz Emission Test Setup photos

4.1.4. Below 30MHz Emission Test Results

WG Security Products ,INC.
03U2280-1
FCC Part 15, Subpart C
10 meter measurement
EAS System, model: WGFP58 (Fast Pad) (New Shipped)
Tester: Ben Du
Date: 1/23/2004

Frequency	PK	QP	AV	AF	Distance	PK Corrected	AV Corrected	PK Limit	AV Limit	PK Margin	AV Margin	Notes
(MHz)	(dBu/V)	(dBu/V)	(dBuV)	dB/m	Correction (dB)	Reading (dBuV/m)	Reading (dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	
Face On (worst antenna's position):												
0.058	89.8		72.5	12	-59.08	42.72	25.42	52.34	32.34	-9.6	-6.9	Fundamental, 10m distance
0.114	63.5			11.5	-59.08	15.92	15.92	46.47	26.47	-30.6	-10.6	10m distance
0.172	58.5			11	-59.08	10.42	10.42	42.89	22.89	-32.5	-12.5	10m distance
0.232	52.8			11	-59.08	4.72	4.72	40.29	20.29	-35.6	-15.6	10m distance
0.29	43.6			11	-59.08	-4.48	-4.48	38.36	18.36	-42.8	-22.8	10m distance
0.348	45			11	-59.08	-3.08	-3.08	36.77	16.77	-39.9	-19.9	10m distance
0.406	44			11	-59.08	-4.08	-4.08	35.43	15.43	-39.5	-19.5	10m distance
0.464	42			11	-59.08	-6.08	-6.08	34.27	14.27	-40.4	-20.4	10m distance

Frequency	PK	QP	AV	AF	Distance	QK Corrected	AV Corrected	QP Limit	AV Limit	QP Margin	AV Margin	Notes
(MHz)	(dBu/V)	(dBu/V)	(dBuV)	dB/m	Correction (dB)	Reading (dBuV/m)	Reading (dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	
0.522	15.5			10.9	-19.08	7.32	7.32	33.25	13.25	-25.9	-5.9	10m distance
0.58	amb			10.8	-19.08							
0.638	12.5			10.8	-19.08	4.22	4.22	31.51	11.51	-27.3	-7.3	10m distance
0.696	amb			10.8	-19.08							
0.754	amb			10.8	-19.08							
0.812	amb			10.8	-19.08							

* No other emissions were found up to 30MHz

4.2 Radiated Emission Test Procedures - above 30MHz

The EUT and all other support equipment were placed on a wooden table 80 cm above the ground screen. The antenna to EUT distance was 3 or 10 meters. 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 C63.4/2001.

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.

4.2.1. Instrument Settings

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

4.2.2. Measurement Instrument Configuration

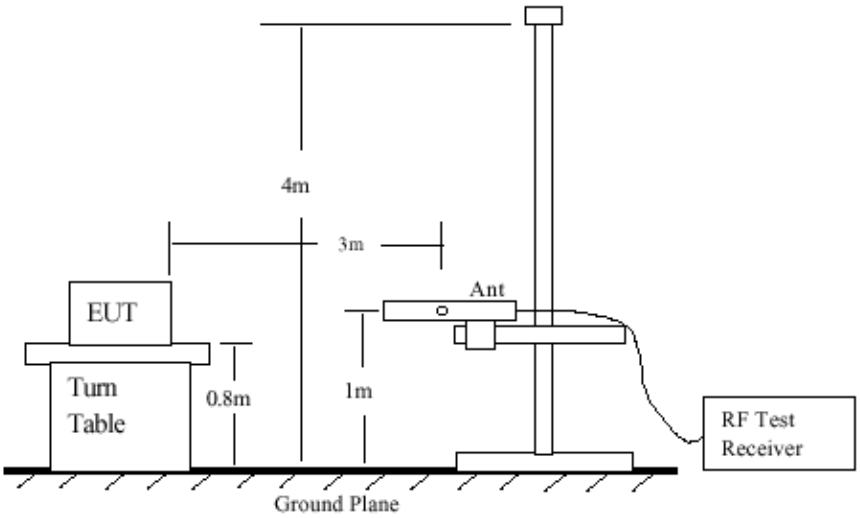


Fig 1: Radiated Emission Measurement 30 to 1000 MHz

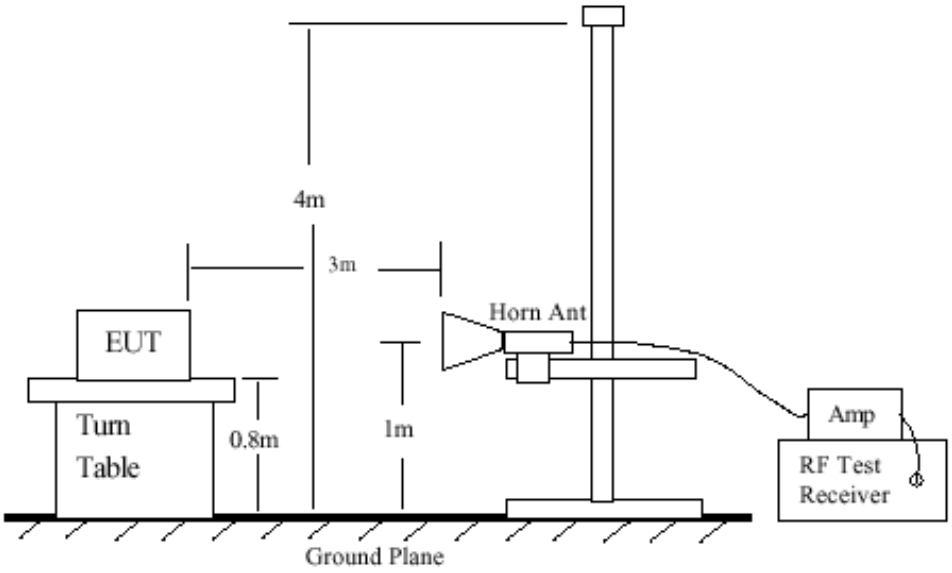
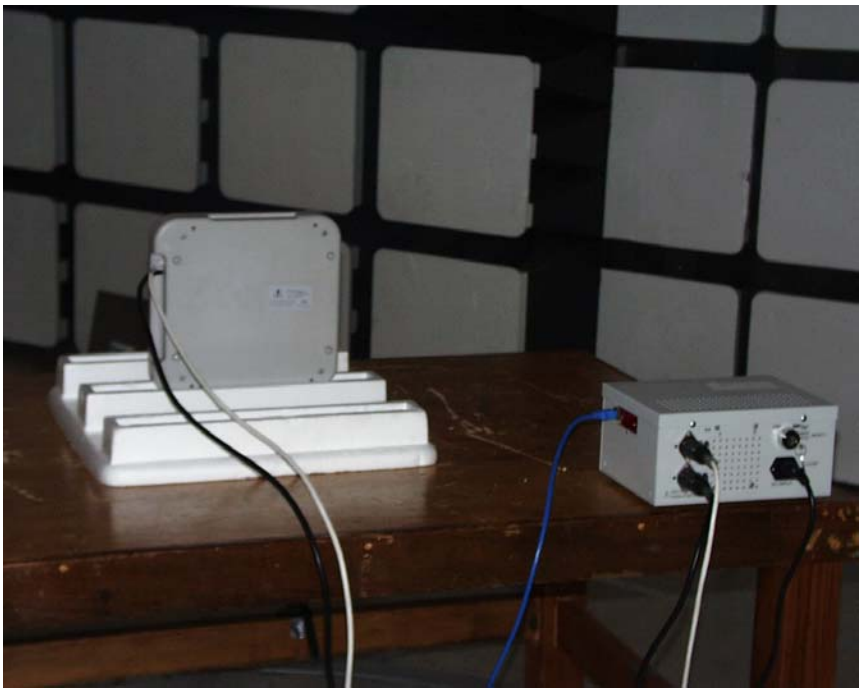


Fig 2: Radiated Emission Above 1000 MHz

4.2.3. Measurement Equipment Used

TEST EQUIPMENT LIST				
Name of Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Due Date**
Antenna, Loop 9 kHz ~ 30 MHz	EMCO	6502	9202-2722	4/23/2004
SA Display Section 3	HP	85662A	2314A04793	7/16/2004
SA RF Section, 1.5 GHz	HP	85680A	2314A02604	7/16/2004
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/20/2004
RF Filter Section	HP	85420E	3705A00256	11/20/2004
Antenna, 30 -1000MHz	Sunol Sciences	JB1	A121003	12/22/2004
Line Filter	Lindgren	LMF-3489	497	CNR
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/13/2004
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	10/13/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	7/17/2004

4.2.4. Radiated Emission Test Setup Photos

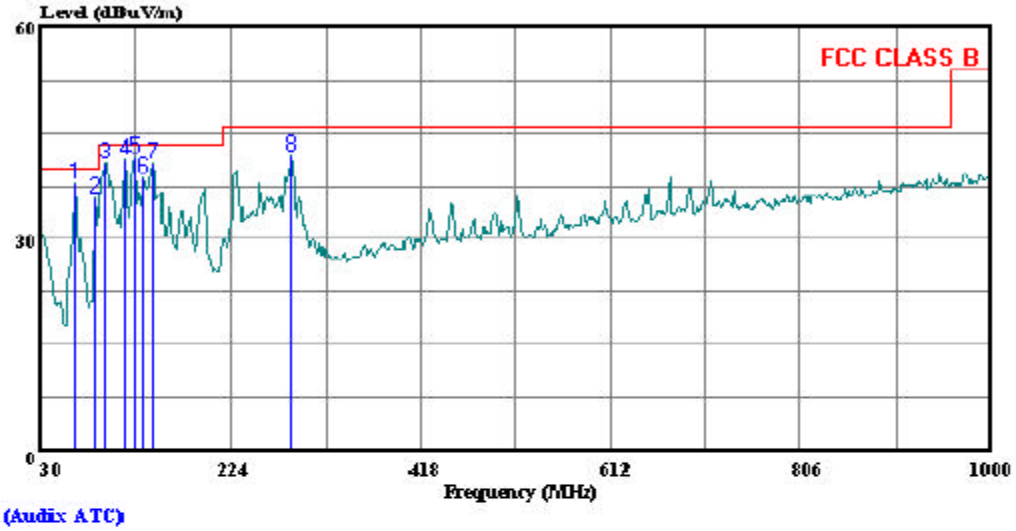


30-1000MHz

4.2.5. Radiated Emission Test Result

561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 12 File#: WG-Jan9.EMI Date: 02-13-2004 Time: 09:44:24



(Audix ATC)

Trace: 11 Ref Trace:

Condition: FCC CLASS B SUNOL BILOG 12/22/04 HORIZONTAL
Test Eng: : ben
Project #: : 03U2380
Company: : W G
EUT: : Fast Pad
Model No: : WGFP58-1/-2
Configuration: : EUT Only
Target of Test: : FCC CLASS B
Mode of Operation: Alarming Continouly ON

Page: 1

	Freq	Remark	Read Level	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	65.890	Peak	28.66	9.29	37.95	40.00	-2.05
2	85.290	Peak	26.65	9.08	35.73	40.00	-4.27
3	95.960	Peak	31.20	9.58	40.78	43.50	-2.72
4	116.330	Peak	26.73	14.51	41.24	43.50	-2.26
5	126.030	Peak	26.17	15.48	41.65	43.50	-1.85
6	135.730	Peak	23.25	15.39	38.64	43.50	-4.86
7	145.430	Peak	25.96	14.72	40.67	43.50	-2.83
8	286.080	Peak	26.25	15.62	41.87	46.00	-4.13

561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

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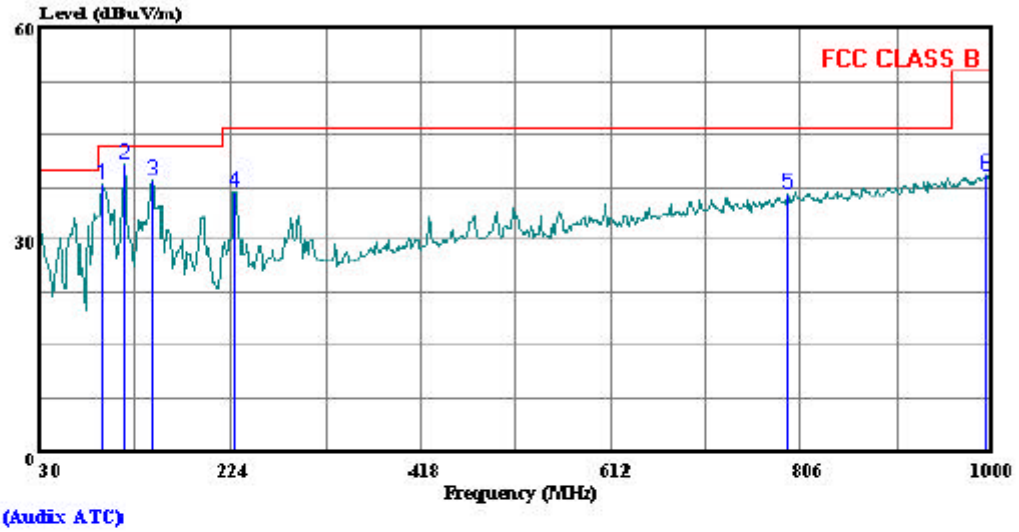


(Audix ATC)

Trace: 13 Ref Trace:

Condition: FCC CLASS B SUNOL BILOG 12/22/04 VERTICAL
Test Eng: : ben
Project #: : 03U2380
Company: : W G
EUT: : Fast Pad
Model No: : WGFP58-1/-2
Configuration: : EUT Only
Target of Test: : FCC CLASS B
Mode of Operation: Alarming Continouly ON

	Freq	Remark	Read Level	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	92.080	Peak	28.89	9.08	37.97	43.50	-5.53
2	116.330	Peak	26.32	14.51	40.83	43.50	-2.67
3	145.430	Peak	23.62	14.72	38.33	43.50	-5.17
4	229.820	Peak	23.64	13.26	36.90	46.00	-9.10
5	793.390	Peak	11.70	24.90	36.60	46.00	-9.40
6	994.180	Peak	11.71	27.50	39.21	54.00	-14.79

4.3 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/ 2001.

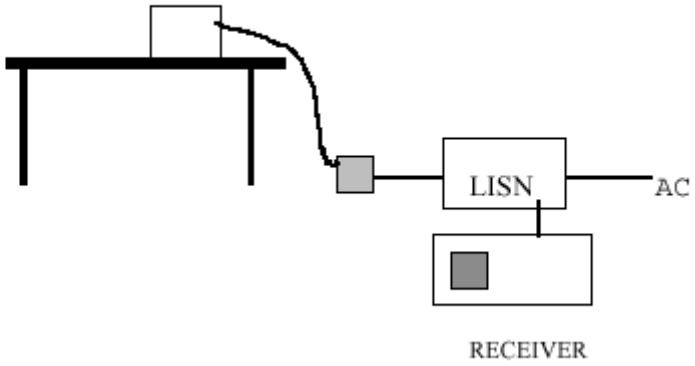
Conducted disturbance was measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.15kHz - 30 MHz was investigated.

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.

4.3.1. Instrument Settings

Frequency Range	Peak	Quasi-Peak	Average
0.15 – 30 MHz	10 kHz	9 kHz	10 kHz

4.3.2. Measurement Instrument Configuration



4.3.3. Measurement Equipment Used

TEST EQUIPMENT LIST				
Name of Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Due Date**
Antenna, Loop 9 kHz ~ 30 MHz	EMCO	6502	9202-2722	4/23/2004
SA Display Section 3	HP	85662A	2314A04793	7/16/2004
SA RF Section, 1.5 GHz	HP	85680A	2314A02604	7/16/2004
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/20/2004
RF Filter Section	HP	85420E	3705A00256	11/20/2004
Antenna, 30 -1000MHz	Sunol Sciences	JB1	A121003	12/22/2004
Line Filter	Lindgren	LMF-3489	497	CNR
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/13/2004
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	10/13/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	7/17/2004

4.3.4. Conducted Emission Test Setup Photos

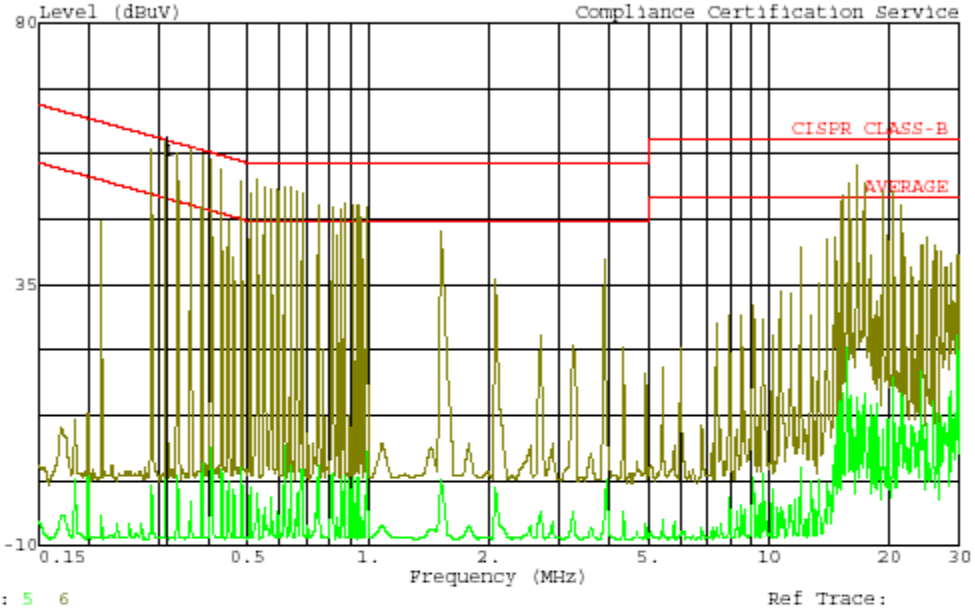
Conducted Emission Test Setup

4.3.5. Conducted Emission Test Result

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit		Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.31	59.78	39.18	9.30	0.00	61.37	51.37	-22.19	-42.07	L1
0.36	58.18	--	10.81	0.00	60.00	50.00	-1.82	-39.19	L1
16.57	55.44	--	29.93	0.00	60.00	50.00	-4.56	-20.07	L1
0.22	58.84	--	11.70	0.00	64.09	54.09	-5.25	-42.39	L2
0.28	55.84	--	3.91	0.00	62.40	52.40	-6.56	-48.49	L2
15.55	50.54	--	30.60	0.00	60.00	50.00	-9.46	-19.40	L2
6 Worst Data									

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

Data#: 36 File#: RXEN22~2.EMI Date: 02-27-2004 Time: 14:05:18

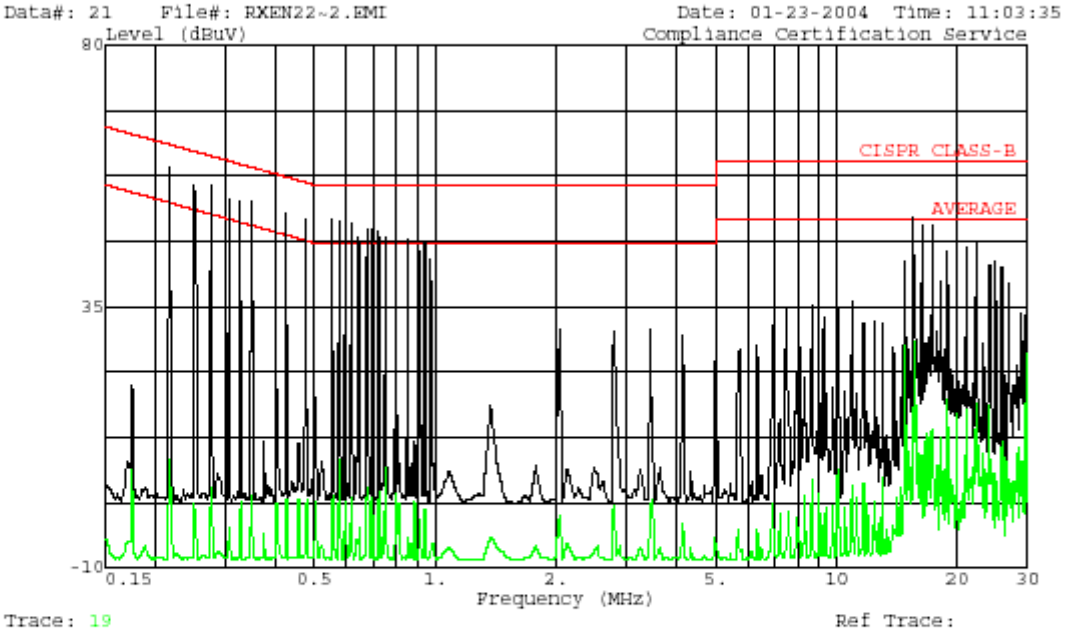


Trace: 5 6 Ref Trace:
Project # : 03u228-0
Test Operator : Ben Du
Company : W G
EUT : Deactivator
Model : WGFP58-1, 2
Configuration : EUT
Mode of Operation: ALARMING
Target of Test : FCC 15B
Voltage : 115VAC, 60Hz
: LINE1: PEAK (Black), AVERAGE (Green)

Page: 1

	Freq	Level	Over Limit	Limit Line	Read Level	Remark
	MHz	dB	dB	dB	dB	
1	0.313	56.20	-3.69	59.89	56.20	QP

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



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Project # : 03u2280
Test Operator : Ben Du
Company : W G
EUT : Deactivator
Model : WGFP58-1,2
Configuration : EUT
Mode of Operation: ALARMING
Target of Test : FCC 15 B
Voltage : 115VAC, 60Hz
: LINE2: PEAK (Black), AVERAGE (Green)

END OF REPORT