# GE Security Inc.

## **Fixed Reader**

February 08, 2006

Report No. SUPR0055

Report Prepared By



www.nwemc.com 1-888-EMI-CERT

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## **Certificate of Test** Issue Date: February 08, 2006

GE Security Inc.

Model: Fixed Reader

Emissions				
Test Description	Specification	Test Method	Pass	Fail
Radiated Emissions	FCC 15.109(g) (CISPR 22:1997) Class A:2005-10	ANSI C63.4:2003	$\boxtimes$	
Conducted Emissions	FCC 15.107 Class A:2005-10	ANSI C63.4:2003	$\boxtimes$	
AC Powerline Conducted Emissions	FCC 15.207 AC Powerline Conducted Emissions:2005-9	ANSI C63.4:2003	$\boxtimes$	
Occupied Bandwidth	FCC 15.247(a)(2) Occupied Bandwidth:2005-9	ANSI C63.4:2003	$\boxtimes$	
Output Power	FCC 15.247(b)(3) Output Power:2005-9	ANSI C63.4:2003	$\boxtimes$	
Band Edge Compliance	FCC 15.247(d) Band Edge Compliance:2005-9	ANSI C63.4:2003	$\boxtimes$	
Spurious Conducted Emissions	FCC 15.247(d) Spurious Conducted Emissions:2005-9	ANSI C63.4:2003	$\boxtimes$	
Spurious Radiated Emissions	FCC 15.247(d) Spurious Radiated Emissions:2005-9	ANSI C63.4:2003		
Power Spectral Density	FCC 15.247(e) Power Spectral Density:2005-9	ANSI C63.4:2003	$\boxtimes$	

#### Modifications made to the product See the Modifications section of this report

#### Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc. 22975 NW Evergreen Parkway, Suite 400; Hillsboro, OR 97124 Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:
ATU.K.P
Greg Kiemel, Director of Engineering

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested, the specific description is noted in each of the individual sections of the test report supporting this certificate of test.



Revision Number	Description	Date	Page Number
00	None		



**FCC:** Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

**NVLAP:** Northwest EMC, Inc. is recognized under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 89/336/EEC, ANSI C63.4, MIL-STD 461E, DO-160D and SAE J1113. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

**Industry Canada:** Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements.

**CAB:** Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

**TÜV Product Service:** Included in TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories, available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV's CARAT Program requirements. Certificate No. USA0401C.

**TÜV Rheinland:** Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.







NVLAP Lab code :200629-0 NVLAP Lab code :200630-0 NVLAP Lab code :200676-0







NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).

**Technology International:** Assessed in accordance with ISO Guide 25 defining the general international requirements for the competence of calibration and testing laboratories and with ITI assessment criteria LACO196. Based upon that assessment, Interference Technology International, Ltd., has granted approval for specifications implementing the EU Directive on EMC (89/336/EEC and amendments). The scope of the approval was provided on a Schedule of Assessment supplied with the certificate and is available upon request.

Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (Registration Numbers. - Hillsboro: C-1071 and R-1025, Irvine: C-2094 and R-1943, Sultan: R-871, C-1784 and R-1761).

BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.

GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

> SCOPE For details on the Scopes of our Accreditations, please visit: http://www.nwemc.com/scope.asp







BSMI





NEMKO

#### How important is it to understand performance criteria?

It is the responsibility of the test laboratory to observe the results of the tests that are performed and to accurately report those results. As the responsible party (manufacturer, importer, etc) it is your responsibility to take those results, compare them against the specifications and standards, then, if appropriate make a declaration of conformity. As the responsible party it makes sense that you are fully aware of the requirements, how your device performs when tested to those requirements, and what information is being used to declare conformity.

To better assist you in making those conformity decisions, Northwest EMC has adopted a very simple, yet very clear performance assessment procedure. The following criteria is used when performing immunity or susceptibility tests:

#### Performance Criteria 1:

- □ The EUT exhibited no change in performance when operating as specified by the manufacturer. In this case no changes were observed during the test.
- □ In most cases this would be equivalent to Performance Criteria A. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, no changes were observed. Basically nothing happened.

#### Performance Criteria 2:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment recovered without any operator intervention, once the test signal was removed. The data sheets will detail the exact phenomena observed.
- In most cases this would be equivalent to Performance Criteria B. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT was able to recover from those changes without any operator intervention, once the test signal was removed.

#### Performance Criteria 3:

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment required some operator intervention in order to recover. This intervention may be in the form of changing EUT settings, or even resetting the system. The data sheets will detail the exact phenomena observed.
- In most cases this would be equivalent to Performance Criteria C. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT required some sort of operator intervention to recover. There was no permanent damage and the EUT appeared to function normally after completion of test.

#### **Performance Criteria 4:**

- The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment was damaged and would not recover. The data sheets will detail the exact phenomena observed.
- In most cases there is no specific criterion to compare this to; it typically ends the test. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. There was no recovery; the equipment would no longer function as intended.



#### What is measurement uncertainty?

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following statement of measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" value. In the case of transient tests (ESD, EFT, Surge, Voltage Dips and Interruptions), the test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements.

The following documents were the basis for determining the uncertainty levels of our measurements:

- "ISO Guide to the Expression of Uncertainty in Measurements", October 1993
- "NIS81: The Treatment of Uncertainty in EMC Measurements", May 1994
- "IEC CISPR 16-3 A1 f1 Ed.1: Radio-interference measurements and statistical techniques", December 2000

#### How might measurement uncertainty be applied to test results?

If the diamond marks the measured value for the test and the vertical bars bracket the range of + and – measurement uncertainty, then test results can be interpreted from the diagram below. (See NIS81)





Radiated Emissions ≤ 1 GHz		Value (	dB)				
	Probability	Bico	nical	Log Pe	eriodic	Di	pole
	Distribution	Ante	enna	Ante	nna	An	tenna
Test Distance		3m	10m	3m	10m	3m	10m
Combined standard	normal	+ 1.86	+ 1.82	+ 2.23	+ 1.29	+ 1.31	+ 1.25
uncertainty <i>u<sub>c</sub>(y)</i>		- 1.88	- 1.87	- 1.41	- 1.26	- 1.27	- 1.25
Expanded uncertainty <b>U</b>	normal (k=2)	+ 3.72	+ 3.64	+ 4.46	+ 2.59	+ 2.61	+ 2.49
(level of confidence $\approx$ 95%)		- 3.77	- 3.73	-2.81	- 2.52	- 2.55	- 2.49

Radiated Emissions > 1 GHz	Value (dB)		
	Probability	Without High	With High
	Distribution	Pass Filter	Pass Filter
Combined standard uncertainty <i>u<sub>c</sub>(y)</i>	normal	+ 1.29	+ 1.38
		- 1.25	- 1.35
Expanded uncertainty <b>U</b>	normal (k=2)	+ 2.57	+ 2.76
(level of confidence $\approx$ 95%)		- 2.51	2.70

Conducted Emissions				
	Probability	Value		
	Distribution	(+/- dB)		
Combined standard uncertainty <i>uc(y)</i>	normal	1.48		
Expanded uncertainty <b>U</b> (level of confidence ≈ 95 %)	normal (k = 2)	2.97		

Radiated Immunity		
	Probability	Value
	Distribution	(+/- dB)
Combined standard uncertainty <i>uc(y)</i>	normal	1.05
Expanded uncertainty <b>U</b>	normal $(k - 2)$	2 11
(level of confidence $\approx$ 95 %)	$\operatorname{Hormal}\left( R=2\right)$	2.11

Conducted Immunity					
	Probability	Value			
	Distribution	(+/- dB)			
Combined standard uncertainty <i>uc(y</i> )	normal	1.05			
Expanded uncertainty <b>U</b> (level of confidence ≈ 95 %)	normal (k = 2)	2.10			

#### Legend

 $u_c(y)$  = square root of the sum of squares of the individual standard uncertainties

U = combined standard uncertainty multiplied by the coverage factor: **k**. This defines an interval about the measured result that will encompass the true value with a confidence level of approximately 95%. If a higher level of confidence is required, then k=3 (CL of 99.7%) can be used. Please note that with a coverage factor of one, uc(y) yields a confidence level of only 68%.





California – Orange County Facility Labs OC01 – OC13

41 Tesla Ave. Irvine, CA 92618 (888) 364-2378 Fax: (503) 844-3826





Oregon – Evergreen Facility Labs EV01 – EV10

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Washington – Sultan Facility Labs SU01 – SU07

14128 339<sup>th</sup> Ave. SE Sultan, WA 98294 (888) 364-2378



## **Product Description**

Party Requesting the Test	
Company Name:	GE Security Inc.
Address:	4001 Fairview Industrial Drive SE
City, State, Zip:	Salem, OR 97302-0167
Test Requested By:	Adam Purdue
Model:	Fixed Reader
First Date of Test:	February 1, 2006
Last Date of Test:	February 6, 2006
Receipt Date of Samples:	February 1, 2006
Equipment Design Stage:	Production
Equipment Condition:	No visual damage.

#### Information Provided by the Party Requesting the Test

Clocks/Oscillators:	Not provided.
I/O Ports:	Power over ethernet, Antenna port

#### Functional Description of the EUT (Equipment Under Test):

The Fixed Reader is a set frequency, DTS, 2.4388GHz transmitter. The Fixed Reader will be mounted on a pole with a high gain antenna.

#### **Client Justification for EUT Selection:**

The product is a representative production sample.

#### **Client Justification for Test Selection:**

These tests satisfy the requirements for TCB Certification under FCC Part 15.

#### EUT Photo



## **CONFIGURATION 1 SUPR0055**

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Fixed Reader - Transmitter	GE Security Inc.	Fixed Reader	647

Peripherals in test setup boundary						
Description	Manufacturer	Model/Part Number	Serial Number			
14 dBi Antenna	Hyperlink Technologies	WGEI900-0002	Unknown			
Power Over Ethernet Adapter Kit	Linksys	WAPPOE	213W0049001002			
POE AC Adapter - 120V	CUI Stack	DV-9500	Unknown			
POE AC Adapter - 230V	CUI Stack	KA23D120080016G	Unknown			

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	0.2m	No	Power Over Ethernet Adapter Kit	Unterminated
Ethernet	No	1.8m	No	Power Over Ethernet Adapter	Fixed Reader
DC	No	2.0m	No	Power Over Ethernet Adapter Kit	POE AC Adapter
PA = Ca	PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.				

## **CONFIGURATION 2 SUPR0055**

Software/Firmware Running during test	
Description	Version
Installation Test	P1J

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Fixed Reader - Normal Operation	GE Security Inc.	Fixed Reader	Unknown

Peripherals in test setup boundary						
Description	Manufacturer	Model/Part Number	Serial Number			
14 dBi Antenna	Hyperlink Technologies	WGE1900-0002	Unknown			
Power Over Ethernet Adapter Kit	Linksys	WAPPOE	213W0049001002			
POE AC Adapter - 120V	CUI Stack	DV-9500	Unknown			
Container Security Device	GE Security	CommerceGuard	Prototype			
Notebook PC	Panasonic	CF-18	CF-18DHAZXKM			
AC Adapter	Panasonic	CF-AA1623A M3	04X01153B			
POE AC Adapter - 230V	CUI Stack	KA23D120080016G	Unknown			



Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	1.8m	No	Power Over Ethernet Adapter	Fixed Reader
DC	No	2.0m	No	Power Over Ethernet Adapter Kit	POE AC Adapter
DC	No	1.8m	No	Notebook PC	AC Adapter
AC	No	2.0m	No	AC Adapter	AC Mains
Ethernet	No	0.2m	No	Power Over Ethernet Adapter Kit	Notebook PC
PA = Ca	PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.				

## CONFIGURATION 3 SUPR0055

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Fixed Reader - Receive	GE Security Inc.	Fixed Reader	639

Peripherals in test setup boundary						
Description	Manufacturer	Model/Part Number	Serial Number			
14 dBi Antenna	Hyperlink Technologies	WGEI900-0002	Unknown			
Power Over Ethernet Adapter Kit	Linksys	WAPPOE	213W0049001002			
POE AC Adapter - 120V	CUI Stack	DV-9500	Unknown			
POE AC Adapter - 230V	CUI Stack	KA23D120080016G	Unknown			

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	0.2m	No	Power Over Ethernet Adapter Kit	Unterminated
Ethernet	No	1.8m	No	Power Over Ethernet Adapter	Fixed Reader
DC	No	2.0m	No	Power Over Ethernet Adapter Kit	POE AC Adapter
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

## **CONFIGURATION 4 SUPR0055**

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Fixed Reader - Transmitter	GE Security Inc.	Fixed Reader	647

Peripherals in test setup boundary						
Description	Manufacturer	Model/Part Number	Serial Number			
8 dBi Antenna	Hyperlink Technologies	WGEI900-0001	Unknown			
Power Over Ethernet Adapter Kit	Linksys	WAPPOE	213W0049001002			
POE AC Adapter - 120V	CUI Stack	DV-9500	Unknown			
POE AC Adapter - 230V	CUI Stack	KA23D120080016G	Unknown			



Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	0.2m	No	Power Over Ethernet Adapter Kit	Unterminated
Ethernet	No	1.8m	No	Power Over Ethernet Adapter	Fixed Reader
DC	No	2.0m	No	Power Over Ethernet Adapter Kit	POE AC Adapter
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

## **CONFIGURATION 5 SUPR0055**

EUT						
Description	Manufacturer	Model/Part Number	Serial Number			
Fixed Reader - Receive	GE Security Inc.	Fixed Reader	639			

Peripherals in test setup boundary										
Description	Manufacturer	Model/Part Number	Serial Number							
8 dBi Antenna	Hyperlink Technologies	WGEI900-0001	Unknown							
Power Over Ethernet Adapter Kit	Linksys	WAPPOE	213W0049001002							
POE AC Adapter - 120V	CUI Stack	DV-9500	Unknown							
POE AC Adapter - 230V	CUI Stack	KA23D120080016G	Unknown							

Cables							
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2		
Ethernet	No	0.2m	No	Power Over Ethernet Adapter Kit	Unterminated		
Ethernet	No	1.8m	No	Power Over Ethernet Adapter	Fixed Reader		
DC	No	2.0m	No	Power Over Ethernet Adapter Kit	POE AC Adapter		
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.							



## Modifications

	Equipment modifications										
Item	Date	Test	Modification	Note	Disposition of EUT						
		Spurious	Same	No EMI suppression	EUT remained at						
1	2/1/2006	Radiated	configuration	devices were added or	Northwest EMC						
		Emissions	as delivered.	modified during this test.	following the test.						
		Occupied	Same	No EMI suppression	EUT remained at						
2	2/2/2006	Bandwidth	configuration	devices were added or	Northwest EMC						
		Danuwidth	as delivered.	modified during this test.	following the test.						
		Band Edge	Same	No EMI suppression	EUT remained at						
3	2/2/2006	Compliance	configuration	devices were added or	Northwest EMC						
		Compliance	as delivered.	modified during this test.	following the test.						
		Power	Same	No EMI suppression	EUT remained at						
4	2/2/2006	Spectral	configuration	devices were added or	Northwest EMC						
		Density	as delivered.	modified during this test.	following the test.						
_		Output	Same	No EMI suppression	EUT remained at						
5	2/2/2006	Power	configuration	devices were added or	Northwest EMC						
			as delivered.	modified during this test.	following the test.						
		Spurious	Same	No EMI suppression	EUT remained at						
6	2/2/2006	Conducted	configuration	devices were added or	Northwest EMC						
		Emissions	as delivered.	modified during this test.	following the test.						
_		Radiated	Same	No EMI suppression	EUT remained at						
7	2/6/2006	Emissions	configuration	devices were added or	Northwest EMC						
			as delivered.	modified during this test.	following the test.						
		AC Power	Same	No EMI suppression	Sebeduled testing						
8	2/6/2006	Conducted	configuration	devices were added or	was completed						
		Emissions	as delivered.	modified during this test.	was completed.						

## **RADIATED EMISSIONS**

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPE	RATION										
Normal operating mode. Running Installation Test software.											
		D									
POWER SETTIN	GS INVESTIGATE			Adamtan							
Power over e-net	Power over e-net (POE Adapter powered by 120VAC, 60Hz AC Adapter)										
Power over e-net	(POE Adapter pow	ered by a	230VAC, 50HZ AC	Adapter)							
POWER SETTIN	GS LISED FOR FIN		Δ								
Power over e-net	(POE Adapter pow	ared by		Adapter)							
		ered by		Auapter							
FREQUENCY R	ANGE INVESTIGAT	ΓED									
Start Frequency	Start Frequency 30 MHz Stop Frequency 1 GHz										
SAMPLE CALCU	JLATIONS										
Radiated Emissions:	Field Strength = Measured L	evel + Antenr	na Factor + Cable Factor - An	nplifier Gain +	Distance Adjustment Factor	+ External Atte	enuation				
TEST EQUIPME	NT										
Desc	cription	N	lanufacturer	acturer Model		ID	Last Cal.	Interval			
Pre-A	mplifier		Miteq		AM-1551	AOY	11/28/2005	13			
Antenna	, Biconilog		EMCO		3142	AXB	1/6/2005	24			
Spectrun	n Analyzer		Agilent		E4443A	AAS	12/8/2005	12			
MEASUREMENT	BANDWIDTHS										
	Frequency Ra	inge	Peak Data	a	Quasi-Peak	Data	Average D	ata			
	(MHz) (kHz) (kHz) (kHz)										
0.01 - 0.15 1.0 0.2 0.2											
	0.15 - 30.0		10.0		9.0		9.0				
	30.0 - 1000	)	100.0		120.0		120.0				
	Above 1000	0	1000.0		N/A		1000.0				

Measurements were made using the bandwidths and detectors specified. No video filter was used.

#### **MEASUREMENT UNCERTAINTY**

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

#### TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level will be detected. This requires the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search is utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT.

Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance shall be 3 meters or 10 meters. At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna shall be increased so that the lowest point of the bottom of the antenna clears the ground surface by at least 25 cm.

NC				RA		ED E	MISSI	ONS	DATA	SHE	ET		PS	SA 2006.02.03 EMI 2006.1.20
		EUT:	Fixed Read	er							W	ork Order:	SUPR0055	5
Ser	rial Nur	nber:	Unknown									Date:	02/06/06	-
	Custo	omer:	GE Securit	y Inc.							Ter	nperature:	21	
	Pre	biect:	None								Barome	etric Pres.:	37% 29.98	
	Teste	d by:	Holly Ashk	annejhad				Power:	Power ove	r e-net		Job Site:	EV01	
TEST S	SPECIF	ICATI	ONS						Test Metho	d				
FCC 1	5.109(g	) (CISI	-R 22:1997)	Class A:	2005-10				ANSI C63.4	4:2003				
TEST F	ARAM	ETER	S m)	1 4				Tost Dista	aco (m)	10				
COMM	ENTS	nı(s) (	m)	1 - 4				Test Dista	ice (m)	10				
Hyperii EUT Ol Norma DEVIA No dev	ink Tec PERAT I opera TIONS riations	hnolo ING M ting m FROM	gies M/N: V ODES node. Runni TEST STA	VGEI900-0 ing Install NDARD	002, 14dBi ation Test s	antenna. P software.	OE Adapte	er powered	via 120VA	C, 60Hz. Co	ontainer Se	curity Devi	ice on table	e.
Run #			1				<i>(</i> )	i i O	)					
Config	uration	#	Z Pas	35		Signature	Holy A	hugh						
Result	5		1 4	55		Signature								
	80.0													_
	70.0	-		_										_
	60.0													
	00.0													
	50.0	-												_
٦														
ζ.	40.0													
3u'	40.0													
Β									•	*	•	•		
	30.0	_							•					_
										Ť				
									•					
	20.0	1												
	10.0													
	10.0													
	0.0													_
	10	.000						100.000					10	00.000
								MHz						
								External			Distance			Compared to
	Freq		Amplitude	Factor	Azimuth	Height	Distance	Attenuation	Polarity	Detector	Adjustment	Adjusted	Spec. Limit	Spec.
	(MHz)		(dBuV)	(dB)	(degrees)	(meters)	(meters)	(dB)	V Bilog	OP	(dB)	dBuV/m	dBuV/m	(dB)
2	40.037		60.9	-26.5	303.0	1.5	10.0	0.0	V-Bilog	QP	0.0	34.4	40.0	-5.6
1	80.037		53.9	-24.2	323.0	1.5	10.0	0.0	V-Bilog	QP	0.0	29.7	40.0	-10.3
2	00.033		52.8	-23.6	23.0	1.0	10.0	0.0	V-Bilog	QP	0.0	29.2	40.0	-10.8
2	00.033		52.8 56.4	-23.6	217.0	3.4 1 0	10.0	0.0	H-Bilog	QP OP	0.0	29.2	40.0 40.0	-10.8 -10 9
2	40.034		57.0	-21.8	252.0	1.0	10.0	0.0	V-Bilog	QP	0.0	35.2	47.0	-11.8
5	00.063		49.5	-15.0	54.0	3.7	10.0	0.0	V-Bilog	QP	0.0	34.5	47.0	-12.5
2	40.041		56.2	-21.8	198.0	3.5	10.0	0.0	H-Bilog	QP	0.0	34.4	47.0	-12.6
3	40.044		52.8 49 1	-18.5	295.0	2.8	10.0 10.0	0.0	H-Bilog	QP OP	0.0	34.3 34.1	47.0 47.0	-12.7 -12.0
э 1	40.035		49.1 52.0	-26.5	230.0	∠.0 3.9	10.0	0.0	H-Biloa	QP	0.0	25.5	40.0	-12.9
	57.712		39.2	-26.1	118.0	1.5	10.0	0.0	V-Bilog	QP	0.0	13.1	40.0	-26.9



## Radiated Emissions





## **CONDUCTED EMISSIONS**

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

#### MODES OF OPERATION

Transmitting fixed frequency.

#### POWER SETTINGS INVESTIGATED

Power over e-net (POE Adapter powered via 120VAC Adapter)

#### SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator	Tektronix	011-0059-02	ATC	12/19/2005	13
High Pass Filter	T.T.E.	7766	HFG	1/17/2005	13
Spectrum Analyzer	Agilent	E4443A	AAS	12/8/2005	12
LISN	Solar	9252-50-R-24-BNC	LIQ	12/13/2005	13
LISN	Solar	9252-50-R-24-BNC	LIR	12/13/2005	13

MEASUREMEN	T BANDWIDTHS							
	Frequency Range	Peak Data	Quasi-Peak Data	Average Data				
	(MHz)	(kHz)	(kHz)	(kHz)				
	0.01 - 0.15	1.0	0.2	0.2				
	0.15 - 30.0	10.0	9.0	9.0				
	30.0 - 1000	100.0	120.0	120.0				
	Above 1000	1000.0	N/A	1000.0				
Measurements were made using the bandwidths and detectors specified. No video filter was used.								

#### MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

#### **TEST DESCRIPTION**

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the set channel in the operational band. The EUT was transmitting at its maximum data rate. The AC power line conducted emissions were also measured with the EUT in normal operating mode. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.4-2003.

	0.0		EMIS	SION	S D/		SH	EET		PS	SA 2006.02.03 EMI 2 <u>006.1.20</u>
ENIC	IT Eixed Boader Trees	smit						14/	ork Order	SUPPOS	
Serial Numb	or: 647	Siiiit						vv	Date:	02/06/06	,
Custon	ner: Supra Products, Inc.							Ter	nperature	21	
Attende	es: none							Barara	Humidity:	37%	
Proj Tested	by: Holly Ashkanneihad			Power	Power	over e	e-net	Barome	Job Site	29.98 EV11	
TEST SPECIFIC	ATIONS				Test N	lethod					
FCC 15.107 Cla	ss A:2005-10				ANSI (	C63.4:2	2003				
TEST PARAME	TERS										
	N										
Hyperlink Tech	nologies M/N: WGEI900-	0002, 14dBi antenna. F	POE Adap	ter powered	via 12	OVAC,	60Hz AC	Adapter.			
EUT OPERATIN	G MODES										
Transmitting fix	ed frequency.										
No deviations.	TEST STANDARD										
Run #	7	_	,	N 1 1 1	7						
Configuration # Results	1 Pass	Signature	Holy )	sugi							
	1 400	Gignature									
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							10	1			100
0.1		I					10				100
				MHz							
	1	1 1	1	Evianal	T						Compared to
Freq	Amplitude	Transducer	Cable	Attenuation			Detector		Adjusted	Spec. Limit	Spec.
(MHz)	(dBuV)	(dB)	(dB)	(dB)		(bl [	ank equal peaks PK] from scan)		dBuV	dBuV	(dB)
0.514	22.9	0.0	0.3	20.0	1	I		I	43.2	60.0	-16.8
0.653	21.3	0.0	0.3	20.0					41.6	60.0	-18.4
0.183	25.2 24.4	0.0 0.0	0.2 0.2	20.0					45.4 44.6	66.0	-20.6 -21.4
0.784	17.1	0.0	0.3	20.0					37.4	60.0	-22.6
0.584	17.0	0.0	0.3	20.0					37.3	60.0	-22.7
0.489	23.0 16.9	0.0	0.3	20.0					43.3 37.3	60.0	-22.1 -22.7
0.853	16.8	0.0	0.4	20.0					37.2	60.0	-22.8
0.288	21.7 15.5	0.0	0.2	20.0					41.9 35.9	66.0	-24.1 -24 1
0.241	21.6	0.0	0.4	20.0					41.8	66.0	-24.1
0.675	14.8	0.0	0.3	20.0					35.1	60.0	-24.9
0.995 0.431	14.2 20.3	0.0	0.4 0.3	20.0 20.0					34.6 40 6	60.0 66.0	-25.4 -25.4
0.401	20.1	0.0	0.3	20.0					40.4	66.0	-25.6
0.314	20.0	0.0	0.2	20.0					40.2	66.0	-25.8
0.263 1.025	20.0 13.4	0.0 0.0	0.2 0.4	20.0 20.0					40.2 33.8	66.0 60.0	-25.8 -26.2

NORTHW	EST		CC		UC	T	ED.	EMIS	SIO	NS	S D	AT	Ά	SH	EET.		P	SA 2006.02.03 EMI <u>2006.1.20</u>
EM	С	Fixed De											Γ				CUPPOOF	F
Serial N	EUT: lumber:	FIXEd Re 647	ader - Tra	insmit											v	Date	: 02/06/06	5
Cu	stomer:	Supra Pr	oducts, li	nc.											Те	mperature	21	
Att	endees:	none													_	Humidity	1: 37%	
То	Project:		hkanneih	ad					Pr	wor	Pow		r 0-	net	Barom	lob Site	.: 29.98	
TEST SPEC		ONS	inkannejn	au					10	wer.	Test	Metho	d			000 0110		
FCC 15.107	' Class /	\:2005-10									ANS	I C63.	4:20	03				
TEST PARA Cable or Li	AMETER	lS ed	L1															
COMMENT	S																	
Hyperlink T	echnolo	ogies M/N	: WGEI90	0-0002,	14dBi	ant	enna. F	POE Adap	ter pov	vered	via 1	20VA	C, 6	OHz AC	Adapter.			
EUT OPER		IODES																
Transmittin	ng fixed	frequency	у.															
DEVIATION	IS FROM	I TEST ST	TANDARD	)														
No deviatio	ons.		8	-														
Configurati	on #		1	_				11 0	A li	1.	2							
Results		F	Pass			Sic	nature	Holy.	Jan	$\gamma \sim$								
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									MH	z								
								1	Exte	ernal						1		Compared to
Free	1	Amplitude				Tra	insducer	Cable	Atten	uation			D	etector		Adjusted	Spec. Limit	Spec.
(MHz	z)	(dBuV)					(dB)	(dB)	(d	В)			(blank [PK]	equal peaks from scan)		dBuV	dBuV	(dB)
0.60	9	22.5					0.0	0.3	20	0.0						42.8	60.0	-17.2
0.59	1	22.4					0.0	0.3	20	0.0						42.7	60.0	-17.3
0.65	3	20.7					0.0	0.3	20	0.0						41.0	60.0	-19.0
0.19	4	24.9					0.0	0.2	20	0.0						45.1	66.0	-20.9
0.70	4 c	18.3					0.0	0.3	20	0.0						38.6	60.0	-21.4
0.21	1	∠ <del>4</del> .0 17 6					0.0	0.2	20	,.0 ).0						44.∠ 38 0	60.0 60.0	-21.0 -22.0
0.86	4	17.2					0.0	0.4	20	0.0						37.6	60.0	-22.4
0.47	8	23.1					0.0	0.3	20	0.0						43.4	66.0	-22.6
0.92	6	16.9					0.0	0.4	20	0.0						37.3	60.0	-22.7
0.82	1	16.8 16.2					0.0	0.4	20	0.0						37.2	60.0	-22.8
0.84 0.23	∠ 7	10.2 21 7					0.0	0.4	20	,.0 ).0						30.0 41 9	60.0 66 0	-23.4 -24 1
0.27	0	21.0					0.0	0.2	20	0.0						41.2	66.0	-24.8
0.24	8	20.7					0.0	0.2	20	0.0						40.9	66.0	-25.1
0.46	3	20.2					0.0	0.3	20	0.0						40.5	66.0	-25.5
0.49	6	19.1					0.0	0.3	20	0.0						39.4	66.0	-26.6
0.33 20.00	∠ )4	18.3					0.0 0.0	0.2 2 0	20	).0 ).0						38.5 32 1	60.0 60.0	-27.5 -27.9



## Conducted Emissions





## Conducted Emissions





#### Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

#### Channels in Specified Band Investigated: Single

**Operating Modes Investigated:** No Hop

Data Rates Investigated:

Maximum

#### Power Input Settings Investigated:

Power over e-net (Power over Ethernet Adapter was powered via a 120 VAC, 60 Hz AC Adapter)

Software\Firmware Applied During Test									
Exercise software	Special Test Software	Version	N/A						
Description									
The system was tested us	ing special software develo	oped to test all functions of t	he device during the test.						

EUT and Peripherals			
Description	Manufacturer	Model/Part Number	Serial Number
EUT	GE Security Inc.	Fixed Reader	647
AC Adapter	CUI Stack	DPD090050-P5	0900
Power Over Ethernet Adapter	LinkSys	WAPPOE	BW0049001002

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Leads	No	1.9	PA	AC Adapter	EUT
Ethernet	No	2.1	No	EUT	Power Over Ethernet Adapter
PA = Cable is p	ermanently	attached to the	device. Sh	ielding and/or prese	ence of ferrite may be unknown.

Measurement Equipment						
Description	Manufacturer	Model	Identifier	Last Cal	Interval	
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	1/25/2005	13 mo	



#### **Test Description**

**Requirement:** Per 47 CFR 15.247(a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz. The measurement is made with the spectrum analyzer's resolution bandwidth set to 100kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.

**Configuration**: The occupied bandwidth was measured with the EUT set to a single mid band transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation.

Completed by:	
Rocky le	Peling

		OCCUPIED	BANDWID	DTH		Rev BETA
	Fired sector				Wash Ost	01/30/01
EUT:	Fixed reader				Work Ord	er: SUPR0055
Serial Number:	64/ 05 Consumitive land				Da	te: 02/02/06
Customer:	GE Security Inc.		Tested buy	Ded Delemin	Temperatu	
Attendees:	None		Tested by:	Rod Peloquin		
TEST SPECIFICATION	9		Fower.	Power over e-net	300 3	10. 2000
Specification:	47 CFR 15.247(a)(2)	Year: 2005	Method:	ECC DA 00-705, ANSI	C63.4 Ye	ar: 2000, 2004
SAMPLE CALCULATIC		1 cui. 2000	method.	TOO DA CO TOO, ANON	10	ur. 1000, 2004
COMMENTS						
The Power Over Ether	net Adapter was powered via a 12	OV AC Adapter.				
EUT OPERATING MOL	DES malata rata, at maximum autnut n					
		ower				
None	SI SIANDARD					
REQUIREMENTS						
The minimum 6 dB bar	ndwidth shall be at least 500kHz					
RESULTS			BANDWIDTH			
Pass			12.15 MHz			
SIGNATURE						
Rochy te Peleng						
DESCRIPTION OF TEST						
		Occupied	Bandwidth			
-						



#RES BW 100 kHz

#VBW 300 kHz

SWP 20.0 msec





## **Output Power**

#### Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

#### Channels in Specified Band Investigated: Single

#### Operating Modes Investigated: No Hop

#### Data Rates Investigated:

Maximum

#### Power Input Settings Investigated:

Power over e-net (Power over Ethernet Adapter was powered via a 120 VAC, 60 Hz AC Adapter)

Software\Firmware Applied During Test					
Exercise software	Special Test Software	Version	N/A		
Description					
The system was tested using special software developed to test all functions of the device during the test.					

EUT and Peripherals			
Description	Manufacturer	Model/Part Number	Serial Number
EUT	GE Security Inc.	Fixed Reader	647
AC Adapter	CUI Stack	DPD090050-P5	0900
Power Over Ethernet Adapter	LinkSys	WAPPOE	BW0049001002

Cables						
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2	
DC Leads	No	1.9	PA	AC Adapter	EUT	
Ethernet	No	2.1	No	EUT	Power Over Ethernet Adapter	
PA = Cable is p	PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Measurement Equipment						
Description	Manufacturer	Model	Identifier	Last Cal	Interval	
Oscilloscope	Tektronix	TDS 3052	TOF	12/08/2005	13 mo	
Power Meter	Hewlett Packard	E4418A	SPA	07/23/2004	24 mo	
Power Sensor	Hewlett-Packard	8481H	SPB	07/23/2004	24 mo	
Signal Generator	Hewlett Packard	8341B	TGN	01/26/2006	13 mo	
RF Detector	RLC Electronics	CR-133-R	ZZA	NCR	NA	



#### **Test Description**

Requirement: Per 47 CFR 15.247(b)(3), the maximum peak output power must not exceed 1 Watt.

<u>Configuration</u>: The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The EUT was transmitting at its maximum output power. The data rate of the radio was varied to determine the level that produced the highest output power.

The measurement was made using a direct connection between the RF output of the EUT and a RF detector diode. The DC output of the diode was measured with the oscilloscope. The signal generator, tuned to the transmit frequency, was then substituted for the EUT. The CW output of the signal generator was adjusted until the DC output of the RF detector diode match the peak level produced when connected to the EUT. To further reduce measurement error, the power meter and sensor were then used to measure the output power level of the signal generator.

**De Facto EIRP Limit:** Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

Completed by:	
Rolyte	Peling

EMC		OUTPUT	POWER			Rev BETA 01/30/01
EUT:	Fixed reader				Work Order:	SUPR0055
Serial Number:	647				Date:	02/02/06
Customer:	GE Security Inc.				Temperature:	21°C
Attendees:	None		Tested by:	Rod Peloguin	Humidity:	42% RH
Customer Ref. No.:	None		Power:	Power over e-net	Job Site:	EV06
TEST SPECIFICATION	NS					
Specification:	47 CFR 15.247(b)(3)	Year: 2005	Method:	FCC 97-114, ANSI C63.	.4 Year:	2003
SAMPLE CALCULATI	ONS					
COMMENTS						
Power over Ethernet	Adapter is powered via a 120V AC	C Adapter.				
EUT OPERATING MO	DES					
Modulated by PRBS a	at indicated data rate, at maximun	n output power				
DEVIATIONS FROM T	EST STANDARD					
None						
REQUIREMENTS						
Maximum peak condu	ucted output power does not exce	eed 1 Watt				
RESULTS			AMPLITUDE			
Pass			1.28 mW			
Korken 1. Peden						
Tested By:						
DESCRIPTION OF TEST						
	Output Power					
		Output				

Frequency (MHz)	Power (mW)
2438.8	1.28





#### Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

#### Channels in Specified Band Investigated: Single

Operating Modes Investigated: No Hop

#### Data Rates Investigated:

Maximum

#### Power Input Settings Investigated:

120 VAC, 60 Hz to Power Over Ethernet Adapter

Software\Firmware Applied During Test					
Exercise software	Special Test Software	Version	N/A		
Description					
The system was tested using special software developed to test all functions of the device during the test.					

EUT and Peripherals			
Description	Manufacturer	Model/Part Number	Serial Number
EUT	GE Security Inc.	Fixed Reader	647
AC Adapter	CUI Stack	DPD090050-P5	0900
Power Over Ethernet Adapter	LinkSys	WAPPOE	BW0049001002

Cables								
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2			
DC Leads	No	1.9	PA	AC Adapter	EUT			
Ethernet	No	2.1	No	EUT	Power Over Ethernet Adapter			
PA = Cable is p	PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.							

Measurement Equipment								
Description	Manufacturer	Model	Identifier	Last Cal	Interval			
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	1/25/2005	13 mo			



#### **Test Description**

**Requirement**: Per 47 CFR 15.247(d), in any 100 kHz bandwidth outside the authorized band, the maximum level of radio frequency power must be at least 20dB down from the highest emission level within the authorized band. The measurement is made with the spectrum analyzer's resolution bandwidth set to 100 kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.

**Configuration**: The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to its transmit frequency. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 50 MHz below the band edge to 50 MHz above the band edge.

Completed by:	
Rolyte	Peling

IORTHWEST			Band	l Edge	Comp	lianc	е			Rev BET
EUT: Fi	ed reader							Wor	rk Order:	SUPR0055
Serial Number: 64	7								Date:	02/02/06
Customer: GE	Security Inc.							Temp	perature:	21°C
Attendees: No	ne				Те	sted by: Rod	Peloquin	н	lumidity:	42% RH
Customer Ref. No.: No	ne					Power: Pow	er over e-net		Job Site:	EV06
EST SPECIFICATIONS										
Specification: 47	CFR 15.247(d)		Year: 2005			Method: FCC	DA 00-705, ANSI	C63.4	Year:	2000, 2004
AMPLE CALCULATIONS	3									
Cover over Etherner Ada SUT OPERATING MODES Indoulated at maximum d DEVIATIONS FROM TEST Ione EQUIREMENTS In any 100 kHz band outs ESULTS ESULTS CASS DIGNATURE	ide the allowable	num output power	ver mum spurious e	emission shall b	e at least 20 dB	below the fu	ndamental.			
ESCRIPTION OF TEST			Band	l Edge Co	ompliance	e - Low				
11:36:1 //	3 FEB 02,	2006								
REF 10.0	dBm		#AT 10	) dB						
PEAK										

PEAK									
LOG 10									
dB/									
OFFGT									
21.7									u .
dB								L , MAAAA	Maria - I
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CENTER 2.4000 GHz

#RES BW 100 kHz

#VBW 300 kHz

SPAN 100.0 MHz

SWP 30.0 msec

			Band	d Edge	e Com	olian	ce			Rev BET 01/30/01
EUT: F	ixed reader							W	ork Order: SUP	R0055
Serial Number: 6	47							_	Date: 02/02	2/06
Customer: C	SE Security Inc.					octod by:	od Pologuin	Ter	nperature: 21°C	рц
ustomer Ref. No.: N	lone				•	Power: 12	20VAC/60Hz		Job Site: EV0	кп 3
T SPECIFICATIONS										
Specification: 4	7 CFR 15.247(d)		Year: 2005			Method: F	CC DA 00-705, ANS	I C63.4	Year: 2000	, 2004
IPLE CALCULATION	15									
IMENTS										
er over Ethernet Ad	lapter powered via	a 120V AC Adapt	ter.							
Uperating Mode	=S data rate, at maxi	mum output pov	ver							
IATIONS FROM TES	ST STANDARD									
e										
UIREMENTS		1 14 3								
ny 100 kHz band out	tside the allowable	e band the maxii	mum spurious	emission shal	l be at least 20 di	3 below the	fundamental.			
5										
NATURE										
	101-	PP								
	Colling la 3	Leting								
Tested By:	V	V								
CRIPTION OF TEST			Band	Edgo C	omplianc	o ∐ia	h			
			Danu	Euge C	omplianc	e - niy	11			
,11:37:	18 FEB 02,	2006								
ΠΡ										
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LOG 10										
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V) CP										

- MMMmmm CENTER 2.4835 GHz

SPAN 100.0 MHz

M

Mr m

#RES BW 100 kHz

CORR

#VBW 300 kHz

www.

SWP 30.0 msec

1.200

100





#### Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

#### Channels in Specified Band Investigated: Single

**Operating Modes Investigated:** No Hop

Data Rates Investigated:

Maximum

#### **Power Input Settings Investigated:**

Power over e-net (Power over Ethernet Adapter was powered via a 120 VAC, 60 Hz AC Adapter)

Software\Firmware Applied During Test							
Exercise software	Special Test Software	Version	N/A				
Description							
The system was tested us	ing special software develo	ped to test all functions of t	he device during the test.				

EUT and Peripherals			
Description	Manufacturer	Model/Part Number	Serial Number
EUT	GE Security Inc.	Fixed Reader	647
AC Adapter	CUI Stack	DPD090050-P5	0900
Power Over Ethernet Adapter	LinkSys	WAPPOE	BW0049001002

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Leads	No	1.9	PA	AC Adapter	EUT
Ethernet	No	2.1	No	EUT	Power Over Ethernet Adapter
PA = Cable is p	ermanently	attached to the	device. Sh	ielding and/or prese	ence of ferrite may be unknown.

Measurement Equipment								
Description	Manufacturer	Model	Identifier	Last Cal	Interval			
Spectrum Analyzer	Agilent	E4446A	AAQ	07/15/2005	12 mo			



#### **Test Description**

**Requirement**: Per 47 CFR 15.247(d), in any 100 kHz bandwidth outside the authorized band, the maximum level of radio frequency power must be at least 20dB down from the highest emission level within the authorized band. The measurement is made with the spectrum analyzer's resolution bandwidth set to 100 kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.

**Configuration**: The spurious RF conducted emissions were measured with the EUT set to the transmit frequency. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

Completed by:	
Rocky le	Peling

FMC SP	URIOUS CONDU	JCTED E	MISSION	S	Rev BETA
EUT: Fixed reader				Work Orde	r: SUPR0055
Serial Number: 647				Dat	e: 02/02/06
Customer: GE Security Inc.				Temperature	e: 21°C
Attendees: None		Tested by:	Rod Peloquin	Humidit	v: 42% RH
Customer Ref. No.: None		Power:	Power over e-net	Job Sit	e: EV01
TEST SPECIFICATIONS					
Specification: 47 CFR 15.247(d)	Year: 2005	Method:	FCC DA 00-705, ANSI	C63.4 Yea	r: 2000. 2004
SAMPLE CALCULATIONS					
COMMENTS					
Power over Ethernet Adapter powered via a 120V A	AC Adapter.				
EUT OPERATING MODES					
Modulated at maximum data rate, at maximum out	put power				
DEVIATIONS FROM TEST STANDARD					
None					
REQUIREMENTS					
In any 100 kHz band outside the allowable band the	e maximum spurious emission shall be	e at least 20 dB below th	ne fundamental.		
RESULTS					
Pass					
SIGNATURE					
Porty le Reling Tested By:	С 				
DESCRIPTION OF TEST					
Sp	urious Conducted Em	issions - 30M	Hz - 12.5 GHz	2	

#### Spurious Conducted Emissions - 30MHz - 12.5 GHz

· 米 A	gilent 14:	42:31 F€	əb 2, 200	6				Т		
Ref 10	dBm		#At	ten 10 di	3					
#Peak Log										
10 dB/										
Offst 21.6 dB										
0.D										
LgAv										
V1 S2										
\$3 FC				المعالمة والمعالمة		ali	AND A LOUGH			فالديه المؤذواه
<b>£</b> (f): FTun										
Ѕพр										
										Î
Start 3	30 MHz								Stop 12	2.50 GHz
#Res B	W 100 kH	Z		#	VBW 300	kHz		Sweep 1.	192 s (81	.56 pts)

NORTHWEST EMC	SPUF	RIOUS	CONDUCT	ED EI	MISSION	S		Rev BETA 01/30/01
EUT:	Fixed reader					Work	Order: S	UPR0055
Serial Number:	647						Date: 0	2/02/06
Customer:	GE Security Inc.					Tempe	erature: 2	1°C
Attendees:	None			Tested by:	Rod Peloquin	Hu	umidity: 4	2% RH
Customer Ref. No.:	None			Power:	Power over e-net	Jo	ob Site: E	V01
TEST SPECIFICATION	IS							
Specification:	47 CFR 15.247(d)	Year: 200	95	Method:	FCC DA 00-705, ANSI	C63.4	Year: 2	000, 2004
SAMPLE CALCULATI	ONS							
COMMENTS								
Power over Ethernet	Adapter powered via a 120V AC A	dapter.						
EUT OPERATING MO	DES							
Modulated at maximu	m data rate, at maximum output p	ower						
DEVIATIONS FROM T	EST STANDARD							
None								
REQUIREMENTS								
In any 100 kHz band o	outside the allowable band the main	ximum spurious	s emission shall be at least 20	dB below t	ne fundamental.			
RESULTS								
Pass								
SIGNATURE								
Tested By:	Portry le Feling							
DESCRIPTION OF TES	ST							
	Spuri	ous Conc	ducted Emission	s - 12.5	GHz-25GHz			
I	_							
Adilent	14.48.57 Eeb 2	2006				т		

145	gilent 14.	40.37 10	D Z, 200	0				•		
Ref 10	dBm		#At	ten 10 di	В					
#Peak Log										
10 dB/										
Uffst 21.6 dB										
95										
laAv										
V1 S2										
S3 FC	and the part of the local division of		in in the line	a de la compañía de l		أنبانير وورا إكتبها	روسان والارزيرية	and a state of the		
<b>£</b> (f): FTun										
Ѕพр										
Start 1	2.50 GHz								Stop 25	5.00 GHz
#Res B	W 100 kH	z		#	VBW 300	kHz		Sweep 1.	195 s (81	l56 pts)_





#### Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

#### Channels in Specified Band Investigated: Single

Operating Modes Investigated: No Hop

Data Rates Investigated:

Maximum

#### Power Input Settings Investigated:

Power over e-net (Power over Ethernet Adapter was powered via a 120 VAC, 60 Hz AC Adapter)

Software\Firmware Applied During Test						
Exercise software	Special Test Software	Version	N/A			
Description						
The system was tested using special software developed to test all functions of the device during the test.						

EUT and Peripherals							
Description	Manufacturer	Model/Part Number	Serial Number				
EUT	GE Security Inc.	Fixed Reader	647				
AC Adapter	CUI Stack	DPD090050-P5	0900				
Power Over Ethernet Adapter	LinkSys	WAPPOE	BW0049001002				

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Leads	No	1.9	PA	AC Adapter	EUT
Ethernet	No	2.1	No	EUT	Power Over Ethernet Adapter
PA = Cable is p	ermanently	attached to the	device. Sh	ielding and/or prese	ence of ferrite may be unknown.

Measurement Equipment						
Description	Manufacturer	Model	Identifier	Last Cal	Interval	
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	1/25/2005	13 mo	



#### **Test Description**

**Requirement**: Per 47 CFR 15.247(e), the peak power spectral density conducted from the antenna port of a direct sequence transmitter must not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

**Configuration**: The peak power spectral density measurements were measured with the EUT set to its transmit frequency. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation. Per the procedure outlined in FCC 97-114, the spectrum analyzer was used as follows:

The emission peak(s) were located and zoom in on within the pass band. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be  $1.5 \times 10^6 \div 3 \times 10^3 = 500$  seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 34.8 dB for correction to 3 kHz."

Completed by:	
Rolyte	Reling

NORTHWEST		P	OWER	SPEC	TRAL	DENS	SITY			Rev BETA 01/30/01
EUT:	Fixed reader							Work	Order: SUPR00	55
Serial Number:	647								Date: 02/02/06	
Customer:	GE Security Inc.				To	stad by: Rad	Pologuin	Temper	ature: 22 ° C	
Customer Ref. No.:	None				16.	Power: Pow	er over e-net	Jo	b Site: EV06	
TEST SPECIFICATION	S									
Specification:	47 CFR 15.247(e)		Year: 2005		I	Method: FCC	97-114, ANSI C63	3.4	Year: 2003	
Meter reading on spect Power Spectral Densit Bandwidth Correction COMMENTS Power Over Ethernet A EUT OPERATING MOD	trum analyzer is ini y per 3kHz bandwid Factor = 10*log(3kl Adapter powered via	ternally compen 4th = Power Spe Hz/1Hz) = 34.8 di a a 120V AC Ada	sated for cable ctral Density pe B apter.	loss and extern r 1 Hz bandwid	al attenuation th + Bandwidth (	Correction Fa	ctor.			
Modulated by PRBS at DEVIATIONS FROM TE	maximum data rat	e								
None										
REQUIREMENTS	enectral donaity of	inducted from a	DTS transmitte	r does not over	ed 8 dBm in any	3 kHz band				
RESULTS	apecual density CO	maucieu irom a	o o dansmitte	aues nut exce		J KHZ Dand				
Pass					Power Spectra	al Density =	21.01 dBm / 3kHz			
Tested By:	Rochy le	Reling								
			Po	ower Spe	ctral Den	sity				
12:20 /7/7 REF -10	:18 FEB 02,	2006	#AT 10	) dB			MKR -55.	2.4412813 81 dBm(1 ]	GHz Hz)	
SMPL										
LOG 5								*		
dB/										
dB						6				
				Λ		h				
			M	M	M		Lr'h		A	
VA SB SC FC	M	ДĄ	∧_ / ` -₩		V				wy	h
CORR										
CENTER :	2.4412865 GH	Iz						SPAN 300	.O kHz	
	#RES BW 3.0	kHz			#VBW 10 kH	Iz		#SWP :	100 sec	





## SPURIOUS RADIATED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

#### MODES OF OPERATION

Transmitting at set channel.

#### POWER SETTINGS INVESTIGATED

Power over e-net (POE Adapter powered via 120V AC Adapter)

#### FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency

26 MHz

#### SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	2/15/2005	13
Antenna, Horn	EMCO	3160-09	AHG	NCR	0
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	2/17/2005	13
Antenna, Horn	EMCO	3160-08	AHK	NCR	0
Low Pass Filter 0-1000 MHz	Micro-Tronics	LPM50004	LFD	9/28/2005	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	3/9/2005	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	8/2/2005	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	1/4/2006	13
Antenna, Horn	EMCO	3115	AHC	8/30/2005	12
Spectrum Analyzer	Agilent	E4446A	AAQ	7/15/2005	12

#### MEASUREMENT BANDWIDTHS

MEASUREMENT	DANDWIDTHS						
	Frequency Range	Peak Data	Quasi-Peak Data	Average Data			
	(MHz)	(kHz)	(kHz)	(kHz)			
	0.01 - 0.15	1.0	0.2	0.2			
	0.15 - 30.0	10.0	9.0	9.0			
	30.0 - 1000	100.0	120.0	120.0			
	Above 1000	1000.0	N/A	1000.0			
Measurements were made using the bandwidths and detectors specified. No video filter was used.							

#### MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

#### TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NC	DRTHWEST		RA		ED E	MISS	IONS	DATA	SHE	ET		PS I	SA 2006.01.20 EMI 2006.1.20
	EU	T: Fixed Rea	der							W	ork Order:	SUPR0055	5
Ser	rial Numbe	r: 647									Date:	02/01/06	
	Custome	r: GE Securi	ty Inc.							Ter	nperature:	21	
	Attendee	s: None								Barome	Humidity:	37%	
	Tested b	v: Holly Ashl	kanneihad				Power:	Power over	er e-net	Daronne	Job Site:	29.96 EV01	
TEST S	SPECIFICA	TIONS	lannojnaa					Test Metho	od				
FCC 15	5.247(d) Sp	ourious Radia	ited Emiss	ions:2005-9	)			ANSI C63.4	4:2003				
TEST P	PARAMET	ERS											
COMM	ENTS	s) (m)	1 - 4				Test Dista	nce (m)	0				
Hyperl	ink Techno	ologies M/N:	WGE1900-0	0002, 14dBi	antenna. F	POE Adapt	er powered	via 120V A	C Adapter.				
EUT O		MODES											
Transn	nitting at s	et channel.											
DEVIA	TIONS FRO	OM TEST STA	NDARD										
No dev	viations.		1										
Kun # Confia	uration #		1			11 0	A Li A	0					
Result	S	Pa	ISS		Signature	Holy )	Juni						
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	Freg	Amplitude	Factor	Azimuth	Height	Distance	Attenuation	Polarity	Detector	Distance Adjustment	Adjusted	Spec. Limit	Compared to Spec.
	(MHz)	(dBuV)	(dB)	(degrees)	(meters)	(meters)	(dB)			(dB)	dBuV/m	dBuV/m	(dB)
2	00.027	45.3	-2.7	114.0	1.4	0.0	0.0	H-Bilog	QP	0.0	42.6	43.0	-0.4
2	40.028	44.7 47 =	-2.7	187.0	1.0	0.0	0.0	V-Bilog	QP	0.0	42.0	43.0	-1.0
1	40.027	47.3	-0.0 -6.6	12.0 289.0	2.5	0.0	0.0	v-ыюу H-Biloa	QP	0.0	40.9	43.0 43.0	-2.1
3	80.042	40.8	2.6	135.0	1.0	0.0	0.0	H-Bilog	QP	0.0	43.4	46.0	-2.6
3	40.037	41.1	1.6	238.0	1.0	0.0	0.0	H-Bilog	QP	0.0	42.7	46.0	-3.3
2	80.035	42.9	-0.8	292.0	1.5	0.0	0.0	H-Bilog	QP	0.0	42.1	46.0	-3.9
4	20.044	38.6	3.3	231.0	1.0	0.0	0.0	H-Bilog	QP	0.0	41.9	46.0	-4.1
2	80.041	42.7 36.6	-2.4 2.6	∠39.0 182.0	1.5 1.4	0.0	0.0	П-Віюд V-Biloa	QP QP	0.0	40.3 39.2	40.0 46.0	-5.7 -6.8
2	20.030	41.6	-2.4	312.0	1.0	0.0	0.0	V-Bilog	QP	0.0	39.2	46.0	-6.8
2	60.031	40.1	-1.2	236.0	1.2	0.0	0.0	H-Bilog	QP	0.0	38.9	46.0	-7.1
2	80.034	37.9	-0.8	159.0	1.7	0.0	0.0	V-Bilog	QP	0.0	37.1	46.0	-8.9
4	20.043 60.033	32.7 33.4	3.3 -1.2	224.0 87.0	1.0	0.0	0.0	v-віюд V-Biloa	QP QP	0.0	30.0 32.2	46.0 46.0	-10.0
2		50.1		00		0.0	0.0	. 5.09	~	0.0			

	IORTHWEST																										PSA	2006,01,20
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		EUT	Fixed	Rea	der																	Nor	k O	rder	SU	PRO	055	
Se	erial Nun	nber:	647	11100	401																		<u> </u>	Date	02/	01/0	6	
	Custo	mer:	GE S	ecuri	ty Inc.																Te	emp	era	ture	21	,		
-	Attend	iees:	None	<u>}</u>																	Baron	H netri	umı ic P	res	29	% 98		
	Teste	d by:	Holly	, Ashl	kannejł	had								Pow	er:	Pov	ver o	ver	e-net	1	24.01	J	lob	Site	EV	D1		
TEST	SPECIF	CAT	ONS		=			000E								Test	t Met	hod										
FCC 1	5.247(d)	Spu	rious	Radia	ited Err	nissi	ons:	2005-	9							ANS	SI C6	3.4:	2003									
TEST	PARAM	ETER	S																									
Anten	na Heig	ht(s)	(m)		1 - 4								Те	st Di	star	nce	(m)			3								
Hyper	link Tec	hnolo	ogies	M/N: \	WGEI9	00-00	002,	14dBi	i ante	enna.	POE	E Adap	oter p	owe	red	via	120V	AC	Ada	pter								
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EUT C	PERAT	NG N	IODE	S																								
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L	(MHz)		(dB	luV)	(dB)	)	(de	grees)	(m	neters)	(	(meters)		(dB)			Hore			/	(dB)		dBu\	V/m	d	BuV/i	n	(dB)
4	1001.027 1881.630		33	5.5 8.5	6.9 6.9	, )	4	1.0 5.0		ı.∠ 1.6		3.0 3.0		0.0		v- H-	∙⊓orn ∙Horn	1	AV	,	0.0		40 40	.4 .4	:	54.0 54.0		-13.6 -13.6
З	8417.354		33	3.0	4.1	I	2	9.0		1.3		3.0		0.0		H-	Horn	1	AV	/	0.0		37	.1	4	54.0		-16.9
3	8905.514		27	7.6	5.7	7	2	9.0		1.3		3.0		0.0		H-	Horn	1	A۷	,	0.0		33 54	.3	1	54.0		-20.7
4	881.793		44	+. <i>1</i> 1.7	6.9 6.9	, )	4	5.0		1.6		3.0 3.0		0.0		 H-	Horn		PK	(	0.0		51	.0 .6		74.0		-22.4 -22.4

4881.627	33.5	6.9	41.0	1.2	3.0	0.0	v-Hom	AV	0.0	40.4	54.0	-13.0
4881.630	33.5	6.9	65.0	1.6	3.0	0.0	H-Horn	AV	0.0	40.4	54.0	-13.6
3417.354	33.0	4.1	29.0	1.3	3.0	0.0	H-Horn	AV	0.0	37.1	54.0	-16.9
3905.514	27.6	5.7	29.0	1.3	3.0	0.0	H-Horn	AV	0.0	33.3	54.0	-20.7
4881.429	44.7	6.9	41.0	1.2	3.0	0.0	V-Horn	PK	0.0	51.6	74.0	-22.4
4881.793	44.7	6.9	65.0	1.6	3.0	0.0	H-Horn	PK	0.0	51.6	74.0	-22.4
3417.360	26.4	4.1	184.0	1.2	3.0	0.0	V-Horn	AV	0.0	30.5	54.0	-23.5
3905.425	24.7	5.7	7.0	1.0	3.0	0.0	V-Horn	AV	0.0	30.4	54.0	-23.6
3417.296	44.5	4.1	29.0	1.3	3.0	0.0	H-Horn	PK	0.0	48.6	74.0	-25.4
3905.636	38.8	5.7	29.0	1.3	3.0	0.0	H-Horn	PK	0.0	44.5	74.0	-29.5
3905.561	37.4	5.7	7.0	1.0	3.0	0.0	V-Horn	PK	0.0	43.1	74.0	-30.9
3417.366	38.3	4.1	184.0	1.2	3.0	0.0	V-Horn	PK	0.0	42.4	74.0	-31.6

N	ORTH <u>WEST</u>													P	SA 2006.01.20
	EMC				R	ADIAT	ED E	MISS	ONS	DATA		ET			EMI 2006.1.20
		EUT:	Fixed F	Reader								W	ork Order:	SUPR005	5
Se	rial Nun	nber:	647										Date:	02/01/06	
	Custo	mer:	GE Sec	curity Ir	IC.							Tei	mperature:	21	
	Pro	ject:	None									Barom	etric Pres.:	29.98	
	Teste	d by:	Holly A	shkanı	nejhad				Power:	Power over	er e-net		Job Site:	EV01	
TEST	SPECIFI	CAT	ONS		E dia					Test Metho	od				
FCC 1	5.247(d)	Spu	nous Ra	adiated	Emis	sions:2005-§	9			ANSI C63.	4:2003				
TEST Anten	PARAM na Heigi	ETER ht(s)	(m)	1 -	1				Test Dista	nce (m)	3				
COMM	IENTS	n(5)	(11)		+				Test Dista						
Hyperl	link Tec	hnolo	ogies M	/N: WG	E1900-	0002, 14dBi	antenna. F	POE Adapt	er powered	via 120V A	C Adapter				
EUT O	PERATI	NG N	IODES												
Transr DEVIA	mitting a	at set FROM	channe I TEST	el. STAND	ARD										
No dev	viations														
Run #	urotion	4		3		_		1.	N 1 1	0					
Result	S	#		Pass		_	Sianature	Holy /	July						
						1									
	80.0 -														_
	70.0 -														
	10.0														
	60.0 -														
															_
	50.0 -														•
Ę		ľ													
	40.0 -														
<u>ه</u>															•
σ															
	30.0 -														
	20.0 -														
	10.0 -														
	0.0														
	7300		)		7800	000	83	200 000		8800 000	)	0300	000	09	200 000
	7300	.000	,		1000	.000	00	00.000		0000.000	,	3500.	000	30	000.000
									MHZ						
								1	External	1		Distance	1	T	Compared to
	Freq		Amplitu	ide F	actor	Azimuth	Height	Distance	Attenuation	Polarity	Detector	Adjustment	Adjusted	Spec. Limit	Spec.
9	(MHz) 754,546		(dBu) 21.0	0 )	(ав) 15.8	(aegrees) 95.0	(meters) 1.3	(meters) 3.0	(dB) 0.0	H-Horn	AV	(dB) 0.0	36.8	авиv/m 54.0	(dB) -17.2
9	753.708		20.9	)	15.8	106.0	2.5	3.0	0.0	V-Horn	AV	0.0	36.7	54.0	-17.3
7	315.584		21.3	3	13.8	26.0	3.8	3.0	0.0	V-Horn	AV	0.0	35.1	54.0	-18.9
7	316.660		21.3	3	13.8	82.0	1.0	3.0	0.0	H-Horn	AV	0.0	35.1	54.0	-18.9
9	155.618		33.7		15.8	106.0	2.5	3.0	0.0	V-Horn	PK	0.0	49.5	74.0	-24.5
9	100.021 314 811		33.b 34 9	}	13.8	90.U 82 N	1.3 1.0	3.0	0.0	H-Horn	PK	0.0	49.4 48 6	74.0 74.0	-24.0 -25.4
7	316.548		33.9	)	13.8	26.0	3.8	3.0	0.0	V-Horn	PK	0.0	47.7	74.0	-26.3

NC	orthwest			RA	DIAT	ED E	MISS	IONS	DATA	SHE	ET		F	PSA 2006.01.20 EMI 2006.1.20
	E	UT:	Fixed Read	er							W	ork Order:	SUPR005	5
Sei	rial Num	ber:	647									Date:	02/02/06	
	Custor	mer:	GE Security	/ Inc.							Те	mperature:	21	
	Proi	iect:	None								Barom	etric Pres.:	29.98	
	Tested	by:	Holly Ashka	annejhad				Power:	Power over	er e-net	Barom	Job Site:	EV01	
TEST S	SPECIFIC	CATIO	ONS						Test Metho	od				
FCC 1	5.247(d) : PARAME	Spuri	ous Radiat	ed Emiss	ions:2005-§	)			ANSI C63.	4:2003				
Antenr	na Heigh	it(s) (I	<b>n)</b> 1	1 - 4				Test Dista	nce (m)	0				
COMM Hyperl EUT O Transn	ENTS ink Tech PERATIN nitting at	NG M	gies M/N: W ODES channel.	/GEI900-0	001, 8dBi a	antenna. Po	OE Adapte	r powered v	via 120V AC	C Adapter.				
No dev	iations.	ROW	TEST STAL	NDARD										
Run #			4						0					
Config	uration #	#	4				Ilaly 1	Julin/	9					
Result	s		Pas	S		Signature	HOJI							
	80.0													
	70.0 -													
	60.0 -													
Ē	50.0 -													
dBuV/	40.0 -								•			<ul> <li></li> <li></li> </ul>		
	30.0 -								•	• •				
	20.0 -													
	10.0 -													
	0.0													
	10.0	000						100.000					1	000.000
								MHz						
	Freq (MHz)		Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
3	80.039		41.1	2.6	9.0	1.0	0.0	0.0	H-Bilog	QP	0.0	43.7	46.0	-2.3
2	260.020		43.3 43.5	-2.7 -1 2	182.0	2.0 1.2	0.0	0.0	п-віюд H-Bilog	QP QP	0.0	40.6 42.3	43.0 46.0	-2.4 -3.7
2	40.036		40.7	1.6	0.0	1.0	0.0	0.0	H-Bilog	QP	0.0	42.3	46.0	-3.7
2	20.029		44.1	-2.4	87.0	1.5	0.0	0.0	H-Bilog	QP	0.0	41.7	46.0	-4.3
3	80.039		37.2	2.6	221.0	1.4	0.0	0.0	V-Bilog	QP	0.0	39.8	46.0	-6.2
1	40.024		42.9 40.1	-6.6	99.0 143.0	2.2	0.0	0.0	H-Bilog	QP	0.0	36.3	43.0	-6.7 -7 1
2	80.029		39.3	-1.∠ -0.8	143.0	1.5	0.0	0.0	H-Biloa	QP	0.0	38.5	46.0 46.0	-7.5
4	20.042		34.8	3.3	71.0	1.0	0.0	0.0	H-Bilog	QP	0.0	38.1	46.0	-7.9
2	200.027		34.7	-2.7	247.0	1.0	0.0	0.0	V-Bilog	QP	0.0	32.0	43.0	-11.0
4	20.042		31.5	3.3	199.0	3.2	0.0	0.0	V-Bilog	QP	0.0	34.8	46.0	-11.2
3	940.036 980.035		33.U 34 1	1.6 -0.8	233.0	1.4 1.0	0.0	0.0	V-Bilog	QP	0.0	34.6 33 3	46.0 46.0	-11.4 -12 7
2	20.035		35.2	-0.0 -2.4	245.0	1.0	0.0	0.0	V-Biloa	QP	0.0	33.3 32.8	46.0 46.0	-12.7
1	40.026		34.3	-6.6	256.0	1.0	0.0	0.0	V-Bilog	QP	0.0	27.7	43.0	-15.3

Work Order:         SUPROSS           Serial Number:         Work Order:         SUPROSS           Serial Number:         Colspan="2">Suprost           Project:         None         Barcmetric Pres:         20.86           Project:         None         Barcmetric Pres:         20.86           Test Strating         International Strating         Suprostrating Pres:         Suprostrat	NO	RTHWEST		RA	DIAT	ED E	MISS	IONS	DATA	SHE	ET		P	SA 2006.01.20 EMI 200 <u>6.1.20</u>		
Seriel Number:         Date			Fixed Rea	der		20 C				Forn	W	ork Order	SUPR005	5		
Customer:         Temperature:         1:           Project:         None         Baromeric Pres:         21:38           Project:         None         Project:         20:38           Project:         Project:         Project:         20:38           Project:         Project:         Project:         Project:         20:38           Project:         Project:         Project:         Project:         Project:           Project:         Project:         Project:         Project:         Project:           Project:         Project:         Project:         Project:         Project:         Project:           Project:         Project:         Project:         Project:         Project:         Project:         Project:         Project:         Project:         Project:	Ser	ial Number:	647									Date:	02/02/06	-		
Project:         Description         Description <thdescription< th=""> <thdescription< th=""> <t< td=""><td></td><td>Customer: Attendees:</td><td>GE Secur</td><td>ity Inc.</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Ter</td><td>nperature: Humidity</td><td>21</td><td></td></t<></thdescription<></thdescription<>		Customer: Attendees:	GE Secur	ity Inc.							Ter	nperature: Humidity	21			
Tested by[holy Akhannejhad         Power Over e-net         Job Site; [EV01           Tested byc/holy S         Test Machannejhad         Test Machannejhad         Test Machannejhad           PCC 15.47(0) Spurfoux Radiated Emissions:2005-9         MSI CS.4.2003         MSI CS.4.2003           TEST PALRAMETERS         Test Machannejhad         3           Antenna Holph(S) (m)         1 - 4         Test Distance (m)         3           Test Machannejhad         Spanture Attack         3           UDUELTO:         Test Distance (m)         3           Test Machannejhad         Spanture Attack         3           UDUELTO:         Test Distance (m)         3           Test Machannejhad         Spanture Attack         4           UP OPERATING MODES         Test Machannejhad         Spanture Attack           Devision # Attack         Spanture Attack         4           Sound         Spanture Attack         4           Modentions:         6         Spanture Attack           Sound         Spanture Attack         Spanture Attack <td></td> <td>Project:</td> <td>None</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Barome</td> <td>etric Pres.:</td> <td>29.98</td> <td></td>		Project:	None								Barome	etric Pres.:	29.98			
FCC 15.247(d) Spurious Radiated Emissions:2005-9         ANSI C63.4:2003           TEST EXEAMENTERS         14         Test Distance (m)         3           COMMERTS         000/MEATS         3         3           Hyperlink Technologies MR: WGEI900-0001, 8dBi antenna. POE Adapter powered via 120V AC Adapter.         5         3           EUT OPERATING MODES         5         5         5         5           UNITIONS FANDREST STANDARD         Sprature Add MMM         5         5         5           Optimum Statistics         70.0         6	TEST S	Tested by: PECIFICAT	Holly Ash	kannejhad				Power:	Power ove Test Metho	ere-net		Job Site:	EV01			
TEST PARAMETERS           Suprature ## Suprature           Test Parameters           Test Parameters           Test Parameters           Test Parameters           Supraturers	FCC 15	.247(d) Spu	rious Radia	ated Emissi	ons:2005-9	9			ANSI C63.4	4:2003						
Antenna Height(s) (m)         1 - 4         Test Distance (m)         3           Hyperlink Technologies MN: WGEI900-0001, 8dBi antenna. POE Adapter powered via 120V AC Adapter.         EUT OPERATING MODES           EUT OPERATING MODES         Transmitting at set channel.         EUT OPERATING MODES           Vervations.         6         6           No deviations.         70.0         4           70.0         60.0         60.0           60.0         60.0         60.0           50.0         60.0         60.0           50.0         60.0         60.0           60.0         60.0         60.0           50.0         60.0         60.0           60.0         60.0         60.0           90.0         60.0         60.0           90.0         60.0         60.0           90.0         60.0         60.0           90.0         40.0         60.0           90.0         300.0         4000.000         4500.000         5000.000         5000.000           90.0         90.0         4500.000         5000.000         5500.000         6000.000           MHz         10.0         11.0         30.0         4500.000         5000.000	TEST P	ARAMETER	S													
COMMENTS           Hyperlink Technologies MN: WGEI900-0001, 8dBi antenna. POE Adapter powered via 120V AC Adapter.           UT DEEDATING MODES           Transmitting at est channel.           Signature           Signature           Mode stations.           On de stations.           Signature           Mode stations.           Mode stations.           On de stations.           Signature           Mode stations.           On de stations.           Signature           Mode stations.           On de stations.           On de stations.           On de stations.           Signature           Mode stations.           On de stations.           On de stations.           Signature           Mode stations.           On de stations.           On de stations.           Signature           On de stations.           Signature <th <="" colspan="2" td=""><td>Antenn</td><td>a Height(s)</td><td>(m)</td><td>1 - 4</td><td></td><td></td><td></td><td>Test Dista</td><td>nce (m)</td><td>3</td><td></td><td></td><td></td><td></td></th>	<td>Antenn</td> <td>a Height(s)</td> <td>(m)</td> <td>1 - 4</td> <td></td> <td></td> <td></td> <td>Test Dista</td> <td>nce (m)</td> <td>3</td> <td></td> <td></td> <td></td> <td></td>		Antenn	a Height(s)	(m)	1 - 4				Test Dista	nce (m)	3				
UT OPERATING MODES           Transmitting at set channel.           Deprivations.           No deviations.         6           Configuration #         4           Results         Signature ####################################	COMM Hyperli	ENTS nk Technolo	ogies M/N:	WGEI900-0	001, 8dBi a	antenna. Po	DE Adapte	r powered v	ia 120V AC	Adapter.						
Transmitting at set channel.           Distance Area STANDADD           No deviations.           Ron #         6           Configuration #         4           Results         Pass         Signature         Additional           60.0         6         6         6           70.0         6         6         6           60.0         6         6         6           60.0         6         6         6           60.0         6         6         6           60.0         6         6         6         6           60.0         6         6         6         6         6           60.0         6         6         6         6         6         6           60.0         6         6         6         6         6         6         6           70.0         6         7         6         7         6         7	EUT OF	PERATING N	IODES													
DeVINTIONS FROM FEST STANDARD Results Run # Results Run # Run	Transm	itting at set	channel.													
Party B         6           Configuration #         4           Peaks         Signature H45 MMM           Results         Pass           80.0	DEVIAT No dev	IONS FROM	I TEST ST.	ANDARD												
Configuration ar Results         4 Pass         Signature         Hught         Hught         Distance         Adjusted         Signature         Multiple           80.0         70.0         60.0	Run #	lations.		6					2							
Result         Frag         Anginute         Frag         Anginut         Anginut         Anginut	Configu	uration #		4		0.	Holy 1	stight								
80.0	Results	;	P	ass		Signature	/1- 0-									
Freq         Amplitude         Factor         Azimuth         Height         Distance         Adjusted         Spec. Limit         Compared to Spec. (dB)           0.0         <		80.0														
Tree         Amplitude         Factor         Ammutho         External         Pelaity         Detector         Adjusted         Specified         Specified <td></td>																
Freq         Anglitude         Factor         Azimuth         Height         Distance         External         Potarity         Detector         Distance         Adjusted         Spec.         Compared to (dB)           4881.630         34.7         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         41.6         54.0         -12.4           4881.630         34.7         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         41.6         54.0         -12.4           4881.653         34.7         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         38.8         54.0         -12.4           4881.757         31.9         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         38.8         54.0         -12.4           3905.514         27.3         5.7         356.0         1.8         3.0         0.0         H-Horn         AV         0.0         38.8         54.0         -21.0           317.412         27.9         4.1         21.0         1.1         3.0         0.0		70.0														
60.0         60.0 <th< td=""><td></td><td>10.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>		10.0														
Freq         Arrollude         Factor         Azimuth         Height         Distance         Adjusted         Adjusted         Spec. Linit         Compared to Spec.           4881.530         34.7         6.9         21.0         1.1         3.0         0.0         V+Horn         AV         0.0         4.0.0         4.0.0         4.0.0         4.0.0         5.00.000         5500.000         6000.000           MHz         Metabel         Metabel         Distance         Adjusted         Spec. Linit         Compared to Spec.         Compared to GBU/m         Generation         Compared to GBU/m         <																
50.0         60.0 <th< td=""><td></td><td>60.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>		60.0														
Freq         Amplitude         Factor         Azimuth         Height         Distance         Adjusted         Adjusted         Genutr         Compared to           0.0         300.000         3500.000         4000.000         4500.000         5000.000         5500.000         6000.000           0.0         3000.000         3500.000         4000.000         4500.000         5000.000         5500.000         6000.000           MHz         External         Polarity         Detector         Adjustment (dB)         Adjustment dBU//m         Adjustment dBU//m <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td>-</td>									•					-		
Freq         Amplitude         Factor         Azimuth         Height         Distance         Attenuation (dB)         Polarity         Detector         Adjusted         Spec. Limit         Spec. (dB)         Compared to (dB)           4881.520         34.7         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         41.6         54.0         -12.4           4881.526         31.9         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         38.8         54.0         -12.4           4881.576         31.9         6.9         21.0         1.1         3.0         0.0         H-Horn         AV         0.0         38.8         54.0         -12.4           4881.576         31.9         6.9         21.0         1.1         3.0         0.0         H-Horn         AV         0.0         38.8         54.0         -12.4           4881.576         31.9         6.9         21.0         1.1         3.0         0.0         H-Horn         AV         0.0         33.0         54.0         -12.4           4881.776         31.9         6.9         21.0         1.1         3.0		50.0		•					•					_		
Holo         Holo <th< td=""><td><u>ع</u></td><td></td><td></td><td></td><td></td><td>•</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	<u>ع</u>					•										
P         30.0         Image: Constraint of the second seco	_ ≥	40.0				•			•							
30.0         Image: state of the state	dB			•												
20.0         11.1         30.0         0.0         V-Horn         AV         0.0         41.6         54.0         -12.4           4881.576         31.9         6.9         11.0         1.2         3.0         0.0         H-Horn         AV         0.0         38.8         54.0         -17.8           3905.514         27.3         5.7         356.0         1.8         3.0         0.0         H-Hor		30.0		•												
20.0																
Interview         Interview <t< td=""><td></td><td>20.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		20.0														
Incomplexity         Incomplexity<																
Freq (MHz)         Amplitude (dBW)         Factor (dB)         Azimuth (degrees)         Height (meters)         Distance (meters)         External (dB)         Polarity         Detector         Adjusted Adjustment (dB)         Spec. Limit dBUV/m         Compared to Spec. (dB)           4881.676         31.9         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         41.6         54.0         -12.4           4881.576         31.9         6.9         21.0         1.1         3.0         0.0         H-Horn         AV         0.0         38.8         54.0         -15.2           3905.514         27.3         5.7         356.0         1.8         3.0         0.0         H-Horn         AV         0.0         33.0         54.0         -21.0           3905.514         27.3         5.7         356.0         1.8         3.0         0.0         H-Horn         AV         0.0         33.0         54.0         -21.0           3905.514         27.3         5.7         336.0         1.1         3.0         0.0         V-Horn         AV         0.0         32.0         54.0         -21.0           3417.412         27.9         4.1         336.0		10.0														
0.0         3000.000         3500.000         4000.000         4500.000         5000.000         5500.000         6000.000           MHz         MHz         MHz         Distance (dB)         Adjusted (dB)         Adjusted (dB)         Spec. Limit (dB)         Compared to Spec. (dB)           4881.630         34.7         6.9         21.0         1.1         3.0         0.0         H-Horn         AV         0.0         41.6         54.0         -15.2           3905.514         27.3         5.7         356.0         1.8         3.0         0.0         H-Horn         AV         0.0         33.0         54.0         -15.2           3417.433         32.1         4.1         21.0         1.4         3.0         0.0         H-Horn         AV         0.0         36.2         54.0         -17.8           3905.514         27.3         5.7         356.0         1.8         3.0         0.0         H-Horn         AV         0.0         33.0         54.0         -21.0           4881.717         46.1         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         32.0         54.0         -21.0           3417.412 <td< td=""><td></td><td>10.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		10.0														
Image: Note of the second state of the seco		0.0														
Freq (MHz)         Amplitude (dB)         Factor (dB)         Azimuth (degrees)         Height (meters)         Distance (meters)         External (dB)         Polarity (dB)         Detector         Distance Adjustment (dB)         Adjusted dBUV/l         Spec. Limit dBUV/l         Compared to Spec. (dB)           4881.630         34.7         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         41.6         54.0         -12.4           4881.576         31.9         6.9         11.0         1.2         3.0         0.0         H-Horn         AV         0.0         36.2         54.0         -15.2           3417.433         32.1         4.1         21.0         1.4         3.0         0.0         H-Horn         AV         0.0         36.2         54.0         -17.8           3905.514         27.3         5.7         356.0         1.8         3.0         0.0         H-Horn         AV         0.0         33.0         54.0         -21.0           4881.717         46.1         6.9         1.1         3.0         0.0         V-Horn         AV         0.0         32.0         54.0         -21.0           3417.412         27.9         4.1		3000 000	) )	3500.000		4000 000		4500 000	5		55	500.000	60			
Freq (MHz)         Amplitude (dB)         Factor (dB)         Azimuth (degrees)         Height (meters)         Distance (meters)         External Attenuation (dB)         Polarity         Detector         Adjustment (dB)         Adjusted (dB)         Spec. Limit (dB)         Compared to Spec. (dB)           4881.630         34.7         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         41.6         54.0         -12.4           4881.676         31.9         6.9         11.0         1.2         3.0         0.0         H-Horn         AV         0.0         38.8         54.0         -15.2           3417.433         32.1         4.1         21.0         1.4         3.0         0.0         H-Horn         AV         0.0         36.2         54.0         -15.2           3417.433         32.1         4.1         21.0         1.4         3.0         0.0         H-Horn         AV         0.0         36.2         54.0         -21.0           4881.717         66.1         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         32.0         54.0         -22.0           3905.343         23.5         5.7 <td></td> <td>3000.000</td> <td>)</td> <td>3300.000</td> <td></td> <td>4000.000</td> <td>·</td> <td>4300.000</td> <td>5</td> <td>000.000</td> <td>00</td> <td>00.000</td> <td>00</td> <td>00.000</td>		3000.000	)	3300.000		4000.000	·	4300.000	5	000.000	00	00.000	00	00.000		
Freq (MHz)         Amplitude (dBWV)         Factor (dB)         Azimuth (degrees)         Height (meters)         Distance (dB)         External Attenuation (dB)         Polarity (dB)         Detector         Distance Adjustment (dB)         Adjusted BuV/m         Spec. Limit BuV/m         Compared to Spec. (dB)           4881.630         34.7         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         41.6         54.0         -12.4           4881.576         31.9         6.9         11.0         1.2         3.0         0.0         H-Horn         AV         0.0         38.8         54.0         -15.2           3417.433         32.1         4.1         21.0         1.4         3.0         0.0         H-Horn         AV         0.0         36.2         54.0         -15.2           3417.433         32.1         4.1         21.0         1.4         3.0         0.0         H-Horn         AV         0.0         36.2         54.0         -12.4           4881.717         46.1         6.9         21.0         1.1         3.0         0.0         V-Horn         AV         0.0         32.0         54.0         -22.0               3417.412         27.9								WITZ								
Height         Plagint         Distance         Autoantient         Plagint         Distance         Autoantient         Autoantient<		Frog	Amplitudo	Factor	Azimuth	Hoight	Distance	External	Polority	Datastar	Distance	Adjusted	Spool limit	Compared to		
4881.630       34.7       6.9       21.0       1.1       3.0       0.0       V-Horn       AV       0.0       41.6       54.0       -12.4         4881.576       31.9       6.9       11.0       1.2       3.0       0.0       H-Horn       AV       0.0       38.8       54.0       -15.2         3417.433       32.1       4.1       21.0       1.4       3.0       0.0       H-Horn       AV       0.0       38.8       54.0       -15.2         3905.514       27.3       5.7       356.0       1.8       3.0       0.0       H-Horn       AV       0.0       36.2       54.0       -17.8         3905.514       27.3       5.7       356.0       1.8       3.0       0.0       H-Horn       AV       0.0       33.0       54.0       -21.0         4881.717       46.1       6.9       21.0       1.1       3.0       0.0       V-Horn       PK       0.0       53.0       74.0       -21.0         3417.412       27.9       4.1       336.0       1.1       3.0       0.0       V-Horn       AV       0.0       29.2       54.0       -24.8         4881.876       42.2       6.9	(	MHz)	(dBuV)	(dB)	(degrees)	(meters)	(meters)	(dB)	rolanty	Detector	(dB)	dBuV/m	dBuV/m	(dB)		
3401.376       31.9       0.9       11.0       1.2       3.0       0.0       110111       AV       0.0       36.5       34.0       10.2         3417.433       32.1       4.1       21.0       1.4       3.0       0.0       H-Horn       AV       0.0       36.2       54.0       -17.8         3905.514       27.3       5.7       356.0       1.8       3.0       0.0       H-Horn       AV       0.0       33.0       54.0       -21.0         4881.717       46.1       6.9       21.0       1.1       3.0       0.0       V-Horn       PK       0.0       53.0       74.0       -21.0         3417.412       27.9       4.1       336.0       1.1       3.0       0.0       V-Horn       AV       0.0       32.0       54.0       -22.0         3905.343       23.5       5.7       343.0       1.1       3.0       0.0       V-Horn       AV       0.0       29.2       54.0       -24.8         4881.876       42.2       6.9       11.0       1.2       3.0       0.0       H-Horn       PK       0.0       49.1       74.0       -24.9         3417.412       43.4       4.1       <	48	81.630	34.7	6.9	21.0	1.1	3.0	0.0	V-Horn	AV	0.0	41.6	54.0	-12.4		
3905.514       27.3       5.7       356.0       1.8       3.0       0.0       H-Horn       AV       0.0       33.0       54.0       -21.0         4881.717       46.1       6.9       21.0       1.1       3.0       0.0       V-Horn       PK       0.0       53.0       74.0       -21.0         3417.412       27.9       4.1       336.0       1.1       3.0       0.0       V-Horn       AV       0.0       32.0       54.0       -22.0         3905.343       23.5       5.7       343.0       1.1       3.0       0.0       V-Horn       AV       0.0       29.2       54.0       -22.0         3905.343       23.5       5.7       343.0       1.1       3.0       0.0       V-Horn       AV       0.0       29.2       54.0       -24.8         4881.876       42.2       6.9       11.0       1.2       3.0       0.0       H-Horn       PK       0.0       49.1       74.0       -24.9         3417.412       43.4       4.1       21.0       1.4       3.0       0.0       H-Horn       PK       0.0       44.6       74.0       -24.5         3905.381       38.9       5.7	34	17.433	31.9	4.1	21.0	1.2	3.0	0.0	H-Horn	AV	0.0	36.2	54.0	-17.8		
4881.777       40.1       6.9       21.0       1.1       3.0       0.0       V-Horn       PK       0.0       53.0       74.0       -21.0         3417.412       27.9       4.1       336.0       1.1       3.0       0.0       V-Horn       AV       0.0       32.0       54.0       -22.0         3905.343       23.5       5.7       343.0       1.1       3.0       0.0       V-Horn       AV       0.0       29.2       54.0       -24.8         4881.876       42.2       6.9       11.0       1.2       3.0       0.0       H-Horn       PK       0.0       49.1       74.0       -24.9         3417.412       43.4       4.1       21.0       1.4       3.0       0.0       H-Horn       PK       0.0       47.5       74.0       -26.5         3905.381       38.9       5.7       356.0       1.8       3.0       0.0       H-Horn       PK       0.0       44.6       74.0       -29.4         3417.318       38.3       4.1       336.0       1.1       3.0       0.0       V-Horn       PK       0.0       42.4       74.0       -31.6	39	05.514	27.3	5.7	356.0	1.8	3.0	0.0	H-Horn	AV	0.0	33.0	54.0	-21.0		
3905.343         23.5         5.7         343.0         1.1         3.0         0.0         V-Horn         AV         0.0         29.2         54.0         -24.8           4881.876         42.2         6.9         11.0         1.2         3.0         0.0         H-Horn         PK         0.0         49.1         74.0         -24.9           3417.412         43.4         4.1         21.0         1.4         3.0         0.0         H-Horn         PK         0.0         47.5         74.0         -26.5           3905.381         38.9         5.7         356.0         1.8         3.0         0.0         H-Horn         PK         0.0         44.6         74.0         -29.4           3417.318         38.3         4.1         336.0         1.1         3.0         0.0         V-Horn         PK         0.0         42.4         74.0         -31.6	48 34	17.412	46.1 27.9	о.9 4.1	∠1.0 336.0	1.1	3.0 3.0	0.0	v-Horn V-Horn	AV	0.0	53.0 32.0	74.0 54.0	-21.0 -22.0		
4001.070         42.2         0.9         11.0         1.2         3.0         0.0         H-Horn         PK         0.0         49.1         74.0         -24.9           3417.412         43.4         4.1         21.0         1.4         3.0         0.0         H-Horn         PK         0.0         47.5         74.0         -26.5           3905.381         38.9         5.7         356.0         1.8         3.0         0.0         H-Horn         PK         0.0         44.6         74.0         -29.4           3417.318         38.3         4.1         336.0         1.1         3.0         0.0         V-Horn         PK         0.0         42.4         74.0         -31.6	39	05.343	23.5	5.7	343.0	1.1	3.0	0.0	V-Horn	AV	0.0	29.2	54.0	-24.8		
3905.381 38.9 5.7 356.0 1.8 3.0 0.0 H-Horn PK 0.0 44.6 74.0 -29.4 3417.318 38.3 4.1 336.0 1.1 3.0 0.0 V-Horn PK 0.0 42.4 74.0 -31.6	48 34	81.876 17.412	42.2 43.4	6.9 4.1	11.0 21.0	1.2 1.4	3.0 3.0	0.0 0.0	H-Horn H-Horn	PK PK	0.0 0.0	49.1 47.5	74.0 74.0	-24.9 -26.5		
3417.318 38.3 4.1 336.0 1.1 3.0 0.0 V-Horn PK 0.0 42.4 74.0 -31.6	39	05.381	38.9	5.7	356.0	1.8	3.0	0.0	H-Horn	PK	0.0	44.6	74.0	-29.4		
3905.946 35.8 5.7 343.0 1.1 3.0 0.0 V-Horn PK 0.0 41.5 74.0 -32.5	34 39	17.318 05.946	38.3 35.8	4.1 5.7	336.0 343.0	1.1 1.1	3.0 3.0	0.0 0.0	V-Horn V-Horn	PK PK	0.0 0.0	42.4 41.5	74.0 74.0	-31.6 -32.5		

NORTHWEST			R	ΔΠΔΤ	FDE	MISS	ONS	ΠΔΤΔ	SHE	FT		P	SA 2006.01.20 EMI 20 <u>06.1.20</u>
EMC								BAT	FOL				-
Serial Num	EUT:	Fixed Read	ier							W	ork Order: Date:	SUPR005	5
Custo	mer:	GE Securit	y Inc.							Ten	nperature:	21	
Attend	lees:	None	-								Humidity:	37%	
Pro	ject:	None	anneller				Deves	Dower and		Barome	etric Pres.:	29.98	
TEST SPECIFI	CATI		annejnac	л 			Power:	Test Metho	d d		JOD SITE:	2001	
FCC 15.247(d)	Spur	ious Radia	ted Emis	sions:2005-9				ANSI C63.	4:2003				
TEST PARAM	TER	S											
Antenna Heigh	nt(s) (	(m)	1 - 4				Test Dista	nce (m)	3				
COMMENTS													
Hyperlink Tech	nnolo	gies M/N: V	VGE1900-	•0001, 8dBi a	ntenna. Po	OE Adapte	r powered v	ria 120V AC	CAdapter.				
	NG N	IODES											
DEVIATIONS F	ROM	channel. TEST STA	NDARD										
No deviations.													
Run #		7						0					
Configuration	#	4		4	Cionatura	Holy 1	Sterph	シ					
Results		Pa	33		Signature	11-01	-						
80.0 -													
													$\rightarrow$
70.0 -													
60.0 -													_
50.0													
40.0 -													
qE					•								
30.0 -													
20.0 -													_
10.0 -													
0.0 -													_
6000	0.000	6500	.000	7000.000	7500	.000 8	8000.000	8500.0	90 90	000.000	9500.0	00 10	000.000
							MHz						
		1				T	External			Distance		I	Compared to
Freq		Amplitude	Factor	Azimuth	Height (meters)	Distance (meters)	Attenuation (dB)	Polarity	Detector	Adjustment	Adjusted	Spec. Limit	Spec. (dB)
9756.144		21.1	15.8	16.0	1.3	3.0	0.0	H-Horn	AV	0.0	36.9	54.0	-17.1
9755.898		21.0	15.8	38.0	2.4	3.0	0.0	V-Horn	AV	0.0	36.8	54.0	-17.2
7316.467		21.3	13.8	128.0	1.3	3.0	0.0	V-Horn	AV	0.0	35.1	54.0	-18.9
7316.641		21.3	13.8 15 9	348.0	1.0	3.0	0.0	H-Horn	AV DV	0.0	35.1	54.0	-18.9
9754.204 9754 608		33.6	15.8	38.0	1.3	3.0	0.0	V-Horn	PK	0.0	50.2 49.4	74.0 74.0	-23.8 -24 fi
7315.933		34.4	13.8	128.0	2. <del>4</del> 1.3	3.0	0.0	V-Horn	PK	0.0	48.2	74.0	-25.8
7317.039		33.8	13.8	348.0	1.0	3.0	0.0	H-Horn	PK	0.0	47.6	74.0	-26.4











## **AC Powerline Conducted Emissions**

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

#### MODES OF OPERATION

NORTHWEST

EMC

Transmitting fixed frequency.

#### POWER SETTINGS INVESTIGATED

Power over e-net (POE Adapter powered via 120VAC Adapter)

#### SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator	Tektronix	011-0059-02	ATC	12/19/2005	13
High Pass Filter	T.T.E.	7766	HFG	1/17/2005	13
Spectrum Analyzer	Agilent	E4443A	AAS	12/8/2005	12
LISN	Solar	9252-50-R-24-BNC	LIQ	12/13/2005	13
LISN	Solar	9252-50-R-24-BNC	LIR	12/13/2005	13

MEASUREMEN	T BANDWIDTHS			
	Frequency Range	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Ν	leasurements were made us	ing the bandwidths and dete	ctors specified. No video filt	er was used.

#### MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

#### TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the set channel in the operational band. The EUT was transmitting at its maximum data rate. The AC power line conducted emissions were also measured with the EUT in normal operating mode. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.4-2003.

	THWEST	A	C Powerl	ine <u>Co</u> r	nducte	ed Em	issio	ns		PS	SA 2006.02.03 EMI 2006.1.20
	EUT	Fixed Reader						Work	Order:	SUPR0055	5
Seria	I Number	: 647							Date:	02/06/06	
	Lustomer	IGE Security Inc.						Temp	erature: Imidity:	21 37%	
Ĺ	Project	: None						Barometri	c Pres.:	29.98	
	Tested by	Holly Ashkannejhad	1		Power:	Power ove	er e-net	J	ob Site:	EV11	
TEST SP	ECIFICA	IIONS	missions:2005-9			ANSI C63	4.2003				
FGC 13.2			1115510115.2003-9			ANSI COS.	4.2003				
Cable or	Line Test	red N									
COMME	NTS										
Hyperlin	k Technol	logies M/N: WGEI900	0002, 14dBi anten	na. POE Adapt	er powered	via 120VA	C, 60Hz AC	Adapter.			
EUT OPE	RATING	MODES									
Transmit	tting fixed	frequency.									
DEVIATION No. dovio	ONS FRO	M TEST STANDARD									
Run #		7				<u>`</u>					
Configur	ation #	1	]	Hale h	high	/					
Results		Pass	Signa	nture 70 - 7	/						
	20										
8											
7	'0										
6											
5	io ——								_		
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0											
3	0										
				dhu 👘							
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	0										
	0.1		1				10				100
					MHz						
E	rea	Amplitude	Transc	lucer Cable	External		Detector	,	Adjusted	Spec Limit	Compared to
	IHz)	(dBuV)	(dE	3) (dB)	(dB)		(blank equal peaks		dBuV	dBuV	(dB)
Ĺ	-						p og som sean)		40.0		
0.	514 489	22.9 23.0	0.0	ບ 0.3 ດ ດ.3	20.0				43.2 43.3	46.0 46.2	-2.8 -2 9
0.	653	21.3	0.0	0 0.3	20.0				41.6	46.0	-4.4
0.	431	20.3	0.0	0 0.3	20.0				40.6	47.2	-6.7
0.	401 784	20.1	0.0	U 0.3	20.0				40.4 37 4	47.8	-7.5
0.	288	21.7	0.0	0 0.3	20.0				41.9	40.0 50.6	-8.6
0.	584	17.0	0.0	0 0.3	20.0				37.3	46.0	-8.7
0.	955	16.9	0.0	0 0.4	20.0				37.3	46.0	-8.7
0. 0	రంచ 183	16.8 25.2	0.0	0 0.4 0 0.2	20.0				37.2 45.4	46.0 54 4	-8.8 -8.9
0.	190	24.4	0.0	0 0.2	20.0				44.6	54.0	-9.4
0.	314	20.0	0.0	0 0.2	20.0				40.2	49.9	-9.6
0.	358 835	18.9 15 5	0.0	U 0.3	20.0				39.2	48.8	-9.6
0.	241	21.6	0.0	0 0.4	20.0				41.8	40.0 52.1	-10.1
0.	675	14.8	0.0	0 0.3	20.0				35.1	46.0	-10.9
0.	263	20.0	0.0	0 0.2	20.0				40.2	51.3	-11.1
0.	995	14.2	0.0	u 0.4	20.0				34.6	46.0	-11.4

			A	C Pov	verlin	e Col	nduct	ed	Emi	ssio	ns		P	SA 2006.02.03 EMI 2006.1.20
	EUT:	Fixed Rea	der								W	ork Order	SUPR005	5
Serial	Number:	647	_									Date	02/06/06	
	istomer:	GE Securi	ty Inc.								Tei	nperature Humidity	37%	
	Project:	None									Barom	etric Pres.	29.98	
Te TEST SPE	ested by:	Holly Ash	kannejhad				Power	: Powe	er over	e-net		Job Site	EV11	
FCC 15.20	7 AC Po	werline Cor	nducted En	nissions:20	005-9			ANS	C63.4:	2003				
Cable or L	ine Teste	ed s	11											
COMMENT	ſS		E !											
Hyperlink	Technol	ogies M/N:	WGE1900-0	002, 14dBi	i antenna. F	OE Adap	ter powere	d via 1	20VAC	60Hz A0	C Adapter.			
EUT OPER		IODES												
Transmitti	ng fixed	frequency.												
DEVIATION No deviation	NS FROM	I TEST ST	ANDARD											
Run #			8					~						
Configurat	tion #		1			11 lus	sligh	9						
Results		Pa	ISS		Signature	PTO J	· /							
80														
00														
70														
60														
		_												
50														
~		Ν.						_						
<b>n</b> 40		/M_M	1		_									
Б		11111			411									
30														
		-MV	با ما ا					u			الملطب بالملية			
20		• • • • •	ՠՠՠՠ	<u>"''W''W''</u>	TTY WY HAVA			and the set	, se de la	liate da car	an ta sa an			
						a le caraci	d an a data ta	and a st	-defined	par be davi	upper physical	a la calendaria de la c		
10														
10					-									
0														
	0.1				1					10				100
							MH7							
<u> </u>							External		Т					Compared to
Fre	q	Amplitude			Transducer	Cable	Attenuation	ı		Detector		Adjusted	Spec. Limit	Spec.
(MH	z)	(UBUV)			(UD)	(UB)	(UB)			[PK] from scan)		ubuv	ubuv	(ub)
0.47	78	23.1			0.0	0.3	20.0					43.4	46.4	-3.0
0.60	)9 )1	22.5			0.0	0.3	20.0					42.8	46.0	-3.2
0.65	53	20.7			0.0	0.3	20.0					41.0	46.0	-5.0
0.46	63	20.2			0.0	0.3	20.0					40.5	46.6	-6.2
0.49	96	19.1			0.0	0.3	20.0					39.4	46.1	-6.7
0.70	)4 31	18.3			0.0	0.3	20.0					38.6 38.0	46.0 46.0	-7.4 -8.0
0.86	64	17.2			0.0	0.4	20.0					37.6	46.0	-8.4
0.92	26	16.9			0.0	0.4	20.0					37.3	46.0	-8.7
0.19	94 16	24.9			0.0	0.2	20.0					45.1 44.2	53.9 53.0	-8.8 _8.8
0.2	21	24.0 16.8			0.0	0.2	20.0					44.∠ 37.2	46.0	-0.0 -8.8
0.84	12	16.2			0.0	0.4	20.0					36.6	46.0	-9.4
0.27	70	21.0			0.0	0.2	20.0					41.2	51.1	-9.9
0.23	37 32	21.7 18 3			0.0	0.2 0.2	20.0 20.0					41.9 38.5	52.2 49 4	-10.3 -10 8
0.34	18	20.7			0.0	0.2	20.0					40.9	51.8	-10.9
0.72	29	11.5			0.0	0.3	20.0					31.8	46.0	-14.2



AC Powerline Conducted Emissions





## AC Powerline Conducted Emissions

