

# **MEASUREMENT AND TECHNICAL REPORT**

BOSCH SECURITY SYSTEMS 130 Perington Parkway Fairport, NY 14450

**DATE: 08 March 2006** 

This Report Concerns:	Original Grant: X	,	Class I	I Change:
Equipment Type:	ISC-PDL1-W180	G PIR and Mi	icrowave Com	nmercial Detector
Deferred grant requested per 47 0.457(d)(1)(ii)?	CFR	Yes: Defer until	:	No: X
Company Name agrees to notify Commission by: of the intended date of announc date.		N/A duct so that	t the grant ca	n be issued on that
Transition Rules Request per 15	.37? Yes:	N	o: X*	
(*) FCC Part 15, Paragraph(s) <b>15.2</b> (*) Canadian Standard(s) <b>RSS-210</b>		SS-Gen 4.4.	1	
Report Prepared b	y:	San Diego Phone: 858	a Rim Road , CA 92121-2	912



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## 1.0 GENERAL INFORMATION

## 1.1 Product Description

General Equi	pme	ent	Desc	ript	ion																
EUT Description	on:	-	PIR	and	d Mi	crowave Comm	ercial Detect	or													
EUT Name:			ISC	-PD	L1-\	N18G															
Model No.:			San	Same Serial No.:																	
Product Option	าร:				_																
Configurations be tested:	an	d m	odes	to		Alarm, Standby	for FCC, IC	& CE compliar	nce.												
EUT Specific	atio	ns																			
Length 136 r	mm			W	idth:	69 mm	Height	58 mm	Weight:												
Power Require European power is	rem s typ	ent:	<b>s</b> (Re / 230	gulat VAC	tions 50 H	require testing to be z or 400 VAC 50 H.	e performed at ty z, single and thre	vpical power rating ee phase, respecti	gs in the countrie: ively))	s of inte	nded us	se. (i	i.e.,								
Voltage: # of Phases: Current (Amps	1	V/A	5 VD0		< 2	(If b:		make sure battery Amps/phase(n				ng.)									
<b>EUT Power C</b>	abl	е																			
Permane Shielded Not Appli		C	OR OR		U	emovable Inshielded ength (in meter	s):														
EUT Interface	Po	rts	and	Cak	oles																
Interf	ace					Shielding	3		_		1										
Туре	Analog	Digital	Qty	Yes	Š	Type	Termination	Connector Type	Port Termination	on	Length (in meters)	Removable	Permanent								
EXAMPLE: RS232	Х		2	Х		Foil over braid	Coaxial	Metallized 9- pin D-Sub	Characteristic Impedance		6	Х									
											Length (in meters)  Removable Removable										



**EUT Operating Modes to be Tested --** list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing.

Standby, Alarm	1										
EUT System C required. (i.e. Mo									test	ing a minimum	configuration is
Description					Mode	l #		Sei	rial #	ŧ	FCC ID#
Support Equip	mer	<b>1t</b> Lis			EUT sup			. perip			tc)
Description			Λ	/lodel #			Serial #		FCC	C ID #	
Oscillator Free								1			
_		rived		_							
Frequency	<i>Fre</i>	quenc	y C	Compone	ent # / L	Loca	ition	De	scrip	otion of Use	
			l					l			
Power Supply											
Manufacturer		Mode	l #	Seria	al#		Туре				
DC Powered							Switched			(Frequency	·)
							Linear:	Othe	r:		
Power Line Fil	ters										
Manufacturer			Model	<b> </b> #			Location in	EUT			
Critical EMI Co	ompo	onents	(Capa	citors, fe	errites,	etc.	)				
Description			Manut	facturer		Par	t # or Value	Qty		Component #	#/Location
EMC Critical D	etail	l Des	cribe oth	her EMC D	esign d	letails	s used to reduce	high f	reque	ency noise.	



#### 1.2 Related Submittal Grant

None

## 1.3 Tested System Details

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

None

## 1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the following tests.

		Test Summary			
			Summary of Results	3	
Test Description	Paragraph Number	Low Channel	Mid Channel	High Channel	Pass/Fail
			Permanently		
Antenna Requirment	15.203		attached		Pass
	15.245 /		-8.76 @ 52625		
Field Strength	RSS-210, Annex 7		-0.70 @ 32023 MHz		Pass
	15.245(b) /				
Bandwidth	RSS-Gen 4.4.1		750 kHz		Pass
			No Emissions		
Radiated Emissions	15.245(b)		Detected		Pass

Testing was performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8-M1983.

Report No. SC601036-08B



## 1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV AMERICA, INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 Fax: 858 546 0364

The Test Site Data and performance comply with ANSI C63.4 and are registered with the FCC, 7435 Oakland Mills Road, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.



#### 2.0 SYSTEM TEST CONFIGURATION

## 2.1 Justification

The EUT was initially tested for FCC emissions in the following configuration:

See Test Setup Photos Exhibit

#### 2.2 EUT Exercise Software

None

#### 2.3 Special Accessories

None

## 2.4 Equipment Modifications

None

## 2.5 Configuration of Test System

See Test Setup Photos Exhibit



# 3.0 FIELD STRENGTH EQUIPMENT/DATA BANDWIDTH AND BANDEDGE EQUIPMENT/DATA RADIATED EMISSIONS EQUIPMENT/DATA

Test Conditions: FIELD STRENGTH: FCC Part 15.245 and RSS-210, Annex 7

BANDWIDTH: FCC Part 15.245(b) and RSS-Gen 4.4.1

**RADIATED EMISSIONS: FCC Part 15.245(b)** 

The following measurements were performed at the San Diego Testing Facility:

☐ - Test not applicable

■ - Roof (Small Open Area Test Site)

#### **Test Equipment Used:**

Model No.	Prop. N	o. Description	Manufacturer	Serial No.	Date Cal'ed
12A-18-115300	6377	Horn Antenna	MI Technologies	21554MB	Verified
E4446A	6823	Spectrum Analyzer	Agilent	US44300486	04/05
3115	6475	Double Ridged Waveguide Antenna	EMCO	9908-5927	06/05
12A-26	6373	Horn Antenna	Scientific Atlanta	490	Verified
LPB 2520/A	739	Antenna, Bilog	Antenna Research	1170	07/05
ESVS 30	6723	EMI Test Receiver	Rhode & Schwarz	830350/006	03/05

**Remarks:** One year calibration cycle for all test equipment and sites.

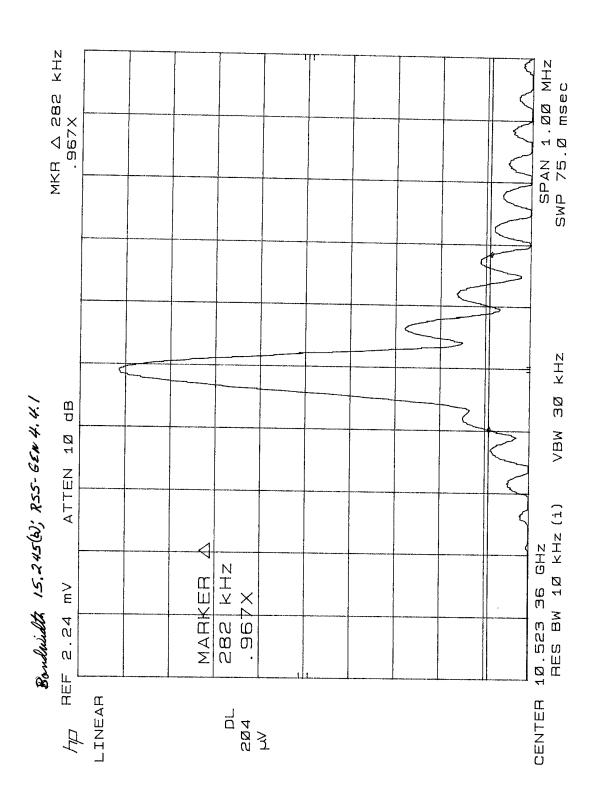


## FIELD STRENGTH: FCC Part 15.245 and RSS-210, Annex 7

	Notes	Notes	Notes	Notes ambient	Notes ambient ambient ambient	Notes ambient ambient ambient ambient ambient
	Antenna Height	Antonna Height	Antenna Height	Antenna Height	Antonna Height	Antonna Height
	Height	Height EUT Rotation	Height   Hei	Height Company	Height 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Height EUT COOO OO O
below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss	MARGIN av	MARGIN av 40 4	MARGIN av 40 40 4	MARGIN av -40 -4 -40 -40 -8 -35 -35 -35 -35 -35 -35 -35 -35 -35 -35	MARGIN MARGIN 14B) av 40 40 40 19.5 -15	MARGIN AVG  MARGIN  AV  -40 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4
below Toriz, Now we be now hiz for h, Now Took iz ally bely Toriz. CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss	SPEC LIMIT (dBuV/m)	SPEC LIMIT (dBuV/m) pk av 1148.0 128	spec LIMIT (dBuV/m) pk av pk av 48.0 128	SPEC LIMIT (dBu/m) pk av 148.0 128 17.5 77.5 77.5 77.5 77.5 77.5 77.5 77.5	SPEC LIMIT (dBuV/m) pk av 148.0 128 77.5 77.5 97.5 77.5 97.5 77.5	(dBuV/m) pk av
	LEVEL uV/m) av		EVEL //m) av 88 1	EVEL //m) av 88 1 38.3 5.1.2	/(m) av av 88 1 38.3 551.2 58 58	EVEL //m) av av 88 1 1 51.2 6 59.2 6 59.2
	NTAL CF (dB/m) av					
HODIZONTAL	(dBuv) pk av	(dBuv) pk a 48.0 28	(dBuv)	(dBuv) pk a 48.0 28 24.9 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	(dBuv) pk a 48.0 28 24.9 4 4 31.9 111	(dBuv) pk a a b c c c c c c c c c c c c c c c c c
VERTICAL	av pk	, 68	, [8]	39.6 39.6 5.8	99.6 39.6 5.8 15.2 17.7	39.6 39.6 5.8 15.2 17.7
VERT (dBuv)	,	9.69	29.6	, 59.6 25.8 35.2	59.6 59.6 25.8 35.2 37.7	25.8 35.2 38.2
FREQ (MHz)		0525	10525	10525 10525 21050 31576	10525 21050 31576 42101	10525 21050 31576 42101 52625

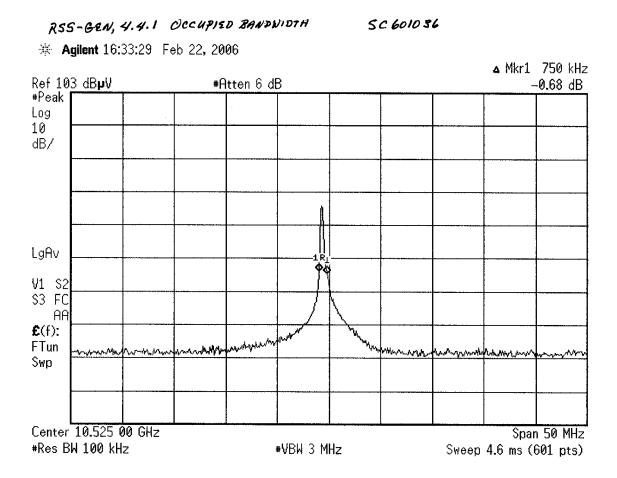


## BANDWIDTH: FCC Part 15.245(b) and RSS-Gen 4.4.1



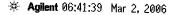


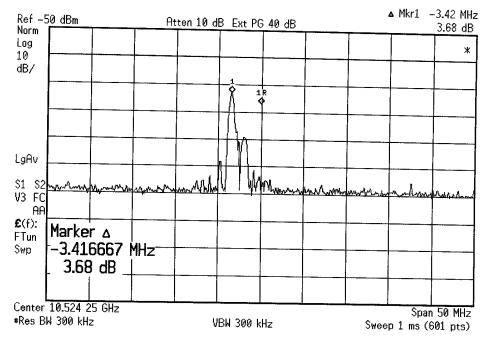
## BANDWIDTH: FCC Part 15.245(b) and RSS-Gen 4.4.1





### **BANDEDGE**





Frequency Range of operation:

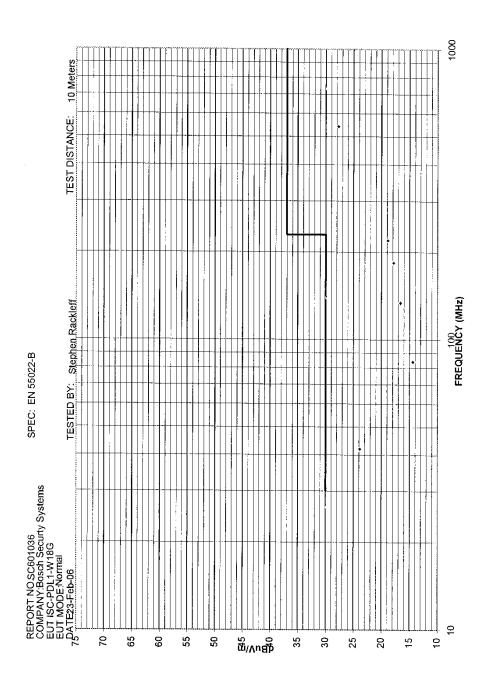
10. 52089 GHZ -> 10. 52535 GHZ

4.46 MHZ

23°c Return Cycle

Plat 5



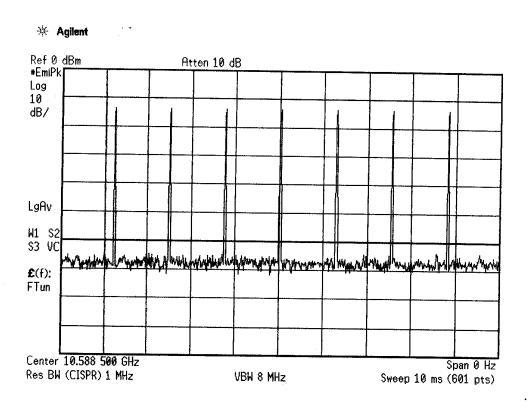




## RADIATED SPURIOUS EMISSIONS: FCC Part 15.245(b)

									NOTE													=							
										ambient only				:															
								ver 1.9	ANTENNA HEIGHT (meters)	1	1		1	_	-											-			
B									EUT EUT MARGIN ROTATION (dB) (degrees)	0	0	0	0	0	0														
SPEC: EN 55022-B	10 Meters	-	739	739	6723			ll		-6.1	-15.6	-13.4	-12.1	-11.1	6.9														
SPEC	TEST DIST: 10 Meters	TEST SITE	BICONICAL	LOG PERIODIC;	RCVR.				SPECIFIED LIMIT (dBuV/m)	30	99	30	30	30	37														
					dwidth.		51	į	MAXIMUM CORRECTE D (dBuV/m)	23.9	14.4	16.6	17.9	18.9	27.7					-						_			
				Stephen Rackle	asurement ban		Relative Humidity:		CORRECTIO N FACTOR (dB/m)	18.9	10.4	12.6	12.9	14.9	24.7														-
	y Systems	W18G		TESTED BY: Stephen Rackleff	Quasi-Peak with 120 KHz measurement bandwidth.		11	dB at 42 MHz	VERTICAL HORIZONTAL measured measured (dBuv) (dBuV)	1	1	-3	3	2	1.5									-					
SC601036	CUSTOMER: Bosch Securty Systems	ISC-PDL1-W18G	Normal	23-Feb-06	Quasi-Peak w	12Vac	Temperature:	-6.1		2	4	4	5	4	8														
REPORT No: SC601036	CUSTOMER:	EUT	EUT MODE: Normal	DATE	NOTES:			EUT MARGIN	FREQUENC Y (MHz)	42.00	84.00	134.00	184.00	220,00	542.00														





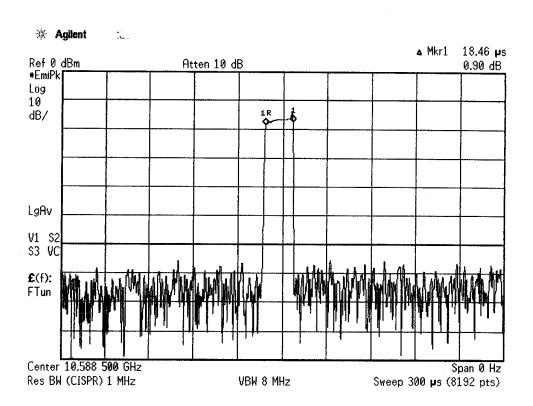
1845×7 10 m5 0.0126

Duty Cycle Correction per Fac 15:35

10 Log (0.0126) = -37.99

20 dB Max allowance







#### 4.0 ATTESTATION STATEMENT

**GENERAL REMARKS:** 

## **SUMMARY:**

All tests were performed per: CFR 47, Part(s) 15.203 and 15.245

Canadian Standard(s) RSS-210, Annex 7 and RSS-Gen 4.4.1

■ - Performed

The Equipment Under Test

■ - Fulfills the requirements of: CFR 47, Part(s) 15.203 and 15.245

Canadian Standard(s) RSS-210, Annex 7 and RSS-Gen 4.4.1

Testing Start Date: 22 February 2006

Testing End Date: 23 February 2006

- TÜV AMERICA, INC. -

Reviewing Engineer:

Chuck Rickard

(EMC Engineer)

Test Engineer:

**David Gray** 

(EMC Engineer-In-Charge)

Juil U Jus