HERMON LABORATORIES

ELECTRICAL TESTING
0839.01

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TEST REPORT

ACCORDING TO: EN 50131-2-2:2008; EN 50131-1:2006+A1:2009

FOR:

Paradox Security Systems Ltd.

EUT: PIR Detectors

Models:

1) NVR35M

2) NV35M

3) NV35MX

Report ID: PARIAS_EN50131-2-2.26142_rev1
Date of Issue: 1-Jul-15

Table of contents

1 Applicant information

Client name:	Paradox Security Systems Ltd.
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E-mail:	nimrodh@paradox.com
Contact name:	Mr. Nimrod Herman

2 Equipment under test attributes

Num	Model Name	Hardware version	Software release
1	NVR35M	480-5005-000	V0.01
2	NV35M	480-6006-000	V0.01
3*	NV35MX	480-6006-000	V0.01

*Note: Worst case tested (most populated version NV35M)

Condition of equipment:	Test samples
Receipt date	24-Sep-14

3 Manufacturer information

Manufacturer name:	Paradox Security Systems Ltd.
Address:	780 INDUSTRIAL BLVD ST-EUSTACHE, QC, CANADA J7R 5V3
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4 Test details

Project ID:	26142
Location:	Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel
Test started:	24-Sep-14
Test completed:	26-May-15
Test specification(s):	EN50131-2-2:2008; EN 50131-1:2006+A1:2009

5 EUT description

5.1 General information

The Equipment Under Test (EUT) are Security Grade 3 and 2, Environmental Class IV two wired and respectively one wireless PIR motion detectors.

The EUT are presented in Photographs 5.1.1

Photograph 5.1.1

Wireless PIR detector NVR35M general view

Photograph 5.1.2

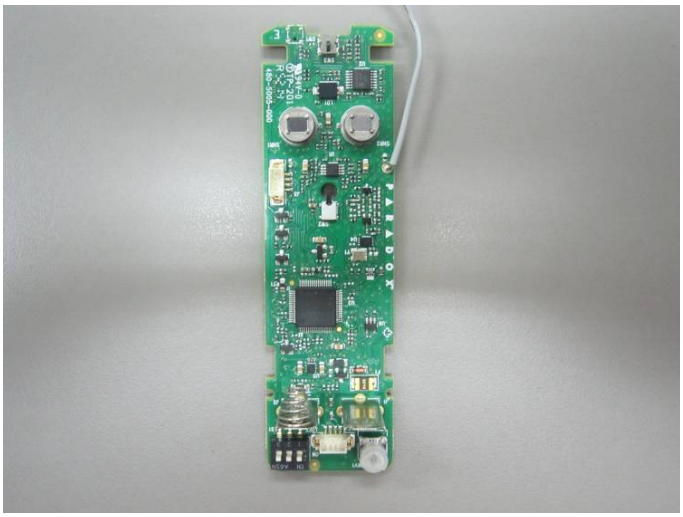
Wireless PIR detector NVR35M rear view

Photograph 5.1.3

Wireless PIR detector NVR35M internal view

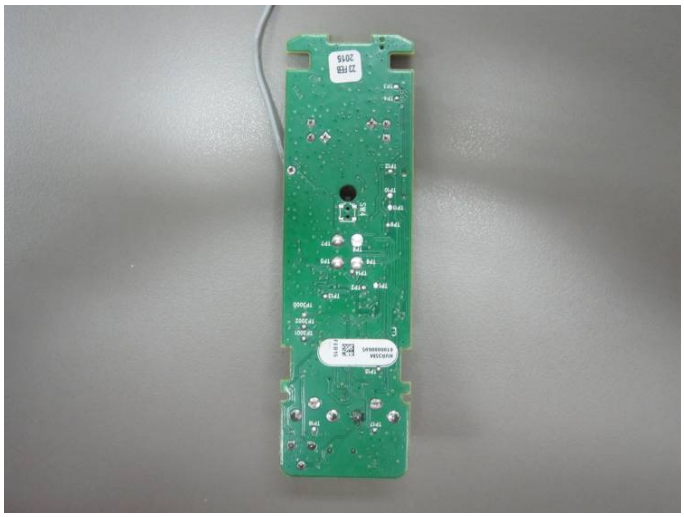
Photograph 5.1.4

Wireless PIR detector NVR35M PCB view – components side



Photograph 5.1.5

Wireless PIR detector NVR35M PCB rear view



Photograph 5.1.6

Wired PIR detector NV35M and NV35MX general view

Photograph 5.1.7

Wired PIR detector NV35M and NV35MX general view

Photograph 5.1.8

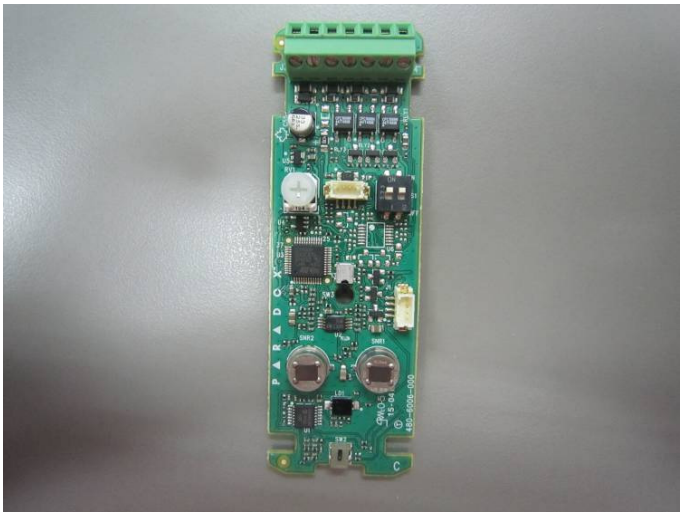
Wired PIR detector NV35M internal view

Photograph 5.1.9

Wired PIR detector NV35MX internal view

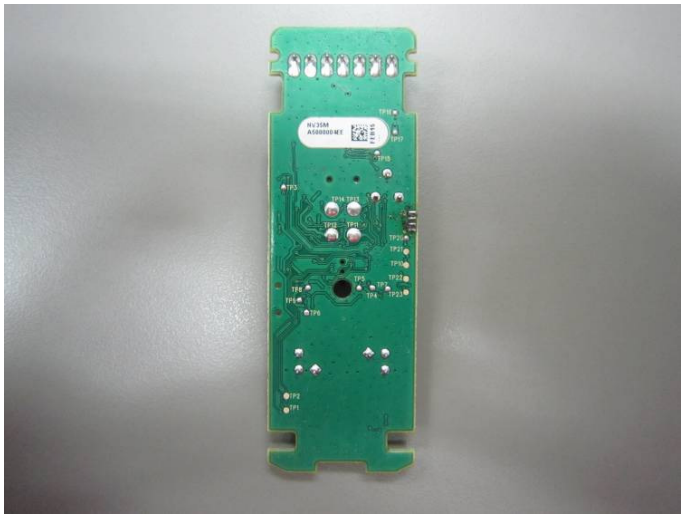
Photograph 5.1.10

Wired PIR detector NV35M PCB view



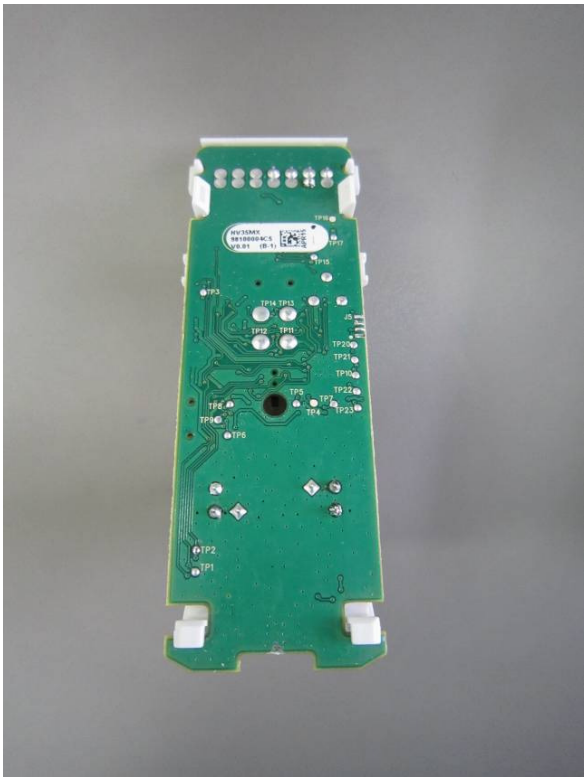
Photograph 5.1.11

Wired PIR detector NV35M PCB rear view

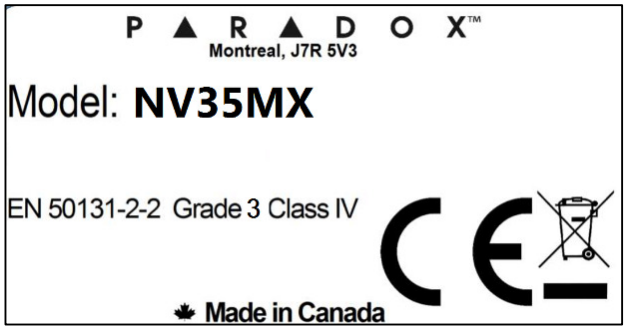


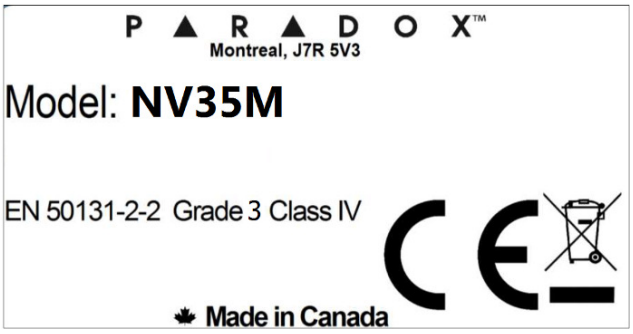
Photograph 5.1.12
Wired PIR detector NV35MX PCB view

Photograph 5.1.13
Wired PIR detector NV35MX PCB rear view



EUT Markings





5.2 EUT mechanical characteristics

The Equipment Under Test (EUT) measures
12.3 x 6.1 x 4.3 cm (4.8 x 2.4 x 1.7 in.)
The Equipment Under Test (EUT) weights 0.100 kg

5.3 Acceptance criteria

Wherever specified by the EN50131-2-2 standard, the EUT shall pass the Basic Detection Tests. The EUT should comply with standard tamper requirements, no false alarms/unwanted signals are accepted during Immunity tests, all walk tests should be passed. The EUT should fulfill all EN50131-2-2 standard requirements.

5.4 EUT visual inspection and functional check

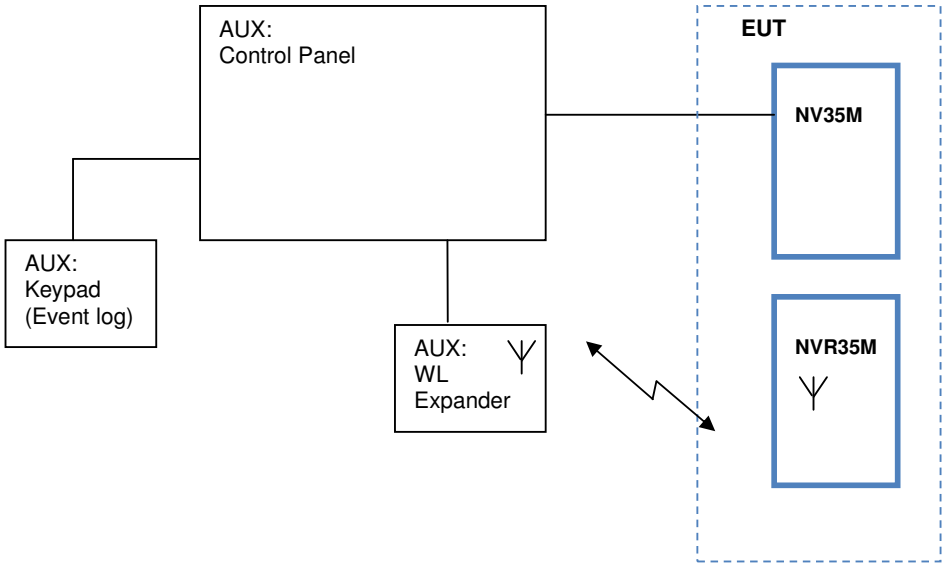
Whenever specified by EN50131-2-2 Standard the Basic detection test (BDT) was carried out also the post tests visual internal/external inspections.

The test configuration is presented in Figure 5.4.1.
All combinations of settings (including worst case) were tested for NV35M and NVR35M in order to certify all possible combinations specified in each detector User Manual.

Immunity tests:
-All switches ON PIR potentiometer on middle (factory setting) then
-PET OFF PIR potentiometer on maximum (worst case)

Walk test:
-Installation height = 2m
All specified possible settings combinations were tested in accordance to specified detection area (Figure 6.7.1 and 6.7.2).
-PIR Potentiometer minimum (PET ON), middle position (PET ON), maximum position (PET OFF) for complete walk tests sessions as presented in Chapter 6.7, Tables 6.7.3 to 6.7.7

Figure 5.4.1 Test setup configuration



6 Tests summary

EN 50131-2-2 Test	Status
Air flow immunity test	Pass
Immunity to visible and near infrared radiation test	Pass
Detection of removal from the mounting surface test	Pass
Walk test	Pass
Prevention of unauthorized access to the inside of detector test	Pass
Immunity to magnetic field interference test	Pass
Immunity to false masking signals	Pass
Detection of detector masking	Pass
Self test	Pass
Switch on delay and interval between signals test	Pass
Labels and documentation test	Pass

The EUTs were tested according to EN50131-2-2:2008; EN50131-1:2006+A1:2009 standards and found to be in compliance with the standard requirements.

This Report alone does not constitute a proof of certification.

The present Test Report ID: PARIAS_EN50131-2-2.26142_rev1 is an amendment and replaces the previous issued Test Report ID: PARIAS_EN50131-2-2.26142 issued on 26 May, 2015. The changes are described in Revision History Table below

Revision History Table:

Date	File No.	Prepared	Reviewed	Approved	Amendment Description
1 July, 2015	PARIAS_EN50131-2-2.26142_rev1	Mr. Mihaeli Feldmann, Project Manager 	Mr. Ilan Benihas, Safety Group Test Engineer 	Mr. Michael Freiliher, Safety Group Manager 	1.Correction in Section 6.8 (header remark removed) 2.Minor typo corrections
26 May, 2015	PARIAS_EN50131-2-2.26142	Mr. Mihaeli Feldmann, Project Manager	Mr. Ilan Benihas, Safety Group Test Engineer	Mr. Michael Freiliher, Safety Group Manager	Original report

Table 6.1 EN50131-2-2 Compliance General Matrix:

The results apply to all bellow EUTs according to their technology type and security grade

Model-standard/grade

Model	Applicable Standard	Security Grade
NVR35M	EN 50131-2-2	2
NV35M	EN 50131-2-2	3
NV35MX	EN 50131-2-2	3

Detailed results

EN50131-2-2 Standard reference		Result				Remarks and/or document reference
Section	**Requirement**	**C**	**NC**	**NA**	**NT**	
6	**TESTING**					
6.1	**General test conditions**					-Temperature: 15-35℃ -Relative humidity: 25-75% -Air pressure: 86-106 kPa
6.2	**Basic detection test (BDT)**					Close-in walk test performed as required for each individual test
6.3	**Walk testing**					SWT characteristics: 1.73m , 74 Kg, for SWT temperature differential see chapter 6.4
6.3.3						
6.3.3.1	Verify detection across the boundary	✓				Chapter 6.4
6.3.3.2	Verify detection within the boundary	✓				
6.3.4	Verify the High velocity detection performance	✓				
6.3.5	Verify the intermittent movement detection performance	✓				Only for Grade 3
6.3.6	Verify the close-in detection performance	✓				Chapter 6.4
6.3.7	Verify the significant reduction of specified range			✓		Only for Grade 4 detectors
6.4	Switch on delay	✓				See Chapter 6.7
6.5	Self test	✓				Only for Grade3 detectors Chapter 6.4
6.6						
6.6.1	Immunity to air flow	✓				See Chapter 6.1
6.6.2	Immunity to visible and near infrared radiation	✓				See Chapter 6.2
6.7						
6.7.1	Prevention of unauthorized access to the inside the detector	✓				See Chapter 6.5
6.7.2	Detection of removal from the mounting surface	✓				See Chapter 6.3
6.7.3	Resistance to re-orientation			✓		No bracket provided
6.7.4	Immunity to magnetic field interference	✓				See Chapter 6.6

EN50131-2-2 Standard reference		Result				Remarks and/or document reference
Section	**Requirement**	**C**	**NC**	**NA**	**NT**	
6.7.5	Resistance to detector masking	✓				Only for Grade3 detectors
6.7.6	Immunity to false masking signals	✓				Only for Grade3 detectors
6.8						
6.8.1	Detector current consumption					Separate HL TR
6.8.2	Slow input voltage change and voltage range limits					
6.8.3	Input voltage ripple					
6.8.4	Input voltage step change					
6.8.5	Total loss of supply					
6.9						
	Dry Heat	✓				Separate HL TR
	Cold	✓				
	Damp heat (steady state)			✓		
	Damp Heat (cyclic)	✓				
	Water Ingress	✓				
	Mechanical Shock	✓				
	Vibration	✓				
	Impact	✓				
	EMC	✓				Separate HL TR
	Damp heat (steady state)	✓				Separate HL TR
	Damp Heat (cyclic)	✓				
	SO_2 Corrosion					Separate TR
	Vibration	✓				Separate HL TR
6.10						
6.10.1	Marking and/or identification	✓				See chapter 6.8
6.10.2	Documentation	✓				

C= conform; NC= not conform; NA = not applicable; NT = not tested

Table 6.2 EN50131-1 Compliance General Matrix:

EN50131-1 Standard reference		Result				Remarks and/or document reference
Section	**Requirement**	**C**	**NC**	**NA**	**NT**	
4	**System functions**			✓		Environmental Class IV Grading according to tables 6.1
5	**System components**	✓				
6	**Security grading**	✓				
7	**Environmental Classification**	✓				
8						
8.1						
8.1.1	Intruder detection	✓				See Table 6.1
8.1.2	Hold-up device-triggering			✓		
8.1.3	Tamper Detection	✓				See Table 6.1
8.1.4	Recognition of faults	✓				See Table 6.1
8.2						
8.2.1	Masking	✓				For Grade3 detectors See Table 6.1
8.2.2	Movement detector range reduction			✓		For Grade 4 detectors See Table 6.1
8.3						
8.3.1	Access levels			✓		
8.3.2	Authorization			✓		
8.3.3	Setting and Unsetting			✓		
8.3.4	Setting			✓		
8.3.5	Prevention of setting			✓		
8.3.6	Overriding prevention of setting			✓		
8.3.7	Set state			✓		
8.3.8	Unsetting			✓		
8.3.9	Restoring			✓		
8.3.10	Inhibit			✓		
8.3.11	Isolate			✓		
8.3.12	Test			✓		
8.3.13	Other Functions			✓		
8.4						
8.4.1	Intruder signals or messages			✓		
8.4.2	Hold-up signals or messages			✓		
8.4.3	Tamper signals or messages			✓		
8.4.4	Fault signal or messages			✓		
8.4.5	Masking signals or messages			✓		
8.4.6	Reduction of range signals or messages			✓		
8.5						
8.5.1	General			✓		
8.5.2	Availability of indications			✓		
8.5.3	Canceling indication			✓		
8.5.4	Indication-Intrusion detectors			✓		
8.6	Notification			✓		
8.7						
8.7.1	Tamper protection	✓				See Table 6.1

EN50131-1 Standard reference		Result				Remarks and/or document reference
Section	Requirement	C	NC	NA	NT	
8.7.2	Tamper detection	✓				
8.7.3	Monitoring of substitution			✓		
8.7.4	Monitoring of substitution-timing requirements			✓		
8.8						
8.8.1	General			✓		
8.8.2	Availability of interconnections			✓		
8.8.3	Monitoring of interconnections			✓		
8.8.4	Verification			✓		
8.8.5	Security of communication			✓		
8.8.6	Signals or messages to be generated			✓		
8.9						
8.9.1	Intruder detection, tampering and recognition of faults			✓		
8.9.2	Processing			✓		
8.10	Event Recording			✓		
9						
9.1	Types of power supply			✓		
9.2	Requirements			✓		
10						
10.1	I&HAS components	✓				
11	**Functional reliability**	✓				
12	**Environmental requirements**	✓				Separate HL TR
12.1	Electromagnetic compatibility	✓				Separate HL TR
13	**Electrical safety**	✓				Separate HL TR
14	**Documentation**	✓				See chapter 6.7
15	**Marking / Identification**	✓				

C= conform; NC= not conform; NA = not applicable; NT = not tested

Test specification:	Air flow immunity test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.6.1 Immunity to air flow		
Test mode:	Compliance	Verdict:	PASS
Test Date:	30-Sep-14, 15-May-15		
Atmospheric conditions during the test:	Temperature: 25 ºC, 23 ºC	Air Pressure: hPa	Relative Humidity: 45 %
Remarks:			

6.1 Air flow immunity test procedure and results

6.1.1 Test purpose

To prove the detector capability not to generate false alarm signals when exposed to a heated airflow stream in front of the detector.

6.1.2 Test procedure

6.1.2.1 The detector was installed on its support at a distance of 1 m from the air source (variable speed fans) at a height of 1 m.

6.1.2.2 A thermocouple was mounted next to the detector window to monitor and assure that the air temperature in front of the detector reached 20 ℃ more than the ambient temperature.

6.1.2.3 The airflow speed was adjusted such as the ascending air speed at the detector window was 0.7 m/s.

6.1.2.4 The detector was set in the alarm mode. A BDT was performed in order to prove the detector ability to detect, then the detector was rearmed.

6.1.2.5 The air temperature was increased from the ambient by 5℃/min to 20℃ more than the ambient temperature, within about 4 min.

6.1.2.6 The air temperature was stabilized and dwelled at 20℃ more than the ambient temperature for 4 min.

6.1.2.7 The heat was switched off and the temperature allowed to ramp down for 2-3 min, the ambient temperature was reached. This ambient temperature was maintained for 2 min.

6.1.2.8 Steps 6.1.2.5 to 6.1.2.7 were 4 times repeated while recording any false alarm. 5 cycles were performed for settings 1 and 5 for settings 2 (see Table 6.1.2).

6.1.2.9 The results were documented as presented in Table 6.1.2.

6.1.3 Test results

Table 6.1.1 Test results

Observation	Verdict
No false alarm noticed.	**Pass**

Reference numbers of test equipment used:

HL 1420	HL 2144	HL 3628	HL 2449

Full description is given in Appendix A.

Test specification:	**Air flow immunity test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.6.1 Immunity to air flow		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	30-Sep-14, 15-May-15		
Atmospheric conditions during the test:	**Temperature:** 25 ºC, 23 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

Table 6.1.2 Test conditions

EUT name	Distance Fan- detector [m]	Air Temperature at detector window [℃]	Air speed at detector window [m/s]
NV35M	1	43 to 45	0.68 to 0.72
NVR35M	1	43 to 45	0.68 to 0.72
1 Cycle conditions	2 min ambient, 4-5 min from ambient to 45℃ (43℃ on 17-May-15), 4 min 45℃(43℃ on 17-May-15), 3-4 min return to ambient, Air speed constant 0.7 m/s (measured before and after test, detector status Armed		
Settings/Remarks	Detectors mounting height: 1m Settings 1.PIR potentiometer on middle, PET ON then: Settings 2 (worst case):PIR potentiometer on maximum, PET OFF No false alarm		

Test specification:	Air flow immunity test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.6.1 Immunity to air flow		
Test mode:	Compliance	Verdict:	PASS
Test Date:	30-Sep-14, 15-May-15		
Atmospheric conditions during the test:	Temperature: 25 ºC, 23 ºC	Air Pressure: hPa	Relative Humidity: 45 %
Remarks:			

Photograph 6.1.1 Setup general view

Photograph 6.1.2 Air speed and temperature measurement

Test specification:	Immunity to false masking signal test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.6 Immunity to false masking signals		
Test mode:	Compliance	Verdict:	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	Temperature: 24.5 ºC	Air Pressure: hPa	Relative Humidity: 45 %
Remarks:			

6.2 Resistance to detector masking test procedure and results

6.2.1 Test purpose

To check the detector immunity to generate false masking signals.

6.2.2 Test procedure

6.2.2.1 The detector was mounted in its operating configuration and switched on.

6.2.2.2 Immunity to false masking signals was checked by performing a SWT at 1 m distance in front of detector with SWT speed of 1 m/s as required by EN50131-2-2.

6.2.2.3 The results were documented as presented in Table 6.2.1.

6.2.3 Test results

Table 6.2.1 Test results

Observation	Verdict
Following the SWT walk test at 1 m/s, 1 m in front of detector (transversal) the EUTs proved immune to false masking signals.	**Pass**

Test specification:	**Detection of detector masking test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.5 Detection of detector masking		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	**Temperature:** 24.5 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

6.3 Detection of detector masking test procedure and results

6.3.1 Test purpose

When security grade classification is more than Grade 2, to check the detector ability to generate a fault signal when different materials obstruct the detector window.

6.3.2 Test procedure

6.3.2.1 The detector was mounted in its operating configuration and switched on.

6.3.2.2 The different materials were applied at the detector window with the speed and distance as presented in Table .

6.3.2.3 The fault signal generation within the timing from standard and stated in manufacturer manual was checked

6.3.2.4 The results were documented as presented in Table 6.3.2.

6.3.3 Test results

Table 6.3.1 Test results

Observation	Verdict
For each different material appliance as presented in Table 1.1.2, the detector generated a masking signal within the required standard and customer specified timing (90s <180s).	**Pass**

Reference numbers of test equipment used:

HL 3630	HL 3627	HL 2948	HL 2774

Full description is given in Appendix A.

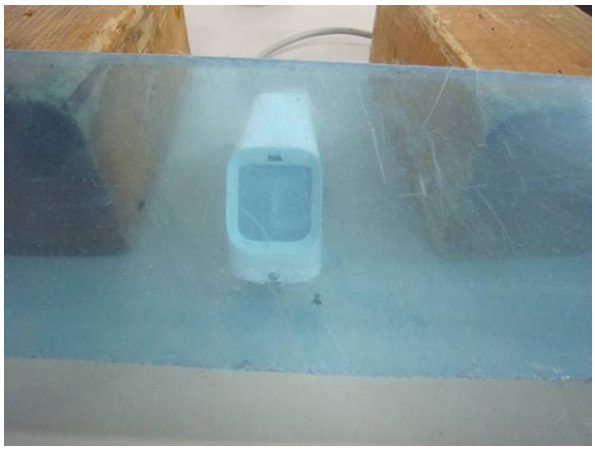
Test specification:	**Detection of detector masking test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.5 Detection of detector masking		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	**Temperature:** 24.5 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

Table 6.3.2 Test conditions

EUT name	Material	Verdict	Procedure/Remarks
NV35M NV35MX	Matt black paper sheet	**Pass**	Distance= 0 mm First slid within 1 s, second slid within 10 s Distance= 50 mm First slid within 1 s, second slid within 10 s *Applied from front The masking signal is noticed after 90s from masking material appliance and it is restored after masking removal. The detector returns to normal detection mode NV35M signals alarm and tamper NV35MX signals masking
	2 mm thick aluminum sheet	**Pass**	
	3 mm Thick clear gloss acrylic sheet	**Pass**	
	White polystyrene foam sheet	**Pass**	
	Self adhesive clear vinyl sheet*	**Pass**	
	Spray polyurethane*	**Pass**	
	Clear gloss lacquer, brush applied*	**Pass**	

Test specification:	Detection of detector masking test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.5 Detection of detector masking		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	**Temperature:** 24.5 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

Photograph 6.3.1 Setup general view



Test specification:	**Self test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.5 Self test		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	**Temperature:** 24.5 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

6.4 Self test procedure and results

6.4.1 Test purpose

When security grade classification is more than Grade 2, to prove the detector ability to perform a self test and within timing requirements to generate fault signals when the self test is not passed.

6.4.2 Test procedure

6.4.2.1 The detector was mounted in its operational configuration and switched on.

6.4.2.2 The local and remote (when is provided) passed self tests signals were checked.

6.4.2.3 A short of PIR sensor module was performed, and the fault signal generation was checked and recorded, as presented in Table 6.4.2

6.4.2.4 The results were documented as presented in Table 6.4.1.

6.4.3 Test results

Table 6.4.1 Test results

Observation	Verdict
When Self test was not passed due to a simulated fault condition, a fault signal was generated.	**Pass**

Test specification:	**Self test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.5 Self test		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	**Temperature:** 24.5 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

Table 6.4.2 Test conditions

Self test type	Unit name	Signal	Remark
Local self test pass	NV35M, NV35MX	None	The self test is performed once in 24h and takes less than 1s.
Local self test fail	NV35M, NV35MX	Fault	In case of fail the self test is repeated every 30s until the fault is restored.

Test specification:	Self test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.5 Self test		
Test mode:	Compliance	Verdict:	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	Temperature: 24.5 ºC	Air Pressure: hPa	Relative Humidity: 45 %
Remarks:			

Photograph 6.4.1 Self test setup (PIR short)

Test specification:	Immunity to visible and near infrared radiation test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.6.2 Immunity to visible and near infrared radiation		
Test mode:	Compliance	Verdict:	PASS
Test Date:	9/29/2014, 5/17/2014		
Atmospheric conditions during the test:	Temperature: 24 ºC, 23 ºC	Air Pressure: hPa	Relative Humidity: 54 %
Remarks:			

6.5 Immunity to visible and near infrared radiation test procedure and results

6.5.1 Test purpose

To prove the detector capability not to generate false alarm signals when exposed to visible and near infrared radiation.

6.5.2 Test procedure

6.5.2.1 The detector was installed on its support at a distance from the light source such as the illuminance measured with the calibrated light meter at the detector window was 2000 lux.

6.5.2.2 The light from the source was fallen on the detector through two clean 4 mm thick panes of glass, separated by 10 mm air gap. The test setup is presented in Photograph 6.5.1.

6.5.2.3 The detector was set in alarm mode, the room light was switched off and the halogen lamp was switched on.

6.5.2.4 The light source was scanned about a vertical axis such that the emitted light crossed the combined detector at a rate of about 0.5 m/s and cleared the other edge of the detector housing. Test conditions are presented in Table 6.3.2.

6.5.2.5 A total of 10 scans were performed across the detector. The detector was monitored for false alarms and the results recorded in Table 6.5.1. The test was performed for Settings 1 and Settings 2 (see Table 6.5.1).

6.5.3 Test results

Table 6.5.1 Test results

Observation	Verdict
No false alarm noticed.	**Pass**

Reference numbers of test equipment used:

HL 2985	HL 3651	HL 2936	HL 2774	HL 3633	HL 2178

Full description is given in Appendix A.

Test specification:	**Immunity to visible and near infrared radiation test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.6.2 Immunity to visible and near infrared radiation		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	9/29/2014, 5/17/2014		
Atmospheric conditions during the test:	**Temperature:** 24 ºC, 23 ºC	**Air Pressure:** hPa	**Relative Humidity:** 54 %
Remarks:			

Table 6.5.2 Test conditions

EUT name	**Light intensity** **[lx]**	**Distance** **Light source-detector** **[m]**
NVR35M	2000	5
NV35M	2000	5
Settings/Remarks	Settings 1:All switches ON PIR potentiometer on middle (factory setting) Settings 2:PET OFF PIR potentiometer on maximum	

Test specification:	**Immunity to visible and near infrared radiation test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.6.2 Immunity to visible and near infrared radiation		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	9/29/2014, 5/17/2014		
Atmospheric conditions during the test:	**Temperature:** 24 ºC, 23 ºC	**Air Pressure:** hPa	**Relative Humidity:** 54 %
Remarks:			

Photograph 6.5.1 Setup general view

Test specification:	Detection of removal from the mounting surface test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.2 Detection of removal from the mounting surface		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	24-Sep-14		
Atmospheric conditions during the test:	**Temperature:** 24 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

6.6 Detection of removal from the mounting surface test procedure and results

6.6.1 Test purpose

To prove the detector ability to generate a tamper signal when without opening it, the detector is removed from the mounting surface.

6.6.2 Test procedure

6.6.2.1 The detector was placed on the mounting position.

6.6.2.2 The detector was switched on and slowly raised from the surface while attempting to reach and neutralize the back tamper with a steel strip before the tamper is activated.

6.6.2.3 The back tamper signal was recorded.

6.6.3 Test results

Table 6.6.1 Test results

Observation	Verdict
The back tamper signal recorded	**Pass**

Reference numbers of test equipment used

HL 1814

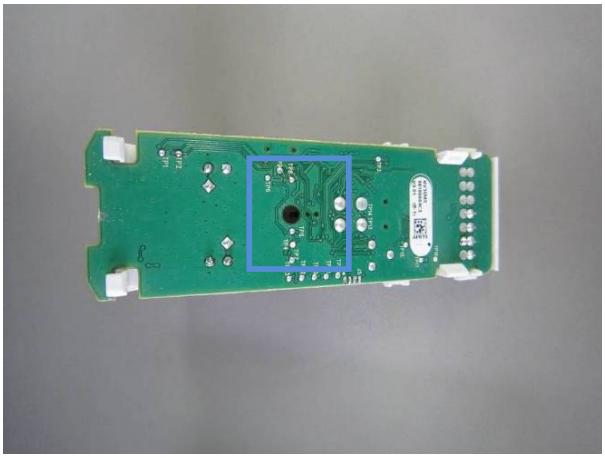
Full description is given in Appendix A.

Test specification:	Detection of removal from the mounting surface test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.2 Detection of removal from the mounting surface		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	24-Sep-14		
Atmospheric conditions during the test:	**Temperature:** 24 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

Table 6.6.2 Test conditions

EUT	Steel Strip dimensions length x width x thickness [mm]	Observation	Verdict
NV35M, NVR35M	300 x 10 x 1	The back tamper device activated before access could be gained to it using a strip of steel 1 mm thick, 10 mm wide	**Pass**

Photograph 6.6.1 Back tamper device



Test specification:	Walk test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-4 TEST METHOD: 6.3 Walk test		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	11/2/2014 and 5/26/2015		
Atmospheric conditions during the test:	**Temperature:** 20 to 23.9 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45-52%
Remarks: on site TESTING			

6.7 Walk test procedure and results

6.7.1 Test purpose

To prove the detector detection performance within the manufacturer declared detection area and with SWT different speeds and attitudes as required by EN50131-2-2 standard.

6.7.2 Test procedure

6.7.2.1 The test area was lied out according to manufacturer detection pattern and standard requirement.

6.7.2.2 The SWT temperature differential was calculated after performing the required temperature measurements on the test hall (background and floor) and on SWT. as presented in Table 6.7.1, 6.7.2.

6.7.2.3 The detector was mounted at the height as specified by manufacturer.

6.7.2.4 The walk tests for each relevant detector setting or combination of settings as described in detectors user manual were performed and the results documented.

Table 6.7.1SWT temperature differential (4-August-14)

SWT: 1.73 m, 74 kg

Body zone	Significance: weighting factor	Body temp [degC]	Body background: temp difference	Dtr	
Head	2	27.1	**5.7**	11	
Upper torso side	4	24.8	**3.4**	14	
Hand at body side	4	24.8	**3.4**	14	**3.80**
Legs at knee	2	25	**3.6**	7.2	
Feet	1	25.1	**3.7**	3.7	
SUM	13			49	

The 10 temperature points of the background measurment [degC]	Average
24.7	21.41
21.4	
21.4	
21.3	
21.5	
21.5	
21.4	
21.3	
21.4	
21.5	
21.4	

Air 21C

Test specification:	Walk test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-4 TEST METHOD: 6.3 Walk test		
Test mode:	Compliance	Verdict:	PASS
Test Date:	11/2/2014 and 5/26/2015		
Atmospheric conditions during the test:	Temperature: 20 to 23.9 ºC	Air Pressure: hPa	Relative Humidity: 45-52%
Remarks: on site TESTING			

Table 6.7.2 SWT temperature differential (26-May-15)

SWT: 1.73 m, 74 kg

Body zone	Significance: weighting factor	Body temp [degC]	Body background: temp difference	Dtr	
Head	2	31.3	8.8	18	4.11
Upper torso side	4	26.3	3.8	15	
Hand at body side	4	26.3	3.8	15	
Legs at knee	2	24.1	1.6	3.3	
Feet	1	24.3	1.8	1.8	
SUM	13			53	

The 10 temperature points of the background measurment [degC]	Average		
22.3	22.47	Air	23.9C
22.4			
22.3			
22.5			
22.7			
22.8			
22.5			
22.4			
22.3			
22.3			
22.5			

Test specification:	**Walk test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-4 TEST METHOD: 6.3 Walk test		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	11/2/2014 and 5/26/2015		
Atmospheric conditions during the test:	**Temperature:** 20 to 23.9 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45-52%
Remarks: on site TESTING			

Table 6.7.3 Boundary detection

SWT speed 1 m/s; upright				
Detector Model	**Detection pattern and tested points (marked in blue)**	**Verdict**	**Date**	**Settings/Remarks**
NVR35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	Installation height = 2m 1.PET switch ON Potentiometer middle position (up to 7.5 m) 2.PET switch OFF, Potentiometer maximum position (up to 10 m) 3.PET switch ON Potentiometer minimum position up to 5 m
NV35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	

Table 6.7.4 Detection within the boundary

SWT speed 0.2 m/s for Grade 3 detectors, 0.3 m/s for Grade 2; upright				
Detector Model	**Detection pattern and tested points (marked in blue)**	**Verdict**	**Date**	**Settings/Remarks**
NVR35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	Installation height = 2m 1.PET switch ON Potentiometer middle position (up to 7.5 m) 2.PET switch OFF, Potentiometer maximum position (up to 10 m) 3.PET switch ON Potentiometer minimum position up to 5 m
NV35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	

Test specification:	**Walk test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-4 TEST METHOD: 6.3 Walk test		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	11/2/2014 and 5/26/2015		
Atmospheric conditions during the test:	**Temperature:** 20 to 23.9 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45-52%
Remarks: on site TESTING			

Table 6.7.5 Detection at high velocity

SWT speed 2.5 m/s for Grade 3, 2 m/s for Grade 2 detectors; upright				
Detector Model	**Detection pattern and tested points (marked in blue)**	**Verdict**	**Date**	**Settings/Remarks**
NVR35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	Installation height = 2m 1.PET switch ON Potentiometer middle position (up to 7.5 m) 2.PET switch OFF, Potentiometer maximum position (up to 10 m) 3.PET switch ON Potentiometer minimum position up to 5 m
NV35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	

Table6.7.6 Close in detection performance

SWT speed 0.5 m/s for Grade 3; crawling; 0.5 m distance 0.4 m/s, upright 2 m distance Grade 2 detector				
Detector Model	**Detection pattern and tested points (marked in blue)**	**Verdict**	**Date**	**Settings/Remarks**
NVR35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	Installation height = 2m 1.PET switch ON Potentiometer middle position (up to 7.5 m) 2.PET switch OFF, Potentiometer maximum position (up to 10 m) 3.PET switch ON Potentiometer minimum position up to 5 m
NV35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	

Test specification:	**Walk test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-4 TEST METHOD: 6.3 Walk test		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	11/2/2014 and 5/26/2015		
Atmospheric conditions during the test:	**Temperature:** 20 to 23.9 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45-52%
Remarks: on site TESTING			

Table 6.7.7 Intermittent movement detection performance

SWT speed 1 m/s for Grade 3; upright

Detector Model	**Detection pattern and tested points (marked in blue)**	**Verdict**	**Date**	**Settings/Remarks**
NV35M	Figure 6.7.1, 6.7.2	**Pass**	2.11.14 26.5.15	Installation height = 2m 1.PET switch ON Potentiometer middle position (up to 7.5 m) 2.PET switch OFF, Potentiometer maximum position (up to 10 m) 3.PET switch ON Potentiometer minimum position up to 5 m

Test specification:	Walk test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-4 TEST METHOD: 6.3 Walk test		
Test mode:	Compliance	Verdict:	PASS
Test Date:	11/2/2014 and 5/26/2015		
Atmospheric conditions during the test:	Temperature: 20 to 23.9 ºC	Air Pressure: hPa	Relative Humidity: 45-52%
Remarks: on site TESTING			

Figure 6.7.1 Detection area and the tested points (PET ON)

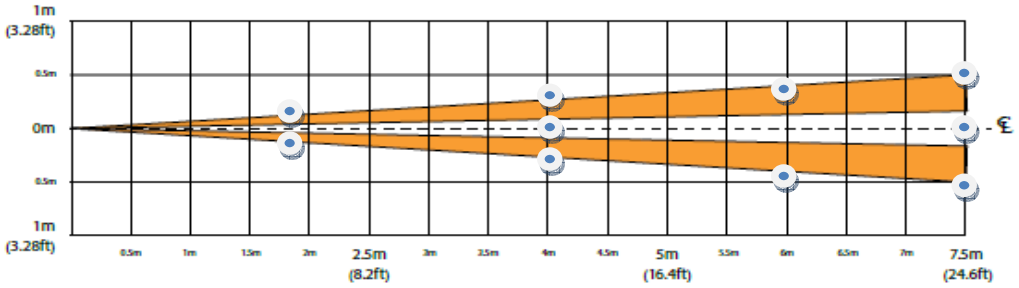
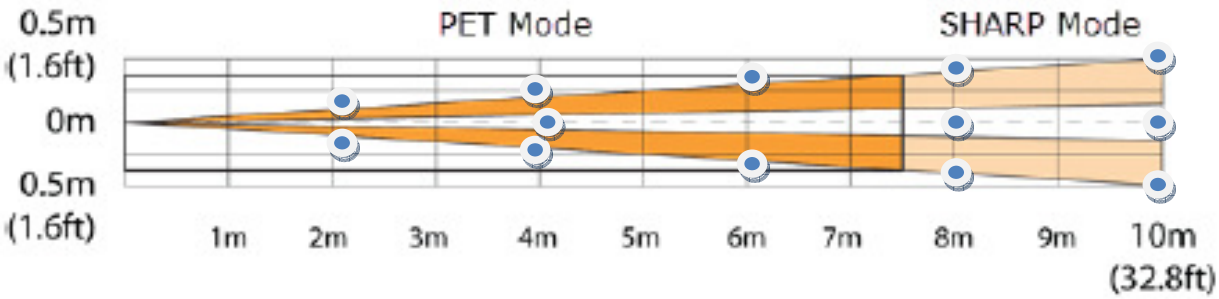


Figure 6.7.2 Detection area and the tested points (PET OFF)



Test specification:	**Walk test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-4 TEST METHOD: 6.3 Walk test		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	11/2/2014 and 5/26/2015		
Atmospheric conditions during the test:	**Temperature:** 20 to 23.9 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45-52%
Remarks: on site TESTING			

6.7.3 Test results

Observation	Verdict
All the walk tests at the required SWT velocities and attitudes were passed for both detectors.	**Pass**

Reference numbers of test equipment used:

HL 3214	HL 2774	HL 2948	HL 3716	HL 4018

Full description is given in Appendix A.

Test specification:	Prevention of unauthorized access to the inside of detector test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.1 Prevention of unauthorized access to the inside of detector through covers and existing holes		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	**Temperature:** 24.5 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45%
Remarks:			

6.8 Prevention of unauthorized access to the inside of detector through covers and existing holes test procedure and results

6.8.1 Test purpose

To prove that it is impossible to have access inside the detector using some common objects like presented in Table , and if the access is attained, a tamper signal is generated.

6.8.2 Test procedure

6.8.2.1 The detector was mounted on the wood plate using the mounting screws specified by the manufacturer.

6.8.2.2 Attempts to gain access to the detector internal components were made in order to prove that the internal tamper can not be deactivated without a tamper signal generation. Test conditions are presented in Table 6.8.2.

6.8.2.3 The results were documented as presented in Table 6.8.1 and 6.8.2.

6.8.3 Test results

Table 6.8.1 Test results

Observation	Verdict
A tool (screwdriver) is required for normal access inside the detector. No access (without causing visible damage) inside the detector cover attained using objects presented in Table 6.8.2. Once the cover is removed the internal detectors tamper is activated.	**Pass**

Reference numbers of test equipment used:

HL 2043

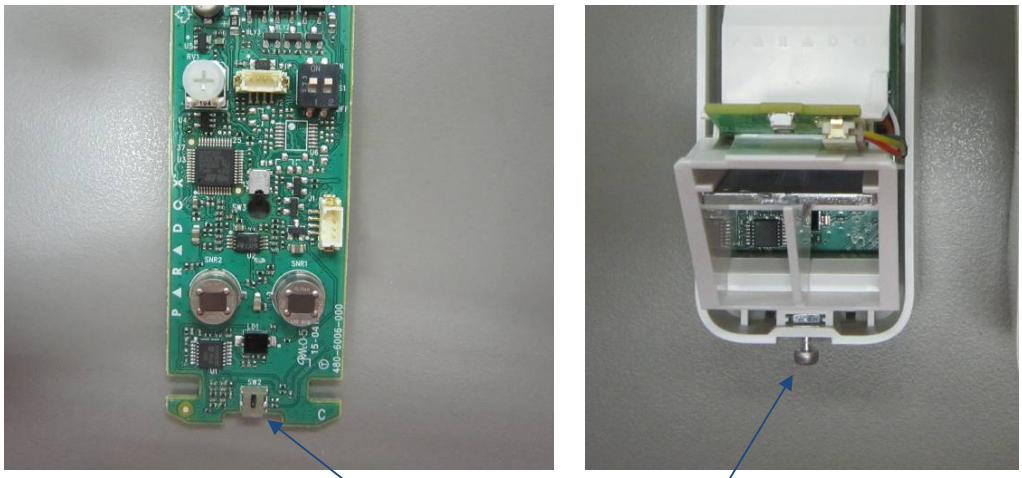
Full description is given in Appendix A.

Test specification:	Prevention of unauthorized access to the inside of detector test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.1 Prevention of unauthorized access to the inside of detector through covers and existing holes		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	21-Apr-15		
Atmospheric conditions during the test:	**Temperature:** 24.5 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45%
Remarks:			

Table 6.8.2 Test conditions

Object	Dimensions
Penknife	-
Wire Probe	Thickness 1mm
Screw driver	4x1mm Thickness
Paper	-
Steel probe	100 x 7 x 1mm
Matches	-

Photograph 6.8.1 Tamper acting during normal access (opening the closing screw)



Test specification:	**Immunity to magnetic field interference test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.4 Immunity to magnetic field interference		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	30-Sep-14		
Atmospheric conditions during the test:	**Temperature:** 25 ºC	**Air Pressure:** hPa	**Relative Humidity:** 45 %
Remarks:			

6.9 Immunity to magnetic field interference test procedure and results

6.9.1 Test purpose

To prove the detector ability to withstand the magnetic field interference without any degradation of intrusion or tampering detection.

6.9.2 Test procedure

6.9.2.1 The detector was mounted in its operating configuration as specified by the manufacturer.

6.9.2.2 180 seconds were allowed after switching on the detector.

6.9.2.3 A single pole of the standard magnet was placed on each accessible surface of the detector.

6.9.2.4 The correct generation of alarm, tamper and fault signals was verified.

6.9.2.5 The test was repeated for the other magnet pole.

6.9.2.6 The results were documented as presented in Table 6.9.2.

6.9.3 Test results

Table 6.9.1Test results

Observation	Verdict
No influence of the magnetic field interferences with the normal detector functioning was noticed.	**Pass**

Reference numbers of test equipment used:

HL 3665

Full description is given in Appendix A.

Test specification:	Immunity to magnetic field interference test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.7.4 Immunity to magnetic field interference		
Test mode:	Compliance	Verdict:	PASS
Test Date:	30-Sep-14		
Atmospheric conditions during the test:	Temperature: 25 ºC	Air Pressure: hPa	Relative Humidity: 45 %
Remarks:			

Table 6.9.2 Test conditions

EUT	Magnet characteristics	Verdict	Detector face no and description	Event
NVR35M NV35M NV35MX	Type 2 (1.24 T)	**Pass**	#1 Front central	No tamper or intrusion detection inhibition
	Type 2 (1.24 T)	**Pass**	#2 Up central	No tamper or intrusion detection inhibition
	Type 2 (1.24 T)	**Pass**	#3 down central	No tamper or intrusion detection inhibition
	Type 2 (1.24 T)	**Pass**	#4 lateral central	No tamper or intrusion detection inhibition
	Type 2 (1.24 T)	**Pass**	#4 lateral central	No tamper or intrusion detection inhibition
	Type 2 (1.24 T)	**Pass**	#1 up central	No tamper or intrusion detection inhibition

Photograph 6.9.1 Setup general view

Test specification:	Labels and documentation test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD:6.10 Labels and documentation		
Test mode:	Compliance	Verdict:	PASS
Test Date:	5/26/15		
Atmospheric conditions during the test:	Temperature: 24ºC	Air Pressure: hPa	Relative Humidity: 45%
Remarks:			

6.10 Labels and documentation test procedure and results

6.10.1 Test purpose

To check and confirm that the customer user manual and labels are in accordance with EN50131-2-2 requirements.

6.10.2 Test procedure

6.10.2.1 The available last version of the user manual was read and compared with the product characteristics and standard requirements as summarized in Table 6.10.2.

6.10.2.2 The results were documented as presented in Table 6.10.1

6.10.3 Test results

Table 6.10.1 Test results

Observation	Verdict
Labels and documentation requirements fulfilled.	**Pass**

Test specification:	**Labels and documentation test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD:6.10 Labels and documentation		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	5/26/15		
Atmospheric conditions during the test:	**Temperature:** 24ºC	**Air Pressure:** hPa	**Relative Humidity:** 45%
Remarks:			

Table 6.10.2 Marking and documentation requirements

EUT	**Documents**
NV35M, NV35MX, NVR35M	NV35M-EI00, NV35MX-EI00, NVR35M-EI02

Standard/Section	**Requirement**	**Verdict**				**Remark**
		C	**NC**	**NA**	**NT**	
EN 50131-2-2/ 5.1, 5.2 EN 50131-1/ 15 Marking/ Identification Labeling	Name of manufacturer	✓				
	Type	✓				
	Date of manufacture batch # or serial#	✓				
	Security grade	✓				
	Environmental class	✓				
EN 50131-2-2/ 5.2 EN 50131-1/ 14.2 Documentation	A list of all options, Functions, inputs or messages, indication and relevant characteristics	✓				
	the manufacturer's diagram of the detector and its claimed detection boundary showing top and side elevations at 2,0 m mounting height or at a height specified by the manufacturer, superimposed upon a scaled 2 m squared grid. The size of the grid shall be directly related to the size of the claimed detection boundary;	✓				
	Recommended mounting height	✓				
	Effect of adjustable controls on the claimed detection boundary	✓				
	Any disallowed field adjustable control settings			✓		
	Label of alignments adjustments	✓				
	Warning to the customer not to block detector field of view	✓				

Test specification:	**Labels and documentation test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD:6.10 Labels and documentation		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	5/26/15		
Atmospheric conditions during the test:	**Temperature:** 24ºC	**Air Pressure:** hPa	**Relative Humidity:** 45%
Remarks:			

EUT	**Documents**
NV35M, NV35MX, NVR35M	NV35M-EI00, NV35MX-EI00, NVR35M-EI02

Standard/Section	**Requirement**	**Verdict**				**Remark**
		C	**NC**	**NA**	**NT**	
	Manufacturer quoted nominal operating voltage and maximum quiescent power consumption at that voltage	✓				
	Name of manufacturer	✓				
	Description of equipment	✓				
	Clear and concise documentation	✓				
	Standard to which component claims compliance	✓				
	Name or mark of the certification body	✓				
	Security grade	✓				
	Environmental class	✓				

C=compliant; NC= non compliant; NA = not applicable; NT= not tested

Test specification:	Switch on delay and interval between signals test		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.4 Switch on delay and interval between signals		
Test mode:	Compliance	Verdict:	PASS
Test Date:	01-Apr-15		
Atmospheric conditions during the test:	Temperature: 24 ºC	Air Pressure: hPa	Relative Humidity: 50 %
Remarks:			

6.11 Switch on delay and interval between signals test procedure and results

6.11.1 Test purpose

To prove that within 180 s of the power supply reaching its nominal voltage the detector meets all functional requirements.
To prove according to timings specified in EN50131-2-2 (as per security grade for wire free detectors, 15s for wired detectors) the detector ability to provide 2 successive intrusion signals in the required time interval.

6.11.2 Test procedure

6.11.2.1 The detector was switched on and time when the detector was ready and performing his detection function was recorded also if this switch on delay was less than 180 seconds.

6.11.2.2 The detector was switched on and after stabilization; the BDT was used in order to record the maximum interval between 2 successive intrusion signals.

6.11.2.3 The results were documented as presented in Table 6.11.1.

6.11.3 Test results

Table 6.11.1 Test results

Observation	Verdict
The stabilization time and interval between signals were found in accordance with standard requirements for all tested intrusion detectors.	**Pass**

Reference numbers of test equipment used

HL 4882

Full description is given in Appendix A.

Test specification:	**Switch on delay and interval between signals test**		
Test procedure:	TEST SPECIFICATION: EN 50131-2-2 TEST METHOD: 6.4 Switch on delay and interval between signals		
Test mode:	Compliance	**Verdict:**	PASS
Test Date:	01-Apr-15		
Atmospheric conditions during the test:	**Temperature:** 24 ºC	**Air Pressure:** hPa	**Relative Humidity:** 50 %
Remarks:			

Table 6.11.2 Test measurements and verdict criteria

EUT name	Stabilization time measurement	Interval between signals measurement	Stabilization time pass criteria	Interval between signals pass criteria
Wired detector	30 s	2 s	180 s	15 s
Wireless detector	30 s	180 s	180 s	180 s
Remarks				

7 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal./Check	Due Cal./Check
1420	Digital Thermo Anemometer	Dwyer Instruments	471	NA	29-Apr-15	29-Apr-16
2144	Power Source DC (AC) 130V/150A	Hermon Laboratories	PS150	2144	17-Jun-12	17-Jun-13
3628	Hot air blower	Hermon Laboratories	BL-1	NA	18-Mar-15	18-Mar-16
2449	Precision Barometer, 910 - 1060 hPa	LUFFT Mess- und Regeltechnik GmbH	2039.7039 2	100087	12-May-13	12-May-15
3630	Masking materials	Hermon Laboratories	NA	NA	18-Dec-14	18-Dec-15
3627					30-Dec-99	30-Dec-99
2948	Metronome, (40-208) beat/min.	Wittner Gmbh	MS-1	2948	12-Aug-14	12-Aug-15
2774	HygroThermometer, Min/Max Memory	Delta TRAK	13301	NA	22-May-14	22-May-15
2985	Glass panes support 0.5x0.5 m 2 glass panes of 4 mm, 10 mm air gap	Hermon Laboratories	GP500	2985	14-Sep-14	14-Sep-15
3651	Halogen lamp 12V VW H4 bulb	Hermon Laboratories	VW H4 (bulb)	001	11-Jan-15	11-Jan-16
2936	Easy View Digital Light Meter	EXTECH INSTRUMENT S	EA30	050206405	18-Nov-14	18-Nov-15
3633	Tape-measure, 8 m	The Stanley works Israel Ltd	33-198	NA	18-Dec-14	18-Dec-15
2178	Digital Programmable Power Supply 80V/75A, DC	Xantrex	XDC 80-75	76235	23-Feb-15	23-Feb-16
1814	Caliper, 150 mm	Mitutoyo	150	367	20-Jun-13	20-Jun-15
3214	Precision Infrared Thermometer	Fluke	Fluke-574	9394-014	10-Feb-15	10-Feb-16
3716	Orientation Device, per. STD EN50131-2-2, EN50131-2-4	Hermon Laboratories	ODHL45	NA	01-Jun-14	01-Jun-15
4018	Temp. & Humidity Meter, (-50 - +70) deg, (20 - 99)% RH	Mad Electronics	HTC-1	NA	03-Sep-14	03-Sep-15
2043	Test Wire 1mm / 100 mm, CEI / 60529 clause 12	Hermon Laboratories	IP 1(4)	2043	15-Nov-12	15-Nov-15
3665	Magnet Test Set, N38 NdFeB Block Magnet 10*15*36 mm Ni Plated	Magnet & Sales	NIBL	A3-19777-1	14-Feb-14	14-Feb-17
4882	Chronograph. Digital Stopwatch	Bash-gal	NA	NA	23-Jun-14	23-Jun-15

Note: The table represents the calibration status at the time of test report issue. Per HL internal procedures, at the tests date performance calibration was checked to assure that each test was performed with calibrated equipment.

8 Test Laboratory description

Testing laboratory and location	Tests were performed at Hermon Laboratories, which is a fully independent, private safety, EMC, telecommunication and environmental testing facility. Hermon Laboratories is accredited by American Association for Laboratory Accreditation (A2LA, USA) according to ISO GUIDE 17025 (certificate No. 839.01) and accredited as CBTL under responsibility of SII. The safety/Security laboratory has gained numerous certifications and accreditations from National Certification Bodies including UL, ETL, TUV, MET, SII, Telefication and others, and provides solution for global safety certification in various product categories. Address: P.O. Box 23, Binyamina 30500, Israel. Telephone: +972 4628 8001 Fax: +972 4628 8277 e-mail: mail@hermonlabs.com website: www.hermonlabs.com Person for contact: Michael Freilicher, Product Safety Group Manager.

9 APPENDIX B Abbreviations and acronyms

BDT	Basic detection test
℃	degree Celsius
cm	centimeter
dB	decibel
EUT	equipment under test
HL	Hermon Laboratories
hPa	hectopascal
Hz	Hertz
IFC	Interface Card
kg	kilogram
m	meter
min	minute
ms	millisecond
oct	octave
pH	acidity scale
RMS	root mean square
RH	relative humidity
s	second

10 APPENDIX C Tests specifications

1.	EN 50131-1:2006+A1:2009	Alarm systems- Intrusion and hold-up systems Part 1: System requirements
2.	EN 50131-2-2:2008	Alarm systems-Intrusion and hold-up systems Part 2-2: Intrusion detectors – Passive infrared detectors

11 APPENDIX D Measurement uncertainties

Parameter	Uncertainty estimation at 95% confidence	
	Calculated	Limit
Air pressure	± 0.8 mBar	± 4.1 mBar
High temperature	± 1.2℃	± 2℃
Humidity	± 2.86 %	± 5.0 %
Wind velocity	5 %	10 %
Distances measurement	± 1.3%	± 10%
Torque measurement	± 1.9%	± 10%
Impact energy measurement	± 6.1%	± 10%
Illuminance	± 5.6%	± 10%

END OF TEST REPORT