

TEST REPORT
EN 50136-2-1
Alarm systems – Alarm transmission systems and equipment
Part 2-1: General requirements for alarm transmission equipment

Report Reference No.....: 100803903MIN-008

Compiled by (+ signature): Randy Libersky

Approved by (+ signature): Chris Rash

Date of issue.....: 2013-February-14

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CB Testing Laboratory.....: Intertek Testing Services NA, Inc.

Address.....: 7250 Hudson Blvd, Suite 100
Oakdale, MN 55128 USA

Testing location/procedure: CBTL ☒ SMT ☐ TMP ☐

Address.....: As above

Applicant's name: Paradox Security Systems Ltd.

Address.....: 6 Milton Street
PO Box F-42498
Freeport, Bahamas

Test specification:

Standard: EN 50136-2-1: 1998 + A1:2001, tested in accordance with A2LA accreditation to IEC/ISO 17025:2005, Certificate number 1427.01

Test procedure: IEC Test Report format

Non-standard test method.....: N/A

Test Report Form No......: EN50136_2_1A

TRF Originator.....: Intertek Testing Services NA, Inc

Master TRF.....: Dated 2010-06

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Test item description: Alarm transmission system (internet module)

Trade Mark: **P ▲ R ▲ D O X™**

Manufacturer.....: Paradox

Model/Type reference.....: IP150

Ratings.....: 13.8Vdc, 100mA

Model: IP150 P ▲ R ▲ D O X™ Communication Module EN 50131-1 Grade 3 Class II Made in Canada N24563		
P ▲ R ▲ D O X™ Model: IPR512 ATS Receiver		
FCC CE  N24563	Tested To Comply with FCC Standards FOR HOME OR OFFICE USE This device complies with Canadian ICES-003 Class B Conforms to UL 1023, 1610 Certified to ULC C1023, S304 System must be tested weekly Refer to installation instructions Made in Canada	 

Summary of testing:

- 6.1 - Functional test
- 6.2 - Interface test
- 6.4 - Environmental tests
- 6.5 - Equipment for monitored systems
- 6.7 - Equipment container

Location of Testing:

7250 Hudson Blvd, Suite 100
 Oakdale, MN 55128 USA

Test item particulars :		
Classification of installation and use..... :		The IP150 has a classification of ATS5 Environmental Class II
Supply Connection..... :		Security panel auxiliary output
..... :		
..... :		
Possible test case verdicts:		
- test case does not apply to the test object..... : N/A		
- test object does meet the requirement..... : P(Pass)		
- test object does not meet the requirement..... : F(Fail)		
- test object has not been evaluated to this requirement..... : N/E(Not evaluated)		
Testing :		
Date of receipt of test item..... :		11/15/2012
Date (s) of performance of tests..... :		12/30/2012
Sample ID	Description/Model Number	Serial Number
1	EVO192 Security Panel	IQ0000494
2	TM50 Touchpad	AT00000E94
3	IP150 Communication Module	V105012145
4	IPRS7 Receiving Software	Version – V1.2.7
5	IPR512 Receiving Center	74000B66

General remarks:

The test results presented in this report relate only to the object tested.

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"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Following abbreviations are used:

- APS : Alternative Power Source;
- CIE: Control and Indicating Equipment;
- EPS: External Power Source;
- IAS: Intruder Alarm System;
- PPS: Prime Power Source;
- PS: Power Supply;
- PU: Power Unit;
- SD: Storage Device;
- ATS: Alarm Transmission System.

General product information:

The IP150 Internet Module is an Internet communication link that enables you to control and monitor a Paradox security system

The IP150 sends alarm and fault signals to Paradox's IPRS7 and IPR512 receiving centers

The IPRS-7 IP/GPRS PC Receiver Software receives reporting events via IP/GPRS and/or SMS. These events are transmitted to the monitoring station's automation software. All of this is achieved between the control panel, reporting devices (IP150), and the IPRS-7 software.

Once the control panel generates an event, the reporting device forwards the event to the IPRS-7 software either via SMS, IP, or GPRS (depending on the device). Reporting devices include the IP100 and PCS series. The IPRS-7 software receives the event, stores and registers it, and then converts the event in the defined output format to the monitoring station's automation software.

Only the monitoring section is evaluated in this report

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict

5	Functional Requirements
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5.1	Access levels		
5.1.1	Access level 1		
	There is no restriction on access. Level 1 is used for inscriptions, Indicating lights etc, which are directly visible. Setting and unsetting of the equipment and changes of configuration are not permitted.	Access levels are not supported by the IP150	N/A
5.1.2	Access level 2		
	Level 2 is the user level and allows modification of the operating status (without changing system configuration). Access shall be restricted by means keys, code operated switches or locks or other equivalent means.		N/A
5.1.3	Access level 3		
	Level 3 provides access to all operations affecting system configuration. Access shall be restricted by means of keys, tools or code operated switches or locks. Level 3 access provides level 2 access. Access shall be annunciated to the remote centre before any modifications are effective.	Access is from the alarm system panel at access level 3.	P

5.2	Design		
5.2.1	Equipment using software		
	Where software is used within equipment, a monitor, which is independent of this software (e.g. watchdog device), shall ensure the correct execution of the program. Incorrect execution of the program shall generate a fault output.	IPRS7 shows a CID code of E552 along with the account number when a transmission failure occurs. The IPR512 shows a CID code of 1552 along with the account number when a transmission failure occurs.	P
5.2.2	Configuration parameter modification		
	It is allowed at access level 3 as per clause 5.1.3. Where modification of parameters is permitted from a remote centre the alarm transmission path for modification shall be established at the supervised premises at access level 3.		P
5.2.3	Parameter read-out		
	Read-out of parameters settings shall be possible. Read-out is required and allowed at the access level at which change can be done.	At access level 3	P
5.2.4	Storage of parameters		

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Clause	Requirement – Test	Result - Remark	Verdict
	Where different parameters are stored within the alarm system transceiver (e.g calling numbers, encryption codes, records, etc.) measures shall be taken to prevent the loss of these parameters for at least a period of six months following a loss of operational power supply.	No memory in IP150. Panel not evaluated.	N/E
	If a specific device for storage entry is used (e.g a battery) replacement of this device shall be made at access level 3)		N/E
5.3	Test transmission		
	At access level 2 or level 3, a supervised premises transceiver shall provide a means to send a message manually to the remote centre, for test purposes.	A manual test needs to be initiated from the alarm system the device is connected too.	P
5.4	Autonomy and power supply of the supervised premises transceiver		
	The supervised premises transceiver may be powered by the alarm system power supply or by a separate power supply. Where a separate power supply is used, it shall meet the performance requirements of the most demanding associated alarm system.	Power is supplied by the alarm system	N/A
	A means shall be provided to send a message to the alarm receiving centre before the total loss of power for the supervised premises transceiver, unless the loss of power is immediate (e.g. due to short Circuit).		N/A
5.5	Acknowledgement signal		
	Alarm transmission assurance can be accomplished by using an acknowledgement signal, see EN 50136-1-1 subclause 6.4.2.	1.Call and bi-directional 'handshake' is established 2.Transmitter send the message and waits for an acknowledge 3.Receiver check that information received is a valid message and send 'kiss-off' acknowledgement to transmitter if okay 4.If transmitters do not receive the 'kiss-off' a 'Fail to Comm' error will appear on the Keypad	P
	Where an acknowledgement signal is provided the time when the acknowledgement signal is generated shall be given in the product specification.		P

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Clause	Requirement – Test	Result - Remark	Verdict

5.6	Alarm report abortion		
	A means may be provided to abort an attempt to report an alarm message by access level 2 or 3 dependent from the alarm system during the time period before the communication line has been established.	No means provided to abort an alarm from device.	N/A

5.7	Housing and tampering		
	Where the supervised premises transceiver is housed separately the requirements for tampering and housing of the alarm transmission equipment shall be the same as or higher than those of the associated alarm system equipment. If no other requirement IS given for an alarm transmission transceiver it shall as a minimum requirement meet the requirements of Class IP3x as specified in EN 60529.	See appended table 6.7	P

5.8	Logging function		
	A logging function may be provided	IPRS7 can buffer 50,000 events IPR512 uses a memory card for storage.	P

5.9	Interface and/or protocol adaption equipment		
	When interface/protocol adaptation equipment is necessary and if this equipment is separately housed, it shall fulfill the requirements of subclause 5.7.	No adaption equipment is needed.	N/A

5.10	Power supply at the alarm receiving centre		
	The power supply of the receiving centre transceiver shall meet the same requirements as that specified for the associated annunciation equipment in EN 50136-4.	Not evaluated by Intertek	N/E

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Clause	Requirement – Test	Result - Remark	Verdict

5.11	Transmission time		
	The transmission time of the supervised premises transceiver shall be measured from the time that the supervised premises transceiver Interface to the alarm system changes state. Where this is not accessible (eg. where the supervised premises transceiver is an integrated part of the control and indicating equipment) or where more convenient the transmission time may be measured from a detectable change of state of the control and indicating equipment, or from the time that a simple switch or detector connected to the control and indicating equipment is operated.	See Intertek Report 100803903MIN-007	P
	The transmission time shall be the time that the new state is reported at the supervised premises transceiver interface to the transmission network. Where this is not accessible or where more convenient the transmission time may be measured to the time that the new state is reported at the supervised premises transceiver interface to the transmission network. Whichever method is used it shall be given in the product specification and tested accordingly.	Transmission time starts when the keypad is notified.	P
	The transmission time applies to all changes of state that are transmitted from the control and indicating equipment.		P
	The transmission times within the alarm system and within the annunciation equipment shall be specified.		P

5.12	Interfaces		
5.12.1	General		
	The manufacturer shall specify which interfaces are provided in the alarm system transceiver. This may include any proprietary or publicly available interface or an interface as per 5.12.2, 5.12.3 or 5.12.4. If any of the three following Interfaces is specified it shall fulfill all the requirements of the appropriate clause.	No modems used	N/A
	To allow free interconnection of equipment from different manufacturers, the following electrical interfaces are specified.		N/A
5.12.2	Parallel interface according to V31 bis.		
	Signals with a duration greater than 200 ms shall be recognized as messages.		N/A
	Input signals with a duration less than 50 ms shall not be recognized as messages.		N/A
	Output signals from the supervised premises transceiver shall have a duration of at least 200 ms.		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
5.12.3	Serial data interface according to V24N28		
	The interface shall consist of not less than the following 3 connections, defined in accordance with CCITT Recommendation V24N28. Circuit 102 Signal ground / common return Circuit 103 Transmitted data Circuit 104 Received data		N/A
	Equipment connected to the interface shall be capable of transmitting and receiving at least one of the speeds 300 baud and 1200 baud.		N/A
	The equipment may provide the facility to transmit and receive data at alternative speeds. Where this facility is provided both the transmitted and the received data speeds shall be identical and the alternative speeds shall be selectable by the use of links, switches or user programmable codes.		N/A
5.12.4	Serial data interface according to V23		
	Where a serial interface is provided (e.g. for transmission over amplified lines) then the equipment shall be able to send/receive data using CCITT Recommendation V23 (1200 baud, half duplex, 2 wire interface).		N/A
	The equipment may also provide transmission via alternative CCITT Recommendations. Where this option is provided then the form of transmission shall be selectable via the use of links, switches, other user programmable codes or automatically by the modem equipment itself.		N/A
5.13	Monitoring of the integrity of the supervised transceiver interface to the alarm system		
	Details of the method of monitoring, and of any restrictions, shall be given in the product specification.		P
5.13.1	Monitoring of interconnection with the alarm system		-
	In the event of failure of the interconnection between the alarm system and the alarm transmission equipment an alarm or fault message shall be generated and transmitted to the alarm receiving centre. The time to detect and send this signal shall be specified for the supervised premises transceiver.	See appended table 6.2	P
5.13.2	Monitoring of the alarm transmission system		-
	The period of time defined in EN 50136-1-1, subclause 6.3.4 shall be specified by the manufacturer.	ATS5 is indicated	P
5.13.3	Parallel interface		-

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	With all of the outputs from the alarm system In their normal (non-alarm) condition the supervised premises transceiver shall monitor the connections to the alarm system. An alarm or fault condition shall be generated within 10 seconds in the event of a short of all of the conductors or an open circuit of any conductor that would inhibit the transmission of an alarm message from the alarm system.		N/A
5.13.4	Serial data interface		
	The Integrity of the supervised premises transceiver Interface to the alarm system shall be monitored and an alarm or fault message shall be generated within 10 s.	When serial cable is removed from device a signal is sent to the keypad within the 10 second requirement. No signal is sent to the alarm receiving center until serial bus is reconnected..	P
5.14	Monitoring of the integrity of the supervised transceiver interface to the annunciation equipment		
	Details of the method of monitoring, and of any restrictions, shall be given in the product specification.		P
5.14.1	Parallel interface		-
	The interface shall be monitored NOTE: It is desirable that failure of this connection should also be monitored by the alarm transmission system.		N/A
5.14.2	Serial data interface		-
	The interface shall be monitored.	When serial cable is removed from device a signal is sent to the keypad within the 10 second requirement. No signal is sent to the alarm receiving center until serial bus is reconnected	P
5.15	Monitoring of the integrity of other interfaces within the alarm transmission system		
	In addition to the interfaces to alarm systems and annunciation equipment, individual items of alarm transmission equipment may have interfaces to other equipment. For such interfaces, details of the method of monitoring, and of any restrictions shall be given in the product specification.	No other interfaces exist	N/A
5.16	Signal integrity		
	Requirements for signaling security are specified in EN 50136-1-1, subclause 6.5.	See intertek report 100803903MIN-007	P

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict

5.17	Electrical safety and protection		
	Protection of persons and resistibility of alarm transmission equipment against electrical shock, fire and consequential hazards shall be provided in accordance with EN 60950.	Not evaluated by Intertek	N/E
	Test related to mains voltage connection points shall be designed in accordance with EN 60664 to withstand conditions occurring on the mains supply connection.		N/E

5.18	Securing messages		
	Messages sent through the alarm transceiver system shall be secured by the receiving centre transceiver. If the alarm transceiver centre is connected to an annunciation equipment, the alarm transceiver centre does not need to secure messages; in that event, the receiving centre transceiver shall only acknowledge messages after having received the acknowledgement from the annunciation equipment.	IPRS7 can buffer 50,000 events IPR512 uses a memory card for storage	P

6	Testing and environmental requirements		
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6.1	Functional test		
	The equipment shall be tested by the generating an alarm, followed by the generation of alarm restore, from one of the normal alarm Inputs. The fault detection times and the times taken to transmit alarm and fault messages shall comply with the details given in the product specification.	See appended table 6.1	P
	Where separate publications exist for specific types of alarm transmission systems and equipment then any additional basic functional test specified in those standards shall also be applied.	See also Intertek report 100803903MIN-007	P
6.1.1	Basic functional test		
	An alarm condition shall be presented to the equipment which shall generate an alarm message. The alarm condition shall be restored and the equipment shall return to its normal state. A restore message shall be transmitted when this is specified in the equipment specification.	See appended table 6.1	P
6.1.2	Attenuation		
	The basic functional test shall be carried out with both the maximum and minimum attenuations specified in the product specification in all transmission paths.	No voltage range given	N/A

6.2	Interface test		
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CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	The following tests on the equipment shall be carried out at ambient temperature and humidity and with the supply voltage at its nominal value. Tolerance shall be +25 % and -15 % of the nominal value for DC supplies and at +6 % and -10 % of the nominal value for AC supplies.	IP150's power supply is monitored which does not allow alternate power supplies to be used. The panel which it is attached to has a non variable power source.	N/A
6.2.1	General interfaces		-
	Any interface specified by the manufacturer shall be tested against its publicly available or proprietary specification. The power supply and all functions specified by the manufacturer shall be tested to their limits. The interface shall always be tested for transmission of all different alarm conditions specified, when subject to an alarm condition from a normal (non-alarm) condition.	No other interface specified	N/A
6.2.2	Parallel interface		-
	These shall be tested to the requirements specified in the CCITT V31 bis recommendation.		N/A
6.2.3	Serial interfaces		-
	Serial data shall be transmitted to and received from the equipment under test in a data pattern in accordance with the product specification.		P
	With the unit initially in the normal (non-alarm) condition messages shall be transmitted to the unit in order to generate each possible alarm message, individually and in combination.		P
	The test shall be repeated at all speeds listed in the product specification and at the maximum, nominal and minimum voltage levels specified in the relevant transmission standard.		N/A
6.2.4	Monitoring of the interconnection		-
	The equipment under test shall be configured such that all of its inputs are in the normal condition as specified in clauses 6.2.1 and 6.2.3.		P
	With a short circuit applied to all of the interface terminals, or with any one interface connection open circuit the unit shall either: a) continue to transmit alarm messages for all alarm inputs, or b) generate an alarm or fault condition.	See Intertek report 100803903MIN-007	P
	Some Units may require additional monitoring connections not required for normal alarm transmission in order to comply with the short circuit test. Where required this shall be stated in the product specification and these connections shall also be subjected to the open circuit test.	No other connections required	N/A

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	Some connections which cannot directly inhibit alarm transmission can be monitored from the alarm system (e.g. tamper detection from the transmitter). Such circuits shall be included in the short circuit test but excluded from the open Circuit requirement.	Tamper sent on short circuit	P
	Alarm transmission equipment is normally intended for use in weather protected locations. For equipment intended for use in outdoor Installations or other severe environments more severe tests shall be carried out.	Indoor use only	N/A
	In general the environmental requirements should be the requirements set for the control and indicating equipment with or within which the alarm transmission equipment is normally mounted.		-
6.3	Severity groups		-
	The four environmental categories are listed In EN 50131-1.	Class II required	P
6.4	Environmental testing and requirements		
	During the environmental tests the equipment shall be in its normal operating condition,		P
	The basic functional test specified In clause 6.1.1 shall be used to establish the status of the equipment under test unless otherwise specified.		P
	The equipment shall be Inspected Visually for mechanical damage, both externally and internally, following each test.		P
	Unless otherwise specified, the atmospheric conditions in the laboratory shall be the standard atmospheric conditions for measurements and tests, specified in IEC 60068-1 subclause 5.3.1, as follows: Temperature: 15-35°C Relative humidity: 25-75 % Air pressure: 86-106 kPa		P
	The unit shall continue to meet the requirements of this standard and shall not modify any transmitted messages or generate any un required message when subject to:		P
6.4.1	Dry heat (operational)	(see appended table 6.4.1)	P
	The test apparatus and procedure shall be in accordance with IEC 60068-2-2:1974, including Supplement IEC 60068-2-2A:1976. The tests with gradual changes in temperature shall be used.		P

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	The basic functional test shall be carried out a) after the equipment is first raised to the test temperature, b) during the test period, c) at the end of the test period whilst still at the test temperature, and d) after the equipment has returned to normal conditions.		P
	Apply the severity of conditioning according to table 1.		P
6.4.2	Cold (operational)	(see appended table 6.4.2)	P
	The test apparatus and procedure shall be in accordance with IEC 60068-2-1:1974 including Amendment 1:1983 and Supplement IEC 60068-2-1A:1976. The tests with gradual changes in temperature shall be used.		P
	The basic functional test shall be carried out a) after the equipment is first lowered to the test temperature, b) during the test period, e) at the end of the test period whilst still at the test temperature, and d) after the equipment has returned to normal conditions.		P
	Apply the severity of conditioning according to table 2.		P
6.4.3	Damp heat, steady state (operational)	(see appended table 6.4.3)	P
	The test apparatus and procedure shall be as described in IEC 60068-2-56:1988 except where impractical, in which case IEC 60068-2-3:1969 including Amendment 1:1984 shall be used.		P
	The basic functional test shall be carried out a) before the equipment is subjected to the damp heat environment, b) during the last 30 minutes of the conditioning period, and c) after the recovery period specified in IEC 60068-2-3, Clause 4.		P
	Apply the severity of conditioning according to table 3.	Test was run at 55°C to environmental class 3 due to a testing error. This is considered worst case so the test is still applicable	P
6.4.4	Damp heat, cyclic (operational)	(see appended table 6.4.4)	P
	The test apparatus and procedure shall be as described in IEC 60068-2-30:1980, including Amendment 1: 1985, using the Variant 1 test cycle and controlled recovery conditions.		P

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	The basic functional test shall be earned out a) before the equipment is subjected to the damp heat environment, b) during the last 30 minutes of the conditioning period, and c) after the recovery period specified in IEC 60068-2-30, Clause 8.		P
	Apply the severity of conditioning according to table 4.		P
6.4.5	Sulphur dioxide (SO ₂) corrosion (endurance)	Not required for environmental class II	N/A
	The test apparatus and procedure shall be generally as per IEC 60068-2-42:1982, except for the relative humidity of the test atmosphere, which shall be maintained at (93 +/- 3) % instead of (75 +/- 5) %.		N/A
	The basic functional test shall be carried out a) before the equipment IS subjected to the sulphur dioxide environment, b) after a drying period of 16 hours at 40°C, <=50 % RH and a recovery period of 1-2 hours at standard laboratory conditions.		N/A
	Apply the severity of conditioning according to table 5.		N/A
6.4.6	Salt mist, cyclic (endurance)	Not required for environmental class II	N/A
	The test apparatus shall comply with the requirements of IEC 60068-2-52:1984.		N/A
	The specimen shall be mounted in its intended orientation in accordance with the manufacturer's installation instructions. using any weather protection accessories provided, <i>and</i> the appropriate cable and cable glands etc.		N/A
	The basic functional test shall be carried out a) before the equipment is subjected to the salt mist exposure b) after the equipment has been washed and dried as per IEC 60068-2-52, Clause 10.		N/A
	Apply the severity of conditioning according to table 6.		N/A
6.4.7	Shock (operational)	(see appended table 6.4.7)	P
	The test apparatus and procedure shall generally be as per IEC 60068-2-27:1987 for a half sine wave pulse, but with the peak acceleration related to the specimen mass as indicated below.		P
	8 pulses of 6 ms shall be applied in each of 6 directions. Note: The equipment under test may be re-orientated in order to achieve the directions required.		P

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Clause	Requirement – Test	Result - Remark	Verdict

	The basic functional test shall be carried out before and after the equipment is subjected to the shocks.		P
	Apply the severity of conditioning according to table 7.		P
6.4.8	Impact (operational)	(see appended table 6.4.8)	P
	The test apparatus and procedures shall be as per IEC 6006B-2-63:1991. Impacts shall be applied to all accessible surfaces of the equipment, except for the display areas (ie. excluding CRT screens, LED/LCD displays, individual LED's and LED arrays).		P
	Three impacts shall be applied to each test Point.		P
	The basic functional test shall be carried out before and after the equipment is subjected to the impacts.		P
	Apply the severity of conditioning according to table 8.		P
6.4.9	Vibration, Sinusoidal (operational)	(see appended table 6.4.9)	P
	The test apparatus and procedure shall be generally as per IEC 60068-2-6:1982, including Amendments 1:1983 and 2:1985.		P
	The vibration shall be applied In each of three mutually perpendicular axes in turn. One of the three axes shall be perpendicular to the normal mounting plane of the equipment		P
	The equipment shall be subject to one sweep per axis per functional mode, at a rate of 1 octave per minute.		P
	The basic functional test shall be earned out before and after the equipment is subjected to the impacts.		P
	Apply the severity of conditioning according to table 9.		P

6.5	Equipment for monitored systems		
	For equipment intended to be used in alarm transmission systems that are automatically monitored the frequency of monitoring shall be tested to ensure that when connected in accordance with the product specification the alarm transmission system will conform to 50136-1-1 Table 3. The monitoring period and transmission time as of the equipment, which should be part of the product specification shall be checked against the specifications. Where options exist these shall be clearly identified in the product specification together with the method of selecting the options.	Monitoring not evaluated in this project	N/E

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	For monitored alarm transmission systems at level T1 or above according to table 3 of EN50136-1-1, a fault or alarm message should be generated In the event of:		-
	a) an open or short circuit on any circuit, including any part of a multi point circuit, or on any transmission path with a superimposed alarm message.	On a short and a open of the communication BUS a message is sent to the receiving center.	P
	b) the failure or removal of any fuse or power supply.	Removing the battery or the power supply will cause a message to be sent	P
	c) a Single failure of the alarm transmission equipment that affects the transmission of alarm messages, or which reduces the redundancy of the system.		P
	d) the disconnection of any part of the alarm transmission equipment	Disconnecting the power wire will shutdown the IP150. The IPR512 and the IPRS7 require the IP150 to send a ping every 90 sec. When this is not received a notification is initiated at the ARC.	P
	e) the operation of any switches or other controls that affect the transmission of an alarm message.	No Switches used	N/A
	The operation of any switches or other controls affecting configuration shall be tested to ensure that they are only operable at access level 3.		N/A

6.6	Signaling security		
6.6.1	Substitution security		-
	The transmission protocol shall be examined to ensure that, where the product specification identifies that the equipment is intended to be connected to an alarm transmission system conforming to the classification S1 or S2, the appropriate degree of uniqueness, encryption or authentication exists.		P
	For such systems additional tests shall be carried out to ensure that the substitution of an alternative transceiver with a different code or encryption key cannot be achieved without the generation and transmission of a fault message.	Alternate IP150 must be configured to each receiving centre. Cannot substitute IP150.	P

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	For transfer from the actual supervised premises transceiver to an alternative supervised premises transceiver, a transfer time less than the fault reporting time shall be achieved. The substitution test shall be performed so that the substitution can be separated from a fault on the transmission line, and the alarm or fault message shall be received within the appropriate time from Table 3 of EN 50136-1-1.	Alternate IP150 must be configured to each receiving centre. Cannot substitute IP150.	P
6.6.2	Information security		-
	The system design/message format shall be examined to ensure that the system provides the required minimum number of alternative keys and an appropriate level of encryption, including protection of the information transmitted, corresponding to the specification 11, 12 or 13 as given in EN 50136-1-1 clause 6.5.2.	Not evaluated by Intertek	N/E
6.6.3	Securing messages		
6.6.3.1	Securing messages through the receiving centre transceiver		N/E
	The test consists in verifying that a message which has been acknowledged by the receiving centre transceiver is secured and not lost in case of fault condition as per 5.18.		N/E
	An alarm message shall be presented to the receiving centre transceiver Interface. When the acknowledgement signal corresponding to the reception of this message is detected, a fault condition shall be applied to the receiving centre transceiver (e.g. power supply failure). When the normal operating condition is restored, it shall be possible to retrieve the alarm message from the receiving centre transceiver.		N/E
6.6.3.2	Securing messages through the annunciation equipment		-
	The test consists in verifying that the receiving centre transceiver which has received an alarm message does not send an acknowledgement before having passed the alarm message to the annunciation equipment and received the appropriate acknowledgement.	Disconnect receiver before signal is finished transmitting. IP150 resends signal	P
	The associated annunciation equipment shall be disconnected from the receiving centre transceiver. An alarm message shall be presented to the receiving centre transceiver interface.	IPRS7 shows a CID code of E552 along with the account number when a transmission failure occurs. The IPR512 shows a CID code of 1552 along with the account number when a transmission failure occurs.	P
	The receiving centre transceiver shall not send any acknowledgement signal to the alarm transmission system.	No signal sent	P

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict

6.7	Equipment container		
	The equipment container shall be tested in accordance with EN 60529.	See appended table 6.7	P
6.7.1	Supervised premises transceiver		P
	Where the supervised premises transceiver is intended for use with an alarm system whose requirements are more stringent than those In this standard then the equipment shall be tested in accordance with the requirements for the control and indicating equipment of the alarm system.	Intended to be used in an enclosure approved to EN 50131-1 and EN 50131-3	P
6.8	Electrical safety and protection		
	Tests shall be carried out In accordance with EN 60950.	Not evaluated by Intertek	N/E

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict

6.9	Installation		
	Test shall confirm that the alarm transmission equipment can be installed and commissioned in accordance with information and instructions supplied in the manufacturers product specification, and that it meets any specific requirement In the standard, where one exists, for the specific type of alarm transmission system and equipment.	Manual is accurate for installation	P

7	EMC tests and requirements
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	The alarm transmission equipment shall meet the emission requirements of EN 55022.	EMC not evaluated by Intertek	N/E
	Due to the use of alarm transmission systems and equipment for security applications where there is considerable risk for deliberate attempts to compromise the functionality of the equipment some additional requirements shall be specified as compared to the EN 50082-1.		N/E
	The equipment under test may require to be connected to other items of alarm transmission equipment, alarm system equipment, and/or annunciation equipment. For the purpose of testing this additional equipment may either be provided directly or it may be simulated.		N/E
	The transmission paths and/or networks that interconnect the equipment may be provided directly or simulated. For some tests the transmission paths shall be simulated (in order, for example, to vary their attenuation).		N/E

7.1	EMC tests and requirements		
7.1.1	Supply voltage variations (operational)	Not evaluated by Intertek	N/E
	The specimen shall be operated with all voltages at their nominal values and temperature stability has been reached. Where a nominal value is not quoted the mean value should be used, i.e. ($U_{mean} = (U_{max} + U_{min}) / 2$).		N/E
	The basic functional test shall be carried out.		N/E
	For each supply:		N/E
	a) the voltage shall be raised to the maximum value specified, the equipment allowed to reach temperature stability and the basic functional test repeated,		N/E
	b) the voltage shall be lowered to the minimum value specified, the equipment allowed to reach temperature stability and the basic functional test repeated, and		N/E

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	c) the voltage shall be returned to its nominal value and the equipment allowed to reach temperature stability.		N/E
	The basic functional test shall then be repeated.		N/E
	Apply the severity of conditioning according to table 10.		N/E
7.1.2	Supply voltage dips and interruptions (operational)		N/E
7.1.2.1	Mains supply voltage dips		N/E
	The mains voltage supply to the equipment shall be reduced to 50 % of the European nominal supply voltage (i.e. 115 V) for a period of 20 half cycles. This shall be repeated 9 times with an interval of 1 s (+0,5 s - 0,s) between each dip.		N/E
	The basic functional test shall be carried out before and after the equipment is subjected to the voltage dips.		N/E
7.1.2.2	Mains supply voltage interruptions		N/E
	The mains voltage supply to the equipment shall be interrupted for a period of 10 half cycles. This shall be repeated 9 times with an interval of 1 s (+ 0,5 s - 0s) between each dip.		N/E
	The basic functional test shall be carried out before and after the equipment is subjected to the voltage interruptions.		N/E
7.1.2.3	Low voltage DC supply dips	Not evaluated by Intertek	N/E
	The equipment shall be operated with all voltages at their mean values, and the basic functional test be carried out.		N/E
	The mean value shall be calculated as: ($U_{mean} = (U_{max} + U_{min})/2$).		N/E
	For each low voltage DC supply: a) the supply shall be raised to +15 % of its mean value, b) the supply shall be reduced to -15 % of the mean value in less than 1ms, maintained at that voltage for at least 10 s and then returned to +15 % of the mean value in less than 1 s. This test shall be repeated 9 times with an interval of at least 10 s between cycles, and c) the supply shall be returned to its nominal (or mean) value.		N/E
	The basic functional test shall then be repeated.		N/E
	Apply the severity of conditioning according to table 11.		N/E
7.1.3	Electrostatic discharge (operational)		N/E
	The test apparatus and procedure shall be in accordance with IEC 61000-4-2: 1995. The test procedure for type tests performed in laboratories shall be used.		N/E

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	The basic functional test shall be carried out before and after the equipment is subjected to the discharges.		N/E
	Apply the severity of conditioning according to table 12.		N/E
7.1.4	Radiated electromagnetic fields (operational)		N/E
	The test apparatus and procedure shall be in accordance with IEC 61000-4-3:1995, with the frequency range extended to cover the requirement given in 8.2.13.		N/E
	The basic functional test shall be carried out before and after the equipment is subjected to the interference.		N/E
	Apply the severity of conditioning according to table 13.		N/E
7.1.5	Fast transient bursts (operational)		N/E
	The test apparatus and procedure shall be in accordance with IEC 61000-4-4:1995, using the test procedure for type tests performed in laboratories.		N/E
	The basic functional test shall be carried out before and after the equipment is subjected to the transient bursts.		N/E
	Apply the severity of conditioning according to table 14.		N/E
7.1.6	Slow high energy voltage surge (operational)		N/E
	Details for this test are given in Annex 1.		N/E
	The equipment under test (EUn, transient generator, coupling network(s) and interconnecting cables shall be placed on an insulating support 0,1 m above a reference ground plane. The reference ground plane shall be copper or alumina at least 0,25 mm thick with an area of at least 1 m x 1 m, which extends at least 0,1 m beyond the boundaries of the above equipment. The EUT shall be at least 0,5 m from other conductive structures (e.g. the walls of a screened room).		N/E
	The EUT shall be arranged and connected in accordance with the manufacturer's installation instructions (e.g. no additional earth connections shall be made).		N/E
	The length of the signal and power lines between the EUT and the coupling/decoupling network(s) shall be 1 m or less.		N/E

CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	AC. mains power lines shall be subjected to transients injected in both differential mode and common mode. At least 8 pulses of each polarity shall be applied at each of the voltage levels shown for the appropriate severity. These pulses shall be applied at a rate of less than 1 Hz and phased such that they are distributed approximately uniformly with respect to the phase of the a.c. mains voltage wave.		N/E
	D.C. low voltage and signal lines shall be subjected to transients injected in common mode only, via a 50 ohm series resistance. If equipment has a large number of identical inputs/outputs (e.g. detector loops) representative samples of each type of input/output may be selected for testing. If it is specified that certain signal lines must only be connected with screened cables, then in these cases the transients shall be applied to the screen only. At least 20 pulses of each polarity shall be applied at each of the voltage levels shown for the appropriate severity. These pulses shall be applied at a rate of less than 1 Hz.		N/E
	The basic functional test shall be carried out a) before any test is performed b) after the test has been completed		N/E
	During the test, the equipment shall be monitored to detect any change in status.		N/E
	Apply the severity of conditioning according to table 15.		N/E

8	Marking
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	All system components shall be marked. The marking shall be legible, durable and unambiguous. All system components shall be marked with at least the following information: name of manufacturer or supplier type date of manufacture or batch number or serial number.		P
	Where space for marking of a system component is limited codes may be used, provided these codes are described in the associated product documentation.		P
	Terminals shall be numbered, colour coded or otherwise identified.	Cable connections are keyed	P

9	Product specification
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	Where applicable the following information shall be contained in a product specification which shall be available to system specifiers, system designers, testing establishments, etc.		
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CEI EN 50136-2-1			
Clause	Requirement – Test	Result - Remark	Verdict
	a) the electrical supply requirements in terms of voltage range, current and frequency.		P
	b) the type of alarm transmission system(s) for which the equipment is suitable, and details of equipment to which it is intended to interconnect.		P
	c) the times for the generation, where appropriate, and transmission of alarm messages.		N/A
	d) the time for generation of an acknowledgement signal when used		P
	e) the times for the detection and reporting of faults.		N/A
	f) the type of interface required, including any special requirements concerning the monitoring of the interface.		P
	g) the output signal levels and/or the input signal sensitivity (ie. maximum and minimum permissible attenuation), including details of any optional settings.	No such settings	N/A
	h) the tolerance of the alarm transmission equipment to interference on the transmission path.		P
	i) reference to the emission standard with what the equipment conforms.		P
	j) details of the level of signaling security provided, including details of any optional settings.		P
	k) installation and wiring instructions.		P
	l) instructions for any adjustments, including the specification of any tools or test equipment required.	No adjustment available	N/A
	m) the tests to be carried out following the installation of the unit to confirm its operation and a guide to the Identification of simple/common faults.		P
	n) details of the connection to and setting of a serial data interface, when provided, and details of the serial protocol options supported.		P
	o) any details required by the user of the equipment including an explanation of the operation of any switches and the meaning of any indicators.	No such switches	N/A
	p) suitability for use on shared transmission paths and specification to what type of shared paths or systems		N/A
	An installation guide shall be supplied with the equipment which shall contain at least items (j) - (n).		P
	Where appropriate a user guide shall also be supplied with the equipment containing at least item (o).	No user guide needed	N/A

CLAUSE 6.1 – Functional tests

6.1	TABLE: Functional tests IPRS7			Pass
Action		Response	Time to respond	Results
Generate an alarm (intruder from keypad)		CID report code 1120	4sec	P
Restore alarm		CID report code 3406	9sec	P
Supplemental information: <u>Test date:</u> 12/30/2012 <u>Equipment:</u> 4:				

6.1	TABLE: Functional tests IPR512			Pass
Action		Response	Time to respond	Results
Generate an alarm (intruder from keypad)		CID report code E120	5sec	P
Restore alarm		CID report code E406	10sec	P
Supplemental information: <u>Test date:</u> 12/30/2012 <u>Equipment:</u> 4				

Results: Pass

Test date: 12/30/2012

Equipment: 4

CLAUSE 6.2 – Interface test

6.2	TABLE: Interface tests IPRS7			Pass
Action		Response	Time to respond	Results
Short circuit communication BUS		CID report code 1333	5	P
Open on communication BUS		CID report code 1333	8	P
Supplemental information: <u>Test date:</u> 12/30/2012 <u>Equipment:</u> 4				

6.2	TABLE: Interface tests IPR512			Pass
Action		Response	Time to respond	Results
Short circuit communication BUS		CID report code E333	6	P
Open on communication BUS		CID report code E333	7	P
Supplemental information: <u>Test date:</u> 12/30/2012 <u>Equipment:</u> 4				

CLAUSE 6.4 – Environmental tests

6.4	TABLE: Environmental tests (Class II components)			P
Test Conditions	Reduced functional test results			Result
	Before	During	After	
Dry Heat (Operational) Conditioned at 55°C for 16 hours	P	P	P	P
Cold (Operational) Conditioned at -10°C for 16 hours	P	P	P	P
Damp Heat, Steady State (Endurance) Conditioned at 40°C & 93%RH for 21 days	P	-	P	P
Damp Heat, Cyclic (Operational) Conditioned at 25°C & 95%RH for 9 hours, then 40°C and 93%RH for 9 hours. Repeat the cycle again	P	P	P	P
Impact IK04 (0.5J)	P	P	P	P
Mechanical Shock (Operational) Pulse duration 6 ms, Peak acceleration = 1000 – (200M), Number of shock directions = 6, Number of pulses per direction = 3	P	P	P	P
Vibration, Sinusoidal (Operational) Frequency range: 10-150 Hz Acceleration: 5 m/s Number of axes: 3 Sweep rate: 1 octave per minute Number of sweep cycles/axis/functional mode: 1	P	P	P	P
EMC	P*	P*	P*	P*
Supplementary information: “P” for result of reduced functional test indicated that the results are identical to those in Clause 6.1. “Monitor” indicates no errant signals or messages occurred during the conditioning period. *See NEMKO Report# 225625-1TRFEM				

CLAUSE 6.5 – Equipment for monitored systems

6.5	TABLE: Equipment for monitored systems		
Action		Response	Results
a) an open or short circuit on any circuit, including any part of a multi point circuit, or on any transmission path with a superimposed alarm message.		On a short and a open of the communication BUS a message is sent to the receiving center.	P
b) the failure or removal of any fuse or power supply.		Removing the battery or the power supply will cause a message to be sent	P
c) a Single failure of the alarm transmission equipment that affects the transmission of alarm messages, or which reduces the redundancy of the system.			P
d) the disconnection of any part of the alarm transmission equipment		Disconnecting the power wire will shutdown the IP150. The IPR512	P

	and the IPRS7 require the IP150 to send a ping every 90 sec. When this is not received a notification is initiated at the ARC..	
e) the operation of any switches or other controls that affect the transmission of an alarm message.	No Switches used	N/A
Supplemental information: <u>Test date:</u> 12/30/2012 <u>Equipment:</u> N/A		

CLAUSE 6.7 – Equipment container

Enclosure of the alarm transceiver must meet IEC 60529, IP3X. The test rod of diameter 2.5mm shall not penetrate and adequate clearance must be kept.

6.7	TABLE: Equipment container	
Component	Access with 2.5 mm rod	Results
Plastic enclosure	No access that allows tampering with IP150	P
Supplemental information: <u>Test date:</u> 12/30/2012 <u>Equipment:</u> 3, 5		

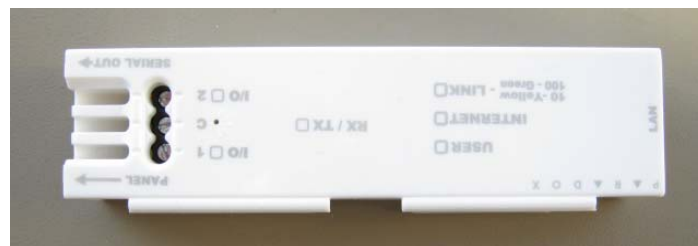
Item	Type	Equipment Number	Calibration Date		Comments
			Last	Due	
1	Temp Humidity gauge	172150	4/9/2012	4/9/2013	
2	Barometer	17593	1/14/2012	1/14/2013	
3	2.5mm probe	15295	6/12/2007	ICO	
4	Timer	MIN-0042	12/30/2011	12/30/2012	
5	Caliper	172412	4/24/2012	4/24/2013	

During the testing, the ambient conditions were: 19.7°C, 22.1 % RH, 1034 hPa.

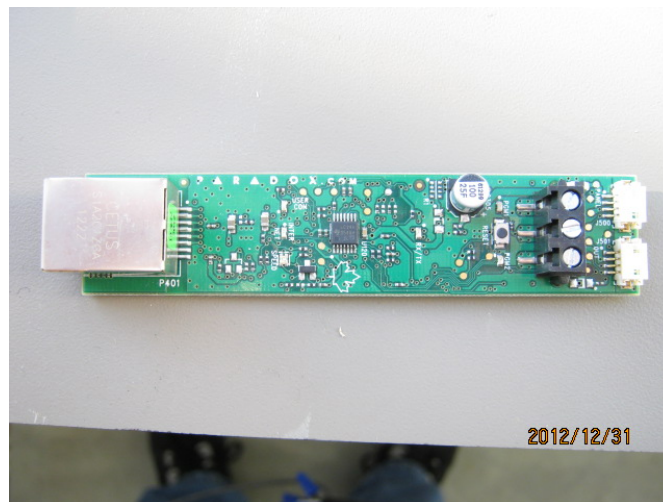
PICTURES



IP150 Mounted in metal Enclosure



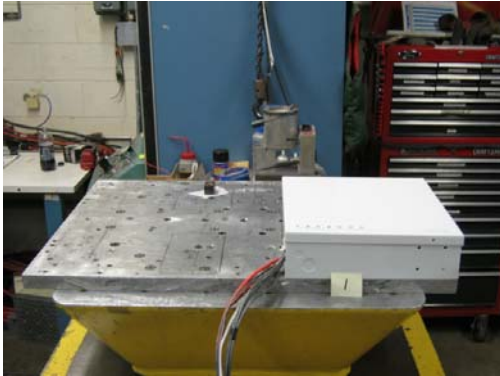
IP150 Enclosure



IP150 Board



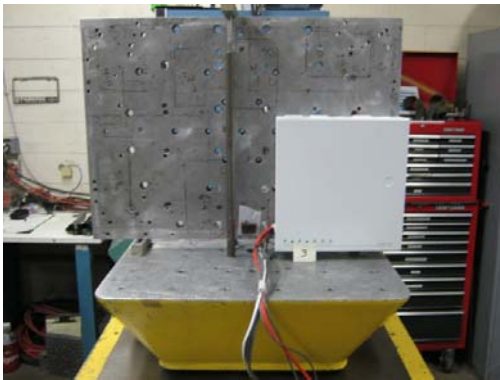
IPR512

CLAUSE 19 (EN 50130-5) – SHOCK (OPERATIONAL) Pictures

Axis 1



Axis 2



Axis 3



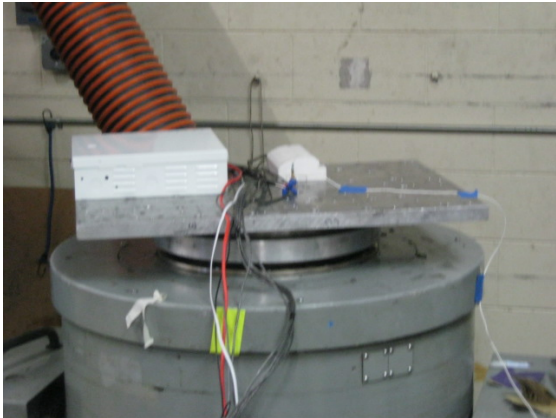
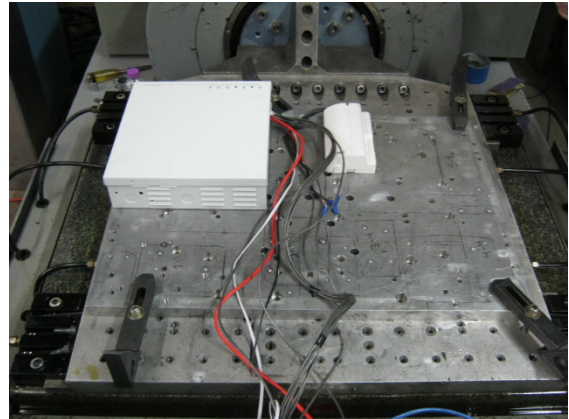
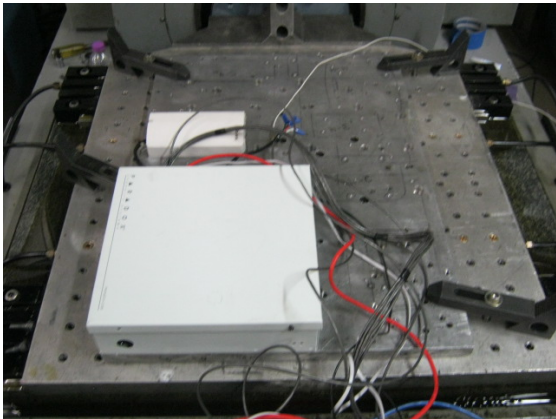
Axis 4



Axis 5



Axis 6

CLAUSE 22 (EN 50130-5) – VIBRATION, SINUSOIDAL (OPERATIONAL) Pictures.**Z-axis****Y-axis****X-axis**