

TEST REPORT

ACCORDING TO:

EN 50136-1:2012
EN 50136-2:2013
EN 50131-10:2014

FOR:

Paradox Security Systems Ltd.

EUT:

1~7) ATS of Control Panel

Model:

- | | |
|-----------|-------------------------|
| 1) EVO192 | (PSTN ATS – SP3) |
| 2) SP4000 | (PSTN ATS – SP2) |
| 3) SP5500 | (PSTN ATS – SP2) |
| 4) SP6000 | (PSTN ATS – SP2) |
| 5) MG5050 | (PSTN ATS – SP2) |
| 6) MG6250 | (PSTN ATS option – SP2) |
| 7) MG6250 | (GPRS ATS option – SP2) |

This report is in conformity with ISO/IEC 17025. The "A2LA Accredited" symbol endorsement applies only to the tests and calibrations that are listed in the scope of Hermon Laboratories accreditation. The test results relate only to the items tested.
This test report shall not be reproduced in any form except in full with the written approval of Hermon Laboratories Ltd.

Table of contents

1	Applicant information.....	3
2	Equipment under test attributes	3
3	Manufacturer information	4
4	Test details.....	4
5	EUT description.....	5
5.1	General information.....	5
5.2	EUT acceptance criteria	15
5.3	EUT visual inspection and functional check	15
5.4	Setup and settings.....	15
6	Tests summary.....	16
7	Tests results.....	20
7.1	Access levels test procedure and results	27
7.2	Upload and download of software and firmware test procedure and results	29
7.3	Parameter storage test procedure and results	30
7.4	ATS fault reporting to AS test procedure and results	31
7.5	Standardized serial interface to the AS test procedure and results.....	33
7.6	Standardized parallel interface to the AS test procedure and results.....	34
7.7	Proprietary interface to the AS test procedure and results.....	36
7.8	Monitoring of the transmission network interface test procedure and results.....	37
7.9	Event logging test procedure and results	39
7.10	Protection of the log test procedure and results	40
7.11	Event log capacity and endurance test procedure and results	41
7.12	Clock resolution test procedure and results	43
7.13	Store-and-forward operation test procedure and results	44
7.14	Pass-through operation test procedure and results.....	46
7.15	SPT alarms test procedure and results	48
7.16	Information and substitution security test procedure and results.....	49
7.17	Documentation test procedure and results.....	50
7.18	Power supply test.....	54
8	APPENDIX A Test equipment and ancillaries used for tests.....	55
9	APPENDIX B Test laboratory description	56
10	APPENDIX C Abbreviations and acronyms	57
11	APPENDIX D Tests specifications	58
12	APPENDIX E Measurement uncertainties.....	58

1 Applicant information

Client name: Paradox Security Systems Ltd.
Address: 780 INDUSTRIAL BLVD
 ST-EUSTACHE, QC, CANADA J7R 5V3
Telephone: 450-491-7444
Fax: 450-491-1095
E-mail: alexc@paradox.com
Contact name: Mr. Alex Chaplik

2 Equipment under test attributes

# Num	Description	Model Name	HW Version	SW Version
1	SPT of Control Panel	EVO192	668-4004-010	V4.63
2	SPT of Control Panel	SP4000	728-5005-100	V5.20
3	SPT of Control Panel	SP5500	750-6006-991	V6.10
4	SPT of Control Panel	SP6000	750-6006-991	V6.10
5	SPT of Control Panel	MG5050	910-2002-030	V4.80
NOTE	All above Control Panels use the same metal box provided with the same tamper solution. The ATS modules are on board modules.			
6	SPT of Control Panel	MG6250	900-3003-000	V1.70
7	SPT of Control Panel	MG6250	900-3003-000	V1.70
NOTE	The MG6250 Control Panels use the same plastic box and the difference is in ATS module used (either PSTN or GSM as standalone modules) PSTN is on board, GPRS of board.			
	SPT module data (same for all control panels):			
	PSTN	Part of main board		
	GPRS (MG6250 only)	GPRS14	710-3014-020	V11

Condition of the equipment Test samples
Receipt date 16-August-17

3 Manufacturer information

Client name: Paradox Security Systems Ltd.
Address: 780 INDUSTRIAL BLVD
ST-EUSTACHE, QC, CANADA J7R 5V3
Telephone: 450-491-7444
Fax: 450-491-1095
E-mail: alexc@paradox.com
Contact name: Mr. Alex Chaplik

4 Test details

Project ID: 29953
Location: Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel
Test started: 21-Aug-17
Test completed: 21-Aug-17 – 9-Oct-17
Test specification(s): EN 50136-1:2012, EN 50136-2:2013, EN 50131-10:2014

5 EUT description

5.1 General information

The EUTs are the integrated ATS of wireless alarm system control panels.

The control panels are classified as the following:

EVO192 - Environmental **Class II**, Security **Grade 3**, fixed equipment, **Type A** Power Supply.

SP4000, SP5500, SP6000, MG5050 and MG6250 - Environmental **Class II**, Security **Grade 2**, fixed equipment, **Type A** Power Supply

EV192, SP4000, SP5500, SP6000 and MG5050 control panel use same metal box enclosure which is protected by same tamper mechanism that was tested under EN 50131-3 investigation at separate reports.

MG6250 control panel use plastic enclosure which protected by tamper mechanism that tested under EN 50131-3 investigation at separate report

All control panels have the possibility of reporting via PSTN network.

Control panel model MG6250 has in addition to PSTN reporting path, GPRS reporting option.

MG6250 reporting paths (PSTN or GPRS) are used independently and not as backup, one for each other.

ATS configuration:

- 1) EVO192 – Type Z SPT with Single path as PSTN network, SP3 classification
- 2) SP4000 – Type Z SPT with Single path as PSTN network, SP2 classification
- 3) SP5500 – Type Z SPT with Single path as PSTN network, SP2 classification
- 4) SP6000 – Type Z SPT with Single path as PSTN network, SP2 classification
- 5) MG5050 – Type Z SPT with Single path as PSTN network, SP2 classification
- 6) MG6250 – Type Z SPT with Single path as PSTN network or as GPRS network (not as backup for each other), SP2 classification

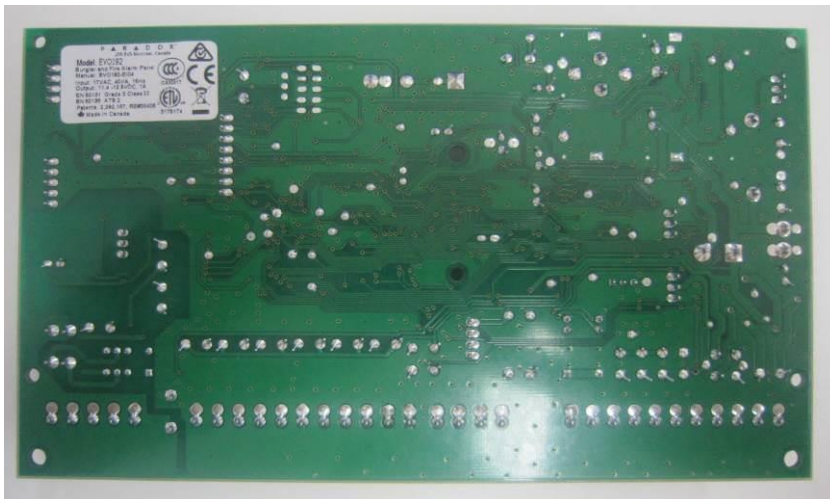
The EUTs event log, integrated with the control panels and tested with ancillary control equipment (keypad)

The EUTs are presented in Photographs 5.1.1 to 5.1.18.

Photograph 5.1.1 – EVO192, SP4000, SP5500, SP6000, MG5050 CIE general view



Photograph 5.1.2, 5.1.3 – EVO192 PCB view



Photograph 5.1.4, 5.1.5 – SP4000 PCB view



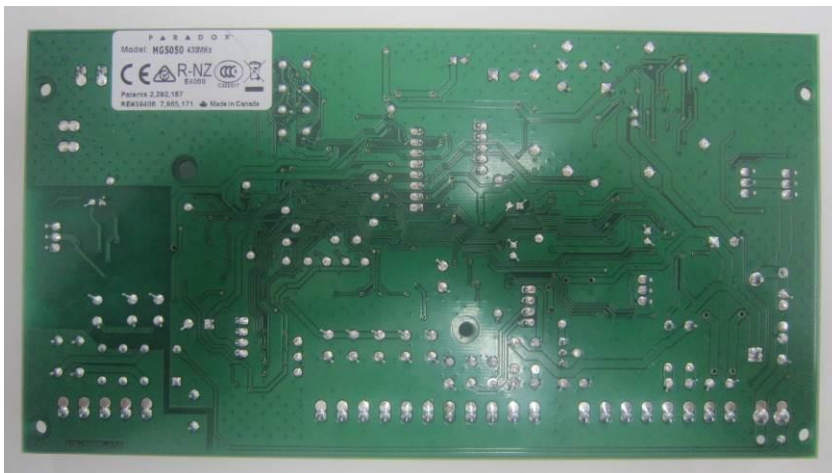
Photograph 5.1.6, 5.1.7 – SP5500 PCB view



Photograph 5.1.8, 5.1.9 – SP6000 PCB view



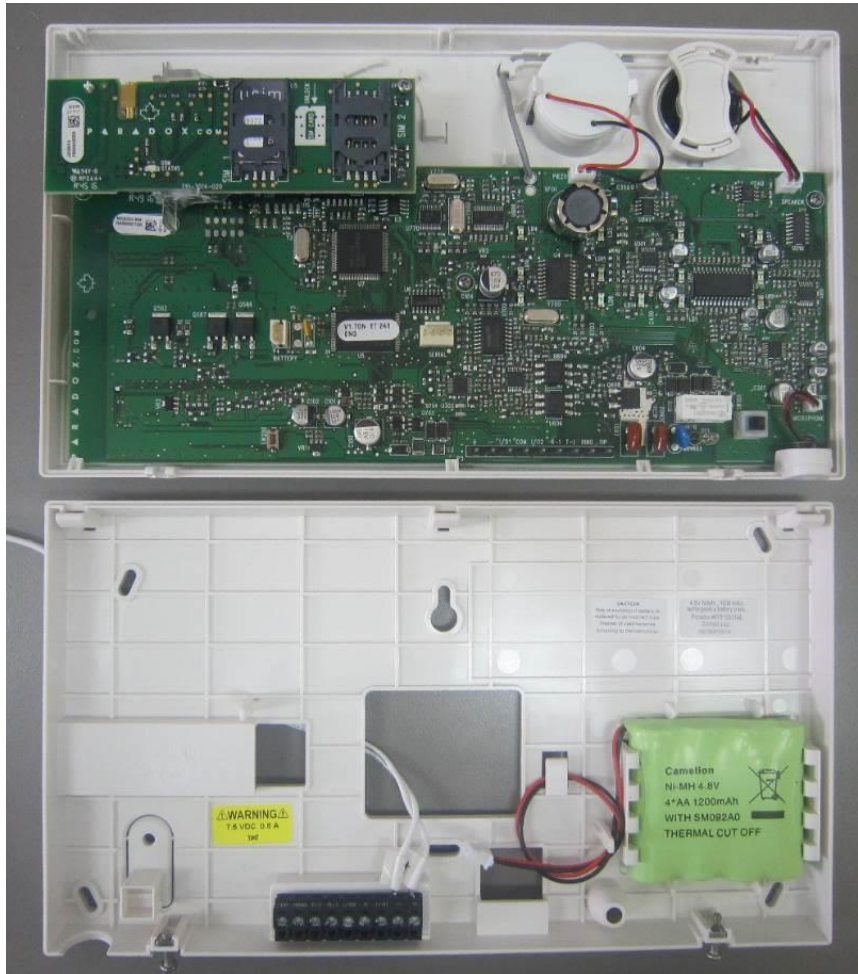
Photograph 5.1.10, 5.1.11 – MG5050 PCB view



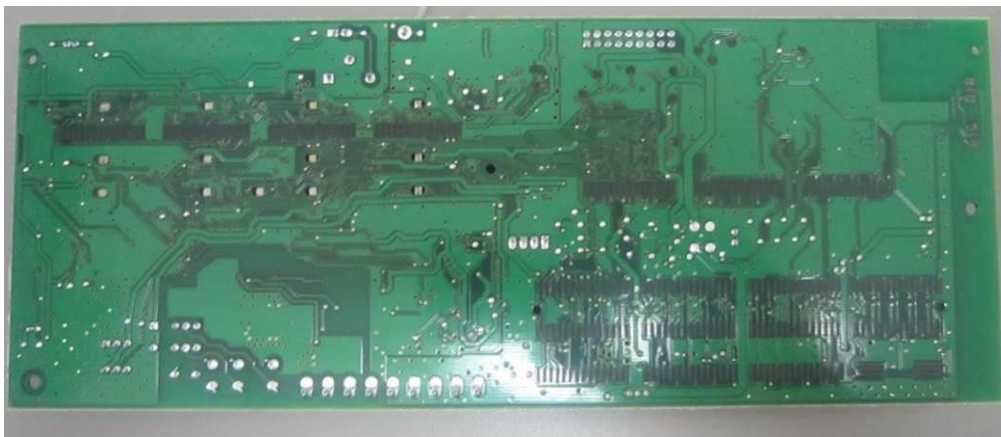
Photograph 5.1.12, 5.1.13 – MG6250 general view



Photograph 5.1.14 – MG6250 internal view



Photograph 5.1.15, 5.1.16 – MG6250 PCB view

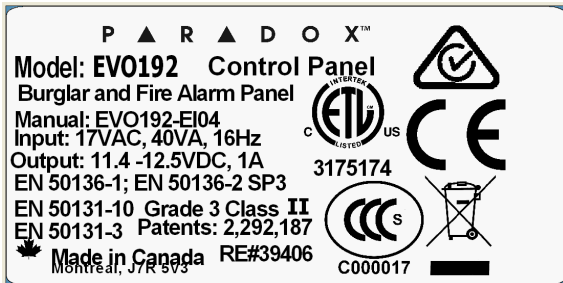


Photograph 5.1.17, 5.1.18 – GPRS module for MG6250 view



Photograph 5.1.19 – Modules labels

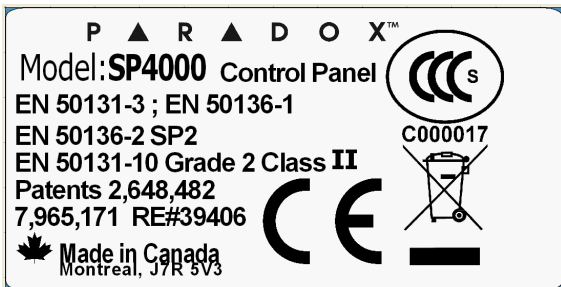
EVO192



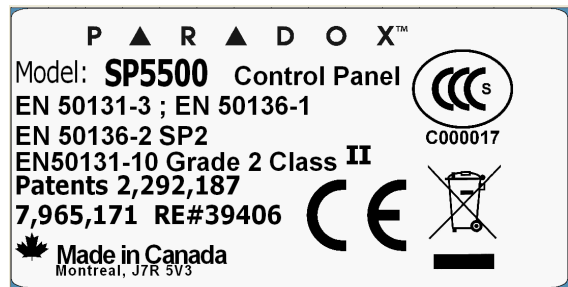
SP6000



SP4000



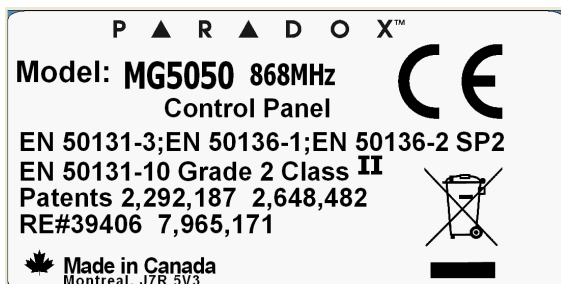
SP5500



MG5050



MG6250



5.2 EUT acceptance criteria

Whenever specified by the EN 50136-2 and EN 50131-10 standards, the EUT shall pass the Reduced Functional Test. The EUT should fulfill all EN 50136-1, EN 50136-2 and EN 50131-10 standard requirements.

5.3 EUT visual inspection and functional check

Whenever specified by EN50136-2 and EN 50131-10 standards the Reduced Functional Test was carried out also the post tests visual inspections.

5.4 Setup and settings

The test configuration is presented in Figure 5.4.1 and 5.4.2

Figure 5.4.1 - ATS and test setup configuration

Main board can be EVO192, SP4000, SP5500, SP6000 or MG5050

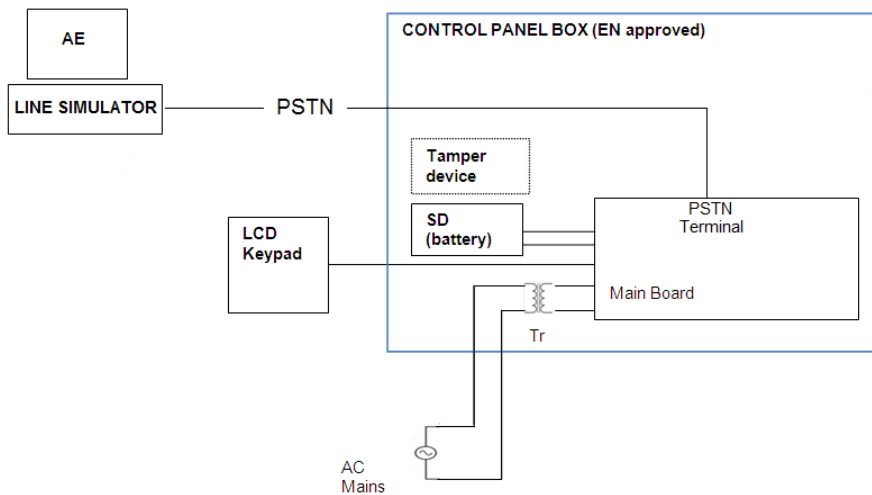
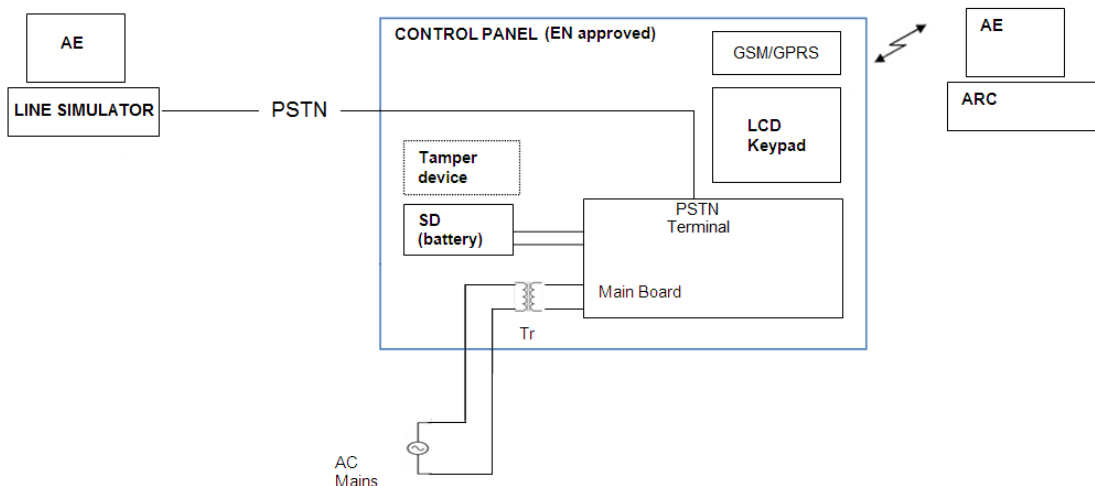


Figure 5.4.2 - ATS and test setup configuration for MG6250

Control Panel MG6250 tested while connected to PSTN ATP or GPRS ATP (not as backup for each other)



6 Tests summary

Table 6.1.1 ATS performance criteria & results for EVO192, SP4000 and SP5500

Performance criteria	ATS Configuration & Criteria	Results/ Remark			Verdict
	SP3	EVO192	SP4000	SP5500	
Arithmetic mean of all transmissions	20 sec	15 sec	15 sec	16 sec	C
95% of all transmissions	30 sec	< 17 sec	< 17 sec	< 16 sec	C
Maximum acceptable transmission time	60 sec	17 sec	17 sec	19 sec	C
Primary ATP Reporting time	30 min	55 sec	65 sec	40 sec	C
Alternative ATP Maximum period when Primary operational	N/A	N/A	N/A	N/A	NA
Alternative ATP Maximum period when primary failed	N/A	N/A	N/A	N/A	NA
ATS reporting when more than 2 ATPs	N/A	N/A	N/A	N/A	NA
Substitution security	N/A	N/A	N/A	N/A	NA
Information security	N/A	N/A	N/A	N/A	NA

Table 6.1.2 ATS performance criteria & results for SP6000, MG5050 and MG6250

Performance criteria	ATS Configuration & Criteria	Results/ Remark				Verdict
	SP3	SP6000	MG5050	MG6250		
				PSTN option	GPRS option	
Arithmetic mean of all transmissions	20 sec	15 sec	15 sec	15 sec	3 sec	C
95% of all transmissions	30 sec	< 16 sec	< 16 sec	< 18 sec	< 3 sec	C
Maximum acceptable transmission time	60 sec	18 sec	16 sec	19 sec	3 sec	C
Primary ATP Reporting time	30 min	45 sec	45 sec	40 sec	90 sec	C
Alternative ATP Maximum period when Primary operational	N/A	N/A	N/A	N/A		NA
Alternative ATP Maximum period when primary failed	N/A	N/A	N/A	N/A		NA
ATS reporting when more than 2 ATPs	N/A	N/A	N/A	N/A		NA
Substitution security	N/A	N/A	N/A	N/A		NA
Information security	N/A	N/A	N/A	N/A		NA

Table 6.2 SPT Classifications

SPT description	Security Grade	Environmental Class	SPT Type (EN50131-10)	PS Type
EVO192 (PSTN)	3	II	Z	A (shared with CIE)
SP4000 (PSTN)	2	II	Z	A (shared with CIE)
SP5500 (PSTN)	2	II	Z	A (shared with CIE)
SP6000 (PSTN)	2	II	Z	A (shared with CIE)
MG5050 (PSTN)	2	II	Z	A (shared with CIE)
MG6250 (PSTN or GPRS)	2	II	Z	A (shared with CIE)

Test	Status
EN 50136-2	
Section 9.4.2, Access levels	Pass
Section 9.4.3, Uploading and downloading of software and firmware	N/A
Section 9.4.4, Parameter storage	Pass
Section 9.4.5, Test of ATS fault reporting to AS	Pass
Section 9.4.6, Standardized serial interface to the AS	Pass*
Section 9.4.7, Standardized parallel interface to the AS	N/A
Section 9.4.8, Proprietary interface to the AS	N/A
Section 9.4.9, Monitoring of the transmission network interface	Pass
Section 9.4.10, Event logging	Pass
Section 9.4.11, Protection of the log	Pass
Section 9.4.12, Event log capacity and endurance	Pass
Section 9.4.13, Clock resolution	Pass
Section 9.4.14, Store-and-forward operation	Pass
Section 9.4.15, Pass-through operation	N/A**
Section 9.4.16, SPT alarms	Pass
Section 9.4.17, Information and substitution security	N/A
Section 9.4.18, Documentation	Pass
EN 50131-10	
Section 10.3.1, Tamper protection	See Note1
Section 10.3.2, Tamper detection – Access to the inside of the housing	See Note1
Section 10.3.3, Tamper detection – Removal from mounting	See Note1
Section 10.4, Substitution	N/A***
Section 10.5.2, Average current consumption	Pass*
Section 10.5.3, Test of SPT with type C power supply	N/A****
Section 10.5.4, Peak current consumption	Pass*
Section 10.6, Documentation and Marking	Pass
Section 10.7, Environmental and EMC	See Note2

- * For MG6250 panel only with GPRS module, others PSTN modules are on board
- ** Store-and-forward operation mode
- *** Mandatory for Grade 4 only
- **** Not Type C power supply

Note 1: Tamper tests were done under the EN 50131-3 investigation and presented in the following report:

- 1) EVO192 – Intertek report number 00484764MIN-012
- 2, 3, 4) SP4000, SP5500, SP6000 – Intertek report number 100546807MIN-002
- 5) MG5050 – Intertek report number 100803903MIN-002
- 6) MG6250 – Intertek report number 100528653MIN-002

Note 2: See separate Intertek and Nemko reports:

For Environmental:

- 1) EVO192 – Intertek report number 100803903MIN-012
- 2, 3, 4) SP4000, SP5500, SP6000 – Intertek report number 100546807MIN-002
- 5) MG5050 – Intertek report number 100803903MIN-002

6) MG6250 – Intertek report number 100528653MIN-002

For EMC:

- 1) EVO192 – Nemko report number 247503-3TRFEMC
- 2) SP4000 – Nemko report number 260100-7TRFEMC
- 3) SP5500 – Nemko report number 88429-1TRFEMC
- 4) SP6000 – Nemko report number 239298-1TRFEMC
- 5) MG5050 – Nemko report number 260100-1TRFEMC
- 6) MG6250 – Nemko report number 260100-6TRFEMC

The EUTs, ATS category SP3 (EVO192) and ATS category SP2 (SP4000, SP5500, SP6000, MG5050, MG6250), SPT Type Z, were subjected to tests according to EN 50136-1:2012, EN 50136-2:2013 and EN 50131-10:2014 for Security Grade 2 (EVO192 Grade 3), Environmental Class II and found to be in compliance with the standards requirements.

This test report is an amendment of and supersedes the previous Hermon Laboratories test report PARIAS_EN 50136.29953 issued October 15, 2017. The changes are detailed in the following table:

Revision History Table:					
Date	File No.	Prepared	Reviewed	Approved	Amendment Description
October 16, 2017	PARIAS_EN 50136.29953_Rev1	Mr. Ilan Benihass Team leader , Product Safety & Security Systems 	Mr. Mihaeli Feldmann, Environmental Group Manager 	Mr. Michael Brun Product Safety Group Manager 	Typo correction
October 15, 2017	PARIAS_EN 50136.29953	Mr. Ilan Benihass Team leader , Product Safety & Security Systems	Mr. Mihaeli Feldmann, Environmental Group Manager	Mr. Michael Brun Product Safety Group Manager	Original Report

7 Tests results

Table 7.1 - EN 50136-1 Compliance General Matrix

I. EN 50136-1 reference		Result				Remarks and document reference
Section	Requirement	C	NC	NA	NT	
5	General requirements					
5.1	ATS configuration	✓				SP3 (EVO192), SP2 (SP4000, SP5500, SP6000, MG5050, MG6250), configuration tested, See section 6 Test Summary
5.2	ATS categories					
5.2.1	General	✓				Single path ATS for all units See section 6 Test Summary
5.2.2	Custom category			✓		No custom category
5.2.2.1	General			✓		As above
5.2.2.2	Documentation			✓		As above
5.3	Applicable network standards	✓				PSTN for all models Additional GPRS option for MG6250
6	System requirements					
6.1	General	✓				Considered
6.2	Transmission links requirements					
6.2.1	General	✓				PSTN for all models Additional GPRS option for MG6250
6.2.2	Transmission links shared with other applications	✓				Tested transmission link does not prevent the ATS from meeting the requirements of this European Standard.
6.2.3	Transmission network equipment			✓		Not subject to the requirements of EN 50136-2
6.2.4	ATSN capacity			✓		ATSN , ATP and the compatibles Digital Alarm Communication Receivers (DACRs) were not evaluated as not being part of the tested unit (EUT)
6.2.5	Denial of service			✓		Depend on antivirus protection at SPT and ARC antivirus protection at RCT
6.3	Performance					
6.3.1	General	✓				Considered
6.3.2	Transmission time	✓				See Table 6.1 above
6.3.3	Monitoring of the interconnection with the alarm system					

I. EN 50136-1 reference		Result				Remarks and document reference
Section	Requirement	C	NC	NA	NT	
6.3.3.1	General	✓				AS to SPT interconnection and SPT to ATP interconnection monitoring by presenting fault message at AS event log and RCT when there is a communication problem. RCT to AE interconnection and implicitly ATP end-to-end monitoring was not evaluated as not being part of the tested unit (EUT).
6.3.3.2	Monitoring of the alarm transmission system	✓				Interconnection fault between the AS and SPT is detected and reported by SPT (Tested under EN 50136-2:13).
6.3.3.3	Monitoring of ATS					
6.3.3.3.1	General	✓				Interconnection fault of the ATS monitored, detected and reported within the time described in Table 6.1 above (Tested under EN 50136-2:13).
6.3.3.3.2	Dual path ATS (DP1-DP4)			✓		Single path only
6.3.3.4	Monitoring of interconnection with the AE			✓		RCT to AE interconnection and implicitly ATP end-to-end monitoring was not evaluated as not being part of the tested unit (EUT)
6.4	Securing the messages in the alarm transmission system	✓				Messages cannot be lost in the event of power failure or any other event generated internally by the SPT or RCT. All messages are secured in AS and those already transmitted in ARC non-volatile memories.
6.5	Alarm transmission acknowledgement	✓				A fault message on failure of delivery is sent to the AS by the SPT
6.6	ATS generated alarms	✓				All alarms and path failures reported to the AE and AS. (Tested under EN 50136-2:13)
6.7	Availability					
6.7.1	General	✓				100% availability during 2 weeks of testing period (daily monitored)
6.7.2	Redundancy/duplication				✓	Single path interface tested
6.7.3	ATS unavailability	✓				Considered
6.7.4	Duration of faults	✓				Considered
6.7.5	ATS availability recording	✓				100% during 7 days (no unavailability recorded)
6.7.6	ATSN availability			✓		New product, no extended 1 year test
6.8	Security					
6.8.1	General security requirements			✓		Information and substitution security not mandatory for SPTs with SP2 and SP3 classification
6.8.2	Substitution security			✓		
6.8.3	Information security			✓		
7	Verification of performance					

I. EN 50136-1 reference		Result				Remarks and document reference
Section	Requirement	C	NC	NA	NT	
7.1	General	✓				Alarm signals and ATS faults were transmitted to RCT and then to AE in order to verify the operation of the ATS. (ATS faults were presented in the AS) The ATS is continuously monitored.
7.2	ATSN performance	✓				Considered
7.3	Transmission time	✓				As per Table 6.1 above
7.4	Verification interval			✓		Upon ATSP responsibility
7.5	Availability					
7.5.1	Records			✓		Upon ATSP, new product, no records available
7.5.2	Inspection of records			✓		As above
7.5.3	Calculations					
7.5.3.1	General	✓				
7.5.3.2	ATS availability calculations	✓				100% during test period (7 days)
7.5.3.3	ATSN availability calculations	✓				As above
8	Documentation	✓				See Chapter 7.17

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

Table 7.2 - EN 50136-2 Compliance General Matrix

II. EN 50136-2 reference		Result				Remarks/Document reference
Section	Requirement	C	NC	NA	NT	
5	Functional requirements					
5.1	General	✓				Considered
5.2	Access levels	✓				See 9.4.2 below
5.3	Remote access			✓		Information and substitution security not mandatory for SPTs with SP2 and SP3 classification.
5.4	Uploading and downloading of software and firmware			✓		The SPT firmware update is done only at manufacturer's factory.
5.5	Storage of parameters	✓				See 9.4.4 below
5.6	ATS and ATP fault reporting to the AS	✓				Tested for Single path See 9.4.5 below
5.7	Interface to the AS	✓				Serial interface to AS See 9.4.6 below
5.8	Monitoring of the transmission network interface(s) – Fault reporting	✓				See 9.4.9 below
5.9	Power supply for the SPT	✓				AS power supply (shared with CP)
5.10	Event logging	✓				The event log is shared with the AS. The event logs of the AS comply with EN 50136-2:13, Table 1. The memory capacity and endurance comply with EN 50136-2:13, Table 2.
6	Operation					
6.1	Modes of acknowledgement operation					
6.1.1	General	✓				Store-and-forward operation. No positive acknowledge by the ARC after the message was received. A negative acknowledgement in case the message not received by RCT.
6.1.2	Store-and-forward operation requirements	✓				See 9.4.14 below
6.1.3	Pass-through operation requirements			✓		Store-and-forward operation mode
6.2	SPT alarms	✓				See 9.4.16 below
6.3	Substitution security			✓		Information and substitution security not mandatory for SPTs with SP2 and SP3 classification
6.4	Information security			✓		
7	Documentation					
7.1	SPT documentation	✓				See 9.4.18 below
7.2	Marking and identification	✓				
8	Housing and tamper protection – Tamper protection requirements					
		✓				SPT integrated in CIE. (tamper tested and approved under EN 50131-3:2009). See chapter 6 above for details

II. EN 50136-2 reference		Result				Remarks/Document reference
Section	Requirement	C	NC	NA	NT	
9	Tests					
9.1	General	✓				Provided
9.2	General requirements	✓				Temperature: 15 - 35 °C; Relative humidity: 25 - 75%; Air pressure: 86 - 106kPa.
9.3	Reduced functional test	✓				
9.4	Functional tests	✓				
9.4.1	General	✓				Performed as per Table 4 at EN 50136-2 standard
9.4.2	Access levels	✓				See Chapter 7.1
9.4.3	Uploading and downloading of software and firmware			✓		The SPT firmware update is done only at manufacturer factory.
9.4.4	Parameter storage	✓				See Chapter 7.3
9.4.5	ATS and ATP fault reporting to the AS	✓				See Chapter 7.4
9.4.6	Interface to AS (serial)	✓				Applicable for MG6250 CP only with GPRS option. See Chapter 7.5. PSTN is on board module for all models It's part of CP main board and no option to disconnect the PSTN module form the AS.
9.4.7	Interface to AS (parallel)			✓		Serial Interface
9.4.8	Interface to AS (proprietary)			✓		Serial Interface
9.4.9	Monitoring of the transmission network interface	✓				See Chapter 7.8
9.4.10	Event Logging	✓				The event log is shared with the AS. The event logs of the AS comply with EN 50136-2:13, Table 1. See Chapter 7.9
9.4.11	Protection of the log	✓				The log shared with AS. See Chapter 7.10
9.4.12	Log Capacity	✓				The event log is shared with the AS. The event logs of the AS comply with EN 50136-2:13, Table 2. See Chapter 7.11
9.4.13	Clock resolution	✓				See Chapter 7.12
9.4.14	Store and forward	✓				See Chapter 7.13
9.4.15	Pass-through			✓		Store and forward operation mode
9.4.16	SPT alarms	✓				See Chapter 7.15
9.4.17	Information security			✓		Information and substitution security not mandatory for SPTs with SP2 and SP3 classification
9.4.18	Documentation	✓				See Chapter 7.17

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

Table 7.3 - EN 50131-10 Compliance General Matrix

III. EN 50131-10 reference		Result				Remarks/Document reference
Section	Requirement	C	NC	NA	NT	
4	General requirements					
4.1	Additional functions			✓		No additional functions
4.2	Equipment features	✓				Comply
4.3	SPT structure	✓				Type Z for all models
5	Security Grade	✓				Grade 2 (Grade 3 for EVO192 CP)
6	Environmental performance					
6.1	Requirements	✓				Class II
6.2	Environmental tests	✓				See 10.7 below
7	Functional requirements					
7.1	Tamper	✓				SPT integrated in CIE. (tamper tested and approved under EN 50131-3:2009). See chapter 6 above for details
7.2	Monitoring of substitution			✓		Not mandatory for Grade 2
7.3	Wireless interconnections			✓		No wireless interconnection between CIE and SPT
7.4	Power Supply	✓				Tested under EN 50131-1 and EN 50131-6 requirements for type A. (See Intertek reports) The power supply is sufficient for all components connected to it and that the necessary standby period can be achieved
8	Product Documentation	✓				See 10.6 below
10	Tests					
10.1	General	✓				Type Z, tested with CIE
10.2	Test conditions	✓				Temperature: 15-35°C Relative humidity: 25-75% Air pressure: 86-106kPa
10.3	Tamper Security tests					
10.3.1	Tamper protection	✓				SPT integrated in CIE. (tamper tested and approved under EN 50131-3:2009). See chapter 6 above for details
10.3.2	Tamper detection – Access to the inside of the housing	✓				
10.3.3	Tamper detection – Removal from mounting	✓				
10.4	Substitution tests			✓		Mandatory only for Grade 4
10.5	Power Supply					
10.5.1	General	✓				Shared with AS. SPT housed inside CIE enclosure, EN 50131-6, Type A PS tests passed. (See Intertek reports)

III. EN 50131-10 reference		Result				Remarks/Document reference
Section	Requirement	C	NC	NA	NT	
10.5.2	Average current consumption	✓				Applicable for MG6250 CP only with GPRS option. See Chapter 7.18. PSTN is on board module for all models It's part of CP main board and no option to disconnect the PSTN module form the AS.
10.5.3	Test of SPT with type C power supply			✓		SPT power supply shared with AS. Type A PS for certified control panel.
10.5.4	Peak current consumption	✓				Applicable for MG6250 CP only with GPRS option. See Chapter 7.18. PSTN is on board module for all models It's part of CP main board and no option to disconnect the PSTN module form the AS.
10.6	Documentation and marking	✓				See Chapter 7.17
10.7	Environmental tests operational					
	Dry Heat	✓				Separate Test report. See chapter 6 above for details and reference.
	Cold	✓				
	Damp heat (steady state)			✓		
	Damp Heat (cyclic)	✓				
	Water Ingress			✓		
	Impact	✓				
	Mechanical Shock	✓				Separate Test report. See chapter 6 above for details and reference.
	Vibration, sinusoidal	✓				
	EMC	✓				Separate Test report. See chapter 6 above for details and reference.
	Environmental tests endurance					
	Dry Heat			✓		Separate Test report. See chapter 6 above for details and reference.
	Damp heat (steady state)	✓				
	Damp Heat (cyclic)			✓		
	SO ₂ Corrosion			✓		
	Salt mist, cyclic			✓		

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



Test specification:		Access levels test	
Test procedure:		EN 50136-2 Section 9.4.2: Access levels test	
Test mode:		Compliance	
Test Date:		23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Remarks:		Verdict: PASS	
		Relative Humidity: 42 %	

7.1 Access levels test procedure and results

7.1.1 Test purpose

To demonstrate the ability of the SPT to comply with 5.2 to provide up to 3 levels of access and verify the relevant access to the functions and controls.

7.1.2 Test procedure

7.1.2.1 An attempt to use functions and controls required by 5.2 was performed, while operating the SPT at each access level and verifying that access is granted for permitted functions and is denied for non-permitted functions.

7.1.3 Test results

Table 7.1.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The uncommission SPT and any necessary equipment to allow the commissioning of the SPT.	Commission the SPT and leave the default key unchanged.	Commissioning not completed	Commissioning shall not be completed.	P
2	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	At access level 1, attempt to operate all the functions and controls as specified by the manufacturer for access level 1.	Access is not permitted (for an EN approved CP)	Access is in accordance with 5.2.	P
3	As above	Repeat as step 1 for access level 2.	Limited access as per 5.2	As above	P
4	As above	Repeat as step 1 for access level 3.	Access is only possible if granted by a level 2 user.	As above	P
5	As above	Try to get access by using three times a wrong key in a 60 s timeframe.	Comply for EN approved CP	No access is granted.	P
6	State after step.5	Wait 80s (+/- 5s) and retry with a valid key to get access.	Access denied for EN approved CP	No access is granted.	P
7	See manufacturer's proof of quality of the algorithm used to achieve remote access with a key of at least 1000000 differs.	Review document.	Comply for SPT embedded in EN approved CP (Grade 3 minimum)	Algorithm can distinguish between 1000000 key differs.	P

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250



Test specification:		Access levels test	
Test procedure:		EN 50136-2 Section 9.4.2: Access levels test	
Test mode:		Compliance	
Test Date:		23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Remarks:		Verdict: PASS	
		Relative Humidity: 42 %	

7.1.4 Results

- (X) The above results comply with this section of the standard.
- (...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification: Upload and download of software and firmware test			
Test procedure:		EN 50136-2 Section 9.4.3: Upload and download of software and firmware test	
Test mode:		Compliance	
Test Date:		24/8/2017	
Atmospheric conditions during the test:		Temperature: 23 °C	Air Pressure: 1008hPa
		Relative Humidity: 46 %	
Test specification:			

7.2 Upload and download of software and firmware test procedure and results

7.2.1 Test purpose

To prove that upload and download of firmware of the SPT, if implemented, complies with the requirements of 5.4.

7.2.2 Test procedure

7.2.2.1 An attempt to use update firmware of the SPT, while operating the SPT at the appropriate access level and following the instructions in the SPT manual, was performed.

7.2.3 Test results

Table 7.2.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	At access level 1, attempt to apply a firmware update.	The SPT firmware update is done only at manufacturer factory	A firmware update shall not be permitted.	N/A
2	As above	Repeat as above for access level 2.	As above	As above	N/A
3	As above	Repeat as above for access level 3.	As above	A firmware update shall be permitted.	N/A
4	As above	Repeat as above for access level 3. Disconnect from the network during the firmware update procedure.	As above	The SPT shall operate normally after the attempt to download firmware.	N/A

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.2.4 Results

(...) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification:		Parameter storage test	
Test procedure:		EN 50136-2 Section 9.4.4: Parameter storage test	
Test mode:		Compliance	
Test Date:		28/8/2017	
Atmospheric conditions during the test:		Temperature: 23.4 °C	Air Pressure: 1005hPa
		Relative Humidity: 40 %	
Test specification:			

7.3 Parameter storage test procedure and results

7.3.1 Test purpose

To demonstrate the ability of the SPT to comply with 5.5 to provide immunity of the storage of parameters against power failure or boot up sequence

7.3.2 Test procedure

7.3.2.1 At least 2 site specific parameters were changed. These parameters were read back after a power cycle (power loss / power recovery) and boot up sequence.

7.3.3 Test results

Table 7.3.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Change and save at least 2 site specific data according to the procedure in the manual.	Two parameters successfully changed for each SPT: <u>For PSTN</u> Account number and Phone number <u>For GPRS (MG6250)</u> Account number and Reporting (GPRS)	-	P
2	As above	Power off the SPT.	SPT power off	-	P
3	SPT in power off state	Wait at least 10 s and power on the SPT again.	After power on the SPT operate properly.	SPT shall be in a functional state as before the power cycle.	P
4	Same as Step 1	Read the changed parameters according to the procedure in the manual.	The parameters values stay as before the power off.	The parameter values shall be the same as before the power cycle.	P
5	As above	Reset the SPT according to the reset procedure in the manual.	The parameters values stay as before the reset.	The parameter values shall be the same as before the reset procedure.	P

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.3.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification:		ATS fault reporting to AS test	
Test procedure:		EN 50136-2 Section 9.4.5: ATS fault reporting to AS test	
Test mode:		Compliance	
Test Date:		21-23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 42 %	
Verdict: PASS			

7.4 ATS fault reporting to AS test procedure and results

7.4.1 Test purpose

To demonstrate the ability of the SPT to report an ATS fault to the AS to comply with 5.6.

7.4.2 Test procedure

7.4.2.1 Each ATP and ATS were failed in order to check the reporting of the ATS fault to the AS within the reporting times defined within EN 50136-1. The test was repeated for every ATS category that the SPT supports as defined by the manufacturer.

7.4.3 Test results

Table 7.4.1 Test results (Dual path ATS)

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any Necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Check that each ATP is operating normally and that output to the AS is reporting ATP operational.	All SPT classified as SP and referred as single path.	No fault shall be displayed	NA
2	As after step 1.	Fail the primary ATP.	As above	No ATS fault shall be displayed. An ATP fault may be displayed.	NA
3	As after step 2.	Fail the alternative ATP.	As above	The ATS failure condition shall be displayed within the reporting times defined in EN 50136-1.	NA
4	As after step 3.	Restore Primary ATP and Alternative ATP.	As above	No fault shall be displayed.	NA



Test specification:		ATS fault reporting to AS test	
Test procedure:		EN 50136-2 Section 9.4.5: ATS fault reporting to AS test	
Test mode:		Compliance	
Test Date:		21-23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 42 %	
Verdict: PASS			

Table 7.4.2 Test results (Single path ATS)

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Check that the ATS is operating normally and that output to the AS is reporting ATS operational.	SPT in normal functional status and no fault displayed.	No fault shall be displayed	P
2		Fail ATS.	ATS failure displayed at the event log within: 1) 45 sec (EVO192) 2) 40 sec (SP4000) 3) 40 sec (SP5500) 4) 45 sec (SP6000) 5) 35 sec (MG5050) 6) 40 sec for PSTN option and 90 sec for GPRS option (MG6250)	The ATS failure condition shall be displayed within the times defined in EN 50136-1:2012, Table 3.	P
3		Restore ATS.	The SPT fault is restored and no fault is displayed	No fault shall be displayed.	P

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.4.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460	HL 4882
---------	---------	---------

Full description is given in Appendix A.



Test specification:		Standardized serial interface to the AS test	
Test procedure:		EN 50136-2 Section 9.4.6: Standardized serial interface to the AS test	
Test mode:		Compliance	
Test Date:		23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 42 %	
Verdict: PASS			

7.5 Standardized serial interface to the AS test procedure and results

7.5.1 Test purpose

To prove that the serial interface to the AS, if implemented, complies with the requirements of 5.7

7.5.2 Test procedure

7.5.2.1 The instructions in the SPT manual for installing the SPT were followed. The monitoring and performance of this link were tested.

7.5.3 Test results

Table 7.5.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Connect SPT to AS via the serial interface as specified in the product documentation.	The interconnecting of SPT with AS is in line with documentation	Interconnecting SPT and AS shall be according to documentation.	P
2	As above	Create event on AS.	Transmission time was 3 sec for GSM/GPRS SPT (MG6250)	The transmission time shall be within limits of the specified category.	P
3	As above	Disconnect serial interface.	GPRS/GSM module disconnected for MG6250 and failure was displayed at the RCT within 65 sec. "Module link lost" N/A for CP with PSTN on board modules.	Indication shall be present on RCT within maximum reporting time of the specified category.	P

Note: Tested for MG6250 with GSM/GPRS option only.

Other control panels use PSTN SPT which is on board module – SPT cannot disconnect from the AS.

7.5.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460	HL 4882
---------	---------	---------

Full description is given in Appendix A.



Test specification: Standardized parallel interface to the AS test			
Test procedure:		EN 50136-2 Section 9.4.7: Standardized parallel interface to the AS test	
Test mode:		Compliance	
Test Date:		23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 42%	
Verdict: N/A			

7.6 Standardized parallel interface to the AS test procedure and results

7.6.1 Test purpose

To demonstrate the ability of the SPT to comply with Annex A to provide a monitored connection to its associated AS via the standardized parallel interface if implemented.

7.6.2 Test procedure

7.6.2.1 An attempt to was made to use the parallel interface to its associated AS in accordance with Annex A (the test performs alarm transmission, interface failure and alarm acknowledge via the parallel interface to the AS).

7.6.3 Test results

Table 7.6.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	An alarm is triggered by the AS to every SPT parallel alarm input as required by Annex A.	GSM/GPRS SPT connected as serial interface to AS (MG6250) N/A for CP with PSTN on board modules.	A change of more than $\pm 40\%$ from the quiescent resistance value is recognized as an alarm.	NA
2	As above	An AS fault or other message is triggered by the AS to every SPT message/fault input as required by Annex A.	As above	A change of impedance from less than 100 Ω to more than 500 k Ω is recognized as an change of state of the message/fault input of the SPT.	NA
3	As above	Make sure that the ATS is not available.	As above	The SPT fault output (A.1.3.3) shall change state within the reporting time of the appropriate category.	NA
4	As above	Make sure that the ATS is not available and trigger an alarm input on the SPT.	As above	The SPT alarm delivery failure output (A.1.3.2) shall change state after the maximum transmission time of the appropriate category.	NA



Test specification: Standardized parallel interface to the AS test			
Test procedure:		EN 50136-2 Section 9.4.7: Standardized parallel interface to the AS test	
Test mode:		Compliance	
Test Date:		23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
		Relative Humidity: 42%	
Test specification:			

5	As above	Activate both SPT outputs (A.1.3.2 and A.1.3.3) and connect a source of 20 mA to both individual outputs.	As above	Both SPT outputs to the AS can sink at least 20 mA.	NA
6	As above	Tamper the interface to the AS by removing or shortening the interface connection of the SPT to the AS.	As above	Tamper of the SPT to AS connection is detected and reported to the RCT.	NA

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.6.4 Results

(...)The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification:		Proprietary interface to the AS test	
Test procedure:		EN 50136-2 Section 9.4.8: Proprietary interface to the AS test	
Test mode:		Compliance	
Test Date:		23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 42 %	
Verdict: N/A			

7.7 Proprietary interface to the AS test procedure and results

7.7.1 Test purpose

To prove that the proprietary interface to the AS, if implemented, complies with the requirements of 5.7

7.7.2 Test procedure

7.7.2.1 The instructions in the SPT manual for installing the SPT were followed. The monitoring and performance of this link were tested.

7.7.3 Test results

Table 7.7.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Connect SPT to AS as specified in the product documentation.	GSM/GPRS SPT connected as serial interface to AS (MG6250) N/A for CP with PSTN on board modules.	Interconnecting SPT and AS shall be according to documentation.	NA
2	As above	Create event on AS.	As above	The transmission time shall be within limits of the specified category.	NA
3	As above	Disconnect interface.	As above	Indication shall be present on RCT within maximum reporting time of the specified category. The interface failure shall be detected and delivered within the maximum reporting time.	NA

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.7.4 Results

(...)The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification: Monitoring of the transmission network interface test			
Test procedure:		EN 50136-2 Section 9.4.9: Monitoring of the transmission network interface test	
Test mode:		Compliance	
Test Date:		21-23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
		Relative Humidity: 42 %	
Test specification:			
		Verdict: PASS	

7.8 Monitoring of the transmission network interface test procedure and results

7.8.1 Test purpose

To prove that the SPT can detect the failure of each transmission network interface

7.8.2 Test procedure

7.8.2.1 The SPT network interfaces were disconnected from the network, and monitored to see if a fault is generated to the AS.

7.8.3 Test results

Table 7.8.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Disconnect the network connection.	<p>The SPT in normal function state.</p> <p>When PSTN network connection is lost due to disconnection of PSTN cable, "Telephone line failure" message displayed on keypad within:</p> <ol style="list-style-type: none"> 1) 45 sec (EVO192) 2) 40 sec (SP4000) 3) 40 sec (SP5500) 4) 45 sec (SP6000) 5) 35 sec (MG5050) 6) 40 sec (MG6250) <p>When GPRS network connection is lost due to removal of SIM card, "Missing SIM Card" message displayed on CP within 40 sec (MG6250)</p>	The fault shall be transmitted to AS within the reporting time of EN 50136-1:2012, Table 3.	P
2		Reconnect to the network.	<p>The fault reset in AS within:</p> <ol style="list-style-type: none"> 1) 55 sec (EVO192) 2) 65 sec (SP4000) 3) 30 sec (SP5500) 4) 35 sec (SP6000) 5) 45 sec (MG5050) 6) 15 sec for PSTN and 35 sec for GPRS (MG6250) 	The fault reset shall be transmitted to AS within the reporting time of EN 50136-1:2012, Table 3.	P



Test specification:		Monitoring of the transmission network interface test	
Test procedure:		EN 50136-2 Section 9.4.9: Monitoring of the transmission network interface test	
Test mode:		Verdict:	
Compliance		PASS	
Test Date:		21-23/8/2017	
Atmospheric conditions during the test:	Temperature: 24 °C	Air Pressure: 1008hPa	Relative Humidity: 42 %
Test specification:			

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.8.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460	HL 4882
---------	---------	---------

Full description is given in Appendix A.



Test specification:		Event logging test	
Test procedure:		EN 50136-2 Section 9.4.10: Event logging test	
Test mode:		Compliance	
Test Date:		24/8/2017	
Atmospheric conditions during the test:		Temperature: 23 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 46 %	
Verdict: PASS			

7.9 Event logging test procedure and results

7.9.1 Test purpose

To demonstrate that events are recorded at the SPT as required in Table 1 according to category.

7.9.2 Test procedure

7.9.2.1 Events required in Table 1 were generated according to category, after which they were reviewed for recording in the SPT event log.

7.9.3 Test results

Table 7.9.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Generate each implemented event listed in Table 1, according to category.	The event log is shared with AS. All applicable Table 1 events were tested and displayed at CP's event log.	All implemented events shall be recorded in the SPT event log.	P

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.9.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification:		Protection of the log test	
Test procedure:		EN 50136-2 Section 9.4.11: Protection of the log test	
Test mode:		Compliance	
Test Date:		24/8/2017	
Atmospheric conditions during the test:		Temperature: 23°C	Air Pressure: 1008hPa
Test specification:		Verdict: PASS	
		Relative Humidity: 46 %	

7.10 Protection of the log test procedure and results

7.10.1 Test purpose

To validate that the log is protected against accidental or deliberate deletion or alteration of log content

7.10.2 Test procedure

7.10.2.1 Manufacturer methodology was verified to achieve compliance with 5.10. The log was confirmed to be protected against accidental or deliberate deletion or alteration.

7.10.3 Test results

All events protected in AS non-volatile memory and RCT.

7.10.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification: Event log capacity and endurance test			
Test procedure: EN 50136-2 Section 9.4.12: Event log capacity and endurance test			
Test mode: Compliance		Verdict: PASS	
Test Date: 24/8/2017			
Atmospheric conditions during the test:	Temperature: 23 °C	Air Pressure: 1008hPa	Relative Humidity: 46 %
Test specification:			

7.11 Event log capacity and endurance test procedure and results

7.11.1 Test purpose

To demonstrate that the log contains the minimum of event records according to category, and that the log endures the required duration according to classification.

7.11.2 Test procedure

7.11.2.1 Log event records were created. Their quantity and retention meet the requirements of 5.10.

7.11.3 Test results

Table 7.11.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Create log events in line with Table 2 according to category.	The event log is shared with AS. Capacity and endurance comply with Table 2: For SP3: 1000 events capacity. For SP2: 250 events capacity. Memory endurance more than 30 days.	All event records logged correctly.	P
2	As above.	Create log events to exceed the minimum number of log events listed in Table 2 according to category.	2048 events capacity for EVO192 (SP3). 256 events capacity for SP4000, SP5500, SP6000, MG5050, MG6250 (SP2 modules). The most recent event records are logged correctly	The most recent event records are logged correctly.	P
3	As above	Remove power from the equipment as listed in Table 2 according to category. Restore power.	All event records remain logged correctly.	All event records still remain logged correctly.	P

Note: Checked for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250



Test specification:		Event log capacity and endurance test	
Test procedure:		EN 50136-2 Section 9.4.12: Event log capacity and endurance test	
Test mode:		Compliance	
Test Date:		24/8/2017	
Atmospheric conditions during the test:		Temperature: 23 °C	Air Pressure: 1008hPa
Test specification:		Verdict: PASS	
		Relative Humidity: 46 %	

7.11.4 Results

- (X) The above results comply with this section of the standard.
- (...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification:		Clock resolution test	
Test procedure:		EN 50136-2 Section 9.4.13: Clock resolution test	
Test mode:		Compliance	
Test Date:		24/8/2017	
Atmospheric conditions during the test:		Temperature: 23 °C	Air Pressure: 1008hPa
Test specification:		Verdict: PASS	
		Relative Humidity: 46 %	

7.12 Clock resolution test procedure and results

7.12.1 Test purpose

To prove that the accuracy of the timestamps as attached to events in the log complies with the requirements of 5.10.

7.12.2 Test procedure

7.12.2.1 Events were created while verifying the timestamps against a reference time source. The tests were performed against a well-defined time reference. For this purpose, an NTP server on Stratum 2 level 9 (generally on the Internet) provides the required accuracy.

7.12.3 Test results

Table 7.12.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	The SPT and any necessary equipment to allow the SPT to perform as required shall be installed and in a functional state.	Create an event.	Clock accuracy of the event log of the Control Panel complies with the requirements of EN 50131-1, 8.10. (CP EN approved) Therefore the event log of the Control Panel comply with the requirements of EN 50136-2 for clock accuracy +-5s	There shall be a log entry, with a minimum resolution of one second and a deviation in relation to the reference time of less than 5 s.	P
2	As after test nr. 1.	Wait for at least 72h. Create a second event.	As above	As above.	P

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.12.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification: Store-and-forward operation test			
Test procedure:		EN 50136-2 Section 9.4.14: Store-and-forward operation test	
Test mode:		Compliance	
Test Date:		21-23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 42 %	
Verdict: PASS			

7.13 Store-and-forward operation test procedure and results

7.13.1 Test purpose

To prove that the store-and-forward operation, if implemented, complies with the requirements of 6.1.2

7.13.2 Test procedure

7.13.2.1 An alarm from the AS to the SPT was triggered and monitored if an acknowledgement is transmitted from the SPT to the AS under various ATS conditions.

7.13.3 Test results

Table 7.13.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	General condition: The AS is connected to the SPT. The SPT is configured for store-and forward operation. The ATS is fully operational and configured for any ATS category.	Trigger an alarm transmission from AS to SPT.	The alarm is received at the RCT. No positive acknowledgement signal. Refer to section 6.5 EN 50136-1. In case of alarm receiving failure communication fault message is presented in AS.	The acknowledgement signal shall be transmitted to AS after successful reception of the alarm by the SPT.	P
2	General condition, and: The ATS is not connected; i.e. to make sure that no alarm transmission between SPT and RCT is possible.	As above	In this situation communication failure presented at the AS (A negative acknowledgement signal from SPT to the AS). For EVO192, SP4000, SP5500, SP6000 and MG5050: "Fail to com. Phone # 1" For MG6250: "Fail To Communic Central Path"	The SPT shall transmit an acknowledgement signal to the AS.	P
3	General condition, and: The ATS is fully operational and configured for any ATS category.	Trigger an alarm transmission from AS to SPT, and: Disconnect the ATS after the alarm is transmitted to the SPT. Make sure that the alarm is not	Alarm message not received at the RCT. Communication failure presented at the AS (A negative acknowledgement signal from SPT to	The acknowledgement signal shall be transmitted to AS after successful reception of the alarm by the	P



Test specification:		Store-and-forward operation test	
Test procedure:		EN 50136-2 Section 9.4.14: Store-and-forward operation test	
Test mode:		Compliance	
Test Date:		21-23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 42 %	
Verdict: PASS			

		received and/or acknowledged by the RCT.	the AS).	SPT.	
4	As above	Power cycle the SPT according to the instruction in the documentation	The previously alarm that secured at the non-volatile memory was received at the RCT. Positive acknowledgement indication was not displayed at the CP.	The SPT shall not transmit any spurious acknowledgement signal to the AS as a result of a previous unsuccessful alarm transmission attempt.	P

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.13.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification:		Pass-through operation test	
Test procedure:		EN 50136-2 Section 9.4.15: Pass-through operation test	
Test mode:		Compliance	
Test Date:		21-23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Relative Humidity: 42 %	
		Verdict: N/A	

7.14 Pass-through operation test procedure and results

7.14.1 Test purpose

To prove that the pass-through operation, if implemented, complies with the requirements of 6.1.3

7.14.2 Test procedure

7.14.2.1 An alarm from the AS to the SPT was triggered and monitored if an acknowledgement is transmitted from the SPT to the AS under various ATS conditions.

7.14.3 Test results

Table 7.14.1 Test results

Step	Test Condition	Test procedure	Measurement	Pass criteria	Verdict
1	General condition: The AS is connected to the SPT. The SPT is configured for store-and forward operation. The ATS is fully operational and configured for any ATS category.	Trigger an alarm transmission from AS to SPT.	The SPT works with Store-and-forward operation mode	The acknowledgement signal shall be transmitted to AS after successful reception of the alarm by the RCT.	N/A
2	General condition, and: The ATS is not connected; i.e. to make sure that no alarm transmission between SPT and RCT is possible.	As above	As above	The SPT shall not transmit An acknowledgement signal to the AS. A negative acknowledgement signal from SPT to the AS is permitted.	N/A
3	General condition, and: The ATS is fully operational and configured for any ATS category.	Trigger an alarm transmission from AS to SPT, and: Disconnect the ATS after the alarm is transmitted to the SPT. Make sure that the alarm is not received and/or acknowledged by the RCT.	As above	The SPT shall not transmit an acknowledgement signal to AS. A negative acknowledgement signal from SPT to the AS is permitted.	N/A



Test specification:		Pass-through operation test	
Test procedure:		EN 50136-2 Section 9.4.15: Pass-through operation test	
Test mode:		Compliance	
Test Date:		21-23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
		Relative Humidity: 42 %	
Test specification:			

4	As after Step 3	Power cycle the SPT according to the instruction in the documentation and restore the ATS to normal operation.	As above	No alarm shall be received at the RCT. If the AS retransmits the previously triggered alarm (Test number 3), the RCT shall receive this alarm and the SPT shall transmit an acknowledgement signal to the AS. Monitoring of the AS retransmission attempt is critical for the pass/fail verdict of this test.	N/A
---	-----------------	--	----------	--	-----

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.14.4 Results

- (...)The above results comply with this section of the standard.
- (...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification:		SPT alarms test	
Test procedure:		EN 50136-2 Section 9.4.16: SPT alarms test	
Test mode:		Compliance	
Test Date:		23/8/2017	
Atmospheric conditions during the test:		Temperature: 24 °C	Air Pressure: 1008hPa
Test specification:		Verdict: PASS	
		Relative Humidity: 42 %	

7.15 SPT alarms test procedure and results

7.15.1 Test purpose

To demonstrate that all messages in Table 3 are generated and transmitted from the SPT to the RCT/AE for the appropriate category.

7.15.2 Test procedure

7.15.2.1 Principle

All of the alarms required in Table 3 were generated for the appropriate category, and reviewed for transmission to the RCT/AE.

7.15.2.2 Condition

The SPT and any necessary equipment to allow the SPT to perform as required was installed in a functional state.

7.15.2.3 Procedure

Each required alarm listed in Table 3 was generated according to category.

7.15.2.4 Measurement

All required alarms are generated and transmitted from the SPT to the RCT/AE for the appropriate category.

7.15.2.5 Pass/Fail criteria

All required alarms shall be generated by the SPT and transmitted to the RCT/AE for the appropriate category.

7.15.3 Test results

Table 7.15.1 Test results

#	Alarms originated by the SPT and transmitted to the RCT		
#	Alarms	Verdict	Remarks
1	SPT prime power source failure & restore	N/A	SPTs PS sheared with CIE – No dedicated PS
2	SPT alternative power source failure & restore	N/A	No alternative power source.
3	AS to SPT interconnection failure & restore	Pass*	Failure displayed and restored properly See Chapter 7.5
4	Primary ATP failure & restore	N/A	Single path – Applies to dual path systems only
5	Secondary ATP failure & restore	N/A	Single path – Applies to dual path systems only

Note: Tested for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

* For MG6250 with GSM/GPRS option only.

Other control panels use PSTN SPT which is on board module – SPT cannot disconnect from the AS.

7.15.4 Results

(X) The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------



Test specification:		Information and substitution security test	
Test procedure:		EN 50136-2 Section 9.4.17: Information and substitution security test	
Test mode:		Compliance	
Test Date:		27/8/2017	
Atmospheric conditions during the test:		Temperature: 24.2 °C	Air Pressure: 1005hPa
Test specification:		Relative Humidity: 46 %	
Verdict:		N/A	

7.16 Information and substitution security test procedure and results

7.16.1 Test purpose

To check and confirm that the customer user manual are in accordance with EN50136-2 requirements for information and substitution security

7.16.2 Test procedure

7.16.2.1 To verify SPT documentation regarding the stated methodology used for the protection against substitution of the SPT with identical equipment or simulation equipment to the requirements outlined in 6.3.

7.16.2.2 Verify that the manufacturer describes in the SPT documentation proper methods used for the protection of the information transmitted by the ATS to prevent unauthorized reading and to unauthorized modification of the information transmitted to the requirements described in 6.4.

7.16.3 Test results

Table 7.16.1 Test results

Clause/test	Mode of implementation	Classification/requirement	Verdict
GSM and IP SPT			
Substitution Security	All SPT classified as SP2 or SP3 Not mandatory for SP2 and SP3 classification	SP3 (EVO192)	N/A
Information Security		SP2 (SP4000, SP5500, SP6000, MG5050, MG6250)	

Note: Checked for all control panels: EVO192, SP4000, SP5500, SP6000, MG5050, MG6250

7.16.4 Results

(...)The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A.



Test specification:		Documentation test	
Test procedure:		EN 50136-2 Section 9.4.18: Documentation test EN 50131-10 Section 10.6: Documentation test	
Test mode:	Compliance	Verdict: PASS	
Test Date:	9/10/2016		
Atmospheric conditions during the test:	Temperature: 24.7 °C	Air Pressure: 1011hPa	Relative Humidity: 57 %
Test specification:			

7.17 Documentation test procedure and results

7.17.1 Test purpose

To verify that all required documentation is provided, complete and correct.

7.17.2 Test procedure

7.17.2.1 The documentation relating to an SPT was concise, complete and unambiguous. It was sufficient to ensure correct installation, commissioning and maintenance of the SPT. The integration of the SPT in an ATS was ensured.

7.17.2.2 The SPT operation instructions were designed to minimize the possibility of incorrect operation and were structured to reflect the access level of the user.

7.17.2.3 SPT documentation includes the following: name of manufacturer or supplier, description of equipment, standard to which component claims compliance, ATS categories for which the SPT is suitable, environmental class for which the SPT is suitable, power requirements for the SPT, statement of compatibility with supported type of AS interface(s), statement of compatibility with the supported RCT(s) types and/or protocols, description of the method of operation by which the SPT signals ATP failures to the AS, description of how monitoring of the transmission network interface is implemented, declaration of operation mode (store-and-forward and/or pass-through), methodology to achieve compliance with EN 50136-1:2012, 6.7.2, methodology to achieve compliance with EN 50136-1:2012, 6.7.3.

7.17.3 Results

Table 7.17.1 Test results

EUT:		Documents:				
EVO192		EVO192-EI04_c.pdf				
SP4000		MGSP-EI15_c.pdf				
SP5500						
SP6000						
MG5050						
MG6250		MG6250-EP04_c.pdf				
Standard/ Section	Requirement	Verdict				Remark
		C	NC	NA	NT	
EN 50136-1 8. Documentation	Planning, installation, commissioning, service and operation	✓				
	Access Levels	✓				
	Alarm transmission system classification	✓				
EN 50136-2 7.1. SPT documentation	Name of manufacturer or supplier	✓				
	Description of equipment	✓				
	Standard to which component claims compliance	✓				
	ATS categories for which the SPT is suitable	✓				



Test specification:		Documentation test	
Test procedure:		EN 50136-2 Section 9.4.18: Documentation test EN 50131-10 Section 10.6: Documentation test	
Test mode:	Compliance	Verdict: PASS	
Test Date:	9/10/2016		
Atmospheric conditions during the test:	Temperature: 24.7 °C	Air Pressure: 1011hPa	Relative Humidity: 57 %
Test specification:			

EUT:		Documents:				
EVO192		EVO192-EI04_c.pdf				
SP4000		MGSP-EI15_c.pdf				
SP5500						
SP6000						
MG5050						
MG6250		MG6250-EP04_c.pdf				
Standard/ Section	Requirement	Verdict				Remark
	Environmental class for which the SPT is suitable	✓				
	Power requirements for the SPT			✓		Integrated in CIE
	Statement of compatibility with the supported type of AS interface(s);			✓		On board modules
	Statement of compatibility with the supported RCT(s) types and/or protocols	✓				
	Description of the method of operation by which the SPT signals ATP failures to the AS	✓				
	Description of how monitoring of the transmission network interface is implemented	✓				
	Declaration of operation mode (store-and-forward and/or pass-through)	✓				Store-and-forward
	Methodology to achieve compliance with EN 50136-1:2012, 6.7.2			✓		Optional for SP2 and SP3 SPT
	Methodology to achieve compliance with EN 50136-1:2012, 6.7.3.			✓		Optional for SP2 and SP3 SPT
EN 50131-10 8. Product documentation	Operating temperature and humidity range			✓		Integrated in CIE Same as Control Panel
	Weights and dimensions			✓		As above
	Fixing details	✓				
	Where there are user serviceable parts (e.g. fuses) their type and value			✓		No serviceable parts
	Type of interconnections (interface to CIE);	✓				For MG6250 panel only with GPRS module, others PSTN modules are on board
	Terminal identifications	✓				



Test specification:		Documentation test	
Test procedure:		EN 50136-2 Section 9.4.18: Documentation test EN 50131-10 Section 10.6: Documentation test	
Test mode:	Compliance	Verdict: PASS	
Test Date:	9/10/2016		
Atmospheric conditions during the test:	Temperature: 24.7 °C	Air Pressure: 1011hPa	Relative Humidity: 57 %
Test specification:			

EUT:		Documents:				
EVO192		EVO192-EI04_c.pdf				
SP4000		MGSP-EI15_c.pdf				
SP5500						
SP6000						
MG5050						
MG6250		MG6250-EP04_c.pdf				
Standard/ Section	Requirement	Verdict				Remark
	The average current consumption of the SPT (not applicable to SPT with type C PS) (see 7.4.1)	✓				For MG6250 panel only with GPRS module. Others PSTN modules are on board – part of CP current consumption
	Lifetime of prime power source (for SPT with type C PS only)			✓		Not Type C
	Permitted types of power source (for SPT with type C PS), (e.g. battery type)			✓		Not Type C
	The peak current consumption of the SPT	✓				For MG6250 panel only with GPRS module. Others PSTN modules are on board – part of CP current consumption
	Suitable storage device type, capacity and low voltage failure threshold (where applicable);			✓		Integrated in CIE (not considered relevant)
	Programmable functions provided.	✓				
EN 50136-2 7.2. Marking and identification	Name of manufacturer	✓				See photograph 5.1.19
	All ATS categories supported by the SPT	✓				
	Date of manufacture or batch number or serial number	✓				
	Environmental class for which the SPT is suitable	✓				
	The marking shall be legible, durable and unambiguous	✓				
EN 50131-10 9. Marking and labelling	Name of manufacturer	✓				See photograph 5.1.19
	Type	✓				
	Date of manufacture or batch number or serial number	✓				
	Security Grade	✓				
	Environmental class	✓				
	Standard to which the SPT claims compliance	✓				

C=compliant, NC= non-compliant, NA= not applicable, NT= not tested



Test specification:		Documentation test	
Test procedure:		EN 50136-2 Section 9.4.18: Documentation test EN 50131-10 Section 10.6: Documentation test	
Test mode:	Compliance	Verdict: PASS	
Test Date:	9/10/2016		
Atmospheric conditions during the test:	Temperature: 24.7 °C	Air Pressure: 1011hPa	Relative Humidity: 57 %
Test specification:			

7.17.4 (X) The above results comply with this section of the standard.
 (...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460
---------	---------

Full description is given in Appendix A



Test specification:		Power supply tests	
Test procedure:		EN 50131-10 Section 10.5: Power supply tests	
Test mode:		Compliance	
Test Date:		28/8/2017	
Atmospheric conditions during the test:		Temperature: 23.4 °C	Air Pressure: 1005hPa
Test specification:		Verdict: PASS	
		Relative Humidity: 40 %	

7.18 Power supply test

7.18.1 Test purpose

To confirm by measurement that the average current consumption and peak current consumption of the SPT does not exceed the amount claimed by the manufacturer in the product documentation.

7.18.2 Test procedure

7.18.2.1 [X] For SPT with integral PS, the test carried out with the EPS at nominal value and with APS at a level of at least 80% of fully capacity and connected according the manufacturer's instructions.

7.18.2.2 [] For SPT without integral PS, connect the SPT to a suitable variable, stabilized power supply with a current measuring meter in series. Connect a voltmeter across the power input terminals of the SPT. Set the voltage to the nominal supply voltage.

7.18.2.3 Connect the SPT to CIE or CIE simulator

7.18.2.4 Connect the SPT to an RCT via ATS network, or simulator of this.

7.18.2.5 Allow the SPT to complete any initial power-up activities and stabilize.

7.18.2.6 Let the SPT to operate normally for a period of 1 hour with transmission of alarm once every 5 minutes.

7.18.2.7 Measure the current consumed by the SPT throughout the one-hour period and calculate the average value and the peak value.

7.18.3 Tests results

Table 7.18.1 Test results

Average current consumption measured (Section 10.5.2)			
ATS	Average Current consumption Measured [mA]	Current consumption declared [mA]	Verdict
GSM/GPRS (MG6250)	56	150	P
Peak current consumption measured (Section 10.5.4)			
ATS	Peak Current consumption Measured [mA]	Peak Current consumption declared [mA]	Verdict
GSM/GPRS (MG6250)	160	1000	P
Remark	Max and average following 1 h measurements at 5 min intervals.		

Note: Tested for MG6250 with GSM/GPRS option only.

Other control panels use PSTN SPT which is on board module – part of main CP board.

7.18.4 Results

(X)The above results comply with this section of the standard.

(...) The above results do not comply with this section of the standard.

Reference numbers of test equipment used

HL 2774	HL 3460	HL 1594
---------	---------	---------



8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Due Cal./Check
2774	HygroThermometer, Min/Max Memory	Delta TRAK	13301	NA	19-Jun-18
3460	Precision Barometer, 870 - 1050 hPa	LUFFT Mess- und Regeltechnik GmbH	DKD-K-26701	100469	31-May-18
4882	Digital Stopwatch	Bash-gal	Chronograph 1/100	NA	14-Aug-18
1594	Data Logger Hydra Series II	Fluke	2635A	7710004	16-Jan-19



9 APPENDIX B Test laboratory description

Testing laboratory and location	<p>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.</p> <p>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.</p> <p>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</p> <p>Person for contact: Michael Brun, Product Safety Group Manager.</p>
--	---



10 APPENDIX C Abbreviations and acronyms

AE	annunciation equipment
AS	alarm system
ATP	alarm transmission path
ATS	alarm transmission system
ARC	alarm receiving center
CIE	control and indicating equipment
EUT	equipment under test
I&HAS	intruder and hold-up alarm systems
RCT	receiving center transceiver
SPT	supervised premises transceiver
HL	Hermon Laboratories
°C	degree Celsius
hPa	hectopascal
kg	kilogram
m	meter
min	minute
mm	millimeter
C	compliant
NA	not applicable
NT	not tested
NC	not compliant
gr.	gram
sec	second

11 APPENDIX D Tests specifications

1. EN 50136-1:2012 Alarm systems - Alarm transmission systems and equipment
Part 1: General requirements for alarm transmission systems
2. EN 50136-2:2013 Alarm systems - Alarm transmission systems and equipment
Part 2: Requirements for Supervised Premises Transceiver (SPT)
3. EN 50131-10:2014 Alarm systems - Intrusion and hold-up systems
Part 10: Application specific requirements for Supervised Premises Transceiver (SPT)

12 APPENDIX E Measurement uncertainties

Parameter	Uncertainty estimation at 95% confidence	
	Calculated	Limit
Air pressure	± 0.8mBar	± 4.1mBar
Temperature	± 1.2°C	± 2°C
Humidity	± 2.86 %	± 5.0 %
Time measurement	± 1.4 s	-
Current measurement	± 6.07 %	-

Note: Pass/Fail decision was based on nominal values

END OF TEST REPORT