

Access Control Unit, Door Readers, and Openpath Boards

Models Smart Hub (OP-SH-24V), Smart Readers (OP-RLF-STD, OP-RHF-STD, OP-RLF-MUL, OP-RHF-MUL), ACU Board, & Elevator Board (OP-MEL-16P)

Tested under

UL 294, Seventh Edition: Safety of Access Control System Units, Rev. January 31, 2018

CAN/ULC-60839-11-1:2016 Alarm and Electronic Security Systems - Part 11-1: Electronic Access Control Systems - System and Components Requirements

UL 60950-22/CSA C22.2 No. 60950-22, First Edition: Safety of Information Technology Equipment, Part 22: Equipment to be Installed Outdoors, Rev. March 31, 2017

File: E114811

MET Report: 101883

Approved: April 26, 2019

Applicant:

Openpath Security Inc.
600 Corporate Pointe, Suite 400
Culver City, CA 90230
USA

Prepared By:

MET Laboratories, Inc.
33439 Western Ave.
Union City, CA 94587
USA

For:

MET Laboratories, Inc.
914 West Patapsco Avenue
Baltimore, Maryland 21230-3432
(410) 949-1802

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Change Record

Change Number	Description	Approval Date	Project Number	Amendment Engineer	Engineer Initials
1	<ul style="list-style-type: none"> • Add alternate power supply to Item 2/1: LifeSafety Power model FPV4 <ul style="list-style-type: none"> ○ Add Figure 6. ○ Electrical testing conducted. • Remove model reference to Power Supply FPO75 from Product Description. • Included “Grade I per CAN/ULC 60839-11-1” under performance levels in Engineering Considerations section. • Add EMC testing to original list of Tests Conducted that was tested in original project. A separate EMC report was issued for this. 	July 9, 2020	107808	Yvonne Szabo	YS

Description

Products Covered:

- Access Control Unit and Door Readers, Models Smart Hub (OP-SH-24V) & Smart Readers (OP-RLF-STD, OP-RHF-STD, OP-RLF-MUL, OP-RHF-MUL)
- Openpath Boards, Models ACU Board & Elevator Board (OP-MEL-16P) are Recognized to UL 294 on the condition that they shall only be used in the Smart Hub OP-SH-24V Access Control Unit in the tested configuration of this report.

Product Description:

- The Openpath Smart Hub is an access control unit with the capability to interface with up to four entries and up to eight readers (if also using Wiegand readers in addition to Openpath readers). RS-485 wiring connects the Smart Hub to the Readers, and is powered by a local power supply.
- The Openpath door readers Smart Readers leverages industry leading security combined with an elegant design that will enhance any door and office environment. Supports multiple entry methods including Bluetooth, Smart Watch, and Key Card. The reader can be mounted flush within a gang box or surface mounted on a wall.
- The Openpath ACU Board and Elevator Board are components to only be used internal to the Smart Hub, with the configuration described and tested in this report.
- The unit consists of in this specific configuration:
 - (1) Metal enclosure Smart Hub
 - (1) LifeSafety Power Supply
 - (1) LifeSafety Power B100
 - (1) LifeSafety Power C4
 - (1) ACU board – 4W (Recognized to UL294 only in this listed configuration)
 - (1) Elevator Board OP-MEL-16P (Recognized to UL294 only in this listed configuration)
 - Up to four (4) Openpath Smart Readers connected to ACU board or two (2) to OP-MEL-16P

Model Differences:

- Smart Hub (access control unit):
 - OP-SH-24V : Smart Hub with 24/12VDC output power supply
- Smart Reader (door entry reader)
 - OP-RLF-STD : Low Frequency (LF) Standard Reader
 - OP-RHF-STD : High Frequency (HF) Standard Reader
 - OP-RLF-MUL : Low Frequency (LF) Mullion Reader (smaller enclosure than Standard Reader)
 - OP-RHF-MUL : High Frequency (HF) Mullion Reader (smaller enclosure than Standard Reader)
- ACU Board: Used in the Smart Hub unit to connect the Smart Readers to the internal power supply and control circuit
- Elevator Board OP-MEL-16P: Used in the Smart unit to connect elevator readers to the internal power supply and control circuit

Description (Continued)

Electrical Rating:

- Smart Hub OP-SH-24V: 120V, 0.7A or 230V, 0.3A, 50/60 Hz
- All Smart Readers: 12V, 0.25A
- ACU Board: 10-14VDC, 1A
- Elevator Board OP-MEL-16P: 12-24VDC, 0.35A

Engineering Considerations (Not For Field Representative's Use):

- The Access Control Unit and Door Readers, Models Smart Hub (OP-SH-24V) & Smart Readers (OP-RLF-STD, OP-RHF-STD, OP-RLF-MUL, OP-RHF-MUL) have been investigated in accordance with UL 294, Seventh Edition: Safety of Access Control System Units, Rev. January 31, 2018 and CAN/ULC-60839-11-1:2016 Alarm and Electronic Security Systems – Part 11-1: Electronic Access Control Systems – System and Components Requirements.
- The Door Readers, Models Smart Readers (OP-RLF-STD, OP-RHF-STD, OP-RLF-MUL, OP-RHF-MUL) have been investigated in accordance with UL 60950-22/CSA C22.2 No. 60950-22, First Edition: Safety of Information Technology Equipment, Part 22: Equipment to be Installed Outdoors, Rev. March 31, 2017.
- The Openpath Boards, Models ACU Board & Elevator Board (OP-MEL-16P) have been investigated in accordance with UL 294, Seventh Edition: Safety of Access Control System Units, Rev. January 31, 2018. These components are Recognized to this standard only when used in the Smart Hub OP-SH-24V Access Control Unit in the described and tested configuration. See Conditions of Acceptability section.
- The system is defined for these performance levels:
 - Attack Level: Level I – no attack test
 - Endurance Level: Level I – 1000 cycles
 - Line Security Level: Level I – no line security
 - Standby Power Level: Level I – no secondary power source
 - Grade I per CAN/ULC 60839-11-1
- This product must be installed in accordance with all codes applicable to the location of the installation and in accordance with its instructions for use.
- Smart Hub is intended for indoor operation.
- Smart Readers are intended for indoor or outdoor (IP65) operation.
- The product was tested for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of 50°C

Note to Field Representative:

- This product must be installed in accordance with all codes applicable to the location of the installation and in accordance with its instructions for use.
- The Openpath Boards, Models ACU Board & Elevator Board (OP-MEL-16P) are considered Recognized to UL 294 exclusively when used in the Smart Hub OP-SH-24V Access Control Unit configuration tested in this report. See Conditions of Acceptability section.

General Requirements

Scope of Requirements: The requirements contained within this section apply to all products contained within this Follow-Up Service Report File where applicable.

Definitions: (as defined or used in the context of the standard)

Term	Definitions
SELV:	Safety Extra Low Voltage
PCB:	Printed Circuit Board
TNV:	Telecommunications Network Voltage
Listed/Recognized Component:	A component evaluated to the applicable U.S. standards by a Nationally Recognized Testing Laboratory (NRTL).
Certified Component:	A component evaluated to the applicable Canadian standards by a Certification Organization (CO).
Listee:	Applicant

Measurements: All dimensions indicated in the body of this report are approximations unless otherwise indicated.

Corrosion Protection: All corrosive metals shall be provided with a means to protect from corrosion. Acceptable methods include painting, plating and galvanizing. Dissimilar metals shall not be employed where reliable continuity is required.

Soldered Connections: All soldered connections shall be made mechanically secure before soldering. Tack soldering is not acceptable. Acceptable forms of mechanical securement include:

- A) Lead is inserted through an eyelet or opening of a terminal block prior to soldering.
- B) Lead is inserted into a U or V shaped slot in the terminal prior to soldering.
- C) Lead is wrapped around a terminal post prior to soldering.
- D) Lead is tied to adjacent lead with wire tie-wrap near termination point.

Electrical Connections: All electrical connections other than soldering shall be provided with positive detent, crimp type insulated Recognized Component connectors suitable for the voltage and temperatures involved. They shall be sized for the wire and mounting terminations. Where hazardous voltage or energy is involved, all wire connections to connectors shall employ a recognized method of double securement. Where fork-type lugs are used, they shall be snap-on or up-turned lug type.

Mechanical Assembly: All parts shall be secured by welding, bolts/nuts with lock or star washers, or thread forming screws.

Creepage and Clearances: Shall be in accordance with the evaluated product standards.

General Requirements (Continued)

Where present, the following items are required.

Internal Plastics: Shall be a Recognized/Certified Component, Plastic, rated minimum 94V-2.

PCB: Shall be a Recognized Component, rated minimum 94V-2 and 105°C.

Tubing and Sleeving: Shall be a Listed/Recognized/Certified Component, rated minimum 300V, 80°C minimum, 94V-2, unless otherwise noted.

Wire Connectors: (Various crimp-type) Shall be Listed/Recognized/Certified Components sized for the wire and mounting terminations. Both the wire insulation and the conductor shall be crimped.

Fuseholder: Operator accessible fuseholders, when provided, are connected to the ungrounded conductor(s) of the primary circuit.

Internal Wiring: All internal wiring and connections are properly jacketed or enclosed within the equipment. Wiring is routed and secured to reduce the possibility of stress being transmitted to electrical connections, as necessary. All internal conductors in the secondary circuits are routed away from primary circuit conductors and from uninsulated live parts. There is no internal wiring subject to contact by the user when the product is employed as intended. The internal wiring is acceptable for conditions of service to which it will be subjected. Internal conductors consist of Recognized Component AWM insulated individual conductors; sized in accordance with the National Electric code and Canadian Electrical code, as may be applicable for the current expected in the conductor, rated VW-1, 300V, 90°C, and signal level ribbon wiring of flammability rating VW-1.

Interconnecting Cords and Cables: Flexible telecommunication cord and cable assemblies employed for interconnection between components are to be rated for and comply with temperatures, exposure to oil or grease and other conditions of service within the environment the product is to be utilized.

Markings

Etching, molding, die-stamping, silk-screening, stamped-, or etched-metal labels secured by rivets or screws are considered permanent. Recognized/Certified Component, Marking and Labeling Systems, and/or labels tested and deemed suitable for the surface to which it is applied is also considered permanent. Per the Canadian Electrical Code described in CSA C22.0 General Requirements, Canadian product certification requires warning/cautionary markings in both English and French languages. It is the Applicant's responsibility to provide the listed Bilingual Markings shown below in accordance with the Canadian regulatory requirements. Each product is to be permanently marked with the following information:

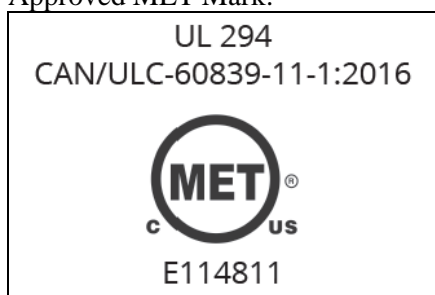
- a. The MET Mark (refer to MET Applicant Contract), with the applicant/listee name or alternate listee name as identified within this report, trade name or trade mark, product model number, and a date of manufacture or serial number.

- b. Method of applying the MET Mark:

☒ Direct Imprinting

☐ Purchasing Labels from MET Laboratories, Inc.

Approved MET Mark:



- c. For Mains Connected Equipment, a rating label adjacent to the inlet connector identifying the voltage, current or power, frequency, and UL 294 performance levels for the equipment.
- d. Near each terminal and control, there shall be a marking to identify the function.
- e. Smart Readers shall be marked with IP65 rating and model designation.
- f. Warning signal/symbol height shall be no less than 7/64" (2.8mm) and remaining text height shall be no less than 3/22" (2.4mm).
- g. Instruction to refer to the document Reference Number of the Installation Guide.
- h. The following marking is required on the product in operator line-of sight during normal use:



Manual/Service Instructions

- Operations and Service instructions are provided with the equipment.

The following instructions shall be included in the user's manual:

- Smart Hub OP-SH-24V rating: 120V, 0.7A or 230V, 0.3A, 50/60 Hz
- All Smart Readers ratings: 12V, 0.25A
- ACU Board rating: 10-14VDC, 1A
- Elevator Board OP-MEL-16P rating: 12-24VDC, 0.35A
- All model designations including Smart Hub (OP-SH-24V), Smart Readers (OP-RLF-STD, OP-RHF-STD, OP-RLF-MUL, OP-RHF-MUL), ACU Board, and Elevator Board (OP-MEL-16P)
- Technical and environmental specifications, configuration instructions of all models shall be listed
- Installation to mount the Smart Hub and Smart Readers must be included
- Wiring diagram of the system including Enclosure, Power Supplies, ACU Board, and Elevator Board
- Smart Hub shall be used in close proximity with the Smart Readers
- Operation instructions of the system shall be included
- Disconnect AC before servicing
- **For ACU Board and Elevator Board**, statement and marking of UL 249 Recognition is permitted provided a clear instruction in manual that these components shall only be used with the Smart Hub OP-SH-24V ACU system and the specific configuration as described in this report. See Conditions of Acceptability section.

Alternate Listee Information

Alternate listees and product names or model numbers: None

Applicant's Responsibilities

Product Modifications:

Minor product modifications by the manufacturer may be allowed using the following guidelines:

1. Components identified in this report as "Listed, Recognized, or Certified" and **NOT** identified with a manufacturer name or part number may be exchanged with an alternate "Listed, Recognized, or Certified" component of equivalent value.

Example: Appliance Inlet Connector - Listed/Certified Component, IEC 320 style male connector, rated 250 volts and 20 amperes. Mechanically secured to the front panel with screws and locking washers.

- This inlet connector may be replaced with any Listed/Certified inlet connector with the same ratings as stated and where mechanical securement is maintained.

2. Components identified by a manufacturer name, part number, or with specific comments, (such as AC only, indoor use only, approved for use in this product only), may **NOT** be replaced or modified without prior approval from MET Laboratories.

Example: Circuit Breaker - Recognized/Certified Component, ABCD Co. P/N XYZ123, rated 250 volts maximum, 50/60 Hz, 25 full-load amperes, 31.3 trip amperes. Toggle handle marked with IEC on/off symbols. Mechanically secured to the front panel with screws and locking washers.

- This circuit breaker can **NOT** be modified or changed without prior approval by MET Laboratories, Inc.

Project Amendments:

For your convenience a Project Amendment Request (PAR) form is available for download at <http://corp.metlabs.com/safetyreq/> **For any changes** related to product construction, manufacturing locations, if the product is intended to be marketed/sold under an alternate name or model number than that originally listed, or any issues which would require notification or change in the status of this file, please complete the form and return to MET Laboratories, Inc. following the instructions provided on the form.

If you are terminating or temporarily suspending production of this product for an extended period, please send a letter on company letterhead to:

MET Laboratories, Inc.
Attn: Follow Up Services Department
914 West Patapsco Avenue
Baltimore, Maryland 21230
USA
Fax: (410) 354-3313

Applicant's Responsibilities (Continued)

Manufacturing and Production-Line Tests and Documentation performed by Manufacturer.

All certified products are required to be subjected to production line testing as indicated below:

Dielectric Voltage-Withstand Test:

Each complete end product shall be capable of withstanding, without electrical breakdown, the application of a continuous sinusoidal or direct current voltage between uninsulated live parts and accessible dead metal parts that are likely to become energized in accordance with the following method.

Circuit Rating	Component Tested	Circuit Tested	Method A			Method B		
			Voltage (VAC)	Voltage (VDC)	Time (sec)	Voltage (VAC)	Voltage (VDC)	Time (sec)
Up to 250 V	Main unit	Primary to Ground	1000	1414	60	1200	1697	1

Grounding Continuity Test:

Each complete product shall be tested to determine grounding continuity between the grounding pin or terminal of the attachment plug and the accessible dead metal parts that are likely to become energized. The grounding contact of each receptacle, and other means for grounding on the load side, shall be included in this test. Compliance is to be determined by any appropriate device, such as an ohmmeter, or a battery and buzzer combination, applied between the points under test.

Documentation:

The manufacturer is required to record the production line test results. The data recorded is to include the type of test, date of test, serial number of the product, indications of pass, fail, or retest, test equipment utilized, calibration date of test equipment utilized, and the initials or signature of the test technician. Test records shall be required to be maintained from factory follow-up audit to factory follow-up audit and must be available for the inspectors' review. Records may be in the form of travelers, logs, computer files, or other such suitable documentation method.

Conditions of Acceptability

This section applies ONLY to the Openpath Boards, Models ACU Board and Elevator Board (OP-MEL-16P)

When installed in the end product, consideration shall be given to the following:

The Openpath Boards, Models ACU Board and Elevator Board (OP-MEL-16P), are Recognized to UL 294, Seventh Edition: Safety of Access Control System Units, Rev. January 31, 2018, strictly under the condition they are used in the Smart Hub (OP-SH-24V) system in the following configuration:

- (1) Metal enclosure Smart Hub
- (1) LifeSafety Power FPO75
- (1) LifeSafety Power B100
- (1) LifeSafety Power C4
- (1) ACU Board – 4W (Recognized to UL294 only in this listed configuration)
- (1) Elevator Board OP-MEL-16P (Recognized to UL294 only in this listed configuration)

Up to four (4) Openpath Smart Readers can be connected to ACU Board or two (2) to Elevator Board OP-MEL-16P.

Ratings:

- ACU Board: 10-14VDC, 1A
- Elevator Board OP-MEL-16P: 12-24VDC, 0.35A

The ACU Board and Elevator Board (OP-MEL-16P) are suitable for use in the same environmental conditions as the entire Smart Hub (OP-SH-24V) access control unit system.

Critical Components

Figure/ item No.	Object/ Parts No.	Manufacturer/ Trademark	Type/ Model	Technical Data	Standard (Edition / year)	Mark(s) of Conformity	Secured Method
Smart Hub (OP-SH-24)							
1/1	Enclosure	LifeSafety Power Inc.	FPO75-B100C4 (Includes FPO75, B100, and C4 power supplies)	Metal: Aluminum, 1.35mm thick	UL294	UL Listed (BP10754)	Secured with mechanical fit and key lock
-	Description	Overall Dimensions: 12.25in (W) x 4.75in (D) x 14.25in (H) Ventilation Openings: 2x rectangular areas 36.2mm x 203mm of 3.2mm diameter holes					
1/2	Power Supply Cord	Ching Cheng Wire Material Co. Ltd.	Type SVT	300V, VW-1, 105°C, 3x18AWG	UL 62	UL (E162604)	Secured with mechanical fit through chassis
1/3	Cord Strain Relief	Shenzhen Yazhoulong Electronic Technological Co. Ltd.	HEG-13.5	Flammability rating: 94V-2	UL 94	Intertek Test Report (GZHH0026 5330)	Secured with mechanical fit through chassis
2/1	Power Supply	LifeSafety Power Inc.	FPO75	Input: 120/230VAC, 50/60Hz, 1.5A Output: 12VDC, 6A or 24VDC, 3A	UL294	UL Listed (BP10754)	Secured internal to chassis with screws
2/2	Power Supply	LifeSafety Power Inc.	B100	Input: 24VDC, 2.2A Output: 12VDC, 4A	UL294	UL Listed (BP10754)	Secured internal to chassis with screws
2/3	Power Supply	LifeSafety Power Inc.	C4	Input: 12VDC and 24VDC, Max 20A Output: 12VDC or 24VDC, 3A	UL294	UL Listed (BP10754)	Secured internal to chassis with screws
2/4	PWB	Nan Ya Plastics Corporation	NP-175FTL	Glass cloth base epoxy resin, flammability rating: 94V-0. Temperature: 170°C	UL 94	UL Recognized (E98983)	Secured internal to chassis with screws
2/5	ACU Board	Openpath Security	ACU Board – 4W	Input: 10-14VDC, 1A. Can connect up to 4 Openpath Readers	Evaluated to UL294 and CAN/ULC- 60839-11- 1:2016	Tested in application (UL294 Recognized in specified application)	Secured internal to chassis with screws
2/6	Elevator Board	Openpath Security	Relay16 Elevator Board (OP-MEL-16P)	Input: 12-24VDC, 0.35A	Evaluated to UL294 and CAN/ULC- 60839-11- 1:2016	Tested in application (UL294 Recognized in specified application)	Secured internal to chassis with screws

Critical Components (Continued)

Figure/ item No.	Object/ Parts No.	Manufacturer/ Trademark	Type/ Model	Technical Data	Standard (Edition / year)	Mark(s) of Conformity	Secured Method
ACU Board							
3/1	Relay	Panasonic	JS1-5V-F	Rated: 5VDC, 72mA, 360mW	UL 508	UL Recognized (E43028)	Secured to PWB with solder
3/2	Input Connector	On-Shore Technology, Inc.	OSTOQ 5.0mm Series	Rated: 300VAC, 20A. 94V-0	UL 1059	UL Listed (E244937)	Secured to PWB with solder
Elevator Board OP-MEL-16P							
3/3	Relay	Omron Corp	G5V-1-DC12	Rated: 12VDC, 12.5mA, 150mW	UL 508	UL Recognized (E41515)	Secured to PWB with solder
3/4	Input Connector	Wurth Elektronik	69131170 Series	5.0mm. Rated: 300VAC, 20A. 94V-0	UL 1059	UL Listed (E315414)	Secured to PWB with solder
Smart Reader (up to four connected to ACU Board)							
4/1	Enclosure (UV Resistant Plastic)	Covestro Deutschland AG	Makrolon 2407	UV rating: f1 Flammability: 94HB Temperature: 115 °C Thickness: 1.5 mm min	UL 746C, UL 94	UL Recognized (E41613)	Secured by mechanical fit
		Chi Mei Corporation	KIBILAC PW- 957	UV rating: f1 Flammability: 94HB Temperature: 50 °C Thickness: 1.5 mm min	UL 746C, UL 94	UL Recognized (E56070)	Secured by mechanical fit
-	Description	Overall Dimensions: Standard – 73.5mm (W) x 22mm (D) x 119mm (H) Mullion – 43.3mm (W) x 22mm (D) x 119.5mm (H) No ventilation openings.					
Alternate Power Supply							
6/1	Alternate Power Supply to Item 2/1	LifeSafety Power Inc.	FPV4	Input: 120/230Vac, 50/60Hz, 2A Output: 12VDC, 4A or 24VDC, 3A	UL294 ULC- 60839-11-1	UL/CSA (BP10754, Listed when installed within enclosure with applicable boards)	Secured internal to chassis with screws.

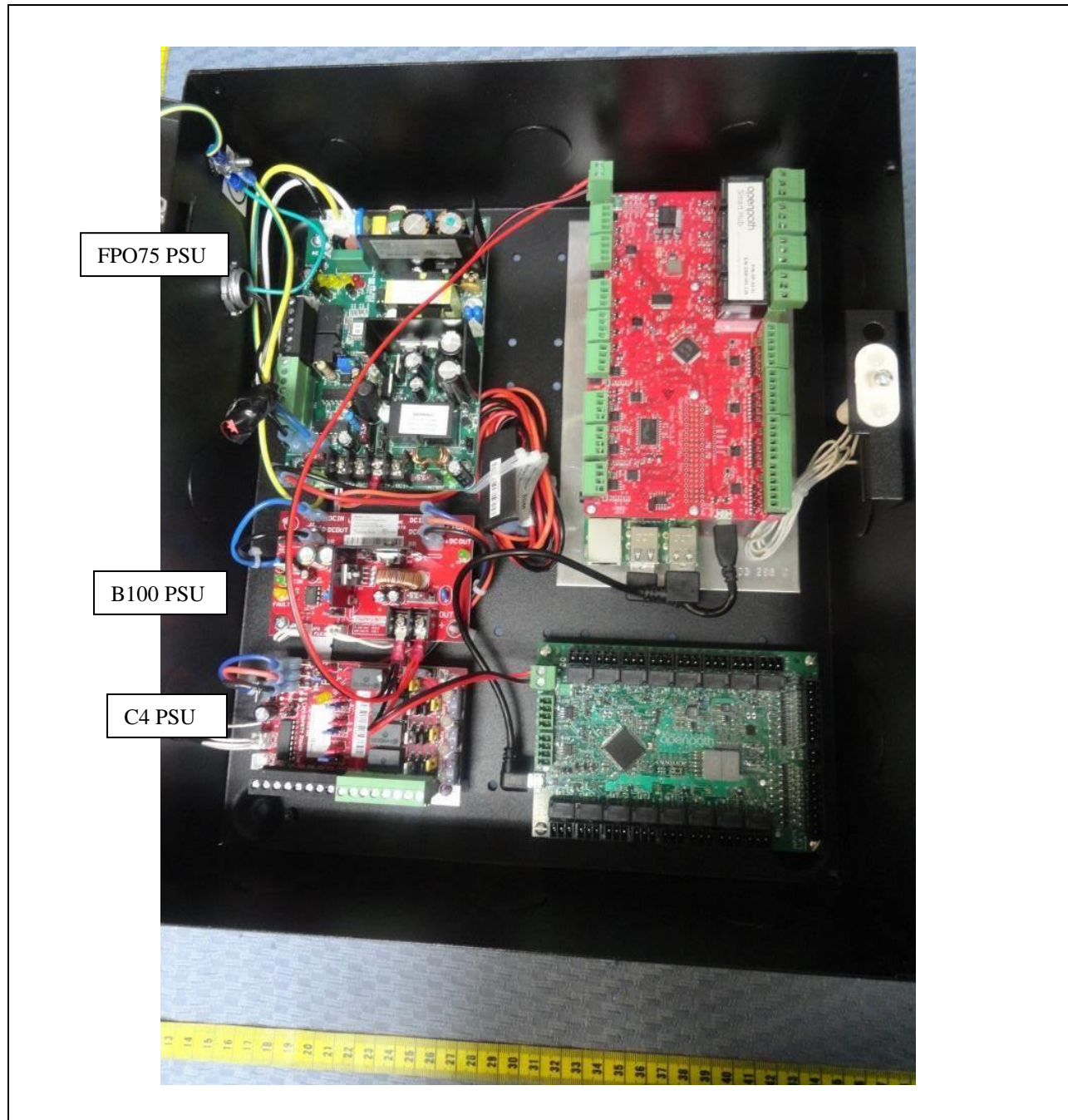
Figures

Figure 1. External Overall View of the Smart Hub OP-SH-24V system



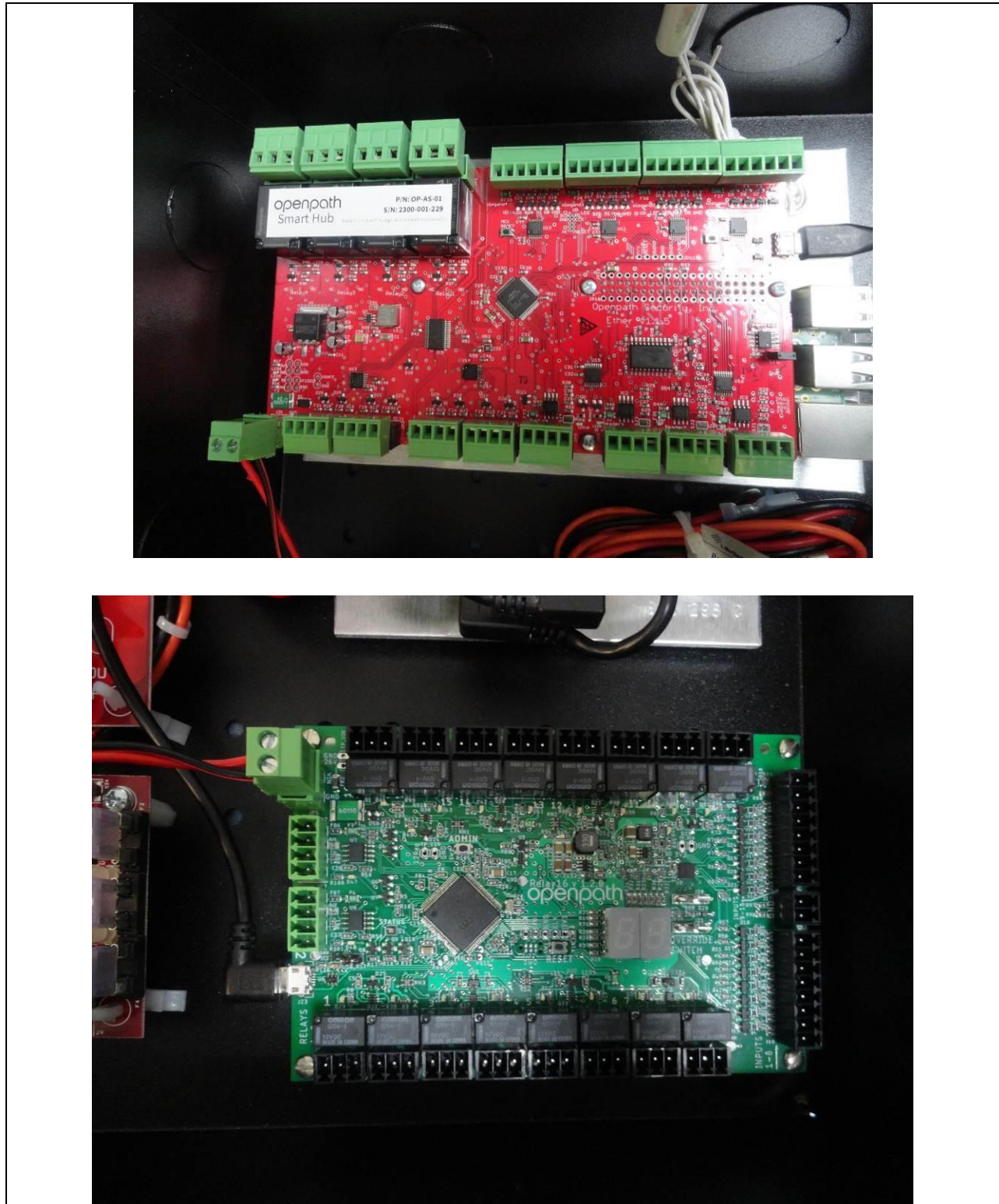
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Figure 2. Internal view of the Smart Hub OP-SH-24V system



Figures (Continued)

Figure 3. View of ACU Board and of Elevator Board (OP-MEL-16P)



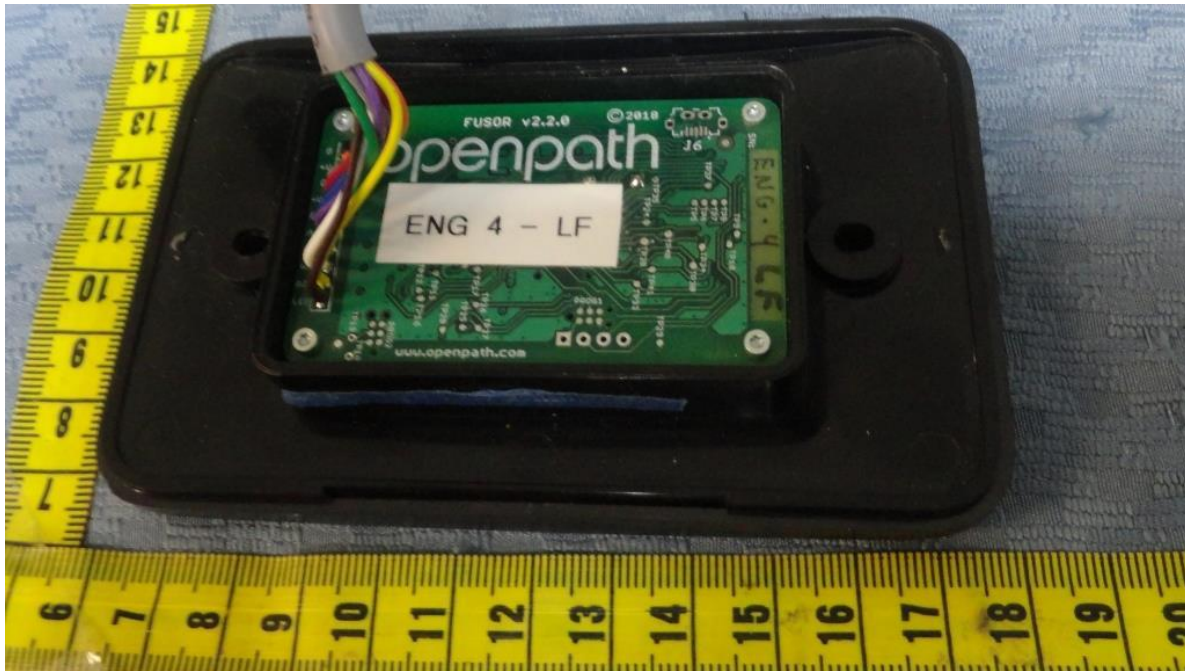
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Figure 4. External View of the Standard and Mullion Smart Readers (OP-RLF-STD and OP-RHF-MUL)



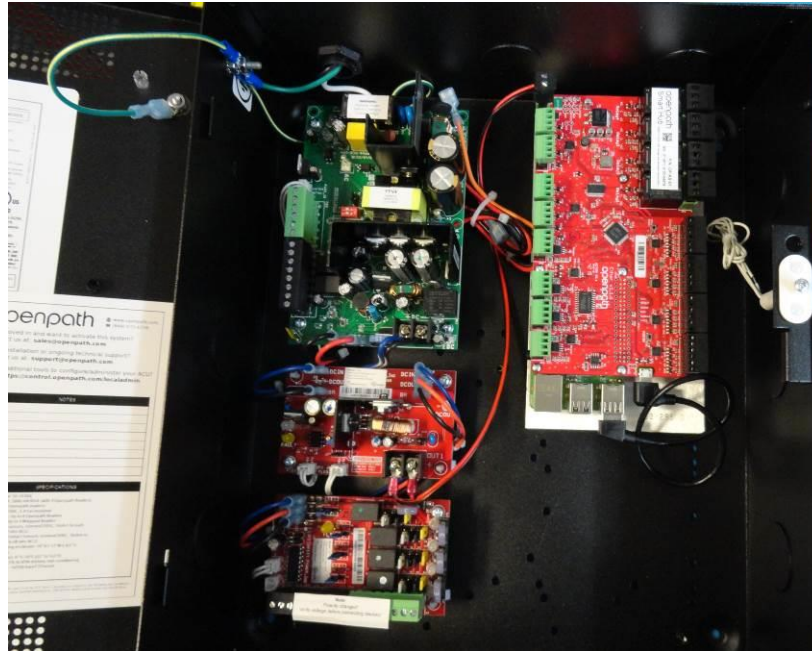
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Figure 5. Internal View of the Standard and Mullion Smart Readers (OP-RLF-STD and OP-RHF-MUL)



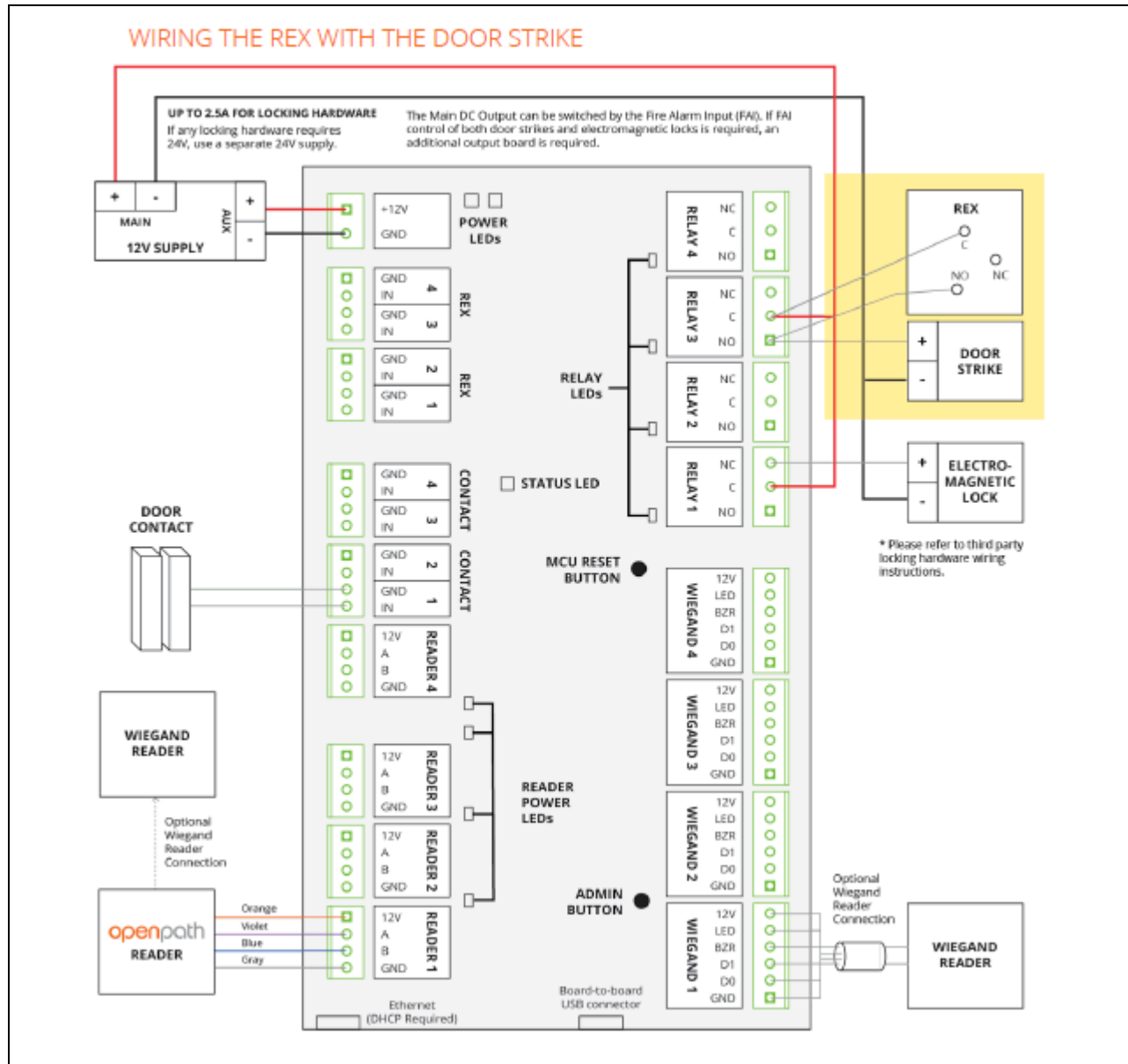
Figures (Continued)

Figure 6. Alternate Power Supply model FPV4- Installed and Close Up



Illustrations

Illustration 1. Example Wiring Diagram shown in the Installation Instructions



Testing Considerations

A sample of the Access Control Unit and Door Readers, Models Smart Hub (OP-SH-24V) & Smart Readers (OP-RLF-STD, OP-RHF-STD, OP-RLF-MUL, OP-RHF-MUL) along with Openpath Boards, Models ACU Board & Elevator Board (OP-MEL-16P), was subjected to the following test program with satisfactory results. All tests were conducted in accordance with UL 294, Seventh Edition: Safety of Access Control System Units, Rev. January 31, 2018, CAN/ULC-60839-11-1:2016 Alarm and Electronic Security Systems - Part 11-1: Electronic Access Control Systems - System and Components Requirements, and UL 60950-22/CSA C22.2 No. 60950-22, First Edition: Safety of Information Technology Equipment, Part 22: Equipment to be Installed Outdoors, Rev. March 31, 2017.

Only these tests were considered necessary due to engineering considerations. Detailed test results are on file at MET Laboratories under project number 101883.

TESTS CONDUCTED:

1. Input Measurement Test
2. Power Interruption Test
3. Under Voltage Operation Test
4. Over Voltage Operation Test
5. Earthing Test
6. Strain Relief Test
7. Variable Ambient Test
8. Humidity Test
9. Overload Test
10. Endurance Test
11. Jarring Test
12. Impact Test
13. Temperatures Tests
14. Leakage Current Test for Cord-Connected Products
15. Dielectric Voltage-Withstand Test
16. Abnormal Operating and Fault Conditions
17. Rain Test
18. Dust Test
19. Vibration Test

Testing Considerations (continued)

TESTS CONDUCTED (CONTINUED):

20. Supply line (ring wave surge voltage) transients
21. Internally induced transients
22. Input/output (low-voltage) field-wiring transients- alternate method
23. AC Induction Test
24. Main Supply voltage Variation
25. Electrostatic discharge
26. Radiated electromagnetic fields
27. Conducted disturbances induced by electromagnetic fields

A sample of the Access Control Unit and Door Readers, Models Smart Hub (OP-SH-24V) & two Smart Readers (OP-RHF-MUL) along with Openpath Boards, Models ACU Board, was subjected to the following test program with satisfactory results. Only these tests were considered necessary due to engineering considerations under project number 101883

TESTS CONDUCTED:

1. Input Measurement Test & Access Point Interface – Release Timing
2. Power Interruption Test
3. Under Voltage Operation Test
4. Over Voltage Operation Test
5. Overload Test
6. Temperature Tests
7. Dielectric Voltage-Withstand Test
8. Earthing Test
9. Leakage Current Test for Cord-Connected Products
10. Abnormal Operating and Fault Conditions

Conclusion

The products covered by this report have been tested, examined, and found to comply with the applicable requirements of UL 294, Seventh Edition: Safety of Access Control System Units, Rev. January 31, 2018, CAN/ULC-60839-11-1:2016 Alarm and Electronic Security Systems - Part 11-1: Electronic Access Control Systems - System and Components Requirements, and UL 60950-22/CSA C22.2 No. 60950-22, First Edition: Safety of Information Technology Equipment, Part 22: Equipment to be Installed Outdoors, Rev. March 31, 2017. This certification has been granted under a System 3 program as defined in ISO/IEC 17067.

Prepared By:



Tenyie Peng
Project Engineer,
MET Safety Laboratory

Reviewed By:



Shaima Adin
Safety Lab Manager, Union City
Safety Laboratory