

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC) SYSTEM FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN EXPLOSIVE ATMOSPHERES (IECEx SYSTEM)

Title: Special Site Assessment visit for UL LLC, US, re Underwriters Laboratories Taiwan Co. Ltd., as an additional Testing Location to the US based ExTL

Circulation to: ExMC – IECEx Management Committee

INTRODUCTION

The IECEx Secretariat has received an application from UL LLC, US, to enable UL LLC to conduct IECEx testing at a location in Chinese Taipei, using testing facilities at Underwriters Laboratories Taiwan Co. Ltd., as an additional Testing Location to their Northbrook based IECEx approved ExTL. Underwriters Laboratories Taiwan Co. Ltd., will operate under the control and direction of UL LLC, US, and will work using UL LLC's management system and procedures.

The IECEx Secretariat arranged for a special site assessment to be performed by an IECEx Lead Assessor. This special site assessment was treated as an extension of scope for the Accepted ExTL UL LLC, US, to include a new location, in Chinese Taipei.

This document provides a report of the special site assessment visit and is now submitted for voting by the ExMC.

Please consider the assessment report and return the completed voting form to

chris.agius@iecex.com by 2015 06 19.

Your speedy response to the voting process will be very much appreciated.

Chris Agius

IECEx Secretariat

Address: Level 33, Australia Square 264 George Street Sydney NSW 2000 Australia Contact Details: Tel: +61 2 46 28 4690 Fax: +61 2 46 27 5285 e-mail:chris.agius@iecex.com <u>http://www.iecex.com</u>



IEC System for certification to standards relating to equipment for use in Explosive Atmospheres (IECEx System)

IECEx ExTL assessment report for the Underwriters Laboratories Taiwan Co. Ltd., laboratories located at: No 2, Wenming 1st St, Guishan, Taoyuan City, Chinese Taipei 333 and 1/F, 260, Da-Yeh Road, Peitou, Taipei City, Chinese Taipei 112.

INTERNATIONAL ELECTROTECHNICAL COMMISSION



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1 Assessment information

1.1 Type of Body covered by this assessment:

ExCB for IECEx Certified Equipment Scheme	
ExTL for IECEx Certified Equipment Scheme	\checkmark
ExCB for IECEx Certified Service Facilities Scheme	
ExCB for IECEx Conformity Mark Licensing System	

NOTE 1 ExCB - IECEx Certification Body

NOTE 2 ExTL - IECEx Testing Laboratory

1.2 Type of assessment:

Pre-assessment for candidate body	
Initial assessment for candidate body	
Surveillance	
Re-assessment	
Scope extension	\checkmark

Details of Scope Extension: To include the Underwriters Laboratories Taiwan Co. Ltd., laboratories located at:

No 2, Wenming 1st St, Guishan, Taoyuan City, Chinese Taipei 333 and 1/F, 260, Da-Yeh Road, Peitou, Taipei City, Chinese Taipei 112. At all times Test Projects are controlled by UL LLC US.

1.3 Details of body

1.3.1 Country

US

1.3.2 Name of body

UL LLC

333 Pfingsten Road, Northbrook, IL 60062 USA

1.3.3 Name and title of nominated principal contacts

Name	Title	E-mail address	
UL LLC			
Michael Slowinske	Engineering Manager	Michael.Slowinske@ul.com	
UL Taiwan			
Tony Yang	Engineering Leader	Tony.Yang@ul.com	

1.4 Assessment information

1.4.1 Members of the assessment team

Name	Role (modify as necessary)
Ron Webb	Lead assessor

1.4.2 Place(s) of assessment

Underwriters Laboratories Taiwan Co. Ltd.	Underwriters Laboratories Taiwan Co. Ltd.
No 2, Wenming 1 st St	260, Da-Yeh Road,
Guishan,	Peitou,
Taoyuan City,	Taipei City,
Chinese Taipei 333	Chinese Taipei 112.



1.4.3 Assessment date(s)

7-8 April 2015 (Taoyuan) and 9 April 2015 (Peitou).

1.5 Application information

The request for scope extension of UL LLC ExTL was sent to the IECEx Secretariat on 23rd January 2015. During the visit it was requested to add IEC 60079-26 to the scope.

1.6 Scope

1.6.1 ExTL scope for equipment certification scheme

Selected tests from the following standards as indicated in the tables below.

IEC 60079-0 IEC 60079-1 IEC 60079-7 IEC 60079-11 IEC 60079-15 IEC 60079-26 IEC 60079-31

Standard	Title	Tests Covered	Location	
Number			Taoyuan	Peitou
IEC 60079-0	0 Explosive atmospheres -	1. 6.3 Opening time test	Х	Х
Editions 3.1, 4, 5, 6	Part 0: Equipment - General requirements	2. 6.3 Capacitance discharge timing test	х	х
		 17.1 Ingress Protection – IP Code 1X-2X – Protected Against Solid foreign objects 	x	
		4. 26.4.2 Tests for resistance to impact	х	х
		5. 26.4.3 Drop test	Х	Х
		 6. 26.4.5 Tests for degrees of protection (IP) - Dust 	х	
		7. 26.4.5 Tests for degrees of protection (IP) - Water		Х
		8. 26.5.1 Temperature Test	Х	Х
		9. 26.5.2 Thermal shock test	х	х
		10. 26.6 Torque test for bushings	х	х
		11. 26.8 Thermal endurance to heat	х	Х
		12. 26.9 Thermal endurance to cold	х	Х
		13.26.10 Resistance to light		Х
		14.26.12 Earth continuity	Х	Х
		15. 26.13 Insulation resistance test for plastic enclosure (Surface resistance test of parts of	x	x



Standard	Title	Tests Covered		Location	
Number				Taoyuan	Peitou
			enclosures of non-metallic materials)		
		16.	. 26.14 Measurement of capacitance	Х	х
		17.	. 26.15 Verification of ratings of ventilating fans	х	Х
		18.	. 26.16 Alternative qualification of elastomeric sealing O-rings		x
		19.	A.3.1Tests of clamping of non-armoured and braided cables	x	x
		20.	. A.3.2 Tests of clamping of armoured cables	Х	Х
IEC 60079-1 Editions 3.2, 4, 5, 6, 7	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"	1.	15.1.2 Determination of explosion pressure (reference pressure) – exclude enriched oxygen mixtures	X	
		2.	15.1.3 Overpressure test	Х	
		3.	15.2 Test for non- transmission of an internal ignition	X	
		4.	15.4.2 Thermal tests	Х	
		5.	15.5 Tests of flameproof enclosures with breathing and draining devices - exclude enriched oxygen for IIC	x	
		6.	C.3.1 [Cable Glands][Conduit Sealing Devices] Sealed with Setting Compound Test	х	
		7.	C.3.3.1 Torque Test (for Ex Blanking Elements)	Х	Х
		8.	C.3.4.1 Torque Test (for Ex Thread Adapters)	Х	Х
		9.	C.3.4.2 Impact Test (for Ex Thread Adapters)	Х	Х
IEC 60079-7	Explosive atmospheres -	1.	6.1 Dielectric strength	Х	Х
Editions 2, 3 4	Part 7: Equipment	2.	6.6 Secondary batteries	Х	Х
5, .	safety "e"	3.	6.6.2 Batteries – insulation test	X	X
		4.	6.6.3 Batteries – mechanical shock test		Х
		5.	6.7 General purpose connection and junction	X	Х



Standard	Title	Tests Covered		Location	
Number				Taoyuan	Peitou
			boxes		
		6.	6.9 Terminal insulating material tests	х	Х
		7.	6.10 Terminal Dielectric Test	Х	Х
		8.	7.2 Dielectric tests for batteries	Х	Х
		9.	8.2 & Annex E.2 Terminals resistance test	Х	Х
IEC 60079- 11	Explosive atmospheres - Part 11: Equipment	1.	5.4, 5.5, 10.1 Energy Limited Circuit Analysis	Х	Х
Editions 4, 5, 6	protection by intrinsic safety "i"	2.	7.4.4, 7.4.5, 10.5.1, 10.5.3 Battery Output Test	Х	Х
		3.	8.2.4, 8.3 Protective Transformer Dielectric Voltage Withstand Test	Х	х
		4.	8.2.4, 10.10 Type Test for Protective Transformers	Х	Х
		5.	10.1 Spark Ignition Test	Х	
		6.	10.2 Temperature tests	Х	Х
		7.	10.3 Dielectric strength tests	х	Х
		8.	10.5.2 Battery Temperature and Electrolyte Leakage Test	х	x
		9.	10.5.4 Battery Container Pressure Test	Х	Х
		10	. 10.6.1 Mechanical Tests for Encapsulation	Х	Х
		11	. 10.6.2 Sealed Device Air Leakage Test	Х	Х
		12	. 10.6.3 Mechanical Tests for Partitions	Х	Х
		13	. 10.7 Impact Voltage Measurement Test for Apparatus Containing Piezoelectric Devices	x	
		14	. 10.9 Cable Pull Test	Х	Х
		15	. 10.10 Transformer tests		Х
		16	. 10.11 Protective Optical Isolator Tests		х



Standard	Title	Tests Covered	Loca	ation
Number			Taoyuan	Peitou
IEC 60079-	Explosive atmospheres –	1. 5.1 Temperature test	Х	Х
Editions 1,	protection by type of protection "n"	 6.5 Dielectric voltage withstand test 	Х	Х
_, _, .		 7.3.5 Connector Secureness test 	Х	Х
		 4. 22.3.1.1 Thermal endurance to heat and cold 	Х	Х
		5. 22.3.1.2 Drop test	Х	Х
		 6. 22.4 Enclosed break tests Limit to IIA and IIB 	Х	
		 22.4 Nonincendive component test 	Х	
		 22.5 Tests for sealed devices 	Х	Х
		 22.6.2 Type test requirements for restricted- breathing enclosures 	X	х
		10. 22.7 Screw lampholder tests		Х
		11. 22.8 Starter holder test (for luminaires)		Х
		12. 22.9 Electronic starter tests		х
		 22.10 Test for wiring of luminaries subject to high- voltage impulses from ignitors 		X
		14. 22.11 Mechanical shock test for batteries		Х
		15. 22.12 Insulation resistance test for batteries	Х	х
IEC 60079- 26		1. 5.2 separation elements	Х	Х
Editions 1, 2, 3		2. Temperature evaluation	Х	Х
IEC 60079- 31 Editions 1, 2		 6.1.1 Dust exclusion by enclosures (IP 5X or 6X) with 2kPa or 4kPa depression 	x	
		2. 6.1.2 Temperature Test	Х	Х
		3. 6.1.3 Pressure Test	Х	



2 Common information

2.1 Legal entity of body

UL Taiwan is a private limited company registered in Chinese Taipei (Regd. No. 28452074).

An agreement exists between UL LLC and Underwriters Laboratories Taiwan Co. Ltd. that requires Underwriters Laboratories Taiwan Co. Ltd. to comply with all standard operating procedures, processes, instructions, directives or any other similar input from UL LLC related to the operation of the IECEx System. The procedure, 'Requirements for IECEx System Affiliated Testing Laboratories, 00-Ex-S0850', documents the scope of the arrangement. This extends to the control of assignment of staff for projects by UL LLC, US.

2.2 Financial support

UL LLC and Underwriters Laboratories Taiwan Co. Ltd. operate on a customer fee for service arrangement.

2.3 History

UL is an independent product safety testing and certification organization founded in 1894, whose corporate mission is to serve the public by testing products for safety. UL's principal activity is investigating the safety of many kinds of products, including electrical and electronic equipment and products, mechanical products, building materials, construction systems, fire protection equipment, burglary protection systems and equipment, and marine products. UL also devotes its resources to the development of UL Standards for Safety.

Underwriters Laboratories Inc. is the top level parent company in the UL Family of Companies. The UL IECEx operations in the United States are part of UL LLC, which is a fully-owned subsidiary of Underwriters Laboratories Inc.

In the past 118 years, UL has grown to over 9,000 employees. UL's Corporate Headquarters are in Northbrook, IL. Currently, there are 56 testing and certification facilities in the UL family of companies. There are also about 103 Field Services Locations that handle factory production control associated with UL Certification.

Underwriters Laboratories Taiwan Co., Ltd. was established in 1988 and for more than 20 years has carried out testing of electrical and electronic products. In the beginning only lighting products were tested. Today, the laboratory tests a wide range of electrical products categories, including IT equipment and extensive material testing facilities.

Underwriters Laboratories Taiwan Co., Ltd. is a Chinese Taipei registered company and is a wholly owned subsidiary of Underwriters Laboratories Inc. in USA. It is part of the UL Greater China region as an organization and legally it is a subsidiary of Underwriters Laboratories International Services BV, which belongs to Underwriters Laboratories Inc.

2.4 Documentation

2.4.1 Quality manual

All documents for the quality system are available on the company intranet. This addresses the elements of ISO/IEC 17025 and also addresses other relevant requirements.

2.4.2 Procedures

UL LLC owns and maintains the policies, procedures, forms, etc. related to the IECEx activities. The signed contract with Underwriters Laboratories Taiwan Co., Ltd. along with these documents shows that UL LLC has taken responsibility for all outsourced activities.

2.4.3 Work instructions

Each department at Underwriters Laboratories Taiwan Co., Ltd maintains its each own documents relevant to their specific area of testing. However these are reviewed and approved by UL LLC under the UL LLC document control system.



2.4.4 Records (including test records where relevant)

All Test results and reports generated by Underwriters Laboratories Taiwan Co. Ltd, including supporting documents, are stored electronically by UL Taiwan. In addition the documents are stored electronically by the ExCB, UL LLC, as described in 00-IC-S0052.

2.4.5 Document change control

All quality documents reside on the Intranet with hard copy documents considered uncontrolled.

2.5 Confidentiality

There is a program for new employees to alert them to confidentiality issues. Each employee signs a code of conduct. Examples of signed confidentiality agreements were sighted.

2.6 Publications

Underwriters Laboratories Taiwan Co., Ltd has no publications but does make use of its website as a communication medium.

2.7 Recognitions and agreements

There is a signed agreement between UL LLC and Underwriters Laboratories Taiwan Co., Ltd that was reviewed during the assessment visit and found to be appropriate. It ensures that the control of projects resides with UL LLC in its role as ExCB and that the operations at Underwriters Laboratories Taiwan Co., Ltd operate as an extension of the UL LLC ExTL.

2.8 Internal audit and periodic management review

Underwriters Laboratories Taiwan Co., Ltd. carries out internal audits once a year. The last audit was between 21st and 25th April 2014 under the control of UL LLC. A single CAR was raised for the Hazloc area and this was corrected.

Underwriters Laboratories Taiwan Co., Ltd carries out management reviews once a year. The last report for 12th February 2015 was viewed and found to be satisfactory.

2.9 Subcontracting, use of other labs and use of other locations

No work is further subcontracted through this arrangement.

2.10 Training and competence

Each staff member undergoes training with a mentor. As more experience is gained they progress from 'in training' to 'can work alone' to 'reviewer'

A comprehensive database records the progress of each staff member. This is managed and controlled by UL LLC $\,$

The records for several staff members were viewed and found to be acceptable.

2.11 Complaints and appeals (including appeals to IECEx)

IECEx appeals will be handled according to the UL LLC procedures previously accepted by IECEx.

2.12 Special facts to be noted

2.12.1 Supporting documentation

Copies of additional supporting information for this assessment have been provided to the applicant and the IECEx Secretariat. These are included in a site assessment report and include:

- Details of issues raised and how these have been resolved
- Checklist for ISO/IEC 17025



• Completed test sections of the Technical Capability Document for the scope of work, which includes photos of the facilities/tests witnessed

2.12.2 Witnessed Tests

The following tests were witnessed during the assessment visit:

2.12.2.1 Taoyuan

- Surface resistance test (79-0)
- Measurement of capacitance (79-0)
- Dust test (79-0)
- Test for wiring of luminaries subject to high-voltage impulses from ignitors (79-15)
- Connector secureness test (79-15)
- Nonincendive component test (79-15)
- Temperature rise test (79-0)
- Spark Ignition test (79-11)
- Battery Temperature and Electrolyte Leakage test (79-11)
- Sealed Device Air Leakage test (79-11)
- Impact voltage measurement test (piezoelectric devices) (79-11)
- Determination of explosion pressure (79-1)
- Test for non-transmission of an internal ignition (79-1)
- Pressure test prior to dust test (79-31)

Peitou

- IPX4 test (79-0)
- Dielectric strength test (79-7)
- Battery shock test (79-7 and 79-15)

2.12.2.2 Results of above tests

During the witnessing of the above tests, competence of the staff and suitability of the equipment were found to meet the requirements of IECEx. A few minor issues were found during the assessment that were resolved during the visit to the satisfaction of the assessor. These were in relation to the use of an oxygen analyser and air movement in a climatic chamber. Further details are contained in the IECEx site assessment report and TCDs held by the Secretariat. Photographic records of the above tests are included in the Technical Capability Documents.

2.13 Recommendations

Based on the assessment performed between 7-9 April 2015, UL LLC is recommended for the scope extension in the IECEx scheme involving the use of UL Taiwan as:

• An additional testing location to the UL LLC ExTL in the IECEx Certified Equipment Scheme

This is according to the scope of the standards listed in this document for UL Taiwan

Ron Webb	
Lead Assessor	

Date: 19 April 2015



3 ExTL for IECEx Certified Equipment Scheme

3.1 Assessment references

- a) IECEx02 Edition 4, IECEx Certified Equipment Scheme covering equipment for use in explosive atmospheres Rules of Procedure
- b) IECEx OD003-2 Edition 1, Assessment, surveillance assessment and re-assessment of ExCBs and ExTLs operating in the IECEx 02, IECEx Certified Equipment Scheme
- c) OD005-1 Edition1, IECEx Quality System Requirements for Manufacturers Part 1: Guidance on the establishment and maintenance of a quality system
- d) IECEx OD009 Edition 2, Issuing of CoCs, ExTRs and QARs
- e) ISO/IEC 17025:2005 Edition 2, General requirements for the competence of testing and calibration laboratories
- f) IECEx Technical Capability Documents (TCDs)
- g) ExTAG decision sheets (DSs)

3.2 Candidate ExTL persons interviewed

Name	Position
UL LLC	
Michael Slowinske	Engineering Manager
UL Taiwan – Taoyuan or Peitou	l
Tony Yang	Engineering Leader
Peggy Tsai	Project Engineer
Sara Chu	Associated Project Engineer
Morning Lee	Technician
Oswald Chang	Project Engineer
Stanley Chien	Technician
Paul Liu	Senior Project Engineer

3.3 Associated ExCB(s)

UL LLC TL has UL LLC CB as the accepted ExCB.

3.4 Organisation

Name, title and experience of the quality management representative

Name	Title	Experience
UL LLC		
Jim Oates	Quality Engineering Manager	20+ years
UL Taiwan		
J Y Lee	Quality Assurance Manager	15 years
Tony Hsu	Quality Engineer	10 years

3.4.1 Other employees in ExTL activity

Name	Title/responsibility	Experience in Ex
UL Taiwan – Taoyuan	n or Peitou	
Jacky Chuang	Engineering Technician	7 years
Eric Kuan	Lab Technician	2 years



3.5 Organizational structure

3.5.1 Organisation charts

The organisation of UL LLC and its relationship to UL Taiwan are shown in Annex A

3.6 Resources

The two sites at Taoyuan and Peitou are used by the staff of UL Taiwan as necessary. Some testing is only carried out at one of the sites and this requires the staff and technicians to go to the appropriate site. There are a total of 9 engineers and 3 technicians. The laboratory was found to have appropriate competent staff, procedures and test apparatus for the scope of testing sought.

3.6.1 Taoyuan

The Ex (Hazloc) work is done within a single building which provides an appropriate environment for the work.

3.6.2 Peitou

The site at Petiou houses the main offices and laboratories for UL Taiwan. The Ex (Hazloc) work is done within various parts of the building, which is shared with other parts of UL. The building provides an appropriate environment for the scope of Ex(Hazloc) work undertaken.

3.7 Test reports issued

Number of test reports prepared by UL Taiwan in the last two years is as follows:

Standard numbers	Type of protection or other identifying information	Number of issued reports (ExTRs)
60079-0	General requirements	Included as necessary
60079-1	Ex d	3
60079-7	Exe	1
60079-11	Exi	3
60079-15	Exn	9
60079-26	EPL Ga	1
60079-31	Ex t	1

3.8 National accreditation

UL Taiwan - Peitou has accreditation to ISO/IEC 17025: 2005 from TAF (Taiwan Accreditation Foundation), valid to January 22, 2018, Certificate Number: L0944-150312. (See Annex C). The accreditation also covers the Taoyuan location. The scope of accreditation covers IEC/EN/UL 60079-0, 1, 7, 11, 15 and 31. Application to TAF for extension to cover IEC 60079-26 is expected by the end of 2015.

3.9 Calibration

External calibrations are carried out using calibration labs that have accreditation from TAF (Taiwan Accreditation Foundation). TAF are signatories to ILAC.

3.10 Uncertainty

Uncertainty budgets have been carried out for the relevant tests and details of the results were viewed. These were seen to meet the requirements of the IECEx.

3.11 Comments (including issues found during assessment)

A few minor issues were found during the assessment that were resolved during the visit to the satisfaction of the assessor.

These were in relation to the use of an oxygen analyser and air movement in a climatic chamber.

In general the laboratory operated in a very professional and competent manner.



Organisation Chart of UL LLC including UL Taiwan





ExMC/992/DV May 2015 M. Slowinske EXTL Manager and Verification Staff Tony. Yang TAI Laboratory and Engineering Leader Engineering Laboratory Oswald Chang Peggy Tsai Morning Lee Project Engineer Project Engineer Senior Laboratory Assistant Jordano Wang Stanley Chien {In Training} Senior Project Engineer Laboratory Assistant Senior Proejct Engineer Dena Lin Sara Chu {In Training} Project Engineer Associate Associate Project Engineer Sigurd Su Lily Tsai

{In Training}

Associate Project Engineer

PaulLiu

(In Training)

Project Engineer

Chris Chuang (In Training) Engineer



Annex A Accreditation for UL Taiwan

財團法人全國認證基金會 Taiwan Accreditation Foundation		
Certificate of Accreditation		
	This is to certify that	
Underv	writers Laboratories Taiwan Co., Ltd.	
1st, 2nd, 3rd, 4th, 5th, 6	ith Fl., 260, Da-Yeh Road, Peitou, Taipei City 112, Taiwan (R.O.C.)	
i	s accredited in respect of laboratory	
Accreditation Criteria	: ISO/IEC 17025: 2005	
Accreditation Number	: 0944	
Driginally Accredited	: September 01, 2002	
Effective Period	: January 23, 2015 to January 22, 2018	
Accredited Scope	: Testing Field, see described in the Appendix	
Specific Accreditation Program	 Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for BSMI Mutual Recognition Arrangment with Foreign Authorities Accreditation Program for Energy Efficiency testing Laboratory Accreditation Program for Laboratory of US EPA ENERGY STAR[®] Accreditation Program for U.S. DOE LED Lighting Facts 	
	Jay-San Chen Jay-San Chen President, Taiwan Accreditation Foundation	

P1, total 39 pages





財團法人全國認證基金會 Taiwan Accreditation Foundation Certificate No. : L0944-150312

18.01 Commodity LED Package, Module, Array O025 Lumen Maintenance Testing **IES LM-80-08** Light Source Life Lumen Maintenance Wattage: < 100 W Wave length: 380 nm to 780 nm Light Output: 2 lm to 30000 lm

Approval Signatory: HUNG, Key;LAI, Michael H. Testing Place: 1. 4th, 5th Fl., 35, Sec. 2, Chungyang S. Road, Peitou, Taipei City 112, Taiwan (R.O.C.) (Integrating Sphere Photometry Measurement);2. 1st, 2nd, 3rd, 4th, 5th, 6th Fl., 260, Da-Yeh Road, Peitou, Taipei City 112, Taiwan (R.O.C.) (Exclude Integrating Sphere Photometry Measurement)

18.01 Commodity LED Controlgear E001 Safety IEC/EN 61347-1 IEC/EN 61347-2-13 250 Vdc max., 20 A max.;1 φ, 600 Vac max., 50 Hz/60 Hz, 20 A max.

Approval Signatory: LIN, Kevin

Testing Place: 1. 4th, 5th Fl., 35, Sec. 2, Chungyang S. Road, Peitou, Taipei City 112, Taiwan (R.O.C.) (Excluding Ball Pressure Test, Glow-Wire Test, Needle Flame Test);2. 1st, 2nd, 3rd, 4th, 5th, 6th Fl., 260, Da-Yeh Road, Peitou, Taipei City 112, Taiwan (R.O.C.) (Only Ball Pressure Test, Glow-Wire Test, Needle Flame Test)

18.01 Commodity Flameproof Luminaire E001 Safety IEC/EN/UL 60079-0/CNS 3376-0 IEC/EN/UL 60079-1/CNS 3376-1 (Excluding Enriched oxygen for IIC of tests of flameproof enclosures with breathing and draining devices; Annex B; Annex C.3.1 Sealing test) IEC/EN/UL 60079-31 (Excluding IIIC) 60 Vdc max., 50 A max. 1 φ, 260 Vac max., 50 A max., 50 Hz/60 Hz 3 φ, 480 Vac max., 50 A max., 47 Hz to 63 Hz, 50 Hz, 60 Hz, 120 Hz, 240 Hz, 400 Hz IP X1 to X7 IP 1X to IP 6X

Approval Signatory: LIU, Paul Testing Place: 1. No. 2, Wenming 1st St., Guishan, Taoyuan City 333, Taiwan (Excluding Resistance to Light, IP X1 to X7);2. 1st, 2nd, 3rd, 4th, 5th, 6th Fl., 260, Da-Yeh Road, Peitou, Taipei City 112, Taiwan (R.O.C.) (Excluding Determination of explosion pressure (reference pressure), Overpressure test, Test for non-transmission of an internal ignition, Thermal tests, IP 5X to 6X)

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Certificate No. : L0944-150312

財團法人全國認證基金會 Taiwan Accreditation Foundation

E001 Safety IEC 60884-1 IEC 60884-2-2 IEC 60884-2-5 EN 50075 ABNT NBR NM 60884-1 and NBR 14136 AS/NZS 3112 (APPENDIX J) 1 φ, 250 Vac max., 20 A max., 50 Hz/60 Hz

Approval Signatory: KANG, Carter;CHANG, Albert;CHEN, Simon Testing Place: 1. 4th, 5th Fl., 35, Sec. 2, Chungyang S. Road, Peitou, Taipei City 112, Taiwan (R.O.C.) (Excluding Checking of Dimensions by Measurement, IP 5X to 6X, IP X1 to X7, Ball Pressure Test, Glow-Wire Test, Resistance to Tracking Test);2. 1st, 2nd, 3rd, 4th, 5th, 6th Fl., 260, Da-Yeh Road, Peitou, Taipei City 112, Taiwan (R.O.C.) (Only Checking of Dimensions by Measurement, IP X1 to X7, Ball Pressure Test, Glow-Wire Test, Resistance to Tracking Test);3. No. 2, Wenming 1st St., Guishan Township, Taoyuan County 333, Taiwan (Only IP 5X to 6X)

20.21 Information Technology and Communication Industrial Control Equipment used in Hazardous Location and Information Technology Equipment used in Hazardous Location (For example: Industrial Control Equipment, Control Panel, PC, Router, Ethernet Switch, Hub) E001 Safety IEC/EN 60079-0 ANSI/ISA/UL 60079-0 IEC/EN 60079-11 ANSI/ISA/UL 60079-11 IEC/EN 60079-15 ANSI/ISA/UL 60079-15 CNS 3376-0 CNS 3376-11 CNS 3376-15 ANSI/ISA 12.12.01 CSA C22.2 No. 213 IEC 60529 60 Vdc max., 50 A max. $1~\phi,\,260$ Vac max., 50 A max., 50 Hz/60 Hz 3 φ, 480 Vac max., 50 A max., 47 Hz to 63 Hz, 50 Hz, 60 Hz, 120 Hz, 240 Hz, 400 Hz IP X1 to X7 IP 1X to IP 6X

Approval Signatory: CHANG, Oswald Testing Place: 1. No. 2, Wenming 1st St., Guishan Township, Taoyuan County 333, Taiwan (R.O.C.)(Excluding Resistance to Light, IP X1 to X7);2. 1st, 2nd, 3rd, 4th, 5th, 6th Fl., 260, Da-Yeh Road, Peitou, Taipei City 112, Taiwan (R.O.C.) (Excluding Spark Ignition Test, Small Component Ignition Test, Enclosed Break Tests, Nonincendive Component Test, Dust-Blast Method, Dust Test for Enclosure Designation, IP 5X to 6X)

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