



ExMC/965/DV
November 2014

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

TITLE: IECEx Assessment Report for the acceptance of Certification Management Limited, CML, as an IECEx Test Laboratory, ExTL, within the IECEx System.

Circulated to: Ex Management Committee, ExMC

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of *Certification Management Limited, CML*, as an IECEx Test Laboratory, ExTL, within the IECEx System.

CML was previously accepted as an ExCB operating within the IECEx 02 Equipment Scheme in April 2014. CML has now completed the IECEx Assessment process for consideration as an Accepted Ex Test Laboratory, ExTL.

Please consider this assessment report and return the completed voting form, separate Word document, to the IECEx Secretary by-

16th December 2014

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

Chris Agius
IECEX Secretariat

| | |
|--|--|
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ExMC/965/DV
November 2014

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

IECEx Assessment Report Form

IECEx Assessment Report Form for use by IECEx Assessment Teams to report
Assessments conducted according to the IECEx Assessment Procedures of

- a) Operational Document IECEx OD 003-2 for the Certified Equipment Scheme
- b) Operational Document IECEx OD 016 for the Certified Service Facility Scheme
- c) Operational Document IECEx OD 022 for the IECEx Conformity Mark Licensing System

IECEx ExCB/ExTL assessment report for CML

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION



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(Update when report is complete – by right click, Update field, Update entire table)

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1 Assessment information

1.1 Type of Body covered by this assessment: <retain appropriate marks>

| | |
|--|---|
| ExCB for IECEx Certified Equipment Scheme | |
| ExTL for IECEx Certified Equipment Scheme | ✓ |
| 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: <retain appropriate marks>

| | |
|---------------------------------------|---|
| Pre-assessment for candidate body | |
| Initial assessment for candidate body | ✓ |
| Surveillance | |
| Re-assessment | |
| Scope extension | |

1.3 Details of body

1.3.1 Country

United Kingdom

1.3.2 Name of body

Certification Management Limited

1.3.3 Name and title of nominated principal contact

| Name | Title | E-mail address |
|---------------|-------------------|-------------------------|
| Mike Shearman | Managing Director | Mike.shearman@cmlex.com |

1.4 Assessment information

1.4.1 Members of the assessment team

| Name | Role (modify as necessary) |
|------------------|----------------------------|
| Jim Munro | Lead Assessor |
| Bernard Piquette | Expert Assessor |

1.4.2 Place(s) of assessment

| | |
|---|--|
| Unit 1 Newport Business Park New Port Road Ellesmere Port Cheshire CH65 4LZ | |
|---|--|

1.4.3 Assessment date(s)

29 September to 1 October

1.5 Application information

Date of application: 24 March 2014 and then revised 4 June 2014.

1.6 Scope

1.6.1 ExTL scope for equipment certification scheme

| Number | Title |
|-----------------------------|--|
| IEC 60079-0 Edition 6 | Explosive atmospheres - Part 0: Equipment - General requirements |
| IEC 60079-1 Edition 7 | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d" |
| IEC 60079-2 Edition 6 | Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure «p» |
| IEC 60079-5 Edition 3 | Explosive atmospheres - Part 5: Equipment protection by powder filling «q» |
| IEC 60079-6 Edition 3 | Explosive atmospheres - Part 6: Equipment protection by oil immersion «o» |
| IEC 60079-7 Edition 4 | Explosive atmospheres - Part 7: Equipment protection by increased safety "e" |
| IEC 60079-11 Edition 6 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" |
| IEC 60079-13 Edition 1 | Explosive atmospheres - Part 13: Equipment protection by pressurized room 'p' |
| IEC 60079-15 Edition 4 | Explosive atmospheres – Part 15: Equipment protection by type of protection "n" |
| IEC 60079-18 Edition 3 | Explosive atmospheres – Part 18: Equipment protection by encapsulation "m" |
| IEC 60079-25 Edition 2 | Explosive atmospheres – Part 25: Intrinsically safe electrical systems |
| IEC 60079-26 Edition 2 | Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga |
| *IEC 60079-27 Edition 2 | Explosive atmospheres – Part 27: Fieldbus intrinsically safe concept (FISCO) |
| IEC 60079-28 Edition 1 | Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation, Excluding ignition tests. |
| IEC 60079-30-1 Edition 1 | Explosive atmospheres – Part 30-1: Electrical resistance trace heating – General and testing requirements |
| IEC 60079-31 Edition 2 | Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t" |
| IEC 60079-35-1 Edition 1 | Explosive atmospheres – Part 35-1: Caplights for use in mines susceptible to firedamp – General requirements – Construction and testing in relation to the risk of explosion |
| IEC 60079-35-2 Edition 1 | Explosive atmospheres – Part 35-2: Caplights for use in mines susceptible to firedamp – Performance and other safety-related matters |
| *IEC 61241-0 Edition 1 | Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements |
| *IEC 61241-1 Edition 1 | Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosure "tD" |
| * IEC 61241-4 Edition 1 | Electrical apparatus for use in the presence of combustible dust - Part 4: Protection by pressurization "pD" |



| | |
|----------------------------|--|
| *IEC 61241-11 Edition 1 | Electrical apparatus for use in the presence of combustible dust – Part 11: Protection by intrinsic safety 'iD' |
| *IEC 61241-18 Edition 1 | Electrical apparatus for use in the presence of combustible dust - Part 18: Protection by encapsulation "mD" |

NOTE 1 Standards shown with an asterisk (*) are superseded standards

NOTE 2 Unless otherwise indicated, earlier editions of standards (even if with a different number) are considered to be covered in the above scope for the purposes of the assessment.

NOTE 3 The above list highlights any extension of scope in the list above for new standards or later editions of standards already in scope.

2 Common information

2.1 Legal entity of body

Certification Management Limited (CML), company No 8554022 registered since 3 June 2013 by the Registrar of Companies for England and Wales. This was checked during the ExCB assessment.

2.2 Financial support

There is no financial support, CML is self-funded from the certification, quality assessment activities and testing activities.

2.3 History

The company was founded in June 2013 in order to provide certification services to clients. The company obtained UKAS accreditation according to EN 45011 (No 8175) and subsequently Notification with Notified Body number 2503. UKAS also carried out a follow up audit against IEC 17065 and the accreditation was updated. They produce test reports and issue EC Type Examination Certificates in every type of protection which are valid throughout Europe. This includes issuing Quality Assurance Notifications against the requirements of ISO/IEC 80079-34.

CML are also an IECEx ExCB, since April 2014, operating with three ExTLs and this application is to obtain ExTL status for the company test laboratory in Ellesmere Port.

An agreement is also in place with QPS for testing and approvals for the North American market and with TIIS for testing and approvals for the Japanese market. Test reports are exchanged to facilitate the issuing of certificates.

In addition to their recent experience at CML, the Directors of CML each have more than 20 years of experience testing, examining and certifying Ex equipment, and each have 12 years of experience in operating an ExTL and ExCB under the IECEx System. They are supported by staff and outsource agents who have a background in Ex, some of whom also have more than 20 years of experience in Ex testing and certification activities.

2.4 Documentation

2.4.1 Quality manual

There is one Quality Manual which was at Issue 4 at the time of the assessment visit. It is supported by two other manuals (ExHaz Manual + Lab Manual) as shown below.



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The Quality Manual and all other quality documents are located in the 'cloud' using a management system application which controls user access to documents. This allows all employees access while controlling who can change documents.

2.4.2 Procedures

ExHaz Manual Issue 4. This covers assessment and certification. The assessment aspects of this manual are regarded as ExTL functions in IECEx. For example the manual defines the role of reviewer who is responsible for confirming that the evaluation and testing has been conducted correctly, and confirming that the results of the work support the issue of a certificate.

Lab Manual Issue 2. This covers physical testing and provision of results.

Additional procedures and documentation are also included in the quality system.

2.4.3 Work instructions

Work instructions do not exist in isolation. Instructions for testing are incorporated in a 'Test Report' which also has the forms that need to be completed as part of a test.

2.4.4 Records (including test records where relevant)

The Quality Manual Clause 10.6 addresses records – retention and storage.

Records are retained electronically according to the ExHaz Manual and Lab Manual. Physical records are accessible to all staff in a secured area but these would also reside when completed on the electronic record system. Test record notes are retained in the laboratory file but these are also included in the electronic record storage system.

Documents not required to be retained are shredded.

The formally documented requirement regarding record retention is that relevant documentation is retained for reference electronically or on paper records for a period of at least 10 years after the suspension, termination or withdrawal of the related certificate or decision on certification. In practice they anticipate they will hold such documentation indefinitely.

2.4.5 Document change control

The Quality Manual Clause 13 addresses document control. Additional information is covered in the Lab Manual Clause 4, in particular in relation to test reports.

2.5 Confidentiality

Confidentiality is in the Quality Manual Clause 10.4, Directors agreements, Outsource agent agreements and employment contracts. Employment contracts include clauses covering confidentiality and conflict of interest. Examples of signed agreements were viewed and found to meet the requirements of The IECEx System.

2.6 Publications (Hard cover and Electronic)

The main source of information provided from the company is via their website.



2.7 Recognition and agreements

CML is accredited by UKAS against ISO/IEC 17065, No 8175 and is a Notified Body to the European Union, No 2503.

CML operates agreements with QPS for the delivery of approvals in North America and also has an agreement with TIIS for approvals in Japan.

CML joined the PTB proficiency testing program prior to the assessment visit.

2.8 Internal audit and periodic management review

Internal audit is covered in Clause 14 of the Quality Manual. Scheduling is carried out using a task list on the management system software. Audits relevant to the ExTL include vertical audits for projects, technical audits against standards (project records and testing) and ISO/IEC 17025 compliance. Things found that need actions are raised as 'issues' in the management system software. An example for a 17025 audit was viewed and it showed all issues had been resolved. Also viewed was a combined technical and vertical audit. The auditing process was found to meet the requirements of IECEx.

Management review is covered in Clause 8 of the Quality Manual. This requires the review to be carried out at least once annually. However, at present they are being held more often. The minutes of the meeting held on 10 September 2014 were reviewed. These followed the agenda specified in the manual and were found to meet the requirements of IECEx.

2.9 Contracting, subcontracting, use of other labs and use of other locations

The term 'Outsource Agents' is used to cover both contractors and subcontractors. There are currently three people being used as contractors. The competency of outsource agents is included in the competency matrix.

Subcontract bodies are used for the following activities:

- IEC 60079-0 Clause 26.10 exposure to light - this test would be subcontracted to QPS which is already operating with the CML ExCB as an ExTL.
- IEC 60079-7 Clause 6.6.3 shock test - a suitable subcontractor has been identified for this test and indicated their willingness to perform the test.

Load testing of electrical motors will be done by witness testing at manufacturers' premises according to OD024.

IEC 60079-28 measurement of optical power and optical irradiance will be conducted at Lasermet facilities under the control and direction of CML Testing staff. A signed agreement with Lasermet was reviewed and found to meet IECEx requirements. This agreement states there will be a clear contract for each test. CML Staff will be present at each test. The Lasermet facilities have been previously assessed and included in report ExMC/829/DV.

Witness testing is covered by ExHaz Manual in requirements for quotation and in Clause 9, and also in the Laboratory Manual in Clause 7.1.2. OD24 is referenced in procedures and documentation. A register of manufacturers for witness testing is maintained and is ready to be notified to the IECEx secretariat when the ExTL is confirmed.

The ExTR template used includes sections that identify outsourced testing and witness testing.



2.10 Training and competence

Training and competence requirements are detailed in the ExHaz Manual, Clause 4. There is a comprehensive system in place to ensure staff receive appropriate training and to assess competencies. The competence levels assigned to staff are 'training', 'supervised', 'competent', 'reviewer', and 'expert'. A competency matrix is available and a copy of this has been included in the site assessment report.

2.11 Complaints and appeals (including appeals to IECEx)

The procedure for handling complaints is covered in the Quality Manual in Clause 12 complaints and appeals. It includes provision for the Impartiality Committee to form an Appeals Panel and for appeals to IECEx. On a decision of the appeals Panel the Appellant is advised of their right to contact the IECEx Board of Appeal. This meets the requirements of IECEx for appeals.

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 the site assessment report or provided separately and include:

- Details of issues raised and how these have been resolved
- Checklist for ISO/IEC 17025
- Completed Technical Capability Document (TCD) for the current editions of standards in the scope
- Photos of the facilities/tests witnessed (included in TCD)
- Assessors' notes

2.13 Recommendations

Based on the assessment performed on 29 September to 1 October 2014 CML is recommended for acceptance in the IECEx scheme as:

- An ExTL in the IECEx Certified Equipment Scheme

This is according to the scope of the standards listed in this document.

| | |
|---------------|------------------|
| Jim Munro | Bernard Piquette |
| Lead Assessor | Expert Assessor |

Date: 22 October 2014



3 ExTL for IECEx Certified Equipment Scheme

3.1 Assessment references

- a) IECEx02 IECEx Certified Equipment Scheme covering equipment for use in explosive atmospheres – Rules of Procedure
- b) IECEx OD003-2 Assessment, surveillance assessment and re-assessment of ExCBs and ExTLs operating in the IECEx 02, IECEx Certified Equipment Scheme
- c) IECEx OD009 Issuing of CoCs, ExTRs and QARs
- d) ISO/IEC 17025:2005 Edition 2, General requirements for the competence of testing and calibration laboratories
- e) IECEx Document OD17 Drawing and documentation guidance
- f) IECEx Technical Capability Document (TCD)
- g) ExTAG decision sheets (DSs)

NOTE The latest editions of the above documents were applied.

3.2 Candidate ExTL persons interviewed

| Name | Position |
|-----------------|--------------------|
| Mike Shearman | Managing Director |
| David Stubbings | Technical Director |
| Andrew Templer | Senior Engineer |
| Helen Amos | Senior Engineer |
| Harriet Davies | Engineer |
| Kevin Stockwell | Senior Engineer |
| Iain Leadley | Senior Engineer |

3.3 Associated ExCB(s)

The associated ExCB is Certification Management Limited and is integral with the ExTL.

3.4 Organisation

3.4.1 Names, titles and experience of the senior executives

| Name | Title | Experience |
|---------------|-------------------|--|
| Mike Shearman | Managing Director | <p>27 years of experience in working and managing accredited calibration, certification, assessment and test businesses and former Chairman of the European group of notified bodies EXNBG</p> <p>Managing Director of Sira Certification Service 10 years</p> <p>Certification Manager at Sira Certification Service 6 years.</p> |

| Name | Title | Experience |
|-----------------|--------------------|--|
| David Stubbings | Technical Director | <p>10 years of experience as Certification Manager ATEX and IECEx accredited certification schemes, former Director of Sira Certification Service.</p> <p>Senior Engineer at Sira for 5 years carrying out assessment and testing against all protection methods.</p> <p>Certification Officer at BASEEFA for 3 years.</p> <p>GEC Alstom as a motor designer and certification of for Ex products, 6 years</p> |

3.4.2 Name, title and experience of the quality management representative

| Name | Title | Experience |
|---------------|-------------------|-------------------|
| Mike Shearman | Managing Director | As above |

3.4.3 Other employees in ExTL activity

| Name | Title/responsibility | Experience in Ex |
|-----------------|-----------------------------|-------------------------|
| Helen Amos | Senior Engineer | 6 years |
| Andrew Templer | Senior Engineer | 25 years |
| Harriet Davies | Engineer | Training |
| Kevin Stockwell | Senior Engineer | 18 years |
| Iain Leadley | Senior Engineer | 5 years |

3.5 Organizational structure

Refer to Annex A

3.6 Resources

Seven people are active in the ExTL and are supported by outsource personnel. The laboratory is well equipped with test equipment to cover the required tests. The staff demonstrated a high level of competence in both assessment and testing during the assessment visit.

The laboratory space is approximately 210 m² with an additional secure area outside facility.

3.7 Test reports issued

Number of test reports (ExTRs) issued under for the preceding two years for each type of protection:

| Standard numbers | Type of protection or other identifying information | Number of issued reports (ExTRs) (for last 2 years) | | |
|------------------|---|---|------|----|
| | | 2013 | 2014 | |
| 60079-1 | Explosive atmospheres - Part 1: Equipment protection by type "d" | 1 | 12 | 13 |
| 60079-2 | Explosive atmospheres - Part 2: Equipment protection by pressurized enclosures 'p' | - | 6 | 6 |
| 60079-5 | Explosive atmospheres - Part 5: Equipment protection by powder filling 'q' | - | - | 0 |
| 60079-6 | Explosive atmospheres - Part 6: Equipment protection by oil immersion 'o' | - | - | 0 |
| 60079-7 | Explosive atmospheres - Part 7: Equipment protection by increased safety 'e' | 4 | 17 | 21 |
| 60079-11 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety 'i' | 2 | 8 | 10 |
| 60079-13 | Explosive atmospheres - Part 13: Construction and use of rooms or buildings protected by pressurization | 1 | 1 | 2 |
| 60079-15 | Explosive atmospheres - Part 15: Equipment protection by type of protection 'n' | 1 | 9 | 10 |
| 60079-18 | Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation 'm' electrical apparatus | 2 | 6 | 8 |
| 60079-26 | Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga | 1 | 2 | 3 |
| 60079-28 | Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation | - | 1 | 1 |
| 60079-30-1 | Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements | - | - | 0 |
| 60079-31 | Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t" | 3 | 8 | 11 |



| Standard numbers | Type of protection or other identifying information | Number of issued reports (ExTRs) (for last 2 years) | | |
|------------------|--|---|------|---|
| | | 2013 | 2014 | |
| 60079-35-1 | Explosive atmospheres - Part 35-1: Caplights for use in mines susceptible to firedamp – General requirements - Construction and testing in relation to the risk of explosion | - | - | - |

NOTE Above include reports to IEC 60079-0

3.8 National accreditation

CML holds accreditation from UKAS against ISO/IEC 17065 and is intending to apply to UKAS for ISO/IEC 17025 accreditation of the laboratory facilities.

3.9 Calibration

The Lab Manual Clause 6.2 details the requirements for calibration of the laboratory equipment. There is also an internal calibration procedure to address calibration that is done in-house. The majority of equipment is calibrated externally and is sent to UKAS accredited calibration laboratories, or laboratories where calibration can be provided that is traceable to National Standards.

3.10 Tests witnessed during the assessment visit

The following tests were witnessed during the assessment visit:

- Flameproof pressure determination (with Ethylene and Hydrogen) - done using PTB proficiency testing artefact.
- Flameproof non-transmission test with hydrogen - using PTB proficiency testing artefact.
- Flameproof overpressure test.
- Temperature rise - on Ex e junction boxes.
- Use of the spark test apparatus - the use was demonstrated with the exception of achieving calibration.
- Electrolyte leakage test for cells and batteries, short circuit test of battery to IEC 60079-11 Cause 10.5.2 a).
- 4 kPa pressure test followed by IP6X test to IEC 60079-31.
- IPX4 test to IEC 60529 and IEC 60079-0 Clause 26.4.5.
- Resistance to impact test for Group I - IEC 60079-0 Clause 26.4.2.
- IEC 60079-0 Clause 26.13 Surface resistance test of parts of enclosures of non-metallic materials.

With the exception of the use of the spark test apparatus (STA), all were carried out effectively to the satisfaction of the assessment team at the visit. Demonstration of successful calibration of STA was done using a video the following week.

3.11 Comments (including issues found during assessment)

It was noted the same staff at CML may be involved in ExCB activities as well as ExTL activities. This is satisfactorily addressed in the ExHaz Manual with the requirement that an ExCB review must be carried out by a person independent of ExTL assessment and review



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staff. The assessment team noted that there were adequate numbers of experienced staff at CML to be able to effectively apply this requirement.

A number of issues were found during the assessment visit but these were dealt with efficiently and effectively prior to the end of the assessment to the satisfaction of the assessment team. These included:

- Maintenance regime for the Oxygen analyser
- Sourcing of suitable subcontractor for Ex e Battery Shock Testing
- Improved security of stored electronic data
- Security of obsolete documents
- Additional caution when using thermocouples
- Location of pressure measurement point for IP dust test

Only one issue remained at the end of the assessment visit regarding calibration of the spark test apparatus and this was resolved to the satisfaction of the assessment team the following week as shown above.

4 Annexes

See Contents. (add, modify or delete annexes as necessary). Please note the following instructions for the IEC template:

NOTE When creating a new annex **DO NOT** type the word Annex, just create a new empty page and then apply the styles ANNEX_title to the first (empty) line. The word "Annex" followed by the letter "A" or "B", etc will automatically appear.

TIP: When typing annex titles, separate the lines of the title by "shift+return"

Annex A Organisation Chart of CML

