

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 TRaC Global Ltd re MET Laboratories Inc., Baltimore, MD, and Austin, TX, US.

Circulation to: ExMC – IECEx Management Committee

INTRODUCTION

The IECEx Secretariat has received an application from TRaC Global Ltd, GB, to enable TRaC to conduct IECEx testing at locations in the United States, using testing facilities at MET Laboratories Inc., Baltimore, MD, and Austin, TX, US, which will operate under the control and direction of TRaC Global Ltd, GB, and will work using TRaC's procedures.

The IECEx Secretariat arranged for special site assessments to be performed by an IECEx Lead Assessor. The special site assessments were treated as an extension of scope to include new locations, in the US, for the Accepted ExTL TRaC Global Ltd, GB.

This document provides a report of the special site assessment visits and includes follow-up activities. It is issued to ExMC for information and comment.

Should Members have any objections to the assessor's recommendation for the acceptance of these additional facilities please contact the IECEx Secretariat by

5th May 2014

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ExMC/913/R April 2014



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

IECEx ExTL assessment report for the TRaC laboratories at MET

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	✓	

Details of Scope Extension: To include TRaC Testing facilities located at MET laboratories, at Baltimore MD 21230, and Austin TX 78753, USA to be included as part of and under the complete control of the TRaC ExTL located in UK for certain Testing to be conducted. At all times Test projects are controlled by TRaC UK.

1.3 Details of body

1.3.1 Country

UK

1.3.2 Name of body

TRaC Global Ltd

Unit 1 Pendle Place

Skelmersdale, West Lancashire

WN8 9PN

1.3.3 Name and title of nominated principal contacts

Name	Title	E-mail address
Simon Barrowcliff	TRaC Director,	simon.barrowcliff@tracglobal.com
	Certification Services	
Charles Haggins	Baltimore Safety Lab	chaggins@metlabs.com
	Manager	
Arthur Shvartsman	Austin Safety Lab	ashvartsman@metlabs.com
	Manager	

1.4 Assessment information

1.4.1 Members of the assessment team

Name	Role (modify as necessary)
Jim Munro	Lead assessor

1.4.2 Place(s) of assessment

TRaC laboratory at:	TRaC laboratory at:



MET Laboratories Inc.,	MET Laboratories Inc.,
914 W Patapsco Ave,	13301 McCallen Pass,
Baltimore MD 21230	Austin, TX 78753,
United States of America.	United States of America.

1.4.3 Assessment date(s)

27-28 February (Baltimore) and 3-4 March 2014 (Austin)

1.5 Application information

The request for scope extension of TRaC ExTL was sent by email to the IECEx Secretariat on 19 December 2013.

1.6 Scopes

1.6.1 ExTL scope for equipment certification scheme

Number	Title	Baltimore	Austin
IEC 60079-0 Edition 6	Explosive atmospheres - Part 0: Equipment - General requirements	 Exclusions: 26.5.3 Small component ignition test (Group I and Group II) Clause 26.13 surface resistance test for the test at 30% RH. 26.14Measurement of capacitance 26. 15 Verification of ratings of ventilating fans 	 Exclusions: 2.4.5 Degree of protection for IP5&6X and IP water tests 26.5.3 Small component ignition test (Group I and Group II) Clause 26.13 surface resistance test for the test at 30% RH. 28.10 Resistance to light Resistance to chemical agents for Group I electrical equipment 26.15 Verification of ratings of ventilating fans 26.16 Alternative qualification of elastomeric sealing O-rings
IEC 60079-2 Edition 5	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure «p»	No exclusions	No exclusions
IEC 60079-11 Edition 6	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"	Exclusions: 10.1 Spark ignition tests 10.5.3 Spark ignition and surface	Exclusions: 10.1 Spark ignition tests 10.5.3 Spark ignition and surface



Number	Title	Baltimore	Austin
		temperature of cells and batteries (exclusion for spark ignition only)	temperature of cells and batteries (exclusion for spark ignition only)
IEC 60079-15 Edition 4	Explosive atmospheres – Part 15: Equipment protection by type of protection "n" •	Exclusions: 22.4 Tests for enclosed break devices and non incendive components 22.7 Test for screw lampholders 22.8 Test for starter holders for luminaires 22.9 Tests for electronic starters for tubular fluorescent lamps and for ignitors for high pressure sodium or metal halide lamps 22.13 Ignition tests for large or high-voltage machines	Exclusions: 22.4 Tests for enclosed break devices and non incendive components 22.7 Test for screw lampholders 22.8 Test for starter holders for luminaires 22.9 Tests for electronic starters for tubular fluorescent lamps and for ignitors for high pressure sodium or metal halide lamps 22.11 Mechanical shock test for batteries 22.13 Ignition tests for large or high- voltage machines
IEC 60079-18 Edition 3	Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"	No exclusions	No exclusions
IEC 60079-31 Edition 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t" - this standard was added to original application.	No exclusions	Exclusions: 6.1.1 Type tests for dust exclusion by enclosures (for dust test only - can do pressure test)

NOTE 1 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 2 MET are in the process of extending the capability; for example both laboratories are in the process of commissioning their spark test apparatuses for intrinsic safety.



2 Common information

2.1 Legal entity of body

MET LABORATORIES, INC were incorporated in 1992 in the state of Maryland, USA. Evidence of incorporation was sighted on a certificate from the STATE OF MARYLAND Department of Assessments and Taxation.

2.2 Financial support

The operations at TRaC and MET are self-financing.

2.3 History

MET Laboratories Inc. was founded by Leonard Frier as Maryland Electrical Testing in 1959. As the customer base quickly expanded across the nation, the name was changed to MET Electrical Testing Company. Originally, the company focused on testing high voltage electrical transmission and distribution systems.

In the early 1970s, MET began product safety listing services. Later MET was among the first laboratories to perform EMI and telecommunications testing to the emerging FCC regulations

In 1989, MET became the first Nationally Recognized Testing Laboratory (NRTL) in the United States for testing and certifying products to UL safety standards.

In 1992, MET changed its focus exclusively to testing and certification of electrical products - whether in the laboratory or at customer locations. Consequently, the name changed to the present MET Laboratories. Later that year, the MET test report became accepted in 30 countries through the IECEE Certified Body (CB) Scheme.

From 1999 to 2012 MET established operations in 5 new locations worldwide. These included a full service laboratory in Union City, California, operations in Shenzhen, China, full service laboratory in Santa Clara, California, full service laboratory in Austin, Texas, and operations in Milan, Italy.

MET has been a pioneer in testing and certification services and continues to be in the forefront of the electrical standards industry.

TRaC and MET have been cooperating in testing and certification of electrical equipment since 1995 and for Ex equipment since 2003. TRaC already subcontracts the resistance to light test of IEC 60079-0 to MET in Baltimore and work for ATEX. Under the IECEx arrangement proposed in the report, TRaC will have a clear controlling role in the application of tests performed by MET on its behalf.

2.4 Documentation

2.4.1 Quality manual

All documents for the MET quality system are available on the company intranet. There is a corporate quality manual CM-01 - at Rev AD March 05 2013. This addresses the main elements of ISO/IEC 17025 and also addresses other relevant requirements.

2.4.2 Procedures

More detail is included in specific procedures relevant to the quality system. These all apply company-wide to the various locations of MET in the USA and overseas.

2.4.3 Work instructions

Each department at MET maintains its each own documents relevant to the their specific area of testing.



The work instructions relevant to the proposed IECEx work by MET are normally copied directly from the TRaC work instructions. Modifications may be made to make the instructions relevant to the actual equipment at MET. These work instructions are the same for Baltimore and Austin. The work instructions taken from TRaC cover both testing and assessment procedures. These work instructions formally became part of the MET quality system on 22 February 2014 but they had previously been used for about two years.

2.4.4 Records (including test records where relevant)

METrak is the in-house system for keeping track of jobs and storing data associated with them. It also includes the test plan. There was issue regarding original test data stored in Work and Excel hence subject to possible change that was resolved to the satisfaction of the assessor.

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, HR Form 2. Examples of signed confidentiality agreements were sighted.

2.6 Publications

MET 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 TRaC and MET that was reviewed during the assessment visit and found to be appropriate. It ensures that the control of projects resides with TRaC in its role as ExCB and that the operations at MET operate as a extension of the TRaC ExTL.

2.8 Internal audit and periodic management review

CP-14 describes internal audit. Internal audits are done for each registration at each site. Audits are done once a year. The report for the last management system audit for ISO/IEC 17025, which was done 16-25 September 2013, was viewed. There were no findings from that audit. A technical audit report for Austin was also viewed.

Management review is covered in CM-01 1.3.4. Last report for May 2013 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

MET use a training package Training Tracker Web. This keeps track of training and shows what tests/standards a person is qualified for. The software can generate reports, for example, all people qualified or under training for a particular standard. TRaC is also maintaining a register of competent Ex people at MET.

2.11 Complaints and appeals (including appeals to IECEx)

IECEx appeals will be handled according to the TRaC ExCB 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
- Photos of the facilities/tests witnessed
- Assessor's notes
- Example of how competencies are recorded
- Completed test sections of the Technical Capability Document for the scope of work.

2.12.2 Witnessed Tests

The following tests were witnessed during the assessment visit:

2.12.2.1 Baltimore

- IEC 60079-0 26.5.1 Temperature measurement Temperature rise test on an gas monitor
- IEC 60079-0 26.4.2 Resistance to impact
- IEC 60079-0 26.13 Surface resistance test of parts of enclosures of non-metallic materials
- IEC 60079-31 6.1.3 Pressure test at 4 kPa (followed by IIP6X test below)
- IEC 60079-0 26.4.5 Degree of protection (IP) by enclosures and IEC 60529 IP6X and IPX4 tests
- IEC 60079-11 10.5.2 Electrolyte leakage test for cells and batteries
- IEC 60079-11 10.3 Dielectric strength tests

2.12.2.2 Austin

- IEC 60079-0 26.5.1 Temperature measurement Temperature rise test on a component
- IEC 60079-0 26.4.2 Resistance to impact
- IEC 60079-0 26.13 Surface resistance test of parts of enclosures of non-metallic materials
- IEC 60079-2 16.5 Verification of minimum overpressure
- IEC 60079-11 10.5.2 Electrolyte leakage test for cells and batteries
- IEC 60079-11 10.3 Dielectric strength tests

2.12.2.3 Results of above tests

Where issues were identified with above tests, these were documented in Annex A of the site assessment report. Photographic records of the above tests are included in the Technical Capability Documents.

2.13 Recommendations

Based on the assessment performed on 27 February to 4 March 2014, TRaC is recommended for the scope extension in the IECEx scheme involving the use of MET as:

• An ExTL in the IECEx Certified Equipment Scheme

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



Jim Munro Lead Assessor

Date: 22 March 2014



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 Guidance Documents (TGDs)
- g) ExTAG decision sheets (DSs)

3.2 Candidate ExTL persons interviewed

Name	Position	
TRAC		
Simon Barrowcliff	Director, Certification Services	
MET – Baltimore		
Charles Haggins	Baltimore Safety Lab Manager	
Keith Greenway	Senior project Engineer/Assistant Manager	
Jonathan Fuhrman	Quality Assurance Manager	
John O'Donnell	Program Manager	
Arzoo Wasson	Technician	
MET – Austin		
Steve Pitta	General Manager, Austin	
Arthur Shvartsman	Safety Lab Manager	
Geoff Sitnik	Product Safety Engineer	
David Fousek	Technician	

3.3 Associated ExCB(s)

TRaC Global Ltd has an accepted ExCB.

3.4 Organisation

Names, titles and experience of the senior executives

Name	Title	Experience
TRAC		
Simon Barrowcliff	Director, Certification Services	More than 10 years Ex test and certification experience
MET		
Rick Cooper	Director, Safety Laboratories	More than 10 years Hazloc Ex test and certification experience

3.4.1 Name, title and experience of the quality management representative

Name	Title	Experience
TRaC		
Keith Wright	Quality Manager	More than 10 years



МЕТ		
Jonathan Fuhrman	Quality Manager	5 years as quality manager with previous experience in QA.
Steve Pitta	Austin Quality Coordinator	14 years in MET

3.4.2 Other employees in ExTL activity

Name	Title/responsibility	Experience in Ex
MET - Maryland		
Charles Haggins	Baltimore Safety Lab Manager	7 years
Keith Greenway	Senior project Engineer/Assistant Manager	4 years
Nehemya Cohen	Project Engineer	2 years
Arzoo Wasson	Technician	3 years
MET - Austin		
Arthur Shvartsman	Safety Lab Manager	3 years
Geoff Sitnik	Product Safety Engineer	3 years
David Fousek	Technician	3 years

3.5 Organizational structure

3.5.1 Working relationship between TRaC and MET

Key points in the relationship between TRaC and MET, as a partner laboratories are as follows:

- a) TRaC and MET have worked together in the field of ATEX testing and certification for over 10 years. TRaC provide ATEX certification for MET based on MET test reports. MET provide hazloc certification for TRaC based on TRaC test reports. Each organisation provides factory surveillance personnel to the other.
- b) For IECEx purposes, TRaC will commission all testing and assessment from MET based on applications to TRaC from US and Canadian based clients.
- c) MET will maintain relevant A2LA accreditation for their testing laboratories.
- d) All IECEx test reports will be reviewed by the TRaC ExTL in the United Kingdom prior to presentation for certification by the TRaC ExCB. This they will be subject to scrutiny by two independent people at TRAC in the UK
- e) MET will be able to promote their IECEx test capability to their market only with explicit reference to being a TRaC Partner Laboratory and with all copy agreed in advance by TRaC. However all applications for IECEx testing will be lodged with TRAC.
- f) TRaC will finalise and issue the final ExTR
- g) TRaC will integrate the US locations within their own internal audit procedures

3.5.2 Organisation charts

The organisation of MET and its relationship to TRaC are shown in Annexes A and B.

3.6 Resources

Maryland

The Ex (Hazloc) work is done within the Product Safety Lab but some work such as IP testing is done in the Environmental Simulation Lab.

The Product Safety Lab is staffed with 3 engineers and 1 technician.

The laboratory was found to have appropriate competent staff, procedures and test apparatus for the scope of testing sought.

Austin

The Ex (Hazloc) work is done within the Product Safety Lab.

The Product Safety Lab is staffed with 3 engineers and 1 technician.

The laboratory was found to have appropriate competent staff, procedures and test apparatus for the scope of testing sought.

3.7 Test reports issued

Number of test reports issued by the two MET laboratories working with TRaC for ATEX certification under for the preceding four years in for each type of protection is as follows:

Standard numbers	Type of protection or other identifying information	Number of issued reports (ExTRs) (for last 4 years)
60079-0	General requirements	12
60079-1	Ex d	6
60079-2	Exp	4
60079-11	Exi	4
60079-28	Optical radiation	2
60079-31	Ex t	1

3.8 National accreditation

MET (Baltimore) has accreditation to ISO/IEC 17025 from the American Association for Laboratory Accreditation (A2LA) valid to January 31, 2015, Certificate Number: 0591.01 (See Annex C). The scope of accreditation covers 'IEC/EN/CAN/CSA E60079-0, 1, 2, 5, 6, 7, 11, 14, 15'. However, IEC 60079-18 and -31, as shown in the scope of this report, are not shown.

MET (Austin) has accreditation to ISO/IEC 17025 from the American Association for Laboratory Accreditation (A2LA) valid to: March 31, 2015 Certificate Number: 0591.06 (See Annex D). However, the scope the accreditation does not include the standards shown in the scope of this report.

Given the arrangements to enable TRaC to operate its US locations using the MET facilities, discussion with the IECEx Secretariat recommends that both the Baltimore and Austin locations be subjected to annual surveillance assessments by IECEx.

3.9 Calibration

The Quality Coordinator does the review of calibration of instruments when they are returned before they go back into service. There is a cal sheet inspection form for this process. It was found that in Baltimore calibration intervals were being extended without clearly documented decisions for the extension but the procedures were then changed to avoid extending calibration periods.

3.10 Comments (including issues found during assessment)

A few issues were found during the assessment that were all subsequently resolved to the satisfaction of the assessor. Issues raised which have not been shown earlier included:

- Measurement of ambient temperature for temperature rise test
- Some internal audit records for Baltimore were missing
- Availability of impact apparatus for Group I
- Methods of doing surface resistance test
- Dust testing chamber and associated equipment for IP6X and IP5x
- Condition and calibration of IPX4 nozzle



- Clarification of dust to be used for blanket temperature rise test for Ex t
- Documentation by TRaC of competencies of staff at MET
- Humidity calibration of chambers for thermal endurance
- Method of short-circuiting cells (at Austin) for intrinsic safety tests
- Order of testing and environment for capacitance test



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Annexes

See Contents.



Annex A Organisation Chart of MET







Annex B TRaC Organisation Chart Showing Relationship with MET as a Partner Laboratory.





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Annex C Accreditation for MET Baltimore



American Association for Laboratory Accreditation



A2LA has accredited

MET LABORATORIES, INC.

Baltimore, MD for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Presented this 14th day of May 2013.

President & CEO

For the Accreditation Council Certificate Number 0591.01 Valid to January 31, 2015

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.



Annex D Accreditation for MET Austin

