

TESTING OF LIGHTING PRODUCTS

LIA LABORATORY LAB PARTNER SCHEME

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LIA LABORATORY SCHEME FOR THE REGISTRATION OF PARTNER LABORATORY

1. OBJECT

The main object of the scheme is to set up a partnership agreement with other ISO/IEC 17025 accredited Laboratory around the world to enable them to test on behalf of LIA Laboratory within their given territory. A potential Lab Partner participating in this scheme will be required to undergo a thorough inspection of their laboratory(ies) in order to verify the adequacy of the measurement equipment, documentation and the technical competence of the staff. A potential Lab Partner who meets the requirements will be permitted to use the LIA Lab Partner logo on any test reports which fall within the agreed scope. LIA Laboratory will ensure, by regular inspection, that the integrity of the measurements made by a 'Registered Laboratory' is maintained at an appropriately high standard. An up-to-date list of 'Registered Laboratory' will be held by the LIA Laboratory and will be available on request.

Details of the scheme are given in the following sections:

2. SCOPE

- (a) The scheme is not one for the approval of a product, it is confined to laboratory capabilities. Potential partner Labs can only test to their agreed scope which will form part of the partnership agreement.
- (b) The verification of the measurement capability of the Laboratory will apply to the testing of all the normal types of products used in internal and external lighting applications. The competence of the laboratory to test special purpose products will be considered upon request.
- (c) The sole purpose of the scheme is that under a formal agreement, a potential Lab Partner may test lighting products on behalf of LIA Laboratory within their given territory. It is not intended to be a form of certification of individual pieces of data and/or products which are the responsibility of the product manufacturer.
- (d) The scheme will be available to all ISO/IEC 17025 accredited Laboratory, but only in regard to the use of their testing and assessment capabilities of lighting products.

3. OPERATION OF SCHEME

- (a) On receipt of an application form from a potential Lab Partner, a site visit will be carried out to establish the scope of the 'Registration' in terms of the test standards and types of tests which registration of test facilities is required. On the basis of this information, the potential Lab Partner will be audited and examined in detail in respect of equipment, instruments, operating staff, methods of documentation etc. the auditor will also witness testing carried out by the laboratory at this time. The data obtained will be made freely available to the LIA Laboratory for comparison purposes. On the basis that the potential Lab Partner's laboratory is satisfactory, formal permission will be given to the applicant to use the LIA brand and LIA Lab Partner logo, conditional to them accepting the continuing surveillance requirements.
- (b) During the validity of the agreement, LIA Laboratory will make a maximum of two routine visits per annum (in normal circumstances) and reserve the right to make unannounced visits to the 'Registered Laboratory' for the purpose of verifying that the laboratory and its staff are unchanged since the initial inspection.

Where the scheme member's laboratory is found not to be maintaining the required standard of competence, additional visits may be necessary and will involve extra charge to the laboratory concerned.

If the scheme member's laboratory is found to be unable to maintain the required standard of competence, the laboratory will be removed from the register and permission to use the LIA brand and Lab Partner logo will be withdrawn.

- (c) The LIA Laboratory has drawn up objective levels for the apparatus, staffing and competence considered necessary for the commercial testing of general purpose lighting products. The criteria thus arrived at shall be the basis of the 'Registration' of a laboratory but it is emphasised that the ultimate authority for the operation of the scheme shall belong to LIA Laboratory.
- (d) All matters connected with the 'Registration' of an individual potential Lab Partner's laboratory(ies) remain confidential between the scheme member and LIA Laboratory.
- (e) All certification and report sign off activity will be carried out by LIA Laboratory staff based in the registered office situated in Telford (UK).
- (f) Brand and logo usage can only be carried out in accordance with the guidelines issued as part of the Partner Agreement.

4. SCHEME REQUIREMENTS

4.1. QUALITY MANAGEMENT SYSTEM (QMS) REQUIREMENTS

4.1.1. Quality management system

The scheme member shall establish, implement and maintain a management system appropriate to the scope of its activities. The management system policies related to quality, including a quality policy statement, shall be defined in a quality manual (however named). The overall objectives shall be established, and shall be reviewed during management review. The quality policy statement shall be issued under the authority of top management.

The quality manual shall include or make reference to the supporting procedures including technical procedures. It shall outline the structure of the documentation used in the management system.

4.1.2. Company representative

A nominated member of the management team shall be responsible for the QMS.

4.1.3. Document control

The scheme member shall establish and maintain procedures to control all documents that form part of its management system (internally generated or from external sources), such as regulations, standards, other normative documents, test and/or calibration methods, as well as drawings, software, specifications, instructions and manuals.

The scheme member shall document its policies, systems, programs, procedures and instructions to the extent necessary to assure the quality of the test results. The system's documentation shall be communicated to, understood by, available to, and implemented by the appropriate personnel.

All documents issued to personnel in the laboratory as part of the management system shall be reviewed and approved for use by authorised personnel prior to issue. A master list or an equivalent document control procedure identifying the current revision status and distribution of documents in the management system shall be established and shall be readily available to preclude the use of invalid and/or obsolete documents.

All documentation shall be uniquely identified, such identification shall include the date of issue and/or revision identification, page numbering, the total number of pages or a mark to signify the end of the document, and the issuing authority(ies).

4.1.4. Review of requests and acceptance

Scheme members are required to maintain a record of each testing request, request review and acceptance for all test work carried out. They shall ensure the requirements, including the methods to be used, are adequately defined, documented and understood before commencing testing.

Such records must provide a cross reference to a unique job number and corresponding report reference.

4.1.5. Purchasing

Purchase orders shall detail that components and materials must comply with the appropriate standard. Evidence of compliance shall be requested from the supplier. Evidence should take the form of certification and/or testing.

4.1.6. Goods inward inspection

The company shall check that incoming materials conform to the purchase order. They shall also check that the ordered material has the requested evidence of compliance. Equipment and materials shall be segregated from use until these checks have been completed and compliance verified.

4.1.7. Complaints

The company shall maintain a register of all complaints received on the quality of their test work, which should show the steps they have taken to deal with the problem and their analysis of the causes. These records shall be kept for a minimum of 10 years.

4.1.8. Procedures for non-conformances

Where equipment and/or testing control/target values are out of specification there must be a procedure for identifying and correcting these deficiencies. The QMS should be adequate enough to be able to detect non conformances quickly enough so that effected data/reports can be quarantined.

4.1.9. Improvement

The company shall continually improve the effectiveness of its management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

4.1.10. Records

Scheme members shall ensure that a suitable control process is in place and all records are legible and shall be stored and retained in such a way that they are readily retrievable and kept in a format that is acceptable to LIA Laboratory for a minimum of 10 years.

All records shall be held secure and in confidence without risk of accidental or intentional unauthorised change. The scheme member shall have procedures to protect and back-up records stored electronically and to prevent unauthorised access to or amendment of these records.

The laboratory shall retain technical records of original test observations, derived data and sufficient information to establish an audit trail, calibration records, staff records and a copy of each test report issued. The records for each test shall contain sufficient information to facilitate, if possible, identification of factors affecting the uncertainty and to enable the test or calibration to be repeated under conditions as close as possible to the original. The records shall include the identity of personnel responsible for the sampling, performance of each test and checking of results. Observations, data and calculations shall be recorded at the time they are made and shall be identifiable to the specific task.

When mistakes occur in technical records, each mistake shall be crossed out, not erased, made illegible or deleted, and the correct value entered alongside. All such alterations to records shall be signed or initialed by the person making the correction. In the case of records stored electronically, equivalent measures shall be taken to avoid loss or change of original data.

The following records shall be maintained.

- Purchase requisitions
- Goods inwards inspection details
- Inspection/test records
- Copies of documents of conformity from manufacturers/suppliers
- In-house calibration records
- Copies of external calibration certificates
- Operator training
- Corrective and preventative action meeting records
- Audit records
- Records of any procedure changes
- Records of management review meetings
- Quotation and contract records

4.1.11. Internal audits

The scheme member shall periodically, and in accordance with a predetermined schedule and procedure, conduct internal audits of its activities to verify that its operations continue to comply with the requirements of the management system and this scheme.

A schedule of audit activities and key areas shall be established and ongoing assessment of capabilities carried out, the outcome of all internal audits should then be fed back into corrective and preventative actions as well as management reviews.

4.1.12. Management responsibility

Management shall clearly define the responsibility, authority and interrelationships of all personnel who manage, perform or verify work affecting the quality of the testing. Management shall ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the objectives.

The management of the company shall carry out a regular review of the system (at least once per annum), which shall include all audit and corrective & preventative action records and any complaints that have been received. Records shall be kept of any topics discussed and decisions made.

Top management shall ensure that appropriate communication processes are established within the laboratory and that communication takes place regarding the effectiveness of the QMS.

4.1.13. Personnel and training

Management shall formulate the goals with respect to the education, training and skills of the laboratory personnel. The scheme member shall have a policy and procedures for identifying training needs and providing training to its personnel.

The scheme member shall establish appropriate training plans and maintain records to show that staff have been satisfactorily trained to undertake the testing activities that they have been assigned. Records must be kept of this training and the effectiveness of the training actions taken shall be evaluated.

The scheme member shall maintain current job descriptions for managerial, technical and key support personnel involved in testing.

4.1.14. Test procedures

Testing procedures and pass/fail criteria shall be available to all personnel involved in testing, these procedures shall be written to take account of the requirements of any currently available harmonized standards and/or guidance documents appropriate to the type of testing.

All testing procedures shall be established, reviewed and controlled in line with the requirements of 4.1.3 above.

The scheme member shall have and shall apply procedures for estimating uncertainty of measurement.

4.1.15. Test equipment

All equipment used to conduct tests shall be appropriate to its intended use, properly maintained and calibrated. The equipment required shall be established based on the requirements of appropriate current harmonized standards and/or guidance documents appropriate to the type of testing.

Calibration of test equipment shall be carried out when the equipment is suspected of malfunction, or subject to physical or environmental abuse. In any case calibration must be conducted at least once per year.

Records shall be kept of calibration and shall include:

- Reference number and identification
- Date of calibration
- Date of next calibration due
- Traceability of reference standards
- Name or reference of person carrying out the calibration
- Statement of calibration compliance/non-compliance

The current calibration status of test equipment used must be clearly visible to the operator. Use of test equipment outside calibration validity is not permitted.

4.1.16. Traceability

As part of the QMS, scheme members will need to implement procedures, which enable appropriate traceability of all testing work carried out.

The procedures shall include but is not limited to the identification of all equipment used, test standard(s), personnel, operating conditions environmental conditions.

4.1.17. Equipment maintenance and calibration

The scheme member shall establish an equipment register and all equipment being used shall be uniquely identifiable. Whenever practicable, all equipment requiring calibration shall be labelled, coded or otherwise identified to indicate the status of calibration, including the date when last calibrated and the date when recalibration is due.

All equipment used for tests and/or calibrations, including equipment for subsidiary measurements (e.g. for environmental conditions) having a significant effect on the accuracy or validity of the result of the test, calibration or sampling shall be calibrated before being put into service. The scheme member shall have an established programme and procedure for the calibration of its equipment including procedures for the safe handling, transport, storage, use and planned maintenance of measuring equipment to ensure proper functioning in order to prevent contamination or deterioration. A record of the maintenance and calibration carried out shall be kept.

The scheme member shall establish calibration acceptance criteria for all critical equipment and ensure that a check is performed against said criteria before putting the equipment into service after calibration.

If the calibration is carried out 'in-house' then the references shall be calibrated at an acceptable period against national or international standards by a third party.

Equipment shall be operated by authorised personnel only. Up-to-date instructions on the use and maintenance of equipment (including any relevant manuals provided by the manufacturer of the equipment) shall be readily available for use by the appropriate laboratory personnel.

Where equipment has been subjected to overloading or mishandling, gives suspect results, or has been shown to be defective or outside specified limits, it shall be taken out of service. It shall be isolated to prevent its use or clearly labelled or marked as being out of service until it has been repaired and shown by calibration or test to perform correctly. The scheme member shall examine the effect of the defect or departure from specified limits on previous tests and shall implement the "Procedures for non-conformances" (see 4.1.8 above).

4.1.18. Independence and impartiality

The laboratory should be able to demonstrate that it is impartial and that it and its personnel are free from any undue commercial, financial and other pressures which might influence their technical judgement. The laboratory should not engage in any activities that may endanger the trust in its independence of judgement and integrity in relation to its testing activities.

The responsibilities of key personnel in the organisation that have an involvement or influence on the testing activities of the laboratory shall be defined in order to identify potential conflicts of interest. The organisational arrangements should be such that departments having conflicting interests, such as production, commercial marketing or financing do not adversely influence the laboratory's compliance with the requirements of this scheme.

5. COSTS

The complete costs for the operation of this scheme will be borne by the individual applicants.

- (a) Pre-agreement costs will consist of the pre-agreement visit with the associated preparation and report writing.
- (b) Annual subscription fees for scheme membership administration, report preparation and submission.
- (c) Brand licence fees charged on an annual basis.
- (d) An ongoing levy on testing revenue directly attributed to this scheme.
- (e) The re-inspection of 'Partner' Laboratory will require senior personnel making visits at intervals of approximately 6 months.
- (f) In the event that LIA Laboratory receives a complaint regarding one or more test reports or the results submitted for report production appear to fall outside the standard, the laboratory will be required to undergo a site visit for corrective action charged at the prevailing rate.

If a particular potential Lab Partner does not meet the approval requirements, extra visits may be necessary which will involve an extra charge.

6. THE LIA LABORATORY REGISTER

A list of 'Registered Laboratory' is kept at the LIA Laboratory situated at Stafford Park 7, Telford, Shropshire. TF3 3BQ. Tel: +44 (0) 1952 290907 or e-mail at lab@thelia.org.uk and online at www.lialabcert.org.uk from which users can obtain up-to-date information.

7. AUDIT ASSESSMENT

The scheme member shall allow access to premises and participate in audits of the laboratory and QMS conducted by LIA Laboratory. Audits may be carried out unannounced.

Surveillance audits will usually be carried out twice per year following an initial inspection. It may however be necessary to increase the number of visits following an unsatisfactory outcome of a scheduled assessment.

The scheme member will be provided with an audit report which details any corrective actions required by the member. Such corrective actions must be completed and confirmed in writing to LIA Laboratory within the following timescales on receipt of the report.

Initial Assessment Audit		Surveillance Audit	
Major Non-conformity	Minor Non-conformity	Major Non-conformity	Minor Non-conformity
3 months	3 months	1 month	2 months

Verification of the corrective action will normally be carried out during the next surveillance visit. It may, however, be necessary to carry out an unscheduled visit under certain circumstances.

8. CERTIFICATION/AGREEMENT PERIOD

8.1. CERTIFICATION DURATION AND REASSESSMENT INTERVALS

Following a successful conformity assessment a certificate will be issued. The certification period will run for three (3) years from the date of issue, assuming that on-going assessment confirms that the products and/or systems remain in conformity with the scheme. Prior to the end of the three year period, a review shall be undertaken to determine whether it is appropriate to reissue the certificate and commence a new certification cycle of three years. The purpose of the review is to assess whether:

- Any of the conformity standards, supporting standards or scheme requirements have been updated since the initial assessment.
- Regulatory requirements, appropriate to the product and/or systems have changed.
- The testing range falling under the scope of certification needs to be increased / decreased.
- The testing services themselves have undergone any significant changes in design, or composition.
- There have been significant changes to facilities.
- There have been any significant changes to the QMS or manufacturing testing methods.

The impact of any such changes on the QMS, validity of the initial assessment and certification decision shall be assessed.

Where no significant changes are identified, and on-going conformity is assured, then the certificate will be reissued for a further three years, subject to the ongoing scheme requirements.

Where significant changes which affect the validity and scope of the certification are identified, actions necessary to address these changes will be communicated to the client. The certificate may be suspended, or withdrawn until the issues have been addressed satisfactorily. When actions have been completed satisfactorily to bring the certification up to date, then the certification period will re-commence for a further three years.

8.2. CHANGES DURING CERTIFICATION

In addition to the recertification review, it is the responsibility of the client to inform LIA Laboratory of any changes that occur affecting certification as identified in 8.1 within the certification period.

The impact of any such changes on the validity of the initial type testing, factory production control and hence certification decision shall be assessed.

Where no significant changes are identified, and on-going conformity is assured, then the certificate will remain valid, subject to the ongoing scheme requirements.

Where significant changes are identified, which affect the validity and scope of the certification, and then actions necessary to address these changes will be communicated to the client. The certificate may be suspended, or withdrawn until the issues have been addressed satisfactorily.

9. ACCESS TO FACILITIES AND INFORMATION

Where a complaint is received by the LIA Laboratory regarding one or more issued reports covered by the scheme, the manufacturer will make available to the LIA Laboratory any information, data, samples and access to facilities and personnel in order to investigate such complaints.

10. IMPARTIALITY

The latest copy of the LIA Laboratory' impartiality policy along with the Terms & Conditions of this scheme can be found on www.lialabcert.org.uk alternatively a copy can be requested by e-mail at lab@thelia.org.uk.

11. APPLICATION

An application form for this scheme can be downloaded from www.lialabcert.org.uk alternatively a copy can be requested by e-mail at lab@thelia.org.uk.

12. ADDITIONAL INFORMATION

Details of the evaluation procedures, rules and procedures for granting, for maintaining, for extending or reducing the scope of, for suspending and for withdrawing certification can be requested by email at lab@thelia.org.uk.

ANNEX 1 – NORMATIVE STANDARDS AND REFERENCES

The following documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN ISO 9001	Quality management systems. Requirements
BS EN ISO/IEC 17025	General requirements for the competence of testing and calibration Laboratory
BS EN ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services
Low Voltage Directive (LVD) 2006/95/EC	DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

ANNEX 2 – GUIDELINE STANDARDS AND REFERENCES

The following documents provide a guideline for the type of testing a potential Lab Partner may apply but is not exhaustive. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN 60598-1	Luminaires General requirements and tests
BS EN 60598-2-1	Luminaires particular requirements - Fixed general purpose luminaires
BS EN 60598-2-2	Luminaires particular requirements - Recessed luminaires
BS EN 60598-2-3	Luminaires particular requirements - Luminaires for road and street lighting
BS EN 60598-2-4	Luminaires particular requirements - Portable general purpose luminaires
BS EN 60598-2-5	Luminaires particular requirements - Floodlights
BS EN 60598-2-6	Luminaires particular requirements - Luminaires with built-in transformers for tungsten filament lamps
BS EN 60598-2-7	Luminaires particular requirements - Portable luminaires for garden use
BS EN 60598-2-10	Luminaires particular requirements - Portable luminaires for children
BS EN 60598-2-12	Luminaires particular requirements - Mains socket-outlet mounted nightlights
BS EN 60598-2-13	Luminaires particular requirements - Ground recessed luminaires
BS EN 60598-2-10	Luminaires particular requirements - Portable luminaires for children
BS EN 60598-2-20	Luminaires particular requirements - Lighting chains
BS EN 60598-2-22	Luminaires particular requirements - Luminaires for emergency lighting
BS EN 62560	Self-ballasted LED-lamps for general lighting services by voltage > 50V. Safety specifications
BS EN 60929	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps. Performance requirements
BS EN 60968	Self-ballasted lamps for general lighting services. Safety requirements
BS EN 61347-1	Lamp controlgear - General and safety requirements
BS EN 61347-2-3	Lamp control gear - Particular requirements for a.c. and/or d.c. supplied electronic control gear for fluorescent lamps
BS EN 61347-2-7	Lamp controlgear - Particular requirements for battery supplied electronic controlgear for emergency lighting (self-contained)
BS EN 61347-2-8	Lamp controlgear - Particular requirements for ballasts for fluorescent lamps
BS EN 61347-2-11	Lamp controlgear - Particular requirements for miscellaneous electronic circuits used with luminaires
BS EN 61347-2-13	Lamp controlgear - Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules
BS EN 62031	LED modules for general lighting. Safety specifications
BS EN 62384	DC or AC supplied electronic control gear for LED modules. Performance requirements
BS 67:1987	Specification for ceiling roses
BS 7895:1997	Specification for bayonet lampholders with enhanced safety
BS EN 60570	Electrical supply track systems for luminaires

BS EN 62115	Electric toys. Safety
BS EN 62262	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)
PD IEC/TR 62696	Luminaires. Application of the IK code IEC 62262
BS EN 61549	Miscellaneous lamps
BS EN 60695-2-10	Fire hazard testing - Glowing/hot-wire based test methods. Glow-wire apparatus and common test procedure
BS EN 60695-2-11, IEC 60695-2-11	Fire hazard testing. Test methods - Glowing/hot-wire based test methods. Glow-wire flammability test method for end-products
BS EN 60695-2-12	Fire hazard testing - Glowing/hot-wire based test methods. Glow-wire flammability index (GWFI) test method for materials
BS EN 60695-2-13	Fire hazard testing - Glowing/hot-wire based test methods. Glow-wire ignition temperature (GWIT) test method for materials
BS EN 60695-10-2	Fire hazard testing. Abnormal heat - Ball pressure test
BS EN 60695-11-5	Fire hazard testing - Test flames
BS EN 60529	Degrees of protection provided by enclosures (IP code)
BS EN 13032-1	Light and lighting. Measurement and presentation of photometric data of lamps and luminaires Part 1: Measurement and file format
BS EN 13032-2	Light and lighting. Measurement and presentation of photometric data of lamps and luminaires Presentation of data for indoor and outdoor work places
BS EN 13032-3	Measurement and presentation of photometric data of lamps and luminaires Presentation of data for emergency lighting of work places
IES LM-79-08	IES Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products
CIE 84	The measurement of luminous flux
CIE 121	The photometry and goniophotometry of luminaires
Unmetered Supplies Operational Information Document	OPERATIONAL INFORMATION DOCUMENT - A Guide to Unmetered Supplies under the BSC