LIA LABORATORY PRODUCT CONFORMITY SCHEME LIASC PLUS

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1 INTRODUCTION

This certification scheme has been developed in accordance with the LIA Laboratory Limited's (LIA Laboratory) Product Certification System, which is detailed in the Product Certification System Document. The scheme is operated in accordance with the LIA Laboratory's Quality and Operations Manuals. This certification scheme is classified as type 5 certification scheme (ISO/IEC 17067). The certification service is accessible to all applicants who fall under the certification scope.(see section 3). The purpose of this scheme is to assess the compliance of:

- **Luminaires** and associated accessories with the essential safety requirements of BS EN 60598-1 (state of art), and the relevant supporting parts of BS EN 60598-2 (state of the art), for home or commercial use.

- **Lamp Controlgears** with the essential safety requirements of BS EN 61347-1 (state of art), and the relevant supporting parts of BS EN 61347-2 (state of the art), for home or commercial use.

- **LED modules** with the essential safety requirements of BS EN 62031 (state of art), and for home or commercial use.

- **Lampholders** with the essential safety requirements of BS EN 60238 (state of the art) and BS EN 61184 (state of the art), for domestic or commercial use.

-**Self-ballasted LED lamps** with the essential safety requirements of BS EN 62560 (state of the art), for home or commercial use.

Customer who have been assessed and meet the requirements of the scheme are granted certification. Voluntary certification to this scheme gives third party confirmation of the manufacturer's declaration in accordance with the European Low Voltage Directive 2014/35/EC and The Electrical Equipment (Safety) Regulations 2016 UK SI 2016 No. 1101.

Note that the customer has an obligation to inform LIA Laboratory of any changes to the certified products, which might affect certification.

2 DEFINITIONS & ABBREVIATIONS

The following definitions and abbreviations are used throughout the document. Other definitions are as given in the relevant standards.

Scope	Detailed specification of certified products and associated components.
FPC	Factory Production Control
QMS	Quality Management System
NCR	Non Conformance Report
PVT	Product Verification Test

Luminaire - Apparatus which distributes filters or transforms the light transmitted from one or more lamps.

Lamp Controlgear - One or more components between the supply and one or more lamps which may serve to transform the supply voltage, limit the current of the lamp(s) to the required value, provide starting voltage and preheating current, prevent cold starting, correct power factor or reduce radio interference.

LED module - Unit supplied as a light source. In addition to one or more LEDs, it may contain further components, e.g. optical, mechanical, electrical and electronic, but excluding the control gear.

Lampholder - a device which holds the lamp in position, usually by having the cap inserted in it, in which case it also provides the means of connecting the lamp to the electric supply.

Unit supplied as a light source. In addition to one or more LEDs, it may contain further

components, e.g. optical, mechanical, electrical and electronic, but excluding the control gear.

The definitions given in BS EN 60598-1 (and relevant part 2), BS EN 61347-1 (and relevant part 2), BS EN 62031, BS EN 60238, BS EN 61184 and BS EN 62560.

3 SCOPE

This scheme has been developed by the LIA Laboratory Limited as a basis of conformity assessment of Luminaires, Lampholders, Controlgears and LED modules. It should be used in accordance with BS EN 60598-1 and relevant part 2; BS EN 61347-1 and relevant part 2; BS EN 62031; BS EN 60238 or BS EN 61184 appropriate to the exact product(s) being assessed (see Annex 1).

This scheme covers luminaires, incorporating electric light sources for operation from supply voltages up to 1 000 V. The requirements and related tests of this standard cover: classification, marking, mechanical construction, electrical construction and photobiological safety, type testing and factory production control

This scheme covers controlgears that fall under the scope of BS EN 61347 -1 and relevant part 2, for use on d.c. supplies up to 250V and/or a.c. supplies up to 1000V at 50 Hz or 60Hz. The requirements and related tests of this scheme include: classification, marking, mechanical construction, electrical construction, type testing and factory production control.

This scheme covers light-emitting diode (LED) modules that fall under the scope of BS EN 62031.

– LED modules without integral controlgear for operation under constant voltage, constant, current or constant power;

- Self-ballasted LED modules for use on d.c. supplies up to 250 V a/c/ supplies up to 1000 V at 50Hz or 60 Hz.

The requirements and related tests of this standard cover: classification, marking, mechanical construction, electrical construction and photobiological safety, type testing and factory production control

This scheme covers lampholders that fall under the scope of BS EN 60238 and BS EN 61184. The requirements and related tests of this scheme include: classification, marking, mechanical construction, electrical construction, type testing and factory production control.

This scheme covers self-ballasted LED lamps that fall under the scope of BS EN 62560. The requirements and related tests of this scheme include: classification, marking, mechanical construction, electrical construction, type testing and factory production control.

4 SCHEME REQUIREMENTS

4.1 Technical Conformity

The product shall be designed and constructed so that it is fully in line with its relevant safety standard (refer to Annex 1). No deviations to the testing process are accepted, all relevant clauses of the safety standard (part 1 and if applicable also relevant part 2) shall be considered and only products that are fully in line with the safety standard(s) can be accepted for certification.

Product families may be assessed (if requested). The quantity and type of sample(s) shall be adequate enough to fulfil the technical evaluation requirements. Representative product(s) shall be selected by the certification body.

4.1.1 Family variants

Where a particular product has family variants these may be assessed as groups but will be considered by LIA Laboratory on a case by case basis.

When selecting type test sample(s) from a range of products of similar construction for type test verification, the product(s) chosen shall be those which represent the most unfavourable combination of components and housing.

The range of products shall be manufactured by the same manufacturer, under the same quality assurance system. The type variants of the range should be essentially identical with the respect to materials used, components and technology applied.

Additionally, for identification of samples for assessment, the guidance provided by relevant safety standard shall be taken into account (e.g. Annex S of BS EN 60598-1).

The differences to consider during evaluation of the family variants can be:

- Construction,
- Critical components,
- Shape, size and weight,
- Ratings,
- Means of connection to mains supply,
- Availability for indoor and/or outdoor use,
- IP rating,
- IK rating,
- Electrical Class of protection,
- Etc.

4.2 Factory Production control requirements

4.2.1 General Requirements

The customer shall establish, document and maintain a FPC system to ensure that the products placed on the market conform to the required characteristics in the relevant safety standard (as specified in Annex 1) on an on-going basis.

The control system shall consist of procedures, regular inspections and testing and/or assessment. The results should then be used to control raw materials, components, equipment, the manufacture process and the product.

The results of inspections, tests, internal audits and staff competency shall be recorded, as shall any action taken as a result of the outcome of these inspections, tests or internal audits.

The regular PVT assessment is required on an on-going basis. The PVT will be conducted by LIA Laboratory with sample, which will be selected during the factory inspection. The amount of testing to be conducted is specified in section 4.6.

Note that a system in accordance with ISO 9001, that includes the specific requirements of BS EN 60598, BS EN 61347, BS EN 62031, BS EN 62560, BS EN 60238 or BS EN 61158,

would meet the requirements for FPC. However, it's not a mandatory to have ISO 9001 quality system in place. The requirements for factory production control requirements stay the same and all requirements listed in sections 4.2 and 4.3 of documents has to be fulfilled.

The factory inspection, if no ISO 9001 system is in place, can be more thorough and may require more time and more evidence can be requested.

4.2.1.1 Luminaires / LED modules

The purpose of the FPC tests and examinations shall be to establish that the product is safe before it leaves the factory. Tests are normally undertaken after full assembly, whereas examinations may be conducted at any appropriate stage of the manufacture process. The tests and examinations required are given below in Table 4.2.2.1 (also it's specified in BS EN 60598-1, Annex Q, for LED Modules, as specified in BS EN 62031 Annex C).

Electrical tests shall be conducted on 100% of all units produced as scheduled in Table 4.2.2.1. Failed products are to be quarantined for scrap or rebuild.

Visual inspection shall be conducted on 100% of production to ensure that:

A) All specified labels are securely in place,
B) Manufacturer's instructions are placed within the luminaire, where necessary,
C) Luminaire / LED module is complete, and that mechanical check against a checklist for the product has been carried out

All products passing these tests should be suitably identified.

Table 4.2.2.1 - Minimum values for electrical tests

Test	Class of luminaire and compliance			
	Class I luminaires	**Class II luminaires metal encased**	**Class III metal encased with supply > 25 V a.c. (r.m.s) or 60 V d.c., ripple free**	**Class II and class III luminaires insulation encased**
FUNCTION TEST/CIRCUIT CONTINUITY (with lamp or simulation lamp)	Generally at normal operating voltage			
EARTH CONTINUITY Applied between earthing terminal on luminaire and the most accessible parts likely to become live. Settlable and adjustable luminaires placed in most onerous position.	Maximum resistance 0,50 Ω Measured by passing a minimum current of 10 A at between 6 V and 12 V for at least 1 s	Not applicable		
a) ELECTRIC STRENGTH OR b) INSULATION RESISTANCE Measured between the live and neutral terminals linked together and the earth terminal or between the conductors of class II and class III luminaires and the metal enclosure	Maximum breakdown current 5 mA Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 $\sqrt{2}$ d.c. kV OR Minimum resistance 2 MΩ Measured by applying 500 V d.c. for 1 s	Maximum breakdown current 5 mA Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 $\sqrt{2}$ d.c. kV OR Minimum resistance 2 MΩ Measured by applying 500 V d.c. for 1 s	Maximum breakdown current 5 mA Measured by applying a minimum voltage of 400 V a.c. for a minimum of 1 s or 400 $\sqrt{2}$ d.c. V OR Minimum resistance 2 MΩ Measured by applying 100 V d.c. for 1 s	Not applicable
POLARITY Tested at incoming terminals	Where necessary for correct functioning of luminaire	Not applicable		

For LED modules polarity check is not required.

4.2.1.2 Lamp controlgears

Electrical tests shall be conducted on 100% of all units produced as scheduled in Table 4.2.2.2. Failed products are to be quarantined for scrap or re-working.

Visual inspection shall be conducted on 100% of production to ensure that:

A) Controlgear is fully assembled and free from sharp edges etc. which may cause damage or injuries,
B) Labels are legible and properly attached.

Table 4.2.2.2 – Minimum values for electrical tests

Test	Type of control gear and compliance				
	Magnetic ballast	**A.C. and d.c. electronic ballast**	**Step down convertor for low voltage filament lamps and LED module**	**Invertor and convertor for high frequency cold start lamps**	**Ignitor**
Visual inspection [a]	Applicable				
Function test/circuit continuity (with lamp or simulation lamp)	Impedance test [b]	Lamp / operating voltage	Lamp / operating voltage	Lamp / operating voltage	At 90% minimum rated supply voltage: peak voltage
Earth continuity [c] Applied between earthing terminal on control gear and accessible parts likely to become live (only for class I independent control gear)	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.
Electric strength [c]	Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 kV d.c. Made between terminals short-circuited and body.	Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 kV d.c. Made between input/output terminals short-circuited and body.	Measured by applying a minimum voltage of: – between input/output terminals short-circuited and body 1,5 kV a.c. or 1,5 √2 kV d.c. for a minimum of 1 s – between input and output terminals 3 kV a.c. or 3 √2 kV d.c. for a minimum of 1 s	Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 kV d.c. Made between: – input/output terminals short-circuited and body – input and output	Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 kV d.c. Made between terminals short-circuited and body.

a Visual inspection: visual inspection should ensure that the control gear is fully assembled and free from sharp edges etc. which may cause damage or injuries. It should also ensure that any labels are legible and properly attached and any printing legible.

b Impedance test: the impedance test is carried out by measuring the ballast voltage when the ballast has been loaded with its rated current; alternatively, it may be carried out at a fixed voltage (defined by the appropriate lamp data sheet) and measuring the ballast current.

c Class II (independent) control gear or control gear with plastic case and without earthing terminal: the earth continuity, the electrical strength and the insulation resistance tests do not apply.

4.2.1.3 Lampholders

Electrical tests shall be conducted at least on 10% of all units produced as scheduled in Table 4.2.2.3. Failed products are to be quarantined for scrap or re-working.

Visual inspection shall be conducted at least on 10% of production to ensure that:

A) Lampholder is fully assembled and components are in place,
B) Labels are legible and properly attached.
C) Lampholder is constructed in accordance with the design specification.
D) Earth continuity test and dielectric strength test as scheduled in Table 4.2.2.3.

Failed products are to be quarantined for scrap or re-working.

Table 4.2.2.3 – Minimum values for electrical tests

Test	Compliance criteria
EARTH CONTINUITY Applied between earthing terminal of lampholder and the accessible parts likely to become live.	Maximum resistance 0,10 Ω Measured by passing a minimum current of 10 A and no-load voltage not exceeding 12 V for at least 1 s
a) ELECTRIC STRENGTH OR b) INSULATION RESISTANCE Measured between live parts of different polarity and between live parts connected together and the body.	Maximum breakdown current 5 mA Measured by applying a minimum voltage 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 d.c. kV OR Minimum resistance 2 MΩ measured by applying 500 V d.c. for 1 s The electric strength test voltage between live parts of different polarity for lampholders E5 and E10 with a rated voltage not exceeding 60 V is reduced to 500 V.

4.2.1.4 Self-ballasted LED lamps

Routine test specified below shall be conducted on 100% of the production:

A) Visual check of content of marking as part of a sampling plan on all production unless a statistical quality control system is applied, which shows that a 100 % check of marking is not necessary.
B) Functional test to check that the luminous flux of each unit of product does not show a deviation of more than +/- 20% versus the product rated value.
Note: more than -20% of deviation may be the consequence of safety relevant electrical problem.
More than +20% of deviation is a photo biological issue with potential regulation related problem.

4.3 Quality Management System Requirements

4.3.1 Changes to production

Any changes to the production (e.g. production line, extension of a production line, change of relevant production process) or related to the company's organisation with impact to inspections aspects shall be communicated with certification body.

4.3.2 Incoming inspection

All materials, components and sub-assemblies shall be verified by the Factory for complying with appropriate specification.

If the Factory relies on Certificates of Conformity, they shall clearly identify the product, quantity of items covered, the specification to which the products conform, the production date and are they properly issued.

Procedure for covering the way to handle non-conforming components and materials shall be available.

Records of the incoming inspection shall be maintained and satisfactory. They shall be kept at least for the period between two inspection visits.

4.3.3 Production Control, Monitoring and Routine Tests

Quality Assurance and Personnel in production shall be adequately briefed on their duties.

They shall have readily available up-to-date documents, production and test instructions, photographs, drawings or samples on all those parts which have an impact on the safety of the finished products.

Evidence that the production process ensures that the final product is identical to the certified version shall be available.

Procedure to ensure that all products are tested or inspected according to the Factory requirements shall be in place.

Production process shall be controlled at appropriate stages

Routine Tests entered on the ''Test Data Sheet'' shall sufficiently cover all the Certification Body requirements. These test results shall be collected for the relevant product during FPC audit.

Procedure for covering the way to handle non-conforming products shall be in place.

Repaired and reworked (corrected) items shall be again subjected to appropriate tests/examinations in accordance with procedures.

Records of the routine tests shall be maintained and satisfactory. They shall be kept at least for the period between two inspection visits.

4.3.4 Functional Check of Test and Measuring Equipment used for Safety Tests

Evidence that the functional check of the equipment is conducted properly, even if certified products were not in production shall be available.

Procedure describing how the functional checks shall be conducted has to be in place.

Functional check shall be conducted with intervals which will allow previous production to be retested if incorrect functioning is detected before it leaves the factory.

Procedure requiring appropriate actions to be taken by the operator if a functional check is found to be unsatisfactory shall be available. Procedure shall ensure that improperly checked products are re-tested. Corrective actions taken shall be recorded in all cases.

Records of results of functioning checks of test and measuring equipment shall be maintained and satisfactory. They shall be kept at least for the period between two inspection visits.

4.3.5 Check of production and products during visit

Type reference and any certification mark that appeared on products seen in production at the time of the visit shall be identified.

If no certified products were seen, indicate what kinds of products were produced at the time of visit.

The production process shall nevertheless be examined.

At least one kind of product per product category and electrical insulation class shall be listed.

4.3.6 Calibration/Verification of Safety Test and Measuring Equipment

Test and measuring equipment used shall be calibrated or verified.

Calibration/verification interval shall be not more than one year.

If calibration/verification interval is more than one year evidence of specific usage and the result of previous calibration/verification shall be given.

Calibration of measuring equipment can be provided by calibration laboratory accredited according to ISO/IEC 17025 or by test equipment producer/supplier.

Measuring equipment can be verified by means of calibrated reference equipment. Reference equipment (used for verification) shall be calibrated.

Testing equipment shall be provided with a label or similar indicating the next 'calibration due' date.

Calibration/verification records shall indicate that calibration is traceable to national/international standards of measurement.

Records of calibration/verification shall be maintained and satisfactory. They shall be kept at least for the period between two inspection visits.

4.3.7 Handling and storage

Components and materials to be used for production shall be stored and handled in such a way as to ensure that they will continue to comply with the applicable standards. A nominated member of the management team shall be responsible for the QMS.

Finished products shall be stored and handled in such a way as to ensure that they will continue to comply with the applicable standards.

4.3.8 Product Verification Tests / Periodic Tests (PVT)

If Product Verification Tests / Periodic Tests (PVT) are required, they shall be conducted in accordance with relevant procedures.

Appropriate equipment that is required for conducting tests shall be available.

Product Verification Tests / Periodic Tests (PVT) shall be in compliance with the requirements of the Certification Schemes and/or the requesting Certification Body.

Procedure requiring actions to be taken if PVT are found to be unsatisfactory shall be available.

Records of Product Verification Tests / Periodic Tests (PVT) shall be maintained and satisfactory. They shall be kept at least for the period between two inspection visits.

4.3.9 Unsatisfactory Findings from Previous Inspection - Follow-Up

Reports from previous inspections shall be kept at least for the period between two inspection visits.

Any unsatisfactory findings entered in the previous inspection shall be corrected before the new inspection.

4.3.10 Quality Management System

If the Factory has a QMS certified or assessed by an accredited Body, details of the QMS standard, scope and copy of the certificate shall be provided. Refer also to 4.2.1.

4.3.11 Factory self-assessment of the production and control process of certified products – Internal audits

The factory shall regularly check that all procedures as required by the Certification Body and the certification scheme are followed.

Records regarding any results and actions taken shall be available.

Personnel carrying out required checks shall be appropriately trained and independent of the process being assessed.

Any unsatisfactory findings, identified from the factory self-assessment of the production and control process of certified products, shall be corrected.

Records of internal audits shall be maintained and satisfactory. They shall be kept at least for the period between two inspection visits.

4.3.12 Technical Complaints

The factory shall record any complaint regarding the certified product.

The factory shall have a procedure regarding the handling of customer complaints.

Complaints received shall be reviewed on a regular basis regardless of whether they are related to a single error or multiple system errors.

Corrective actions and decisions regarding customer complaints shall be recorded.

The originator of the complaint shall be informed about the handling and the result of the complaint.

Records of complaints shall be maintained and satisfactory. They shall be kept at least for the period between two inspection visits.

4.3.13 Certified Products and Changes to Certified Products

Documentation of the certified product(s) shall be available. Examples of evidence can be:

- Set of drawings,
- Parts list,
- Product description,
- Reference sample,
- Photo-documentation,
- Other specifications

These documents shall be under the control of the customer.

If any changes have been made to the certified product(s) since the last inspection, these changes can only be made by the customer with authorisation from the Certification Body.

If the factory is not the certificate holder, a procedure shall be in place, ensuring that no changes to the construction of certified product(s) will be implemented until acceptance by the certificate holder is granted.

If the factory is the certificate holder, a procedure shall be in place, ensuring that no changes to the construction of certified product(s) will be implemented until approval by the Certification Body is granted.

4.4 Documentation

4.4.1 QMS - FPC system

LIA Laboratory will assess the customer's and factory's QMS-FPC system, to verify that a common understanding of quality requirements and required product characteristics are achieved. The QMS-FPC system shall be put together in a systematic manner in a written way and should address the requirements of 4.2 and 4.3 of this document.

4.4.2 Manufacturing Documentation

Manufacturing records shall be kept for a minimum of 10 years.

The customer and factory shall demonstrate how the process listed in clause 4.2 are followed and controlled. The documents and records associated with the FPC must be made available to the auditor who will review these at each audit.

The finished product must be marked, identified or labelled so that the batch can be identified through the FPC and traced back to the constituent components.

4.4.3 Product Specification

The product specification may form part of the FPC system or may be a separate document in its own right.

The product specification documentation should contain the following minimum information:

- Safety certificates and/or datasheets of critical components,
- Drawings, photos of the product;
- Marking labels, manufacturer instructions;
- Bill of materials, etc.

LIA Laboratory will conduct a review of the product(s) to be certified to determine the conformity against product specification and relevant safety standard requirements (as specified in Annex 1).

4.5 Audit Assessment

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

Surveillance audits will usually be carried out once 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 audit itself shall normally take about 4-8 hours. Duration of the audit visit is based mainly on the amounts of certificates and if products of different categories are manufactured in the factory (e.g. luminaires, controlgears, LED modules, etc.). During audit manufacturing process at least of each different category of product shall be examined. LIA Laboratory shall provide customer the audit plan SF10A-01 with estimated duration of the audit.

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	3 months

The timescales listed in table above are only informative. The time to close finding(s) from audit can be extended upon the request of the customer. It's down to LIA Laboratory to accept extended duration for closing of findings. The time scales can be updated based on the severity of finding (e.g. replacement of critical component, calibration of testing equipment, etc.).

In general, the finding(s) shall be closed as soon as possible.

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.

Note: LIA Laboratory documents SF10A-01, SF10A-02, SF10A-04 and SF10A-05 shall be used as appropriate to keep all details of factory audits. All documents are available on request from LIA Laboratory.

4.6 Product Verification Testing

Product verification testing (PVT) of the product is undertaken annually. Samples for testing shall be collected during the factory inspection from the assembling line or warehouse by the inspector. Sample selection is specified in section 10.

Where LIA Laboratory receives a complaint regarding one or more certified products, or a major non-conformance is raised concerning a certified product during a surveillance audit, then the manufacturer shall supply further product samples for re-assessment. Additional cost for the re-assessment will apply.

In all cases checking of marking labels, manufacturer's instructions and critical components (to identify changes of critical components) shall be conducted by the LIA Laboratory.

If results of PVT is found unsatisfactory, customer will informed about non-compliances. In addition, customer will be requested to propose corrective actions. Customer shall provide proposal for corrective actions within the 1 month since non-compliances were raised and provided to customer.

Once corrective actions are approved by LIA Laboratory, the new revised sample (physical or in case of non-compliances with marking or installation instruction, also electronic file can be accepted) shall be provided as evidence to LIA Laboratory and PVT process will be repeated. There may be additional cost for additional testing.

If sufficient corrective actions are not addressed satisfactorily, the Certification body may suspended or withdrawn the certificate.

In addition, tests as specified below shall be conducted with selected sample(s):

4.6.1 Luminaires (BS EN 60598 series)

Note: For EN 62471, assessment is only required when the lamp/ lightsource standard indicates that there is a possible photobiological risk that needs to be considered.

Clause 0.5 Critical components check
Clause 7 Earthing check
Clause 8.2.7 Check on residual voltage across plug pins
Clause 12.3 Endurance test
Clause 9.2 Tests for the ingress of dust, solid objects and moisture

From practical experience, the following tests may be appropriate:
Clause 4 Visual verification, in case of doubt testing
Clause 10.2 Humidity test and dielectric strength tests
Clause 12.4, 12.5, 12.7 Temperature tests under normal and abnormal conditions
Clause 12 (12.6) Luminaires suitable for direct mounting on normally flammable surfaces, special attention to all the aspects which can influence this measurement
Comparison of winding resistance of ballasts and transformers

4.6.2 Emergency luminaires (BS EN 60598-2-22)

Clause 22.16 Functional safety (lumen output only)

Note: for luminaires with integral ballast tested with the luminaire see also 22.7

Photobiological Safety of lamps and lamp systems (BS EN 62471 and IEC/TR 62778)

Clause 4.3 Hazard exposure limits
Clause 5.4 (62471-2) Labelling
Clause 5.5 (62471-2) other information provisions
Clause 6 Lamp classification

4.6.3 LED modules for general lighting – Safety specifications (BS EN 62031)

Note: For EN 62471, assessment is only required when the lamp/ lightsource standard indicates that there is a possible photobiological risk that needs to be considered.

Clause 8 Provisions for protective earthing
Clause 9 Protection against accidental contact with live parts
Clause 11 Electric strength
Clause 12 Fault conditions

From practical experience, the following tests may be appropriate:
Clause 10 Moisture resistance and insulation
Clause 15 Creepage distances and clearances
Clause 18 Resistance to heat

4.6.4 Lamp controlgear (BS EN 61347 series)

4.6.4.1 Electronic ballast for emergency lighting (BS EN 61347-2-7)

Clause 8 Protection against electric shock
Clause 10 Provision for earthing
Clause 20 Functional safety EBLF

4.6.4.2 Electronic circuits used with luminaires (BS EN 611347-2-11)

Clause 10 Protection against accidental contact with live parts
Clause 11 Moisture resistance and insulation

4.6.4.3 DC or AC supplied electronic controlgear for LED modules (BS EN 61347-2-13)

Clause 8 Protection against accidental contact with live parts
Clause 10 Provision for protective earthing
Clause 11 Moisture resistance and insulation
Clause 12 Electric strength

4.6.5 Edison lampholders (BS EN 60238)

Clause 9 Dimensions
Clause 10 Protection against electric shock
Clause 20Test of resistance to heat

From practical experience, the following tests may be appropriate:
Resistance to heat, fire and tracking (Test of: ball-pressure, glow- wire, flame, tracking)

4.6.6 Bayonet lampholders (BS EN 61184)

Clause 9 Dimensions
Clause 10 Protection against electric shock
Clause 19 Test of resistance to heat

From practical experience, the following tests may be appropriate:
Resistance to heat, fire and tracking (Test of: ball-pressure, glow- wire, flame, tracking)

4.6.7 Self-ballasted LED lamps (BS EN 62560)

Clause 6 Interchangeability
Clause 9 Mechanical strength

From practical experience, the following tests may be appropriate:
Resistance to heat, flame and ignition (Test of: ball-pressure, glow- wire, flame), Fault conditions and Photobiological safety.

4.7 Certification Period

4.7.1 Certification duration and reassessment intervals

Following a successful conformity assessment a certificate will be issued. The certification period will run for three years from the date of issue, assuming that on-going assessment confirms that the products 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 3 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(s) have changed.
- The product(s) range falling under the scope of certification needs to be increased / decreased.
- The products themselves have undergone any significant changes in design or composition.
- There have been not any significant changes to production location or facilities.
- There have been not any significant changes to factory production control methods or manufacturing processes.

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 be re-issued for a further 3 years, subject to the ongoing scheme requirements.

Where significant changes are identified, which affect the validity and scope of the certification, actions necessary to address these changes will be communicated to the customer. 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 3 years.

4.7.2 Changes during certification

In addition to the re-certification review, it is the responsibility of the customer to inform LIA Laboratory of any changes that may affect certification as identified in 4.7.1 within the certification period. Customer shall contact LIA Laboratory before applying the changes.

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, actions necessary to address these changes will be communicated to the customer. The certificate may be suspended or withdrawn until the issues have been addressed satisfactorily.

4.7.3 Changes to testing standard

In case that newer version of the safety standard, which product was tested against, is issued, the certification file shall be updated. Customer will be contacted by LIA Laboratory about the new version of the safety standard. LIA Laboratory certification will specify the amount of additional testing (if necessary) to be conducted to issue revised version of the certificate. Such review will be conducted during regular annual review of certification file. Once agreed by customer, the LIA Laboratory will update certification file and certificate.

The BS EN versions of safety standard contain Date of Withdrawal. During this period (in general it's 3 years), the both versions of the standard are valid. In general, the LIASC Plus certificate shall list valid variant of the safety standard.

5 IDENTIFICATION AND USE OF THE CERTIFICATION LOGOS

All certification logos shall be used in accordance with the LIA Laboratory's Logo Usage Policy, document LUG002.

In addition to the identification and marking requirements of relevant safety standards (as specified in Annex 1), each product may be marked with the certification mark and certification number.

The marking proposed by the company for each product shall be approved by LIA Laboratory.

The validity of a certificate can be checked directly on the LIA Laboratory's certificate database www.lialabcert.org.uk/certificates-search

LIASC Plus Certification logo

LIASC Product Mark

It should be noted that this certification scheme is UKAS accredited.

Client may use the appropriate national accreditation symbol in accordance with the requirements of document Accreditation Logo and Symbols – The National Accreditation Logo and Symbols: Conditions for use by UKAS and UKAS accredited organisations (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1022081/guidance-ukas-accreditation-logo-and-symbols-v2.pdf) on stationery and publicity material or other items relevant to their certification. The national accreditation symbol(s) shall always be used in conjunction with the logo/mark of the certification body or certification scheme. Client may use the logo/mark of the certification body or certification scheme without the accreditation symbol.

Client may use the relevant national accreditation symbols on stationery, quotations for work, reports and certificates, websites and brochures, and other items relevant to the accredited organisation's accredited activity.

6 ACCESS TO FACILITIES AND INFORMATION

Where a complaint is received by the LIA Laboratory regarding a product and/or data covered by the Scheme, the customer will make available to the LIA Laboratory any information, data, samples and access to facilities, personnel and subcontractors in order to investigate such complaints.

On occasion, where a Scheme is covered within the LIA Laboratory's ISO/IEC 17065 schedule of accreditation with UKAS, there may be a need to allow third party access to manufacturer's facilities during the assessment process. It should be noted that the customer will be notified of any such requirement, all information obtained during such visits will remain confidential at all times.

7 IMPARTIALITY

The latest copy of the LIA Laboratory's impartiality policy along with the Terms & Conditions of this Scheme can be found on https://www.thelia.org.uk/general/custom.asp?page=Lab_Certification_Services
Alternatively a copy can be requested by e-mail at lab@thelia.org.uk.

8 APPLICATION

An application form for this Scheme can be downloaded from https://www.thelia.org.uk/general/custom.asp?page=Lab_Certification_Services
Alternatively a copy can be requested by e-mail at lab@thelia.org.uk.

9 ADDITIONAL INFORMATION

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

10 SAMPLE SELECTION

As part of the requirements associated with the certification licence, product surveillance shall be carried out on a regular basis (annually) by the Certification Body. The product surveillance procedure shall give sufficient evidence that the electrical product continues to comply with the standard and to be in conformity with the approved design.

Product surveillance shall include the following elements:

- Determining whether the electrical equipment conforms to the approved type, taking any approved changes into account. This is done by a comparison with the approved design. For this evaluation, descriptions, components lists, drawings and/or photographs, etc. are to be used.
- Supplementary samples for checks, measurements and tests may be necessary given the outcome of the comparison with the approved design; the results of the tests; the results of earlier product surveillance and market information.

All verifications, checks, measurements and tests carried out shall be documented and kept in the certification file.

In principle, samples representative of all products licensed to use the certification mark shall be checked annually.
The surveillance programme shall ensure that at least on sample, as presented on certificate issued by the Certification body, shall be selected.

Samples for product surveillance are selected by the Certification Body, normally at the time of factory inspection.
In case of failure further investigation is required by the Certification Body. Action(s) is (are) to be taken by the Certification Body to resolve the matter.
If the required sample is not available at the time of the visit, the inspector may leave instructions that a sample from the next production run is to be sent to, or collected by, the Certification Body.

ANNEX 1 – SAFETY STANDARDS

Note: Where a standard is referenced the latest valid version of the standard shall be used (based on LIA Laboratory UKAS accredited testing scope)

BS EN 60598-1	Luminaires – General requirements and tests
BS EN 60598-2-1	Fixed general purpose luminaires
BS EN 60598-2-2	Recessed luminaires
BS EN 60598-2-3	Luminaires for road and street lighting
BS EN 60598-2-4	Portable general purpose luminaires
BS EN 60598-2-5	Floodlights
BS EN 60598-2-6	Luminaires with built-in transformers for tungsten filament lamps
BS EN 60598-2-10	Portable luminaires for children
BS EN 60598-2-12	Mains socket-outlet mounted nightlights
BS EN 60598-2-13	Ground recessed luminaires
BS EN 60598-2-20	Lighting chains
BS EN 60598-2-22	Luminaires for emergency lighting
BS EN 61347-1	Lamp controlgear – General and safety requirements
BS EN 61347-2-7	Battery supplied electronic controlgear for emergency lighting
BS EN 61347-2-11	Miscellaneous electronic circuits used with luminaires
BS EN 61347-2-13	D.C or A.C supplied electronic controlgear for LED modules
BS EN 62031	LED modules for general lighting – Safety specification
BS EN 60238	Edison screw lampholders
BS EN 61184	Bayonet lampholders
BS EN 62560	Self-ballasted LED-lamps for general lighting services by voltage > 50 V - Safety specifications
IEC 60598-1	Luminaires – General requirements and tests
IEC 60598-2-1	Fixed general purpose luminaires
IEC 60598-2-2	Recessed luminaires
IEC 60598-2-3	Luminaires for road and street lighting
IEC 60598-2-4	Portable general purpose luminaires
IEC 60598-2-5	Floodlights
IEC 60598-2-6	Luminaires with built-in transformers for tungsten filament lamps
IEC 60598-2-10	Portable luminaires for children
IEC 60598-2-12	Mains socket-outlet mounted nightlights
IEC 60598-2-13	Ground recessed luminaires
IEC 60598-2-20	Lighting chains
IEC 60598-2-22	Luminaires for emergency lighting
IEC 61347-1	Lamp controlgear – General and safety requirements
IEC 61347-2-7	Battery supplied electronic controlgear for emergency lighting
IEC 61347-2-11	Miscellaneous electronic circuits used with luminaires
IEC 61347-2-13	D.C or A.C supplied electronic controlgear for LED modules

IEC 62031	LED modules for general lighting – Safety specification
IEC 60238	Edison screw lampholders
IEC 61184	Bayonet lampholders
IEC 62560	Self-ballasted LED-lamps for general lighting services by voltage > 50 V - Safety specifications

ANNEX 2 – REFERENCE DOCUMENTS

BS EN ISO 9001	Quality management systems. Requirements
BS EN ISO/IEC 17065	Conformity assessment. Requirements for bodies certifying products, processes and services
ISO/IEC 17067	Conformity assessment -- Fundamentals of product certification and guidelines for product certification schemes
SI 2016 No. 1101	The Electrical Equipment (Safety) Regulations 2016UK SI 2016 No. 1101.
2014/35/EU	Low Voltage Directive (LVD)