



EMBODIED CARBON PRODUCT ASSURED VERIFICATION SCHEME

TSD-016 Version 1.1 March 2026



Table of Contents

1	CERTIFICATIONS AND PROCEDURES SUPPORTING THIS SCHEME.	3
1.1	Introduction	Error! Bookmark not defined.
2	DEFINITIONS & ABBREVIATIONS	3
3	SCOPE	4
4	SCHEME REQUIREMENTS	5
4.1	Technical Conformity	5
	4.1.1 Method and acceptance criteria	5
	4.1.2 Family variants - Initial	5
4.2	Certification Period	7
	4.2.1 Certification duration	7
	4.2.2 Changes during certification	7
4.3	Documentation for certification evaluation	8
	4.3.1 Embodied Carbon Information	8
	4.3.2 Product Design	8
	4.3.3 Product Information	8
	4.3.4 Embodied Carbon Assessment	8
5	IDENTIFICATION AND USE OF THE CERTIFICATION LOGOS	9
6	ACCESS TO FACILITIES AND INFORMATION	9
7	IMPARTIALITY	9
8	APPLICATION	10
9	SCHEME FEES	10
10	APPEALS	10
11	ADDITIONAL INFORMATION	10
	ANNEX 1 – REFERENCE DOCUMENTS	11

1 CERTIFICATIONS AND PROCEDURES SUPPORTING THIS SCHEME.

This certification scheme has been developed in accordance with The LIA's Product Certification System, which is detailed in their 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 1a 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 certify that any one DT65 embodied carbon value is justified by the product's manufacturing, materials and design and each decision is based upon reliable evidence and is in line with TM65.2 & DT65 requirements, it therefore enables more accurate comparisons between those results.

It covers - Luminaires and associated accessories, applicable under the TM65 methodology within the essential requirements of CIBSE TM65.2:2023 and CIBSE document DT65 Embodied Carbon Calculator.

All product (or product family) assessments that have been reviewed under this scheme and meet all requirements of the scheme are granted certification.

Note: Any company issued a certification to this scheme has an obligation to inform The LIA Laboratory Ltd. of any changes to the certified products, product design, materials, BOM, supply chain, etc. which might affect certification.

1.1 Introduction

TM65.2 Assured Product Verification Scheme addresses the substantial industry interest in the need to deliver sustainable lighting, building on the methodology in CIBSE TM65.2 "Embodied Carbon in Building Services: Lighting", specifically its Embodied Carbon Calculator (DT65). It provides robust third-party assessment of claims made using the TM65.2 methodology and tools, increasing confidence that products are truly compliant to the principles of embodied carbon assessment through DT65.

TM65.2's Embodied Carbon Calculator (DT65) is a self-certification metric that allows a manufacturer or interested party to evaluate and quantify the embodied carbon of a luminaire or associated accessories, applicable under the TM65 methodology, to enable comparison between products fulfilling the same function.

Embodied carbon metrics can have a problem of interpretation, different evaluators using different interpretations of the same question, or the answer to a question will yield different results making comparisons between products difficult. TM65.2 Assured Product Verification Scheme is a programme of trained, independent, 3rd party assessments that reviews both the embodied carbon claims and the evidence given to support those claims and the methods used to record and report the claims. The result is a greater level of confidence in any one DT65 embodied carbon value and therefore comparisons between those values.

2 DEFINITIONS & ABBREVIATIONS

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

BOM	Bill of materials
EPD	Environmental Product Declaration

FPC	Factory Production Control
LCA	Life Cycle Assessment
LCI	Life Cycle Inventory
Luminaire	Apparatus which distributes filters or transforms the light transmitted from one or more light sources.
NCR	Non Conformance Report
MTBF	Mean Time Before Failure
PCB	Printed Circuit Board
PVT	Product Verification Test
QMS	Quality Management System
Scope	Detailed specification of certified products and associated components.
TM65	CIBSE Technical Memorandum TM65 Embodied Carbon in building services: calculation methodology and Embodied Carbon Calculator.
TM65.2	CIBSE Technical Memorandum TM65.2 Embodied carbon in building services: lighting

Location of final assembly factory:

The facility where the product is finally assembled into its complete, saleable form, including integration of all main sub-components (e.g. LED modules, drivers, housing, optics) and where the product is packaged for market release.

Service Life: The estimated number of years during which an item will perform its function according to some established performance standard.

More detail of the definitions is given in DT65, TM65, TM65.2 and CIBSE M.

3 SCOPE

This scheme has been developed by The LIA Laboratory Ltd as a basis of 3rd party assurance of self-assessed embodied carbon values for luminaires and associated products. It should be used in accordance with TM65.2 and DT65.

This scheme does not cover applications for the “Basic” TM65.2 assessment(s). Only “Mid-level” assessment(s) by applicants are covered under the scope of this scheme document.

The requirements of TM65.2 and DT65 cover requirements for embodied carbon assessment of the:

- Product design,
- Manufacturing process (energy used during manufacturing),
- Product materials,
- Manufacturing location(s) (final assembly location),
- Tonnage placed onto the market.

4 SCHEME REQUIREMENTS

4.1 Technical Conformity

The product shall have been self-assessed in line with requirements of documents TM65.2 and DT65. This scheme does not cover applicants for the “Basic” TM65.2 assessment(s). Only “Mid-level” assessment(s) applications are covered under the scope of this scheme document.

No deviations to the self-assessment process are accepted, all required tabs and questions of the DT65 mid-level report shall be completed, each with sufficient, relevant and provable evidence as to the why each individual line rating has been awarded. Only self-assessments that are in line with the DT65 can be accepted for TM65.2 Assurance.

The assurance process is based on evaluation of evidence provided by the submitting party. This includes the correctly filled document DT65 and any relevant evidence that supports the information in the DT65 (BOM, photos of the product, information about components and their supply chain, factory power use, contracts etc.).

In addition, the physical sample of the representative product (selected by The LIA Laboratory representative) shall always be provided for the assessment.

A positive assurance decision will be granted to any product/product family assessment(s), as provided by the client (DT65 document and supporting documentation) that meets the pass criteria of $\pm 5\%$ of TM65.2 Assured evaluation scheme and supporting evidence, as conducted by certification body.

Note: The $\pm 5\%$ refers to the kgCO_{2e} value of the final DT65 calculation.

Note 2: The optional cells relating to replacement rate (C64:G68) and gas (C80) are considered mandatory for compliance with this scheme.

4.1.1 Method and acceptance criteria

The LIA Laboratory Ltd shall conduct an assessment against the requirements set out in TM65.2:2023 and complete DT65 by disassembling the product and weighing the relevant parts.

When the value of kgCO_{2e} as assessed by The LIA Laboratory for the criteria, across all life cycle stages, does not exceed $\pm 5\%$ alignment then the self-assessment shall be deemed to have passed and be eligible for certification. Where the situation arises that evidence provided indicates that the self-assessed score is different to The LIA Laboratory's assessment, then providing that the average recorded results do not exceed $\pm 10\%$, a certificate will be awarded but only at the new DT65 rating as calculated by The LIA Laboratory, this will be notified to the client.

The client may appeal the decision, see appeals procedure below, or shall accept it. On acceptance the client shall have a period of 3 months to show the revised score in all product and marketing literature or any database or digital tool where the product is included.

4.1.2 Family variants - Initial

Where a particular product has family variants these may be assessed as family groupings and added to the TM65.2 Product Verification certificate, this will be considered by The LIA Laboratory Ltd as the 3rd party assurance body on a case-by-case basis.

Initial family member products shall have:

- The same material breakdown
- The same final assembly locations
- The same energy requirements during manufacturing

Note: Material breakdown is considered to be the materials which make up a product. Some materials may differ in form (for example lenses) but shall be of the same material types and general form.

When selecting type test sample(s) from a range of products of similar construction for embodied carbon assessment, the product(s) chosen shall be those which display the representative combination of material breakdown, final assembly location and energy requirements. The best-case product that is not likely to be representative of typical sales shall not be used. Justification shall be recorded for the selection of the primary test sample.

Products within the initial family may vary based on characteristics that do not significantly affect the embodied carbon calculated with DT65. These may include (but are not limited to):

- Different LED colour temperature and CRI
- Different optics (where the material quantities don't change or are within a tolerance range of $\pm 5\%$)
- Body colour or finish (where the method remains the same and no additional work i.e. respraying is done)

Note: The $\pm 5\%$ refers to the mass of individual components. Evidence may be requested as proof of compliance within deviation limits.

The range of products under the initial family 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.

During the TM65.2 Assured application the manufacturer shall submit a DT65 report for the primary sample and indicate the products that they wish to include in the initial family group. The initial family group shall have the same embodied carbon as the reference product, according to the above criteria.

If one or more products of a family varies significantly to the rest of the family (either positively or negatively) this shall be declared at the submission.

Note: The need for granular detail on evaluating families, for example all relevant alternative components/materials share the same supply chain, weight and technical specification. If alternative components are used within a family range, information about all alternative components will be required for the certification process and family members may not be suitable to be grouped together within the initial family where different materials/components, which could affect the kgCO_{2e} or TM65.2 value, are used.

4.1.2.1 Family variants - Secondary

The LIA Laboratory Ltd may accept submissions of different product family members which share the same core product as the initial family outlined in clause 4.1.2, but vary in aspects such as (but not limited to):

- BOM and/or material quantities (e.g. addition or change of certain components, such as louvers, snoots, barn doors)
- Final assembly locations
- Energy requirements during manufacturing
- Difference in driver/control gear use in the product to provide a different control protocol and where mass and embodied carbon varies as a result
- Where a different light source is used and where mass and embodied carbon varies from the initial family
- Where the variations of components take the embodied carbon value out of the $\pm 5\%$ tolerance defined by the LIA

Note: The above requirements relate to family members which fall outside of the requirements clause 4.1.2. Where these family members are required to be added to the certification scheme a new certificate shall be issued by The LIA Laboratory Ltd, providing suitable evidence of kgCO_{2e} value and difference from the initial family grouping is provided. The LIA Laboratory shall perform a limited assessment based on the differences from the initial sample application.

Note 2: The type of product variations which may fall under these requirements include significant structural changes (length, mass or design differences), use changes (emergency variants) and factory location changes.

Requests for family grouping outside of those set out in clause 4.1.2 will be considered upon request by The LIA Laboratory. Where additional assessment is required, additional charges may be required.

4.2 Certification Period

4.2.1 Certification duration

Following a successful LIA TM65.2 Assured Product 3rd party assessment, a certificate will be issued. The certification period will run for 3 years from the date of issue. Prior to the end of the 3-year period customer may request to reissue the certificate and commence a new certification cycle of 3 years. In such case a review shall be undertaken to determine whether it is appropriate. The purpose of the review is to assess whether:

- Any of the supporting documents (TM65.2, DT65) or scheme requirements have been updated since the initial assessment
- The product(s) range falling under the scope of certification needs to be increased / decreased
- The products themselves have undergone any changes in design or composition
- There have been changes to production location or facilities

The impact of any such changes on the validity of the initial TM65.2 Assurance 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 changes are identified, which affect the TM65.2 rating, the certificate may be suspended or withdrawn. Minor changes, resulting in a change of values will result in an amended certificate displaying that new values to be issued, which will then be valid for a period of 3 years. Significant changes will require the 3rd party assurance process to start from fresh.

If an assurance certificate is amended or withdrawn by The LIA, the client will be notified and product shall not be marketed based on the results of withdrawal certificate after a period of 3 months. This includes all product and marketing literature or any database or digital tool where the product is included.

4.2.2 Changes during certification

In addition to the re-certification review, it is the responsibility of the customer to inform The LIA of any changes that occur affecting certification as identified in 4.2.1 within the certification period. Customer shall contact The LIA before applying the changes.

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

Where no significant changes are identified, and on-going conformity to the previous DT65 value 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.

4.3 Documentation for certification evaluation

4.3.1 Embodied Carbon Information

The DT65 document for TM65.2 assessment requires information relating to:

- Material specification
- Material mass
- Final assembly location
- Total electricity and gas used during manufacturing during the reporting period
- Total quantity of products (tonnage) produced during the reporting period
- Explanation of rated life and replacement of components

All required documentation shall be held by the applicant for the relevant products.

The LIA Laboratory Ltd will conduct a review of the evidence of product(s) to be certified to determine the conformity of the self-assessed DT65 value against product specification and TM65.2 and DT65 requirements.

The company logo (if available) shall be provided by the client (applicant). If the certification process is successful, the company logo will be present on the TM65.2 Assured Product conformity certificate.

Additionally, by providing the company logo, the client gives permission for use of the company logo on TM65.2 Assured website/microsite.

4.3.2 Product Design

Elements to be evaluated in product design should include possibility to carry out replacement of components, which is evaluated as stage B3 in DT65. The evidence to provide for this shall be:

- List of components for replacement
- Materials type and mass of components for replacement
- Number of replacements during life of product
- Evidence of life claims

4.3.3 Product Information

The client shall provide sufficient evidence supporting each question in the submitted self-assessed DT65 rating in document DT65, provided for certification.

The provided evidence shall support:

4.3.3.1 Factory Information

- Factory address(s)
- Energy consumption
- Tonnage placed onto the market

4.3.3.2 Material Information

- Weight
- Type
- Replacement rate of components
- Recycled content percentage

4.3.4 Embodied Carbon Assessment

The DT65 documentation provided as evidence for this The LIA 3rd Party Assessment is divided into two assessment types:

- Basic Report
- Mid-level Report

The LIA Laboratory Ltd will conduct a review of the evidence of product(s) to be certified to determine the conformity of the self-assessed DT65 value against product specification and TM65.2 and DT65 requirements.

Only Mid-level Reports will be accepted. Basic Report level is not acceptable for this scheme.

5 IDENTIFICATION AND USE OF THE CERTIFICATION LOGOS

The customer is not allowed to use the TM65.2 Assured Product Verification logo. Logo usage policy is explained in LIA Ltd. document LUG0010. For company assurance please see TSD-015.

The logo shall only be used once all stages of the TM65.2 Assured Product Verification certification scheme process are successful.

The TM65.2 Assured Product Verification logo remains the property of The LIA and it's only permitted to be used in accordance with this document (and LUG0010).

After a successful certification process the customer will be awarded with a TM65.2 Assured Product Verification certificate with unique certification number (and company logo).

Validity of the certificate can be checked directly in LIA Laboratory certificates database www.lialabcert.org.uk/certificates-search

Certification logo



6 ACCESS TO FACILITIES AND INFORMATION

Where a complaint is received by The LIA regarding a product and/or data covered by the Scheme, the customer will make available to The LIA 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 [Certification Services | At The Heart of Lighting](#)

Alternatively a copy can be requested by e-mail at lab@thelia.org.uk.

9 SCHEME FEES

TM65.2 Assured Product Verification Scheme cost of product assessment shall be borne by the applicant.

The exact cost for a complete assessment will be determined on a case-by-case basis. A quotation with a complete breakdown of costs will be provided prior to commencing any certification activities.

10 APPEALS

Any appeals shall be put in writing to The LIA. The appeal investigation will be conducted by personnel who were not involved in the original assessment process in order to ensure impartiality.

Further details of the complaints and appeals process is available on request. In the event that The LIA appeals process cannot resolve a dispute, the matter shall be taken to an independent person or body such as a specialist arbitrator or tribunal. Where upon their ultimate decision will be final.

11 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.

ANNEX 1 – REFERENCE DOCUMENTS

DT65	Embodied Carbon Calculator
TM65	Embodied carbon in building services: A calculation methodology
CIBSE M	Maintenance engineering and management
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

Note: Where a document is referenced the latest valid version of the document shall be used.