



TRANSPORT FOR LONDON (TfL) LOW EMISSIONS CERTIFICATE (LEC) GUIDANCE NOTES FOR APPROVAL OF LOW EMISSIONS ADAPTATIONS

'LEC (Adaptations) Guidance Notes'

Scope

This document describes the approval of Low Emissions Adaptations fitted to vehicles (engines) in order to reduce particulate emissions. A Low Emissions Adaptation ('Adaptation') is defined as a device, system or modification which reduces particulate emissions. This may include, but is not limited to, engine exhaust after-treatment, fuel conversion or alternative power-train technology.

There are two principal routes to approval:

1. Testing and certification of new (non-certified) Low Emissions Adaptations
2. Acceptance of existing Low Emissions Adaptations providing approved emissions performance from recognised accreditation schemes.

The steps involved with each of these routes are described in full below. Certain information and requirements are common to both approaches, while others are unique. Please read through the relevant section carefully before proceeding with any application for LEC approval.

1. Testing and Certification of new Low Emissions Adaptations

Step one:

Read the document which specifies the performance requirements of the emissions reduction system or equipment. This is covered in detail in the document entitled 'LEC (Adaptations) Technical Requirements'. This is available on the TfL LEZ website (www.tfl.gov.uk/lezlondon), or can be supplied by one of TfL's recognised Certification Bodies. For contact details, see the document entitled 'LEC (Adaptations) Certification Bodies'.

Step two:

Read this document which gives guidance on how to complete a submission about the Adaptation to one of the Certification Bodies. See the document 'LEC



(Adaptations) Information Document' which specifies the type of information needed in the submission. The headings in the Information Document form the basis for a document to be written by the company applying to be an approved supplier & installer ('manufacturer') of Low Emissions Adaptations which has not previously been approved. This document should be supplied in electronic format (either as a Microsoft Word or PDF file). Page number and document reference number should be shown on every page, including any attachments.

Step three:

Write a document which supplies the requested information using the headings in the Information Document. Information should be supplied under each heading. The completed document should be submitted to the chosen Certification Body for use during a formal discussion. The formal discussion (often known as a 'worst case' meeting) constitutes an essential part of the submission and approval process, and should normally be undertaken before carrying out extensive emissions testing. Any in house/background data that the manufacturer may have available to support worst-case selection should be supplied at this stage.

Due to the diverse nature of the Low Emissions Adaptations which may be approved by this procedure, the way in which they operate and the vehicles on which they may have been designed to operate, it is not possible to identify one set of criteria to define a worst case approach that will be appropriate for all eventualities.

Emissions tests (according to the test procedure prescribed in the Technical Requirements) will need to be witnessed by a representative of TfL or a Certification Body at an accredited emissions test facility, and the worst case meeting is intended to try to maximise the extent of any approval granted while minimising the amount of testing needed. It is therefore in the interests of the applicant to talk through the expected performance of the technology and to establish failure modes, and default operational modes etc. which might affect the behaviour and/or performance of the equipment in service. These discussions will be used to establish the required emissions tests needed to secure approval for a range of candidate vehicles and/or engines.

Step four:

Arrange to carry out the performance evaluation testing at an accredited emissions test facility, in agreement with the appropriate Certification body (and recognising the need to arrange for witnessed tests). When the required emissions performance has been achieved, and test reports and other submissions have been approved by the Certification Body, the equipment will be provisionally approved under the LEC scheme. Provided the Certification Body is also satisfied in respect of quality assurance, warranty provisions, control plans needed to secure conformity of production, etc., full LEC approval can be obtained.



It is important to secure written acceptance of LEC approval prior to the supply and/or fitting of any Low Emissions Adaptations. Systems fitted to vehicles in service will only qualify for exemption from potential LEZ charges following such formal approval of previously non-approved technology, and a vehicle inspection and the issue of a Low Emissions Certificate by the Vehicle & Operator Services Agency (VOSA).

Certification:

A Low Emissions Certificate shall be issued in respect of Low Emissions Adaptations which meet the 'LEC (Adaptations) Technical Requirements'.

Extension of Approvals:

If the manufacturer makes any changes that affect the contents of the 'LEC (Adaptations) Information Document' the manufacturer must submit a revised Information Document declaring all such changes and thereby apply for an extension to the existing LEC.

For example, a manufacturer would need to declare any changes to the specifications of a Low Emissions Adaptation or the fitment of existing Adaptations to additional vehicles and/or engines.

Additional testing may need to be carried out before the requested approval extension is issued.

Conformity of Production:

Every Adaptation granted a LEC approval must be so manufactured as to conform to the specification(s) identified in the approval documentation

Prior to issue of a LEC, the manufacturer of the Adaptation will be assessed for suitable conformity of production procedures.

A conformity of production assessment will verify the existence of satisfactory arrangements and procedures for ensuring effective control so that the Adaptation, when in production, conforms to the approved type. This will be applicable for all assembly plants identified in the LEC (Adaptations) Information Document.

Certification to ISO9001:2000, or an equivalent quality system, together with appropriate control plans, would be acceptable.



In the absence of certification to an acceptable quality system, at least the following ISO aspects are to be described and verified:

- Quality management system
- Responsibilities of the board
- Management of resources
- Realisation of the product
- Measurement, analysis and improvement
- Control plans.

In-Service Compliance of the Adaptation will be monitored by means of periodic vehicle inspections. Any apparent non conformity will be investigated and this may require visits to audit the manufacturer's conformity of production procedures. The costs and expenses of such visits will be borne by the manufacturer.

2. Acceptance of Alternative Certification

Manufacturers may request consideration of Adaptations approved from alternative accreditation schemes. This will include an analysis of emissions performance obtained and will be subject to worst case criteria.

The Adaptation manufacturer must supply an Information Document in a format acceptable to TfL (see the 'LEC (Adaptations) Information Document') to confirm compliance with Sections 7, 8 and 9 of the LEC (Adaptations) Technical Requirements and identify, as a minimum, a list of Adaptation part numbers to be covered by the approval together with a list of engine and vehicle types for which the Adaptation is suitable. The document should be supplied in electronic format (either as a Microsoft Word or PDF file). Page number and document reference number should be shown on every page, including any attachments.

The steps involved in the certification process are outlined below:

Step one:

Establish with the Certification Body the performance credentials of the emissions abatement technology. It will be necessary to demonstrate that testing was carried out by an accredited emissions test facility, using an accepted test protocol.



Performance requirements are laid down in the document entitled 'LEC (Adaptations) Technical Requirements'. Authenticated test reports will be required as evidence of emissions reduction capability.

Step two:

Demonstrate legal title to fit the approved equipment. This could take the form of a licensing agreement, or a letter from the manufacturer of the approved system giving permission to the applicant to fit the equipment. Adequate contact details of the manufacturer providing the licence or giving permission to fit the approved equipment must be supplied to enable verification of legal title to be carried out by the Certification Body.

Step three:

Show that the Conformity of Production requirements are met by the company wishing to become an approved supplier. See page 6 for further information.

Applicants will also need to provide acceptable warranty and in-service support capabilities, as specified in the document entitled 'LEC (Adaptations) Technical Requirements', to secure full LEC approval.

Step four:

Secure written acceptance of full LEC approval prior to fitting any Low Emissions Adaptations. Systems fitted to vehicles in service will only qualify for exemption from potential LEZ charges following such formal approval of previously non-approved technology, and a vehicle inspection and the issue of a Low Emissions Certificate by the Vehicle & Operator Services Agency (VOSA).

Certification:

A Low Emissions Certificate shall be issued in respect of Low Emissions Adaptations which meet the 'LEC (Adaptations) Technical Requirements'.

Extension of Approvals:

If the manufacturer makes any changes that affect the contents of the 'LEC (Adaptations) Information Document' the manufacturer must submit a revised Information Document declaring all such changes and thereby apply for an extension to the existing LEC.



For example, a manufacturer would need to declare any changes to the specifications of a Low Emissions Adaptation or the fitment of existing Adaptations to additional vehicles and/or engines.

Additional testing may need to be carried out before the requested approval extension is issued.

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Every Adaptation granted a LEC approval must be so manufactured as to conform to the specification(s) identified in the approval documentation

Prior to issue of a LEC, the manufacturer of the Adaptation will be assessed for suitable conformity of production procedures.

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- Quality management system
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In-Service Compliance of the Adaptation will be monitored by means of periodic vehicle inspections. Any apparent non conformity will be investigated and this may require visits to audit the manufacturer's conformity of production procedures. The costs and expenses of such visits will be borne by the manufacturer.