

Appendix 2: Documents required and compliance matters for Heavy-Duty Diesel Vehicle Engine Letter of Conformity applications

1. Before applying for the heavy-duty diesel vehicle Certificate of Conformity, the applicant shall provide the inspection organization with the required documents for verification, and then the Letter of Conformity may be issued only upon approval by the central competent authority.
2. To apply for a Certificate of Conformity, the applicant shall provide the deterioration factors for that engine family. The deterioration factors shall be determined in accordance with Article 9 herein.
3. Test engine and reference fuel specifications

3.1 Test vehicle

The test engine's configuration shall be consistent with the information stated in the Certificate of Conformity application form completed by the engine manufacturer, and be tested in accordance with test methods stipulated in this Appendix. The test engine shall also comply with all the requirements stipulated in this Appendix.

3.1.1 Selection of test engine.

3.1.1.1 The test engine shall be selected based on the engine family category and be tested to measure its exhaust emissions. The selected engine should have the maximum horsepower or maximum quantity of fuel injection per stroke (or with maximum emissions) within that engine family.

3.1.1.2 The applicant shall determine the minimum engine operation hours to achieve stabilized test values for each engine family. For new vehicle certification tests and Conformity of Production (COP) tests, the maximum engine operation hours shall not exceed 125 hours.

3.1.2 Durability test engine

One representative engine for each engine family shall be selected for the durability test. Durability test engine selection and test plans shall be examined by the inspection organization and then approved by the central competent authority, and the testing results for different stages of the durability test should be reported to the authority according to the schedule in the test plan.

3.2 Test fuels

3.2.1 Pollution test fuel specifications.

3.2.1.1 Reference diesel fuel specifications for engine cycle emissions tests

- (1) For the US FTP Transient test cycle: Subject to the 2007 US test fuel specifications.

- (2) For the EU WHSC, WHTC and WNTC test cycles:
Subject to the test fuel (B7 diesel) specifications in EU Regulation (EC) No 595/2009 related directives and Regulation (EU) No 582/2011 Annex IX.

3.2.1.2 Reference alternative clean fuel specifications for engine cycle emissions tests

The alternative clean fuel for emissions tests shall be in accordance with domestic regulated specifications. If those are unavailable, then the foreign specifications shall be adopted, but the manufacturer must ensure that the vehicles comply with the applicable Emission Standards when using domestic market fuel to conduct the new vehicle confirmatory selective audit testing. If domestic market fuel is unavailable, the foreign market fuel specifications shall be adopted.

3.2.2 Durability test fuel specifications

3.2.2.1 Durability test diesel specifications

The reference diesel fuel for durability tests shall be in accordance with the domestic market premium diesel fuel specifications, and the foreign market diesel fuel may also be adopted. If there are multiple foreign market diesel fuels available, the specifications that closest to the domestic market diesel fuel shall be adopted.

3.2.2.2 Durability test alternative clean fuel specifications

The alternative clean fuel for durability tests shall be in accordance with domestic regulated specifications. If they are unavailable, the foreign specifications shall be adopted. If both domestic and foreign specifications are unavailable, the domestic market fuel specifications shall be adopted. If domestic market fuel is unavailable, the foreign market fuel specifications shall be adopted.

4. The applicant shall provide a Chinese version of the user manual, including a warranty for emission control systems and after-sales service units (including depots and stations providing maintenance and repair services) to the central competent authority. The manual shall provide a maintenance guide and schedules for inspection items and component changes within the warranty period for the vehicle owner to perform maintenance accordingly to ensure the normal functioning of emission control systems of the diesel and alternative clean fuel engine.

5. Labeling

- 5.1 The engine manufacturer shall affix an English label that is durable, corrosion- and rust-proof, not easy to remove and easily identifiable. The label contents shall be in accordance with the regulations of the Country

of Origin and be affixed to a clearly visible place in the engine compartment.

5.2 Applicant who has obtained the Certificate of Conformity shall provide a Chinese version of label to be affixed on the engine. If torn off from the engine, the label shall be damaged or cause the printed text to become unrecognizable.

5.3 The Chinese contents of the label shall include the following information:

5.3.1 The title of the label shall be “Vehicle Emission Control Information.”

5.3.2 Full name of the company, engine manufacturer and brand.

5.3.3 Engine family name, engine displacement, emission control components and related systems, OBD system.

5.3.4 The minimum specifications shall be included for engine optimal performance tune-up adjustment: idle engine speed, injection timing, valve clearance, maximum horsepower and torque, and other parameters deemed necessary by the engine manufacturer.

5.3.5 Note such as: “This engine family complies with the diesel vehicle Emission Standards effective on January 1, 2004 (or the subsequent Emission Standards promulgated after this date)” and “To remove or modify the emission control devices is prohibited.”

5.3.6 Relative schematic locations of all the emission control related devices.

6. Warranty period

6.1 For diesel vehicles within the warranty period and under normal use conditions, the pollutant emissions shall comply with Article 5 of the Emission Standards and provisions of this Appendix.

6.2 The warranty period for diesel vehicle emission control systems shall be determined in accordance with Article 5 of the Emission Standards and provisions of this Appendix.

7. The use of a defeat device on diesel and alternative clean fuel engines is prohibited, but the need for the device is justified if the device has the following functions:

7.1 The device has functions to protect the engine against damage or an accident.

7.2 The device does not function beyond the requirements of engine start and warm up duration.

8. Testing and inspection

8.1 The central competent authority may request the applicant to send more than one engine to the designated location for the type approval tests at the time of application for a Letter of Compliance. The applicant shall be responsible for the test related fees.

- 8.2 As for the engine manufacturer applying for the Letter of Compliance, the central competent authority or inspection organization's personnel may enter the applicant's inspection room and factory, examine the related documents to determine whether the test engine and the mass-production engines comply with provisions of this Appendix, and verify the consistency of design specifications for the application.
- 8.3 During the Letter of Compliance application process, the central competent authority may send personnel to supervise and check the preparation process. The central competent authority may together with the designate inspection and testing organization to supervise and check the preparation process.
9. Test specifications and testing report
 - 9.1 Engine test cycle emissions test:
 - 9.1.1 Engines using the US emissions testing cycles for the test: Subject to the FTP Transient test cycle, and required to submit the test report.
 - 9.1.2 Engines using the EU emissions testing cycles for the test: Subject to the WHSC, WHTC and WNTC test cycles, and required to submit the test reports.
 - 9.2 OBD test method: For heavy-duty diesel vehicles equipped with an OBD system according to the requirements of the Emission Standards, the test shall be performed in the manner referred to in Appendix 6 to the Regulations.
 - 9.3 RDE test:

The applicant shall conduct the RDE test based on the engine family for his mass-production engine vehicles. The testing method shall comply with provisions stipulated in Regulation (EU) No 595/2009 and Annex II to Regulation (EU) 582/2011 and the subsequent directives. The applicant shall also provide the test report in accordance with Regulation (EU) No. 595/2009 and Chapter C, Table 1 of Appendix 9 of Annex I to Regulation (EU) No. 582/2011.
 - 9.4 Measurement of net engine power:

The applicant shall measure the net engine power based on the engine family of his mass-production engines. The testing method shall comply with provisions stipulated in Regulation (EU) No 595/2009 and Annex XIV to Regulation (EU) 582/2011 and the subsequent directives. The applicant shall also provide the test report.
10. The contents of engine exhaust emissions quality control plan shall be determined in accordance with Appendix 4.
11. Engine family
 - 11.1 Engines that apply for the diesel vehicle Certificate of Conformity shall be categorized by individual engine family. Each engine family shall apply for the Certificate of Conformity separately.

11.2 If the central competent authority considers that engines might have different emission characteristics, it may categorize these engines into different engine families separately. The determination shall be based on the following engine characteristics.

11.2.1 Bore and stroke.

11.2.2 The cylinder surface area and volume ratio when at top dead center.

11.2.3 Size and configuration of intake manifold valve opening.

11.2.4 Size and configuration of exhaust manifold valve opening.

11.2.5 Sizes of intake and exhaust valves.

11.2.6 Cam and fuel injection timing characteristics.

12. Application methods

12.1 The application for a heavy-duty diesel bus and truck Certificate of Conformity may be filed in two steps:

12.1.1 Application for a Letter of Compliance

12.1.2 Application for a diesel vehicle's Certificate of Conformity.

12.2 Applicants who meet any of the following eligibility requirements may combine the two steps prescribed in paragraph 12.1 of this Appendix into one for the application.

12.2.1 The applicant is the diesel engine manufacturer and also the vehicle manufacturer.

12.2.2 The applicant is an imported engine manufacturer's designated agent and also the vehicle manufacturer's designated agent (or domestic vehicle manufacturer).

12.3 Where the applicant already obtains the Letter of Compliance issued by the central competent authority (or Consent to Use Agreement from the original holder of Letter of Compliance and a photocopy of the Letter of Compliance and Guarantee Letter) and the smoke opacity testing values for the engine family (testing values being measured in accordance with the Diesel Motor Vehicle Smoke Opacity Testing Methods and Procedures) comply with Article 5 of the Emission Standards, the applicant may apply with the central competent authority for diesel vehicle Certificate of Conformity.

13. Application for a Letter of Compliance

13.1 Eligibility requirements for application

13.1.1 For domestically manufactured engines, the engine manufacturer shall submit the application.

13.1.2 For imported heavy-duty diesel vehicles, the foreign engine manufacturer's designated domestic agent shall submit the application.

13.1.3 For applicants not being defined in paragraphs 13.1.1 and 13.1.2 of this Appendix (importers shall submit their applications through their pertaining associations) shall submit the testing

report being issued by the central competence authority-designated inspection and testing organization in accordance with paragraph 9 of this Appendix, including the information about after-sales service units (including depots and stations providing maintenance and repair services).

13.2 Application methods for a Letter of Compliance

13.2.1 Application for an engine cycle test Letter of Compliance.

13.2.1.1 Application for the engine family, if the certificate of conformity issued by any country designated by the central competent authority is made available.

- (1) If the applicant has obtained the US-EPA issued new vehicle configuration Certificate of Conformity using FTP Transient cycle for the type approval test, and the exhaust certified values comply with Article 5 of the Emission Standards, the applicant shall submit the application for the Letter of Conformity to the central competent authority.
- (2) If the applicant has obtained an EU member state or UK issued new vehicle configuration Certificate of Conformity in accordance with the Regulation (EU) No. 595/2009 and related directives (including UN/ECE Regulation No. 49) using the WHSC, WHTC and WNTC test cycles for type approval test, and the exhaust certified values comply with Article 5 of the Emission Standards and also Regulation (EU) No. 595/2009-related directives and Chapter C, Table 1 of Appendix 9 of Annex I of Regulation (EU) No. 582/2011, the applicant may submit the application for the Letter of Conformity to the central competent authority.

13.2.1.2 Application for the engine family, if no certificate of conformity issued by any country designated by the central competent authority is made available.

If the applicant has obtained the test report prepared by an accredited inspection and testing laboratory may submit the application for a Letter of Compliance to the central competent authority. The eligibility requirements for the accredited inspection and testing laboratory are as follows:

- (1) Already obtained the US-EPA issued diesel engine family Certificate of Conformity using US-Transient Cycle for the type approval test, which is sufficient to prove that the laboratory has the test equipment and

capabilities to complete the US-Transient cycle, and the test value meets Article 5 of the Emission Standards.

- (2) Already obtained an EU member state or UK issued new diesel vehicle configuration Certificate of Conformity in accordance with the Regulation (EU) No. 595/2009 and related directives (including UN/ECE Regulation No. 49) using the WHSC, WHTC and WNTC test cycles for type approval test, which is sufficient to prove that the laboratory has the test equipment and capabilities to complete the test cycles governed by said directives, and the test value meets Article 5 of the Emission Standards and also Regulation (EU) No. 595/2009-related directives, and Chapter C, Table 1 of Appendix 9 of Annex I of Regulation (EU) No. 582/2011 and related directives.

13.2.2 Application for an OBD Certificate of Conformity: The application shall comply with the test methods prescribed in Appendix 6 and related requirements.

13.2.3 Application for RDE test:

13.2.3.1 Application for the engine family, if the certificate of conformity issued by any country designated by the central competent authority is made available:

If the applicant has obtained an EU member state or UK issued new vehicle configuration Certificate of Conformity in accordance with Regulation (EU) No. 595/2009 and related directives (including UN/ECE Regulation No. 49), and the RDE test report attached to the Certificate meets paragraph 9.3 herein, the applicant may submit the application for the Letter of Conformity to the central competent authority.

13.2.3.2 Application for the engine family, if no certificate of conformity issued by any country designated by the central competent authority is made available:

- (1) If the applicant has obtained an EU member state or UK issued new diesel vehicle configuration Certificate of Conformity in accordance with the Regulation (EU) No. 595/2009 and related directives using the WHSC, WHTC and WNTC test cycles for type approval test, which is sufficient to prove that the laboratory has the test equipment and capabilities to complete said WHSC, WHTC and WNTC test cycles governed by said directives, and the RDE test report

meets paragraph 9.3 of this Appendix, the applicant may submit the application for the Letter of Conformity to the central competent authority.

- (2) That failing to comply with paragraph 13.2.3.2(1) herein shall acquire the RDE test report issued by a inspection and testing organization approved by the central competent authority. Meanwhile, if the RDE test report meets paragraph 9.3 of this Appendix, the applicant may still submit the application for the Letter of Conformity to the central competent authority.

13.2.4 Measurement of net engine power application method:

13.2.4.1 Application for the engine family, if the certificate of conformity issued by any country designated by the central competent authority is made available: If the applicant has obtained an EU member state or UK issued new vehicle configuration Certificate of Conformity in accordance with the Regulation (EU) No. 595/2009 and related directives (including UN/ECE Regulation No. 49), and the measurement of net engine power report attached to the Certificate meets paragraph 9.4 of this Appendix, the applicant may submit the application for the Letter of Conformity to the central competent authority.

13.2.4.2 Application for the engine family, if no certificate of conformity issued by any country designated by the central competent authority is made available: If the applicant has obtained an EU member state or UK issued new diesel vehicle configuration Certificate of Conformity in accordance with the Regulation (EU) No. 595/2009 and related directives (including UN/ECE Regulation No. 49) using the WHSC, WHTC and WNTC test cycles for type approval test, which is sufficient to prove that the laboratory has the test equipment and capabilities to complete said WHSC, WHTC and WNTC test cycles governed by said directives, and the measurement of net engine power report meets paragraph 9.4 of this Appendix, the applicant may submit the application for the Letter of Conformity to the central competent authority.

14. According to the requirements of the Emission Standards, vehicles shall be equipped with an OBD system, and the applicant shall provide OBD compliance-related documents. The contents of these documents are stated as follows:

14.1 Description of the OBD system.

- 14.2 Description or annotated drawing of the MIL used in the OBD system.
- 14.3 Description of all emission-control equipment and related components/systems monitored by OBD, as well as a list of malfunction codes and the computer code-related format and meanings.
- 14.4 Description or flowchart of the actuation principle for OBD monitoring devices (include monitoring strategy, malfunction indicator standards and MIL light on timing).
- 14.5 OBD test report.
- 14.6 An explanation of adopted solutions or strategies to prevent arbitrary adjustment or modification of the Engine Control Units (ECU)
- 14.7 Description of the location of OBD connector (DLC).
- 14.8 Other required supplemental documents when deemed necessary.
- 15. An application for an HEV's Certificate of Conformity shall be attached with the following explanations:
 - 15.1 Verification and description of vehicle type.
 - 15.2 Operation mode-switch function description.
 - 15.3 Energy storage device description and warranty mileage.
 - 15.4 Electrical power and mechanical system.
 - 15.5 Control Unit.
 - 15.6 Power Control Unit.
 - 15.7 Pure electric power maximum driving range.
 - 15.8 Suggestion items from vehicle manufacturers.
- 16. Other provisions
 - 16.1 The Letter of Conformity application documents shall be in Chinese or in English. The Chinese translation shall be provided if the application is prepared by a foreign engine manufacturer in a non-English foreign language and signed by the engine manufacturer's authorized agent with the latest update of related information.
 - 16.2 The engine manufacturer shall satisfy all applicable requirements to show compliance with the Emission Standards.
 - 16.3 The applicant shall keep the latest documents, recorded data, and testing results for 5 years counting from the issuance date of the Letter of Conformity.
 - 16.4 The applicant shall complete the forms and documents to be submitted in an electronic form in response to the e-operating procedure, when filing the application.
 - 16.5 For engine family with one of the following conditions, the central competent authority may request the applicant to provide explanations. Within 45 days following the receipt of notification from the authority, the applicant should respond and provide relevant explanations. If the applicant fails to respond within the deadline, the central competent authority may suspend the use of and application for the Letter of Conformity for said engine family or brand.

- 16.5.1 Recall is announced by a foreign competent authority or original manufacturer.
- 16.5.2 The exhaust emissions periodic or irregular testing results have shown that in the same engine family, at least 3 vehicles were tested with the emissions of the same pollutant against the Emission Standards.
- 16.5.3 Other items determined by the central competent authority as non-compliance with the Emission Standards.