

Amendments to the Regulations Governing Issuance, Revocation, and Cancellation of Emissions Certificate of Conformity for Diesel and Alternative Clean Fuel Engine Vehicles

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Revisions to Article 2 and Articles 13 to 18, and Appendices 1 through 4 promulgated by Environmental Protection Administration order Huan-Shu-Kong-Tzu No. 0950055340D and the Ministry of Transportation and Communications Chiao-Lu-Fa-Tzu No. 0950085043 on July 19, 2006.

Revisions to Article 2, Articles 5, Articles 7, Articles 11, Articles 12, Articles 14 to 16, and Appendices 1 through 4, Respects to Articles 14-1 and Appendices 5, promulgated by Environmental Protection Administration order Huan-Shu-Kong-Tzu No. 1000019481D and the Ministry of Transportation and Communications Chiao-Lu-Fa-Tzu No.1000001938 on May 22, 2011.

Article 1

These Regulations are determined pursuant to Article 39 of the Air Pollution Control Act (herein referred to as this Act).

Article 2

Terms used in these provisions are defined as follows:

- I. Engine family: Diesel and alternative fuel engine (herein referred to as diesel engine) means engines with similar combustion cycle (strokes); cooling mechanism (e.g., air cooled, liquid cooled); cylinder block configuration; number of cylinders; location of air intake valves; air supply method (with or without turbo charge); emissions control system; fuel supply system; intake air cooling methods (e.g., after cooler, inter cooler) are deemed as identical engine family.
- II. Vehicle configuration: means light duty diesel trucks and diesel passenger cars that are identical in terms of the basic engine, emissions control system, transmission and inertial weight class, and are deemed as identical vehicle configuration.
- III. In-use vehicles from overseas: vehicles has been registered and licensed by the motor vehicle supervisory agencies of the country of

importation that must obtain an import and commodity tax payment (exemption) certificate issued by Customs at the time of importation as documentary proof.

- IV. Vehicle model year: the year that Vehicle model being mass produced by vehicle manufacturer.
- V. On Board Diagnostics System (herein referred to as OBD): A computer system inside the vehicle that monitors vehicle emissions control equipment and can diagnose current operating status, save malfunction codes, and display the signal indicator if malfunctions occurred.
- VI. Hybrid Electric Vehicle (herein referred to as HEV): a vehicle has internal combustion engine and electric motor dual power sources and its engine uses diesel or other alternative clean fuels.
- VII. Deterioration factors : Each engine family shall have separate emissions deterioration factors to present the durability performance of the specified vehicle or engine in real world operation if the user has conducted normal maintenance according to the user's manual provided by the manufacturer. The test results for gaseous or particulate pollutants shall be multiplied or added by applicable deterioration factors to represent the durability test results.
- VIII. Ki factors: Ratio of non-regenerating driving cycle test results to regenerating driving cycle test results for vehicle type with a periodically regenerating system.
- IX. Evolution coefficient: Ratio of after vehicle break in, stabilized exhaust emissions test results to test results without break in.

Article 3

Diesel vehicles shall comply with the Vehicular Air Pollutant Emission Standards, as well as relevant stipulation of these provisions before the central competent authority issues diesel vehicle configuration emission test compliance certification (herein referred to as compliance

certification).

Article 4

Applicants applying for compliance certification shall abide by the following regulations:

- I. For domestically manufactured diesel vehicle, the manufacturer shall submit the application.
- II. For imported diesel vehicle, the manufacturer's agent or association of importers and distributors shall submit the application.
- III. For imported diesel vehicle procured by government organization at all levels, the said organization shall submit the application on its own or commission the tender winner to submit the application.
- IV. For diesel vehicle individually imported from overseas the owner shall submit the application.

Article 5

Applicants using vehicle model year and engine family as basis to apply for their diesel vehicle certificate of conformity, the required documents to be submitted, sample selection of test vehicle, specifications of test fuel, recognition of foreign certificate of conformity and test reports, and other binding matters shall pursuant to Appendix 1.

Article 6

For the application of compliance certificate, the central competent authority may select a diesel vehicle or diesel engine with maximum pollutant emissions to represent the engine family, and designat an accredited testing organization to conduct relevant conformity tests, the test results shall be used as bases for compliance determination.

Article 7

If the applicant applying for heavy duty diesel vehicle certificate of

conformity based on model year and engine family, before submitting the application, the diesel engine of the vehicle must comply with the applicable emissions standards and verified by the central competent authority.

Applicants applying for certificate of conformity shall comply with the following provisions:

- I. For domestically manufactured diesel engine, the manufacturer shall submit the application.
- II. For imported diesel engine, the manufacturer's agent or association of importers and distributors shall submit the application.
- III. For diesel engine individually imported from overseas, the owner shall submit the application.

The required documents to be submitted, sample selection of test engine, specifications of test fuel, recognition of foreign certificate of conformity and test reports, and other binding matters shall pursuant to Appendix 2.

Article 8

When an applicant plans to continue manufacturing or importing diesel vehicles with already obtained compliance certification in the following year, he shall apply to the central competent authority for continuing use of the compliance certification in the following model year.

The central competent authority shall grant the continuing use of the said engine family compliance certification when the following conditions are all met:

- I. Vehicle configuration is identical to the previous model year.
- II. All items that affecting the vehicles exhaust emissions are identical with the previous model year.

Article 9

When an applicant intends to partially modify the engine family and continuous using the original engine family compliance certification, he shall apply to the central competent authority for the modification, he also need to provide the following comparative configuration data before and after the modification, being overvied and verified as in compliance by the central competent authority, the applicant shall be granted with the modified compliance certification.

- I. The comparative configuration data for the vehicle type or engine type before and after modifications.
- II. The evidences to prove that all items affecting the exhaust emissions of the modified vehicle type or engine type are identical with the original one.
- III. The modified and the original vehicle type or engine type have the same emission characteristics.

Article 10

The applicant shall apply to the central competent authority for an extension of the compliance certification before adding a new vehicle type to the same engine family. The applicant also needs to submit the following configuration data, being overvied and verified as in compliance by the central competent authority, the applicant shall be granted with an extension of the said engine family compliance certification.

- I. The configuration data for the extension vehicle type.
- II. The evidences to prove that all items affecting the exhaust emissions are identical with the original one.
- III. The added new vehicle type and the vehicles within the original engine family have the same emission characteristics.

Article 11

Applicants shall submit the deterioration factors of all regulated emissions for each engine family, deterioration factors shall be handled

pursuant to Appendix 3.

Following the European Union (EU) NEDC driving cycle tested diesel engine passenger cars shall submit the related K factors and Evolution coefficient pursuant to Appendix 3.

Article 12

The compliance certified mass-produced diesel vehicle or engine shall comply with the following provisions:

- I. Each mass-produced diesel vehicle or diesel engine shall have the same configuration recorded in the certificate of conformity. All items affecting the exhaust emissions and emission control systems must be consistent with the data that being recorded in the certificate of conformity.
- II. Any vehicle owners manuals and explanations that provided by manufacturers, manufacturers designated agents, association of importers, dealers, distributors, or after service units (include: maintenance, service, and repairs workshops or stations), and are related to the use, repair, adjust, maintenance or testing of emission control systems shall be consistent with the data information recorded in the certificate of conformity.
- III. Manufacturer, manufacturer designated agent or association of importers shall send statistical analysis data of their previous three months conducted conformity of production tests to the central competent authority before the 20th of January, April, July, and October as reference for the future auditing. If any conformity of production test for a diesel vehicle or engine failed to comply with its applicable emission standards, the causes for the failure should be investigated and the subsequent appropriate corrective measures shall be taken.

Article 13

Regarding the required sample number for the conformity of production tests as prescribed in the provision 12.3: at least one in 500 vehicles produced or imported per engine family shall be conducted for heavy duty diesel vehicles; at least one in 200 vehicles produced or imported per engine family shall be conducted for light duty diesel vehicles; pursuant to the following provisions: if the number of produced or imported vehicles does not reach the numbers stipulated in the foregoing provision, conformity of production tests shall be conducted on at least one vehicle.

Article 14

The central competent authority may conduct new vehicle conformity audit testing on new diesel vehicles or engines that have already obtained certificate of conformity at least once per year. The test procedures, sample selection of vehicles, incompliance or noncompliance determination, and other related items shall be handled in accordance with Appendix 4.

If the new vehicle failed the conformity audit testing, the certificate of conformity for the said vehicle type or engine family shall be cancelled or repealed. When received the notice, within 30 days, the applicant shall submit a recall and correction plan for unsold and sold vehicles of the failed vehicle type or engine family. If the central competent authority reviewed and approved the plan, the applicant shall start to implement and complete the plan, after finished all the necessary correction measures, the applicant may reapply for the vehicle type or engine family's certificate of conformity. The contents of the recall and correction plan shall be in accordance with provisions of Appendix 4.

Article 14.1

If vehicles required being equipped with OBD system to comply with

the emission standards when applying for the said engine family and vehicle model year certificate of conformity, the applicant shall provide documents and OBD specifications in accordance with Article 7.III and provisions of Appendix 5.

Article 15

Diesel vehicles that the applicant does not apply for certificate of conformity based on model year and engine family as basis shall submit the following documents to the central competent authority for application for a certificate of conformity:

- I. Application form.
- II. The diesel vehicle import and commodity tax payment (exemption) certificate issued by Customs.
- III. Provides the following testing reports prepared by the central competent authority designated testing organization verifying that the diesel vehicle complies with the applicable emission standards.
 - A. Vehicle driving cycle or engine cycle test report;
 - B. Smoke testing report;
 - C. OBD testing report (minimum one circuit continuity test must be conducted).
- IV. The diesel vehicle's certificate of origin.

Article 16

For imported in-use diesel vehicles from overseas, applicants shall submit the following documents to the central competent authority for application for a certificate of conformity:

- I. Application form.
- II. The diesel vehicle import and commodity tax payment (exemption) certificate issued by Customs.
- III. The following test reports prepared by the central competent authority

designated testing organization verifying that the diesel vehicle conforms to the applicable emission standards:

- A. Vehicle driving cycle or engine test cycle test results.
 - B. Smoke test report.
 - C. OBD test report (execute at least one circuit continuity test).
- IV. The diesel vehicle's certificate of origin.

Article 17

The issued engine family and vehicle model year compliance certification may be cancelled or revoked by the central competent authority in one of the following circumstances:

- I. Violating the provisions of Article 11 or Article 13.
- II. The results of new vehicle random conformity tests are being determined as failed to comply with relevant standards.
- III. Using any false document in the application, reporting false information, or keeping false records of operations.
- IV. Other severe offenses determined by the central competent authority to be in violation of this Act or these provisions.

Article 18

For diesel vehicle or diesel engine compliance certification application, the required methods and procedures for the related exhaust emissions, durability, and smoke tests shall be separately defined by the central competent authority.

Article 19

The central competent authority may commission agencies (organizations) to handle the relevant matters related to compliance certification applications such as application examination, issuance of compliance certificate, relevant fee collection, and conducts new vehicle

random conformity tests.

Article 20

These provisions shall take effect on the date of promulgation.

Appendix 1: Application for a diesel vehicle certificate of conformity: the required documents to be attached; selection of testing vehicles; reference fuel specifications; recognition of foreign certificates of conformity and test reports; and other related requirements

1. Prior to the application for a certificate of conformity , the applicant shall provide required documents to prove the vehicle model is in compliance with applicable emissions standards, if being approved as in compliance, the central competent authority may issue the certificate of conformity to that vehicle model.
2. Application for Heavy Duty Diesel Bus's and Truck's Emissions Certificate of Conformity

2.1 Test vehicle and reference fuel specifications

2.1.1 Test vehicle

The test vehicle's configuration shall be consistent with the information stated in the diesel vehicle's certificate of conformity application form, and being tested in accordance with the test methods prescribed in provision 18. The test vehicle shall comply with all the requirements regulated in this Appendix.

2.1.1.1 Selection of test vehicles

The test vehicles shall be selected based on engine family category, for each engine family category the test vehicle shall be selected according the following conditions:

2.1.1.1.1 For different engine type, separate representative test vehicle shall be selected.

2.1.1.1.2 Separate representative test vehicles shall be selected for each chassis and complete vehicle.

2.1.2 Reference fuels for different tests

2.1.2.1 Reference diesel fuel specifications for emission tests

2.1.2.1.1 Engines being tested using the US FTP Transient cycle and comply with emission standards effective on Oct. 1, 2006, the test fuel being used shall be in accordance with

the US 2004 reference fuel specifications (details prescribed in table 1 of Appendix 1); vehicles comply with emission standards effective on Jan. 1, 2012, the test fuel being used shall be in accordance with the US 2007 reference fuel specifications (details prescribed in table 2 of Appendix 1).

2.1.2.1.2 Engines being tested using the EU ESC, ETC, and ELR cycles, the test fuel being used shall be in accordance with the reference fuel specifications in Annex IV to the EU Directive 2005/55/EC.

2.1.2.2 Reference alternative clean fuel specifications for emissions tests

The alternative clean fuel for emissions tests shall be in accordance with domestic regulated specifications, if not available, the foreign specifications may be adopted, when using domestic market fuel to conduct new vehicle conformity audit tests, the manufacturer shall ensure its compliance with domestic emission standards. If domestic market fuel is not available, the foreign alternative clean fuel specifications may be adopted.

2.2 The applicant shall provide a Chinese version of user's manual including warranty for emission control systems to the central competent authority. The manual shall provide maintenance guide and schedules for inspection items and component changes within the warranty period, the vehicle owner shall perform maintenance accordingly to ensure the normal functionalities of emission control systems.

2.3 Warranty period

2.3.1 Diesel vehicle within warranty period and under normal use conditions, the emitted exhaust emissions shall comply with provision 5 of the emission standards.

2.3.2 The warranty period for diesel vehicle emissions control systems shall be in accordance with provision 5 of the emission standards.

2.4 The use of a defeat device on diesel vehicles is prohibited, but the need for the device is justified if the device has the following functions:

2.4.1 The device has functions to protecting the diesel vehicles against damage or accident.

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

2.5 Testing and inspection

2.5.1 The central competence authority may request the applicant to send more than one vehicle or engine to the designated location to perform type approval tests for the application for a Certificate of Conformity; the applicant shall be responsible for the test related fees.

2.5.2 As to the vehicle manufacturer applying for a Certificate of Conformity, the central competence authority's personnel may enter the applicant's inspection room and factories, overview the related document records to determine whether or not the test vehicle and the mass produced vehicles comply with provisions of this Appendix, and verifying the consistency of design specifications with the application.

2.5.3 During the Certificate of Conformity application process, the central competence authority may send personnel to oversee and check the preparation process. The central competence authority may together with the designate professional inspection organization to oversee and check the preparation process.

2.6 Test specification and test report

2.6.1 Test specification

The instrument metered smoke pollution percentage test method for heavy duty diesel buses and trucks shall be in accordance with test methods prescribed in the "Diesel Motor Vehicles Exhaust Emissions Testing Methods and Procedures".

2.6.2 Test report

The format of test report for heavy duty diesel bus and truck emission tests shall be in accordance with the test methods prescribed in the “Diesel Motor Vehicles Exhaust Emissions Testing Methods and Procedures”.

2.7 Heavy duty bus’s and truck’s certificate of conformity application methods

2.7.1 The application for a heavy duty bus’s and truck’s Certificate of Conformity is divided into two steps:

2.7.1.1 Application for a heavy duty diesel vehicle Letter of Compliance (hereinafter referred to as Letter of Compliance, shall comply with provisions of Appendix 2)

2.7.1.2 Application for a heavy duty diesel vehicle’s Certificate of Conformity.

2.7.2 Applicants qualified for one of the following requirements, may combine the two steps prescribed in provision 2.7.1 of Appendix 1 into one step for the application for a certificate of conformity.

2.7.2.1 The applicant is a diesel engine manufacturer and also is a vehicle manufacturer.

2.7.2.2 The applicant is an imported engine manufacturer’s designated agent and also is a vehicle manufacturer’s designated agent (or domestic vehicle manufacturer).

2.7.3 Applicants already obtained the Letter of Compliance issued by the central competent authority (Consent to Use Agreement from the original holder of Letter of Compliance, Joint Guarantee Agreement and a photocopy of the Letter of Compliance) and the smoke opaque test values for the engine family (test result values being measured in accordance with the diesel vehicle exhaust smoke test methods and procedures) comply with provision 5 of the emission standards, may apply for diesel vehicle’s Certificate of Conformity to the central competent authority.

2.8 Application for a heavy duty diesel bus’s and truck’s Certificate of Conformity

Qualification requirements for application

- 2.8.1 For domestically made vehicles, the vehicle manufacturer shall apply for the Certificate of Conformity. A proof of capability to perform vehicle maintenance and repairs and a vehicle exhaust emissions quality control plan shall be submitted along with the application. The applicant may commission the central competence authority designated professional test laboratory to implement the plan. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of each month of January, April, July and October annually to the central competence authority for auditing.
- 2.8.2 For imported diesel vehicles, the foreign vehicle manufacturer designated domestic agent shall apply for the Certificate of Conformity. A proof of capability to perform vehicle maintenance and repairs and a vehicle exhaust emissions quality control plan shall be submitted along with the application. The agent may commission the central competence authority designated professional test laboratory to implement the quality control plan. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of each month of January, April, July and October annually to the central competence authority for auditing.
- 2.8.3 For applicants not being defined in provision 2.8.1 and 2.8.2 (Importers shall submit their applications through their pertaining associations) shall commission the central competence authority accredited test laboratory to implementing the vehicle exhaust emissions quality control plan. The test laboratory shall provide the proof of capability to perform vehicle maintenance and repairs in accordance with test procedures and test reports requirements in provision 2.6 of Appendix 1 and being submitted along with the application. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of each month of January, April, July and October annually to the central competence authority for auditing.

- 2.9 The issuance of heavy duty diesel bus's and truck's Certificate of Conformity
- 2.9.1 The issued Certificate of Conformity is for one vehicle model year only.
- 2.9.2 The Certificate of Conformity shall be issued to every vehicle type with test results of formal exhaust emission tests. (Include gaseous pollutants, particulate matters, and smoke)
- 2.10 Continuing use of heavy duty diesel bus's or truck's Certificate of Conformity
- 2.10.1 The applicant may apply for continuing use by providing the previous vehicle model years' Certificate of Conformity as reference.
- 2.10.2 The diesel vehicle's Certificate of Conformity titled manufacturer shall report to the central competent authority annually on the design information of the emissions related devices for that diesel vehicle.
- 2.11 Modifications of heavy duty diesel bus and truck that has already obtained Certificate of Conformity
- 2.11.1 Prior to modify the vehicle's emission control systems and emission related components by vehicle manufacturer, the Certificate of Conformity titled applicant shall notify the central competent authority.
- 2.11.2 The central competent authority may request to conduct conformity tests on the modified vehicle to determine the validity to use the original Certificate of Conformity.
- 2.11.3 If the original diesel vehicle's Certificate of Conformity is determined valid for the modified vehicle to use, then the central competent authority shall notify the applicant by a written notice. If the original diesel vehicle's Certificate of Conformity is determined not valid for the modified vehicle to use, then the modified vehicle shall apply for the extension of Certificate of Conformity in accordance with provision 10 as a new added vehicle type.
- 2.12 Extension of Certificate of Conformity for heavy duty buses and trucks
- 2.12.1 If applicant intends to add a new vehicle type in an engine family, he shall apply for extension of Certificate of Conformity in written form to the central competence authority.

2.12.2 As to the application mentioned in 12.1, if necessary, the central competence authority may designate (or selected by the applicant) a representative vehicle type to conduct metered smoke test in accordance with Article 5 of the emission standards.

2.13 To apply for a heavy duty bus's or truck's Certificate of Conformity; the applicant shall provide the following documents and comply with the process regulations set by the central competent authority.

2.13.1 Application letter (including a seal impression card)

2.13.2 Draft of the Certificate of Conformity

2.13.3 Vehicle specifications table in Chinese

2.13.4 Photocopy of Letter of Compliance (or Consent to Use Agreement from the original holder of Letter of Compliance, Joint Guarantee Agreement and a photocopy of the Letter of Compliance).

2.13.5 Photocopy of diesel vehicle exhaust emissions smoke test report.

2.13.6 One set of photographs (including four sides, engine, driver's compartment, and chassis)

2.13.7 Label

2.13.8 For vehicles comply with provisions 2.9.2 of Appendix 1, the original manufacturer shall state that the air pollution emission values of that vehicle type are identical with emission values of the original foreign vehicle type, and comply fully with domestic related regulations; this statement shall bear the signature or seal of the manufacturer's authorized statutory responsible person.

2.13.9 Authorization documents provided by foreign vehicle manufacturer to the designated domestic agent. The authorization documents shall endow the domestic agent with full authority to represent the automobile manufacturer to apply for diesel and alternative clean fuel engine vehicle's emissions Certificate of Conformity, and bear the same responsibilities to comply with related regulations. Without attaching authorization documents, the

applicants may submit an application through an association of importers and with a letter of guarantee to guaranteeing that they will bear the same responsibilities as the vehicle manufacturer.

2.13.10 Vehicle import and commodity tax payment (exemption) certificate issued by Customs.

2.13.11 The contents of heavy duty diesel bus and truck exhaust smoke emissions quality control plan shall include:

2.13.11.1 Method of implementing self audit test.

2.13.11.2 Sampling ratio for the audit test (for each vehicle type, select one for every 500 vehicles)

2.13.11.3 Test items.

2.13.11.4 Test organization.

2.13.11.5 Test instruments and equipment.

2.13.11.6 Test results and full records.

2.13.11.7 Allocation information for personnel to execute the quality control plan.

2.13.11.8 Problems and issues improvement proposal.

2.13.11.9 Other supplement descriptions (e.g. flow chart for plan implementation).

2.13.12 Operation manual (including emission control system warranty, the inspection items and replacement components must be defined within the warranty period)

2.14 Application for HEV's Certificate of Conformity shall be provided with the following explanations:

2.14.1 Verification and description of vehicle type.

2.14.2 Operation mode switching function description.

2.14.3 Energy storage device description and warranty mileage.

2.14.4 Electrical power and mechanic system.

2.14.5 Control Unit.

- 2.14.6 Power Control Unit.
- 2.14.7 Pure electric power maximum driving range.
- 2.14.8 Suggestion items from vehicle manufacturer.

2.15 Other provisions

- 2.15.1 The Certificate of Conformity application documents shall be in Chinese or in English. The Chinese translation shall be provided if the application is prepared by foreign vehicle manufacturer in non-English foreign language, signed by the engine manufacturer authorized agent with the latest update of the related information.
- 2.15.2 The engine manufacturer shall ensure the application is in accordance with all applicable regulations and comply with emission standards.
- 2.15.3 The applicant must keep the latest documents, recorded data, and test results for 5 years started from the issuance date of Certificate of Conformity.
- 2.15.4 The application forms and attached documents shall comply with requirements of the electronic process procedures by providing electronic files.

3. Application for a light duty diesel truck's Certificate of Conformity

- 3.1 To apply for light duty diesel truck Certificate of Conformity, the deterioration factors must be submitted with an application; also the regeneration factor shall be included for vehicles equipped with periodic regenerative devices and being conducted type approval exhaust emissions test using the EU NEDC driving cycle. The determination of deterioration factors and regeneration factor shall comply with provision 11.

3.2 Test vehicle and reference fuel specifications

3.2.1 Test vehicle

The test vehicle's configuration shall be consistent with the information stated in the Certificate of Conformity application form, and being tested in accordance with the test methods prescribed in provision 18. The test vehicle shall comply with all the requirements regulated in this Appendix.

3.2.1.1 Selection of test vehicle

3.2.1.1.1 The test vehicles shall be selected based on the engine family categories with maximum laden mass which would be expected to have the highest emissions. If the maximum laden mass is identical, select the vehicle with maximum road-load resistance (at the speed of 80 kilometers per hour). If the road-load resistance is identical, select the vehicle with maximum engine displacement. If the engine displacement is identical, select the vehicle with highest total gear ratio (including over drive gear), the next option is with the highest axel ratio.

3.2.1.1.2 If the engine family covered vehicle types are applicable to different emission standards, the most stringent standards shall be complied.

3.2.1.1.3 The applicant may determine the minimum mileage needed to attain stabilized test results. However, the accumulated mileage for new vehicle emissions type approval and COP testing shall not exceed the following limits:

3.2.1.1.3.1 Vehicles using the US FTP-75 driving cycle for the type approval compliance test : 6,400 km.

3.2.1.1.3.2 Vehicles using the EU NEDC driving cycle for the type approval compliance test : 15,000 km.

3.2.1.2 Durability test vehicle

One representative vehicle for each engine family shall be selected for the durability test. Durability test vehicle selection and test plan shall be overviewed and agreed by the central competence authority, the test results for different stages should be reported to the authority

according to the schedule in the test plan.

3.2.2 Reference fuels for different tests

3.2.2.1 Reference fuel specifications for emissions tests

3.2.2.1.1 Reference diesel fuel specifications for emissions tests

3.2.2.1.1.1 Vehicles using the US FTP driving cycle for the type approval test and comply with emission standards effective on Oct. 1, 2006, the test fuel being used shall be in accordance with the US 2004 reference fuel specifications (details prescribed in table 1 of Appendix 1); vehicles comply with emission standards effective on Jan. 1, 2012, the test fuel being used shall be in accordance with the US 2007 reference fuel specifications (details prescribed in table 2 of Appendix 1).

3.2.2.1.1.2 Vehicles using the EU NEDC driving cycle for the type approval test, and comply with emission standards effective on Oct. 1, 2006, the test fuel being used shall be in accordance with Annex IX to the EU Directive 98/69/EC; vehicles comply with emission standards effective on Jan. 1, 2012, the test fuel being used shall be in accordance with the reference fuel specifications in Annex IV to the EU Regulation (EC) No 692/2008.

3.2.2.1.2 Reference alternative clean fuel specifications for emissions tests

The alternative clean fuel for emissions tests shall be in accordance with domestic regulated specifications, if not

available, the foreign specifications may be adopted, when using domestic market fuel to conduct new vehicle conformity audit tests, the manufacturer shall ensure its compliance with domestic emission standards. If domestic market fuel is not available, the foreign alternative clean fuel specifications may be adopted.

3.2.2.2 Reference fuel specifications for durability test

3.2.2.2.1 Reference diesel fuel specifications for durability tests

The reference diesel fuel for durability tests shall be in accordance with the domestic market premier diesel fuel specifications; the foreign area market diesel fuel may also be adopted. If there are different foreign areas market diesel fuels, the specifications closest to the domestic market diesel fuel shall be adopted.

3.2.2.2.2 Alternative clean fuel specifications for durability tests

The alternative clean fuel for durability tests shall be in accordance with domestic regulated specifications, if not available, foreign specifications may be adopted; if lack of both domestic and foreign specifications, the domestic market fuel specifications shall be adopted; if lack of domestic market fuel, the foreign area market fuel specifications shall be adopted.

3.3 The applicant shall provide a Chinese version of user's manual including warranty for emission control systems to the central competent authority. The manual shall provide maintenance guide and schedules for inspection items and component changes within the warranty period, the vehicle owner shall perform maintenance accordingly to ensure the normal functionalities of emission control systems.

3.4 Label

3.4.1 The applicant who has obtained the vehicle's Certificate of Conformity shall

produce a durable, corrosion and rust proof, hard to remove and clearly identifiable Chinese label being affixed on the vehicle or engine surface, and if torn off from the vehicle or engine, it will be damaged or causing printed text unrecognizable.

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

3.4.2.1 The title of the label shall be "Vehicle Emissions Control Information".

3.4.2.2 Full title of the company, vehicle manufacturer and brand.

3.4.2.3 Vehicle model year, engine family, engine displacement, emission control related systems, OBD system.

3.4.2.4 The minimum requirement for engine optimal performance adjustment minimum specifications to be included: injection timing, valve clearance, and other parameters deemed necessary by the engine manufacturer.

3.4.2.5 Note such as: "This engine family vehicle type complies with the diesel vehicle emission standards effective on Jan. 1, 2004 and its subsequent amendments"; "To remove or modify the emission control devices is prohibited"

3.4.2.6 Relative schematic locations of all the emission control related equipment.

3.5 Warranty period

3.5.1 Diesel vehicles within warranty period and under normal maintenance and operation conditions, the emitted exhaust emissions shall comply with provision 5 of the emission standards.

3.5.2 The warranty period for diesel vehicle emissions control systems shall be in accordance with provision 5 of the emission standards.

3.6 The use of a defeat device on diesel vehicles is prohibited, but the need for the device is justified if the device has the following functions:

3.6.1 The device has functions to protecting the vehicle against damage or accident.

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

3.7 Testing and inspection

3.7.1 The central competence authority may request the applicant to send more than one vehicle to the designated location to perform type approval tests for the application for a Certificate of Conformity; the applicant shall be responsible for the test related fees.

3.7.2 As to the vehicle manufacturer applying for Certificate of Conformity, the central competence authority's personnel may enter the applicant's inspection room and factories, overview the related document records to determine whether or not the test vehicle and the mass produced vehicles comply with provisions of this Appendix, and verifying the consistency of design specifications with the application.

3.7.3 During the Certificate of Conformity application process, the central competence authority may send personnel to oversee and check the preparation process. The central competence authority may together with the designate professional inspection organization to oversee and check the preparation process.

3.8 Test specification and test report

3.8.1 Test specification

3.8.1.1 Vehicle test cycles:

3.8.1.1.1 For vehicles with gross vehicle weight (GVW) less or equal to 2,500 kg: the test shall be performed on chassis dynamometer using the US FTP FTP-75 or EU NEDC cycles for the test.

3.8.1.1.2 For vehicles with gross vehicle weight (GVW) greater than 2,500 kg:

3.8.1.1.2.1 Vehicles being tested using the US emission test cycles: may choose the FTP-75 driving

cycle or FTP Transient cycle for the test.

3.8.1.1.2.2 Vehicles being tested using the European Union emission test cycles: may choose the NEDC driving cycle or ESC, ETC and ELR cycles for the test.

3.8.1.2 Instrument metered smoke test: The smoke pollution percentage instrument metered test method for light duty diesel trucks shall be in accordance with test methods prescribed in the “Diesel Motor Vehicles Exhaust Emissions Testing Methods and Procedures”.

3.8.1.3 OBD test: for light duty vehicles equipped with OBD system according to requirements of the emission standards, the test procedure shall be in accordance with provisions of Appendix 5.

3.8.2 Test report

3.8.2.1 Test report for the vehicle driving cycle tests:

3.8.2.1.1 For vehicles with gross vehicle weight (GVW) less than or equal to 2,500 kg: must provide test reports using the US FTP FTP-75 or EU NEDC cycles for the test.

Vehicles using the US FTP-75 driving cycle for the test:

3.8.2.1.1.1 When a light duty diesel truck is in compliance with emission standards effective on Oct. 1, 2006 (or subsequent emission standards promulgated after this date), the applicant shall provide an emissions compliance statement as a substitute for the HCHO regulated emission test. But the statement shall be based on vehicle’s emissions tests, development tests or other appropriate information.

3.8.2.1.1.2 The test measured value of NMHC may

multiply by 1.0 (conversion factor) to be treated as NMOG value for regulation compliance determination purpose.

3.8.2.1.2 For trucks with gross vehicle weight (GVW) greater than 2,500 kg and less than or equal to 3,500 kg:

3.8.2.1.2.1 Vehicles using the US FTP-75 driving cycle or FTP Transient cycle for the test: the submitted test report shall be in accordance with either one of the provisions prescribed in FTP-75 driving cycle or FTP Transient cycle.

3.8.2.1.2.2 Vehicles using the EU cycles for the test: the submitted test report shall be in accordance with either one of the provisions prescribed in NEDC driving cycle or ESC, ETC and ELR test cycle.

3.8.2.2 Instrument metered smoke test report: The smoke pollution percentage instrument metered test report for light duty diesel trucks shall be in accordance with test reports requirements prescribed in the “Diesel Motor Vehicles Exhaust Emissions Testing Methods and Procedures”

3.8.2.3 OBD test report: for light duty diesel trucks equipped with OBD system according to requirements of the emission standards, the OBD test report shall be in accordance with provisions of Appendix 5.

3.9 Engine family

3.9.1 For engines application for a diesel vehicle certificate of conformity shall be categorized by similar exhaust emission characteristics within their valid duration. Each category should be defined as separate engine family, and each engine family shall apply for certificate of conformity separately. Identical

engine family means engines comprising the following identical items:

- 3.9.1.1 Cylinder block configuration (e.g. air or liquid cooling system, vertical, line, or V types)
 - 3.9.1.2 Location of intake and exhaust valves.
 - 3.9.1.3 Method of air aspiration (e.g. natural/supercharged).
 - 3.9.1.4 Emission control system.
 - 3.9.1.5 Fuel and air supply system.
 - 3.9.1.6 Engine intake air cooling method (e.g. air, liquid).
- 3.9.2 If the central competence authority deemed even though the engines equipped with identical above mentioned items but may have different exhaust emission characteristics, may categorize these engines into different engine families. The determination shall be based on the following engine characteristics.
- 3.9.2.1 Bore and stroke.
 - 3.9.2.2 The cylinder surface area to volume ratio when at top dead center.
 - 3.9.2.3 Size and configuration of intake manifold valve opening.
 - 3.9.2.4 Size and configuration of exhaust manifold valve opening.
 - 3.9.2.5 Sizes of intake and exhaust valves.
 - 3.9.2.6 Cam and fuel injection timing characteristics.
- 3.9.3 Designation methods for Standardized Engine Family
- 3.9.3.1 Rational for standardized engine family designation

The rational for standardized engine family designation is to provide easily identifications for that engine family such as model-year, manufacturer, and basic information. It also provides assistance during inspection process and reduces database key in errors. The standardized engine family name consists of a series of letters and numbers, each letter and number has its own meanings.
 - 3.9.3.2 The standardized engine family designation

The standardized engine family name shall consist of 11 characters;

the structure and represented meanings are described as follows:

charaters	engine family
1	Model Year (Model Year, see table 4)
2&3	Manufacture Code (Letter code describing Manufacture, see table 5)
4,5,6&7	Displacement (Displacement in cubic inches (e.g., 0466 = 466 cubic inches) or liters (e.g., 05.7 = 5.7 liters).
8	Engine Type (Letter code describing type of engine, see table 6)
9	Emission Control System (Letter code describing type of emissions control system, see table 7)
10	Uniqueness digit (Letter code to make first 10 digits unique)
11	checksum digit (Checksum digit)

Example

Heavy Duty Diesel and Alternative Clean Fuel Engine Family
(Heavy-Duty Engine Family)
LCE0505EAA0

L=1990 Model year
CE=Cummins Engine Co.
0505=505 cubic inches
E=Compression Ignition Turbo-charged
A=Engine modification
A= Uniqueness digit
0=checksum digit

3.9.3.3 Example

Heavy Duty Diesel and Alternative
Clean Fuel Engine Family

(Heavy–Duty Engine Family)

LCE0505EAA0

L=1990 Model Year
 CE=Cummins Engine Co.
 0505=505 cubic inches
 E= Turbo-charged diesel
 A= Engine modification
 A= Uniqueness digit
 0= checksum digit

3.9.3.4 Determination of CSD

Step 1: Assign to each number in the engine family code its actual mathematical value and assign to each letter the value specified below:

A=1	J=1	T=3
B=2	K=2	U=4
C=3	L=3	V=5
D=4	M=4	W=6
E=5	N=5	X=7
F=6	P=7	Y=8
G=7	R=9	Z=9
H=8	S=2	Decimal pt=1

Step 2: Multiply the assigned value for each character in the engine family code by the weight factor specified for it below:

Character	Weight Factor
1 st	10
2 nd	9
3 rd	8

4 th	7
5 th	6
6 th	5
7 th	4
8 th	3
9 th	2
10 th	1

Step 3: Add the resulting products and divide the total by 11. The remainder is the CSD. If the remainder is 10, the CSD is X.

Example

Determine the CSD if the first 10 characters are LCE0505EAA.

	L	C	E	0	5	0	5	E	A	A
Assigned Value	3	3	5	0	5	0	5	5	1	1
Weight Factor	10	9	8	7	6	5	4	3	2	1
	—	—	—	—	—	—	—	—	—	—
Products	30	27	40	0	30	0	20	15	2	1

Sum of Products = 165

Divide by 11 = 15 + 0/11

CSD = 0

Therefore, engine family code is LCE0505EAA0.

3.9.4 Designation method for continuing use of an engine family name

An extra code shall be added to the original engine family code if apply for continuing use of an engine family name.

Example

The original engine family code is 2*****, to apply for continuing use

of 2003 vehicle model year engine family name, the code shall be designated as 2*****-A3. The added code for each vehicle model year is listed in Table 7 of Appendix 1.

3.9.5 If the standardized engine family designation method as prescribed in 3.9.3 of Appendix 1 is not being adopted, the applicant may provide an 11-character engine family identification code for its light duty diesel truck, but the first character of the identification code (represent for vehicle model year) and its designation method for continuing use of an engine family name shall be in accordance with provisions 3.9.3.4 of Appendix 1.

3.10 Application for a light duty diesel truck's Certificate of Conformity

3.10.1 Qualification requirements for application

3.10.1.1 For domestically made vehicles, the vehicle manufacturer shall apply for the light duty diesel truck's Certificate of Conformity. A proof of capability to perform vehicle maintenance and repairs and a vehicle exhaust emissions quality control plan shall be submitted along with the application. The applicant may commission the central competence authority designated professional test laboratory to implement the plan. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of each month of January, April, July and October annually to the central competence authority for auditing.

3.10.1.2 For imported light duty diesel trucks, the foreign vehicle manufacturer designated domestic agent shall apply for the Certificate of Conformity. A proof of capability to perform vehicle maintenance and repairs and a vehicle exhaust emissions quality control plan shall be submitted along with the application. The agent may commission the central competence authority designated professional test laboratory to implement the quality control plan. The statistical analysis for the previous quarter conducted quality

control test data shall be sent before 20th of each month of January, April, July and October annually to the central competence authority for auditing.

3.10.1.3 For applicants not being defined in provision 3.10.1.1 and 3.10.1.2 of Appendix 1 (Importers shall submit their applications through their pertaining associations) shall commission the central competence authority accredited test laboratory to implementing the vehicle exhaust emissions quality control plan. The test laboratory shall provide the test reports and proof of capability to perform vehicle maintenance and repairs in accordance with requirements in provision 3.8 of Appendix 1 and being submitted along with the application. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of each month of January, April, July and October annually to the central competence authority for auditing.

3.10.2 Application for a driving cycle test Certificate of Conformity

3.10.2.1 Application for a light duty diesel trucks with the central competent authority recognized country issued Certificate of Conformity.

3.10.2.2 If the applicant has obtained the US-EPA issued light duty diesel truck's new vehicle type Certificate of Conformity by using the FTP-75 driving cycle for type approval test, and the test results comply with provision 5 of the emission standards, the applicant may submit the application for Certificate of Conformity to the central competent authority.

3.10.2.3 If the applicant has obtained the EU issued light duty diesel truck's new vehicle type Certificate of Conformity in accordance with the Directive 98/69/EC, Regulation (EC) No 692/2008 or UN/ECE Regulation No 83-05 and their subsequent amendments by using the NEDC cycle for type approval test, and the test results comply

with provision 5 of the emission standards, the applicant may submit the application for Certificate of Conformity to the central competent authority.

3.10.2.4 Application for engine family without the central competent authority recognized foreign country issued Certificate of Conformity.

If the application has obtained test report from the accredited test laboratory may submit the application for light duty diesel truck's Certificate of Conformity to the central competent authority. The qualification requirements for test laboratory to be accredited are as follows:

3.10.2.2.1 The test laboratory has obtained the US-EPA issued light duty diesel truck's Certificate of Conformity by using the FTP-75 cycle for the type approval test as a proof of its equipment and personnel's capability to perform the test, and the test results comply with provision 5 of the emission standards.

3.10.2.2.2 The test laboratory has obtained the EU light duty diesel truck's new vehicle type Certificate of Conformity in accordance with the Directive 98/69/EC, Regulation (EC) No 692/2008 or UN/ECE Regulation No 83-05 and their subsequent amendments by using the NEDC driving cycle for the type approval test as a proof of its equipment and personnel's capability to perform the test, and the test results comply with provision 5 of the emission standards.

3.10.2.2.3 For light duty diesel trucks not being qualified for provisions 3.10.2.2.1 and 3.10.2.2.2 shall be provided with test reports issued by the central competent

authority designated test laboratory, and the test results comply with provision 5 of the emission standards.

3.10.3 Application for an OBD Certificate of Conformity: The application shall comply with test methods and related provisions as prescribed in Appendix 5.

3.11 Issuance of Certificate of Conformity

3.11.1 The issued Certificate of Conformity is for one vehicle model year only.

3.11.2 That light duty diesel truck's Certificate of Conformity shall be issued to every vehicle type with formal test results of the type approval exhaust emission tests. (Include gaseous pollutants, particulate matters, and smoke)

3.12 Continuing use of light duty diesel truck's Certificate of Conformity

3.12.1 The applicant may apply for continuing use by providing the previous vehicle model years' Certificate of Conformity as reference.

3.12.2 The light duty diesel truck's Certificate of Conformity titled manufacturer shall report to the central competent authority annually on the design information of the emission related devices for that light duty diesel truck.

3.13 Modification of issued light duty diesel truck's Certificate of Conformity

3.13.1 Prior to modify the vehicle's emission control systems and emission related components by vehicle manufacturer, the Certificate of Conformity titled applicant shall notify the central competent authority.

3.13.2 The central competent authority may request to conduct conformity tests on the modified vehicle to determine the validity to use the original Certificate of Conformity.

3.13.3 If the original light duty diesel truck's Certificate of Conformity is determined valid for the modified vehicle to use, then the central competent authority shall notify the applicant by a written notice. If the original light duty diesel truck's Certificate of Conformity is determined not valid for the modified vehicle to use, then the modified vehicle shall apply for the extension of Certificate of Conformity in accordance with provision 10 as a new added vehicle type.

3.14 Extension of light duty diesel truck's Certificate of Conformity

3.14.1 Prior to add a new vehicle configuration or new vehicle type in an engine family, the applicant shall apply for extension of Certificate of Conformity to the central competence authority in written application.

3.14.2 As to the previous mentioned application, if deemed necessary, the central competence authority may designate (or selected by applicant) one representative vehicle to perform verification tests.

3.15 To apply for a light duty diesel truck's Certificate of Conformity, the applicant shall provide the following documents and comply with the process regulations set by the central competent authority.

3.15.1 Application letter (including a seal impression card)

3.15.2 Draft of the Certificate of Conformity

3.15.3 Vehicle specifications table in Chinese

3.15.4 Application form for light duty diesel truck's Letter of Compliance. (See Table 8 of Appendix 1)

3.15.5 Photocopy of diesel vehicle exhaust emissions smoke test report.

3.15.6 One set of photographs. (Including four sides, engine, driver's compartment, and chassis, and emission control devices, etc.)

3.15.7 Label

3.15.8 For vehicles comply with provisions 3.10.1.2 of Appendix 1, the original manufacturer shall state that the air pollution emission values of that vehicle type are identical with emission values of the original foreign vehicle type, and comply fully with domestic related regulations; this statement shall bear the signature or seal of the manufacturer's authorized statutory responsible person.

3.15.9 Authorization documents provided by foreign vehicle manufacturer to the designated domestic agent. The authorization documents shall endow the domestic agent with full authority to represent the automobile manufacturer to apply for light duty diesel truck's emissions Certificate of Conformity, and

bear the same responsibilities to comply with related regulations. Without attaching authorization documents, the applicants may submit an application through an association of importers and with a letter of guarantee to guaranteeing that they will bear the same responsibilities as the vehicle manufacturer.

3.15.10 Vehicle import and commodity tax payment (exemption) certificate issued by Customs.

3.15.11 The contents of light duty diesel trucks exhaust smoke emissions quality control plan shall include:

3.15.11.1 Method of implementing self audit test.

3.15.11.2 Sampling ratio for the audit test (for each engine family, at least one for every 200 vehicles)

3.15.11.3 Test items: shall include driving cycle test, instrument metered smoke test, and OBD circuit continuity test.

3.15.11.4 Test organization.

3.15.11.5 Test instruments and equipment.

3.15.11.6 Test results and full records.

3.15.11.7 Allocation information for personnel to execute the quality control plan.

3.15.11.8 Problems and issues improvement proposals.

3.15.11.9 Other supplement descriptions (e.g. flow chart for plan implementation).

3.15.12 Operation manual (including emission control system warranty, the inspection items and replacement components must be defined within the warranty period)

3.16 According to the requirements of emission standards, vehicle shall be equipped with OBD system, and the applicant shall provide OBD related documents to prove the compliance to these provisions. The contents of these documents are as follows:

3.16.1 Description of the OBD system.

- 3.16.2 Description or annotated drawing of the MIL used in the OBD system.
 - 3.16.3 Description of all emissions control equipment and related components/systems monitored by OBD, as well as a list of malfunction codes, related computer code format and contents.
 - 3.16.4 Description or flowchart of the actuation principle for OBD monitoring devices (including monitoring strategy, malfunction indicator standards and MIL light on timing).
 - 3.16.5 OBD test report.
 - 3.16.6 An explanation of adopted solutions or strategies to prevent arbitrary adjust or modify the Engine Control Units (ECU).
 - 3.16.7 Description of the location of OBD connector (DLC).
 - 3.16.8 Other required supplemental documents when deemed necessary.
- 3.17 Application for HEV's Certificate of Conformity shall be provided with the following explanations:
- 3.17.1 Verification and description of vehicle type.
 - 3.17.2 Operation mode switching function description.
 - 3.17.3 Energy storage device description and warranty mileage.
 - 3.17.4 Electrical power and mechanic system.
 - 3.17.5 Control Unit.
 - 3.17.6 Power Control Unit.
 - 3.17.7 Pure electric power maximum driving range.
 - 3.17.8 Suggestion items from vehicle manufacturer.
- 3.18 Other provisions
- 3.18.1 The Certificate of Conformity application documents shall be in Chinese or in English. The Chinese translation shall be provided if the application is prepared by foreign vehicle manufacturer in non-English foreign language, signed by the engine manufacturer authorized agent with the latest update of the related information.
 - 3.18.2 The engine manufacturer shall ensure the application is in accordance with

all applicable regulations and comply with emission standards.

3.18.3 The applicant must keep the latest documents, recorded data, and test results for 5 years started from the issuance date of Certificate of Conformity.

3.18.4 The application forms and attached documents shall comply with requirements of the electronic process procedures by providing electronic files.

4. Application for a diesel passenger car's Emissions Certificate of Conformity

4.1 To apply for light duty diesel passenger car's Certificate of Conformity, the deterioration factors must be submitted with the application; also the regeneration factor shall be included for vehicles equipped with periodic regenerative devices and being conducted type approval exhaust emissions test using the EU NEDC driving cycle. The determination of deterioration factors and regeneration factor shall comply with provision 11.

4.2 Test vehicle and reference fuel specifications for different tests

4.2.1 Test vehicle

The test vehicle's configuration shall be consistent with the information stated in the certificate of conformity application form, and being tested in accordance with the test methods prescribed in provision 18. The test vehicle shall comply with all the requirements regulated in this Appendix.

4.2.1.1 Selection of test vehicle

4.2.1.1.1 The test vehicles shall be selected based on the engine family categories with maximum laden mass which would be expected to have the highest emissions. If the maximum laden mass is identical, select the vehicle with maximum road-load resistance (at the speed of 80 kilometers per hour). If the road-load resistance is identical, select the vehicle with maximum engine displacement. If the engine displacement is identical, select the vehicle with highest total gear ratio (including over drive gear), the next option

is with the highest axle ratio.

4.2.1.1.2 If the engine family covered vehicle types are applicable to different emission standards, the most stringent standards shall be complied.

4.2.1.1.3 The applicant may determine the minimum mileage needed to attain stabilized test results. However, the accumulated mileage for new vehicle emissions type approval and COP testing shall not exceed the following limits:

4.2.1.1.3.1 Vehicles using the US FTP-75 driving cycle for the type approval compliance test : 6,400 km.

4.2.1.1.3.2 Vehicles using the EU NEDC driving cycle for the type approval compliance test : 15,000 km.

4.2.1.2 Durability test vehicle

One representative vehicle for each engine family shall be selected for the durability test. Durability test vehicle selection and test plan shall be overviewed and agreed by the central competence authority, the test results for different stages should be reported to the authority according to the schedule in the test plan.

4.2.2 Reference fuels for different tests

4.2.2.1 Reference fuel specifications for emissions tests

4.2.2.1.1 Reference diesel fuel specifications for emissions tests

4.2.2.1.1.1 Vehicles using the US FTP driving cycle for the type approval test and comply with emission standards effective on Oct. 1, 2006, the test fuel being used shall be in accordance with the US 2004 reference fuel specifications (details prescribed in table 1 of Appendix 1);

vehicles comply with emission standards effective on Jan. 1, 2012, the test fuel being used shall be in accordance with the US 2007 reference fuel specifications (details prescribed in table 2 of Appendix 1).

4.2.2.1.1.2 Vehicles using the NEDC driving cycle for the type approval test, and comply with emission standards effective on Oct. 1, 2006, the test fuel being used shall be in accordance with Annex IX to the EU Directive 98/69/EC; vehicles comply with emission standards effective on Jan. 1, 2012, the test fuel being used shall be in accordance with the reference fuel specifications in Annex IV to the EU Regulation (EC) No 692/2008.

4.2.2.1.2 Reference alternative clean fuel specifications for emissions tests

The alternative clean fuel for emissions tests shall be in accordance with domestic regulated specifications, if not available, the foreign specifications may be adopted, when using domestic market fuel to conduct new vehicle conformity audit tests, the manufacturer shall ensure its compliance with domestic emission standards. If domestic market fuel is not available, the foreign alternative clean fuel specifications may be adopted

4.2.2.2 Reference fuel specifications for durability test

4.2.2.2.1 Reference diesel fuel specifications for durability tests

The reference diesel fuel for durability tests shall be in accordance with the domestic market premier diesel fuel

specifications; the foreign area market diesel fuel may also be adopted. If there are different foreign areas market diesel fuels, the specifications closest to the domestic market diesel fuel shall be adopted.

4.2.2.2.2 Alternative clean fuel specifications for durability tests

The alternative clean fuel for durability tests shall be in accordance with domestic regulated specifications, if not available, foreign specifications may be adopted; if lack of both domestic and foreign specifications, the domestic market fuel specifications shall be adopted; if lack of domestic market fuel, the foreign area market fuel specifications shall be adopted.

4.3 The applicant shall provide a Chinese version of user's manual including warranty for emission control systems to the central competent authority. The manual shall provide maintenance guide and schedules for inspection items and component changes within the warranty period, the vehicle owner shall perform maintenance accordingly to ensure the normal functionalities of emission control systems.

4.4 Label

4.4.1 The applicant who has obtained the vehicle's Certificate of Conformity shall produce a durable, corrosion and rust proof, hard to remove and clearly identifiable Chinese label being affixed on the vehicle or engine surface, and if torn off from the vehicle or engine, it will be damaged or causing printed text unrecognizable.

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

4.4.2.1 The title of the label shall be "Vehicle Emissions Control Information".

4.4.2.2 Full title of the company, vehicle manufacturer and brand.

4.4.2.3 Vehicle model year, engine family, engine displacement, emission control related systems, OBD system.

4.4.2.4 The minimum requirement for engine optimal performance adjustment minimum specifications to be included: injection timing, valve clearance, and other parameters deemed necessary by the vehicle manufacturer.

4.4.2.5 Note such as: “This engine family vehicle type complies with the diesel vehicle emission standards effective on Jan. 1, 2004 and its subsequent amendments”; “To remove or modify the emission control devices is prohibited”

4.4.2.6 Relative schematic locations of all the emission control related equipment.

4.5 Warranty period

4.5.1 Diesel vehicles within warranty period and under normal maintenance and operation conditions, the emitted exhaust emissions shall comply with provision 5 of the emission standards.

4.5.2 The warranty period for diesel vehicle emissions control systems shall be in accordance with provision 5 of the emission standards.

4.6 The use of a defeat device on diesel vehicles is prohibited, but the need for the device is justified if the device has the following functions:

4.6.1 The device has functions to protecting the vehicle against damage or accident.

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

4.7 Testing and inspection

4.7.1 The central competence authority may request the applicant to send more than one vehicle to the designated location to perform type approval tests for the application for a Certificate of Conformity; the applicant shall be responsible for the test related fees.

4.7.2 As to the vehicle manufacturer applying for Certificate of Conformity, the central competence authority’s personnel may enter the applicant’s inspection room and factories, overview the related document records to determine

whether or not the test vehicle and the mass produced vehicles comply with provisions of this Appendix, and verifying the consistency of design specifications with the application.

4.7.3 During the Certificate of Conformity application process, the central competence authority may send personnel to oversee and check the preparation process. The central competence authority may together with the designate professional inspection organization to oversee and check the preparation process.

4.8 Test specification and test report

4.8.1 Test specification

4.8.1.1 For vehicles with gross vehicle weight (GVW) less than or equal to 3,500 kg: the test shall be performed on chassis dynamometer using the US FTP FTP-75 or EU NEDC cycles for the test.

4.8.1.2 Instrument metered smoke test: The instrument metered smoke pollution percentage test method for light duty diesel passenger cars shall be in accordance with test methods prescribed in the “Diesel Motor Vehicles Exhaust Emissions Testing Methods and Procedures”.

4.8.1.3 OBD test: for diesel passenger cars equipped with OBD system according to requirements of the emission standards, the test procedure shall be in accordance with provisions of Appendix 5.

4.8.2 Test report

4.8.2.1 Driving cycle test report: For light duty diesel passenger cars with gross vehicle weight (GVW) less than or equal to 3,500 kg must submit the US FTP FTP-75 or the EU NEDC driving cycle’s test report.

For vehicles using the US FTP-75 driving cycle for the test:

4.8.2.1.1 When a diesel passenger car is in compliance with emission standards effective on Oct. 1, 2006 (or

subsequent emission standards promulgated after this date), the applicant shall provide an emissions compliance statement as a substitute for the HCHO regulated emission test. But the statement shall be based on vehicle's emissions tests, development tests or other appropriate information.

4.8.2.1.2 The test measured value of NMHC may multiply by 1.0 (conversion factor) to be treated as NMOG value for the regulation compliance determination purpose.

4.8.2.2 Instrument metered smoke test report: The format of submitted test report for light duty diesel passenger cars emission tests shall be in accordance with the test methods prescribed in the "Diesel Motor Vehicles Exhaust Emissions Testing Methods and Procedures"

4.8.2.3 OBD test report: for light duty diesel passenger cars equipped with OBD system according to requirements of the emission standards, the OBD test report shall be in accordance with provisions of Appendix 5.

4.9 Engine family

4.9.1 For engines application for the Certificate of Conformity shall be categorized by similar exhaust emission characteristics within their valid duration. Each category should be defined as separate engine family, and each engine family shall apply for Certificate of Conformity separately.

Identical engine family means engines comprising the following identical items:

4.9.1.1 Cylinder block configuration (e.g. air or liquid cooling system, vertical, line, or V types)

4.9.1.2 Location of intake and exhaust valves.

4.9.1.3 Method of air aspiration (e.g. natural/supercharged).

4.9.1.4 Emission control system.

4.9.1.5 Fuel and air supply system.

4.9.1.6 Engine intake air cooling method (e.g. air, liquid).

4.9.2 If the central competence authority deemed even though the engines equipped with identical above mentioned items but may have different exhaust emission characteristics, may categorize these engines into different engine families. The determination shall be based on the following engine characteristics.

4.9.2.1 Bore and stroke.

4.9.2.2 The cylinder surface area to volume ratio when at top dead center.

4.9.2.3 Size and configuration of intake manifold valve opening.

4.9.2.4 Size and configuration of exhaust manifold valve opening.

4.9.2.5 Sizes of intake and exhaust valves.

4.9.2.6 Cam and fuel injection timing characteristics.

4.9.3 Designation methods for Standardized Engine Family

4.9.3.1 Rational for standardized engine family designation

The rational for standardized engine family designation is to provide easily identifications for that engine family such as model-year, manufacturer, and basic information. It also provides assistance during inspection process and reduces database key in errors. The standardized engine family name consists of a series of letters and numbers, each letter and number has its own meanings.

4.9.3.2 The standardized engine family designation

The standardized engine family name shall consist of 11 letters and symbols; the structure and represented meanings are described as follows:

characters

engine family

1

Model Year
Model Year, see table 4

2&3

Manufacture Code
(Letter code describing Manufacture, see table 5)

4,5,6&7	Displacement (Displacement in cubic inches (e.g., 0466 = 466 cubic inches) or liters (e.g., 05.7 = 5.7 liters)).
8	Engine Type (Letter code describing type of engine, see table 6)
9	Emission Control System (Letter code describing type of emissions control system, see table 7)
10	Uniqueness digit (Letter code to make first 10 digits unique)
11	checksum digit (Checksum digit)

Example
Heavy Duty Diesel and Alternative Clean Fuel Engine Family
LCE0505EAA0

L=1990 Model year
CE=Cummins Engine Co.
0505=505 cubic inches
E=Compression Ignition Turbo-charged
A= Engine modification
A= Uniqueness digit
0= checksum digit

4.9.3.3 Example

Heavy Duty Diesel and Alternative
Clean Fuel Engine Family

(Heavy-Duty Engine Family)

LCE0505EAA0

L=1990 Model Year

CE=Cummins Engine Co.

0505=505 cubic inches

E= Turbo-charged diesel engine

A= Engine modification

A= Uniqueness digit

0= checksum digit

4.9.3.4 Determination of CSD

Step 1: Assign to each number in the engine family code its actual mathematical value and assign to each letter the value specified below:

A=1	J=1	T=3
B=2	K=2	U=4
C=3	L=3	V=5
D=4	M=4	W=6
E=5	N=5	X=7
F=6	P=7	Y=8
G=7	R=9	Z=9
H=8	S=2	Decimal pt=1

Step 2: Multiply the assigned value for each character in the engine family code by the weight factor specified for it below:

Character	Weight Factor
1 st	10
2 nd	9
3 rd	8
4 th	7
5 th	6
6 th	5

7 th	4
8 th	3
9 th	2
10 th	1

Step 3: Add the resulting products and divide the total by 11. The remainder is the CSD. If the remainder is 10, the CSD is X.

Example

Determine the CSD if the first 10 characters are LCE0505EAA.

	L	C	E	0	5	0	5	E	A	A
Assigned Value	3	3	5	0	5	0	5	5	1	1
Weight Factor	10	9	8	7	6	5	4	3	2	1
	—	—	—	—	—	—	—	—	—	—
Products	30	27	40	0	30	0	20	15	2	1

Sum of Products = 165

Divide by 11 = 15 + 0/11

CSD = 0

Therefore, engine family code is LCE0505EAA0.

4.9.4 Designation method for continuing use of an engine family name

Designation method for continuing use of an engine family name shall be handled by adding an extra code to the original engine family code.

Example

The original engine family code is 2*****, to apply for continuing use of 2003 vehicle model year engine family name, the code shall be designated

as 2*****-A3. The added code for each vehicle model year is listed in Table 7 of Appendix 1.

4.9.5 If the standardized engine family designation method as prescribed in provision 4.9.3 of Appendix 1 is not being adopted, the applicant may provide an 11-character engine family code for its diesel passenger cars, but the first character (represent for vehicle model year), and the designation method for continuing use of an engine family name still shall be in accordance with provision 4.9.3.4 of Appendix 1.

4.10 Application for a diesel passenger car's Certificate of Conformity

4.10.1 Qualification requirements for application

4.10.1.1 For domestically made vehicles, the vehicle manufacturer shall apply for the Certificate of Conformity. A proof of capability to perform vehicle maintenance and repairs and a diesel passenger car exhaust emissions quality control plan shall be submitted along with the application. The applicant may commission the central competence authority designated professional test laboratory or laboratory that complies with provision 4.10.2.2 of Appendix 1 to implement the plan. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of each month of January, April, July and October annually to the central competence authority for auditing.

4.10.1.2 For imported diesel passenger cars, the foreign vehicle manufacturer designated domestic agent shall apply for the Certificate of Conformity. A proof of capability to perform vehicle maintenance and repairs and a vehicle exhaust emissions quality control plan shall be submitted along with the application. The agent may commission the central competence authority designated professional test laboratory or laboratories comply with provisions 4.10.2.1 and 4.10.2.2 of Appendix 1 to implement the quality

control plan. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of first month of each quarter to the central competence authority for auditing.

4.10.1.3 For applicants not being defined in provisions 4.10.1.1 and 4.10.1.2 (Importers shall submit their applications through their pertaining associations) shall commission the central competence authority accredited test laboratory to implementing the diesel passenger car exhaust emissions quality control plan. The test laboratory shall provide the proof of capability to perform vehicle maintenance and repairs in accordance with test reports requirements in provision 4.8 of Appendix 1 and being submitted along with the application. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of the first month for each quarter to the central competence authority for auditing.

4.10.2 Application for a driving cycle test Certificate of Conformity

4.10.2.1 Application for diesel passenger car with the central competent authority recognized country issued Certificate of Conformity.

4.10.2.1.1 If the applicant has obtained the US-EPA issued diesel passenger car's new vehicle type Certificate of Conformity by using the FTP-75 driving cycle for type approval test, and the test results comply with provision 5 of the emission standards, the applicant may submit the application for Certificate of Conformity to the central competent authority.

4.10.2.1.2 If the applicant has obtained the EU issued diesel passenger car's new vehicle Certificate of Conformity in accordance with the Directive 98/69/EC, Regulation (EC) No 692/2008 or UN/ECE Regulation No 83-05 and

their subsequent amendments by using the NEDC cycle for type approval test, and the test results comply with provision 5 of the emission standards, the applicant may submit the application for Certificate of Conformity to the central competent authority.

4.10.2.2 Application for engine family without the central competent authority recognized foreign country issued Certificate of Conformity.

If the application has obtained test report from the accredited test laboratory may submit the application for diesel passenger car's Certificate of Conformity to the central competent authority. The qualification requirements for test laboratory to be accredited are as follows:

4.10.2.2.1 The test laboratory has obtained the US-EPA issued diesel passenger car's Certificate of Conformity by using the FTP-75 cycle for the type approval test as a proof of its equipment and personnel's capability to perform the test, and the test results comply with provision 5 of the emission standards.

4.10.2.2.2 The test laboratory has obtained the EU issued new diesel passenger car's new vehicle type Certificate of Conformity in accordance with the Directive 98/69/EC or Regulation (EC) No 692/2008 and their subsequent amendments by using the NEDC driving cycle for the type approval test as a proof of its equipment and personnel's capability to perform the test, and the test results comply with provision 5 of the emission standards.

4.10.2.2.3 For diesel passenger cars not being qualified for

provisions 4.10.2.2.1 and 4.10.2.2.2 shall be provided with test reports issued by the central competent authority designated test laboratory, and the test results comply with provision 5 of the emission standards.

4.10.3 Application for an OBD Certificate of Conformity: The application process shall in accordance with the test methods and related provisions prescribed in Appendix 5.

4.11 The issuance of diesel passenger car's Certificate of Conformity

4.11.1 The issued diesel passenger car's Certificate of Conformity is for one vehicle model year only.

4.11.2 That diesel passenger car's Certificate of Conformity shall be issued to every vehicle type with formal test results of the type approval exhaust emission tests. (Include gaseous pollutants, particulate matters, and smoke)

4.12 Continuing use of diesel passenger car's Certificate of Conformity

4.12.1 The applicant may apply for continuing use by providing the previous vehicle model years' Certificate of Conformity as reference.

4.12.2 The diesel passenger car's Certificate of Conformity titled manufacturer shall report to the central competent authority annually on the design information of the emission related devices for that diesel passenger car.

4.13 Modification of issued diesel passenger car's Certificate of Conformity

4.13.1 Prior to modify the vehicle's emissions control systems and emission related components by vehicle manufacturer, the Certificate of Conformity titled applicant shall notify the central competent authority.

4.13.2 The central competent authority may request to conduct conformity tests on the modified vehicle to determine the validity to use the original Certificate of Conformity.

4.13.3 If the original light duty diesel passenger car's Certificate of Conformity is determined valid for the modified vehicle to use, then the central competent authority shall notify the applicant by a written notice. If the original light

duty diesel passenger car's Certificate of Conformity is determined not valid for the modified vehicle to use, then the modified vehicle shall apply for the extension of Certificate of Conformity in accordance with provision 10 as a new added vehicle type.

4.14 Extension of diesel passenger car's Certificate of Conformity

4.14.1 Prior to add a new vehicle configuration or new vehicle type in an engine family, the applicant shall apply for extension of diesel passenger car's Certificate of Conformity to the central competence authority in written application.

4.14.2 As to the above mentioned application, if deemed necessary, the central competence authority may designate (or selected by applicant) one representative vehicle to conduct verification tests.

4.15 To apply for a diesel passenger car's Certificate of Conformity, the applicant shall provide the following documents and comply with the process regulations set by the central competent authority.

4.15.1 Application letter (including a seal impression card)

4.15.2 Draft of the Certificate of Conformity

4.15.3 Vehicle specifications table in Chinese

4.15.4 Application form for light duty diesel and alternative clean fuel engine Certificate of Conformity (see Table 8 of Appendix 1).

4.15.5 Photocopy of diesel vehicle exhaust emissions smoke test report.

4.15.6 One set of photographs. (Including four sides, engine, driver's compartment, and chassis, and emission control devices, etc.)

4.15.7 Label

4.15.8 For vehicles comply with provisions 4.10.1.2 of Appendix 1, the original manufacturer shall state that the air pollution emission values of that vehicle type are identical with emission values of the original foreign vehicle type, and comply fully with domestic related regulations; this statement shall bear the signature or seal of the manufacturer's authorized statutory responsible

person.

- 4.15.9 Authorization documents provided by foreign vehicle manufacturer to the designated domestic agent. The authorization documents shall endow the domestic agent with full authority to represent the automobile manufacturer to apply for diesel passenger car's emissions Certificate of Conformity, and bear the same responsibilities to comply with related regulations. Without attaching authorization documents, the applicants may submit an application through an association of importers and with a letter of guarantee to guaranteeing that they will bear the same responsibilities as the vehicle manufacturer.
- 4.15.10 Vehicle import and commodity tax payment (exemption) certificate issued by Customs.
- 4.15.11 The contents of light duty diesel passenger cars exhaust smoke emissions quality control plan shall include:
 - 4.15.11.1 Method of implementing self audit test.
 - 4.15.11.2 Sampling ratio for the audit test (for each engine family, at least one for every 200 vehicles)
 - 4.15.11.3 Test items: shall include driving cycle test, instrument metered smoke test, and OBD circuit continuity test.
 - 4.15.11.4 Test organization.
 - 4.15.11.5 Test instruments and equipment.
 - 4.15.11.6 Test results and full records.
 - 4.15.11.7 Allocation information for personnel to execute the quality control plan.
 - 4.15.11.8 Problems and issues improvement proposals.
 - 4.15.11.9 Other supplement descriptions (e.g. flow chart for plan implementation).
- 4.15.12 Operation manual (including emission control system warranty, the inspection items and replacement components must be defined within the warranty

period)

- 4.16 According to the requirements of emission standards, vehicle shall be equipped with OBD system, and the applicant shall provide OBD related documents to prove the compliance to these provisions. The contents of these documents are as follows:
 - 4.16.1 Description of the OBD system.
 - 4.16.2 Description or annotated drawing of the MIL used in the OBD system.
 - 4.16.3 Description of all emissions control equipment and related components/systems monitored by OBD, as well as a list of malfunction codes, related computer code format and contents.
 - 4.16.4 Description or flowchart of the actuation principle for OBD monitoring devices (including monitoring strategy, malfunction indicator standards and MIL light on timing).
 - 4.16.5 OBD test report.
 - 4.16.6 An explanation of adopted solutions or strategies to prevent arbitrary adjust or modify the Engine Control Units (ECU).
 - 4.16.7 Description of the location of OBD connector (DLC).
 - 4.16.8 Other required supplemental documents when deemed necessary.
- 4.17 Application for HEV's Certificate of Conformity shall be provided with the following explanations:
 - 4.17.1 Verification and description of vehicle type.
 - 4.17.2 Operation mode switching function description.
 - 4.17.3 Energy storage device description and warranty mileage.
 - 4.17.4 Electrical power and mechanic system.
 - 4.17.5 Control unit.
 - 4.17.6 Power Control Unit.
 - 4.17.7 Pure electric power maximum driving range.
 - 4.17.8 Suggestion items from vehicle manufacturer.
- 4.18 Other provisions
 - 4.18.1 The Certificate of Conformity application documents shall be in Chinese or in

English. The Chinese translation shall be provided if the application is prepared by foreign vehicle manufacturer in non-English foreign language, signed by the vehicle manufacturer authorized agent with the latest update of the related information.

4.18.2 The vehicle manufacturer shall ensure the application is in accordance with all applicable regulations and comply with emission standards.

4.18.3 The applicant must keep the latest documents, recorded data, and test results for 5 years started from the issuance date of Certificate of Conformity.

4.18.4 The application forms and attached documents shall comply with requirements of the electronic process procedures by providing electronic files.

(Table 1) The US 2004 reference fuel specifications

(Table 2) The US 2007 reference fuel specifications

(Table 3) Standardized engine family designation method vehicle model year code

(Table 4) Standardized engine family designation method heavy duty engine manufacturer code

(Table 5) Standardized engine family designation method heavy duty engine type code

(Table 6) Standardized engine family designation method heavy duty engine emission control system code

(Table 7) Continuing use of vehicle model year added code

(Table 8) Light duty diesel and alternative clean fuel vehicle engine family Certificate of Conformity application form

(Table 1) The US 2004 reference fuel specifications

Item	ASTM	Type 1-D	Type 2-D
Cetane	D613	40-54	40-50
Cetane Index	D976	40-54	40-50
Distillation range:			
IBP °F(°C)	D86	330-390 (165.6-198.9)	340-400 (171.1-204.4)
10 pct. point, °F(°C)	D86	370-430 (187.8-221.1)	400-460 (204.4-237.8)
50 pct. point, °F(°C)	D86	410-480 (210-248.9)	470-540 (243.3-282.2)
90 pct. point, °F(°C)	D86	460-520 (237.8-271.1)	560-630 (293.3-332.2)
EP, °F(°C)	D86	500-560 (260.0-293.3)	610-690 (321.1-365.6)
Gravity, °API	D287	40-44	32-37
Total Sulfur pct	D2622	0.03-0.05	0.03-0.05
Hydrocarbon composition:			
Aromatics		8	
Parafins, Naphthenes, Olefins	D1319	(¹)	
Flashpoint, min., °F(°C)	D1319	120	
	D93	(48.9)	
Viscosity, centistokes			27
	D445	1.6-2.0	(¹)
			130
			(54.4)
			2.0-3.2

1. Remainder

(Table 2) The US 2007 reference fuel specifications

Item		ASTM	Type 1-D	Type 2-D
Cetane Number		D613	40–54	40–50
Cetane Index		D976	40–54	40–50
Distillation range:				
IBP	°F (°C)	D86	330–390 (165.6–198.9)	340–400 (171.1–204.4)
10 pct. point	°F (°C)	D86	370–430 (187.8–221.1)	400–460 (204.4–237.8)
50 pct. point	°F (°C)	D86	410–480 (210.0–248.9)	470–540 (243.3–282.2)
90 pct. point	°F (°C)	D86	460–520 (237.8–271.1)	560–630 (293.3–332.2)
EP	°F (°C)	D86	500–560 (260.0–293.3)	610–690 (321.1–365.6)
Gravity	°API	D287	40–44	32–37
Total sulfur	ppm	D2622	7–15	7–15
Hydrocarbon composition:				
Aromatics, minimum (Remainder shall be paraffins, naphthenes, and olefins)	pct.	D5186	8	27
Flashpoint, min	°F (°C)	D93	120 (48.9)	130 (54.4)
Viscosity	centistokes	D445	1.6–2.0	2.0–3.2

(Table 3) Standardized engine family designation method vehicle model year code

Model year	Code	Model year	Code
1997	V	2014	E
1998	W	2015	F
1999	X	2016	G
2000	Y	2017	H
2001	1	2018	I
2002	2	2019	J
2003	3	2020	K
2004	4	2021	L
2005	5	2022	M
2006	6	2023	N
2007	7	2024	O
2008	8	2025	P
2009	9	2026	Q
2010	A	2027	R
2011	B	2028	S
2012	C	2029	T
2013	D	2030	U

(Table 4) Standardized engine family designation method heavy duty engine manufacturer code

Code	Manufacturer
BB	Bluebird Body Co.
CP	Caterpillar Inc.
CR	Chrysler motor Corporation
CE	Cummins Engines Company ,Inc.
DF	DAF Truck B.V.
JD	Deere & Company
DD	Detroit Diesel Corporation
MB	Mercedes-Benz Aktiengesellschaft
FM	Ford Motor Company
GM	General Motors Corporation
HE	Hercules Engines Inc.
HM	Hino Motors, Ltd.
SZ	Isuzu Motors Limited.
VE	IVECO B.V.
DZ	Klocker-Humboldt-Deutz AG
MK	Mack Truck, INc.
MN	MAN Nutzfahrzeuge Gmbh
MM	Mitsubishi Motor Corporation
MC	Mazda Corporation
NV	Navistar International Company
ND	Nissan Diesel Co., Ltd.
RE	Renault Vehicles Industriels
SA	Saab-Scania
VT	Volvo White Truck Division
WB	Winnebago
PK	Perkins Engine Company
PC	Peugeot Citroen Motors

TY TOYOTA Motor Co.

(Table 5) Standardized engine family designation method heavy duty engine type code

Code	Engine type
B	Spark Ignition Fuel Injected Engine
C	Spark Ignition Turbo-Charged Engine
D	Compression Ignition Natural Aspirated Engine
E	Compression Ignition Turbo-Charged Engine
F	Compression Ignition Turbo-Charged and Aftercooled or Intercooled Engine
G	Methanol Fueled Spark Ignition Carbureted Engine
H	Methanol Fueled Spark Ignition Fuel Injected Engine
J	Methanol Fueled Spark Ignition Turbo-Charged Engine
K	Methanol compression ignition
L	Methanol Fueled Compression Ignition Turbo-Charged Engine
M	Methanol Fueled Compression Ignition Turbo-Charged and Aftercooled or Intercooled Engine

(Table 6) Standardized engine family designation method heavy duty engine emission control system code

Code	Emission Control System
A	Engine Modification
B	Air Injection
C	Exhaust Gas Recirculation
D	Oxidation Catalyst
E	Reduction Catalyst
F	Three-Way Catalyst
G	Air Injection + Exhaust Gas Recirculation
H	Air Injection + Oxidation Catalyst
J	Air Injection + Reduction Catalyst
K	Air Injection + Three-Way Catalyst
L	Exhaust Gas Recirculation + Oxidation Catalyst
M	(Exhaust Gas Recirculation + Reduction Catalyst
N	Exhaust Gas Recirculation + Three-Way Catalyst
P	Smoke-Puff-Limiter
R	Air Injection + Exhaust Gas Recirculation + Oxidation Catalyst
S	Air Injection+ Exhaust Gas Recirculation + Reduction Catalyst
T	Air Injection+ Exhaust Gas Recirculation + Three-Way Catalyst
Z	Other

(Table 7) Continuing use of vehicle model year added code

2000 –A0	2010 – B0	2020 – C0	And so on
2001 –A1	2011 – B1	20201– C1	And so on
2002 –A2	2012 – B2	2022– C2	And so on
2003 –A3	2013 – B3	2023 – C3	And so on
And so on	And so on	And so on	And so on

(Table 8) Light duty diesel and alterative clean fuel vehicle engine family Certificate of
Conformity application form

Table 8

Light duty diesel and alterative clean fuel vehicle engine family

Certificate of Conformity application form

行政院環境 保護署	輕型柴油汽車引擎族 排氣合格證明申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex A
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一般資料

GENERAL INFORMATION

01. 車輛製造廠
Vehicle Manufacturer
02. 廠牌
Make
03. 引擎型式
Engine model
04. 車型年
Model year
05. 證明文件請核發給下述公司（公司地址）
The certificate of conformity should be made out to the following company (full address).
06. 業者連絡人之姓名，地址及電話號碼（含國內及國外連絡人）
Name address and telephone number of the person(s) the EPA shall communicate with concerning this application (inside and outside Taiwan R.O.C.)
07. 依本附錄規定之下列項目應分項陳述（並由授權負責人簽章）。
Statements (undersigned by an authorized person) in accordance with the following items of the LDV/LDT Regulation.
 - .01- 該引擎符合附錄之規定()
that the engines conform to the requirements()
 - .02- 對車主之承諾()
commitment to the car owners()
 - .03- 本署得視察測試設備()
permission for EPA to visit the test facilities
 - .04- 國內授權代理人()
authorized representative in R.O.C.()
 - .05- 已依本附錄()之規定進行測試
that the testing has been performed in accordance with the requirements
 - .06- 聲明新車抽驗依本附錄()之規定進行定量比例抽驗
statement that conformance audit in accordance with the requirements would be conducted in Fixed-rate audit
08. 車輛排放空氣污染物品質管制計畫
Vehicle emission quality control project.

see page

in appendix A

備註 Remark

每一附錄應加以標識方予受理申請。

The complete application must be submitted with separating index sheets for each annex.

行政院環境 保護署	輕型柴油汽車引擎族 排氣合格證明申請表	引擎族 Engine family	Page	附錄 Annex B
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附加資料

ADDITIONAL INFORMATION

01. 車輛製造廠聲明屬於本引擎族之車輛在最少公里 公里測試時之排放數
據已經穩定化且具有代表性。

The vehicle manufacturer hereby states that the vehicle included in this engine family are stabilized and representative of design intent for emission data testing at the minimum sum of kilometers.

02. 本署應將新車抽驗資料寄送給業者連絡人員之姓名地址。

Name and full address of the person to whom the EPA should send information regarding CPA-testing.

03. 附屬之車輛組成型態資料。

additional vehicle configuration information :

車輛組成型態 Vehicle configuration	估計國內銷售數量 Estimated sales (units) In Taiwan R.O.C.	Maximum engine power		
		kW	rpm	Meas. method
總數 Total (units)				

行政院環境 保護署	輕型柴油汽車引擎族 排氣合格證明申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex C
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本引擎族所屬之車輛組成型態

VEHICLE CONFIGURATIONS WITHIN THE ENGINE FAMILY

車型銷售時名稱 Vehicle models sales designation	排放控制及相關系統說明 Description of emission control and related system	基本引擎名稱 Basic engine designation	變速系統名稱 Transmission System designation	慣量 Inertia (kg)	參考車重 Reference mass of vehicle RW	車輛組成型態 Vehicle configuration

行政院環境 保護署	輕型柴油汽車引擎族 排氣合格證明申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex D
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基本引擎數據

BASIC ENGINE DATA

01. 基本引擎名稱

Basic engine designation

02. 燃燒循環(即 2 或 4 衝程/diesel)

Combustion cycle (e.g. 2 or 4-stroke/diesel)

03. 氣缸體型態(即 L-6,90° V-8)

Cylinder block configuration (e.g. L-6,90° V-8)

04. 氣缸數

Number of cylinders

05. 冷卻系統型式(氣冷/水冷)

Type of cooling system (air/liquid)

06. 每一氣缸之氣閥數目, 進氣/排氣

number of valves per cylinder, intake/exhaust

07. 供氣方式(自然供氣/增壓器供氣)

Method of air aspiration (natural/supercharged)

08. 燃油噴射方式(即: 直接或間接噴射供油)

Type of fuel injection system (e.g. DI or IDI)

09. 排放控制系統名稱

Emission control system designation

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基本引擎數據(續)
BASIC ENGINE DATA (cont.)

10. 氣缸孔徑(mm)
Bore(mm) _____
11. 衝程(mm)
Stroke(mm) _____
12. 排氣量(cm³)
Displacement (cm³) _____
13. 壓縮比(正常值)
Compression ratio (nominal) _____
14. 閥頭直徑(進氣/排氣) (mm)
Valve head diameter (intake/exhaust) (mm) _____
15. 進氣/排氣孔面積(mm²)
intake/exhaust port area (mm²) _____
16. 閥門正時(曲軸角度)
Valve timing (crankshaft degress)
- .01. 開啟：進氣/排氣
opening :Intake/Exhaust _____
- .02. 關閉：進氣/排氣
close :Intake/Exhaust _____
- .03. 最大升程(mm)
maximum lift (mm) _____
17. 中間冷卻器
Intercooler usage Yes No
- see page _____ in appendix D
18. 噴油系統描述
Description of injection system
- .01. 噴油角度
Injection timing (degree) _____
- .02. 噴油嘴描述及位置
Description and location of injection _____
- see page _____ in appendix D
- .03. 噴油壓力
Injection pressure _____

備註
Remark

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變速系統資料

TRANSMISSION SYSTEM INFORMATION

01. 變速系統命名
Transmission system designation _____
02. 齒輪箱型式(手排檔/自動排檔)
Type of gear box (manual/automatic) _____
03. 前進檔數
Number of forward gears _____
04. 駕駛程式(即標準, 節約)
Driving programs, if applicable (e.g. standard, economy) _____
05. 驅動輪(前輪, 後輪, 恆定/可切換四輪)
Driven wheels (front, rear, 4WD-permanent/declutchable) _____
06. 輪胎尺寸
Tire sizes
.01. 標準裝備 standard : _____
.02. 選擇裝備 optional : _____
07. 最後驅動比
Final drive ratio _____
08. 齒輪比
Gear ratios
.01. gear no 1 _____
.02. gear no 2 _____
.03. gear no 3 _____
.04. gear no 4 _____
.05. gear no 5 _____
09. 在 1000 rpm 引擎轉速時之車輛速度(標準輪胎)
Vehicle speed at 1000 rpm engine speed (standard tires)
(車速偏差 $\pm 8\%$ 時, 可視為同一車輛型態)
(a deviation of max. $\pm 8\%$ is permitted for vehicles to be classified within the same vehicle configuration)
gear no. 1 (km/h) _____
gear no. 2 (km/h) _____
gear no. 3 (km/h) _____
gear no. 4 (km/h) _____
gear no. 5 (km/h) _____

備註 Remark

車輛之基本引擎、排放控制系統及變速裝置皆相同時稱為同一車輛組成型態。變速裝置尚需考量所有齒輪之總齒輪比, 即以車輛引擎在每分鐘一千轉時之車輛速度公差應在 $\pm 8\%$ 內來表示。車輛具有不同之負載車重時, 當其慣性質量相同才視為屬於同一車輛組成型態。

The vehicles equipped same basic engine, emission control device and transmission device would be designated to same vehicle configuration. It includes total gear ratio for all gear for transmission device, that is vehicle speed tolerance would be within $\pm 8\%$ at engine 1000 rpm. When vehicles are designed for different loaded vehicle weight, only those which are designed for same inertia mass could be designated to same vehicle configuration.

參考車重: 執行 FTP-75 test 者, 其指車輛空車重量加上 136 公斤。

執行 NEDC test 者, 其指車輛空車重量加上 100 公斤。

Reference mass of vehicle RW: For FTP-75 Emission test, it is the Vehicle vacant weight plus 136 kg.

For NEDC Emission test, it is the Vehicle vacant weight plus 100 kg.

車輛空車重量: 係指車輛在未裝載人、貨, 引擎內裝有規定之潤滑油, 水箱內裝有規定之冷卻水, 燃料箱內裝有規定之燃料, 並帶有原場規定配件(備胎與工具)情況下之重量。

Vehicle vacant weight: It is the vehicle that has not been loading people, goods, contain the lubricating oil stipulated in the engine, contain the cooling water stipulated in the water tank, contain the fuel stipulated in the fuel case, and there is original field that stipulates the weight under the situation of the fittings (spare tire and tool).

慣性重量: 在車體動力計上設定之重量

Inertia mass: The mass which is set in chassis dynamometer for FTP75 (LA-4) test procedure.

每一變速系統應個別填報。Separate forms are required for each transmission system.

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排放控制及相關系統說明

DESCRIPTION OF THE EMISSION CONTROL AND RELATED SYSTEM

01. 燃料及空氣供應系統

Fuel and air supply system

.01. 廠牌及型式名稱

Make and type designation _____

.02. 構造及操作方法

Configuration and method of operation

see page _____ in appendix F _____

02. 電子系統

Electrical system and other
devices off the engine

.01. 廠牌及型式名稱

Make and type designation _____

.02. 構造及操作方式

Configuration and method of
operation

see page _____ in appendix F _____

備註

Remark

每一排放控制系統應個別填報。

Separate forms are required for each emission control system.

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排放控制及相關系統說明(續)

DESCRIPTION OF THE EMISSION CONTROL AND RELATED SYSTEM (cont.)

03. 廢氣排放控制系統

Exhaust emission control system

.01. 指出廢氣排放控制系統所包含之裝置

Indicate the devices included in the
exhaust emission control system

.02. 構造及操作方式

Configuration and method of operation

see page _____ in appendix F _____

04. 潤滑系統
Lubrication system
- .01. 廠牌及型式名稱
Make and type designation _____
- .02. 構造及操作方式
Configuration and method of operation
每一零件之排放相關數據
Relevant emission related data
Shall be given for component see page _____ in appendix F _____
05. 冷卻系統
Cooling system
- .01. 廠牌及型式名稱
Make and type designation _____
- .02. 構造及操作方式
Configuration and method of operation see page _____ in appendix F _____
06. OBD
01. 裝置系統說明
Description of OBD System see page _____ in appendix F _____

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車上零件位置

LOCATION OF COMPONENTS IN THE VEHICLE

01. 排放控制系統名稱
Emission control system designation
02. 車輛組成型態
Vehicle configuration(s)
03. 以相片或其他方式顯示排放控制零件於車上之位置
Photograph or equivalent showing the location
of the emission control components in the vehicle

如電子控制箱等無法裝置於引擎室之零件，其位置亦應指明。
The location of components such as e.g. an electronic control
box, which might not be located in the engine compartment,
must also be indicated

see page _____ in appendix G _____

04. 零件辨識清冊（量產零件）。於附錄 F 上所載之排氣相關零件與零件上名稱及辨識號碼相同。
Part identification list (production units). Each
emission related component described in annex F
must be identified with the name and the identification
code that can be found on the component.

see page _____ in appendix G _____

備註 Remark

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OBD相關測試數據

OBD TEST DATA SUMMARY

01. OBD族
OBD Family
02. 測試數據
Test data

<input type="checkbox"/> 執行 NEDC 測試 NEDC test 提送專業檢驗機構 OBD 排放測試報告 OBD TEST REPORT								
測試報 告編號 Number of test report	測試 項目 test item	故障模擬排放測試結果 Test results				故障 碼 Fault code	故障指示 燈是否亮 起 Activation of MI light	測試結果 是否須乘 上劣化係 數 calc. with DF
		CO (g/km)	NMHC (g/km)	NOx (g/km)	PM (g/km)			
OBD 管制門檻 OBD threshold Limits								

<input type="checkbox"/> 執行 FTP-75 行車型態測試 FTP-75 Emission test 提送專業檢驗機構 OBD 排放測試報告 OBD TEST REPORT

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提供車主之排放相關手冊

EMISSION RELATED INSTRUCTIONS TO THE VEHICLE OWNER

01. 車輛組成型態
Vehicle configuration(s) _____
02. 啟動指引
Starting instructions see page _____ in appendix I _____
03. 搭配使用變速裝置
Use of transmission class see page _____ in appendix I _____
04. 建議使用燃料種類
Recommended fuel _____
05. 建議引擎工作溫度
Recommended engine temperature _____
06. 其他與排放有關之操作手冊以確保排放控制系統之有效使用。
Other emission related operational instructions
necessary for ensuring correct operation of the
emission control system
see page _____ in appendix H _____
07. 與排放有關之維護手冊（包含交車前準備動作及保養期限）
以確保使用時能符合排放標準。
Emission related maintenance instructions
(including pre-delivery activities and
service intervals) necessary to ensured
in-use compliance
see page _____ in appendix I _____
08. 依本附錄()之規定提供車主之保證影本。
Copy of the commitment to the
vehicle owners according to the
requirements()
see page _____ in appendix I _____
09. 依本附錄()規定欲附貼在引擎上之中文標識照片或影本。
Copy or photograph of the Chinese label
adhesive to the engine according to
the requirement ()

備註 Remark

項目 09 之標識之記載項目應容易辨識該車裝有那些排放控制裝置。

Item 09, the label should preferably include information wherby the correct combination of emission control devices on a certain vehicle can be identified.

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劣化係數
DETERIORATION FACTORS

01. 車輛組成型態
Vehicle configuration (s) _____

02. 廢氣排放測試
Exhaust emission test

<input type="checkbox"/> FTP-75 test		
DF	CO	
	NMOG	
	NO _x	
	HCHO	
	PM	

<input type="checkbox"/> NEDC test		
DF	CO	
	HC+NO _x	
	NO _x	
	PM	
	PN	

採用方式 method used

- a. 實際劣化係數：
依據辦法()執行
Durability test：
According to the following codes()
- b. 法定劣化係數：
依據辦法()執行
Designated deterioration Factors:
According to the following codes()

03. 以技術觀點來評估訂定劣化係數時所採用之方式(僅用於方式 a)
Technical account for the evaluation of
the method used to determine DF factors
(only applicable for method a)

see page _____ in appendix J_____

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動力計設定
DANAMOMETER SETTING

01. 80 km/h 路阻(於 85-75 km/h 之滑行測試時間)
road resistance at 80 km/h(coast-down time 85-75 km/h)

方法 Method	路 阻(N) Road resistance (N)	動力計設定 Dynamometer setting		車輛組成型態(及車型) Vehicle configuration (and vehicle model)
		慣 量 Inertia (kg)	滑行時間 Coast-down time(s)	

採用方式：

Methods：

- a) 滑行間之駕駛阻力變化
Driving resistance variation during coast-down
- b) 定速扭矩測試法
Torque measurement method at constant speed
- c) 替代方法—採用列表數值，但須本署同意(日期 _____)
Alternative method-table values
According to EPA agreement (date _____)
- d) 經本署同意之其他方法(日期 _____)
Other method approved by the EPA (date _____)

Remarks

If a chassidynamometer with a non-fixed load curve is used, the coast-down times and the power or force settings at 100, 80, 60, 40 and 20 km/h, shall be report. If the data for the road resistance and braking force or power refers to another speed than the above mentioned this must be clearly point out. This should also be done if the coast-down times(s) is (are)not measured between 85-75 km/h.

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測試數據摘要

TEST DATA SUMMARY

01. 排放數據

Emission data

車輛組成型態及測試 引擎名稱 Vehicle configuration and type of test engine	排放測試結果(g/km) Emission test results Including DF(g/km)							
	引擎型式 Engine Type :				, 測試引擎 Test Engine :			
	CO	THC (1)	NO _x	THC+NO _x (1)	PM	PN (1)	NMOG (2)	HCHO (2)
測試值 Test results								
再生係數 ⁽³⁾ Ki factors								
劣化係數 DF-factors								
最終值 calc. with DF								
標準值 Limits								
備註：(1)適用執行 NEDC 行車型態者。 (2)適用執行 FTP-75 行車型態者。 (3)適用配備週期性再生型裝置之車輛。 Remarks：(1)For NEDC Emission test. (2)For FTP-75 Emission test. (3)For vehicles with periodically regenerating systems								

02. 耐久測試數據 Durability data

測試車輛號碼 Test vehicle I.D. number	車輛組成型態 Vehicle configuration	劣化係數量測值 Measured deterioration factors						
		CO	NO _x	THC+NO _x (1)	PM	PN(1)	NMOG (2)	HCHO (2)
備註：(1)適用執行 NEDC 行車型態者。 (2)適用執行 FTP-75 行車型態者。 Remarks：(1)For NEDC Emission test. (2)For FTP-75 Emission test.								

備註 Remarks

1) 依下列法規之規定說明測試車輛之選擇

E1=依本附錄()規定選擇測試車輛

E2=依本附錄()規定選擇測試車輛

Specify the test vehicle selection according to the following codes:

E1=emission test vehicle selected according to item () of the LDV/LDT Regulation.

E2=emission test vehicle selected according to item () of the LDV/LDT Regulation.

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排放測試報告
EMISSION TEST REPORT

01. 測試數據(提送專業檢驗機構之測試報告)

Test data

依本附錄()規定所選擇之測試車輛之測試報告應包含下列資料

For each emission test vehicle, selected in accordance with item of the HDE/HDT Regulation, the manufacturer shall present a test report containing the following information :

- 測試編號及測試日期
test number and test data
- 測試車輛辨識(車輛組成型態、測試車輛編號、車體號碼、引擎號碼、里程時數)。
Test vehicle identification (vehicle configuration, test vehicle no., chassis no., engine number, odometer reading)
- 引擎中排放相關零件之設定
engine setting of emission related components
- 里程累積
Milage Accumulation Data and milage acumulated of the milage Accumulated performed each time
- 維修及保養紀錄
Maintenance & Repair All maintenance
- 測試車輛診斷紀錄
Diagnostic Test Record Issues of Vehicle Test
- 預先調整方式
pre-conditioning method
- 油品規範
fuel specification
- 測試條件(動力吸收特性、動力計設定、引擎性能)
test conditions (characteristics of power absorbed by the engine driven equipment, dynamomter settings, engine performances etc.)
- 測試周圍之環境(大氣壓力、溫度等)
ambient conditions (atmospheric pressure, temperature etc.)
- 氣狀污染物測試結果
test results of gaseous mass emissions
- 粒狀污染物測試結果
test results of particulate emissions
- 耐久測試描述
durability test description (if applicable)
- 耐久測試結果
durability test result (if applicable)

備註 Remark

使用與測試方法規定不同之變檔型式時應事先通知本署

The use of other gear shifting patterns than specified test procedure must be approved in advance by the EPA.

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修正項目目錄
REVISION INDEX

修正編號 Revision number	修正日期 Revision date	附件／頁數 Annex/Page(s) affected	說明修正內容 Description of revision

Appendix 2: Application for a heavy duty vehicle engine certificate of conformity: the required documents to be attached; selection of testing engines; reference fuel specifications; recognition of foreign certificates of conformity and test reports; and other related requirements

1. Prior to the application for a certificate of conformity, the applicant shall provide required documents to prove the vehicle model engine is in compliance with applicable emission standards, if being approved as in compliance, the central competent authority may issue the certificate of conformity to that heavy duty diesel vehicle.
2. To apply for a certificate of conformity, the applicant shall provide the deterioration factors for that engine family; the determination of deterioration factors shall be in accordance with provision 11.
3. Test engine and reference fuel specifications

3.1 Test engine

The test engine's configuration shall be consistent with the information stated in the letter of compliance application form, and being tested in accordance with the test methods prescribed in provision 18. The test engine shall comply with all the requirements regulated in this Appendix.

3.1.1 Selection of test engine

3.1.1.1 The test engine shall be selected based on engine family category and being tested to measure its exhaust emissions. The selected engine should have maximum horse power 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 audit test and COP test, 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 plan shall be overviewed and agreed by the central competence authority, the test results for different stages should be reported to the authority according to the schedule in the test plan.

3.2 Reference fuels for different tests

3.2.1 Reference fuel specifications for emissions tests

3.2.1.1 Reference diesel fuel specifications for emissions tests

3.2.1.1.1 Engines being tested using the US FTP Transient driving cycle and comply with emission standards effective on Oct. 1, 2006, the test fuel being used shall be in accordance with the US 2004 reference fuel specifications (details prescribed in table 1 of Appendix 2); engines comply with emission standards effective on Jan. 1, 2012, the test fuel being used shall be in accordance with the US 2007 reference fuel specifications (details prescribed in table 2 of Appendix 2).

3.2.1.1.2 Engines being tested using the EU ESC, ETC, and ELR cycles, the test fuel being used shall be in accordance with the reference fuel specifications in Annex IV to the EU Directive 2005/55/EC.

3.2.1.2 Reference alternative clean fuel specifications for emissions tests

The alternative clean fuel for emissions tests shall be in accordance with domestic regulated specifications, if not available, the foreign specifications may be adopted, when using domestic market fuel to conduct new vehicle conformity audit tests, the manufacturer shall ensure its compliance with domestic emission standards. If domestic market fuel is not available, the foreign alternative clean fuel specifications may be adopted.

3.2.2 Reference fuel specifications for durability tests

3.2.2.1 Reference diesel fuel specifications for durability tests

The reference diesel fuel for durability tests shall be in accordance with the domestic market premier diesel fuel specifications; the foreign area market diesel fuel may also be adopted. If there are different foreign areas market diesel fuels, the specifications closest to the domestic market diesel fuel shall be adopted.

3.2.2.2 Alternative clean fuel specifications for durability tests

The alternative clean fuel for durability tests shall be in accordance with domestic regulated specifications, if not available, foreign specifications may be adopted; if lack of both domestic and foreign specifications, the domestic market fuel specifications shall be adopted; if lack of domestic market fuel, the foreign area market fuel specifications shall be adopted.

4. The applicant shall provide a Chinese version of user's manual including warranty for emission control systems to the central competent authority. The manual shall provide maintenance guide and schedules for inspection items and component changes within the warranty period, the vehicle owner shall perform maintenance accordingly to ensure the normal functionalities of emission control systems.

5. Label

5.1 The engine manufacturer shall affix an English label with characteristics such as durable, corrosion and rust proof, not easy to remove and easily identifiable, the label contents shall be in accordance with the regulations of the export country and being affixed to a clearly visible place in the engine compartment.

5.2 Applicant who has obtained the letter of compliance shall provide a Chinese version of label to be affixed on the engine, if torn off from the engine, it will be damaged or causing printed text 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 Emissions Control Information".

5.3.2 Full title of the company, vehicle manufacturer and brand.

5.3.3 Model year, engine family, engine displacement, emission control related systems, OBD system.

5.3.4 The minimum requirement for engine optimal performance adjustment specifications to be include: idle engine speed, injection timing, valve clearance, maximum horse power, 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 Jan. 1, 2004 and its subsequent amendments”; “To remove or modify the emission control devices is prohibited” .

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

6. Warranty period

6.1 Diesel vehicles within warranty period and under normal use conditions, the emitted exhaust emissions shall comply with provision 5 of the emission standards and provisions of this Appendix.

6.2 The warranty period for diesel vehicle emission control systems shall be in accordance with provision 5 of the emission standards and provisions of this Appendix.

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

7.1 The device has functions to protecting the engine against damage or 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 competence authority may request the applicant to send more than one engine to the designated location to perform type approval tests for the application for a Letter of Compliance; the applicant shall be responsible for the test related fees.

8.2 As to the engine manufacturer applying for the Letter of Compliance, the central competence authority’s personnel may enter the applicant’s inspection room and factories, overview the related document records to determine whether or not the test

engine and the mass produced engines comply with provisions of this Appendix, and verifying the consistency of design specifications with the application.

8.3 During the certificate of conformity application process, the central competence authority may send personnel to oversee and check the preparation process. The central competence authority may together with the designate professional inspection organization to oversee and check the preparation process.

9. Test specification and test report

9.1 Test specification

9.1.1 Engine test cycles:

9.1.1.1 Vehicles with gross vehicle weight (GVW) greater than 3,500 kg: the test shall be performed on engine dynamometer using the US FTP Transient cycle or EU ESC, ETC, and ELR cycles for the test.

9.1.1.2 Trucks with gross vehicle weight (GVW) greater than 5,500 kg, less than or equal to 3,500 kg:

9.1.1.2.1 Test using the US emission test cycles: may choose the FTP-75 driving cycle or FTP Transient cycle for the test.

9.1.1.2.2 Test using the European Union emission test cycles: may choose the NEDC driving cycle or ESC, ETC and ELR cycles for the test.

9.1.2 OBD test: for heavy duty vehicles equipped with OBD system according to requirements of the emission standards, the test procedure shall be in accordance with provisions of Appendix 5.

9.2 Test report

9.2.1 Test report for the engine emission cycle test:

9.2.1.1 Heavy duty diesel vehicles with gross vehicle weight (GVW) greater than 3,500 kg: must provide test reports using the US FTP Transient cycle or the EU ESC, ETC and ELR cycles for the test.

9.2.1.2 Truck with gross vehicle weight (GVW) greater than 2,500 kg, and less than or equal to 3500 kg:

9.2.1.2.1 Tests using the US emission test cycles: must provide test reports using the FTP-75 driving cycle or FTP Transient cycle for the test.

9.2.1.2.2 Tests using the EU emission test cycles: must provide test reports using the NEDC driving cycle or ESC, ETC and ELR cycles for the test.

9.2.2 OBD test report: for heavy duty vehicles equipped with OBD system according to requirements of the emission standards, test reports shall be provided with the test procedure in accordance with provisions of Appendix 5.

10. The contents of engine exhaust emissions quality control plan shall include:

10.1 Method of implementing self audit test.

10.2 Sampling ratio for the audit test (for each engine family, select one for every 500 vehicles)

10.3 Test items: include engine emission cycle test and OBD circuit continuity test.

10.4 Test organization.

10.5 Test instruments and equipment.

10.6 Test results and full records.

10.7 Allocation information for personnel to execute the quality control plan.

10.8 Problems and issues improvement proposal.

10.9 Other supplement descriptions (e.g. flow chart for plan implementation).

11. Engine family

11.1 For engines application for diesel vehicle certificate of conformity shall be categorized by similar exhaust emission characteristics within their valid duration.

Each category should be defined as separate engine family, and each engine family shall apply for certificate of conformity separately.

Identical engine family means engines comprising the following identical items:

11.1.1 Cylinder block configuration (e.g. air or liquid cooling system, vertical, line, or V types)

11.1.2 Location of intake and exhaust valves.

- 11.1.3 Method of air aspiration (e.g. natural/supercharged)
 - 11.1.4 Emission control system.
 - 11.1.5 Fuel and air supply system.
 - 11.1.6 Cooling system type (e.g. air, liquid).
- 11.2 If the central competence authority deemed even though the engines equipped with identical above mentioned items but may have different exhaust emission characteristics, may categorize these engines into different engine families. 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.
- 11.3 Designation methods for Standardized Engine Family
- 11.3.1 Rational for standardized engine family designation
- The rational for standardized engine family designation is to provide easily identifications for that engine family such as model-year, manufacturer, and basic information. It also provides assistance during inspection process and reduces database key in errors. The standardized engine family name consists of a series of letters and numbers, each letter and number has its own meanings.

11.3.2 The standardized engine family designation

The standardized engine family name shall consist of 11 letters and symbols; the structure and represented meanings are described as follows:

charaters	engine family
1	Model Year (Model Year, see table 4)
2&3	Manufacture Code (Letter code describing Manufacture, see table 5)
4,5,6&7	Displacement (Displacement in cubic inches (e.g., 0466 = 466 cubic inches) or liters (e.g., 05.7 = 5.7 liters).
8	Engine Cycle and Fuel Type (Letter code describing type of engine, see table 6)
9	Emission Control System (Letter code describing type of emissions control system, see table 7)
10	Uniqueness digit (Letter code to make first 10 digits unique)
11	checksum digit (Checksum digit)

Example

Heavy Duty Diesel and Alternative Clean Fuel Engine Family
(Heavy-Duty Engine Family)

LCE0505EAA0

L=1990 Model year

CE=Cummins Engine Co.

0505=505 cubic inches

E=Turbo-charged diesel engine

A=Engine modification

A=Uniqueness digit

0=checksum digit

11.3.3 Example

Heavy Duty Diesel and Alternative Clean Fuel Engine Family

(Heavy-Duty Engine Family)

LCE0505EAA0

L=1990 Model Year

CE=Cummins Engine Co.

0505=505 cubic inches

E= Turbo-charged diesel engine

A= Engine modification

A= Uniqueness digit

0= checksum digit

11.3.4 Determination of CSD

Step 1: Assign to each number in the engine family code its actual mathematical value and assign to each letter the value specified below:

A=1	J=1	T=3
B=2	K=2	U=4
C=3	L=3	V=5
D=4	M=4	W=6
E=5	N=5	X=7
F=6	P=7	Y=8
G=7	R=9	Z=9
H=8	S=2	Decimal pt=1

Step 2: Multiply the assigned value for each character in the engine family code by the weight factor specified for it below:

Character	Weight Factor
1 st	10
2 nd	9
3 rd	8
4 th	7
5 th	6
6 th	5
7 th	4
8 th	3
9 th	2
10 th	1

Step 3: Add the resulting products and divide the total by 11. The remainder is the CSD. If the remainder is 10, the CSD is X.

Example

Determine the CSD if the first 10 characters are LCE0505EAA.

	L	C	E	0	5	0	5	E	A	A
Assigned Value	3	3	5	0	5	0	5	5	1	1
Weight Factor	10	9	8	7	6	5	4	3	2	1
	—	—	—	—	—	—	—	—	—	—
Products	30	27	40	0	30	0	20	15	2	1

Sum of Products = 165

Divide by 11 = 15 + 0/11

CSD = 0

Therefore, engine family code is LCE0505EAA0..

11.4 Designation methods for continuing use of engine family name

The continuing use of engine family name shall be handled by adding additional code to the original engine family code.

Example

The code for original engine family is 2*****, to apply for continuing use of 2003 vehicle model year, its engine code shall be designated as 2*****-A3.

The added code for each vehicle model year is listed in Table 7 of Appendix 2.

11.5 If the standardized engine family designation of provision 11.3 of Appendix 2 is not being adopted, the applicant may provide a 11-character code for the name of its heavy duty diesel buses and trucks, but the first character (vehicle model year code) and its continuing use engine family designation methods still need to be in compliance with provision 11.3.4 of Appendix 2.

12. Application methods

12.1 The application for a heavy duty vehicle's certificate of conformity is divided into 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 qualified for one of the following requirements, may combine the two steps prescribed in provision 12.1 of Appendix 2 into one step for the application for a Certificate of Conformity.

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

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

12.3 Applicants already obtained the Letter of Compliance issued by the central competent authority (Consent to Use Agreement from the original holder of Letter of Compliance, Joint Guarantee Agreement and a photocopy of the Letter of Compliance) and the smoke opaque test values for the vehicle types of that engine

family (test result values being measured in accordance with the diesel vehicle exhaust smoke test methods and procedures) comply with provision 5 of the emission standards, may apply for the certificate of conformity to the central competent authority.

13. Application for a Letter of Compliance

13.1 Qualification requirements for application

13.1.1 For domestically made engines, the engine manufacturer shall apply for the Letter of Compliance. A proof of capability to perform vehicle maintenance and repairs and a vehicle exhaust emissions quality control plan shall be submitted along with the application. The applicant may commission the central competence authority designated professional test laboratory or laboratory that complies with provision 13.2.1.2 of Appendix 2 to implement the plan. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of the first month of each quarter to the central competence authority for auditing.

13.1.2 For imported heavy duty vehicles, the foreign engine manufacturer designated domestic agent shall provide an engine exhaust emissions quality control plan and proof of capability to perform engine maintenance and repairs for the application for the Letter of Compliance. The agent may commission the central competence authority designated professional test laboratory or laboratory that complies with provision 13.2.1.2 of Appendix 2 to implement that quality control plan. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of the first month of each quarter to the central competence authority for auditing.

13.1.3 For applicants not being defined in provision 13.1.1 and 13.1.2 (Importers shall submit their applications through their pertaining associations) shall commission the central competence authority accredited test laboratory to implementing engine or vehicle exhaust emissions quality control plan. The

test laboratory shall provide the proof of capability to perform engine maintenance and repairs in accordance with test procedures and test reports requirements in provision 9 of Appendix 2. The statistical analysis for the previous quarter conducted quality control test data shall be sent before 20th of the first month of each quarter to the central competence authority for auditing.

13.2 Application for a Letter of Compliance

13.2.1 Application for an engine cycle test Letter of Compliance

13.2.1.1 Application for engine family with the central competent authority recognized country issued Certificate of Conformity.

13.2.1.1.1 If the applicant has obtained the US-EPA issued new vehicle certificate of conformity by using the FTP Transient cycle for type approval test, and the test results comply with provision 5 of the emission standards, the applicant may submit the application for Certificate of Conformity to the central competent authority.

13.2.1.1.2 If the applicant has obtained the EU issued new vehicle Certificate of Conformity in accordance with the Directive 2005/55/EC or UN/ECE Regulation No 49-04 and their subsequent amendments by using the ESC, ETC, and ELR cycles for type approval test, and the test results comply with provision 5 of the emission standards, the applicant may submit the application for a Letter of Compliance to the central competent authority.

13.2.1.2 Application for engine family without the central competent authority recognized foreign country issued Certificate of Conformity.

If the application has obtained test report from the accredited test laboratory may submit the application for a Letter of Compliance to the central competent authority. The qualification requirements for test laboratory to be accredited are as follows:

13.2.1.2.1 The test laboratory has obtained the US-EPA issued engine family Certificate of Conformity by using the US-Transient cycle for the type approval test as a proof of its equipment and personnel's capability to perform the test, and the test results comply with provision 5 of the emission standards.

13.2.1.2.2 The test laboratory has obtained the EU issued new diesel vehicle's Certificate of Conformity in accordance with the Directive 2005/55/EC or UN/ECE Regulation No 49-04 and their subsequent amendments by using the ESC, ETC, and ELR cycles for the type approval test as a proof of its equipment and personnel's capability to perform the test, and the test results comply with provision 5 of the emission standards.

13.2.1.2.3 For engines not being qualified for provisions 13.2.1.2.1 and 13.2.1.2.2 shall be provided with test report issued by the central competent authority designated test laboratory, and the test results comply with provision 5 of the emission standards.

13.2.2 Application for an OBD Certificate of Conformity: the application shall comply with test methods prescribed in Appendix 5 and its related regulations.

14. Issuance of Letter of Compliance

14.1 The information provided by the applicant in accordance with provisions 13.2.1 or

13.2.2, being overviewed and determined in compliance with the emission standards, shall be issued a Letter of Compliance by the central competent authority. This Letter of Compliance is a necessary overview document for the issuance of certificate of conformity for diesel vehicle.

14.2 The issued Letter of Compliance is for one vehicle model year only.

14.3 The test data or information provided by the applicant for Letter of Compliance application, and being determined noncompliance with the emission standards; the central competent authority shall inform the applicant through a written notice.

15. Continuing use of Letter of Compliance

15.1 The applicant may apply for Continuing use based on the previous model year's Letter of Compliance.

15.2 The Letter of Compliance titled manufacturer shall report to the central competent authority annually on the design information of the emission related devices for that diesel engine family.

16. Modification of Letter of Compliance

If the applicant intends to modify part of the information for the engine family and continuous to use the original engine family name, he shall apply for Letter of Compliance modification and provide with comparisons data information between the previous and modified engine types to prove the influenced emission items and exhaust characteristics are identical, being overviewed and approved by the central competence authority, the modified Letter of Compliance may be issued for that engine family.

17. Extension of Letter of Compliance

If applicant intends to add a new engine type in an engine family, he shall apply for extension of Letter of Compliance to the central competence authority, provide data information for the extended engine type to prove the influenced emission items and exhaust characteristics are identical, being overviewed and approved by the central competence authority, the extension of Letter of Compliance may be issued for that engine family.

18. Complete the application form

The application form shall be completed in accordance with the required format and provide with necessary information requested by the central competence authority.

19. According to the requirements of emission standards, vehicle shall be equipped with OBD system, and the applicant shall provide OBD related documents to prove the compliance to these provisions. The contents of these documents are as follows:

19.1 Description of the OBD system.

19.2 Description or annotated drawing of the MIL used in the OBD system.

19.3 Description of all emissions control equipment and related components/systems monitored by OBD, as well as a list of malfunction codes, related computer code format and contents.

19.4 Description or flowchart of the actuation principle for OBD monitoring devices (including monitoring strategy, malfunction indicator standards and MIL light on timing).

19.5 OBD test report.

19.6 An explanation of adopted solutions or strategies to prevent arbitrary adjust or modify the Engine Control Units (ECU).

19.7 Description of the location of OBD connector (DLC).

19.8 Other required supplemental documents when deemed necessary.

20. Application for HEV's Certificate of Conformity shall be provided with the following explanations:

20.1 Verification and description of vehicle type.

20.2 Operation mode switching function description.

20.3 Energy storage device description and warranty mileage.

20.4 Electrical power and mechanic system.

20.5 Control Unit.

20.6 Power Control Unit.

20.7 Pure electric power maximum driving range.

20.8 Suggestion items from vehicle manufacturer.

21. Other provisions

- 21.1 The Letter of Compliance application documents shall be in Chinese or in English. The Chinese translation shall be provided if the application is prepared by foreign engine manufacturer in non-English foreign language, signed by the engine manufacturer authorized agent with the latest update of the related information.
- 21.2 The engine manufacturer shall ensure the application is in accordance with all applicable regulations and comply with emission standards.
- 21.3 The applicant must keep the latest documents, recorded data, and test results for 5 years started from the issuance date of Letter of Compliance.
- 21.4 The application forms and attached documents shall comply with requirements of the electronic process procedures by providing electronic files.

(Table 1) The US 2004 reference fuel specifications

(Table 2) The US 2007 reference fuel specifications

(Table 3) Standardized engine family designation method vehicle model year code

(Table 4) Standardized engine family designation method heavy duty engine manufacturer code

(Table 5) Standardized engine family designation method heavy duty engine type code

(Table 6) Standardized engine family designation method heavy duty engine emission control system code

(Table 7) Continuing use of vehicle model year added code

(Table 8) Heavy duty diesel and alternative clean fuel vehicle engine family Letter of Compliance application form

(Table 1) The US 2004 reference fuel specifications

Item	ASTM	Type 1-D	Type 2-D
Cetane	D613	40-54	40-50
Cetane Index	D976	40-54	40-50
Distillation range:			
IBP °F(°C)	D86	330-390 (165.6-198.9)	340-400 (171.1-204.4)
10 pct. point, °F(°C)	D86	370-430 (187.8-221.1)	400-460 (204.4-237.8)
50 pct. point, °F(°C)	D86	410-480 (210-248.9)	470-540 (243.3-282.2)
90 pct. point, °F(°C)	D86	460-520 (237.8-271.1)	560-630 (293.3-332.2)
EP, °F(°C)	D86	500-560 (260.0-293.3)	610-690 (321.1-365.6)
Gravity, °API	D287	40-44	32-37
Total Sulfur pct	D2622	0.03-0.05	0.03-0.05
Hydrocarbon composition:			
Aromatics		8	
Parafins, Naphthenes, Olefins	D1319	(¹)	
Flashpoint, min., °F(°C)	D1319	120	
	D93	(48.9)	
Viscosity, centistokes			27
	D445	1.6-2.0	(¹)
			130
			(54.4)
			2.0-3.2

1. Remainder

(Table 2) The US 2007 reference fuel specifications

Item	ASTM	Type 1-D	Type 2-D	
Cetane Number	D613	40–54	40–50	
Cetane Index	D976	40–54	40–50	
Distillation range:				
IBP	°F (°C)	D86	330–390 (165.6–198.9)	340–400 (171.1–204.4)
10 pct. point	°F (°C)	D86	370–430 (187.8–221.1)	400–460 (204.4–237.8)
50 pct. point	°F (°C)	D86	410–480 (210.0–248.9)	470–540 (243.3–282.2)
90 pct. point	°F (°C)	D86	460–520 (237.8–271.1)	560–630 (293.3–332.2)
EP	°F (°C)	D86	500–560 (260.0–293.3)	610–690 (321.1–365.6)
Gravity	°API	D287	40–44	32–37
Total sulfur	ppm	D2622	7–15	7–15
Hydrocarbon composition:				
Aromatics, minimum (Remainder shall be paraffins, naphthenes, and olefins)	pct.	D5186	8	27
Flashpoint, min	°F (°C)	D93	120 (48.9)	130 (54.4)
Viscosity	centistokes	D445	1.6–2.0	2.0–3.2

(Table 3) Standardized engine family designation method vehicle model year code

Model year	Code	Model year	Code
1997	V	2014	E
1998	W	2015	F
1999	X	2016	G
2000	Y	2017	H
2001	1	2018	I
2002	2	2019	J
2003	3	2020	K
2004	4	2021	L
2005	5	2022	M
2006	6	2023	N
2007	7	2024	O
2008	8	2025	P
2009	9	2026	Q
2010	A	2027	R
2011	B	2028	S
2012	C	2029	T
2013	D	2030	U

(Table 4) Standardized engine family designation method heavy duty engine manufacturer code

Code	Manufacturer
BB	Bluebird Body Co.
CP	Caterpillar Inc.
CR	Chrysler motor Corporation
CE	Cummins Engines Company,Inc.
DF	DAF Truck B.V.
JD	Deere & Company
DD	Detroit Diesel Corporation
MB	Mercedes-Benz Aktiengesellschaft
FM	Ford Motor Company
GM	General Motors Corporation
HE	Hercules Engines Inc.
HM	Hino Motors,Ltd.
SZ	Isuzu Motors Limited.
VE	IVECO B.V.
DZ	Klocker-Humboldt-Deutz AG
MK	Mack Truck,INc.
MN	MAN Nutzfahrzeuge Gmbh
MM	Mitsubishi Motor Corporation
MC	Mazda Corporation
NV	Navistar International Company
ND	Nissan Diesel Co., Ltd.
RE	Renault Vehicles Industriels
SA	Saab-Scania
VT	Volvo White Truck Division
WB	Winnebago
PK	Perkins Engine Company
PC	Peugeot Citroen Motors
TY	TOYOTA Motor Co.

(Table 5) Standardized engine family designation method heavy duty engine type code

Code	Engine type
B	Spark Ignition Fuel Injected Engine
C	Spark Ignition Turbo-Charged Engine
D	Compression Ignition Natural Aspirated Engine
E	Compression Ignition Turbo-Charged Engine
F	Compression Ignition Turbo-Charged and Aftercooled or Intercooled Engine
G	Methanol Fueled Spark Ignition Carbureted Engine
H	Methanol Fueled Spark Ignition Fuel Injected Engine
J	Methanol Fueled Spark Ignition Turbo-Charged Engine
K	Methanol Fueled Compression Ignition Engine
L	Methanol Fueled Compression Ignition Turbo-Charged Engine
M	Methanol Fueled Compression Ignition Turbo-Charged and Aftercooled or Intercooled Engine

(Table 6) Standardized engine family designation method heavy duty engine emission control system code

Code	Emission Control System
A	Engine Modification
B	Air Injection
C	Exhaust Gas Recirculation
D	Oxidation Catalyst
E	Reduction Catalyst
F	Three-Way Catalyst
G	Air Injection + Exhaust Gas Recirculation
H	Air Injection + Oxidation Catalyst
J	Air Injection + Reduction Catalyst
K	Air Injection + Three-Way Catalyst
L	Exhaust Gas Recirculation + Oxidation Catalyst
M	Exhaust Gas Recirculation + Reduction Catalyst
N	Exhaust Gas Recirculation + Three-Way Catalyst
P	Smoke-Puff-Limiter
R	Air Injection + Exhaust Gas Recirculation + Oxidation Catalyst
S	Air Injection+ Exhaust Gas Recirculation + Reduction Catalyst
T	Air Injection+ Exhaust Gas Recirculation + Three-Way Catalyst
Z	Other

(Table 7) Continuing use of vehicle model year added code

2000 –A0	2010 – B0	2020 – C0	And so on
2001 –A1	2011 – B1	20201– C1	And so on
2002 –A2	2012 – B2	2022– C2	And so on
2003 –A3	2013 – B3	2023 – C3	And so on
And so on	And so on	And so on	And so on

(Table 8) Heavy duty diesel and alternative clean fuel vehicle engine family Letter of Compliance application form

Table 8

Heavy duty diesel and alternative clean fuel vehicle engine family
Letter of Compliance application form

行政院環境 保護署	重型柴油汽車引擎族 排氣合格證明函申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex A
			No. of pages	Date
			Rev. no.	Date of rev.

一般資料

GENERAL INFORMATION

01. 引擎製造者
Engine Manufacturer
02. 廠牌
Make
03. 引擎型式
Engine model
04. 車型年
Model year
05. 證明文件請核發給下述公司（公司地址）
The certificate of conformity should be made out to the following company (full address).
06. 業者連絡人之姓名，地址及電話號碼（含國內及國外連絡人）
Name address and telephone number of the person(s) the EPA shall communicate with concerning this application (inside and outside Taiwan R.O.C.)
07. 依本辦法規定之下列項目應分項陳述（並由授權負責人簽章）。
Statements (undersigned by an authorized person) in accordance with the following items of the HDE Regulation.
 - .01- 該引擎符合本辦法之規定()
that the engines conform to the requirements()
 - .02- 對車主之承諾()
commitment to the car owners()
 - .03- 本署得視察測試設備()
permission for EPA to visit the test facilities
 - .04- 國內授權代理人()
authorized representative in R.O.C.()
 - .05- 已依本辦法()之規定進行測試
that the testing has been performed in accordance with the requirements
 - .06- 聲明新車抽驗依本辦法()之規定進行定量比例抽驗
statement that conformative audit in accordance with the requirements would be conducted in Fixed-rate audit .
see page in Appendix A
08. 引擎族排放空氣污染物品質管制計畫
Engine family emission control project.

備註

Remark

每一附錄應加以標識方予受理申請。

The complete application must be submitted with separating index sheets for each annex.

行政院環境 保護署	重型柴油汽車引擎族 排氣合格證明函申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex B
			No. of pages	Date
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附加資料

ADDITIONAL INFORMATION

01. 引擎製造者聲明屬於本引擎族之引擎在最少小時數 小時測試時之排放數
據已經穩定化且具有代表性。
The engine manufacturer hereby states that the engines included in this
engine family are stablized and representative of design intent for
emission data testing at the minimum sum of hours.
02. 環保署應將新車抽驗資料寄送給業者連絡人員之姓名地址。
Name and full address of the person to whom the EPA should send information
regarding CPA-testing.
03. 附屬之引擎型式。
additional engine model :

引擎型式 Engine model	估計國內銷售數量 Estimated sales (units) in Taiwan R.O.C.	Maximum engine power		
		kW	rpm	Meas. method
總數 Total (units)				

行政院環境 保護署	重型柴油汽車引擎族 排氣合格證明函申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex C
			No. of pages	Date
			Rev. no.	Date of rev.

本引擎族所屬之引擎型式

ENGINE MODEL WITHIN THE ENGINE FAMILY

引擎型式 Engine model	排放控制及相關系統說明 Description of emission control and related system	基本引擎名稱 Basic engine designation	適用之耐久測試里程數 Applicable durability test mileage

行政院環境 保護署	重型柴油汽車引擎族 排氣合格證明函申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex D-1
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基本引擎數據

BASIC ENGINE DATA

01. 基本引擎名稱

Basic engine designation _____

02. 燃燒循環(即 2 或 4 衝程/diesel)

Combustion cycle (e.g. 2 or 4-stroke/diesel) _____

03. 氣缸體型態(即 L-6,90° V-8)

Cylinder block configuration(e.g. L-6,90° V-8) _____

04. 氣缸數

Number of cylinders _____

05. 冷卻系統型式 (氣冷/水冷)

Type of cooling system (air/liquid) _____

06. 每一氣缸之氣閥數目，進氣/排氣

number of valves per cylinder, intake/exhaust _____

07. 供氣方式(自然供氣/增壓器供氣)

Method of air aspiration (natural/supercharged) _____

08. 燃油噴射方式(即：直接或間接噴射供油)

Type of fuel injection system (e.g. D.I. or I.D.I.) _____

09. 排放控制系統名稱

Emission control system designation _____

備註

Remark

本引擎族中之引擎型式與上述基本引擎之 02~10 項目相同時，得指定參考該項之資料
If items 02~10 are identical to a previously described basic engine within the engine family, reference can be made to that page.

行政院環境 保護署	重型柴油汽車引擎族 排氣合格證明函申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex D-2
			No. of pages	Date
			Rev. no.	Date of rev.

基本引擎數據 (續)

BASIC ENGINE DATA (cont.)

10. 氣缸孔徑(mm)
Bore(mm) _____
11. 衝程(mm)
Stroke(mm) _____
12. 排氣量(cm³)
Displacement (cm³) _____
13. 壓縮比(名稱值)
Compression ratio (nominal) _____
14. 閥頭直徑(進氣/排氣)
Valve head diameter (intake/exhaust) _____
15. 進氣/排氣孔面積(mm²)
intake/exhaust port area (mm²) _____
16. 閥門正時(曲軸角度)
Valve timing (crankshaft degress)
- .01. 開啟: 進氣/排氣
opening: Intake/Exhaust _____
- .02. 關閉: 進氣/排氣
close: Intake/Exhaust _____
- .03. 最大升程(mm)
maximum lift (mm) _____
17. 中間冷卻器 Yes No
Intercooler usage
see page _____ in appendix D
18. 噴油系統描述
Description of injection system
- .01. 噴油正時(曲軸角度)
Injection timing (degree) _____
- .02. 噴油嘴描述及位置
Description and location of injection
see page _____ in appendix D
- .03. 噴油壓力
Injection pressure _____

備註

Remark

每一基本引擎應個別填報。

Separate forms are required for each basic engine.

行政院環境 保護署	重型柴油汽車引擎族 排氣合格證明函申請表 APPLICATION FORM	引擎族 Engine family	Page	附錄 Annex E-1
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排放控制及相關系統說明

DESCRIPTION OF THE EMISSION CONTROL AND RELATED SYSTEM

01. 燃料及空氣供應系統

Fuel and air supply system

.01. 廠牌及型式名稱

Make and type designation _____

.02. 構造及操作方法

Configuration and method of operation

see page _____ in appendix E _____

02. 電子系統

Electrical system and other devices of the engine

.01. 廠牌及型式名稱

Make and type designation _____

.02. 構造及操作方式

Configuration and method of
operation

see page _____ in appendix E _____

備註

Remark

每一排放控制系統應個別填報。

Separate forms are required for each emission control system.

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排放控制及相關系統說明(續)

DESCRIPTION OF THE EMISSION CONTROL AND RELATED SYSTEM (cont.)

03. 廢氣排放控制系統

Exhaust emission control system

- .01. 指出廢氣排放控制系統所包含之裝置
Indicate the devices included in the
exhaust emission control system
- .02. 構造及操作方式
Configuration and method of operation

see page _____ in appendix E_____

04. 潤滑系統

Lubrication system

- .01. 廠牌及型式名稱
Make and type designation _____
- .02. 構造及操作方式
Configuration and method of operation
每一零件之排放相關數據
Relevant emission related data
shall be given for component

see page _____ in appendix E_____

05. 冷卻系統

Cooling system

- .01. 廠牌及型式名稱
Make and type designation _____
- .02. 構造及操作方式
Configuration and method of operation

see page _____ in appendix E_____

06. 車上診斷系統

On Board Diagnostics System

- 01. 裝置系統說明
Description of On Board Diagnostics System see page _____ in appendix F_____

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引擎零件位置

LOCATION OF COMPONENTS ON THE ENGINE

01. 排放控制系統名稱
Emission control system designation
02. 引擎型式
Engine model(s)
03. 以相片或其他方式顯示排放控制零件於引擎上之位置
Photograph or equivalent showing the location
of the emission control components on the engine

如電子控制箱等無法裝置於引擎室之零件，其位置亦應指明。
The location of components such as e.g. an electronic control
box, which might not be located in the engine compartment,
must also be indicated

see page _____ in appendix F _____

04. 零件辨識清冊（量產零件）。
於附錄 E 上所載之排氣相關零件應與零件上名稱及辨識號碼相同。
Part identification list (production units).
Each emission related component described in annex E
must be identified with the name and the identification
code that can be found on the component.

see page _____ in appendix F _____

備註 Remark

每一排放控制系統應個別填報。
Separate forms are required for each emission control system.

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OBD相關測試數據

OBD TEST DATA SUMMARY

01. OBD族
OBD Family
02. 測試數據
Test data

<input type="checkbox"/> 執行 ETC 測試(ETC test) 提送專業檢驗機構 OBD 排放測試報告 OBD TEST REPORT						
測試報 告編號 Number of test repeot	測試項目 test item	故障模擬排放 Test results 測試結果		故障碼 Fault code	故障指示 燈是否亮 起 Activation of MI light	測試結果是 否須乘上劣 化係數 calc. with DF
		NOx (g/kWh)	PM (g/kWh)			
OBD 管制門檻 OBD threshold Limits						

<input type="checkbox"/> 執行 FTP-Transient 行車型態測試 FTP-Transient Emission test 提送專業檢驗機構 OBD 排放測試報告 OBD TEST REPORT						
---	--	--	--	--	--	--

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提供車主之排放相關手冊

EMISSION RELATED INSTRUCTIONS TO THE VEHICLE OWNER

01. 引擎型式
Engine model(s) _____
02. 啟動指引
Starting instructions see page _____ in appendix H _____
03. 建議使用燃料種類
Recommended fuel _____
04. 建議引擎工作溫度
Recommended engine temperature _____
05. 其他與排放有關之操作手冊以確保排放控制系統之有效使用。
Other emission related operational instructions
necessary for ensuring correct operation of the
emission control system see page _____ in appendix H _____
06. 與排放有關之維護手冊（包含交車前準備動作及保養期限）
以確保使用時能符合排放標準。
Emission related maintenance instructions
(including pre-delivery activities and
service intervals) necessary to ensured
in-use compliance see page _____ in appendix H _____
07. 依本附錄()之規定提供車主之保證影本。
Copy of the commitment to the
vehicle owners according to the
requirements() see page _____ in appendix H _____
08. 依本附錄()規定欲附貼在引擎上之中文標識照片或影本。
Copy or photograph of the Chinese label
adhesive to the engine according to
the requirement ()

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劣化係數

DETERIORATION FACTORS

01. 引擎型式

Engine model(s) _____

02. 廢氣排放測試

Exhaust emission test

執行 FTP-Transient 行車型態測試 FTP-Transient Emission test

DF	CO	
	NMHC	
	NO _x	
	PM	

執行 ESC 及 ETC 行車型態測試 ESC and ETC Emission test

ESC 行車型態測試 ESC Emission test		
DF	CO	
	HC	
	NO _x	
	PM	

ETC 行車型態測試 ETC Emission test		
DF	CO	
	NMHC	
	NO _x	
	PM	
	CH ₄ *	
備註：*適用天然氣引擎。 Remarks: For natural gas engines only.		

採用方式 method used

a. 實際劣化係數 Durability test :

依據辦法()執行 According to the following codes:

b. 法定劣化係數 Designated deterioration Factors:

依據辦法()執行 According to the following codes:

03. 以技術觀點來評估訂定劣化係數時所採用之方式(僅用於方式 a)

Technical account for the evaluation of the method used to determine DF factors
(only applicable for method a)

see page _____ in appendix I _____

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測試數據摘要 (執行 FTP-Transient 行車型態測試者)
TEST DATA SUMMARY (For FTP-Transient Emission test)

01. 排放數據
Emission data

引擎型式及測試 引擎名稱 Engine model and type of test engine	FTP-Transient 排放測試結果 (g/bhp-hr) FTP-Transient Emission test results including DF (g/bhp-hr)				
	引擎型式 Engine Type : _____ , 測試引擎 Test Engine :				
	CO	NMHC+NOx (1)	NMHC	NOx	PM
測試值 Test results					
劣化係數 DF-factors					
最終值 calc. with DF					
標準值 Limits					

備註：(1)適用排放標準施行日期九十五年十月一日
Remarks：(1) For Emission Standards regulated in the October 1, 2006 in ROC only

02.

測試引擎號碼 Test engine I.D. number	引擎型式 Engine Model(s)	劣化係數量測值 Measured deterioration factors			
		CO	NMHC	NOx	PM

備註 Remarks

- 依下列法規之規定說明測試引擎之選擇
E1=依本辦法()規定選擇測試引擎
Specify the test engine selection according to the following codes:
E1=emission test engine selected according to item () of the HDE Regulation

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測試數據摘要 (執行 ESC、ELR 及 ETC 行車型態測試者)
TEST DATA SUMMARY (For ESC、ELR and ETC Emission test)

01. 排放數據
Emission data

引擎型式及測試 引擎名稱 Engine model and type of test engine	ESC 排放測試結果(g/kWh) ESC Emission test results including DF(g/kWh)					ELR 排放測 試結果 (m ⁻¹)	ETC 排放測試結果 (g/kWh) ETC Emission test results including DF(g/kWh)					
	引擎型式 ⁽¹⁾ Engine Type : _____ , 測試引擎 Test Engine :											
	CO	HC	NOx	PM	Smoke	CO	NMHC	NOx	PM	CH ₄ ⁽²⁾		
測試值 Test results												
劣化係數 DF-factors												
最終值 calc. with DF												
標準值 Limits												

02. 耐久測試數據(Durability data)

測試引擎號碼 Test engine I.D. number	引擎型式 ⁽¹⁾ Engine Model(s)	ESC 劣化係數量測值 ESC Measured deterioration factors				ETC 劣化係數量測值 ETC Measured deterioration factors					
		CO	HC	NOx	PM	CO	NMHC	NOx	PM	CH ₄ ⁽²⁾	

備註 Remarks

- 依下列法規之規定說明測試引擎之選擇
E1=依本辦法()規定選擇測試引擎
Specify the test engine selection according to the following codes:
E1=emission test engine selected according to item () of the HDE Regulation
- 適用於天然氣引擎。
For natural gas engines only.

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排放測試報告

EMISSION TEST REPORT

測試數據

Test data

依本辦法()規定所選擇之測試引擎之測試報告應包含下列資料

For each emission test engine, selected in accordance with item of the HDE Regulation, the manufacturer shall present a test report containing the following information :

- 測試編號及測試日期
test number and test data
- 測試引擎辨識(引擎型式、引擎號碼、引擎運轉小時數)。
test engine identification (engine model,
engine identification number, engine service hours)
- 引擎中排放相關零件之設定
engine setting of emission related components
- 引擎運轉累積日期及其小時數
service accumulation date and hours accumulated of performed
- 維修及保養紀錄
Maintenance & repair record
- 測試引擎診斷紀錄
Diagnostic test record issues of engine test
- 預先調整方式
pre-conditioning method
- 燃油油品規範
fuel specification
- 測試周圍之環境(大氣壓力、溫度等)
ambient conditions (atmospheric pressure, temperature etc.)
- 氣狀污染物測試結果
test results of gaseous mass emissions
- 粒狀污染物測試結果
test results of particulate emissions
- 耐久測試描述
durability test description (if applicable)
- 耐久測試結果
durability test result (if applicable)

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修正項目目錄
REVISION INDEX

修正編號 Revision number	修正日期 Revision date	附件／頁數 Annex/Page(s) affected	說明修正內容 Description of revision

Appendix 3: Provisions for determination of diesel vehicle and diesel engine Deterioration Factors, Regeneration factors, and Evolution coefficients

1. Each engine family shall have its own exhaust emission deterioration factors. The deterioration factors of the said engine family shall be multiplied or added to the results of new vehicle testing (include type approval certification test, conformity of production test, and COP audit test). The being multiplied or added values shall be provided as bases for determining whether or not the engine family complies with the emissions standards. Before comparing with the emissions standards, the test values shall be calculated to one more decimal place of the emission standard values and then rounded. The rounded values shall not exceed the emissions standard.

For diesel passenger cars being equipped with periodically regenerating system, the test results need to further multiplied by K_i factors, if using the EU NEDC as the test driving cycle.

The engine family test results being calculated by using deterioration factors or K factors in accordance with this Appendix must comply with provision 5 of the emissions standards.

2. Deterioration factors shall be determined according to one of the following methods:

- 2.1 Adopt a vehicle or an engine durability test

- 2.1.1 Carry out a durability test

- 2.1.1.1 The exhaust emission deterioration factors may determined by the durability test results. The applicant shall provide diesel vehicle (or engine) mileage accumulation driving cycle and durability test plan to the competent authority for approval. After being approved by the competent authority, the applicant may carry out the durability test.

- 2.1.1.2 The minimum contents of the durability test plan include:

- 2.1.1.2.1 Name of the Test Laboratory (includes proof of capability to perform the durability test)

- 2.1.1.2.2 Test vehicle (or engine)

- 2.1.1.2.3 Test procedure

2.1.1.2.4 Test schedule

2.1.1.2.5 Test equipment

2.1.1.2.6 Repair and Maintenance items

2.1.1.2.7 Test reference fuel

2.1.1.3 If the assigned multiplicative deterioration factor by vehicle or engine manufacturer is less than 1, it is deemed to be equal to 1.

2.1.1.4 After completion of the durability test, the application may apply to the central competent authority for the deterioration factors, being reviewed and approved by the central competent authority, the applicant may use the deterioration factors derived from the durability test results.

2.1.2 Using deterioration factors recorded in the US or EU Certificate of Conformity:

The engine family (Heavy Duty Bus and Truck) or vehicle model (Light Duty Truck and Passenger Car) with the US or EU issued Certificate of Conformity shall submit the relevant deterioration factors information that recorded in the certificate to the central competent authority for application.

2.2 Assigned deterioration factors are regulated as follows:

2.2.1 For the domestic developed or imported from abroad engine family or vehicle model without the US or EU issued Certificate of Conformity, the applicant must provide the declaration documents of deterioration factors from the original engine or vehicle manufacturer's. Being approved by the central competent authority, these deterioration factors may used as the Assigned deterioration factors.

2.2.2 Vehicle of engine family with the US or EU issued engine family (Heavy Duty Bus and Truck) or vehicle model (Light Duty Truck and Passenger Car) Certificate of Conformity may use the deterioration factors listed in the certificate.

2.2.3 For imported new vehicle and in-use diesel vehicle less than one year old

(calculated from the date of production to the date of importation) and apply for the Certificate of Conformity individually, the assigned deterioration factors may be used. For the vehicle over one year old, no deterioration factor is needed for the test.

2.2.4 The assigned deterioration factors are defined as follows:

2.2.4.1 For vehicle using the US FTP75 driving cycle or engine using the FTP Transient cycle for the test, the assigned deterioration factors are:

2.2.4.1.1 Light Duty Truck and Passenger Car: Carbon monoxide: 1.2; Hydrocarbons: 1.0; Nitrogen Oxide: 1.0; Particulate Matter: 1.5, all the above mentioned deterioration factors are multiplicative.

2.2.4.1.2 Heavy Duty Bus and Truck:

2.2.4.1.2.1 Without after-treatment system (values are as listed table 1 of Appendix 3)

2.2.4.1.2.2 With after-treatment system (values are as listed table 2 of Appendix 3)

2.2.4.2 For vehicle using the EU NEDC driving cycle or engine using the ESC, ETC or ELR cycles for the test, the assigned deterioration factors are:

2.2.4.2.1 Light Duty Truck and Passenger Car:

2.2.4.2.1.1 For vehicles comply with the emissions standards effective on Oct. 1, 2006: Carbon Monoxide: 1.1; Sum of Hydrocarbons and Nitrogen Oxide: 1.0; Nitrogen Oxide: 1.0; Particulate Matter: 1.2, all the above mentioned deterioration factors are multiplicative.

2.2.4.2.1.2 For vehicles comply with the emissions standards effective on Jan. 1, 2012: Carbon Monoxide: 1.5; Sum of Hydrocarbons and

Nitrogen Oxide: 1.1; Nitrogen Oxide: 1.1; Particulate Matter: 1.0; Number of Particulate Matter: 1.0, all the above mentioned deterioration factors are multiplicative.

2.2.4.2.2 Heavy Duty Bus and Truck: Carbon Monoxide: 1.1; Hydrocarbons (Non-methane hydrocarbons): 1.05; Nitrogen Oxide: 1.05; Particulate Matter: 1.1, all the above mentioned deterioration factors are multiplicative.

2.2.5 The specific vehicle or engine of an engine family being identified by the central competent authority as unable to obtain its deterioration factors in accordance with the provisions of assigned deterioration factors, this method is not applicable to that vehicle model or engine family.

3. The purpose of durability test is to measure the emissions test results after the accumulated aged time period or mileages for the test vehicle or engine to derive the deterioration factors for each pollutant. The required aging or mileage for the durability test within the maximum vehicle mass is in accordance with provision 5 of the emissions standards.

4. For diesel vehicles comply with the emissions standards effective on Jan. 1, 2012, using the EU NEDC driving cycle for the type approval tests, engines are equipped with periodically regenerating systems, the test results shall be multiplied or added by the deterioration factors of that engine family, and furthermore being multiplied by the regeneration factor K to check whether or not comply with the provision 5 of the emissions standards.

4.1 Periodically regenerating system: means an emission control device (e.g. catalytic converter, particulate filter) that requires a periodical regeneration process in less than 4 000 km of normal vehicle operation. If a regeneration of an emission control device occurs at least once per Type I test and that has already regenerated at least once during vehicle preparation cycle, it will be considered as a continuously regenerating system.

4.2.1 The regeneration factor K shall be determined by one of the following methods:

4.2.2 Carry out the regeneration factor test procedure:

4.2.1.1 For the diesel passenger car regeneration factor test procedure, the applicant shall provide the test plan, being reviewed and approved by the central competent authority, and then the applicant may carry out the test plan. The regeneration factor test procedure shall be performed in accordance with the provisions described in Annex 13 of the UN/ECE Regulation No 83-05.

4.2.1.2 After completion of the regeneration factor test procedure and approved by the central competent authority, the derived the regeneration factors may be adopted for that vehicle model.

4.2.3 Adopt the regeneration factor recorded in the EU Certificate of Conformity: vehicle models with the EU member states issued Certificate of Conformity in accordance with the EC or UN/ECE regulations may provide the EU regeneration factors certification related documents to apply for the usage of the same values recorded in the proof documents.

4.2.4 Adopt the assigned regeneration factor: 1.05 (multiplicative)

4.2 Vehicles of the same engine family may use the same regeneration factors if comply with the provisions 3.1.4 of Annex I of the EU Regulation (EC) No 692/2008.

5. For diesel passenger cars using the EU NEDC driving cycle for the new vehicle conformity audit test or COP test, the same engine family vehicle models may use the central competence authority approved evolution coefficients. Test vehicle without break-in (accumulated mileages less than 150 km); its emission test values shall be multiplied by the evolution coefficients.

The evolution coefficients shall be determined by one of the following methods:

5.1 Carry out the on-road mileage accumulation test:

5.1.1 The evolution coefficients for exhaust emission may be determined from the vehicle on-road mileage accumulation test. The diesel passenger car on-road

mileage accumulation test plan shall be proposed by the applicant, being reviewed and approved by the central competent authority, the applicant may carry out the test.

5.1.2 The minimum contents of the on-road mileage accumulation test plan shall include the following items:

5.1.2.1 Name of the Test Laboratory (includes proof of capability to perform the test)

5.1.2.2 Test vehicle (or engine)

5.1.2.3 Test procedure

5.1.2.4 Test schedule

5.1.2.5 Test equipment

5.1.2.6 Repair and maintenance items

5.1.2.7 Test reference fuel

5.1.3 The pollutant emissions (Type I) will be measured at zero (accumulated mileage \leq 150 km) and at required mileage (accumulated mileage \leq 15,000 km) on the tested vehicle for each of the pollutants.

5.1.4 The evolution coefficient calculation method for each of the pollutants: the evolution coefficient of the emissions between zero km and 'x' km will be calculated for each of the pollutants by using the formula: Emissions at 'x' km / Emissions at zero km. The evolution coefficients may less than 1.

5.1.5 After completed the vehicle on-road or on- track mileage accumulation test plan, being reviewed and approved by the central competence authority, the applicant may use the derived evolution coefficient of the emissions.

5.2 Adopt the EU recognized evolution coefficients: Vehicle models with the EU issued Certificate of Conformity, shall provide the EU evolution coefficient application related documents, and being approved by the central competence authority may use the certificate recorded evolution coefficients.

(Table 1) without after-treatment system

Deterioration factors				
Durability	CO	HC	NOx	PM
80,000 km	0.4	0.1	0.4	0.04
176,000 km	0.4	0.1	0.4	0.04
296,000 km	0.7	0.1	0.4	0.04
696,000 km	1.1	0.2	0.7	0.04

Note: all the above deterioration factors are additive.
(Unit: g/ brake horse power • hour)

(Table) with after-treatment system

Deterioration factors				
Durability	CO	HC	NOx	PM
80,000 km	1.3	1.3	1.2	1.37
176,000 km	1.3	1.3	1.2	1.37
296,000 km	1.4	1.3	1.2	1.37
696,000 km	1.6	1.5	1.2	1.37

Note: all the above deterioration factors are multiplicative.
(Unit: g/ brake horse power • hour)

Appendix 4: The vehicle sampling ratio, pass/fail determination and other related requirements for diesel vehicle, diesel engine, and alternative clean fuel engine new vehicle Conformity of Production audit test

1. General Provisions

1.1 The central competent authority may self-execute or commission a professional test laboratory to conduct the Conformity of Production (COP) audit test on the vehicle model or engine recorded in the diesel vehicle emissions certificate of conformity after the manufactured or imported vehicles of new model or engine has reached the regulated numbers. If the test results are determined not in compliance, the Certificate of Conformity shall be repealed and notify the related motor vehicle departments, and prohibit the certificate issuance for the vehicle model or engine in certification process. During the audit test, the test laboratory may check the specifications of vehicle emissions control systems, if not in compliance; the central competence authority may repeal the certificate of conformity of that vehicle model or engine.

1.2 The related matters of vehicle sample selection, test schedule, testing types for the COP audit test shall be described in details by the central competent authority when giving the test notice. The applicant of the vehicle Certificate of Conformity shall respond immediately to cooperate with the central competent authority for related testing activities. After receiving the notice, if the owner is not respond within 5 days, the central competent authority may suspend the certification process for that engine family or vehicle model.

2. Conformity audit test requirements

2.1 The test vehicles or engines shall be sampled randomly.

2.2 The audit test vehicles or engines are designated by the central competence authority. Vehicles with the same model year or engine family may conduct audit tests more than once. The test schedule and location shall be designated by the central competence authority; the applicant shall be responsible for the transportation, test and auditing fees for the tests.

2.3 The applicant shall provide designated numbers of mass produced diesel vehicles with Certificate of Conformity for the central competent authority to select and conduct the test. The test vehicles sample selection methods are as follows:

2.3.1 Applicant's storage area for the vehicles that have completed the production inspection.

2.3.2 The vehicle storage locations of the applicant designated representative, distributor or dealer.

2.3.3 Storage warehouse of the Republic of China Customs

2.4 The selected vehicles or engines shall be sent to the central competent authority designated location with supervisory personnel.

If there is no central competent authority recognized domestic professional test laboratory, the engine or vehicle manufacturer may send the selected audit test engine or vehicle to the test laboratory oversea, if the test laboratory qualify to the provisions 5 of Appendix 4. The central competent authority may send personnel to audit the test.

3. Ratio of vehicle sampling number

3.1 For the applications for Letter of Compliance or Certificate of Conformity, the ratio of vehicle sampling number is regulated as follows:

3.1.1 Heavy Duty Bus and Truck: the same engine family (apply for Letter of Compliance) or vehicle model (apply for Certificate of Conformity), one vehicle shall be sampled for every 500 vehicles. One vehicle shall be sampled for the audit test if the annual production is less than 500 vehicles.

3.1.2 Light Duty Truck and Passenger Car: for the same engine family, one vehicle shall be sampled for every 500 vehicles. One vehicle must be sampled for the audit test if the annual production is less than 500 vehicles.

3.1.3 Applicant that unable to fulfill the implementation of a Conformity of Production test plan; one vehicle shall be sampled for every 200 vehicles. One vehicle shall be sampled for the audit test if the annual production is less than 200 vehicles.

3.2 For OBD audit test, one vehicle shall be sampled for each engine family.

4. Test vehicle or engine sampling and preparation

4.1 The vehicles or engines being selected for the audit tests shall be new vehicles or engines manufactured according to the mass production procedures (such as: quality control, assembly process) by the vehicle or engine manufacturer.

4.2 The vehicles or engines being selected for the audit tests shall be normally maintained and without any misuse conditions.

4.3 The maximum accumulated mileages or engine operation hours shall not over the following limits:

4.3.1 Heavy Duty Diesel Engine: 125 hours of engine operation.

4.3.2 Light Duty Truck and Passenger Car:

4.3.2.1 Vehicles being tested by using the US FTP-75 driving cycle: 6,400 km.

4.3.2.2 Vehicles being tested by using the EU NEDC driving cycle: 15,000 km.

4.4 With consent and monitored by the central competent authority, the vehicle or engine manufacturer may implement the vehicle's mileage accumulation, components adjustment, test sequence change or conduct maintenance.

4.5 When the vehicle or engine manufacturer being authorized by the central competent authority, with the same functionalities of dealer's test and diagnosis equipment may be used to perform the inspection and adjustments.

4.6 To facilitate the audit test process, all the being selected test vehicles or engines, special hardware equipment and necessary personnel shall be provided by the vehicle or engine manufacturer with 30 days started from receipt of the notice from the central competent authority. Unable to provide such equipment or personnel shall not be an excuse to claim invalidation of the test results. The applicant may request for extra days for the OBD test if deemed necessary.

4.7 The vehicles or engines for the audit tests shall comply with the following provisions:

- 4.7.1 Prior to the audit test, the test vehicle or engine may perform break in to accumulate mileage in accordance with provision 4.3 of Appendix 4.
- 4.7.2 If the test vehicle or engine unable to complete mileage accumulation, or due to the defects of vehicle or engine functionalities, or due to vehicle accident, and cause the test unable to be performed, prior to the test, the manufacturer shall provide an explanation to the central competent authority. The central competent authority may authorize to conduct adjustments or repairs to restore the vehicle or engine back to the normal operation condition and suitable for the test. The central competent authority may disqualify that vehicle or engine if being deemed no longer representative for the test, and select other vehicles as replacement. The number of replacement vehicle is determined by the central competent authority.
- 4.7.3 Unless being approved by the central competent authority, the vehicle or engine manufacturer shall not perform adjustments, repairs, preparations, carry out any maintenance, modifications or perform any emissions test on the selected vehicles or engines.
- 4.7.4 If the vehicle or engine manufacturer could provide enough investigation data or other proof documents to prove the preparation procedure is the same as the dealers before they hand in the sold vehicles to customers, the central competent authority may approve to carry out the same preparation procedure. (If the vehicle or engine manufacturer only claims that all its dealers being requested to carry out the preparation procedure before hand in the sold vehicles to customers, without any support documents, the central competent authority may disapprove the procedure)
- 4.7.5 Being approved in advance and monitored by the central competent authority designated personnel, during break-in period, the manufacturer may using instruments, equipment, or tools with the same functionalities as the service stations that owned by dealers to perform the following maintenance, inspection or adjustments:

4.7.5.1 Battery replacement or recharge.

4.7.5.2 Wiring Harness safety check

4.7.5.3 Oil change or Filter replacement.

4.7.6 If the vehicle or engine manufacturer requests any additional maintenance items shall provide the necessity summaries and the related supporting data for approval in advance, with the consent of the central competent authority, may implement the requested maintenance items.

5. Test procedures

5.1 All the test shall be performed in accordance with provisions 2.6 and 3.8 of Appendix 1, and provision 9 of Appendix 2.

5.2 Prior to the audit test, the central competence authority, in accordance with provision 4.7 of Appendix 4, may perform adjustments or have to perform necessary adjustments on other adjustable components within the tolerance range.

5.3 If the central competence authority or the designated test laboratory determined that the user could access the components settings easily, during the audit test, may adjust the component's settings outside its design range.

6. Determination and handling of testing results

6.1 If the test results of the entire audit test items comply with the related emissions standards, the test shall be deemed pass.

6.2 If a sample test vehicle is deemed non-compliant, the applicant may request for one repeat test, or directly accept the non-compliant determination of the preliminary test.

6.2.1 Vehicle repeat test must be requested prior to its removal from the test laboratory.

6.2.2 Any repairs, adjustments, break-in, or tests to the vehicle are prohibited for the repeat test.

6.2.3 The repeat test results shall be taken as the final result, if comply with the related emissions standards, the test shall be deemed pass.

6.3 When the preliminary test is determined as non-compliance, within 15 days from the day of receipt notice from the central competent authority, the applicant may submit

a written request for repeat testing, or accept the fail determination and in accordance to the provisions to propose a recall plan to the central competent authority.

6.3.1 The applicant may determine the sample numbers for the repeat test; however, the number must be greater than twice the number of failed vehicles for the preliminary test.

6.3.2 The selection, preparation, and test method are the same as the preliminary test.

6.3.3 For vehicles failed the repeat test; the applicant may request one additional test prior to the removal of the vehicle from the test laboratory. The additional test results shall be deemed as final result. Any vehicle repairs, adjustments or test before the additional test is prohibited.

6.3.4 If the arithmetic mean of the separate emissions values for the preliminary failed vehicles and the repeat test vehicles are all less than the related emissions standards, then the test shall be deemed as pass, otherwise the test shall be deemed fail.

If the above mentioned tests are OBD tests, the number of vehicles that failed the preliminary test (number 1) plus the number of vehicles that failed the repeat test (number 2), then divided by the sum of number 1 and the number of vehicles taking the repeat test (number 3), if the calculated value is less than 0.4 and the sum of total failed vehicles (number 1 plus number 2) is less than 4, the test shall be deemed as pass, the formulas for pass/fail determination are as follows:

formula 1 →
$$\frac{\text{(number of vehicles failed the preliminary test + number of vehicles failed the repeat test)}}{\text{(number of vehicles failed the preliminary test + number of vehicles taking the repeat test)}} < 0.4$$

formula 2 →
$$\text{(number of vehicles failed the preliminary test + number of vehicles failed the repeat test)} < 4$$

6.3.5 Although the test result being determined as in compliance, but for the vehicles

failed the preliminary test or repeat test, the applicant still need to provide the cause explanations for the fail, remedy measures, and passed test results after improvements to the central competent authority for future examination.

- 6.4 For the engine family which failed the new vehicle audit test, its engine family Letter of Compliance and Certificate of Conformity shall be revoked by the central competent authority; if the test vehicle only failed the smoke test, only its diesel vehicle type approval Certificate of Conformity shall be revoked, within 30 days upon receipt the notification, the applicant shall submit a recall plan for the unsold and sold engine family vehicles. If the recall plan is being reviewed and approved by the central competent authority, the applicant shall complete the implementation of recall plan within 90 days upon receiving the approval letter. If unable to complete the recall plan by the deadline, within 30 days of receipt the approval letter, the applicant shall submit a specific improvement plan to apply for an extension to the central competent authority. Based on actual conditions, the central competent authority may approve the extended deadline, and the maximum extension may not exceed one year. The central competent authority may immediately terminate the extension of deadline if the improvement plan implementation is being investigated and confirmed not in accordance with the approved plan.
- 6.5 The contents of the Recall Plan shall include:
- 6.5.1 Engineering cause analysis for each vehicle that noncompliance with the applicable emissions standards.
 - 6.5.2 An impact assessment for the cause of non-compliance.
 - 6.5.3 The make, engine family, vehicle model, vehicle model year, and number of affected vehicles to be recalled, and other relevant information.
 - 6.5.4 The projected ratio between the numbers of being implemented recall vehicles to the sales of the vehicle.
 - 6.5.5 Remedy measures to be performed on a recalled motor vehicle, such as components replacements, repairs, inspection, calibration, adjustments and other necessary changes in technical information summaries that are sufficient

to proof that after the improvements, it will in compliance with the applicable Standards.

- 6.5.6 The acquiring method for the list of names and addresses of the recalled vehicle owners.
- 6.5.7 For recalled vehicles, without the consent of the central competent authority, the vehicle manufacturer or importer shall not confine the owner by any maintenance, operation guideline or using conditions; such as prohibit motor vehicle owners using non OEM components or being serviced by non-authorized workshops
- 6.5.8 The implementation process for the recall shall include notifying the owner and provide the designated start and finish dates, location, and reasonable duration for the repairs.
- 6.5.9 The proof of technical capability and facilities for the organization and technicians that responsible for the implementation of the recall plan.
- 6.5.10 Send notification to recalled vehicle owners.
- 6.5.11 Providing appropriate supply systems for the replacement components during recall period.
- 6.5.12 The necessary guidance for the technicians that involved in the recall and repairs plan.
- 6.5.13 If the implementation of recall plan would affect the vehicle's fuel consumption, noise, or other performance functionalities, the manufacturer should provide appropriate explanations.
- 6.5.14 The applicant may provide other technical data and test reports to proof the effectiveness of implement of the recall plan to the competent authority for evaluation.
- 6.6 The central competent authority shall perform verification test for each remedy measure of the recall plan implemented by the applicant.
- 6.7 Within 15 days upon complete the implementation of recall repairs in accordance with the recall plan, the applicant shall submit a recall implementation report to the

central competent authority for review.

- 6.8 When the central competent authority notifies the applicant of the cancellation or revocation of the test failed vehicle or engine family Certificate of Conformity, the Ministry of Transportation and Communications should be notified concurrently.
- 6.9 For those unsold vehicles with revoked Certificate of Conformity, once the applicant has completed the implementation of recall plan being reviewed and approved by the central competent authority, the applicant may re-apply for that engine family or vehicle model Certificate of Conformity in accordance with these provisions.

Appendix 5 OBD system

1. Terms used in this Appendix are defined as follows:
 - 1.1 Malfunction: means the failure of an emission-related component or system that would result in emissions exceeding the regulated limits or if the OBD system is unable to fulfill the basic monitoring requirements of this Appendix.
 - 1.2 Malfunction simulation: use replacement of the catalyst with a deteriorated or defective catalyst or electronic simulation of such a failure.
 - 1.3 Malfunction indicator: means a visible or audible indicator that clearly informs the driver of the vehicle in the event of a malfunction of any emission-related component connected to the OBD system, or the OBD system itself.
 - 1.4 Continuous monitoring: Continuous monitoring the circuit continuity of emission-related components connected to a computer, including any relevant sensors to enable monitoring functions (such as lack of circuit continuity, circuit malfunction, and values exceeding normal operating values).
 - 1.5 Driving cycle: The required driving modes to assess the OBD system of the emission related control systems and components; A driving cycle consists of engine start-up, driving mode where a malfunction would be detected if present, and engine shut-off and enough soaking time for the next engine start-up.
2. Functions and related testing items of OBD shall comply with the following provisions:
 - 2.1 OBD system shall be able to monitoring and performing periodical assessment on emission control equipment and related components, the frequency shall be one OBD monitoring assessment at least for each driving cycle.
 - 2.2 Vehicle must be equipped with standardized OBD Malfunction Indicator Light (MIL), malfunction code storage capability, and reading malfunction codes via a connector.
 - 2.3 OBD shall perform monitoring assessment on the emission control equipment or related components, unless there is possibility of damaging emission control equipment and related components, or there are safety concerns, or the power take-off units are running.
 - 2.4 OBD testing shall be performed on a test vehicle that has completed durability

testing or the equivalent deterioration testing. In the case of a new vehicle, deterioration factors may be applied to the new vehicle OBD test results as the final OBD test results.

- 2.5 The applicant shall submit an OBD test plan pursuant to this Appendix being approved by the central competent authority then conduct the OBD test.

The OBD test plan shall include the following items:

2.5.1 Test laboratory (including accredited certification for the test capability);

2.5.2 Test procedure;

2.5.3 Test schedule;

2.5.4 Test vehicle;

2.5.5 Test facilities;

2.5.6 Vehicle maintenance and service items;

2.5.7 Test fuel inspection report;

2.5.8 Adjustable parameters and other suggestions descriptions.

- 2.6 If the vehicle models produced by the same vehicle manufacturer have identical engine characteristics, emission control system, OBD monitoring functions and strategies may be categorized in the same OBD family. The test results of the representative vehicle that emits the emissions most will be taken as the test results for the OBD family.

- 2.7 If the application is not based on vehicle model year or engine family may conduct at least once the circuit continuity test pursuant to the following provisions. The said circuit continuity test means malfunction simulation for the specified test items, verifying the MIL during and after the test, confirm the malfunction code and freeze information comply with the OBD specifications. The simulation items may cover the continuous monitoring emission control devices or systems. The test shall comply with the following basic provisions:

2.7.1 After the set up of malfunction simulation, start the engine 3 times continuously, each time operating at least 30 seconds, after the engine start to operating then engine off to restart again. When engine is in operation

condition, with the consent of central competence authority, the test vehicle may perform necessary test cycles.

2.7.2 After the test has completed, verify the MIL is active, the malfunction codes are consistent with the relevant simulation items, and the freeze data were recorded.

3. The scope, items, and threshold values of the OBD system shall comply with the following provisions:

3.1 The OBD threshold limits are set as follows:

3.1.1 For LDT and Passenger cars being tested on chassis dynamometer, the NEDC driving cycle shall be used and the threshold limits are as follows:

3.1.1.1 For vehicles comply with emission standards effective on Oct. 1, 2006:

Category		CO g/km	THC g/km	NO _x g/km	PM g/km
M1	GVW ≤ 3500 kg	3.20	0.40	1.20	0.18
N1	RW ≤ 1305 kg	3.20	0.40	1.20	0.18
	1305 kg < RW ≤ 1760 kg	4.00	0.50	1.60	0.23
	1760 kg < RW	4.80	0.60	1.90	0.28

3.1.1.2 For vehicles comply with emission standards effective on Jan. 1, 2012:

Category		CO g/km	NMHC g/km	NO _x g/km	PM g/km
M1	GVW ≤ 3500 kg	1.900	0.320	0.540	0.050
N1	RW ≤ 1305 kg	1.900	0.320	0.540	0.050
	1305 kg < RW ≤ 1760 kg	2.400	0.360	0.705	0.050
	1760 kg < RW	2.800	0.400	0.840	0.050

3.1.2 For Heavy Duty Diesel Engine Buses and Trucks being tested on engine dynamometer, the ETC driving cycle shall be used and the threshold limits are as follows:

Category		NO _x (g/kWh)	PM (g/kWh)
HD Buses and Trucks	Trucks with GVW over 3500 kg or Buses with more than 10 seats	7.0	0.1

3.2 OBD system monitoring items and requirements

The OBD system shall monitor all emission related components or systems, which are connected to a computer, the failure of which may result in tailpipe emissions exceeding the threshold limits given in 3.1. The diagnostic items shall comply with the following provisions:

3.2.1 Light Duty Truck and Passenger Car:

During new vehicle type approval stage, at least 5 OBD monitoring items shall be tested which include catalytic converter, Particulate Trap, Fuel-injection system, other emissions control systems or components. The central competent authority may designate specific tests to be conducted. Before conduct the previous mentioned tests, the applicant must confirm the vehicle is comply with Provision 5 of the emissions standards.

3.2.1.1 Catalytic converter: vehicle if fitted with catalytic converter, the reduction in the efficiency of the catalytic converter must be monitored. The OBD must be able to identify catalytic converter deterioration or malfunction before the tailpipe emissions exceed the OBD threshold values.

3.2.1.2 Particulate Filter: If vehicles fitted with Particulate Filter must be able to monitoring its functionality d integrity and reduction in efficiency. The OBD must be able to identify Particulate Filter deterioration or malfunction before the tailpipe emissions exceed the OBD threshold values.

3.2.1.3 Fuel-injection system: The fuel-injection system electronic fuel quantity and timing actuator(s) is/are monitored for circuit continuity and total functional failure. The OBD must be able to identify the deterioration or malfunction before the tailpipe emissions exceed the OBD threshold values.

3.2.1.4 Other emission control system components or systems, or emission related powertrain components or systems, which are connected to a

computer, the failure of which may result in tailpipe emissions exceeding the threshold values or affecting the tailpipe emissions but not described in 3.2.1.1 to 3.2.1.3, the OBD system must be able to diagnosis the malfunction status. Examples of such systems or components are those for monitoring and control of air mass-flow, air volumetric flow (and temperature), boost pressure and inlet manifold pressure (and relevant sensors to enable these functions to be carried out).

3.2.1.5 Other emissions control related components –the OBD system must be able to diagnose the deterioration or malfunction of sensors, actuators or components related to the electronic signal input/output that affect the emissions control but not described in the previous provisions of 3.2.1.1 to 3.2.1.3. This portion, the continuity and rationality of electronic circuits shall be monitored, as to the actuator must be actuated according to the instruction of ECU.

3.2.2 Heavy duty Bus and Truck:

During new vehicle type approval stage, at least 5 OBD monitoring items shall be tested which include catalytic converter, Diesel Particulate Filter, deNOx system, fuel injection system, other emissions control systems or components. The central competent authority may designate specific tests to be conducted. Before conduct the previous mentioned tests, the applicant must confirm the vehicle is compliance with Provision 5 of the emissions standards.

3.2.2.1 Catalytic converter: vehicle if fitted with catalytic converter, the reduction in the efficiency of the catalytic converter must be monitored. The OBD must be able to identify catalytic converter deterioration or malfunction before the tailpipe emissions exceed the OBD threshold values.

3.2.2.2 Diesel Particulate Filter: If vehicles fitted with Diesel Particulate Filter must be able to monitoring its reduction in efficiency. The OBD

- system must be able to identify the Diesel Particulate Filter deterioration or malfunction before the PM emission exceeds the OBD threshold value.
- 3.2.2.3 deNOx system: If vehicles fitted with a deNOx system must be able to monitoring its reduction efficiency. The OBD system must be able to identify the deNOx system deterioration or malfunction before the NOx emission exceeds the OBD threshold value.
- 3.2.2.4 A combined deNOx-diesel particulate filter system: If vehicles fitted with this equipment, The OBD system must be able to monitoring its reduction in efficiency. The OBD system must be able to identify the combined system's deterioration or malfunction before the NOx and PM emissions exceed the OBD threshold values.
- 3.2.2.5 The OBD system must be able to monitoring the continuity and rationality of electronic circuits between ECU and other powertrain, vehicle electrical or electronic system and components (such as transmission control interface), the OBD system must be able to identify the deterioration or malfunction status.
- 3.2.2.6 The fuel-injection system electronic fuel quantity and timing actuator(s) is/are monitored for circuit continuity and total functional failure; The OBD system must be able to identify the malfunction status before any regulated emissions exceed the OBD threshold values.
- 3.2.2.7 Other emission control system components or systems, or emission-related powertrain components or systems, which are connected to a computer, the failure of which may result in tailpipe emissions exceeding the threshold values or affecting the tailpipe emissions but not described in 3.2.2.1 to 3.2.2.6, the OBD system must be able to diagnosis the malfunction status. Examples of such systems or components are those for monitoring and control of air

mass-flow, air volumetric flow (and temperature), boost pressure and inlet manifold pressure (and relevant sensors to enable these functions to be carried out).

3.2.2.8 Other emissions control related components –the OBD system must be able to diagnose the deterioration or malfunction of sensors, actuators or components related to the electronic signal input/output that affect the emissions control but not being described in the previous provisions of 3.2.2.1 to 3.2.2.6. This portion, the continuity and rationality of electronic circuits shall be monitored, as to the actuator must be actuated according to the instruction of ECU.

3.2.2.9 For new heavy-duty vehicles equipped with engines having an exhaust after-treatment system requiring the use of a consumable reagent to achieve the intended reduction of regulated pollutants, the OBD system shall monitor:

3.2.2.9.1 Lack of consumable reagent or not enough of consumable reagent is being supplied.

3.2.2.9.2 The quality of consumable reagent is in compliance with the requirements described in Annex II of the EU Directive2005/55/EC.

3.2.2.9.3 The consumption flow of reagent or injection of reagent as close as technically possible to the point of injection into an exhaust after-treatment system.

3.3 General provisions

3.3.1 A sequence of diagnostic checks must be initiated at each engine start and completed at least once to verify the OBD system's functionality and provided that the correct test conditions are met.

3.3.2 The test engine or vehicle, environment temperature, pressure, and test facilities (such as chassis dynamometer) must comply with the following provisions:

3.3.2.1 Light Duty Truck and Diesel Passenger Car:

3.3.2.1.1 Vehicles comply with emissions standards effective on Oct. 1, 2006: shall comply with the provisions of Annex III of EU Directive 98/69/EC.

3.3.2.1.2 Vehicles comply with emissions standards effective on Jan. 1, 2012: shall comply with the provisions of Annex III of EU Regulation (EC) No 692/2008.

3.3.2.2 Heavy Duty Bus and Truck: shall comply with the provisions of Annex III of EU Directive 2005/55/EC.

3.3.3 The test reference fuel specifications must comply with the following provisions:

3.3.3.1 Light Duty Truck and Diesel Passenger Car:

3.3.3.1.1 Vehicles comply with emissions standards effective on Oct. 1, 2006: shall comply with the provisions of Annex IX of EU Directive 98/69/EC.

3.3.3.1.2 Vehicles comply with emissions standards effective on Jan. 1, 2012: shall comply with the provisions of Annex IX of EU Regulation (EC) No 692/2008.

3.3.3.2 Heavy Duty Bus and Truck: shall comply with the provisions of Annex IV of EU Directive 2005/55/EC.

3.3.4 The OBD malfunction indication light, fault code storage and reading methods, and functionalities related to diagnostic data communication and interface standardization shall comply with the following provisions:

3.3.4.1 Light Duty Truck and Diesel Passenger Car:

3.3.4.1.1 Vehicles comply with emissions standards effective on Oct. 1, 2006: shall comply with the OBD related provisions of EU directive 98/69/EC and its latest amendments.

3.3.4.1.2 Vehicles comply with emissions standards effective on Jan. 1, 2012: shall comply with the provisions of EU Regulation

(EC) No 692/2008 and its subsequent amendments.

3.3.4.2 Heavy Duty Bus and Truck: shall comply with the OBD related provisions of EU Directives 2005/55/EC, 2005/78/EC and their subsequent amendments.

4. The OBD related testing requirements and application process must comply with the following provisions:

4.1 Light Duty Truck and Diesel Passenger Car:

4.1.1 The OBD certificate application process for vehicles without the central competent authority recognized proof of compliance from a foreign country

4.1.1.1 Vehicles comply with the emissions standards effective on Oct. 1, 2006:

If the whole basic engine, emissions control system, and OBD system being introduced or imported with the same OBD monitoring strategies as the original vehicle manufacturer produced vehicle model, and being provided with the said vehicle model OBD related testing documents, shall be deemed as comply with the provisions of this Appendix.

4.1.1.2 Vehicles comply with the emissions standards effective on Jan. 1, 2012:

The applicant shall propose an OBD test plan, being audited, and approved by the central competence authority in accordance with the provisions of this Appendix, may carry out the test plan. The OBD test laboratory must qualify to the following regulations; the central competence authority may send representatives to the laboratory to monitoring the test

4.1.1.2.1 The test report issued by the central competence authority designated OBD test laboratory shall comply with the OBD functionality and test requirements in accordance with the provisions of EU Regulation (EC) No 692/2008 and its

subsequent amendments, the OBD threshold limit values shall also comply with provision 3.1.1 of Appendix 5.

4.1.1.2.2 The test laboratory shall conduct OBD test with test methods comply with the provisions of EU Regulation (EC) No 692/2008 and its subsequent amendments. The test laboratory shall be recognized with proper test equipment and capable of conducting OBD test on new vehicle models with type approval certificate in compliance with the EU Directive 98/69/EC, or Regulation (EC) No 692/2008(comply with the emissions standards effective on Jan. 1, 2012), or UN/ECE Regulation No 83-05 and their subsequent amendments. The OBD threshold limit values shall also be comply with provision 3.1.1 of Appendix 5.

4.1.2 The OBD certificate application process for vehicles with the central competent authority recognized proof of compliance from a foreign country

4.1.2.1 Vehicles with the new vehicle type approval certificates in accordance with EU Directive 98/69/EC, or Regulation (EC) No 692/2008 (comply with the emissions standards effective on Jan. 1, 2012), or UN/ECE Regulation No 83-05 and their subsequent amendments; their OBD threshold limit values comply with provision 3.1.1 of Appendix 5, the OBD functionalities and test requirements being accepted by the member states of EU, may deemed as comply with the provisions of this Appendix.

4.1.2.2 Vehicles with US-EPA issued new vehicle type approval certificates in accordance with provisions of CFR Title 40 Part 86; the OBD functionalities and test requirements being accepted by US-EPA, May deemed as comply with the provisions of this Appendix.

4.2 Heavy Duty Bus and Truck:

4.2.1 The OBD certificate application process for engines without the central

competent authority recognized proof of compliance from a foreign country.

4.2.1.1 Engines comply with the emissions standards effective on Oct. 1, 2006:

If the whole basic engine, emissions control system, and OBD system being introduced or imported with the same OBD monitoring strategies as the original engine manufacturer produced engine family, and being provided with the said engine family OBD related testing documents, may deemed as comply with the provisions of this Appendix.

4.2.1.2 Engines comply with the emissions standards effective on Jan. 1, 2012:

The applicant shall propose an OBD test plan, being audited, and approved by the central competence authority in accordance with the provisions of this Appendix, may carry out the test plan. The OBD test laboratory must qualify to the following requirements; the central competence authority may send representatives to the laboratory to monitoring the test.

4.2.1.2.1 The test report issued by the central competence authority designated OBD test laboratory shall comply with the OBD functionality and test requirements in accordance with the provisions of EU Directive 2005/55/EC, 2005/78/EC and their subsequent amendments, the OBD threshold limit values shall also comply with provision 3.1.2 of Appendix 5.

4.2.1.2.2 The test laboratory shall conduct OBD test with test methods comply with the provisions of EU Directive 2005/55/EC, 2005/78/EC and their subsequent amendments. The test laboratory shall be recognized with proper test equipment and capable of conducting OBD test on new

vehicle models with type approval certificate in compliance with the EU Directive 2005/55/EC, or UN/ECE Regulation No 49-04 and their subsequent amendments. The OBD threshold limit values shall also be comply with provision 3.1.2 of Appendix 5.

4.2.2 The OBD certificate application process for vehicles with the central competent authority recognized proof of compliance from a foreign country.

4.2.2.1 Vehicles with the new vehicle type approval certificates in accordance with EU Directive 2005/55/EC, or UN/ECE Regulation No 49-04 and their subsequent amendments; their OBD threshold limit values shall comply with provision 3.1.2 of Appendix 5, and the OBD functionalities and test requirements being accepted by the member states of EU, May deemed as comply with the provisions of this Appendix.

4.2.2.2 Vehicles with US-EPA issued new vehicle type approval certificates in accordance with provisions of CFR Title 40 Part 86; the OBD functionalities and test requirements being accepted by US-EPA, May deemed as comply with the provisions of this Appendix.

5. Engine family vehicles that unable to comply with all OBD regulations, the certificate application will be handled according to the following principles:

5.1 After considering the technical feasibility, lead time and production cycles including phase-in or phase-out of engines or vehicle designs and programming upgrades of computers, to extend the current OBD system in compliance with all the OBD requirements in this regulation is infeasible or unreasonable, the applicant may request to the authority that the OBD system be accepted for type-approval even though the system contains one or more deficiencies. With the approval by the competent authority the OBD system may temporary being accepted without fulfill all the requirements in this regulation

5.2 For the primary OBD monitoring items such as Catalytic Converter, Diesel

Particulate filter, deNOx system, and EGR, lack of monitoring is prohibited.

- 5.3 The type approved engine family that temporary without fulfill all the OBD requirements in this regulation, the next year, before applying for continuing use of the certification, the OBD system must be improved to meet all the requirements in this regulation. If considering the hardware or software modification and lead-time for this engine family, the deficiency improvements cannot be completed in that model year, the applicant may provide related documents to request for the deficiency carried-over, the competent authority may accept the request, but the continuing use period must not exceeding 3 years.
- 5.4 For engine family with the US or EU Certificate of Conformity and being issued a Taiwan Certificate of Compliance, if the applicant has already completed improvements for the OBD deficiency , the applicant must not re-apply for the extension of certification with carried-over deficiency .
- 5.5 For vehicles using alternative clean fuels (such as natural gas, liquefied petroleum gas, methanol, and ethanol), if the usage of alternative clean fuels may reduce the reliability of OBD monitoring function, the applicant may request to the competent authority for the exemptions from some specific monitoring requirements. However, equipped with an OBD system is still being requested.