

ENVIRONMENTAL PROTECTION DEPARTMENT

Guidance Notes

Application for Engine Exhaust Emission and Noise Emission Type Approval

(For motor vehicle with design weight more than 3.5 tonnes)

1. Application form

The application form consists of two parts, PART I and PART II. PART I is the applicant's information and PART II is information of the engine model for which type approval is sought. Please note that no exhaust emission type approval is required for pure electric vehicles, in which case you should complete Section A of PART I and Section C of PART II for noise emission type approval only. You should complete relevant items and provide all necessary information in supporting your application. TWO copies of PART I are required if you apply for both engine exhaust and noise emission type approval.

2. Authorized signature

The application form and the CD-ROMs must have authorized signatures of the vehicle / engine manufacturer to certify that the information of the vehicle / engine model under application is correct and complete.

3. Checklist

The information in the checklist is essential for your application. You may provide other information to support your application.

4. Submission of Application

The completed application form together with all supporting documents can be sent by post or in person to

Environmental Protection Department
Mobile Source Policy Section (1)
Room 4518, 45/F., Revenue Tower,
5 Gloucester Road, Wan Chai, Hong Kong.

Enquiry:

E-mail address : cannischeung@epd.gov.hk

Telephone : (852) 2594 6332

Fax : (852) 2824 9361

on exhaust emission

(852) 2411 9665

Fax : (852) 2413 3358

on noise emission

ENVIRONMENTAL PROTECTION DEPARTMENT

APPLICATION FOR ENGINE EXHAUST EMISSION AND NOISE EMISSION TYPE APPROVAL

(For motor vehicle with design weight more than 3.5 tonnes)

For pure electric vehicles, please complete Section A of PART I and Section C of PART II only

Vehicle Make & Model : _____

Class of Vehicle: (e.g. Public Bus) _____

PART I

A. Applicant's information

Company : _____

Address : _____

Business Registration No. : _____

Telephone No.: _____ Fax No. : _____

Name and Telephone No. of Contact Person (if applicable): _____

Signature (Applicant) : _____

Name: _____ Position : _____

E-mail Address : _____ Date : _____

Checklist

Please tick the relevant boxes

- Two copies of PART I – Applicant's information
- One copy of PART II – Information of the Engine Model for Type Approval
- *One CD-Rom containing third party certificates for exhaust emission / *One hard copy of third party certificate for exhaust emission
- *One CD-Rom containing third party certificates for noise emission / *One hard copy of third party certificate for noise emission
- *Certification issued by the Ministry of Land, Infrastructure and Transport
- *Other supporting documents, please specify _____

Submission of Application

The completed application form together with all supporting documents can be sent by post or in person to

Environmental Protection Department

Mobile Source Policy Section (1)

Room 4518, 45/F., Revenue Tower,

5 Gloucester Road, Wan Chai, Hong Kong.

Note : * delete as appropriate

B.1) Declaration by vehicle / engine manufacturer

I certify that

- (a) the information in PART II – Information of the Engine Model for Type Approval is the correct description of the engine model under application.
- (b) the engine type described in Part A, Part B and Part C complies with the exhaust emission standards and the noise emission standards as laid down in the Air Pollution Control (Vehicle Design Standards)(Emission) Regulation and Noise Control (Motor Vehicles) Regulation respectively.
- (c) adequate arrangements and prepared documented quality control plans with certification to international standard such as EN ISO 9002 – 1994, or EN ISO 9001 – 2000 or an equivalent standard acceptable by the Environmental Protection Department has been set up to ensure all engines produced and offered for sale in Hong Kong comply with the exhaust emission standards as laid down in the Air Pollution Control (Vehicle Design Standards)(Emission) Regulations.
- (d) at least 1% (or % as agreed with the Environmental Protection Department) of the total sales of the engines of the model for which emission type approval is sought, and destined for Hong Kong will be sampled randomly for exhaust emission test to confirm the engine model complies with the emission requirements in the Air Pollution Control (Vehicle Design Standards)(Emission) Regulations.
- (e) an annual report will be submitted to the Environmental Protection Department for the approved engine model substantiating the fulfillment of the conformity of production requirements in the approved conformity production plan.

Authorised Homologation Staff (Signature) : _____

Name and Position : _____

Company : _____

Date : _____

B.2) Declaration by vehicle dealer who will provide the vehicle model with design weight of more than 3.5 tonnes and equipped with SCR system

I undertake that

- (a) adequate arrangements will be made to ensure uninterrupted supply of urea solution complying with DIN 70070 standards in appropriate locations such as customer service centres or maintenance depots to customers;
- (b) characteristics of urea solution (e.g. type, concentration and operational temperature conditions), proper operation of the vehicles and the frequency of refilling the urea solution should be informed to the customers;
- (c) information about the urea refilling infrastructure such as locations and the contact numbers will be disseminated to customers upon the purchase of vehicles equipped with SCR system;
- (d) any change of location for urea solution should inform the customers and Motor Trader Association as far as practicable by appropriate means.

Authorised Dealer's Staff (Signature) : _____

Name and Position : _____

Company : _____

Date : _____

PART II INFORMATION OF THE VEHICLE MODEL FOR TYPE APPROVAL

A. Details of the Motor Vehicle, Engine, Air-Intake and Exhaust Control Systems

A.1) Description of Motor Vehicle

Make :
Model (Sales Designation) :
Registration Class :

Manufacturer's Name and Address :
Manufacturer's Representative's Name :
and Address

Design Weight (kg)⁽¹⁾ :
Unladen Mass of Vehicle (kg) :
Maximum Technically Permissible Mass of Vehicle (kg)⁽²⁾ : (Laden)
Seating capacity (excluding driver) :

Gearbox - Type : Manual /Automatic /CVT*
- Model No. :

Number of Gears :

Gear Ratios - First : Second :
- Third : Fourth :
- Fifth : Sixth :

For CVT - Minimum Ratio :
- Maximum Ratio :

Final Drive Ratio :

Driving Wheels : Front /Rear /All*

Tyre Specifications - Front :
- Rear :

Note : * delete as appropriate

CVT means Continuously Variable Transmission

(1) Maximum design loaded vehicle weight as recommended by the manufacturer of a motor vehicle

(2) The maximum technically permissible mass of the vehicle based on its construction and performance, stated by the manufacturer.

A.2) Description of Engine

Make :

Type :

Fuel used :

Cycle : Four Stroke / Two Stroke / Others* (please specify) :

Combustion System : Positive Ignition / Compression Ignition*

Number and Arrangement of Cylinders :

Bore (mm) :

Stroke (mm) :

Firing Order of Cylinders :

Engine Capacity (litre) :

Volumetric Compression Ratio :

Cooling System :

Fueling System :

Rated Maximum Power Output : _____ kW at _____ rev/min

Rated Maximum Torque Output : _____ Nm at _____ rev/min

Idle Engine Speed (rpm) :

Maximum Designed No Load Engine Speed (Diesel Only) (rpm) :

Method of Aspiration: Natural / Turbocharger & Intercooler / Other* (please specify) :

Engine Electronic Control Unit (EECU) (all engine types) :

(i) Make :

(ii) Type :

(iii) Software calibration number(s) :

A.3) Description and Drawings of the Air-intake and Exhaust Control System

1. Air-Intake System

Description and drawings (showing in a plan view and a lateral view) of the air-intake system indicating the location of the intake silencer(s) and the air filter(s) :

- (i) **Air Filter, drawings number** :
 Model/Type :
 Identification Marks :
 Manufacturer/Authorized Agent :
- (ii) **Air Intake Silencer, drawings number** :
 Model/Type :
 Identification Marks :
 Manufacturer/Authorized Agent :

2. Exhaust Control System

Description and drawings (showing in a plan view and a lateral view) of the exhaust system indicating the location of the muffler(s), the catalytic converter(s), the oxygen sensor(s) and NOx sensor etc. :

- (i) **Exhaust Silencer, drawings number:**
 Model/Type :
 Identification Marks :
 Manufacturer/Authorized Agent :
- (ii) **Catalytic Converter, drawings number:**
 Model/Type :
 Identification Marks :
 Manufacturer/Authorized Agent :
- (iii) **Device for Recycle Crankcase Gases**
 Description and drawing number :
- (iv) **Exhaust Gas Recirculation : yes / no***
 Description and drawing number :
- (v) **Secondary Air Injection : yes / no***
 Description and drawing number :
- (vi) **Particulate Trap : yes / no***
 Type and design of the particulate trap:
 Method or system of regeneration:
 Description and drawing number :

Note : *delete as appropriate

(vii) DeNOx system : yes/ no*

Type of the deNOx system : SCR system / NOx adsorber*

Description and drawing number :

Consumable reagents (where appropriate) :

Type and concentration of reagent needed for catalytic action :

International standard (where appropriate) :

Frequency of reagent refill : continuous/ maintenance* :

(viii) NOx Sensor : yes / no*

Description and drawing number :

(ix) Torque limiter : yes/ no*

Description of the torque limiter activation :

Description of the full load curve limitation :

(x) Other Anti-Pollution Devices : yes / no*

Description and drawing number :

For Positive Ignition Engine only

(xi) Evaporative Emission Control System : yes / no*

Description and drawing (showing in schematic diagram) :

Drawing number of Carbon Canister :

(xii) Oxygen Sensor, drawings number:

Model/Type :

Identification Marks :

Manufacturer/Authorized Agent :

A.4) Description and Diagram of Motor Vehicle with Overall Dimensions

(including Fuel Tank Filling Pipe Neck Inside Diameter for petrol vehicles only).

Note : Attach separate sheet(s) showing a plan view, a front view and a lateral (side) view

A.5) Maintenance and Service Schedule under Normal and Severe Use

Note : Attach separate sheet(s) if necessary

Note : *delete as appropriate

A.6) Details of On-Board Diagnostic (OBD) System

1. The OBD system complies with the Phase 1^(a) / Phase 2^{(b)*} OBD requirements laid down in Directive 2005/55/EC and its subsequent amendments up to and including amendments made by 2005/78/EC* or 2006/51/EC* or other equivalent* (state if any) _____.
2. Attach comprehensive fault code list and descriptions of the malfunction indicator (MI) used by the OBD system to signal the presence of faults.
3. Attach list of all relevant parts of the vehicle's emission control system that are monitored by the OBD system such as catalyst monitoring, deNOx system monitoring, diesel particulate filter monitoring, electronic fuelling system monitoring, reagent consumption monitoring or other components monitored by the OBD system etc., if equipped, for compression ignition engines. Details of monitoring method, monitoring flow chart (if any), monitoring condition and malfunction criteria for each relevant part monitored by the OBD system.
4. Full OBD system test report
Attach an OBD system test report. The OBD system test has been carried out in accordance with OBD specifications laid down in Directive 2005/55/EC and its subsequent amendments up to and including amendments made by 2005/78/EC* or 2006/51/EC* or other equivalent* (state if any) _____. Certified true copy by the Homologation Department is acceptable.

A.7) Details of reagent control and measures to discourage tampering of exhaust aftertreatment systems

Note: Attach separate sheet(s) if applicable and necessary.

B. Exhaust Emission Results

Important Notes:

- (1) For emission tests conforming to EC Directive, please complete Parts B.1 and B.2 and provide necessary EC Type Approval Certificates for Exhaust Emission, Gaseous and Particulate Emission, Smoke Emission or third party supporting information such as emission test report, etc. for verifying the emission test results in Part B.2.
- (2) For emission tests conforming to Japan Standard, please complete Parts B.1 and B.2 and provide necessary NTSEL Exhaust Emission report and MLIT Gazette, Smoke Emission, etc. for verifying the emission test results in Part B.2.
- (3) For emission tests conforming to US Standard, please complete Parts B.1 and B.2 and provide necessary supporting information such as emission test reports for verifying emission test results in Part B.2.

Note : * Delete as appropriate

(a) OBD Phase I requirements implement on 1 October 2006 as laid down in 2005/78/EC

(b) OBD Phase II requirements implement on 1 October 2007 as laid down in 2005/78/EC

B.1) Certificate of Compliance for Gaseous, Particulate & Smoke Emission

Vehicle Make :
Engine Make :
Vehicle Type (Model Code) :
 Variant :
 Version :
Vehicle Model :
Engine Model :
Manufacturer's name and address :

Specify EC Certificate Number / Conforming Standard for

Exhaust Emission :
Gaseous and Particulate Emission :
Smoke Emission :

Test Report Number for

Exhaust Emission :
Gaseous and Particulate Emission :
Smoke Emission :
OBD System :

Test Fuel Specifications : Values of RON / MON / Lead Content / Sulphur Content

B.2) Engine Emission Test Report

1. Identification of Vehicle Tested

Engine No. ⁽¹⁾ :
Chassis No. ⁽¹⁾ :
Odometer Reading (km) :
Maximum and/or Minimum Intake Depression (kPa) :
Maximum Back Pressure (kPa) :

Note : (1) Details of the engine/chassis code to support the vehicle/engine tested are applicable to the applied vehicle.

2. Emission Test Results

Please specify the emission standards complied: EC Directive / Japan / United States* and complete the relevant section accordingly.

2.1(A) For emission tests conforming to EC Directive

2.1(A).1 ESC and ELR Tests

Date of Testing :

	<u>Emitted Mass</u>	<u>Unit</u>	<u>Deterioration Factor</u>	<u>Result</u>	<u>Limit</u>
HC		(in g/kWh)			
CO		(in g/kWh)			
NO _x		(in g/kWh)			
PM		(in g/kWh)			
Smoke		(m ⁻¹)			

2.1(A).2 ETC Test

Date of Testing :

	<u>Emitted Mass</u>	<u>Unit</u>	<u>Deterioration Factor</u>	<u>Result</u>	<u>Limit</u>
NMHC		(in g/kWh)			
CO		(in g/kWh)			
NO _x		(in g/kWh)			
PM		(in g/kWh)			

2.1(A).3 Durability of Anti-Pollution Control Devices

Date of Testing :
 Durability type : 200,000 km or 6 yrs^{(c)*} / 500,000 km or 7 yrs^{(d)*} / other*
 Deterioration Factors : Fixed / Calculated*

	NMHC	HC	CO	NO _x	PM
Deterioration Factor :					

Name and Address of the :
 Approved Test Laboratory

Laboratory Approved by :
 (Name and Address of
 National or Recognized Authority)

Note : * Delete as appropriate

(c) N2/ M2 categories applicable (N2: gds transportation with 3.5t < GVW <= 12t; M2: Passengers vehicles over 9 persons and GVW <= 5t)

(d) N3/ M3 categories applicable (N3: gds transportation with GVW > 12t; M3: passengers vehicles over 9 persons and GVW > 5t)

2.1(B) For emission tests conforming to Japan Standard / US Standard*

2.1(B).1 Engine Emission Test

Date of Testing :

Testing Cycle :

	<u>Emitted Mass</u>	<u>Unit</u>	<u>Deterioration Factor</u>	<u>Result</u>	<u>Limit</u>
NMHC		(in g/kWh)			
HC		(in g/kWh)			
CO		(in g/kWh)			
NO _x		(in g/kWh)			
NMHC+NO _x		(in g/kWh)			
PM		(in g/kWh)			
Smoke		(in %)			

2.1(B).2 Durability of Anti-Pollution Control Devices

Date of Testing :

Durability type : 250,000 km for 3.5-8 tonnes^{(e)*} / 450,000 km for 8-12 tonnes^{(e)*} /
650,000 km for over 12 tonnes^{(e)*} / 177,020 km or 10 yrs^{(f)*} /

other*

Deterioration Factors : Fixed / Calculated*

	NMHC	HC	CO	NO _x	NMHC+NO _x	PM
Deterioration Factor :						

Name and Address of the Approved Test Laboratory :

Laboratory Approved by (Name and Address of National or Recognised Authority) :

Note : * Delete as appropriate

(e) Durability type for emission tests conforming to Japan Standard

(f) Durability type for emission tests conforming to USA Standard

2.2 Smoke Test (For compression ignition engine only)

Free Acceleration Smoke Test Result according to 72/306/EC test procedure and its subsequent amendments up to and including amendments made by 2005/21/EC.

Identification of Vehicle Tested

Engine No. ⁽¹⁾ :

Chassis No. ⁽¹⁾ :

Odometer Reading (km) :

Date of Testing :

Opacimeter Used :

	<u>Measured</u>	<u>Limit</u>
Light Absorption Coefficient (m-1)		

Name and Address of the :
Approved Test Laboratory

Laboratory Approved by :
(Name and Address of
National or Recognised Authority)

2.3 Carbon Monoxide Emission at Idling Speed (For positive ignition engine only)

Date of Testing :

At Idling Engine Speed (min^{-1}) :

Corrected CO Value (% Vol.) :

Limit (% Vol.) :

2.4 Emission of Crankcase Gases (For positive ignition engine only)

Date of Testing :

Test Result :

2.5 Evaporative Emission Test (For positive ignition engine only)

Date of Testing :

Test Method :

Test Result (g/test) :

Note : (1) Details of the engine/chassis code to support the vehicle/engine tested are applicable to the applied vehicle.

C. Details of the Motor Vehicle, Engine / Electric Motor* and Noise Emission Test Results

C.1) Declaration by Vehicle Manufacturer (applicable to *pure electric vehicles* only)

I certify that

- (a) the information in this Section C is the correct description of the vehicle type under application.
- (b) the vehicle type described in this Section C complies with the noise emission standards as laid down in the Noise Control (Motor Vehicles) Regulation.
- (c) the vehicle selected for the noise test is representative of the above vehicle type and the noise test results are given in Appendix I below.

Authorised Homologation Staff (Signature) : _____

Name and Position : _____

Company : _____

Date : _____

C.2) Details of the Motor Vehicle and Engine / Electric Motor*

Vehicle Make :

Vehicle Model & Sales Designation :

Vehicle Registration Class :

Engine / Electric Motor* Make :

Engine / Electric Motor* Type :

Engine Capacity (litre) :

Fuel used :

Rated Maximum Power Output of Engine : _____ kW at _____ rev/min

/Maximum Hourly Output of Electric : _____ kW

Motor*

Manufacturer's name and address :

Name and Address of Manufacturer's Representative :

Design Weight (kg) ⁽¹⁾ :

Unladen Mass of Vehicle (kg) :

Maximum Technically Permissible Mass of Vehicle (kg) ⁽²⁾ (Laden) :

Seating capacity (excluding driver) :
Gear Box Type : Manual / Automatic / CVT*
Number of Gears :
Conforming noise standards :

The noise emission test results for the test motor vehicle are summarised in Part C.3 as follows.

Name and address of Manufacturer's testing site (if different from above) or Acoustic Testing Laboratory :

Note : * delete as appropriate
CVT means Continuously Variable Transmission
(1) Maximum design loaded vehicle weight as recommended by the manufacturer of a motor vehicle
(2) The maximum mass of the vehicle based on its construction and performance, stated by the manufacturer

C.3) Motor Vehicle Noise Emission Level Test Results :

The description of the motor vehicle and engine/electric motor** is in Part C.2.

Identification of Vehicle Tested

Engine / Electric Motor No.* :

Chassis No.* :

Test Date :

Test Site :

Name and address of the Acoustic Testing Laboratory :

The tests have been carried out in accordance with the testing procedures of the noise standards (EEC or Japan **) in the Noise Control (Motor Vehicles) Regulations. The specific testing procedure adopted is # (select whichever is appropriate).

- # Accelerated Running Noise Level Test (EEC and Japan noise standard)
- # Stationary Noise Level Test (EEC standard only)
- # Compressed Air Noise Test (where applicable, EEC standard only)
- # Steady Running Noise Level Test (Japan standard only)
- # Proximity Stationary Noise Level Test (Japan standard only)

*Note : You should also **provide the appropriate test results** which comply with the noise standards indicated above. A model test results format as shown in Appendix I, for reference, should facilitate the interpretation of test results.*

Note : * Details of the engine/chassis code to support the vehicle/engine tested are applicable to the applied vehicle

** delete as appropriate

Appendix I Model format for the presentation of the motor vehicle noise results

1) Accelerated Running Noise Level Test (for EEC and Japan noise standard)

No. of Measurement	Used gear position or range	Specified speed (km/h)	Test speed (km/h)		Level of ambient noise dB(A)	Motor vehicle noise level (dB)		Test result dB(A)	Noise level limit dB(A)	
			Entry	Exit		Measured value				Compensated value
						*Left	*Right			
1										
2										
3										
4										

Note : *denotes EEC test procedure requires noise levels be recorded on both the left and the right handed side of the test vehicle.

2) Stationary Noise Level Test (for EEC Standard only)

No. of Measurement	Engine speed delivering max powered output (rpm)	Level of ambient noise dB(A)	Motor vehicle noise level (dB)		Test result dB(A)
			Measured value	Compensated value	
1					
2					
3					

3) Compressed Air Noise Test (where applicable, for EEC Standard only)

No. of Measurement	Level of Ambient Noise dB(A)	Measured value		Test result dB(A)	Noise level limit dB(A)
		Left	Right		
1					
2					
3					
4					

4) Steady Running Noise Level Test (for Japan noise standard only)

No. of Measurement	Used gear position or range	Specified speed (km/h)	Test speed (km/h)	Level of ambient noise dB(A)	Motor vehicle noise level (dB)		Test result dB(A)	Noise level limit dB(A)
					Measured value	Compensated value		
1								
2								

5) Proximity Stationary Noise Level Test (for Japan noise standard only)

No. of Measurement		Engine speed delivering max powered output (rpm)	Level of ambient noise dB(A)	Motor vehicle noise level (dB)		Test result dB(A)	Noise level limit dB(A)
				Measured value	Compensated value		
Right	1						
	2						
Left	1						
	2						

**Environmental Protection Department
July 2011**