Appendix 1: Exhaust emission testing and regulations applicable for vehicle model inspection

1. Selecting the vehicles required for conducting the inspection and testing of a Certificate of Conformity

   The application for the Certificate of Conformity shall be filed subject primarily to the engine family. The vehicles representing the engine family shall be selected in the following manner:

   1.1 The vehicle configuration expected to derive the highest emission pollution from any engine family shall be selected for the exhaust emissions test. The vehicle with the greatest loaded weight (including optional accessories) shall be selected. Notwithstanding, when different vehicle configurations have identical loaded weight, the one with the greatest road resistance (at 80 kph) set in the dynamometer shall be selected. If the road resistance is identical, the largest size of engine displacement shall be selected for testing. In the case of identical exhaust volume, the one with the greatest total gear ratio numbers (including the overdrive (OD) device) shall be selected.

   1.2 One vehicle configuration with the highest expected evaporative emission value shall be selected within the engine family. If it is impossible to do so, the representative vehicle configuration may be selected according to the fuel system installation conditions and the materials that are being used.

   1.3 If the central competent authority considers that the vehicles selected by the applicant referred to in the preceding two paragraphs can not be representative of the pollutants emitted by said engine family, the central competent authority may designate other vehicle configurations within the same engine family as the vehicles to be tested.

   1.4 All vehicles selected for the testing shall be completely assembled and ready for normal driving and stable operation.

   1.5 When importing vehicles that are classified as the same engine family and that are manufactured in or imported from different countries, the vehicles shall be selected respectively for carrying out the test, except for those engine families that have been granted the Certificate of Conformity issued by EU members or the United Kingdom, to the agent designated by the imported motorcycle manufacturer, in accordance with the Regulations (EC).

2. Vehicle testing items and basic regulations

   2.1 The applicant shall provide information about the vehicles to be tested, such as specifications, maximum speed (with the original manufacturer's official data), basic engine information, power system, fuel supply system, transmission system, descriptions and schematic diagrams of the exhaust emissions control system and its location, adjustable parameters related to emission pollution and their suggested setting values, and photos showing the vehicles and emissions control system, etc.

   2.2 The test on pollution emissions of vehicles shall be conducted in any of the following manner:

      2.2.1 To be executed in accordance with the "Test Method and Procedure for Motorcycle Exhaust Emissions," "Test Method and Procedure for

Motorcycle Durability" and "Method and Procedure for Motorcycle Evaporative Emissions."

2.2.2 For an engine family for which the Certificate of Conformity, as issued by EU members or the United Kingdom in accordance with the Regulations (EC) No. 168/2013 and subsequent directives thereto, has already been received by the agent designated by the imported motorcycle manufacturer or locally-made motorcycle manufacturer, which meets the emission standards and related laws & regulations of Taiwan, and for which the specifications related to all vehicle configurations (including software and hardware) are identical with the contents recorded in the Certificate of Conformity issued by EU or the United Kingdom (provided that in the case of locally-made motorcycles, the motorcycle manufacturer specified in the Certificate of Conformity issued by EU or the United Kingdom shall be the local manufacturer with identical address), the test results recorded in such Certificate of Conformity for the vehicles representing the engine family shall apply.

2.3 In motorcycles with an idle-stop function, when conducting emission tests, the idling stop switch shall be in one position. In the case of hybrid electric motorcycles with manual switches for different power operation modes, the emission tests shall be conducted under hybrid operation mode.

2.4 The deterioration factors of said engine family shall be multiplied by or be added to the results of all the new vehicle tests, including new vehicle configuration tests, new vehicle quality control tests and new vehicle random tests (applicable to applicants who adopt the Certificate of Conformity issued by EU members or the United Kingdom and who perform the durability test). The evaporative emission test results shall serve as the basis to determine compliance with the emission standards in accordance with the "Method and Procedure for Motorcycle Evaporative Emissions." Before comparison with various emission standards, it shall be rounded up to the next decimal place of the emission standard value and then rounded off.

2.5 The applicant shall determine the minimum mileage of the respective engine family required to achieve the stabilized emission value when conducting respective tests, including new vehicle configuration tests, quality control tests and new vehicle random tests, provided that the break-in accumulation mileage shall not exceed 1,500 kilometers.

2.6 With the consent of the central competent authority, the agent designated by the imported motorcycle manufacturer may designate the imported motorcycle manufacturer to conduct the OBD test at the testing laboratory set up by the manufacturer overseas, at the applicant's own expense.

3. Deterioration Factors

3.1 For an engine family generating an annual sales volume of more than 200 units, it is necessary to conduct the real motorcycle durability test in accordance with the "Test Method and Procedure for Motorcycle Durability" to verify the deterioration factors. The durability test plan and deterioration

factors shall be submitted to the inspection organization to confirm the inspection data. Then, the inspection data may be adopted upon approval of the central competent authority.

3.2 When executing the driving cycle test, the engine family generating an annual sales volume of more than 200 units may identify the following designated values as its deterioration factors (applicable to multiplication):

3.2.1 CO: 1.400

3.2.2 HC: 1.400

3.2.3 NMHC: 1.400

3.2.4 NOx: 1.400

3.2.5 PM: 1.100

3.3 For an engine family for which the Certificate of Conformity as issued by EU members or the United Kingdom in accordance with the Regulations (EC) No. 168/2013 and subsequent directives thereto, has already been received by the agent designated by the imported motorcycle manufacturer or locally-made motorcycle manufacturer, and for which the durability test has been executed, the data (such as deterioration factors of the Certificate of Conformity) shall be submitted to the inspection organization to confirm the data. Then, the data may be adopted upon compliance with subparagraph 2 of Article 5, paragraph 2.2.2 of Appendix 1, and the related laws and regulations of Taiwan, and upon approval of the central competent authority.

3.4 Where the emission standards after January 1, 2017 (inclusive) are applicable, the test on HC emitted from the fuel tank and fuel supply system may identify 300 mg/test as its deterioration factor.

3.5 If the applicant is a motorcycle manufacturer or agent designated by the motorcycle manufacturer, the requirements for designated deterioration factors applied to an engine family generating an annual sales volume of less than 200 units, may be extended to that generating an annual sales volume of no more than 600 units. The applicant shall, per Appendix 3, increase the self-quality control random test ratio for that engine family. The central competent authority may strengthen the new vehicle random test and include the priority targets for recall, correction, investigation and test of in-use vehicles, with respect to the engine family.

3.6 Any individual who imports new motorcycles or in-use motorcycles separately under a personal name from overseas may adopt the deterioration factors referred to in paragraph 3.2 herein.

4. Evolution coefficient utilization regulations

Before conducting the new vehicle random test or quality control test, the vehicle configuration of each engine family may be assigned evolution coefficients that have been reviewed and approved by the central competent authority, with the requirement that the vehicle to be tested must be in a condition without run-in (accumulated mileage under 100 kilometers). The result value of the driving cycle test as executed, multiplied by the evolution coefficients, shall be considered as the test value after the vehicle reaches its expected stable condition and is in use. The evolution coefficients are set in the following manner:

4.1 Conduct vehicle on-road mileage accumulation test:

4.1.1 The Evolution Coefficient used in the exhaust emission test shall be set according to the result of the accumulated on-road mileage test. The applicant shall submit the Driving Cycle Test method and the plan required for the accumulated on-road mileage test. As a first step, the applicant shall submit the plan to the inspection organization for confirmation that the inspection-related data contained therein is correct. After being approved by the central competent authority, the applicant shall be allowed to conduct the Accumulated On-road Mileage Test.

4.1.2 The contents of vehicle on road testing plan shall at minimum include the following items:

4.1.2.1 Test laboratory name (includes proof of capability to perform the test)

4.1.2.2 Test vehicle

4.1.2.3 Test procedure

4.1.2.4 Test schedule

4.1.2.5 Test equipment

4.1.2.6 Maintenance and repair items

4.1.2.7 Test fuel

4.1.3 The vehicle to be tested shall measure the emission values at zero mileage (mileage less than 100 kilometers) and at the required accumulation mileage (not over 1,500 kilometers) respectively.

4.1.4 The evolution coefficient calculation method for each regulated pollutant: the pollutant's emission test value at required accumulation mileage divided by the emission test value at the zero mileage condition. The evolution coefficient may be less than 1.

4.1.5 After completing the Accumulated On-road Mileage Plan, the applicant shall submit the plan to the inspection organization for confirmation that the inspection-related data contained therein is correct. Upon approval of the central competent authority, the applicant shall be allowed to use the evolution coefficients for conducting the Accumulated On-road Mileage Test.

4.2 Adopting the evolution coefficient defined in the conformity certificate issued by EU members or the UK: The applicant shall prepare the documents that will be used to obtain the evolution coefficient certification from EU members or the UK for such vehicle models. In the meantime, the applicant is also required to submit the inspection-related data to the inspection organization for confirmation as correct. After being approved by the central competent authority, the applicant shall then be allowed to use the evolution coefficient defined in the supporting document.

5. OBD requirements

5.1 Terms used in this Appendix are defined as follows:

5.1.1 Malfunction: Deterioration or failure of the vehicle air pollution control equipment and related components resulting in pollution

emissions failing to meet the OBD control standards.

5.1.2 Malfunction simulation: Use of deteriorated or ineffective pollution prevention equipment and related components or electronic simulators to simulate the failure of the equipment or components in the test project.

5.1.3 Malfunction indicator: The light indicator used to inform a driver of any failure of related equipment or components detected by the OBD.

5.1.4 Continuous monitoring: Monitoring circuit continuity (e.g. lack of circuit continuity, circuit malfunction, and values exceeding normal operating values).

5.1.5 Driving Cycle: The vehicle driving process required for the OBD system to perform a comprehensive diagnostic assessment of the air pollution control equipment and related components. This includes engine start-up, operation, a period of driving, followed by engine shutdown, and sufficient idle time before the next engine starts. Any malfunctions occurring during this driving cycle should be diagnosed.

5.1.6 Warm-up cycle: A sufficient vehicle operation such that the coolant temperature may reach a minimum normal working temperature suggested by the manufacturer.

5.1.7 OBD family: The vehicle configurations produced by the same manufacturer with the same engine combustion cycle type, fuel supply method, fuel type, catalytic converter type, carbon particle trap type, secondary air system, exhaust recirculation system, and the same OBD monitoring functions and strategies, malfunction detection methods and malfunction indicators, may be defined as the same OBD family.

5.2 Motorcycles shall be equipped with adequate OBD per Article 6 of the emission standards, in order to monitor and identify the deterioration and malfunction of the pollution control equipment and related components, and the type thereof.

5.3 OBD controlled threshold limits are required as follows:

If deterioration or malfunction of vehicle pollution control equipment and related components results in the pollution emission exceeding the OBD emission threshold limit (no more than 20%), OBD shall display the malfunction of such pollution control equipment and related components.

The driving cycle test shall be conducted in accordance with the testing method and procedure for motorcycle exhaust emissions. The OBD controlled threshold limits are stated as follows:

5.3.1 OBD Stage I and OBD Stage II-A

5.3.1.1 Maximum speed under 130 km/hr:

The OBD controlled threshold limits are CO: 2170 mg/km, THC: 1400 mg/km and NOx: 350 mg/km.

5.3.1.2 Maximum speed over 130 km/hr:

The OBD controlled threshold limits are CO: 2170 mg/km, THC: 630 mg/km and NOx: 450 mg/km.

5.3.2 OBD Stage II-B

The OBD controlled threshold limits are CO: 1900 mg/km, NMHC: 250 mg/km, NOx: 300 mg/km, and PM: 50 mg/km (PM emission standards are only applicable to the vehicles with direct injection engines).

5.3.3 Applicable to the emission standards after January 1, 2017:

The OBD controlled threshold limits follow the OBD Stage I requirements.

5.3.4 Applicable to the emission standards after January 1, 2021:

The OBD controlled threshold limits follow the OBD Stage I or OBD Stage II-A or OBD Stage II-B requirements.

5.4 The OBD diagnosis scope and items shall comply with the following requirements:

5.4.1 Catalytic converter - The OBD system must be able to diagnose the catalytic converter deterioration or malfunctions before they cause THC (or NMHC) and NOx pollutant emissions to exceed the OBD controlled threshold limits (required in the case of the OBD Stage II-B).

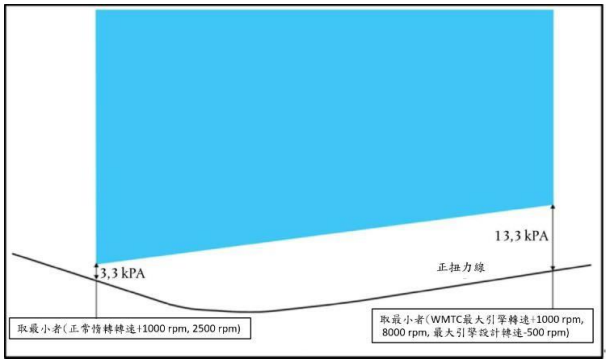
5.4.2 Engine misfire - The OBD system must be able to identify engine misfire malfunction status before the engine misfire causes any pollutant emissions to exceed the OBD controlled threshold limits, or causes damage to the catalytic converter (required in the case of the OBD Stage II-A or OBD Stage II-B).

The misfire shall be in the engine operating area surrounded by the following straight lines:

5.4.2.1 Low speed limit: 2500 rpm or normal idle speed + 1000 rpm, whichever is lower.

5.4.2.2 High-speed limit: 8000 rpm, maximum engine speed during the driving cycle test +1000 rpm, or maximum engine design speed -500 rpm, whichever is lower.

5.4.2.3 The straight lines connecting the following engine operating points: Lines connecting a point located at the low speed limit line defined in the preceding paragraph 5.4.1 and 3.3 kPa lower than the engine inlet vacuum, and a point located at the high speed limit line defined in the preceding paragraph 5.4.2 and 13.3 kPa lower than the engine inlet vacuum.



5.4.3 Oxygen Sensor - The OBD system must be able to identify the oxygen sensor malfunction status before the oxygen sensor's deterioration or malfunction causes any pollutant emissions to exceed the OBD controlled threshold limits (required in the case of the OBD Stage II-A or OBD Stage II-B).

5.4.4 The electronic evaporative emission purge control shall monitor and control the circuit continuity at least.

5.4.5 The OBD system must be able to identify the direct injection engine malfunction status before the direct injection engine's deterioration or malfunction causes PM emissions to exceed the OBD controlled threshold limits.

5.4.6 The OBD system must be able to identify the deterioration or malfunction status of any other online power components or systems related to emission control systems, components and pollution before the deterioration or malfunction of the same causes any pollutant emissions to exceed the OBD controlled threshold limits.

5.4.7 It is necessary to monitor the circuit malfunction status of the online power components (including related sensors with monitoring functions) related to emission pollution or functional safety. In particular, electronic component circuit continuity malfunctions, short circuits, power value range or performance, and emission control system signals should be monitored continuously.

5.4.8 When the limp-home operating mode is degraded after the online power components related to pollution emission or functional safety are triggered, the related malfunction codes shall be saved.

5.4.9 If the manufacturer can prove to the central competent authority that even when some specific component or system malfunction is removed, its pollution emission will not exceed the OBD controlled threshold limits, the specific component or system need not be monitored.

5.4.10 In order to help technicians repair vehicles effectively, the manufacturer may extend the OBD to monitor and report any other in-vehicle system. Notwithstanding, the extended diagnosis system is considered to be beyond the scope herein.

5.5 The OBD shall comply with the following requirements:

5.5.1 The OBD shall be able to monitor and perform a periodical assessment of emission control equipment and related components. Whenever the engine is activated, the diagnosis and inspection are performed in order. The frequency shall be one OBD monitoring assessment to be completed for each driving cycle.

5.5.2 The vehicle shall be equipped with a standardized OBD Malfunction Indicator Light (MIL) and malfunction code storage capability and allow reading of malfunction codes via a connector. When the vehicle is under inspection, diagnosis, maintenance or repair, the use of OBD

shall be unrestricted and standardized.

5.5.3 The OBD system shall perform a monitoring assessment on the pollution-related system or components, unless there is a likelihood of damage to the emission control equipment and related components, or there are any safety concerns, or the power take-off units are running.

5.5.4 If the OBD monitoring function is affected as a result of low oil level (less than 20%) or low voltage, the manufacturer may turn off the OBD temporarily.

5.5.5 If the manufacturer can provide relevant data or engineering assessment to prove to the central competent authority that the OBD monitoring function might not be reliable when the ambient temperature is below 266.2 K (-7°C) or the sea level exceeds 2500 meters or other ambient temperatures, the manufacturer may turn off the OBD temporarily.

5.5.6 If the manufacturer can prove to the competent authority that under specific engine speed and loading conditions, a lower percentage of misfire detection will make the OBD monitoring function unreliable, the manufacturer may require a higher percentage for the OBD misfire monitoring criteria.

5.5.7 If the manufacturer can prove to the competent authority that it is impossible to perform the OBD monitoring if there is a higher percentage of misfire, or it is impossible to distinguish the cause of misfire from any other causes (e.g. rough roads or gearbox shifting, etc.), the manufacturer may turn off the misfire monitoring system.

5.6 The requirements related to MI and fault code:

5.6.1 The OBD shall be equipped with MIs that are easily visible to vehicle drivers. Except for displaying emergency start-up or limp-home procedures, an MI shall not be used for any other purposes, provided that it shall generate sufficient brightness and be identified easily. When an MI is on, it shall display a symbol in line with the symbol F.01 in ISO 2575:2010. Vehicles shall not be equipped with more than one general-purpose MI related to pollution emission problems or power failure that results in significant reduction in the torque. Individual special-purpose MIs are allowed (for example, braking system, seat belt or oil pressure, etc.). Red MIs are forbidden.

5.6.2 With respect to situations where more than two preparatory driving cycles are required to trigger an MI, the manufacturer shall provide related data or engineering assessments to prove that the monitoring system may detect deterioration of components effectively in a timely manner. Notwithstanding, no more than ten preparatory driving cycles will be allowed. When the power control device enters the permanent default operating mode and the torque declines significantly or exceeds the OBD controlled threshold limits or the OBD cannot meet the basic monitoring requirements therefor, an MI shall go on.

5.6.3 When an engine misfire causes damage to the catalyst, an MI shall

display a clear warning mode (e.g. a flashing light).

5.6.4 The MIs shall go on when the ignition switch is in the key-on position and before the engine starts running, and then they shall be off after detecting no malfunctions.

5.6.5 The OBD shall record the fault code indicating the status of the emission control system or the functional safety system that results in a significant decrease in torque. If an MI is on due to deterioration or malfunction of the system or a component, or is in permanent emission default operating mode, the fault code shall be saved to confirm the type of malfunction.

5.6.6 When an MI is on, the vehicle mileage may be verified through the serial port of the standard diagnostic connector. In the case of vehicles equipped with a mechanical milometer, the engine running time may be verified through the serial port of the standard diagnostic connector to replace the mileage.

5.6.7 If any clear single or multiple cylinder misfire fault codes are saved, it is not necessary to specify the cylinder expressly.

5.6.8 Upon three consecutive driving cycles, if the monitoring system ceases to detect malfunctions or cannot detect any other malfunction, the MI shall be off.

5.6.9 If the same malfunction is not re-recorded after at least forty engine warm-up cycles, the OBD shall clear the fault code, mileage and freeze-frame data.

5.6.10 When the Electronic Control Unit (ECU) is separated from the power supply or the battery is separated or malfunctions, the saved malfunction data shall not be cleared.

5.7 OBD diagnosis signals-related requirements:

5.7.1 The OBD system shall save all detected fault code(s) with the MIL activated. The fault codes shall be capable of identifying the malfunctioning equipment, systems, or components. After individual fault codes are saved, they shall show the MIL activation status.

5.7.2 Once the first-time malfunction of any component or system is verified, the engine freeze-frame data shall be saved into the ECU. The saved engine data (if any) include without limitation the calculated load value, engine speed, fuel trim value(s), fuel pressure, vehicle speed, coolant temperature, air flow rate, intake manifold pressure, open-loop or closed-loop operation, and correspondent fault codes.

5.7.3 The manufacturer shall choose the most appropriate set of conditions facilitating effective repairs of vehicles for freeze-frame data to be saved. If the additional freeze-frame data may be read via the original manufacturer’s diagnosis tool that meets the relevant requirements, the manufacturer may also save the same data.

5.7.4 If a fuel system or misfire malfunction subsequently occurs, any freeze-frame data saved previously will be replaced by the fuel system or misfire conditions, whichever occurs earlier.

5.7.5 If available, the following signals in addition to the required freeze-frame data shall be made available through the standard diagnostic connector, including the diagnosis fault code, engine coolant temperature, fuel control system status (closed-loop, open-loop or others), fuel trim value(s), ignition timing advance, intake air temperature, manifold air pressure, air flow rate, engine speed, throttle position sensor output value, secondary air status (upstream, downstream or atmosphere), calculated load value, vehicle speed, anti-lock braking system switch position (on/off), activation of default mode and fuel pressure. The signals shall be expressed in the standard unit in accordance with the International Organization for Standardization (ISO) or standards of the Society of Automotive Engineers (SAE), and the actual signal shall be clearly distinguished from the default value or limp-home signal.

5.7.6 The software identification code and calibration verification code shall be accessed in a standard format through the serial port of the standard diagnostic connector.

5.7.7 In the case of any malfunction, if the evaluation of components conducted by the diagnostic system might cause some risk concerning functional safety or component malfunction, the evaluation of components may be exempted.

5.7.8 The OBD requirements and access to signals related to the main OBD control system and vehicle testing process shall be accessed through the serial port of the standard diagnostic connector, and a standardized and unrestricted OBD access method that complies with the following ISO standards and SAE requirements shall be made available to connect communication inside and outside the vehicle:

5.7.8.1 ISO 9141-2:1994/Amd 1:1996:Road Vehicles-Diagnostic Systems-Part 2:CARB requirements for interchange of digital information.

5.7.8.2 SAE J1850: March 1998 Class B Data Communication Network Interface. Emission related messages shall use the cyclic redundancy check and the three-byte header and not use inter byte separation or checksums.

5.7.8.3 ISO 14229-3:2012:Road vehicles-Unified diagnostic services (UDS)-Part 3:Unified diagnostic services on CAN implementation.

5.7.8.4 ISO 14229-4:2012:Road vehicles-Unified diagnostic services (UDS)-Part 4:Unified diagnostic services on FlexRay implementation.

5.7.8.5 ISO 14230-4:2000:Road Vehicles-Keyword protocol 2000 for diagnostic systems-Part 4:Requirements for emission-related systems.

5.7.8.6 ISO 15765-4:2011:Road vehicles -Diagnostics on Controller Area Network (CAN)-Part 4: ‘Requirements for emission-

related systems', dated 1 November 2001.

5.7.8.7 ISO 22901-2:2011:Road vehicles-Open diagnostic data exchange (ODX)-Part 2:Emissions-related diagnostic data.

5.7.8.8 ISO 15031-4:2005:Road vehicles-Communication between vehicle and external test equipment for emissions-related diagnostics-Part 4:External test equipment.

5.7.8.9 ISO 15031-5:2011 Road vehicles-Communication between vehicle and external test equipment for emissions-related diagnostics-Part 5:Emissions-related diagnostic services.

5.7.8.10 ISO 15031-6:2010 Road vehicles-Communication between vehicle and external test equipment for emissions-related diagnostics-Part 6: Diagnostic trouble code definitions relating to emission-related system diagnostic trouble codes.

5.7.8.11 ISO DIS 15031-3:2004 Road vehicles-Communication between vehicle and external test equipment for emissions-related diagnostics-Part 3: Diagnostic connector and related electric circuits: specification and use.

5.7.8.12 ISO 19689:2016'Motorcycles and mopeds-Communication between vehicle and external equipment for diagnostics-Diagnostic connector and related electrical circuits, specification and use'.

5.7.9 The diagnostic connector referred to in the preceding paragraph shall be placed under the vehicle seat; otherwise, approval shall be sought from the central competent authority. For vehicles with OBD Stage I, upon request of the vehicle manufacturer, the central competent authority may agree with the vehicle manufacturer to use an alternative connection interface. The vehicle manufacturer shall provide the same connector to all users to help connect the original manufacturer's scanning tool.

5.7.10 The vehicle manufacturer shall make the OBD-related information available fairly to all manufacturers of components, diagnostic tools and test equipment.

5.7.11 The vehicle manufacturer shall post the information about diagnostic tool functions, maintenance information, and links to troubleshooting instructions on the maintenance information website in order to provide the maintenance personnel of different brands with access to the original manufacturer's tools.

5.7.12 The vehicle manufacturer shall provide complete documentation stating the strategies for sensing component malfunction detection and activation of ML (fixed number of driving cycles or statistical methods), including 2nd sensing parameters related to various components monitored by the OBD, individual pollution-related and non-pollution-related power component OBD output codes and formats (including instructions). For example:

Components	Diagnostic fault codes	Monitored strategies	Malfunction detection standards	ML activation criteria	Auxiliary parameters	Preparatory driving	Demonstration test	Default mode
Catalyst	P0420	1st and 2nd oxygen sensor signals	Difference between 1st and 2nd oxygen sensor signals	3rd cycle	Engine speed, engine load A/F mode catalyst temperature	Two WMTC cycles	WMTC	None

5.8 OBD test-related requirements:

5.8.1 The applicant shall select the vehicle test results representing the highest expected pollution emissions of the OBD family as the test results for all vehicle configurations within the same OBD family.

5.8.2 The OBD test shall be performed on a test vehicle that has completed durability testing or the equivalent OBD testing. In the case of a new vehicle, deterioration factors may be applied to the new vehicle OBD test results to derive final OBD test results.

5.8.3 The OBD system shall be used to monitor all exhaust emissions-related control equipment & related components or systems. The applicant shall conduct the OBD monitoring tests on no more than four items during the new vehicle configuration inspection stage, and provide components or systems with appropriate deterioration level or fault simulators to the test laboratory to perform the OBD tests. Before performing the OBD tests, the applicant shall verify that the test vehicle conforms to the Emission Standards. The central competent authority may assign specific items for which the applicant is to perform tests.

5.8.4 If the requirements referred to in the preceding subparagraph meet any of the following conditions, the OBD tester may perform at least one OBD disconnection measurement in accordance with OBD requirements under the testing method and procedure for motorcycle exhaust emissions:

5.8.4.1 The sales volume per OBD family is less than 200 units.

5.8.4.2 The application filed by the applicant is not based on the engine family as the basic unit.

5.8.5 The applicant shall perform the OBD test at the test laboratory approved by the central competent authority in accordance with the testing method and procedure for motorcycle exhaust emissions, or submit an OBD testing plan voluntarily in accordance with the relevant requirements herein. The OBD testing plan shall be submitted to the inspection organization for confirmation. Then, the OBD test may be conducted only upon approval of the central competent authority. The OBD test plan shall include the following items, at minimum:

5.8.5.1 Name of the OBD family.

5.8.5.2 Conducting unit and location (including test capability certification).

5.8.5.3 Test procedure (including basis, items, contents, fault simulation principles, and fault simulation operational instructions, etc.).
5.8.5.4 Test schedule
5.8.5.5 Test vehicle
5.8.5.6 Test equipment
5.8.5.7 Other supplementary documentation

5.9 For engine family vehicles that are unable to comply with all OBD regulations, the application for the Certificate of Conformity of the vehicles shall be handled in the following manner:

5.9.1 The applicant, after considering the feasibility of technology, the timing of vehicle phase-in and phase-out schedule for the production, or any relevant special circumstances such as computer program upgrades, which may lead to the unreliability of the On-Board Diagnostics (OBD) monitoring function, may submit an application stating that the on-board diagnostic system (OBD) temporarily fails to fully comply with the regulations. Upon approval of the central competent authority, the applicant's OBD may be exempted from compliance with OBD-related requirements temporarily.

5.9.2 For the primary OBD monitoring items, such as catalytic converter, oxygen sensor and engine misfiring, monitoring is required.

5.9.3 If the engine family OBD requested by the applicant cannot fully meet the requirements for the time being, the applicant shall complete the OBD corrective action in the next year of the engine family to make it meet the OBD requirements. If the factors, such as the modification or additional phase-in of the OBD software/hardware, cause it to be impossible to complete the correction in that year, the relevant information shall be attached in order to facilitate the application for the renewal of the approval for the temporary non-compliance with the requirements in the next year. The renewal in the next year may be applicable upon review and approval by the central competent authority. Notwithstanding, the renewal so requested shall be allowed for no more than 3 years.

5.10 OBD requirements for in-use vehicles:

5.10.1 For an OBD family generating an annual sales volume of more than 1,000 units and with OBD Stage II-A or OBD Stage II-B, the in-use vehicles shall be able to monitor and store the in-use performance ratio of the OBD. The relevant regulations thereof shall be based on the "in-use performance" requirements referred to in Annex 12 of the Regulation (EU) No. 44/2014. When applying for a new engine family Certificate of Conformity, the applicant shall present the monitoring items, statement of monitoring conditions, and descriptions of the functions such as OBD In-Use Performance Ratio (IUPR). For the OBD Stage II-B family, the OBD in-use performance ratio of each major monitoring component or system of the in-use vehicle shall

meet the following requirements.

5.10.1.1 In-user performance ratio average ≥ 0.1.

5.10.1.2 In-use performance ratio of more than 50% of the vehicles ≥ 0.1.

5.10.2 Said main monitoring components or systems refer to the following vehicle equipment:

5.10.2.1 Catalyst

5.10.2.2 Oxygen/exhaust gas sensors, including 2nd oxygen sensor (each to be reported separately).

5.10.2.3 Evaporative system

5.10.2.4 EGR system

5.10.2.5 VVT system

5.10.2.6 Air injection system

5.10.2.7 Smoke filter

5.10.2.8 NOx treatment systems (e.g. NOx adsorbents, NOx reagents/catalytic systems)

5.10.2.9 Boost control system.