The Draft of Amendment to The Fuel Economy Standards and Regulations on Vehicle Inspection and Administration

ARTICLE 1

These regulations are formulated in accordance with Article 15 of the Energy Administration Act. Any matters not provided for in these regulations herein shall be subject to the provisions of other applicable laws and regulations.

ARTICLE 2

The term "Competent Authority" referred hereinafter denotes the Ministry of Economic Affairs, and the Bureau of Energy of the Ministry of Economic Affairs is authorized to be the executive agency under these regulations.

ARTICLE 3

The term "Transportation Management Authority" referred hereinafter denotes the Ministry of Transportation and Communications.

ARTICLE 4

4.1 Any passenger car (including sedans and station wagons) with a gasoline or diesel engine, manufactured or imported by the entity shall comply with the following Subparagraph 4.1.1 or 4.1.2 regarding the standards governing the energy efficiency of vehicles (hereinafter referred to as the Energy Efficiency Standards):

4.1.1 Energy efficiency testing is conducted in accordance with the Federal Test Procedure (FTP-75) of the United States:

4.1.1.1 Energy Efficiency Standards

Class of vehicles engine displacement (cubic centimeters)	Energy Efficiency Standards (kilometers/liter)
Below 1200	16.2
Over 1200 to 1800	13.0
Over 1800 to 2400	11.4
Over 2400 to 3000	10.0
Over 3000 to 3600	9.2
Over 3600 to 4200	8.5
Over 4200 to 5400	7.2
Over 5400	6.5

4.1.1.2 The combined energy efficiency value for passenger cars (including sedans and station wagons) is calculated by the following equation:

Combined energy efficiency value (kilometers/liter, km/L) =

$$\frac{1}{\frac{0.55}{\text{City energy efficiency (km/L)}} + \frac{0.45}{\text{Highway energy efficiency (km/L)}}}$$

4.1.2 Energy efficiency testing is conducted in accordance with Directive 1999/100/EC and subsequent amendments:

4.1.2.1 Energy Efficiency Standards

Class of vehicles engine displacement (cubic centimeters)	Energy Efficiency Standards (kilometers/liter)
Below 1200	14.1
Over 1200 to 1800	11.3
Over 1800 to 2400	9.9
Over 2400 to 3000	8.7
Over 3000 to 3600	8.0
Over 3600 to 4200	7.4
Over 4200 to 5400	6.3
Over 5400	5.7

4.1.2.2 The combined energy efficiency value for passenger cars (including sedans and station wagons) is calculated by the following equation:
For vehicles being tested under the New European Driving Cycle (NEDC):
Combined energy efficiency value (kilometers/liter, km/L) =

$$\frac{\text{Urban test mileage (km)} + \text{Extra urban test mileage (km)}}{\frac{\text{Urban test mileage (km)}}{\text{Urban energy efficiency (km/L)}} + \frac{\text{Extra urban test mileage (km)}}{\text{Extra urban energy efficiency (km/L)}}}$$

For vehicles being tested under the Worldwide harmonized Light vehicles Test Cycle (WLTC):
Combined energy efficiency value (kilometers/liter, km/L) =

$$\frac{\text{Low-speed mileage(km)} + \text{Medium-speed mileage(km)} + \text{High-speed mileage(km)} + \text{Extra High-speed mileage(km)}}{\frac{\text{Low-speed mileage(km)}}{\text{Low-speed energy efficiency(km)}} + \frac{\text{Medium-speed mileage(km)}}{\text{Medium-speed energy efficiency(km)}} + \frac{\text{High-speed mileage(km)}}{\text{High-speed energy efficiency(km)}} + \frac{\text{Extra High-speed mileage(km)}}{\text{Extra High-speed energy efficiency(km)}}}$$

4.2 Effective from Jan.1, 2016 for manufactured or imported passenger car (including sedans and station wagons) with a gasoline or diesel engine by any entity to apply for vehicle type fuel economy certificates shall be tested in accordance with the test procedures prescribed in the European directive 1999/100/EC and its subsequent revisions; effective from Jan. 1, 2017, the previous mentioned vehicles shall comply with the following requirements:

4.2.1 The sales weighted average energy efficiency value of the manufacturer sold vehicles shall be higher than the required sales weighted average energy efficiency target value.

4.2.2 The Sales Weighted Average Energy Efficiency Limits corresponding to different vehicle types prescribed by the required sales weighted average energy efficiency target value are as follows. But if the previous year's annual sales in Taiwan of a vehicle model by the entity were less than 300 units and the vehicle model's global annual production is less than 10,000 units, or the entity being approved as a small volume manufacturer and applicable to comply with a specific CO2 emission (energy efficiency) standard issued by the government of vehicle's Country of Origin, a proposal for its energy efficiency improvement may be submitted and being approved by the central competent authority to execute its improvement project announced by the central competent authority, and not applicable for the

sales weighted average energy efficiency standard limits prescribed herein.

4.2.2.1 The Sales Weighted Average Energy Efficiency Limits effective from Jan. 1, 2017 till Dec. 31, 2021:

Class of vehicle reference mass (kg)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 850	19.2
Over 850 to 965	18.2
Over 965 to 1080	17.4
Over 1080 to 1190	16.6
Over 1190 to 1305	15.7
Over 1305 to 1420	15.0
Over 1420 to 1530	14.1
Over 1530 to 1640	13.3
Over 1640 to 1760	12.5
Over 1760 to 1870	11.8
Over 1870 to 1980	11.2
Over 1980 to 2100	10.5
Over 2100 to 2210	9.7
Over 2210 to 2380	9.3
Over 2380 to 2610	8.4
Over 2610	7.2

4.2.2.2 The Sales Weighted Average Energy Efficiency Limits effective from Jan. 1, 2022 till Dec. 31, 2029:

Class of vehicle reference mass (kg)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 850	23.3
Over 850 to 965	23.3
Over 965 to 1080	23.3
Over 1080 to 1190	22.2
Over 1190 to 1305	21.3
Over 1305 to 1420	20.4
Over 1420 to 1530	19.6
Over 1530 to 1640	18.9
Over 1640 to 1760	18.2
Over 1760 to 1870	17.5
Over 1870 to 1980	16.9
Over 1980 to 2100	16.1
Over 2100 to 2210	15.6
Over 2210 to 2380	15.2
Over 2380 to 2610	14.3
Over 2610	13.7

4.2.2.3 The Sales Weighted Average Energy Efficiency Limits effective from Jan. 1, 2030 (for vehicles being tested by following the WLTC driving cycle only):

Class of vehicle test mass (kg)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 1150	26.0
Over 1105 to 2650	Calculate according to the following formula: -0.0068 × (test mass -1590) +23.0
Over 2650	15.8

Test mass (kg): as defined in accordance with the WLTC driving cycle of the EU directive 1999/100/EC and its subsequent revisions.

4.2.3 The sales weighted average energy efficiency value and sales weighted average energy efficiency target value prescribed in Subparagraph 4.2.1 shall be calculated by using the following formula:

4.2.3.1 Sales weighted average energy efficiency value:

$$\text{Sales weighted average energy efficiency value(km/L)} = \frac{\sum_{1}^{N} V_i \times W_i}{\sum_{1}^{N} \frac{V_i}{FC_i}}$$

i: manufactured or imported vehicle type's sequence number.

FCi: Energy efficiency test value (km/liter) for manufactured or imported vehicle type i.

Vi: sales number (units) of manufactured or imported vehicle type i.

Wi : Correspond Credit Multiplier for Vehicle Type i.

4.2.3.2 Sales weighted average energy efficiency target value:

$$\text{Sales weighted average energy efficiency target value(km/L)} = \frac{\sum_{1}^{N} V_i}{\sum_{1}^{N} \frac{V_i}{T_i}}$$

i: manufactured or imported vehicle type's sequence number.

Ti: Sales Weighted Average Energy Efficiency Limits (km/liter) of the manufactured or imported vehicle type i in accordance with Subparagraph 4.2.2 of this Article.

Vi: sales number (units) of manufactured or imported vehicle type i.

4.2.4 The sales weighted average energy efficiency values for each individual manufacturer shall be calculated by the central competent authority by using the fuel economy test values registered by each individual manufacturer; different manufacturers may be combined for their sales weighted average energy efficiency value calculation, if being approved by the central competent authority.

4.2.5 Vehicle entities pursued Subparagraph 4.2.4 may consent to end their combined calculation of sales weighted average energy efficiency value; their previous earned credits from exceed the required target value may continue to be used by the assigned manufacturer through agreement; the deficiency from under their target value shall be managed in accordance with Subparagraph 4.2.8 of this Article.

4.2.6 The same vehicle entity manufactured or imported different brands of vehicles, may calculate the sales weighted average energy efficiency value separately for

different brands, if being approved by the central competent authority.

4.2.7 Vehicle entities with annual sales number over 100 units or values over 100 million NT dollars being approved by the central competent authority may use their annual sales number for the calculation of sales weighted average energy efficiency value. If the calculated sales weighted average energy efficiency value is over the target value, the earned credits may be accumulated for the calculation of next 3 year's sales weighted average energy efficiency values. After this amended regulation becomes effective upon its promulgation in 2018, if the calculated sales weighted average energy efficiency value is over the target value, the earned credits may be accumulated for the calculation of the next 4 year's sales weighted average energy efficiency values.

4.2.8 For vehicle entities mentioned in the previous Subparagraph 4.2.7, if their calculated sales weighted average energy efficiency values are under their required target values at specific year, their subsequent market sold vehicles must comply with the Sales Weighted Average Energy Efficiency Limits being defined by Subparagraph 4.2.2 of this Article until the difference of calculated and target values are being complemented or acquired from other entities' credits to regain their sales weighted average energy efficiency value calculation by their annual sales numbers.

4.2.9 For Electric vehicles or Fuel Cell vehicles (sedans and station wagons) that being sold by the vehicle entity, till Dec. 31, 2025 its sales may be multiplied by 10; from Jan. 1, 2026, till Dec. 31, 2027 multiplied by 4, and from Jan. 1, 2028 multiplied by 2 as the correspond sales and being used in the calculation of sales weighted average energy efficiency value; for Plug-In Hybrid Electric sedans and station wagons with pure electric travel mileage over 50 kilometers, till Dec. 31, 2025 their correspond sales multiplier may be set as 5; from Jan. 1, 2026, till Dec. 31, 2027, their correspond sales multiplier may be set as 2. The Subparagraph 4.2.2 to 4.2.8 are also applicable, and the energy efficiency test values shall be rated by the competent authority in other provisions.

4.2.10 Effective from Jan. 1, 2022, for the sedans or station wagons that being sold by the vehicle entity, if its energy efficiency value is higher than the correspond Sales Weighted Average Energy Efficiency Limits as listed in Item 4.2.2.2 of this Article, the multipliers for the calculation of sales weighted average energy efficiency value are set as follows：

4.2.10.1 Over by 10%, till Dec. 31, 2025, set as 1.5.

4.2.10.2 Over by 20%, till Dec. 31, 2025, set as 2; from Jan. 1, 2026, till Dec. 31, 2027, set as 1.1.

4.2.10.3 Over by 30%, till Dec. 31, 2025, set as 2.5; from Jan. 1, 2026, till Dec. 31, 2027, set as 1.2.

4.2.10.4 Over by 40%, till Dec. 31, 2025, set as 3; from Jan. 1, 2026, till Dec. 31, 2027, set as 1.3.

4.2.10.5 Over by 50%, till Dec. 31, 2025, set as 3.5; from Jan. 1, 2026, till Dec. 31, 2027, set as 1.4.

4.3 The Energy Efficiency Standards listed in Article 6 are applicable to vehicles with importer provided the listing of US certificate being classified as LDT model or with the EU certificate being classified as M1G model.

ARTICLE 5

5.1 Any motorcycle manufactured or imported by any entity shall comply with the following Energy Efficiency Standards:

Class of vehicles engine displacement (cubic centimeters)	Energy Efficiency Standards (kilometers/liter)
Below 50	48.2
Over 50 to 100	40.6
Over 100 to 150	38.0
Over 150 to 250	28.0
Over 250 to 500	21.1
Over 500 to 750	16.6
Over 750 to 1000	15.8
Over 1000 to 1250	14.7
Over 1250 to 1500	13.1
Over 1500	12.8

5.2 The combined energy efficiency value for motorcycles is calculated by the following equation:

$$\text{Combined energy efficiency value (kilometers/liter, km/L)} = \frac{1}{\frac{0.6}{\text{Urban energy efficiency (km/L)}} + \frac{0.4}{\text{Constant speed energy efficiency (km/L)}}}$$

5.3 Effective from Jan.1, 2016 for manufactured or imported motorcycles by any entity to apply for vehicle type fuel economy certificates shall comply with the following requirements:

5.3.1 The sales weighted average energy efficiency value of the manufacturer sold vehicles shall be higher than the required sales weighted average energy efficiency target value.

5.3.2 The Sales Weighted Average Energy Efficiency Limits corresponding to different vehicle types prescribed by the required sales weighted average energy efficiency target value are as follows.

5.3.2.1 The Sales Weighted Average Energy Efficiency Limits effective from Jan. 1, 2016 till Dec. 31, 2021:

Class of vehicle's engine displacement (cubic centimeters)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 50	54.5
Over 50 to 100	46.7
Over 100 to 150	43.8
Over 150 to 250	31.0
Over 250 to 500	26.5
Over 500 to 750	18.7
Over 750 to 1000	18.1
Over 1000 to 1250	15.8
Over 1250 to 1500	14.7
Over 1500	14.1

5.3.2.2 The Sales Weighted Average Energy Efficiency Limits effective from Jan. 1, 2022, till Dec. 31, 2029:

Class of vehicle's engine displacement (cubic centimeters)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 50	61.0
Over 50 to 100	52.3
Over 100 to 150	48.2
Over 150 to 250	34.1
Over 250 to 500	28.1
Over 500 to 750	19.8
Over 750 to 1000	19.2
Over 1000 to 1250	16.7
Over 1250 to 1500	15.6
Over 1500 to 1750	14.9
Over 1750 to 2000	14.3
Over 2000	13.8

5.3.2.3 The Sales Weighted Average Energy Efficiency Limits effective from Jan. 1, 2030:

Class of vehicle's engine displacement (cubic centimeters)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 50	82.4
Over 50 to 100	70.6
Over 100 to 150	64.1
Over 150 to 250	43.2
Over 250 to 500	35.7
Over 500 to 750	25.1
Over 750 to 1000	24.4
Over 1000 to 1250	20.5
Over 1250 to 1500	19.2
Over 1500 to 1750	18.3
Over 1750 to 2000	17.0
Over 2000	16.1

5.3.3 The sales weighted average energy efficiency value and sales weighted average energy efficiency target value prescribed in Subparagraph 5.3.1 shall be calculated by using the following formula:

5.3.3.1 The sales weighted average energy efficiency value:

$$\text{Sales weighted average energy efficiency value(km/L)} = \frac{\sum_{1}^{N} V_i \times W_i}{\sum_{1}^{N} \frac{V_i}{FC_i}}$$

i: manufactured or imported vehicle type's sequence number.
FCi: energy efficiency test value (km/liter) for manufactured or imported vehicle type i.
Vi: sales number (units) of manufactured or imported vehicle type i.
Wi : Correspond Credit Multiplier for Vehicle Type i.

5.3.3.2 The sales weighted average energy efficiency target value:

$$\text{Sales weighted average energy efficiency target value(km/L)} = \frac{\sum_{1}^{N} V_i}{\sum_{1}^{N} \frac{V_i}{T_i}}$$

i: manufactured or imported vehicle type's sequence number.
Ti: Sales Weighted Average Energy Efficiency Limits (km/liter) of the manufactured or imported vehicle type i in accordance with Subparagraph 5.3.2 of this Article.
Vi: sales number (units) of manufactured or imported vehicle type i.

5.3.4 The calculation of sales weighted average energy efficiency value and sales weighted average energy efficiency target value for vehicle entity with combined reporting or end of their combined reporting, the qualification for using annual sales weighted average energy efficiency value calculation and credit accumulation, and the handling process for vehicle entities failed to comply with their required annual sales weighted average energy efficiency target value shall be in accordance with stipulations in Article 4.

5.3.5 For electric motorcycles being sold by the vehicle entity, till Dec. 31, 2025, the sales may be multiplied by 2.5; from Jan. 1, 2026, till Dec. 31, 2027, multiplied by 1.5 then being used for the calculation of sales weighted average energy efficiency value, and the previous provisions are also applicable. The energy efficiency test value for electric vehicle shall be rated by the competent authority in other provisions.

ARTICLE 6

6.1 Any light-duty truck of a gross weight less than 2,500 kilograms, commercial vehicle and passenger car (not sedans or station wagons) with gasoline or diesel engine manufactured or imported by the entity shall comply with the following Subparagraph 6.1.1 or 6.1.2 regarding standards governing energy efficiency of vehicles:

6.1.1 Energy efficiency testing is conducted in accordance with the Federal Test Procedure (FTP-75) of the United States:

6.1.1.1 Energy Efficiency Standards

Class of Vehicle's Engine Displacement (cubic centimeters)	Energy Efficiency Standards (kilometers/liter)
Below 1200	10.9
Over 1200 to 1800	9.9
Over 1800 to 2400	8.9

Over 2400 to 3000	8.6
Over 3000 to 3600	7.6
Over 3600 to 4200	7.0
Over 4200 to 5400	6.7
Over 5400	6.1

6.1.1.2 The combined energy efficiency value for light-duty trucks of a gross weight less than 2,500 kilograms, commercial vehicles and passenger cars (not sedans or station wagons) is calculated by the following equation:

$$\text{Combined energy efficiency value (kilometers/liter, km/L)} = \frac{1}{\frac{0.55}{\text{City energy efficiency (km/L)}} + \frac{0.45}{\text{Highway energy efficiency (km/L)}}}$$

6.1.2 Energy Efficiency testing is conducted in accordance with Directive 1999/100/EC and subsequent amendments:

6.1.2.1 Energy Efficiency Standards

Class of Vehicle's Engine Displacement (cubic centimeters)	Energy Efficiency Standards (kilometers/liter)
Below 1200	9.5
Over 1200 to 1800	8.6
Over 1800 to 2400	7.7
Over 2400 to 3000	7.5
Over 3000 to 3600	6.6
Over 3600 to 4200	6.1
Over 4200 to 5400	5.8
Over 5400	5.3

6.1.2.2 The combined energy efficiency value for light-duty trucks of a gross weight less than 2,500 kilograms, commercial vehicles and passenger cars (not sedans or station wagons) is calculated by the following equation:

For vehicles being tested under the New European Driving Cycle (NEDC):

$$\text{Combined energy efficiency value (kilometers/liter, km/L)} = \frac{\text{Urban test mileage (km)} + \text{Extra urban test mileage (km)}}{\frac{\text{Urban test mileage (km)}}{\text{Urban energy efficiency (km/L)}} + \frac{\text{Extra urban test mileage (km)}}{\text{Extra urban energy efficiency (km/L)}}}$$

For vehicles being tested under the Worldwide harmonized Light vehicles Test Cycle (WLTC):

$$\text{Combined energy efficiency value (kilometers/liter, km/L)} = \frac{\text{Low-speed mileage(km)} + \text{Medium-speed mileage(km)} + \text{High-speed mileage(km)} + \text{Extra High-speed mileage(km)}}{\frac{\text{Low-speed mileage(km)}}{\text{Low-speed energy efficiency(km)}} + \frac{\text{Medium-speed mileage(km)}}{\text{Medium-speed energy efficiency(km)}} + \frac{\text{High-speed mileage(km)}}{\text{High-speed energy efficiency(km)}} + \frac{\text{Extra High-speed mileage(km)}}{\text{Extra High-speed energy efficiency(km)}}}$$

6.2 Effective from Jan.1, 2025 for manufactured or imported light-duty truck with gasoline (diesel) engine of a gross weight over 2,500 kilograms and less than 3,500 kilograms, its energy efficiency test value after being divided by the following energy efficiency correction factor, shall comply with the previous defined 6.1.1.1 and 6.1.1.2 standards.

energy efficiency correction factor: $0.8 + 0.2 \times (3500\ \text{kg} - \text{vehicle gross weight}) \times 10^{-3}$

6.3 Effective from Jan.1, 2016 for manufactured or imported light-duty truck of a gross weight less than 2,500 kilograms, commercial vehicle and passenger car (not sedans or station wagons) with gasoline or diesel engine by any entity to apply for vehicle type fuel economy certificates shall be tested in accordance with the test procedures prescribed in the European directive 1999/100/EC and its subsequent revisions; effective from Jan. 1, 2017, the previous mentioned vehicles shall comply with the following requirements:

6.3.1 The sales weighted average energy efficiency value of the manufacturer sold vehicles shall be higher than the required sales weighted average energy efficiency target value.

6.3.2 The Sales Weighted Average Energy Efficiency Limits corresponding to different vehicle types prescribed by the required sales weighted average energy efficiency target value are as follows.

6.3.2.1 The Sales Weighted Average Energy Efficiency Limits effective from Jan. 1, 2017 till Dec. 31, 2021:

Class of vehicle's reference mass (kg)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 850	15.2
Over 850 to 965	14.4
Over 965 to 1080	13.7
Over 1080 to 1190	13.1
Over 1190 to 1305	12.4
Over 1305 to 1420	11.9
Over 1420 to 1530	11.1
Over 1530 to 1640	10.5
Over 1640 to 1760	9.9
Over 1760 to 1870	9.3
Over 1870 to 1980	8.8
Over 1980 to 2100	8.3
Over 2100 to 2210	7.7
Over 2210 to 2380	7.3
Over 2380 to 2610	6.6
Over 2610	5.7

6.3.2.2 The Sales Weighted Average Energy Efficiency Limits effective from Jan. 1, 2022, till Dec. 31, 2029:

Class of vehicle's reference mass (kg)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 850	18.6
Over 850 to 965	18.6
Over 965 to 1080	18.6
Over 1080 to 1190	17.8
Over 1190 to 1305	17.0
Over 1305 to 1420	16.3
Over 1420 to 1530	15.7
Over 1530 to 1640	15.1
Over 1640 to 1760	14.6
Over 1760 to 1870	14.0
Over 1870 to 1980	13.5
Over 1980 to 2100	12.9
Over 2100 to 2210	12.5
Over 2210 to 2380	12.2
Over 2380 to 2610	11.4
Over 2610	11.0

6.3.2.3 Effective from Jan.1, 2030, the Sales Weighted Average Energy Efficiency Limits (only for vehicles that being tested by using the WLTC driving cycle test) are as follows:

Class of vehicle's test mass (kg)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 1150	22.8
Over 1150 to 2650	Calculate according to the following formula: -0.0058 × (test mass – 1850) + 18.7
Over 2650	14.1

Test mass (kg): as defined in accordance with the EU directive 1999/100/EC and its subsequent revisions.

6.3.2.4 The being sold light duty trucks that comply with the Air Emission Standards of Mobile Source set by the central environmental protection authority shall be applicable from January 1, 2022, to December 31, 2029. The Sales Weighted Average Energy Efficiency Limits are as follows:

Class of vehicle's reference mass (kg)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 850	15.8
Over 850 to 965	15.8
Over 965 to 1080	15.8
Over 1080 to 1190	15.1
Over 1190 to 1305	14.5

Over 1305 to 1420	13.9
Over 1420 to 1530	13.3
Over 1530 to 1640	12.8
Over 1640 to 1760	12.4
Over 1760 to 1870	11.9
Over 1870 to 1980	11.5
Over 1980 to 2100	11.0
Over 2100 to 2210	10.6
Over 2210 to 2380	10.4
Over 2380 to 2610	9.7
Over 2610	9.4

6.3.2.5 The being sold light duty trucks that comply with the Air Emission Standards of Mobile Source set by the central environmental protection authority, effective from January 1, 2030 (only for vehicles that being tested by using the WLTC driving cycle test), shall be applicable to the Sales Weighted Average Energy Efficiency Limits as follows:

Class of vehicle's test mass (kg)	Sales Weighted Average Energy Efficiency Limits (kilometers/liter)
Below 1250	16.0
Over 1250 to 1800	Calculate according to the following formula: -0.0055 × (test mass – 1800) + 13.0
Over 1800 to 2800	Calculate according to the following formula: -0.004 × (test mass – 1800) + 13.0
Over 2800	9.0

Test mass (kg): as defined in accordance with the WLTC driving cycle test of the EU directive 1999/100/EC and its subsequent revisions.

6.3.3 The sales weighted average energy efficiency value and sales weighted average energy efficiency target value prescribed in Subparagraph 6.2.1 shall be calculated by using the following equation:

6.3.3.1 Sales weighted average energy efficiency value:

$$\text{Sales weighted average energy efficiency value(km/L)} = \frac{\sum_{1}^{N} V_i \times W_i}{\sum_{1}^{N} \frac{V_i}{FC_i}}$$

i: manufactured or imported vehicle type's sequence number.
FCi: energy efficiency test value (km/liter) for manufactured or imported vehicle type i.
Vi: sales number (units) of manufactured or imported vehicle type i.
Wi : Correspond Credit Multiplier for Vehicle Type i.

6.3.3.2 Sales weighted average energy efficiency target value:

$$\text{Sales weighted average energy efficiency target value(km/L)} = \frac{\sum_{1}^{N} V_i}{\sum_{1}^{N} \frac{V_i}{T_i}}$$

i: manufactured or imported vehicle type's sequence number.
Ti: Sales Weighted Average Energy Efficiency Limits (km/liter) of the manufactured or imported vehicle type i in accordance with Subparagraph 6.2.2 of this Article.
Vi: sales number (units) of manufactured or imported vehicle type i.

6.3.4 The calculation of sales weighted average energy efficiency value and sales weighted average energy efficiency target value for vehicle entity with combined reporting or end of their combined reporting, the calculation of sales weighted average energy efficiency value for different brands under the same vehicle entity, the qualification for using annual sales weighted average energy efficiency value calculation and credit accumulation, and the handling process for vehicle entities failed to comply with their required annual sales weighted average energy efficiency target value shall be in accordance with stipulations in Article 4.

6.3.5 For Electric or Fuel Cell light-duty trucks, commercial vehicles and passenger cars (not sedans or station wagons) that being sold by the vehicle entity, till Dec. 31, 2025, its sales may be multiplied by 10; from Jan. 1, 2026, till Dec. 31, 2027, multiplied by 4, and from Jan.1, 2028, multiplied by 2 as the correspond sales and being used in the calculation of sales weighted average energy efficiency value; for Plug-In Hybrid Electric light-duty truck, commercial vehicle and passenger car (not sedans or station wagons) with pure electric travel mileage over 50 kilometers, till Dec. 31, 2025, the correspond sales multiplier may be set as 5; from Jan. 1, 2026, till Dec. 31, 2027, the multiplier may be set as 2, and the previous mentioned provisions are also applicable and the energy efficiency test values shall be rated by the competent authority in other provisions.

6.3.6 Effective from Jan. 1, 2022, till Dec. 31, 2025, for light-duty trucks, commercial vehicles and passenger cars (not sedans or station wagons) that being sold by the vehicle entity, if its energy efficiency value is higher than the correspond Sales Weighted Average Energy Efficiency Limits as listed in Item 4.2.2.2 of Article 4, the multipliers for the calculation of sales weighted average energy efficiency value are set as follows：

6.3.6.1 Over by 10%, set as 1.5;

6.3.6.2 Over by 20%, set as 2;

6.3.6.3 Over by 30%, set as 2.5;

6.3.6.4 Over by 40%, set as 3;

6.3.6.5 Over by 50%, set as 3.5.

6.3.7 For light-duty commercial vehicles and passenger cars (not sedans or station wagons) that being sold by the vehicle entity that comply with the Paragraph 4.1.2 standards, may select to combine with its sold passenger cars with gasoline (diesel) engines (sedans or station wagons) for the calculation of sales weighted average energy efficiency values when apply for the energy efficiency certificates.

6.4 Effective from Jan.1, 2030, for manufactured or imported light-duty trucks with gasoline (diesel) engines of a gross weight over 2,500 and less than 3,500 kilograms, shall comply with previous mentioned provisions when apply for the vehicle type fuel economy certificates.

ARTICLE 7

7.1 Effective from Jan. 1, 2022, for the vehicle entity developed eco-innovation technology or product with proof of energy-saving capability that can improve the fuel efficiency of vehicles, and the central competent authority has approved a certain amount of related credit value for the calculation of the entity's sales weighted average energy efficiency value, the vehicle entity may add the approved credit value to the sold vehicle for the sales weighted average energy efficiency value calculation.

7.2 The above Paragraph 7.1 mentioned eco-innovation technologies, products and their related amount of credits for the calculation of sales weighted average energy efficiency values shall be set and promulgated by the central competent authority.

ARTICLE 8

8.1 Vehicle entities shall implement the energy efficiency labeling for the manufactured or imported gasoline (diesel) passenger cars, light duty trucks (gross vehicle weight less than 2,500 kilograms), commercial vehicles and motorcycles. Effective from Jan. 1, 2025, the light duty trucks with gasoline (diesel) engines of a gross vehicle weight over 2,500 kilograms and less than 3,500 kilograms, shall also comply with the previous mentioned provisions.

8.2 The Paragraph 8.1 described energy efficiency label shall include the following contents:

8.2.1 Annual fuel consumption.

8.2.2 Vehicle type.

8.2.3 Name of manufacturer.

8.2.4 Certified vehicle model.

8.2.5 Energy efficiency value: including test method, test results, and energy efficiency values for tests in accordance with different test method stipulated individual driving cycles.

8.2.6 The energy efficiency ranking.

8.3 For Plug-in Hybrid Electric passenger cars, light-duty trucks and commercial vehicles, the labeling requirement to state individual energy efficiency value under different test method stipulated driving cycles as mentioned in Subparagraph 8.2.5 is not applicable. But the contents of labeling shall include the individual test methods for its energy efficiency value and pure electric range.

8.4 The format for Paragraph 8.1 mentioned energy efficiency label shall be announced by the central competent authority.

ARTICLE 9

9.1 The vehicle entity shall implement the energy efficiency labeling for its manufactured or imported electric passenger cars, light-duty trucks (gross vehicle weight less than 2,500 kilograms), commercial vehicles and motorcycles. Effective from Jan. 1, 2030, the electric light duty trucks of gross vehicle weight over 2,500 kilograms and less than 3,500 kilograms shall also comply with the previous mentioned provisions.

9.2 The contents of the above-mentioned labeling shall include the following:

9.2.1 Annual electricity consumption.

9.2.2 Vehicle type.

9.2.3 Name of manufacturer.

9.2.4 Certified vehicle model.

9.2.5 Energy efficiency value: including test method and result value.

9.2.6 Pure electric range: including test method and result value.

9.3 The format for Paragraph 9.1 mentioned energy efficiency label shall be announced by the central competent authority.

ARTICLE 10

10.1 The energy efficiency labeling shall be implemented in accordance with Article 8 and Article 9 by vehicle entities as prescribed in the following:

10.1.1 Vehicles displayed at the show room or selling location shall affix the energy efficiency label at the following spots:

10.1.1.1 Cars: on the windshield of front passenger side or driver side, with contents facing outside.

10.1.1.2 Motorcycles: when affix on the seat, the contents facing upward; when affix on front fender the contents facing forward; without front fender the label should be affixed on the fuel tank, the contents facing upward.

10.1.2 The vehicle catalog at display or selling location shall contain the energy efficiency label; if only text or tables were used in the vehicle catalog, then the vehicle annual fuel (electricity) consumption, energy efficiency test results, test method and energy efficiency ranking should be listed in the catalog.

10.1.3 The vehicles for sale should be affixed with the energy efficiency label or have the label printed or attached in the owner's manual.

10.2 The contents of printed or affixed energy efficiency label should follow the format of samples that approved by the Competent Authority, contents modification, hide, impair or using other methods to make the label indistinguishable are not allowed. When printed in the catalog or owner's manual to describe the energy efficiency information, the label is allowed to be enlarged or shrunk as long as it is clear and recognizable.

ARTICLE 11

11.1 Energy efficiency testing and retesting should be performed by test agencies or vehicle manufacturers (hereinafter referred to as Accredited Agencies) authorized by the Competent Authority.

11.2 The energy efficiency testing for passenger cars, commercial vehicles, and light-duty trucks shall be tested in accordance with either the Federal Test Procedure (FTP-75) of the United States or Directive 1999/100/EC of the European Union and subsequent amendments (may adopt either NEDC or WLTC driving cycle for the test); the energy efficiency testing for motorcycles shall be tested in accordance with Motorcycle Fuel Economy Test Method (as attachment).

11.3 The energy efficiency labeling for electric passenger cars, light-duty trucks and commercial vehicles shall be in accordance with EU directive ECE R101 and its subsequent amendments (may adopt either NEDC or WLTC driving cycle for the test); the energy efficiency labeling testing method for electric motorcycles shall be in accordance with National Standards CNS15819-4 and its subsequent amendments, but the driving cycles and vehicle simulated inertia weight shall be in accordance with "the Fuel Economy Test Method for Motorcycles" (attachment).

ARTICLE 12

12.1 To apply for a certificate license and become an Accredited Agency as mentioned in the proceeding article, a test agency or vehicle manufacturer should provide and submit the following application documents to the Competent Authority. The application procedure for certificate license renewal is the same.

12.1.1 The education and work experience papers for test personnel,

12.1.2 A quality control plan,

12.1.3 A test equipment layout,

12.1.4 The original drawings and specifications of the test equipment, and

12.1.5 Correlated test results conducted within the past six months.

12.2 If the application documentations stated in Paragraph 12.1 do not conform to the rules or incur deficiencies in the contents, the Competent Authority shall notify the applicant to make corrections by a specified deadline; if the requested corrections are not made by the deadline, the application shall be rejected.

12.3 The Competent Authority shall issue certificate licenses with a valid period of no more than three years to those applicants who pass the review. Anyone who has obtained a certificate and applied for an extension needs to submit the documents required by Paragraph 12.1 180 days prior to the expiration date; the extension period is three years. The applicant must reapply for certification if he was not able to apply for an extension by the time specified above.

12.4 To review the certificate application procedures stated in Paragraph 12.1 and the certificate extension procedures stated in Paragraph 12.3, the Competent Authority may invite relevant experts to form a review group. The review group may examine the testing equipment as well as the status of personnel allocation and operation on site, and request the applicant to conduct a vehicle fuel economy test on a chassis dynamometer if and when the review group deems necessary.

ARTICLE 13

13.1 The Competent Authority may, on a regular or an unannounced basis, inspect an Accredited Agency. If there is any defect found during inspection, the Competent Authority shall order the Accredited Agency to make improvements before a specified deadline, and the Competent Authority shall conduct a re-inspection after the deadline has passed.

13.2 If there are any instances of falsification or untruthfulness in the contents of the application documents or related to the allocation of test personnel, the Competent Authority may revoke the certification license and order the Accredited Agency to surrender its certification license before the specified deadline.

13.3 If the Accredited Agency incurs any one of the following events, the Competent Authority may annul its certification license and order the Accredited Agency to surrender its certificate license before the specified deadline.

13.3.1 The Accredited Agency issues an untruth inspection report, record or inspection result.

13.3.2 The data quality control plan is defective, or the degree of precision and accuracy of the inspection does not conform to the required scope, and the defects mentioned above are not corrected by the specified deadline.

13.4 When the certificate license is revoked or annulled according to Paragraph 13.2 and Paragraph 13.3, the agency will not be allowed to reapply for a certificate within one year after the date of its license is being revoked or annulled.

ARTICLE 14

14.1 Vehicle energy efficiency tests designated by the Competent Authority shall be conducted as follows:

14.1.1 Type approval test, and

14.1.2 Conformity test.

14.2 The Competent Authority, along with Transportation Management Authority, shall be

entitled to assign the personnel or authorize an Accredited Agency to select the test vehicles randomly for the tests mentioned above. The conformity test for any new vehicle specified in this Article shall be delivered to the Accredited Agency appointed by the Competent Authority.

14.3 If the vehicle is imported by a manufacturer with an original energy efficiency test document (issued by a test agency or by the vehicle manufacturer approved by the local governments where the vehicle was manufactured) to verify this vehicle complies with the Energy Efficiency Standards in this Article, the type approval test can be waived. The application shall be filed to the Competent Authority for a fuel economy certificate.

ARTICLE 15

15.1 The type approval test provided in Article 14 means the energy efficiency test for any vehicle should follow the procedures listed below:

15.1.1 For each model of domestic vehicle manufactured by each entity, one vehicle shall be selected randomly for the test.

15.1.2 For each model of vehicle imported by each entity, one vehicle shall be selected randomly for the test.

ARTICLE 16

16.1 Any vehicle that meets the Energy Efficiency Standards in respect to the results of the type approval test shall be deemed as undergoing a model change when any one of the following changes occurs, requiring a new certificate application.

16.1.1 Change in the body styling and model name of the vehicle,

16.1.2 Change in the weight class of the vehicle,

16.1.3 Change in the engine model, engine displacement, number of engine cylinders, engine fuel system (including fuel supply or feedback control system) or turbo-charging of the vehicle,

16.1.4 Change in the power train system of the vehicle,

16.1.5 Change in the vehicle's country of manufacture, or

16.1.6 Any other changes of the vehicle that will affect the results of the energy efficiency test.

16.2 If the changing of vehicle's specifications or components will not affect the energy efficiency test results, which shall be subject to the judgment and approval of the Competent Authority, then this vehicle shall be exempt from the requirement of a type approval test. Nevertheless, the vehicle conformity test specified in Article 14 shall still be conducted.

ARTICLE 17

17.1 The conformity test prescribed in Article 14 indicates the energy efficiency test for any new vehicle that is being distributed into the market, meets the Energy Efficiency Standards in respect to the results of the type approval test, and has obtained a fuel economy certificate. The Central Competent Authority shall perform the conformity test according to the following procedures:

17.1.1 For domestically manufactured vehicles:

17.1.1.1 For each model of domestic vehicle (including passenger cars, light-duty trucks and commercial vehicles) manufactured by each entity, one sample for every one thousand new vehicles shall be selected randomly for testing.

17.1.1.2 For each model of domestic motorcycle manufactured by each entity, one

sample for every two thousand new vehicles shall be selected randomly for testing.

17.1.2 For imported vehicles: The selection procedure of the conformity test for imported vehicle shall be the same as the procedure mentioned above for domestic vehicles.

17.2 In the event that the number of vehicles for a particular model of car or truck, produced or imported, is less than one thousand units within six months, one sample shall be selected randomly for testing. In the event that the number of vehicles for a particular model of motorcycle, produced or imported, is less than two thousand units within six months, one sample shall be selected randomly for testing.

17.3 The selection ratio for the conformity test provided in this Article may be subject to adjustment as determined by the Administration Authority.

ARTICLE 18

18.1 By the twentieth day of each month, the entity that manufactured or imported the vehicles shall, in accordance with Articles 15 and 17, furnish its manufacturing and import plan for the following month and the actual manufacturing/sales or importing/sales data of the preceding month to the Competent Authority for energy efficiency test purposes. Upon the selection of test vehicles, the entity that manufactured or imported the vehicles shall send the test vehicles to the Accredited Agency for the test within twenty-eight days.

18.2 In the event of any change in the manufacturing/sales or importing/sales plan or data mentioned previously in this Article, a written notice should be given to the Competent Authority within three days upon the date of such change.

18.3The Central Competent Authority, along with the Transportation Management Authority, shall be entitled to review the actual manufacturing/sales or importing/sales data raised by the above-mentioned entity.

ARTICLE 19

19.1 For any manufactured or imported vehicle that meets the Energy Efficiency Standards in respect to the results of the type approval test and comply with the Air Emission Standards of Mobile Source set by the central environmental protection competent authority. The Competent Authority shall issue a certificate of conformity with respect to that vehicle model.

19.2 The Paragraph 19.1 mentioned energy efficiency and pollutant emissions tests shall be conducted by the same accredited test organization, prior the tests, the vehicle shall not perform any adjustments on the test vehicles.

19.3 In no event shall the Transportation Management Authority issue a vehicle license to any vehicle without a certificate of conformity as mentioned in Paragraph 19.1.

19.4 The Competent Authority may consign an approved agency to issue and approve the certificate of conformity mentioned in Paragraph 19.1 of this Article.

ARTICLE 20

20.1 Effective from July 1, 2010, the competent authority may not issue the fuel economy certificates if the vehicle entities failed to submit the following auditing documents for the manufactured or imported vehicles:

20.1.1 The sample energy efficiency label fabricated according to Article 8 and Article 9.

20.1.2 The name, address and telephone number of the domestic manufacturer, importer, distributor or display location; E-mail contact information should also be provided if available.

20.2 If the previous described document contents were changed, vehicle entity should deliver the related documents to the Competent Authority for reference within 30 days.

20.3 The Competent Authority may commission agency for the energy efficiency labeling auditing as described in Paragraph 20.1.

ARTICLE 21

The vehicle type or vehicle fuel economy certificate which is being issued to a specific manufacturer or importer may transfers to specific entity, if the vehicle original manufacturer promises to provide vehicles with the same specifications and quality as the certified vehicles to the entity.

ARTICLE 22

22.1 For any vehicle which does not meet the Energy Efficiency Standards in respect to the results of the conformity test provided in Article 4, Article 5 and Article 6, the entity who applied for the type approval test may apply for a retest. The retest shall be performed according to the following procedures:

22.1.1 The results of three retests for the original sample test vehicle shall be averaged to a single value (hereinafter referred to Y).

22.1.2 Y and all of the one-time retest results for each vehicle requested for retesting by the application entity and selected by the Competent Authority shall be averaged to determine a single value (hereinafter referred to X).

22.1.3 In the event that the difference of X and the product of statistical parameter times the standard deviation is not smaller than the Energy Efficiency Standards, the vehicles covered by the application shall be regarded as meeting the Energy Efficiency Standards. The standard deviation is calculated by the following equation:

$$\text{Standard Deviation} = \sqrt{\sum \frac{(energy\ \ efficiency\ \ Value - X)^2}{Number\ \ of\ \ Sample\ \ Vehicle - 1}}$$

The statistical parameters are to be determined based on the number of sample test vehicles, as in the following table:

Number of Sample Vehicles	2	3	4	5	6	7	8	9	10
Statistical Parameter	0.973	0.613	0.489	0.421	0.376	0.342	0.317	0.296	0.279
Number of Sample Vehicles	11	12	13	14	15	16	17	18	19
Statistical Parameter	0.265	0.253	0.242	0.233	0.224	0.216	0.210	0.203	0.198

If the number of sample test vehicles is equal to or greater than 20, then

$$\text{Statistical Parameter} = \frac{0.860}{\sqrt{\text{Number of Sample Vehicles}}}$$

22.2 In the event that the entity does not apply for retesting, or the results of the retesting do not meet the Energy Efficiency Standards under this Article, the certificate of conformity in respect to the vehicle or the model of vehicle covered by the certificate shall be annulled. The Competent Authority shall forthwith withhold from the entity

the right to sell the vehicles and order the entity to take actions to improve the energy efficiency of the vehicles. The Transportation Management Authority shall not issue vehicle licenses to the vehicles of the model concerned or to any entity who commits a breach of Article 18 as well.

22.3 The entity applying for a retest as described in Paragraph 22.1 of this Article shall deliver the vehicles to the Accredited Agency appointed by the Competent Authority.

ARTICLE 23

23.1 If the conformity test results for the domestic-manufactured or imported vehicles that failed to reach within 92% of the energy efficiency label listed values, the entity should be noticed by the Competent Authority to process energy efficiency retest.

23.2 The Competent Authority officers should be accompanied by the personnel of the Accredited Agency to the vehicle storage location and pick up at least twice the number of the previous sampled vehicle type that failed to reach within 92% of the energy efficiency label value. The selected vehicles should be delivered to the Accredited Agency by the vehicle entity to perform the energy efficiency retest.

23.3 According to Article 21 of Energy Management Act, should the vehicle entities failed to meet the deadline to perform energy efficiency retests or the mean value of the test results for the delivered sample vehicles failed to reach within 92% energy efficiency label value will be notified by the Competent Authority for improvements.

ARTICLE 24

24.1 The same test method and driving cycle should be used for the vehicle type approval test, conformity test as described in Paragraph 14.1 of Article 14, for the retest as defined in Article 22, and for the energy efficiency retest as described in Article 23.

24.2 The same Accredited Agency that conduct the test should be used for the conformity test as described in Paragraph 14.1 of Article 14, for the retest as defined in Article 22, and for the energy efficiency retest as described in Article 23.

ARTICLE 25

The Competent Authority shall periodically publish the energy efficiency test results.

ARTICLE 26

These Regulations shall become effective upon promulgation.

Attachment

The Fuel Economy Test Method for Motorcycles

1. Test items
   1.1 Fuel economy of motorcycles tested by using simulated urban driving cycle.
   1.2 Fuel economy of motorcycles tested by using simulated constant speed driving cycle.
2. Test conditions
   2.1 Motorcycle conditions:
      2.1.1 Only necessary power should be used during the test.
      2.1.2 If the motorcycle engine is equipped with engine coolant, fan control and temperature control device etc., all devices should be in normal operation conditions.
      2.1.3 Before testing, the motorcycle may run in to the minimum mileage as the manufacturer proclaimed to stabilize the fuel economy test results. For new vehicles the run in mileage muse comply with the regulated mileage by the competent authority.
      2.1.4 The previous mentioned run in process before the test may be performed on real road or on chassis dynamometer.
      2.1.5 The idle speed must be adjusted according to the recommended range by the original manufacturer and should be remarked in the test results form (Table 1).
      2.1.6 The motorcycle tires must be the same as the registered test vehicle type, the tire pressure setting should be the same as the original manufacturer's specification. If the diameter of chassis dynamometer roller is equal or less than 500 mm, or dual-rollers are used, the tire pressure may be increased by 30% to 50% and this information should be remarked in the test results form.
      2.1.7 If the motorcycle test is conducted on a chassis dynamometer, the load should be simulated by using the motorcycle's inertia mass (Equivalent Inertia Mass); The curb mass is defined as the mass of motorcycle under no load condition and its fuel tank filled to at least 90% of its capacity, engine oil, coolant, and fitted with standard equipment in accordance with the original manufacturer's specifications. The motorcycle reference mass is defined as the curb mass plus75 kg. The equivalent inertia mass should be approximated to the reference mass, the detailed correlation descriptions are as shown in Table2.
      2.1.8 Ambient conditions:
         Temperature: 20℃-30℃.
         Absolute humidity: 5.5-12.2 gH2O/kg dry air.

2.2 The exhaust gases analysis and measurement equipment for the fuel economy test should comply with regulation of "The Exhaust Emissions Test Methods and Procedures for Motorcycles" set by the central environmental protection competent authority.

2.3 The settings of chassis dynamometer and accuracy requirements for the test should comply with the requirements described in Appendix 2.

2.4 Reference ambient conditions:

Barometric pressure: 101.3kPa.

Temperature: 25°C.

2.5 Air density:

2.5.1 Air density should be calculated by using the following equation:

$$dr = 2.94 \times do \times \frac{Hr}{Tr}$$

Where:

dr : air density during the test (g/ml).

do: reference ambient air density (g/ml).

Hr: Barometric pressure during the test (kPa).

Tr: Absolute temperature during the test (K).

2.5.2 When measuring the fuel economy of motorcycle, the calculated air density by using the above equation, the result value must not deviate by more than ±7.5% from the reference ambient air density value.

3. Fuel economy calculation for the motorcycle test using simulated urban driving cycle

3.1 Simulated urban driving cycle:

3.1.1. For motorcycles applicable to regulation of "Air Emission Standards of Mobile Source" set by the central environmental protection competent authority, effective on and after Jan. 1, 2017, one test under the driving cycle as shown in Figure 1 should be conducted to get test results, the duration is 600 seconds. The motorcycle classification is based on engine capacity and maximum speed of motorcycles (Table3), the test may be performed by using normal speed mode or reduced speed mode as driving cycle selection.

3.1.2. For motorcycles applicable to the regulation of "Air Emission Standards of Mobile Source" set by the central environmental protection competent authority, effective prior to Jan. 1, 2017, six consecutive operations of the driving cycle as shown in Figure 2 should be conducted to get test results, the duration is 1,170 seconds.

3.2 Fuel economy test:

3.2.1. When conducting the motorcycle urban driving cycle fuel economy test, the gear positions during acceleration, deceleration, or with constant speed, the

deviation tolerance from stipulated requirements during acceleration, deceleration, constant speed, idling process and between real vehicle speed and regulated vehicle speed should be in accordance with regulation of" The Exhaust Emissions Test Methods and Procedures for Motorcycles" set by the central environmental protection competent authority.

3.2.2. Before the urban driving cycle test can be conducted, the motorcycle should be soaked 6~36 hours in a soaking room or when the difference between its engine oil or coolant temperature and the ambient temperature is within ± 2℃. The ambient temperature of the soaking room should be between 20 ℃ and 30℃.

3.3 Calculation of test results

The fuel economy of driving cycle test should be calculated by using the following equation:

3.3.1. For motorcycles applicable to the regulation of "Air Emission Standards of Mobile Source" set by the central environmental protection competent authority, effective on and after Jan. 1, 2017.

C=100×D /(0.118×(0.848×HC+0.429×CO+0.273×CO_2))

3.3.2. For motorcycles applicable to the regulation of "Air Emission Standards of Mobile Source" set by the central environmental protection competent authority, effective prior to Jan. 1, 2017.

$$C = \frac{3179 \times 10^4 \times CWF \times S_g}{(CWF \times HC + 0.429 \times CO + 0.273 \times CO_2) \times (0.6 \times S_g \times NHV + 12722)}$$

Where:

C: Energy efficiency (km/L).

D: Test fuel density at 15℃ ambient temperature.

HC: From sampled emissions and according to provision 3.2.1 calculated HC value in g/km, and rounded to three decimal places.

CO: From sampled emissions and according to provision 3.2.1 calculated CO value in g/km, and rounded to two decimal places.

CO_2: From sampled emissions and according to provision 3.2.1 calculated CO_2 value in g/km, and rounded to one decimal place.

CWF: Carbon weight fraction of test fuel.

NHV: Net heating value of test fuel (J/g).

Sg: Specific weight of test fuel.

4. Fuel economy calculation for the test using simulated constant speed driving cycle

4.1 Motorcycles with engine capacities of 50 cc and under should be tested by using constant vehicle speed of 40 km/h. If the motorcycle's maximum speed could not reach to 40 km/h, then using its maximum speed for the test and remarked in the test report. Motorcycles with other engine capacity classes, a constant vehicle

speed of 50 km/h should be used for the fuel economy test.

4.2 When conducting the motorcycle constant speed fuel economy test, the gear shifting positions should be in accordance with the original manufacturer's recommendations.

4.3 Fuel economy test:

4.3.1. Before the fuel economy test, the motorcycle should be driven for at least 10 kilometers (warm-up) with designated speed as stipulated in provision 1.

4.3.2. After warm-up, the motorcycle should be conducted three times the fuel economy measurements and calculations with the designated vehicle speed as stipulated in provision 1. For each fuel economy measurement, the travel distance should be at least 2 kilometers.

4.4 For each of the previous mentioned constant speed fuel economy test, the fuel economy value should be calculated by using the equation described in 3.3, and the calculated arithmetic mean value should be utilized as the fuel economy test result.

Appendix 1 Test fuel specifications

The test fuel must comply with the specifications that prescribed in the regulation of "The Exhaust Emissions Test Methods and Procedures for Motorcycles" set by the central environmental protection competent authority.

Appendix 2 Chassis dynamometer

1. The chassis dynamometer should be able to simulate the driving resistance on the road, the reference mass and provide cooling function for component parts of the motorcycle.
2. The driving resistance provided by the Chassis Dynamometer should be calculated by using the following equation:

   $F = a + bV^2$

   Where:

   F: Driving resistance provided by the chassis dynamometer (N).

   a: Front wheel rolling resistance (N), the values are as shown in Table 2.

   b: Air resistance coefficient（N/（km/h）^{2}）, the values are as shown in Table 2.

   V: Driving speed (km/h).
3. Equivalent inertia mass of the vehicle: The motorcycle's reference mass should be simulated by the inertia mass when testing on chassis dynamometer; the correlations between reference mass and equivalent inertia mass are as shown in Table 2.
4. When performing the motorcycle test on a chassis dynamometer, a cooling fan should be located and facing the opposite of vehicle driving direction. The outlet area of the cooling fan should be at least 0.4m^2, its wind speed should be simultaneously varied with vehicle speed; when the vehicle speed is above 10km/h, and the accuracy of wind speed should be within ±10%. The distance between the lowest edge of fan outlet and flour should be between 0.05m to 0.2m. The distance between fan outlet and front wheel of the motorcycle should be between 0.3m to 0.45m.
5. Accuracy: When simulates driving resistance for conducting the motorcycle test on a chassis dynamometer, if the vehicle speed is greater than or equal to 50 km/h, the deviation should be less than or equal to 2%, when the vehicle speed is greater than or equal to 30 km/h but lower than 50 km/h, the deviation should be less than or equal to 3%, when the vehicle speed is lower than 30 km/h, the deviation should be less than or equal to 10%.
6. The mass of the driver must be within 75±5 kg.

Appendix 3 Standard Urban Driving Cycle

1. The definition of Urban Driving Cycle

   Motorcycle test on a chassis dynamometer should be in accordance with correlation between vehicle speed and time is as shown in **Table 4 or Table 5**, the driving cycles

is as shown in **Figure 1 or Figure2**.

2. Gear shifting timing

   The motorcycle gear shifting should comply with the regulation of "The Exhaust Emissions Test Methods and Procedures for Motorcycles" set by the central environmental protection competent authority; when in acceleration, the acceleration should be as smooth as possible.

3. Deviation tolerance

   When driving motorcycle on a chassis dynamometer, the speed difference between the vehicle and Driving Cycle setting should be less than ±3.2 km/h, and the time difference should be within 1 second, as shown in figure 1; when driving by following the driving cycle as shown in figure 2, the speed difference should be less than 1 km/h and within 0.5 seconds for time difference.

4. Idle Speed

   When in idling, the principle is to release the clutch, gear in neutral position, and throttle in closed idle position.

5. Acceleration

   5.1 During acceleration, try to maintain constant acceleration.

   5.2 If the maximum acceleration of the motorcycle could not reach the settings of the Driving Cycle, then full throttle should be used to accelerate the motorcycle to the final speed of that acceleration period of driving cycle. The time increased should be compensated by the time deduction from the following constant speed driving cycle duration.

6. Deceleration

   6.1 During deceleration, try to maintain constant deceleration. For the following conditions, the clutch should be released.

   6.1.1 Vehicle speed has decreased to less than 10 km/h.

   6.1.2 Engine speed has decreased to less than $n_{idle}+0.03\times(s\_n_{idle})$:

   Where:

   n_{idle}: engine idle speed

   s: nominal engine speed

   6.1.3 In cold start condition during which there is a risk of engine stall.

   6.2 If the deceleration time exceeds the driving cycle deceleration setting, then use brake properly.

   6.3 For motorcycle to reach the driving cycle designated constant speed or idling duration by release the throttle pedal or by using brake. If the above mentioned necessary deceleration time is less than the driving cycle stipulated time, the reduced time should be compensated by adding the following driving cycle's constant speed or idling duration time, or by using throttle pedal or brake to follow

the pattern of driving cycle.

6.4 When the motorcycle is decelerated to zero vehicle speed, its gear position should be in neutral and with clutch released.

7. Constant speed

In the middle of motorcycle testing, when the driving pattern is changed from acceleration to constant speed duration, the increase of vehicle speed should not exceed the allowed tolerance.

Table 1 Test Results Form

Test Report Number		Client		Test Date	Yr Mo Day	Tester	
Vehicle		Engine			Transmission		
Make		Engine Type			Transmission Type		
Country of Manufacture		Engine Identification No.			Gear Type		
Vehicle Type		Engine Capacity		L	gear ratio	1st	
Vehicle Category		Bore × Stroke		mm×mm		2^{nd}	
Year of Production		Cylinder Numbers				3^{rd}	
Vehicle Condition		Idle Speed		rpm		4^{th}	
Width	cm	Maximum Power		kW ,at rpm		5^{th}	
Height	cm	Maximum Torque		Nm ,at rpm		6^{th}	
Wheelbase	cm	Fuel				7^{th}	
Curb Mass	kg	Fuel Supply Method				8^{th}	
Reference Mass	kg	Turbo-Charge Device				9^{th}	
Equivalent Inertia Mass	kg				Remark		
Resistance					Test Results		
Tire Brand					Simulated Driving Cycle		
Front/Rear Tire Spec.					CO(Carbon Monoxide)		□mg/km □g/km
Tire Pressure	Fr： kg/cm^2 , Re：				HC(Hydrocarbons)		□mg/km □g/km
Travel Mileage	km				NMHC(Non-Methane Hydrocarbons)		□mg/km □g/km
					NO_x (Nitrogen Oxides)		□mg/km □g/km
					Urban Energy Efficiency		km/l
					Constant Speed Energy Efficiency		km/l
					Combined Energy Efficiency		km/l
					Urban CO_2 Test Result		□g/km
					Constant Speed CO_2 Test Result		□g/km
					Combined CO_2 Test Result		□g/km

Table 2 Correlation between vehicle reference mass and equivalent inertia mass

Reference Mass m_{ref}（kg）	Equivalent Inertia Mass m_i（kg）	Front Wheel Rolling Resistance 'a'（N）	Coefficient of Air Resistance (remark) 'b'（N/（km/h）^{2}）
$95 < m_{ref} \leqq 105$	100	8.8	0.0215
$105 < m_{ref} \leqq 115$	110	9.7	0.0217
$115 < m_{ref} \leqq 125$	120	10.6	0.0218
$125 < m_{ref} \leqq 135$	130	11.4	0.0220
$135 < m_{ref} \leqq 145$	140	12.3	0.0221
$145 < m_{ref} \leqq 155$	150	13.2	0.0223
$155 < m_{ref} \leqq 165$	160	14.1	0.0224
$165 < m_{ref} \leqq 175$	170	15.0	0.0226
$175 < m_{ref} \leqq 185$	180	15.8	0.0227
$185 < m_{ref} \leqq 195$	190	16.7	0.0229
$195 < m_{ref} \leqq 205$	200	17.6	0.0230
$205 < m_{ref} \leqq 215$	210	18.5	0.0232
$215 < m_{ref} \leqq 225$	220	19.4	0.0233
$225 < m_{ref} \leqq 235$	230	20.2	0.0235
$235 < m_{ref} \leqq 245$	240	21.1	0.0236
$245 < m_{ref} \leqq 255$	250	22.0	0.0238
$255 < m_{ref} \leqq 265$	260	22.9	0.0239
$265 < m_{ref} \leqq 275$	270	23.8	0.0241
$275 < m_{ref} \leqq 285$	280	24.6	0.0242
$285 < m_{ref} \leqq 295$	290	25.5	0.0244
$295 < m_{ref} \leqq 305$	300	26.4	0.0245
$305 < m_{ref} \leqq 315$	310	27.3	0.0247
$315 < m_{ref} \leqq 325$	320	28.2	0.0248
$325 < m_{ref} \leqq 335$	330	29.0	0.0250
$335 < m_{ref} \leqq 345$	340	29.9	0.0251
$345 < m_{ref} \leqq 355$	350	30.8	0.0253
$355 < m_{ref} \leqq 365$	360	31.7	0.0254

Reference Mass m_{ref}（kg）	Equivalent Inertia Mass m_i（kg）	Front Wheel Rolling Resistance 'a'（N）	Coefficient of Air Resistance (remark) 'b'（N/（km/h）^{2}）
$365 < m_{ref} \leqq 375$	370	32.6	0.0256
$375 < m_{ref} \leqq 385$	380	33.4	0.0257
$385 < m_{ref} \leqq 395$	390	34.3	0.0259
$395 < m_{ref} \leqq 405$	400	35.2	0.0260
$405 < m_{ref} \leqq 415$	410	36.1	0.0262
$415 < m_{ref} \leqq 425$	420	37.0	0.0263
$425 < m_{ref} \leqq 435$	430	37.8	0.0265
$435 < m_{ref} \leqq 445$	440	38.7	0.0266
$445 < m_{ref} \leqq 455$	450	39.6	0.0268
$455 < m_{ref} \leqq 465$	460	40.5	0.0269
$465 < m_{ref} \leqq 475$	470	41.4	0.0271
$475 < m_{ref} \leqq 485$	480	42.2	0.0272
$485 < m_{ref} \leqq 495$	490	43.1	0.0274
$495 < m_{ref} \leqq 505$	500	44.0	0.0275
Class increment per 10kg	Class increment per 10kg	$a = 0.088m_i$ Rounded to 2 decimal places	$b = 0.000015m_i + 0.0200$ Rounded to 5 decimal places
Remark: regarding the b values as mentioned about, its adjustments should be in accordance with "The Exhaust Emissions Test Methods and Procedures for Motorcycles" set by the central environmental protection competent authority.			

Table 3 Applicable driving cycle modes for different motorcycle classes

Vehicle Classification				Mode	
Class		Engine Capacity (ec)	Maximum Speed (Vmax)	Reduced Speed	Normal Speed
CLASS 1		ec<150c.c.	Vmax<100kph	※	
CLASS 2	subclass 2-1	ec<150c.c.	100kph≦Vmax<115kph	※	
		ec≧150c.c.	Vmax<115kph		
	subclass 2-2		115kph≦Vmax<130kph		※
CLASS 3	subclass 3-1		130kph≦Vmax<140kph		※
	subclass 3-2		Vmax≧140kph		※
		ec>1,500c.c.			※

Table 4 Motorcycle Urban Driving Cycle (For motorcycles applicable to the emission standards effective on and after Jan. 1, 2017)

T (s)	N km/h	R km/h	T (s)	N km/h	R km/h	T (s)	N km/h	R km/h	T (s)	N km/h	R km/h	T (s)	N km/h	R km/h	T (s)	N km/h	R km/h	T (s)	N km/h	R km/h	T (s)	N km/h	R km/h	T (s)	N km/h	R km/h	T (s)	N km/h	R km/h
0	0,0	0,0	61	29,7	29,6	122	32,8	33,0	183	2,0	0,0	244	32,7	40,9	305	26,9	26,9	366	27,3	27,3	427	40,7	40,7	488	8,8	8,8	549	43,1	33,1
1	0,0	0,0	62	27,0	26,9	123	34,3	34,4	184	6,0	0,0	245	30,6	36,9	306	26,5	26,5	367	28,4	28,3	428	41,5	41,4	489	13,4	13,4	550	44,6	35,7
2	0,0	0,0	63	23,0	23,0	124	35,1	35,2	185	12,4	0,4	246	28,1	32,1	307	26,1	26,1	368	29,2	29,2	429	41,7	41,7	490	17,3	17,3	551	45,2	38,3
3	0,0	0,0	64	18,7	18,6	125	35,3	35,4	186	21,4	1,8	247	25,5	26,6	308	25,7	25,7	369	29,5	29,5	430	41,5	41,4	491	19,2	19,2	552	45,3	41,0
4	0,0	0,0	65	14,2	14,1	126	35,1	35,2	187	30,0	5,4	248	23,1	21,8	309	25,5	25,5	370	29,5	29,4	431	41,0	40,9	492	19,7	19,7	553	45,4	43,6
5	0,0	0,0	66	9,4	9,3	127	34,6	34,7	188	37,1	11,1	249	21,2	17,2	310	25,7	25,7	371	29,0	28,9	432	40,6	40,5	493	19,8	19,8	554	45,5	43,7
6	0,0	0,0	67	4,9	4,8	128	33,7	33,9	189	42,5	16,7	250	19,5	13,7	311	26,4	26,4	372	28,1	28,1	433	40,3	40,2	494	20,7	20,7	555	45,6	43,8
7	0,0	0,0	68	2,0	1,9	129	32,2	32,4	190	46,6	21,3	251	17,8	10,3	312	27,3	27,3	373	27,2	27,1	434	40,2	40,1	495	23,6	23,7	556	45,7	43,9
8	0,0	0,0	69	0,0	0,0	130	29,6	29,8	191	49,8	24,8	252	15,3	7,0	313	28,1	28,1	374	26,3	26,3	435	40,1	40,1	496	28,1	27,9	557	45,8	44,0
9	0,0	0,0	70	0,0	0,0	131	26,0	26,1	192	52,4	28,4	253	11,5	3,5	314	27,9	27,9	375	25,7	25,7	436	39,8	39,8	497	32,8	31,9	558	45,9	44,1
10	0,0	0,0	71	0,0	0,0	132	22,0	22,1	193	54,4	31,8	254	7,2	0,0	315	26,0	26,0	376	25,5	25,5	437	38,9	38,9	498	36,3	35,4	559	46,0	44,2
11	0,0	0,0	72	0,0	0,0	133	18,5	18,6	194	55,6	34,6	255	2,5	0,0	316	22,7	22,7	377	25,6	25,6	438	37,5	37,4	499	37,1	36,2	560	46,1	44,3
12	0,0	0,0	73	0,0	0,0	134	16,6	16,8	195	56,1	36,3	256	0,0	0,0	317	19,0	19,0	378	26,0	25,9	439	35,8	35,8	500	35,1	34,2	561	46,2	44,4
13	0,0	0,0	74	1,7	1,7	135	17,6	17,7	196	56,2	37,8	257	0,0	0,0	318	16,0	16,0	379	26,4	26,3	440	34,2	34,1	501	31,1	30,2	562	46,3	44,5
14	0,0	0,0	75	5,8	5,8	136	21,0	21,1	197	56,2	39,6	258	0,0	0,0	319	14,6	14,6	380	27,0	26,9	441	32,5	32,5	502	28,0	27,1	563	46,4	44,6
15	0,0	0,0	76	11,8	11,8	137	25,2	25,4	198	56,2	41,3	259	0,0	0,0	320	15,2	15,2	381	27,7	27,6	442	30,9	30,9	503	27,5	26,6	564	46,7	44,9
16	0,0	0,0	77	18,3	17,3	138	29,1	29,2	199	56,7	43,3	260	0,0	0,0	321	16,9	16,9	382	28,5	28,4	443	29,4	29,4	504	29,5	28,6	565	47,2	45,5
17	0,0	0,0	78	24,5	22,0	139	31,4	31,6	200	57,2	45,1	261	0,0	0,0	322	19,3	19,3	383	29,4	29,3	444	28,0	27,9	505	34,0	32,6	566	48,0	46,3
18	0,0	0,0	79	29,4	26,2	140	31,9	32,1	201	57,7	47,5	262	0,0	0,0	323	22,0	22,0	384	30,2	30,1	445	26,5	26,5	506	37,0	35,5	567	48,9	47,1
19	0,0	0,0	80	32,5	29,4	141	31,4	31,6	202	58,2	49,0	263	0,0	0,0	324	24,6	24,6	385	30,5	30,4	446	25,0	25,0	507	38,0	36,6	568	49,8	48,0
20	0,0	0,0	81	34,2	31,1	142	30,6	30,7	203	58,7	50,0	264	0,0	0,0	325	26,8	26,8	386	30,3	30,2	447	23,5	23,4	508	36,1	34,6	569	50,5	48,7
21	0,0	0,0	82	34,4	32,9	143	29,5	29,7	204	59,3	49,5	265	0,0	0,0	326	27,9	27,9	387	29,5	29,5	448	21,9	21,8	509	31,5	30,0	570	51,0	49,2
22	1,0	1,0	83	34,5	34,7	144	28,0	28,1	205	59,8	48,8	266	0,0	0,0	327	28,1	28,0	388	28,7	28,6	449	20,4	20,3	510	24,5	23,1	571	51,1	49,4
23	2,6	2,6	84	34,6	34,8	145	24,9	25,0	206	60,0	47,6	267	0,5	0,5	328	27,7	27,7	389	27,9	27,9	450	19,4	19,3	511	17,5	16,7	572	51,0	49,3
24	4,8	4,8	85	34,7	34,8	146	20,2	20,3	207	60,0	46,5	268	2,9	2,9	329	27,2	27,1	390	27,5	27,5	451	18,8	18,7	512	10,5	10,7	573	50,4	48,7
25	7,2	7,2	86	34,8	34,9	147	14,8	15,0	208	59,9	46,1	269	8,2	8,2	330	26,8	26,8	391	27,3	27,2	452	18,4	18,3	513	4,5	4,7	574	49,0	47,3
26	9,6	9,6	87	35,2	35,4	148	9,5	9,7	209	59,9	46,1	270	13,2	13,2	331	26,6	26,6	392	27,0	26,9	453	18,0	17,8	514	1,0	1,2	575	46,7	45,0
27	12,0	12,0	88	36,0	36,2	149	4,8	5,0	210	59,9	46,6	271	17,8	17,8	332	26,8	26,8	393	26,5	26,4	454	17,5	17,4	515	0,0	0,0	576	44,0	42,3
28	14,3	14,3	89	37,0	37,1	150	1,4	1,6	211	59,9	46,9	272	21,4	21,4	333	27,0	27,0	394	25,8	25,7	455	16,9	16,8	516	0,0	0,0	577	41,1	39,5
29	16,6	16,6	90	37,9	38,0	151	0,0	0,0	212	59,9	47,2	273	24,1	24,1	334	27,2	27,2	395	25,0	24,9	456	16,4	16,3	517	0,0	0,0	578	38,3	36,6
30	18,9	18,9	91	38,6	38,7	152	0,0	0,0	213	59,8	47,8	274	26,4	26,4	335	27,4	27,4	396	21,5	21,4	457	16,6	16,5	518	0,0	0,0	579	35,4	33,7
31	21,2	21,2	92	38,8	38,9	153	0,0	0,0	214	59,6	48,4	275	28,4	28,4	336	27,6	27,5	397	16,0	15,9	458	17,7	17,6	519	2,9	3,0	580	31,8	30,1
32	23,5	23,5	93	38,8	38,9	154	0,0	0,0	215	59,1	48,9	276	29,9	29,9	337	27,7	27,7	398	10,0	9,9	459	19,4	19,2	520	8,0	8,2	581	27,3	26,0
33	25,6	25,6	94	38,7	38,8	155	0,0	0,0	216	57,1	49,2	277	30,5	30,5	338	27,9	27,9	399	5,0	4,9	460	20,9	20,8	521	16,0	14,3	582	22,4	21,8
34	27,1	27,1	95	38,5	38,5	156	0,0	0,0	217	53,2	49,6	278	30,5	30,5	339	28,1	28,1	400	2,2	2,1	461	22,3	22,2	522	24,0	19,3	583	17,7	17,7
35	28,0	28,0	96	38,0	38,1	157	0,0	0,0	218	48,3	49,9	279	30,3	30,3	340	28,3	28,3	401	1,0	0,9	462	23,2	23,0	523	32,0	23,5	584	13,4	13,5
36	28,7	28,7	97	37,4	37,5	158	0,0	0,0	219	43,9	50,0	280	30,2	30,2	341	28,6	28,6	402	0,0	0,0	463	23,2	23,0	524	38,8	27,3	585	9,3	9,4
37	29,2	29,2	98	36,9	37,0	159	0,0	0,0	220	40,3	49,8	281	30,1	30,1	342	29,0	29,1	403	0,0	0,0	464	22,2	22,0	525	43,1	30,8	586	5,5	5,6
38	29,8	29,8	99	36,6	36,7	160	0,0	0,0	221	39,5	49,5	282	30,1	30,1	343	29,6	29,6	404	0,0	0,0	465	20,3	20,1	526	46,0	33,7	587	2,0	2,1
39	30,4	30,3	100	36,4	36,5	161	0,0	0,0	222	41,3	49,2	283	30,1	30,1	344	30,1	30,1	405	0,0	0,0	466	17,9	17,7	527	47,5	35,2	588	0,0	0,0
40	29,6	29,6	101	36,4	36,5	162	0,0	0,0	223	45,2	49,3	284	30,1	30,2	345	30,5	30,6	406	0,0	0,0	467	15,2	15,0	528	47,5	35,2	589	0,0	0,0
41	28,7	28,7	102	36,5	36,6	163	0,0	0,0	224	50,1	49,4	285	30,1	30,2	346	30,7	30,8	407	0,0	0,0	468	12,3	12,1	529	44,8	32,5	590	0,0	0,0
42	27,9	27,9	103	36,7	36,8	164	0,0	0,0	225	53,7	49,4	286	30,1	30,2	347	30,8	30,8	408	1,2	1,2	469	9,3	9,1	530	40,1	27,9	591	0,0	0,0
43	27,5	27,4	104	36,9	37,0	165	0,0	0,0	226	55,8	48,6	287	30,2	30,2	348	30,8	30,8	409	3,2	3,2	470	6,4	6,2	531	33,8	23,2	592	0,0	0,0
44	27,3	27,3	105	37,0	37,1	166	0,0	0,0	227	55,8	47,8	288	30,4	30,5	349	30,8	30,8	410	5,9	5,9	471	3,8	3,6	532	27,2	18,5	593	0,0	0,0
45	27,4	27,3	106	37,2	37,3	167	0,0	0,0	228	54,7	47,0	289	31,0	31,0	350	30,8	30,8	411	8,8	8,8	472	2,0	1,8	533	20,0	13,8	594	0,0	0,0
46	27,5	27,4	107	37,3	37,4	168	0,0	0,0	229	53,3	46,9	290	31,8	31,9	351	30,8	30,8	412	12,0	12,0	473	0,9	0,8	534	12,8	9,1	595	0,0	0,0
47	27,6	27,5	108	37,4	37,5	169	0,0	0,0	230	52,3	46,6	291	32,7	32,8	352	30,8	30,8	413	15,4	15,4	474	0,0	0,0	535	7,0	4,5	596	0,0	0,0
48	27,6	27,6	109	37,3	37,4	170	0,0	0,0	231	52,0	46,6	292	33,6	33,7	353	30,8	30,8	414	18,9	18,9	475	0,0	0,0	536	2,2	2,3	597	0,0	0,0
49	27,6	27,6	110	36,8	36,9	171	0,0	0,0	232	52,1	46,6	293	34,4	34,5	354	30,9	30,9	415	22,1	22,1	476	0,0	0,0	537	0,0	0,0	598	0,0	0,0
50	27,7	27,6	111	35,8	36,0	172	0,0	0,0	233	51,8	46,9	294	35,0	35,1	355	30,9	30,9	416	24,8	24,7	477	0,0	0,0	538	0,0	0,0	599	0,0	0,0
51	27,8	27,8	112	34,7	34,8	173	0,0	0,0	234	50,8	46,4	295	35,4	35,5	356	30,9	30,9	417	26,8	26,8	478	0,0	0,0	539	0,0	0,0	600	0,0	0,0
52	28,1	28,1	113	31,8	31,9	174	0,0	0,0	235	49,2	45,6	296	35,5	35,6	357	30,8	30,8	418	28,7	28,7	479	0,0	0,0	540	0,0	0,0			
53	28,6	28,5	114	28,9	29,0	175	0,0	0,0	236	47,5	44,4	297	35,3	35,4	358	30,4	30,4	419	30,6	30,6	480	0,0	0,0	541	0,0	0,0			
54	29,0	28,9	115	26,7	26,9	176	0,0	0,0	237	45,7	43,5	298	34,9	35,0	359	29,6	29,6	420	32,4	32,4	481	0,0	0,0	542	2,7	2,8			
55	29,2	29,2	116	24,6	24,7	177	0,0	0,0	238	43,9	43,2	299	33,9	34,0	360	28,4	28,4	421	34,0	34,0	482	0,0	0,0	543	8,0	8,1			
56	29,5	29,4	117	25,2	25,4	178	0,0	0,0	239	42,0	43,3	300	32,4	32,4	361	27,1	27,1	422	35,4	35,4	483	0,0	0,0	544	16,0	14,3			
57	29,7	29,7	118	26,2	26,4	179	0,0	0,0	240	40,2	43,7	301	30,6	30,6	362	26,0	26,0	423	36,5	36,5	484	0,0	0,0	545	24,0	19,2			
58	30,1	30,0	119	27,6	27,7	180	0,0	0,0	241	38,3	43,9	302	28,9	29,0	363	25,4	25,4	424	37,5	37,5	485	0,0	0,0	546	32,0	23,5			
59	30,5	30,5	120	29,2	29,4	181	0,0	0,0	242	36,4	43,8	303	27,8	27,8	364	25,5	25,5	425	38,6	38,6	486	1,4	1,4	547	37,2	27,2			
60	30,7	30,6	121	31.0	31.2	182	0,0	0,0	243	34,6	43,0	304	27,2	27,2	365	26,3	26,3	426	39,7	39,6	487	4,5	4,5	548	40,4	30,5			

Table 5 Motorcycle Urban Driving Cycle (For motorcycles applicable to the emission standards effective prior to Jan. 1, 2017)

Step	Operating mode	Phase	Accelerate rate (m/s^2)	Vehicle speed (km/h)	Time (s)		Accumulated time	Manual gear shifting timing
					Operate	section		
1	Idling	1		0	11	11	11	6s PM+5s K
2	Accelerate	2	1.04	0-15	4	4	15	In accordance with EPA regulation of "The Exhaust Emissions Test Methods and Procedures for Motorcycles"
3	Constant speed	3		15	8	8	23	
4	Decelerate	4	-0.69	15-10	2	5	25	
5	Decelerate; declutch		-0.92	10-0	3		28	K
6	Idling	5		0	21	21	49	16s PM+5s K
7	Accelerate	6	0.74	0-32	12	12	61	In accordance with EPA regulation of "The Exhaust Emissions Test Methods and Procedures for Motorcycles"
8	Constant speed	7		32	24	24	85	
9	Decelerate	8	-0.75	32-10	8	11	93	
10	Decelerate; declutch		-0.92	10-0	3		96	K
11	Idling	9		0	21	21	117	16s PM+5s K
12	Accelerate	10	0.53	0-50	26	26	143	In accordance with EPA regulation of "The Exhaust Emissions Test Methods and Procedures for Motorcycles"
13	Constant speed	11		50	12	12	155	
14	Decelerate	12	-0.52	50-35	8	8	163	
15	Constant speed	13		35	13	13	176	
16	Decelerate	14	-0.68	35-10	9	12	185	
17	Decelerate; declutch		-0.92	10-0	3		188	K
18	Idling	15		0	7	7	195	7s PM
note：PM=neutral, clutch engaged K=declutch								

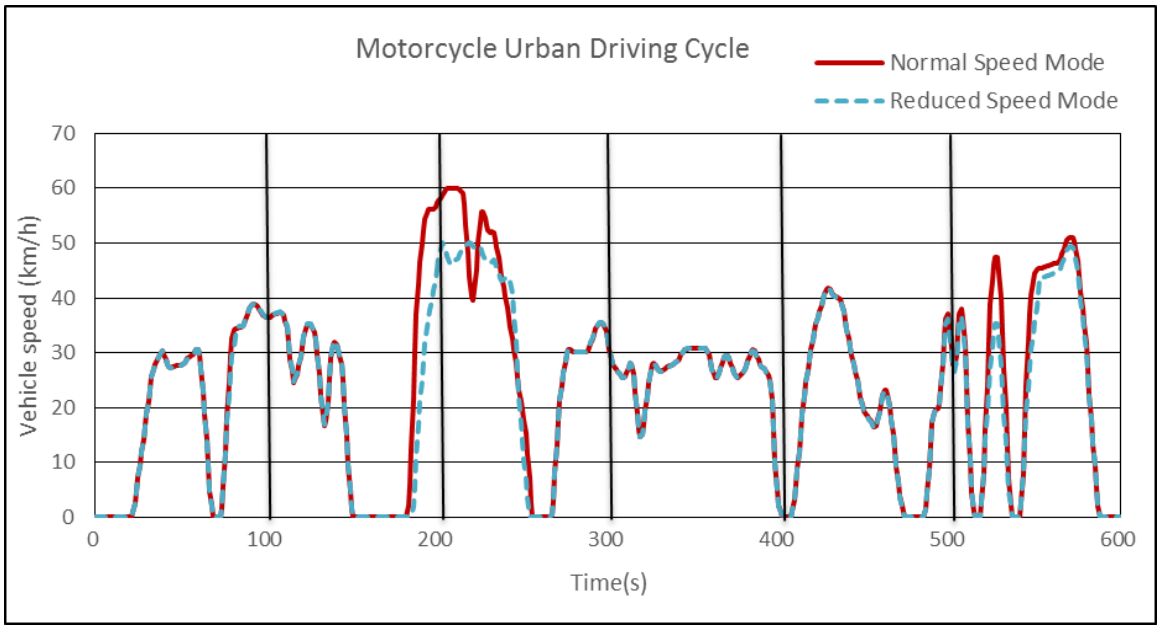

Figure 1 Motorcycle Urban Driving Cycle (For motorcycles applicable to the emission standards effective on and after Jan. 1, 2017)

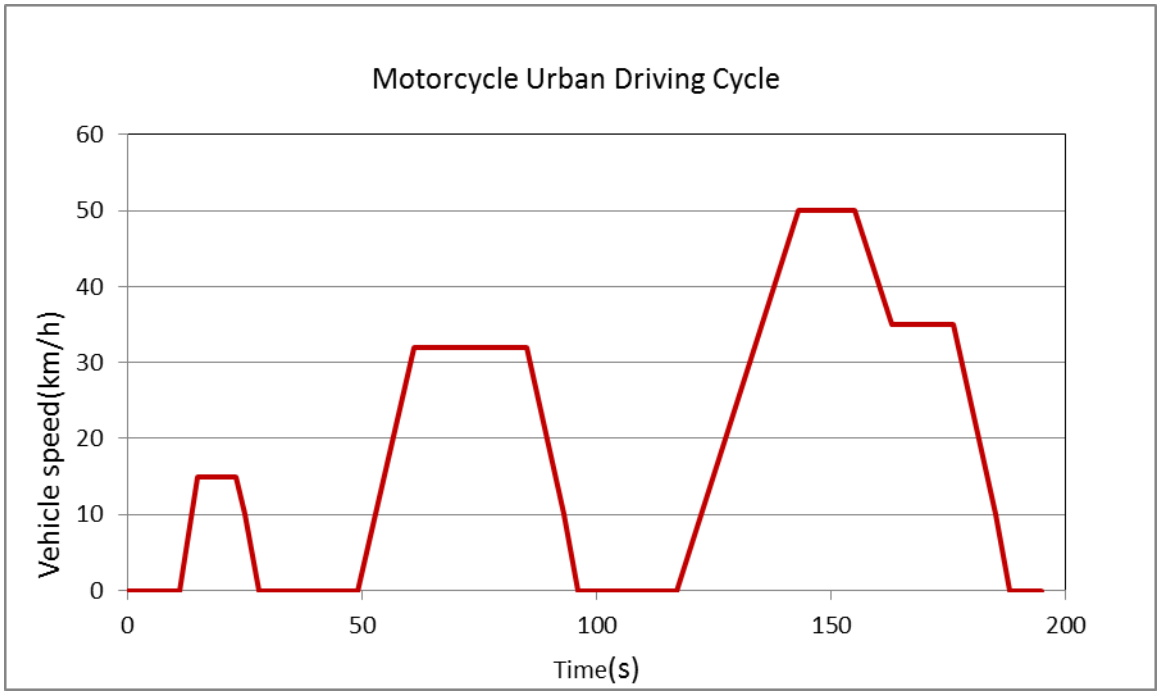

Figure 2 Motorcycle Urban Driving Cycle (For motorcycles applicable to the emission standards effective prior to Jan. 1, 2017)