

**Overview of the "Future Policy for Motor Vehicle Emission Reduction"
(12th report presented by the Central Environment Council on Feb. 4, 2015)**

International Harmonization of Exhaust Emissions Test Procedures for Passenger Vehicle (M1) and Light Trucks (N1)

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1. Introduction

○ Overview of Previous Reports from the Central Environment Council

- In response to the inquiry made on May 21, 1996, the council presented a series of reports, from the interim report (in 1996) up to the 11th report (in 2012), and **the vehicle emissions regulations have been tightened progressively**.
- As a result, enacted regulations are among the strictest in the world, **contributing significantly to improving the atmospheric environment in Japan**.

○ Recent Views of Discussion





- The Central Environment Council successively has discussed the international harmonization of exhaust emissions test procedures, which led to the introduction of relevant regulations. (See the table on the right.)
- International harmonization of exhaust emissions test procedures for Passenger Vehicles and Light Trucks remained to be discussed.



○ Major topics in the 12th Report

- International harmonization of **exhaust emissions test procedures for Passenger Vehicles and Light Trucks remained** and other subjects

Reference: Previous Reports on the International Harmonization of Exhaust Emissions Test Procedures

Report Title	Type of Regulated Vehicle
9th Report (Jan. 29, 2008)	Special diesels 
10th Report (Jul. 28, 2010)	Heavy diesels 
11th Report (Aug. 10, 2012)	Two-wheeled vehicles 
<u>12th Report</u> <u>(Feb. 4, 2015)</u>	<u>Passenger Vehicles and Light Trucks</u> 

1. Introduction (continued)

Passenger vehicles and light trucks account for much of the four-wheeled vehicle production. For this reason, achieving the international harmonization of exhaust emissions test procedures for passenger vehicles and light trucks will significantly help protect the atmospheric environment, not only in Japan but in the rest of the world. It will also greatly help auto manufacturers to reduce the cost of developing emissions control technology and the workload required for the development.

Therefore, it is important to promptly achieve the international harmonization of exhaust emissions test procedures in the field of passenger vehicles and light trucks cars as well in order to reduce vehicle emissions. Cabinet meetings in 2012 determined that the Central Environment Council and other groups discuss the domestic implementation of the WLTP and the WLTP is introduced once a conclusion is reached.



- Shortly after the WLTP-gr was adopted by the UN-ECE/WP29, the Central Environment Council started discussing the domestic implementation of the WLTP and other relevant subjects.
- After promptly finishing the discussion, **the council reported on the domestic implementation of the WLTP and other relevant subjects this February.**

Course of Events

2008・・・GRPE under the UN-ECE/WP29 started formulating the WLTP-gr.

2012・・・Cabinet meetings in 2012 determined that the Central Environment Council and other groups discuss the domestic implementation of the WLTP and the WLTP is introduced once a conclusion is reached.

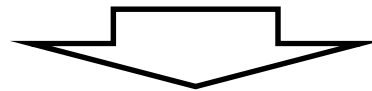
Mar. 2014・・・The WLTP-gr was adopted by the UN-ECE/WP29.

Apr. 2014・・・The Central Environment Council started discussing the implementation of the WLTP and other relevant subjects.

Feb. 2015・・・The Central Environment Council reported on the implementation of the WLTP and other relevant subjects.

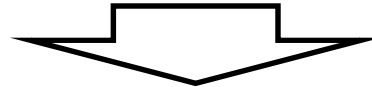
Reference: Review Process for Vehicle Emissions Regulations in Japan

Future Policy for Motor Vehicle Emission Reduction (inquired on May 21, 1996)



Inquiry from the Minister of the Environment to the Central Environment Council

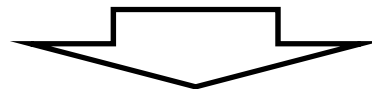
Central Environment Council



Report from the Central Environment Council to the Minister of the Environment

Air Pollution Control Act (Ministry of the Environment)

Exhaust emissions:
Permissible Limits on the vehicle emissions



Considered to ensure the permissible limits

Road Transport Vehicle Act

(Ministry of Land, Infrastructure, Transport and Tourism)

- Safety and environmental regulations for vehicles traveling on public roads

2. Key Points of the 12th Report

○ Details of the Worldwide Harmonized Light Vehicles Test Procedure (WLTP)

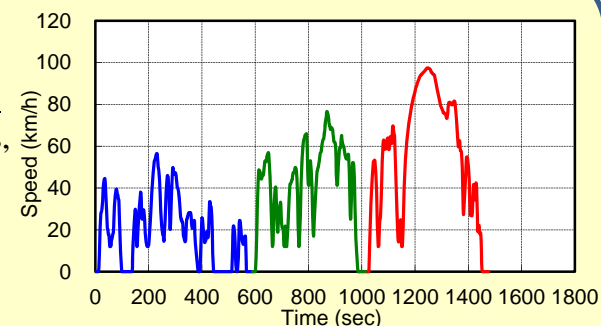
- The UN-ECE/WP29 formulated the Worldwide Harmonized Light-Duty Test Cycle (WLTC). The WLTC provides different test cycles for Class 1, Class 2, Class 3a, and Class 3b vehicles to reflect the real-world driving situations in the individual CPs.
- The individual CPs have the option to exclude the extra-high-speed phase because it includes driving in the high acceleration, high-speed range.
- Test conditions are more stringent than before. (For example, cold start, test mass, running resistance .etc)



Key Points of the 12th Report

○ Introducing the WLTP

- **It is recommended that the test cycles applied to Class 3a and Class 3b vehicles be adopted** because these cycles match the driving situations in Japan. In these test cycles, **the extra-high-speed phase**, which does not match the driving situations in Japan will not be adopted.
- **Only cold-start testing (100%) will be performed to evaluate exhaust emissions**, which until now have been evaluated during both a cold and hot starts.



○ Setting the Permissible Exhaust Emission Limit Target Levels for the Next Term

- Since the test cycles will be changed, we will review the current permissible exhaust emission limits. Although the limits on some substances seem to be set higher due to the stricter test conditions, **those limits target levels are set not to relax the regulations.**

Example: gasoline/LPG [g/km]

	Current	Next Term
CO	1.15	1.15
NMHC	0.05	0.10
NOx	0.05	0.05
PM*	0.005	0.005

Equivalent to the current regulation level

*Only applied to lean-burn direct-injection vehicles with an NOx absorber catalyst

Example: diesel cars [g/km]

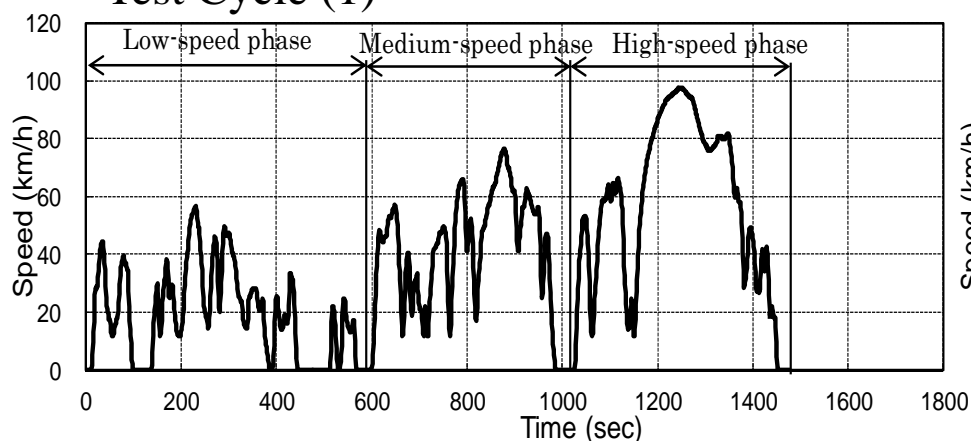
	Current	Next Term
CO	0.63	0.63
NMHC	0.024	0.024
NOx	0.08	0.15
PM	0.005	0.005



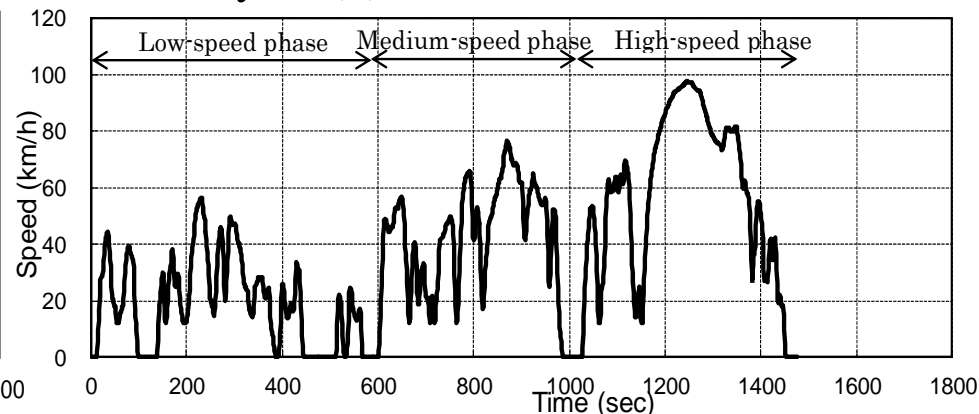
3. Introducing the WLTP

It is recommended that the JC08 mode be changed to the WLTC applied to Class3a or Class 3b vehicles without ExH.

Test Cycle (1)



Test Cycle (2)



Note: Different test cycles for vehicle types are assigned as shown in the table below.

Vehicle Type		Test Cycle
Gasoline/LPG mini-sized trucks	With maximum speeds below 120 km/h	Test Cycle (1)
	With maximum speeds of 120 km/h or higher	Test Cycle (2)
Gasoline/LPG passenger cars, light-duty gasoline/LPG trucks, medium-duty gasoline/LPG trucks, diesel cars, light-duty diesel trucks, and medium-duty diesel trucks		Test Cycle (2)

Test Cycle (1): test cycle applied to Class 3a vehicles in the WLTP-gr. (The extra-high-speed phase is excluded.)

Test Cycle (2): test cycle applied to Class 3b vehicles in the WLTP-gr. (The extra-high-speed phase is excluded.)

4. Setting Permissible Exhaust Emission Limit Target Levels for the Next Term(1)

It is recommended that the permissible exhaust emission limit target levels for the next term are as shown on the next page, ensuring that the emission regulation levels are equivalent to the current Post-New Long-Term Regulations (established in 2009). These values also reflect the characteristics of the WLTP-gtr, such as a high-acceleration, high-speed range, test mass and cold-start emissions than in the current exhaust emissions test method based on the JC08 mode.

In the future, the values should be reviewed, if necessary, based mainly on the future effects of the regulations, the progress of technological developments, and the contribution of exhaust emissions. In its review, it is needed to take care to ensure that low-emission and fuel-efficient technologies can be achieved concurrently.

4. Setting Permissible Exhaust Emission Limit Target Levels for the Next Term (2)

○ Gasoline/LPG Vehicles

Vehicle Type	Permissible Exhaust Emission Limit Target Levels			
	CO	NMHC	NO _x	PM ^(Note)
Passenger vehicles	1.15 g/km	0.10 g/km	0.05 g/km	0.005 g/km
Mini-sized trucks	4.02 g/km	0.10 g/km	0.05 g/km	0.005 g/km
Light-duty trucks (gross vehicle weight ≤ 1.7 t)	1.15 g/km	0.10 g/km	0.05 g/km	0.005 g/km
Medium-duty trucks (1.7 t < gross vehicle weight ≤ 3.5 t)	2.55 g/km	0.15 g/km	0.07 g/km	0.007 g/km

Note: Only applied to gasoline-fueled lean-burn direct-injection vehicles with an NO_x absorber catalyst.

Time of enforcement: These target values will come into effect in 2018 for passenger vehicles and light-duty trucks and in 2019 for mini-sized trucks and medium-duty trucks.

○ Diesels

Vehicle Type	Permissible Exhaust Emission Limit Target Levels			
	CO	NMHC	NO _x	PM
Passenger vehicles	0.63 g/km	0.024 g/km	0.15 g/km	0.005 g/km
Light-duty trucks (gross vehicle weight ≤ 1.7 t)	0.63 g/km	0.024 g/km	0.15 g/km	0.005 g/km
Medium-duty trucks (1.7 t < gross vehicle weight ≤ 3.5 t)	0.63 g/km	0.024 g/km	0.24 g/km	0.007 g/km

Time of enforcement: These target values will come into effect in 2018 for passenger vehicles and light-duty trucks and in 2019 for medium-duty trucks.

Thank you for your attention.