The current situation of noise regulation in Japan

Ministry of Land, Infrastructure, Transport and Tourism(MLIT), JAPAN

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国土交通省

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1. EQSs Situation of Road Traffic Noise

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◆ Environmental Quality Standards(EQSs) for Noise

- Environmental Quality Standards(EQSs) for Noise are designated as the standards to be maintained for the purpose of human health, in accordance with the Basic Environment Law.

● General Area

Categories of Area	Standard Value	
	Daytime (6:00-22:00)	Nighttime (22:00-6:00)
Area AA(where silence is especially required, e.g. hospitals)	50dB or less	40dB or less
Area A(for residence exclusively), Area B(for residence mainly)	55dB or less	45dB or less
Area C(for commerce)	60dB or less	50dB or less

● Road Side Area

Categories of Area	Standard Value	
	Daytime (6:00-22:00)	Nighttime (22:00-6:00)
Area A facing road with two or more lanes	60dB or less	55dB or less
Area B facing road with two or more lanes and Area C facing road with one or more lanes	65dB or less	60dB or less

● Space Adjacent to Road Carrying Arterial Traffic

Standard Value	
Daytime (6:00-22:00)	Nighttime (22:00-6:00)
70dB or less	65dB or less

1. EQSs Situation of Road Traffic Noise

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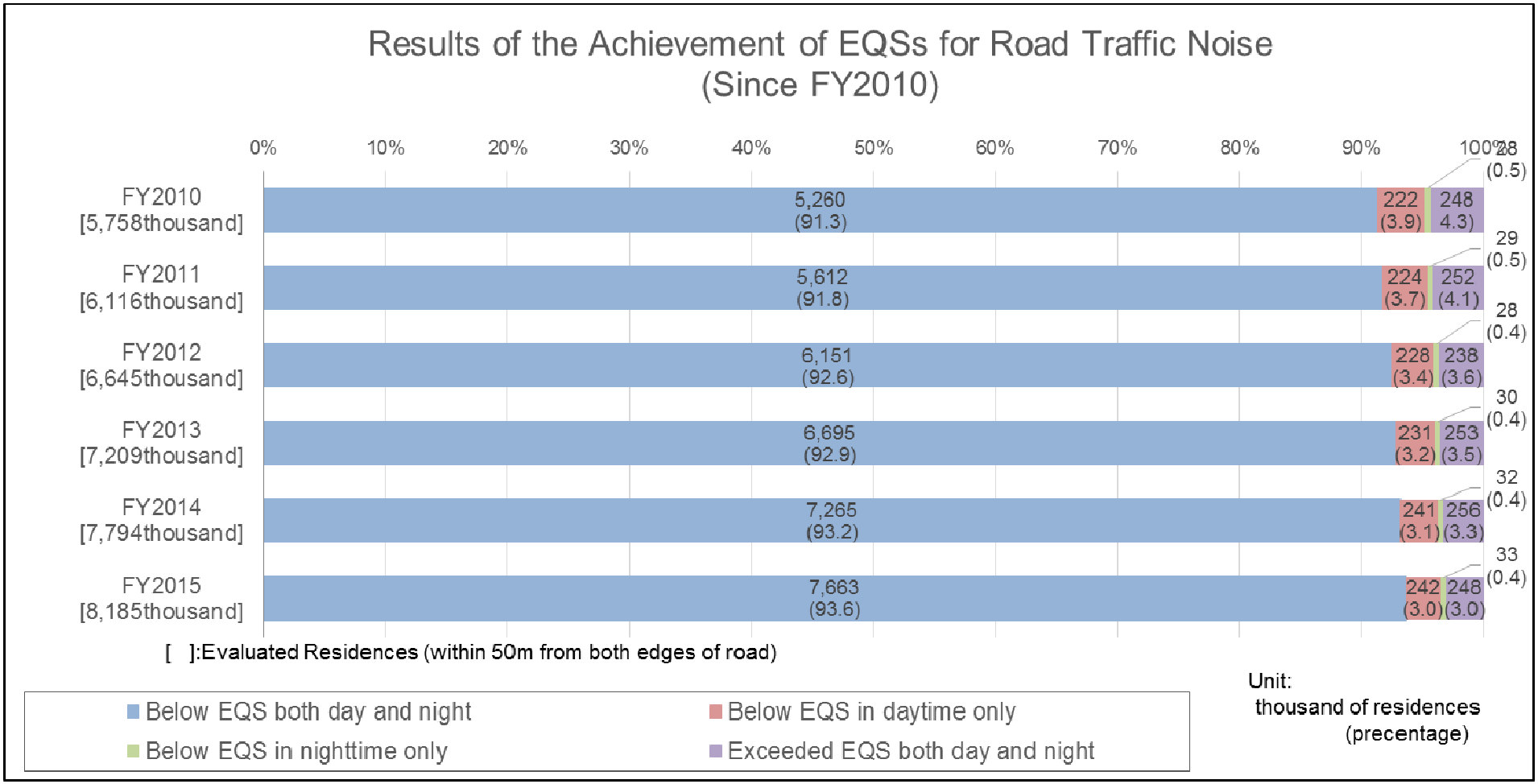
◆ Situation of Road Traffic Noise

(1) Achievement rate of EQS for Noise

Although it needs to be taken into account the difference of evaluated residences of each year, achievement rate of Environment Quality Standards for Noise is gradually improved.



1. EQSs Situation of Road Traffic Noise

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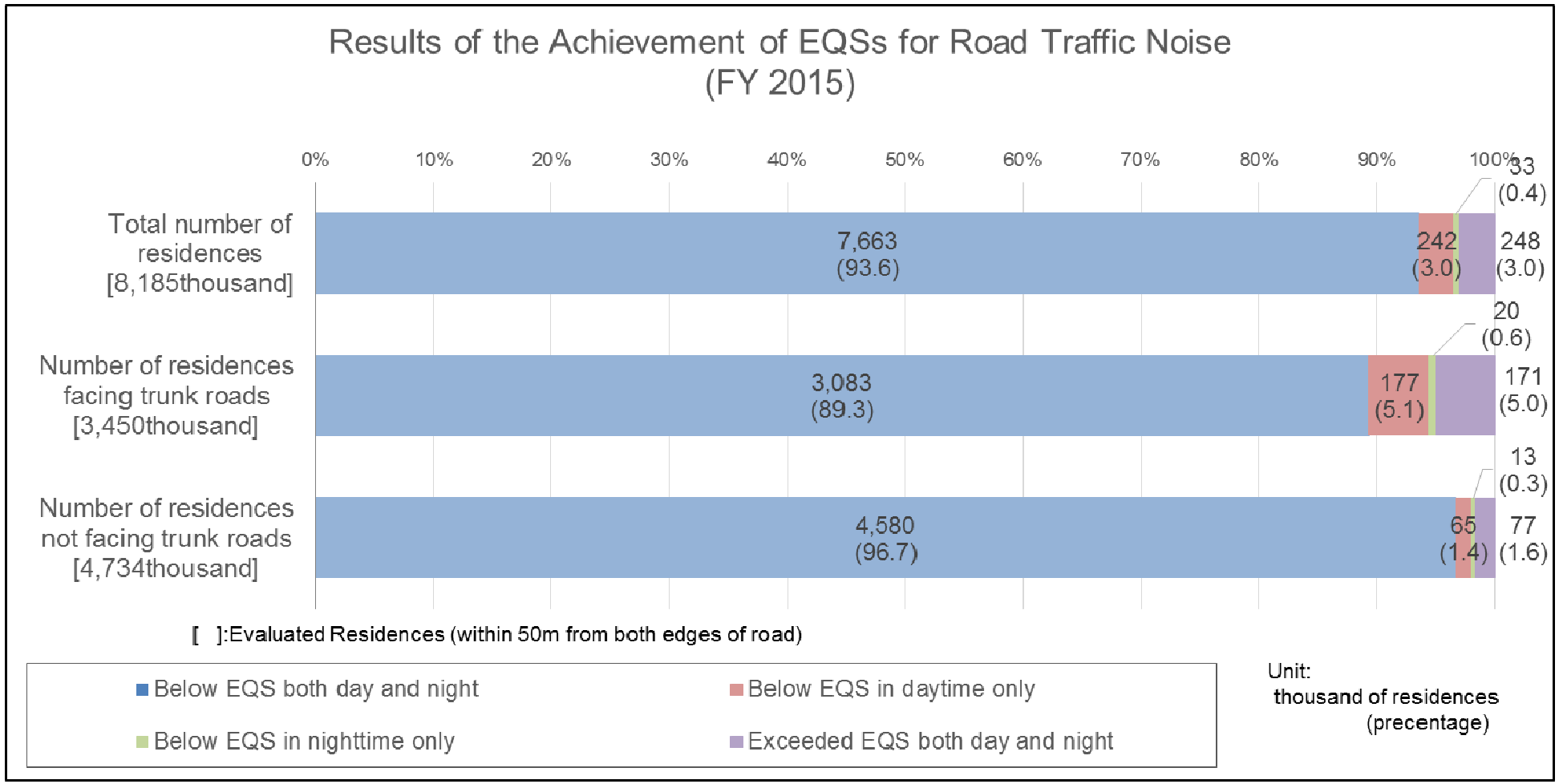
- In FY2015, 6.4% of evaluated residences exceed EQSs for noise in any of day or night or both day and night.
- 10.7% of evaluated residences facing trunk roads exceed EQSs for noise in any of day or night or both day and night.



1. EQSs Situation of Road Traffic Noise

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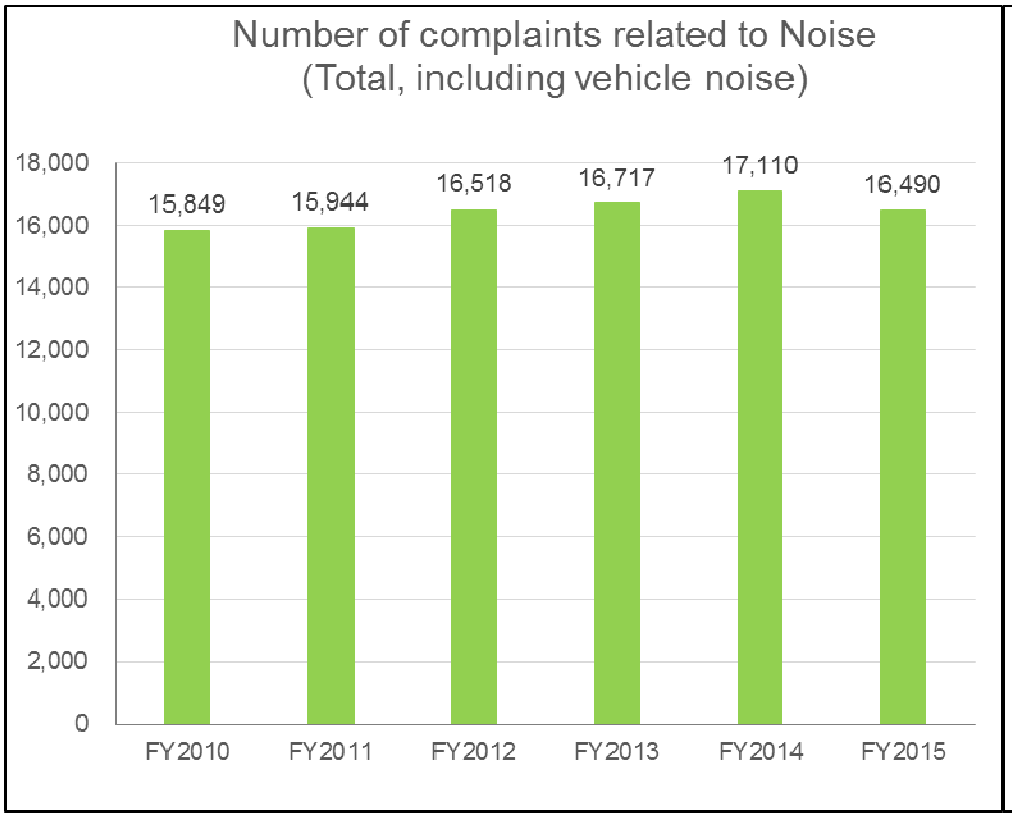
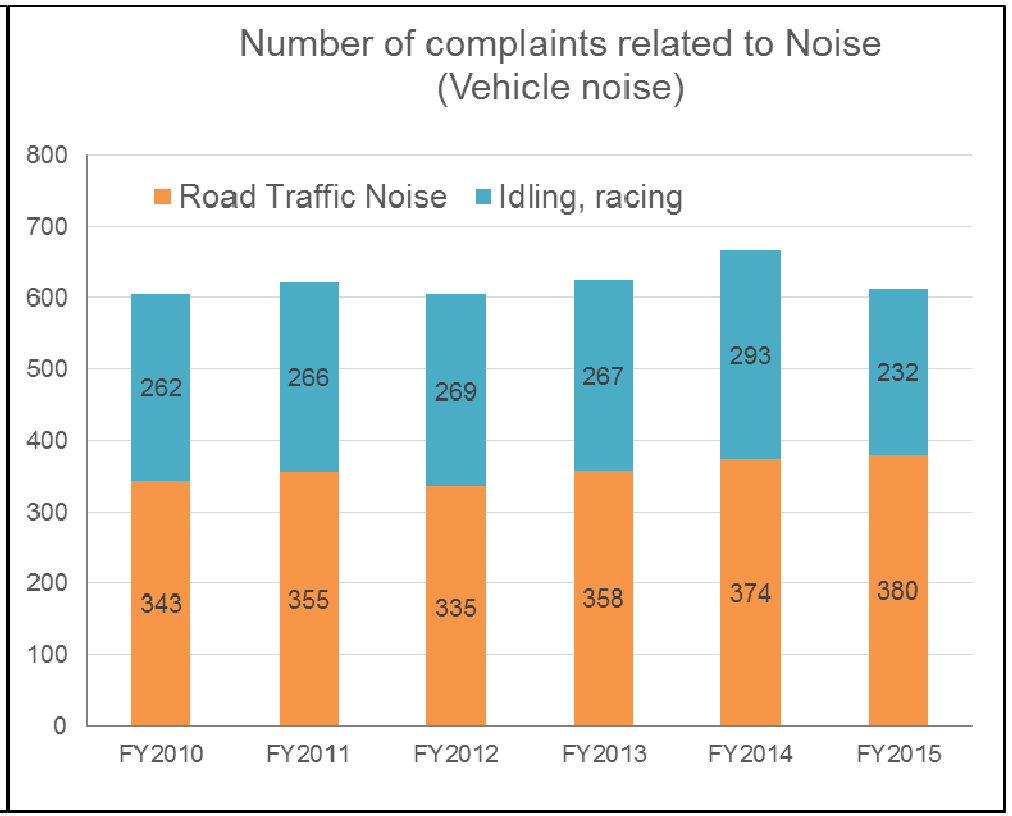
◆ Situation of Road Traffic Noise

(2) Number of Complaints Related to Vehicle Noise (Since FY2010)

Number of Complaints Related to Vehicle Noise has been almost unchanged.





Source: Research of the Implementation of Noise Regulation Act by MOE, Japan

2. History of vehicle noise regulation

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Constant speed test
（introduced in 1951）

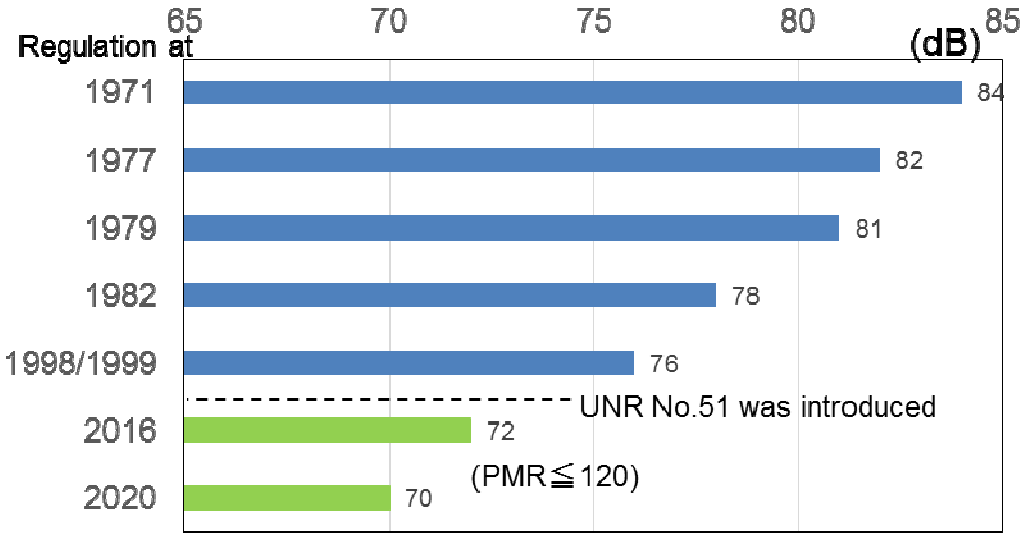
* Constant speed test for vehicles of categories M and N was abolished when UN-Regulation No.51 was introduced in Japan.

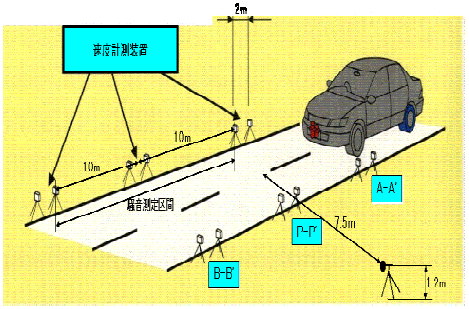
Acceleration test
（ introduced in 1971）

* Acceleration test for vehicles of categories M and N was abolished and replaced by 'acceleration test' and 'ASEP ' when UN-Regulation No.51 was introduced in October 2016.

Stationary test
（ introduced in 1986）

Transition of Acceleration noise regulation value on passenger cars





■ Noise regulation value has been gradually strengthened.

3.Current vehicle noise regulation

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【 Scope 】 M and N category

【 Outline of the Amendment 】

Previous regulations in Japan

- **Constant speed test**
- **Acceleration test**
  (Full throttle acceleration)
- **Stationary test**
  (Absolute value)

Current regulation in Japan
(harmonizing with R51-03)

（● Constant speed test is not applied.）

- **Acceleration test**
  (Normal driving condition in urban traffic)
- **Additional Sound Emission Provisions (ASEP)**
- **Stationary test**
  * New Type Approval Vehicles : **Measurement only**
  * In use car : **Relative value**
- **Compressed air noise**（GVWR >2.8t）

※ “GVWR” means technically permissible maximum laden mass.

【Date of enforcement】

	Phase1	Phase2
New Type Approval Vehicles （Except the import vehicle ）	1 October, 2016 (already introduced)	1 September, 2020 (N2 : 2022)
Other than above mentioned	Not applied	1 September, 2022 (N2 : 2023)

3.Current vehicle noise regulation

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【Regulation value】

（Same as UNR51-03)）

Phase 3 will be reviewed if necessary.

⇩

Japan does not adopt Phase 3 for the time being.

Veh. Cat.	Vehicles used for the carriage of passengers	Phase 1	Phase 2
M1	PMR[*1] ≤ 120	72	70
	120 < PMR ≤ 160	73	71
	PMR > 160	75	73
	PMR > 200, no. of seats ≤ 4, R-point height < 450mm from the ground	75	74
M2	GVWR[*2] ≤ 2.5 t	72	70
	2.5 t < GVWR ≤ 3.5 t	74	72
	GVWR > 3.5 t; P_n[*3] ≤ 135 kW	75	73
	GVWR > 3.5 t; P_n > 135 kW	75	74
M3	P_n ≤ 150 kW	76	74
	150 kW < P_n ≤ 250 kW	78	77
	P_n > 250 kW	80	78
Veh. Cat.	Vehicles used for the carriage of goods	Phase 1	Phase 2
N1	GVWR ≤ 2.5 t	72	71
	GVWR > 2.5 t	74	73
N2	P_n ≤ 135kW	77	75
	P_n > 135 kW	78	76
N3	P_n ≤ 150 kW	79	77
	150 kW < P_n ≤ 250 kW	81	79
	P_n > 250 kW	82	81

*1 PMR (Power to Mass Ratio) means following formula.
<Maximum output power (kw) / Mass of a vehicle in running order(kg)) ×1000>

*2 GVWR：Technically permissible maximum laden mass（t）

*3 Pn：Rated Maximum net power（kW）

4.Regulation of Replacement Silencers

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■ Regulation has requirements of silencers and prohibits illegal modification that has impact on noise.

Requirements based on “The Announcement that Prescribes Details of Safety Regulations for Road Transport Vehicles”

■<u>When type approval</u>

•A silencer shall be no damage nor corrosion

•A silencer shall be constructed so that the noise reducing mechanism thereof is not removed easily

■<u>When in-use</u>

Adding to above requirements,

•A whole or a part of the silencer shall not be removed

•A main body of the silencer shall not be cut off

•A noise reducing mechanism inside the silencer shall not be removed

•A silencer mounted on motor vehicles shall prevent acceleration running noise level effectively

→A silencer shall be checked and marked by certificated organizations.

A silencer which is not checked is clearly prohibited by this marking requirements.

5.Campaign for exclusion of Illegally Modified Automobiles

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- MLIT addresses “Campaign for exclusion of Illegally Modified Automobiles” in June.
- In this campaign, MLIT and related organizations execute intensive street inspection.

<Summary of result of FY2016>

1.Street inspection

•Performed in cooperation with National Police Agency, National Agency for Automobile and Land Transport Technology(NALTEC), Light Motor Vehicle Inspection Organization, and so on.

Number of inspection: 2,839

Number of automobiles inspected: 142,426

Number of order to maintenance: 1,708

2.Raise Awareness Activities to automobile users

•Publicity by posters and leaflets (about 140,000 posters and about 650,000 leaflets)

•Publicity by media (newspaper, public relations magazine, TV, web, etc.)

•Lecturing tour by District Transport Bureau (218 times)

•Publicity by displaying banners on bus (341 bus companies)

•Questionnaire survey about recognition of illegal modification (Target 7,500 persons)

6.Challenges about Automobile Noise

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(1) Noisy vehicles

•Issue

➢ There are some extremely loud vehicles. On the other hand, almost of the vehicles are not noisy.

•Idea for Solution

➢ Strict test for noisy vehicles, and simple test for silent vehicles.

(2) Noise of out of test range

•Issue

➢ There is possibility of existence of noisy vehicles when speed of the vehicles is out of the range of test, which is under 20 or over 70(80)km/h.

•Idea for Solution

➢ Setting proper speed range of ASEP based on actual driving data

(Reference) Example of Running Situation

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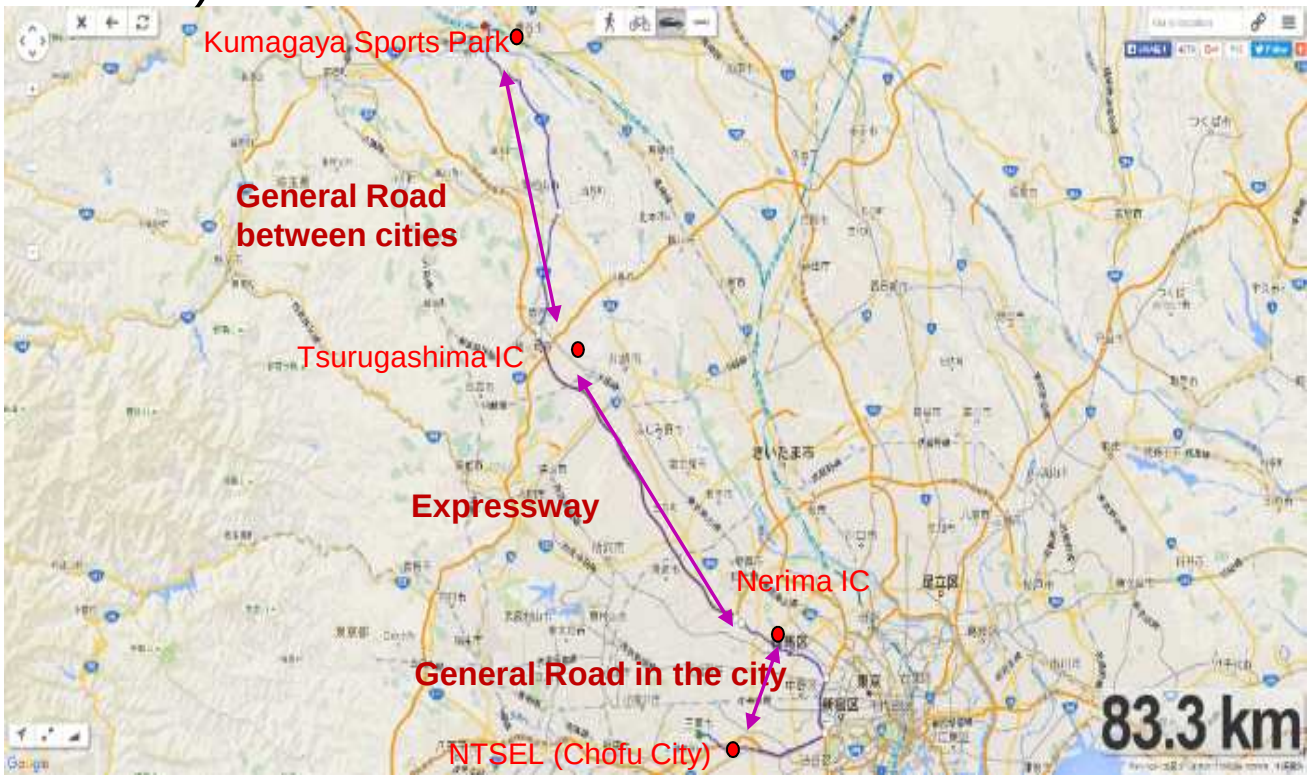
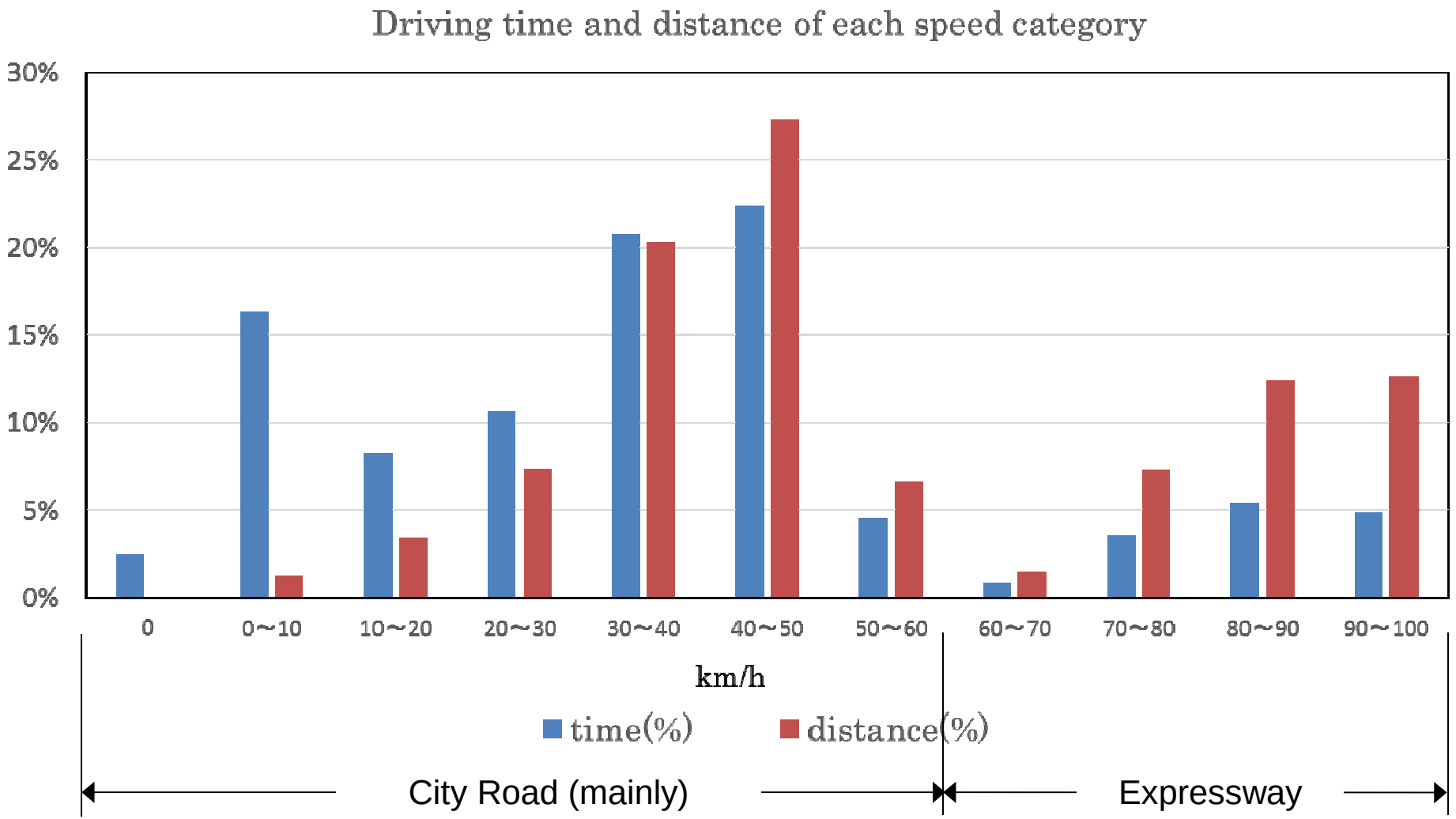
Route:

- Road in the city～Expressway～ Road between cities
- Road between cities～Expressway～ Road in the city

(total distance: 83.3km)



(Reference) Example of Running Situation



- Result of 8 surveyed cars

6.Challenges about Automobile Noise

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(3) Illegal modification

•Issue

➢ Possibility of illegally modified automobiles

•Idea for Solution

➢ Continuous crackdown on illegal modification

➢ Prohibition of apparently malicious component (intentional illegal device for the purpose of fulfilling the sound requirement to obtain type-approval, for example)

7.Summary

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- Achievement rate of Environment Quality Standards for Noise is gradually improved in Japan.

- As measurements for automobile noise, MLIT executes not only strengthening automobile noise regulation and replacement silencer regulation, but also doing crackdown on illegal modification.

- We will continue to do various measurements for further reducing automobile noise.