

UN Regulation No.28

warning devices

(Test procedures)

NTSEL

National Traffic Safety and Environment Laboratory

Takuya WATANABE

5th February 2020

1

Outline

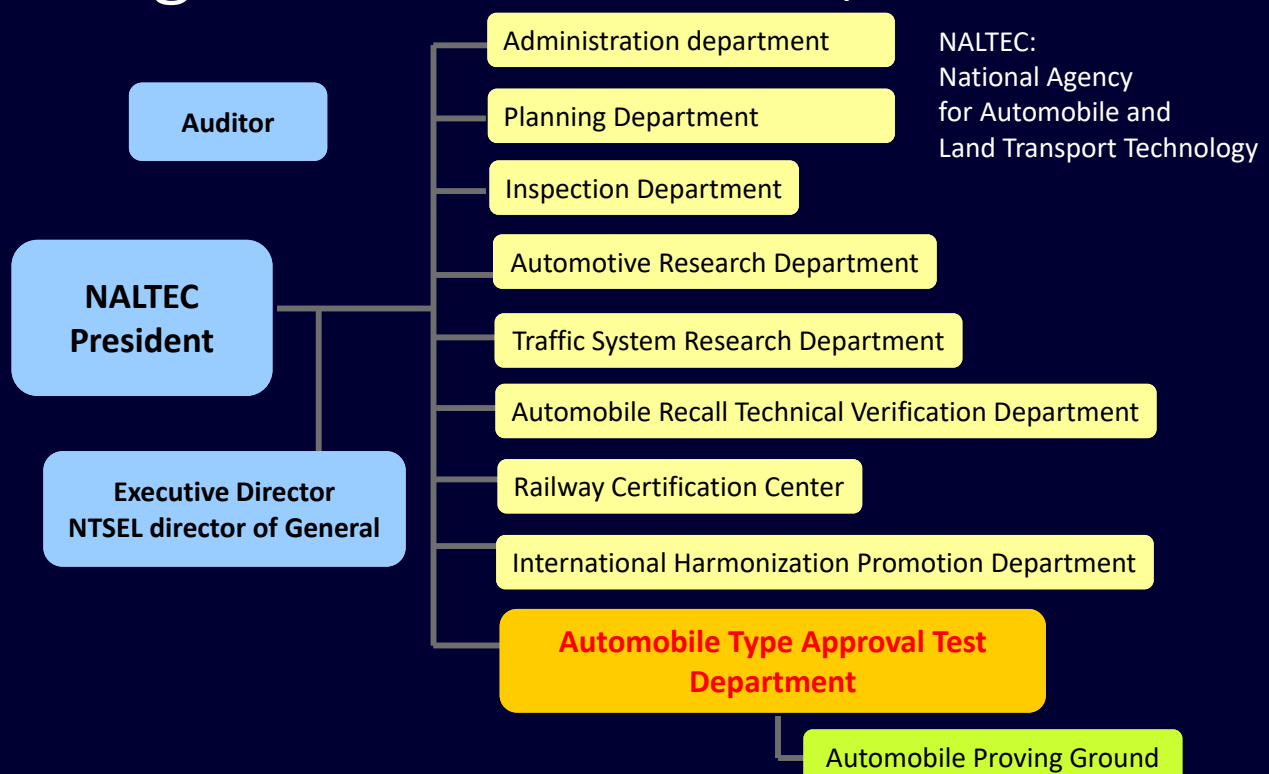
1. Organization of NTSEL/NALTEC
2. Type approval system & flow
3. UN-R28
 - 3-1. Test conditions
 - 3-2. Test procedures

2

Outline

1. Organization of NTSEL/NALTEC
2. Type approval system & flow
3. UN-R28
 - 3-1. Test conditions
 - 3-2. Test procedures

Organization of NTSEL/NALTEC



Outline

1. Organization of NTSEL/NALTEC
2. Type approval system & flow
3. UN-R28
 - 3-1. Test conditions
 - 3-2. Test procedures

5

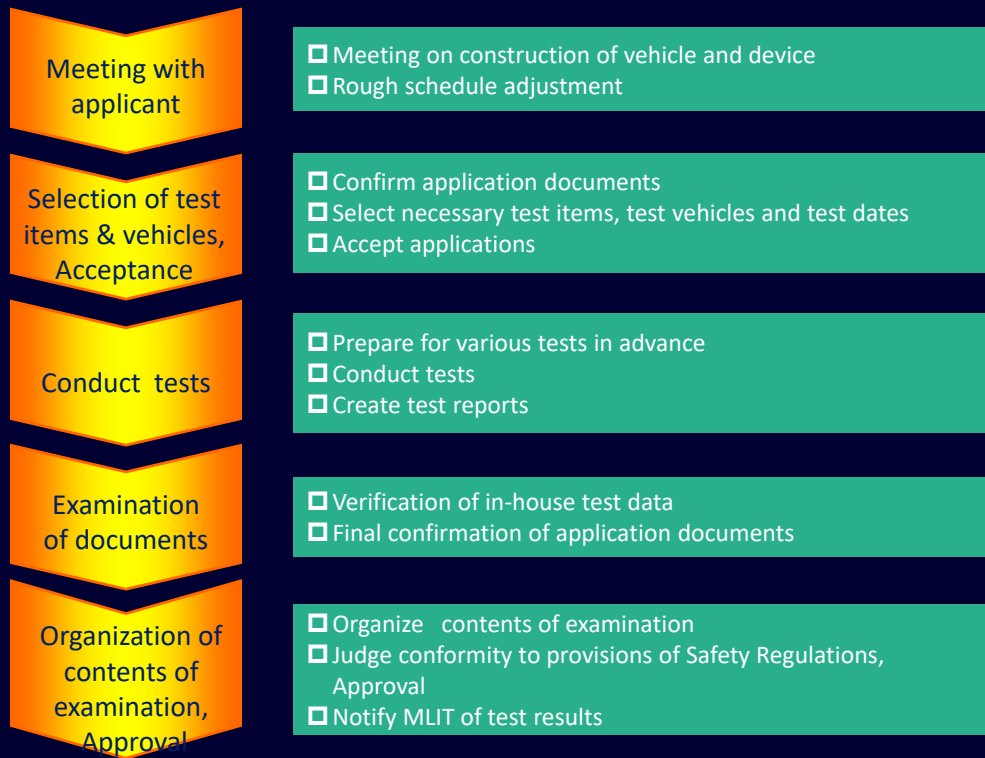
Type approval system

A system in which the government evaluates conformity with safety / environmental standards, confirms quality assurance system of mass produced vehicles/equipments with identical construction/device, and grants type designation. This process is carried out before the vehicle/equipment is manufactured and sold.

In this system, NTSEL performs technical examinations to evaluate conformity to safety/environmental standards as technical service.



Flow of certification



7

Outline

1. Organization of NTSEL/NALTEC
2. Type approval system & flow
3. UN-R28
 - 3-1. Test conditions
 - 3-2 Test procedures

8

Test conditions

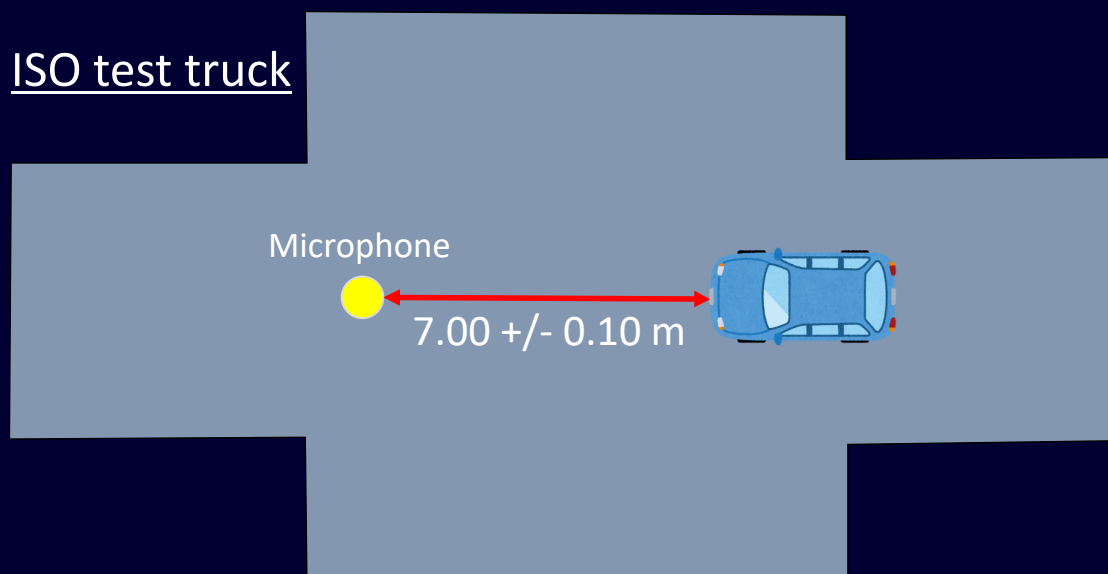
Table Test conditions for speed meter test

Test site	<ul style="list-style-type: none">▪ An anechoic chamber▪ Open space (Surface mentioned ISO 10844:2014)▪ A semi-anechoic chamber
Weather (Test surface)	must not be covered with powdery snow, tall weeds, or loose soil or cinders
Microphone location	7.00 +/- 0.10 m in front of the vehicle
Ambient temperature	+15 - +30 degrees C
Ambient noise	at least 10 dB (A) below the sound to be measured

9

Test facility & equipment

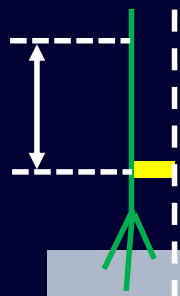
ISO test truck



10

Test facility & equipment

0.5 - 1.5 m



microphone



7.00 +/- 0.10 m



horn component



11

Test facility & equipment

How do actuate audible warning system ?



or



+



or



The vehicle battery only

The vehicle battery
with
the vehicle engine warmed-up

stabilized DC power supply

12

Test facility & equipment

rated voltage



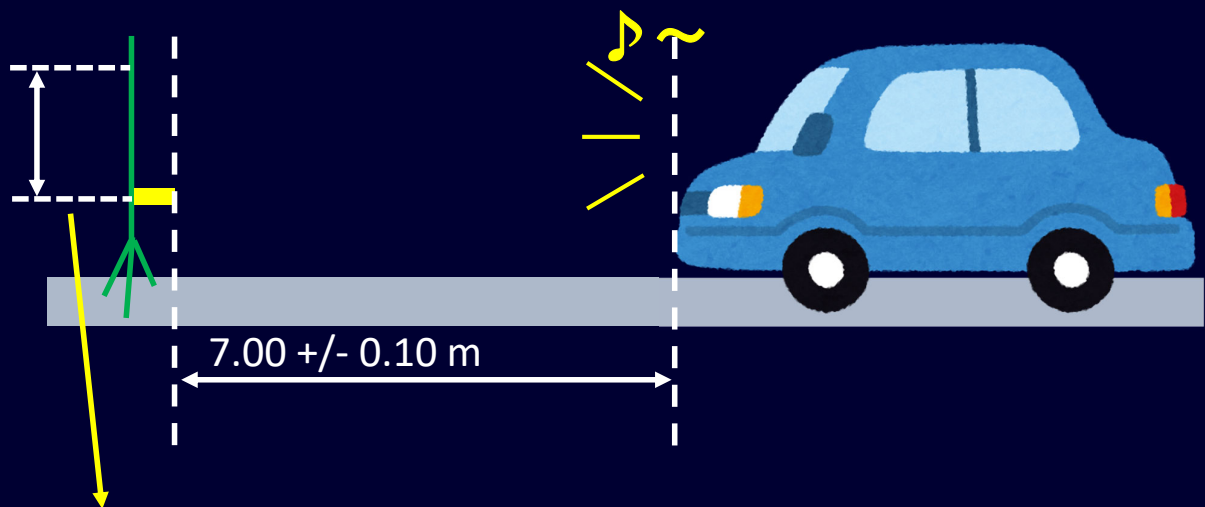
13

Outline

1. Organization of NTSEL/NALTEC
2. Type approval system & flow
3. UN-R28
 - 3-1. Test conditions
 - 3-2. Test procedures

14

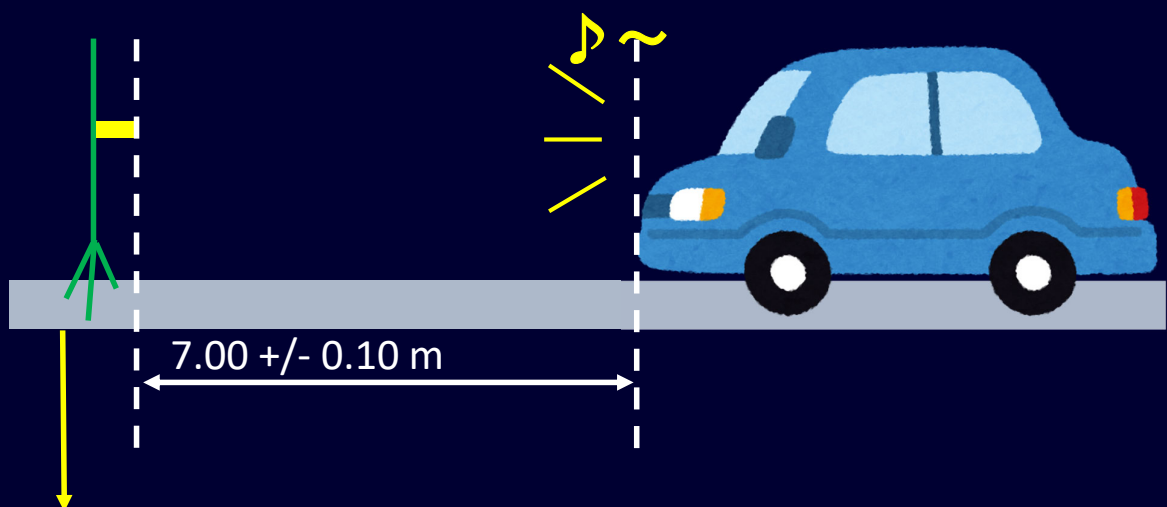
Test procedures



The maximum sound-pressure level shall be sought within the range of 0.5 and 1.5 m above the ground, and the height,

15

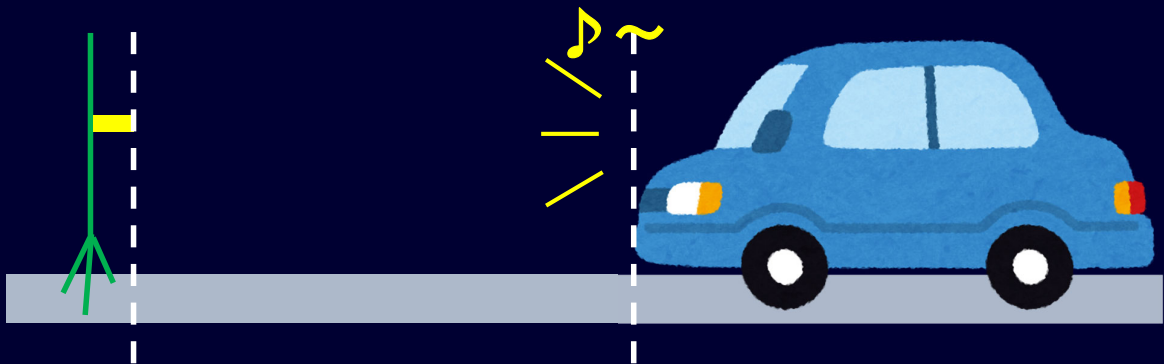
Test procedures



at which the maximum sound-pressure level was found has to be fixed for the purpose of taking the measurements prescribed below.

16

Test procedures



The sound pressure level shall be measured at that fixed height for a duration of at least 3 seconds.

The final result shall be the maximum A-weighted sound pressure level of the reading period, rounded mathematically to the nearest integer.

17

Thank you for your attention !

18