

**Criteria for Granting Permission for Road Use in
Demonstration Tests of Automated Driving on Public Roads**

September 2020

The National Police Agency

With regards to:

- Demonstration tests of driving motor vehicles on public roads using the system that allows motor vehicles to run autonomously with automated driving technology and under which monitor-operators at a place remote from the vehicles can drive and operate the said motor vehicles with telecommunications technology in the event of an emergency, etc. (such system is hereinafter referred to as the "remotely-controlled automated driving system" and such tests are hereinafter referred to as "demonstration tests of the remotely-controlled automated driving system on public roads"); and
- Demonstration tests in which in-car monitor-operators drive manually or autonomously on public roads motor vehicles that are operated with special devices other than ordinary wheel and brakes when driven manually (such vehicles are hereinafter referred to as "specially-equipped motor vehicles," and such tests are hereinafter referred to as "demonstration tests of specially-equipped motor vehicles on public roads"),

their technical safety has yet to be established and such tests constitute "an activity (...) on a road which would involve persons using the road by passing down it in a configuration or manner that would have a serious effect on public traffic." Hence, persons seeking to conduct such tests must obtain the permission for road use stipulated in Article 77 of the Road Traffic Act (hereinafter referred to as the "Act").

The criteria for the handling of applications for road use in these demonstration tests on public roads are set as follows.

1 Screening Criteria regarding Permission

(1) Purpose of Tests, etc.

- a. Tests must be demonstration tests toward the practical application of automated driving.
- b. Persons who will work as test administrators and monitor-operators (meaning persons who drive motor vehicles to which the application pertains (hereinafter referred to as "test vehicles") and who are subject to obligations imposed by the Act on drivers; the same applies hereinafter) (*) must be under the supervision of entities that perform tests, and materials on the necessary implementation systems to ensure safety (including manuals on response and contact in the event of anomalous incidents, including traffic accidents) must be submitted to the police.

* Applications may be made for several persons who will work as a monitor-operator; provided, however, regardless of whether each monitor-operator drives one or more than one test vehicle, the monitor-operator of each test vehicle in motion must be limited to one person per vehicle. However, this does not preclude appointing persons assisting the monitor-operator under his or her guidance and supervision.

- c. In cases where permission under other laws and regulations, including transportation business permission, is necessary, such permission must be granted in advance, or it must be confirmed that it is certain that such permission will be granted.

(2) Place, Time and Date of Tests

a. General Matters

Tests must not be conducted at places, times or dates that would cause especially significant hindrance to the traffic of general road users, considering the functions of test vehicles (*) and the traffic conditions at the test places.

* In cases of demonstration tests of the remotely-controlled automated driving system on public roads, the function of the remotely-controlled automated driving system is included.

b. Matters regarding Demonstration Tests of the Remotely-controlled Automated Driving System on Public Roads

The test place must be a place where the communication environment necessary for driving test vehicles safely is ensured, including a place where, in principle, the telecommunication technology to be used will not be disrupted.

(3) Measures to Ensure Safety

a. General Matters

- (a) The maximum speed must be a speed at which vehicles can be stopped safely well in advance (*1), considering the traffic conditions and the road environment (*2), and such maximum speed must be included in the test plan.

*1 The maximum speed is expected to be not faster than a speed that allows test vehicles to stop so that their stopping distance would be equivalent to that of ordinary motor vehicles at the speed limit of the road (see attachments).

*2 In cases of demonstration tests of the remotely-controlled automated driving system on public roads, the time required to respond to communications must be fully considered.

- (b) The fact that demonstration tests of automated driving on public roads are under way must be indicated on the front, back and sides of test vehicles.
- (c) The test plan must include safety measures, in consideration of the possibility that monitor-operators may become unable to monitor or operate test vehicles due to, for example, sudden illness or power outages.

* Examples of Safety Measures

- Stopping test vehicles automatically and safely

- Making sure that other persons who are to be monitor-operators can swiftly take over the role of monitoring and operating test vehicles
 - Taking measures so that persons who are to assist monitor-operators can press the emergency stop button of test vehicles
- b. Matters regarding Demonstration Tests of the Remotely-controlled Automated Driving System on Public Roads
- (a) Materials on measures to prevent test vehicles from causing a traffic hindrance, including how to stop the engine, must be submitted to the police, so that, if necessary, police officers can stop the engine of the test vehicles or take other measures in the event of a traffic accident or other emergency.
 - (b) Systems must be established so that the persons involved in tests can quickly reach the scene at the request of police officers if an urgent need arises to ensure traffic safety and the smooth flow of traffic.
 - (c) The test plan must include measures to move test vehicles safely after they stop in a safe manner in a situation in which the remote control of vehicles is difficult due to a malfunction of the remotely-controlled automated driving system or another problem.
 - (d) The test plan must include safety measures, in consideration of the fact that there is a time lag before responding to communications and that the surrounding conditions that remote monitor-operators (meaning monitor-operators at a place remote from test vehicles that are running using the remotely-controlled automated driving system to which the application pertains, and who monitor or operate and drive the vehicles while utilizing the remotely-controlled automated driving system, depending on the conditions; the same applies hereinafter) can ascertain may be limited.
- * Examples of Safety Measures
- Making sure that test runs are not conducted in a situation where problems such as bad weather, including heavy rain or dense fog, prevent remote monitoring cameras from recording clear video, including of the surroundings of test vehicles
 - Using lead vehicles or employing guide staff

(4) Structure of Test Vehicles, etc.

- a. General Matters
 - (a) Test vehicles must comply with the provisions of the Standards on Safety of Road Transport Vehicle (Order of the Ministry of Transport No. 67 of 1951) (including cases where the relaxation of the said Standards applies to the vehicles).
 - (b) Entities that perform tests must ascertain that the test vehicles can run safely on the public roads on which the demonstration tests are scheduled to be conducted by

conducting test runs that consider conditions and situations that may occur in planned demonstration tests in testing or other facilities. When the entities plan to drive test vehicles with passengers, they must ascertain that the vehicles can be operated in full consideration of the safety of the passengers, through the prevention of sudden braking and other measures and by anticipating possible situations, as much as possible.

- b. Matters regarding Demonstration Tests of the Remotely-controlled Automated Driving System on Public Roads
 - (a) Remote monitor-operators must be able to operate the test vehicles' braking function properly.
 - (b) Even in cases where test vehicles run at the maximum speed to which the application pertains, remote monitor-operators must be able to ascertain, via video and audio, the surrounding conditions of test vehicles and the conditions in the directions in which the vehicles are moving to the same extent as drivers of ordinary motor vehicles are able.
 - (c) Test vehicles must be able to stop automatically and safely, if the time required to respond to communications is longer than the certain expected time.
 - (d) When it is planned to drive test vehicles with passengers, remote monitor-operators must always be able to ascertain the situation in the vehicles via video and talk to the people in the vehicles by phone if necessary.

(5) Persons Who Will Work as Monitor-Operators

- a. Such persons must have received education and training (*) to monitor and operate test vehicles safely (including emergency responses) from the entities that perform tests.

*** Content of Education and Training**

- Making monitor-operators aware that they are always subject to obligations and to fulfill the responsibilities imposed by the Act on drivers
- Making sure that they have learned the knowledge and skills needed to monitor and operate test vehicles safely and smoothly (*)
 - * In cases of demonstration tests of the remotely-controlled automated driving system on public roads, making sure that they recognize that there is a time lag before responding to communications and that the surrounding conditions that remote monitor-operators can ascertain may be limited.
- Making sure that they have learned the knowledge and skills to respond to emergencies
- Making sure that they have learned all other knowledge and skills necessary to be a monitor-operator

- b. Monitor-operators must have the necessary driver's license (excluding the provisional driver's license), depending on the type of test vehicle.
- c. If it is planned to drive test vehicles to transport passengers as part of a passenger motor carrier service, monitor-operators must have the necessary class 2 driver's license.

(6) Screening Criteria for Demonstration Tests of the Remotely-controlled Automated Driving System on Public Roads Where One Remote Monitor-Operator Operates Several Test Vehicles

- a. It must be ascertained that demonstration tests of each test vehicle on public roads where one remote monitor-operator drove one test vehicle using the remotely-controlled automated driving system have already been conducted at the place of the tests, and that each test vehicle can run safely using the said system at the said test place on public roads (*).

* When increasing the number of test vehicles to be monitored and operated at the same time, the number must be increased by one in principle, and the application for permission for road use must be made each time as a new test.

- b. Remote monitor-operators must be able to ascertain the surrounding conditions of all the test vehicles and the conditions in the directions in which the vehicles are moving at the same time via video and audio.
- c. The test plan must include safety measures (*), in consideration of the fact that while remote monitor-operators remotely control one test vehicle in motion, it may become difficult to monitor and operate the other vehicles.

* Examples of Safety Measures

- Stopping other test vehicles safely and automatically
- Establishing systems so that additional remote monitor-operators can swiftly start to monitor and operate other test vehicles

2 Period of Permission

The period of permission is, in principle, up to six months, depending on the traffic conditions at the test place.

3 Conditions Imposed on Permission

(1) Place, Time and Date of Test, etc.

- a. General Matters

Test vehicles must be driven only in a manner in accordance with their respective test plan, at the place, time and date to which the application pertains.

b. Matters regarding Demonstration Tests of the Remotely-controlled Automated Driving System on Public Roads

- (a) Persons other than those who will work as remote monitor-operators to whom the application pertains must not drive the test vehicles using the remotely-controlled automated driving system.
- (b) Test vehicles must not be driven without using the remotely-controlled automated driving system to which the application pertains (excluding cases where drivers are in test vehicles).
- (c) Copies of the driver's licenses of the remote monitor-operators must be kept in test vehicles.

c. Matters regarding Demonstration Tests of Specially-equipped Motor Vehicles on Public Roads

In-car monitor-operators who meet the following (a) and (b) criteria and to whom the application pertains (meaning in-car monitor-operators in cases where test vehicles are specially-equipped motor vehicles) must be in the test vehicles.

- (a) Screening must be passed to check whether the said test vehicles can be driven manually in accordance with the laws and regulations in the testing or other facilities, with police officers or police officials (meaning, in principle, those who are or used to be examiners of driver's license tests; hereinafter referred to as the "police officers, etc.") in the vehicles (such screening is hereinafter referred to as the "in-facility screening").
- (b) After the in-facility screening is passed, screening must be passed to check whether the said vehicles can be driven manually on all sections of the road, in principle, where the demonstration tests are planned, without causing traffic accidents and in accordance with the laws and regulations, with police officers, etc., in the vehicles (such screening is hereinafter referred to as the "on-road screening"); however, this shall not apply to driving the test vehicles to the on-road screening.

(2) Conditions Imposed in Cases Where Autonomous Driving of Test Vehicles is Conducted

Autonomous driving for demonstrative purposes toward the practical application of automated driving in demonstration tests (hereinafter referred to as the "actual driving") must be conducted after police officers, etc. who are in test vehicles confirm that the test vehicles can run safely and securely (such confirmation is hereinafter referred to as the "screening on public roads") (*).

* Content of the Screening on Public Roads

- The screening shall be conducted at the time, date, etc., which correspond to the environment for which the actual driving is planned (such as whether at daytime or nighttime, the traffic volume, etc.)
- Autonomous driving shall be conducted on all sections of the road where the actual driving is planned, in principle, to confirm that:
 - test vehicles do not cause traffic accidents or malfunctions, including those of the automated driving system;
 - test vehicles comply with the laws and regulations; and
 - test vehicles can run basically in an autonomous manner, except in cases where human intervention is especially necessary (in cases of the screening on public roads where one remote monitor-operator drives two or more test vehicles, the vehicles must be able to run autonomously without the intervention of the remote monitor-operator).
- In addition, it shall be confirmed whether necessary operations in the event of an emergency can be conducted, such as the intervention of the monitor-operator to stop test vehicles safely.

(3) Manner of Driving

- a. Monitor-operators must always monitor the surrounding conditions of test vehicles and the conditions in the directions in which the vehicles are moving as well as the status of the vehicles while they are in motion, and they must be ready to conduct necessary operations immediately in the event of an emergency (*).
 - * If test vehicles run using automated driving devices under the conditions for use imposed on them, monitor-operators must monitor the surrounding conditions of test vehicles and the conditions in the directions in which the vehicles are moving as well as the status of the vehicles as necessary while they are in motion and be ready to conduct necessary operations immediately.
- b. It must be ensured that the visibility and operations of monitor-operators are not obstructed when they drive the test vehicles.
- c. In cases where passengers are in the vehicle, necessary measures must be taken to ensure their safety, including the checking by the monitor-operators or the persons assisting them of passengers getting into and out of the vehicles.
- d. Other necessary measures to drive safely on public roads must be taken, depending on the structure and performance of test vehicles, as well as the time, date and place to which the application pertains.

(4) Measures in the Event of a Traffic Accident, etc.

a. General Matters

- (a) Measures must be taken to allow for the examination of the cause of the accident and other issues in the event of a traffic accident or other emergency, including mounting dash board cameras, event data recorders or other devices on test vehicles to record conditions in front of, behind and in the vehicles, as well as information on the status of the vehicles, and recording various data and the status of sensors, etc. (*), such as video and audio data showing how monitor-operators operate the vehicle and, information on the status of the vehicles collected mainly through sensors attached thereto, and these data must be stored properly.

* Including communication logs in cases of demonstration tests of the remotely-controlled automated driving system on public roads.

- (b) In the event of a traffic accident during a demonstration test on public roads, the test must be discontinued and recordings and other data in (a) above must be stored and utilized properly, including the submission of such data to the relevant authorities, if necessary.
- (c) Materials on the structure of test vehicles, how to stop them and other matters that are related to the vehicles and necessary for firefighting activities as well as materials on the time and date of demonstration tests and other matters related to the content of the tests must be submitted in advance to the relevant fire departments, and explanations must be made to the said departments so that firefighters can conduct their firefighting activities properly in the event of a traffic accident or other emergency.
- (d) If a malfunction of the automated driving system or another problem caused a traffic accident that led to the demonstration tests being discontinued, and if the resumption of such tests is planned, the application for permission must be made only after the cause of the accident is identified and measures to prevent its reoccurrence are taken.

b. Matters regarding Demonstration Tests of the Remotely-controlled Automated Driving System on Public Roads

It must be ensured that, in the event of a traffic accident, those in the test vehicles are requested to cooperate in taking measures, including in rescue measures and measures to prevent hazards on the road.

(5) Other Matters

These matters include matters necessary to ensure traffic safety and the smooth flow of traffic in consideration of road or traffic conditions.

4 Guidance Matters Pertaining to Permission

(1) General Matters

- a. Entities that perform tests must endeavor to secure sufficient capacity to compensate for damages by subscribing to voluntary insurance, in addition to the Automobile Liability Insurance.
- b. In cases where entities that perform tests offer a passenger motor carrier service, they must refer to and utilize guidelines that stipulate the matters necessary for the providers of such a service that adopt automated driving vehicles to ensure safety and convenience, as well as other documents.
- c. As the screening criteria and conditions for permission are the minimum standards, monitor-operators must drive safely, depending on the functions of the automated driving system and the actual traffic conditions, while entities that perform tests must endeavor to collect information on preventive-safety technologies and technologies to mitigate damage after collisions and consider the introduction of new technologies, as necessary.
- d. Monitor-operators must carry their driver's license with them.
- e. The documents, etc., which must be made available or indicated in motor vehicles by the laws and regulations must be made available or indicated in test vehicles.
- f. The permission for road use or a copy thereof must be kept in test vehicles.
- g. Entities that perform tests must promote or explain the content of tests and other matters to the concerned parties, including to local residents, in advance.
- h. Entities that perform tests must consult with the competent road administrator for the test place in advance and inform the latter promptly of any traffic accident or emergency.
- i. A malfunction relating to the safety of the automated driving system while the test vehicles were in motion or an anomalous incident that caused significant inconvenience to other people while the vehicles were in motion (*) must be immediately notified to the competent police station chief, and measures to prevent its reoccurrence must be reported to him or her.

* Examples of Anomalous Incidents

- Near miss incidents in which test vehicles failed to slow down or stop when they were supposed to do so due to a malfunction of the system or another problem while they were approaching vehicles ahead or turning right or left, and monitor-operators switched to driving manually and made an abrupt stop or took other measures to prevent a traffic accident

- Cases where a malfunction of the system or another problem caused test vehicles to stop abruptly while in motion, which prevented the following vehicles from proceeding
- j. The Road Traffic Act and other relevant laws and regulations must be complied with.
- k. Other matters deemed appropriate to ensure traffic safety and the smooth flow of traffic in consideration of road or traffic conditions.

(2) Matters regarding Demonstration Tests of the Remotely-controlled Automated Driving System on Public Roads

- a. Based on the Basic Act on Cybersecurity (Act No. 104 of November 12, 2014) and other laws and regulations, efforts must be made to secure appropriate cybersecurity in order to conduct demonstration tests on public roads safely.
- b. Measures must be taken to prevent others from driving test vehicles when remote monitor-operators are away from the remote-control devices.

5 Notes

In cases where remote monitor-operators use the system that allows them to drive or operate the said vehicles utilizing telecommunications technology by using special devices other than ordinary wheel and brakes, remote monitor-operators shall be subject to obligations imposed by the Act on drivers. In addition, they must undergo and pass the in-facility and on-road screenings in the same manner as in 3 (1) c.

Moreover, in cases of demonstration tests of the remotely-controlled automated driving system on public roads using specially-equipped motor vehicles as test vehicles, it is the remote monitor-operators who shall be subject to obligations imposed by the Act on drivers even when persons assisting them are in the vehicles. On the other hand, in the event that the said test vehicles stopped during the said demonstration tests, making it difficult to control the vehicles remotely due to a malfunction of the remotely-controlled automated driving system or another problem, leading to manual operations to move the said test vehicles with special devices equipped in the vehicles other than ordinary wheel and brakes, the persons who conduct the said operations must have undergone and passed the in-facility and on-road screenings as shown in 3 (1) c. In such a case, the persons who conduct the said operations shall be subject to obligations imposed by the Act on drivers.

[Reference] Stopping Distance, etc., of Ordinary Motor Vehicles

Speed (km/h)	With a Friction Coefficient of 0.7	
	Stopping Distance (m)	Stopping Time (sec.)
5	1.18	0.95
10	2.64	1.15
15	4.40	1.36
20	6.42	1.56
25	8.72	1.76
30	11.31	1.96
35	14.18	2.17
40	17.33	2.37
45	20.77	2.57
50	24.48	2.77
55	28.47	2.98
60	32.75	3.18
65	37.30	3.38
70	42.14	3.58
75	47.26	3.79
80	52.66	3.99
85	58.34	4.19
90	64.30	4.39
95	70.55	4.60
100	77.07	4.80

*1 The table above shows the stopping distances and times (rounded to the nearest hundredth) according to speed in the event that the driver of an ordinary motor vehicle suddenly applies the brakes (assuming an idle running time of 0.75 seconds) on a road surface with a friction coefficient of 0.7 (assuming a dry, flat pavement surface). These figures are generally referred to by the police when investigating traffic accidents.

*2 The stopping distance (the stopping time) is the sum of the distance that a vehicle travels from when its driver senses danger and applies the brakes to when the brakes actually start working (the duration of time for this) and the distance that the vehicle travels from when the brakes start working to when the vehicle comes to a stop (the duration of time for this).