

SIP-adus Workshop 2020



Efforts of Road Transport Bureau, MLIT For the Realization of Automated Driving

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Main effort

1. Improving the environment to realize automated driving

- (1) Safety regulations formulation and system development related to cars
- (2) System / environment improvement to realize the automated driving

2. Promoting the development and spread of automated driving technology

- (1) Car technology
- (2) Road and cars cooperation technology

3. Demonstration experiments and social implementation to realize automated driving

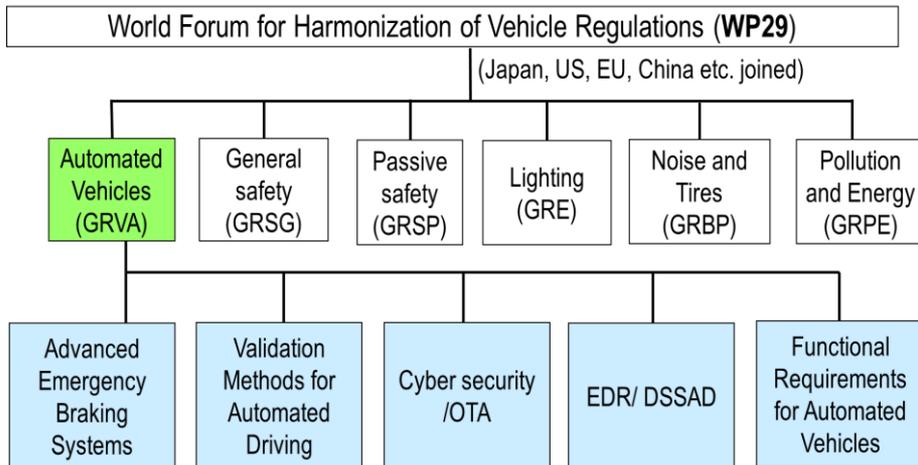
- (1) Improvement of moving services
- (2) Improvement of logistics productivity

Overview of International Regulations Consideration System for Automated Driving Technology

Challenges related to automated driving, and the international efforts in Japan

- Through the cooperation of industry, academia and government, efforts are being made toward the realization of automated driving and The Ministry of Land, Infrastructure, Transport and Tourism (MLIT), under the leadership of the Automated Driving Strategy Headquarters (headed by MLIT), is steadily developing rules to ensure vehicle safety and other aspects of automated driving.
- On the other hand, challenges related to automated driving are the same worldwide, and mutual international cooperation is essential for establishing international safety standards.
- At the UN WP.29 (World Forum for Harmonization of Vehicle Regulations), Japan led the discussions on regulations on automated driving as the co-chair or vice-chairmen. Finally, international regulations for automated driving, such as lane keeping, cyber security measures etc., were established.

International standards review system and the considered items for automated driving technology



< Regulations already adopted >

Level 2:

- Automatic parking (Remote control parking)
- Automatic steering with hands posed on the wheel (Lane keeping/Lane change)

Remote control parking



* Nissan Motor Co., Ltd. website

* BMW HP

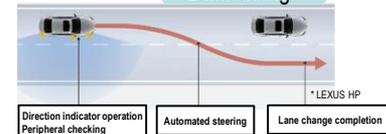
Lane keeping



* Honda Motor Co., Ltd. website

* LEXUS HP

Lane change

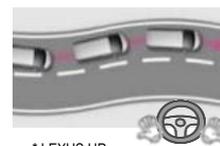


* LEXUS HP

< Regulations adopted this time >

Level 3:

- Automated Lane Keeping System



* LEXUS HP



* Hino Motors, Ltd. website

【Common to all levels】

- Cybersecurity
- Software update



Act for Partially Revising the Road Transport Vehicle Law

Summary of the act

1. Addition of automated operation devices to security regulations targeted devices
2. Organizing corporations that conduct administrative work related to the management of technical information necessary for electronic inspection of automobiles
3. Mandatory provision of technical information necessary for expanding the scope of maintenance by disassembly / inspection
4. Establishment of a permission system related to remodeling, etc. by modifying programs incorporated in automatic operation devices, etc.
5. Others

Act for Partially Revising the Road Transport Vehicle Law

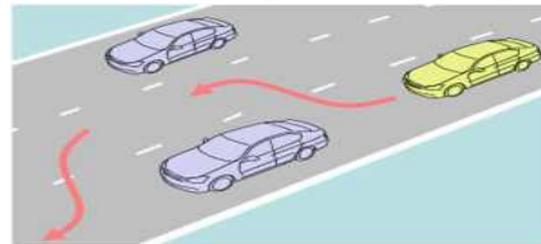
Summary of the act

1. Addition of “automated operation devices” *1

- “Automated operation devices” is added to the targeted device of the safety regulations.
- The Minister of MLIT shall grant conditions (Operational Design Domain) the operation of the automated operation devices.

[Effective date] * April 1, 2020

Car lane changes on highways



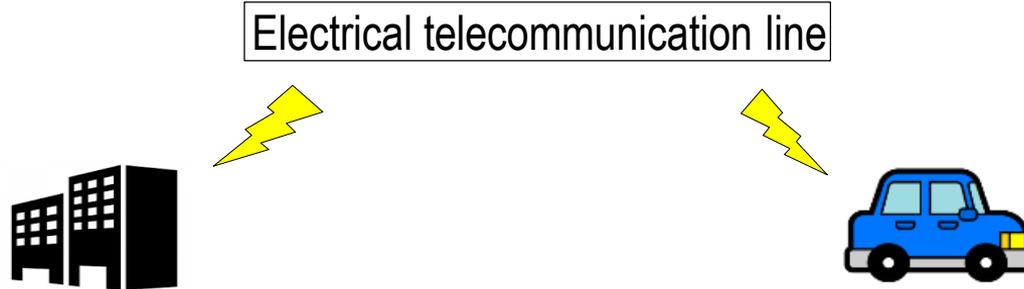
Automated operation devices

- equipment for operating a car automatically according to the program, and the equipment with the function of substituting all of the capabilities related to the recognition, prediction, judgment and operation of a person, who operates the Vehicle, when it is used under the conditions granted by the Minister of MLIT
- Including measures to record information necessary for confirmation of operating status

Act for Partially Revising the Road Transport Vehicle Law

Summary of the act

4. Establishment of a permission system related to remodeling, etc. by modifying programs incorporated in automated operation devices, etc. *4
- Establishment of permitting system related to acts such as the use of telecommunication lines, etc. that are modifications, by changing of programs incorporated in automatic operation equipment, etc. It is also the modification, if the contents are not appropriate, the car may not comply with the safety regulations.
 - Let NALTEC conduct a technical review of the work related to permission



[Effective date] * 4: November 23, 2020

Overview of Safety Regulations for Automated Operation Devices

- In March 2020, the safety regulations for automated operation devices were formulated.

Safety regulations for automated operation devices

1. Performance
 - (1) There shall be no risk of interfering with the safety of passengers or other traffic within the operating environment.
 - (2) It shall not be operated outside of the operating environment.
 - (3) Safe operation shall be continued until the driver takes over, and the vehicle shall be stopped safely if he or she does not take over. An alarm to alert the driver before taking over driving operation shall be made before leaving the standard operating environment,
 - (4) The vehicle shall be equipped with driver monitoring to monitor the driver's condition.
 - (5) Measures shall be taken to ensure cyber security to prevent unauthorized access, etc.
2. Operation status recording equipment
 - ON / OFF time of the automated operation device
 - Time when the alarm was triggered to take over driving
 - Time when the driver became unable to respond, etc. must be able to be recorded for 6 months (or 2,500 times).
3. External Indication
 - A sticker indicating that the vehicle is an automated driving vehicle shall be attached to the rear of the vehicle (request made to the manufacturer).



Procedure for granting the Operating Design Domain

- (1) The applicant must submit an application describing the location, weather, speed, and other conditions that make automated operation possible to the minister of the MLIT
- (2) If the minister finds that the performance of the automated operation system under the relevant conditions conforms to the safety regulations, the minister shall grant the conditions (issue a grant certificate).

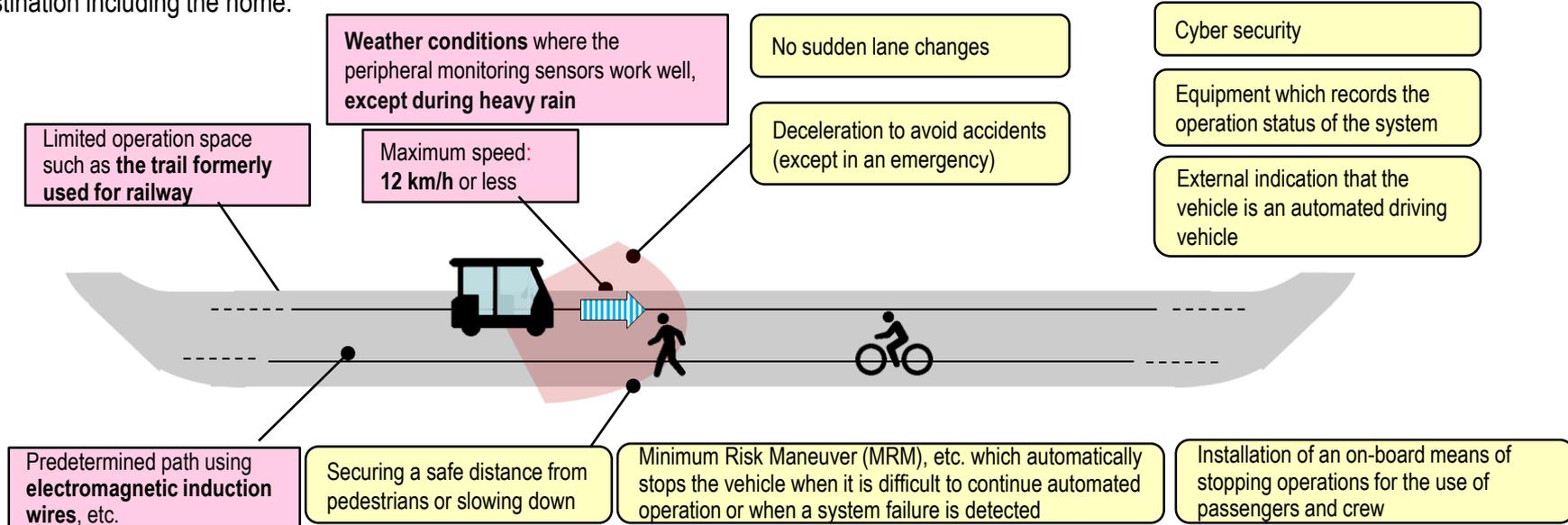


Overview of Guidelines for "Last-mile Automated Driving Vehicle System"

- There are several points to be noted during the designing of the last-mile autonomous driving vehicle system, which contributes to securing the means of transportation in local regions, in order to ensure conformity with the safety regulations of automated driving vehicles. At the "Advanced Safety Vehicle (ASV) Promotion Consideration Group", which is composed by the cooperation of industry, academia and government, such points shall be summarized and publicized as the guidelines.

Last-mile automated driving

- Moving by automated driving (levels 3 and 4) within a narrow and limited area of about one mile, such as between the nearest station / bus stop and a certain destination including the home.

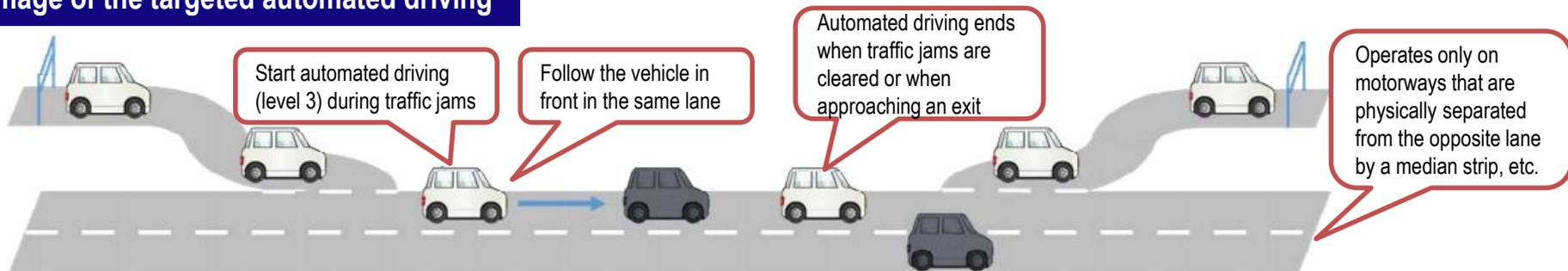


Overview of International Regulations of Automated Operation Devices

Situation so far

- In June 2019, at the UN WP.29 (World Forum for Harmonization of Vehicle Regulations), an agreement was reached on the framework document for automated driving (international guidelines and regulations development schedule for automated vehicles, etc.)
- Japan took on the post of a co-chair, etc. at expert meetings under the umbrella of WP29, and lead the discussions by the all-Japan system where both the public and private joined.
- The regulations were established at the WP29 plenary session held in June 2020.

Image of the targeted automated driving



Main requirements

- When An alarm to alert the driver before taking over driving operation is made, the control shall be continued until the driver takes over. If the driver does not take over, the risk minimization control shall be activated to stop the vehicle.
- Driver monitoring shall be installed to monitor that the driver is ready take over the driving operation.
- Measures to ensure cyber security to prevent unauthorized accesses, etc. shall be taken.
- Operating status recording equipment, which records the ON / OFF time of the automated operation system or failure occurrence, shall be installed.

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Thank you

