

Japanese position about MRM-LC

#8 ALKS-SIG
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Japan

Current Options for MRM LC

In and after last session of SIG, we have 2 options regarding mandatory fitting of MRM-LC as follows,

Option 1, from 07-03

5.2.3.1. Speed

The manufacturer shall declare the specified maximum speed based on the forward detection range of the system as described in paragraph 7.1.1.

The maximum speed up to which the system is permitted to operate is ~~60~~130 km/h.

Specified maximum speeds of more than [60] ~~[100]~~ km/h shall only be permissible if the ALKS is capable of bringing the vehicle to standstill on the hard shoulder during an MRM according to par. X.x.x.

Option 2, from OICA in e-mail on 9th July

5.2.3.1. Speed

The manufacturer shall declare the specified maximum speed based on the forward detection range of the system as described in paragraph 7.1.1.

The maximum speed up to which the system is permitted to operate is ~~60~~130 km/h.

Operational speeds of more than [60 km/h] are permitted either

- up to [90]km/h exclusively in the slowest lane of travel, provided there is surrounding traffic travelling at a similar speed (e.g. dense traffic or following a lead vehicle) or
- in all lanes of travel, if the ALKS is capable of changing lanes to bring the vehicle to a standstill outside of the regular lanes of travel during an MRM according to par. Xxx.

[Systems that operate up to [90]km/h without lane change capability shall implement strategies to minimize the risk of stopping in lane to the vehicle occupants and other road users, e.g. adapted deceleration strategy, operation only under good visibility.]

Our observation of OICA doc by 07-15

LC capabilities for increased maximum operational speed

We do not think this is correct. Society and traffic law do not permit/accept stopping in lane even when it is the slowest lane and there is no hard shoulder.

What is **already/commonly accepted**:

Stopping in any lane in slow-moving traffic
 (as defined in UN-R157)



Stopping in the slowest lane when there is no hard shoulder



There are circumstances in which a LC is not going to be possible, even if the system is capable of it (e.g. with a stopped line of vehicles on the slowest lanes, or in case of severe failure)

What are the **points of concern** in the discussion:

Stopping the vehicle in the slowest lane in free flowing traffic
 Industry is convinced there is no safety concern related to this, as this (a) occurs today as well and (b) the MRM will hardly ever bring the vehicle to standstill

Stopping in the slowest lane
 Agreement that this should not occur and should be addressed in the regulatory provisions

Stopping a vehicle in a fast lane of travel could be an obstacle.
 Industry that this should not occur. This is already prevented by requesting the ALKS to comply with the regulation to drive in the slowest lane where necessary to not drive unreasonably slow

There are big safety concern about stopping in lane. Actually, there are a lot of accidents in such case, see following slide.

That should not be the reason why ADS dose not need to have MRM-LC. We should try to reduce such dangerous situation.

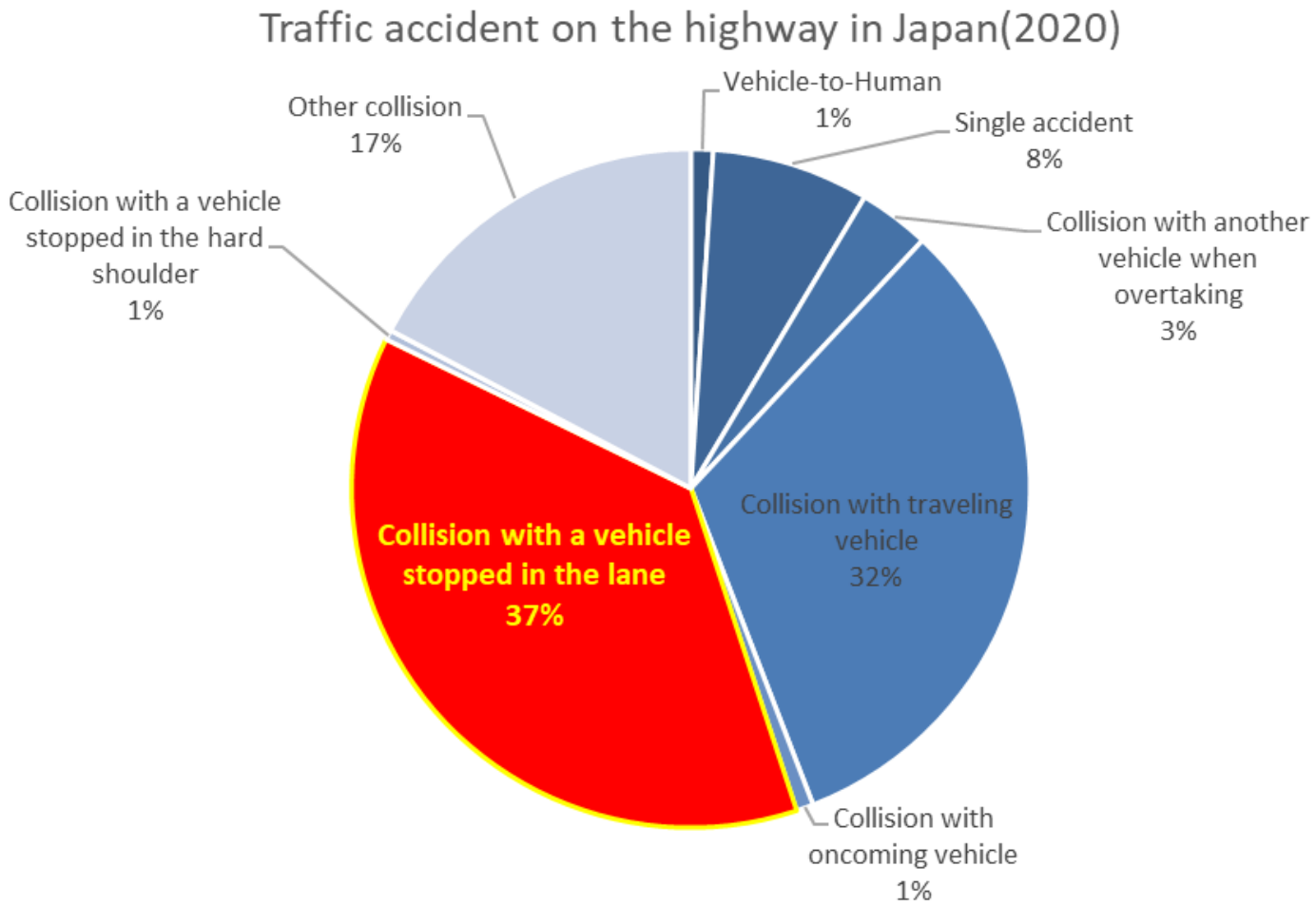
But we have one **assumption that applies to all**

safety concern:

As numerous studies have shown the driver can be expected to resume control within 10s after the initiation of the transition demand. So the driver will almost always have resumed control before the MRM would have brought the vehicle to standstill!

Accidental data

According to our accidental data, about 40% of all highway accidents (total: 4649 accidents) is collision with a vehicle stopping in the lane. Therefore, we try to avoid such situation that ADS stops in its lane for avoiding accidents.



Our position

We do support Option1 because we should avoid the situation such that ADS stopping in lane.

Because MRM lane change is to avoid high-risk situation such that ADS stops within lane in smooth traffic flows, we do not need to request same level as RLC. We can accept similar level to RMF, which is more relaxed than RLC.

Regarding Option 2, we can consider it **only if** there is data which indicates that following vehicle can avoid collision with stopping vehicle in 90 km/h. However we have never seen such data.

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Specified maximum speeds of more than [60] ~~[100]~~ km/h shall only be permissible if the ALKS is capable of bringing the vehicle to standstill on the hard shoulder during an MRM according to par. X.x.x.

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