



Department
for Transport

Concept for ODD-based application of non-ADS requirements

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UK-commissioned research

- The UK Department for Transport commissioned research into potential technical requirements for Low-Speed Automated Vehicles (LSAV). Part of this research was into ‘non-ADS’ requirements.
- For the purposes of the research, the scope was limited to:
 - Non dual-mode vehicles (i.e. no conventional driving controls/position);
 - Maximum design speed 32 km/h (20 mph); fully-electric
 - Maximum mass 5000kg (passenger), 3500kg (goods).
- Full report can be found here: <https://doi.org/10.58446/dxiy5599> (specifically section 3.2.1.1)
- The report suggests that two levels of occupant protection could be offered for LSAVs, similar to the approach currently applied to buses and minibuses.
- **The report and its recommendations were produced under a contract with the Department for Transport. The views expressed in the report are not necessarily those of the Department for Transport. These slides are presented to facilitate discussion in the Task Force(s), and are not to be considered as proposals by the United Kingdom.**



Passenger vehicles - current situation

M1

- No standing passengers
- Seat belts mandatory
- Side-facing seats prohibited
- Full crashworthiness requirements generally apply, except above mass limits

M2 / M3

Many technical requirements depend on vehicle 'class':

- Seated / standing passengers
- Seat belt anchorages (R14)
- Seat belts (R16)
- Burning behaviour of materials (R118)
- Crashworthiness (rollover) (R66)
- Endurance braking performance (R13)
- LDWS (R130) / AEBS (R131)
- Various interior arrangements (R107)

[note]

- *Class A / I – 'city buses' / minibuses*
- *Class B / III – 'coaches'*
- *Class II – hybrid of class I / III (e.g. inter-urban / regional)*

**In the application for type approval,
the manufacturer declares the ‘class’
of bus.**

**The sanctioning of a given vehicle
class for its use is often regulated by
national / local authorities.**

Crashworthiness Approval Levels (CAL)

The **LSAV** research suggested two levels of crashworthiness for light passenger vehicles, dependent on operating environment:

- **CAL Standard:** based on car requirements, for all operating environments including those with a higher risk of collision and/or higher collision consequences.
 - Occupant restraint:
 - Standees: not permitted
 - Seated: Fitment of 3-point belts and head restraints, impact friendly interior, etc.
 - Crashworthiness:
 - Front, rear, and side impact tests
- **CAL Reduced:** based on Class A bus requirements, for operating environments with a low risk of collision and/or low consequences
 - Occupant restraint:
 - Standees: permitted, with requirements for handrails/handholds, etc. - as per R107
 - Seated: side-facing seats permitted; guard or at least 2-point safety belt for exposed seats
 - Crashworthiness:
 - No requirements

Similar to buses, manufacturers could declare the 'CAL' at the time of application for approval.

Likewise, the sanctioning of a vehicle sub-category for its deployed ODD could be regulated by national / local authorities at the time of deployment / licencing

Whilst the concept noted considers crashworthiness / occupant restraints, it could also be considered for other technical requirements.

Alternative provisions which depend on the deployed ODD could be applied by national / local authorities.