4.2 Security

4.2.1 Protecting the driver

All buses shall be fitted with a partition screen separating passengers and the driver.

The driver partition screen shall not include speech holes. The design must allow adequate two-way driver/passenger communication that is accessible to all customer groups. This can be achieved with or without additional communication devices, such as passive or electronic two-way communication systems, and shall be demonstrated in accordance with the Communication Test Protocol, [Attachment x (*under development*)].

The driver's partition screen, including its mountings, the structures supporting it and the hinges and catches forming part of any section designed to open to allow driver access and egress, shall be designed to:

- Protect the driver from sustained physical attack from any person.
- Reduce substantially the drivers exposure to pathogen contaminated respiratory droplets and aerosols.
- Minimise the likelihood of a pressurised spray and/or fluids directed at the screen from passing through at any point.
- Be tamper proof with all critical components designed to be difficult to forcibly remove.

The screen, and any communication system hardware mounted in it, shall:

- Be free from rattles during normal driving.
- Not have any uncovered openings or holes.
- Not have doors, hatches, flaps or covers that can be opened or removed without the use of tools or keys.
- Be fitted with a flexible seal, draught seal or other flexible arrangement to close gaps where they exist, including those around its outer edges, around the driver's door and near equipment.
- Be easy to clean and provide adequate access to do so.

For vision assessment:

- The screen shall not restrict or distort driver view to passenger entrance, interior and exterior mirrors or forward exterior view.
- The screen shall be made of transparent materials with a transmittance value of >70%.
- For clarity, the screen shall be included in the Bus Vision Standard Test and Assessment Protocol, Attachment 19.
- The screen shall be free of substantial reflections, and will be assessed for glazing angle as per Attachment 19.
- Fixing, joining and sealing materials shall either be similarly transparent to the screen or their area minimised.

Screen materials shall:

- Be impermeable to air.
- Be durable and long lasting.
- Be resistant to discolouration, scoring or cleaning chemical damage.
- Not require regular replacement as part of a maintenance process of equipment, including the Electronic Ticket Machine (ETM) and validator.
- Be rigid material with the relevant markings showing type-approval conformity.
- Resistant to mould growth.

The driver must be further protected by an independent “siren/common network fleet sound” assault alarm also activating the bus hazard lights.

The driver’s cab signalling window shall be resistant to assault or protected by a device resistant to assault.

4.2.2 Discouraging pickpockets

Passenger seats shall be suitably designed to restrict the potential of pickpockets to operate whilst utilising the seating immediately rearward.

4.3 Driver Assist

4.3.1 Acceleration performance

The combined engine and transmission acceleration controls shall limit the bus to a rate that provides the driver with adequate driving acceleration in the fully laden condition, whilst not subjecting the passengers to excessive forces that potentially cause the passengers to become unstable. The maximum rate of acceleration shall be less than 1.2m/s^2 under all load conditions.

4.3.2 Advanced Emergency Braking (AEB)

This requirement only applies to new vehicles entering the fleet from 2024 as per the Bus Safety Roadmap for new build buses

It should be noted that AEB is intended to operate only in the last second or two before an imminent collision. The driver remains responsible for all aspects of driving, including collision avoidance, at all times.

Buses shall be fitted with AEB systems complying with the following requirements:

- It shall be tested in accordance with LBSL’s Automated Emergency Braking Assessment Protocol (Attachment 15) and it must attain a performance score greater than zero.
- The bus OEM must produce documentary evidence for LBSL approval to demonstrate that on average they would expect false positive activations in mixed London traffic less frequently than once every [600,000]km per vehicle.
- The bus to which AEB is fitted must have been assessed in accordance with the LBLS’s Occupant Friendly Interiors Assessment Protocol (Attachment 34)