



Transmitted by the expert from Japan

Informal document No.GRSP-41-31

(41th GRSP, 7-11 May 2007 agenda item 18.4.)

Passenger's Safety in Sleeping Coaches

- A passenger on the berth and seat -





INTRODUCTION

- Highway bus in Japan:
 - the annual user reached 84,355 in 2006
 - there are 187 companies (1730 lines) in 2006
- Sleeping coaches were well driven in Europe and China, on the other hand, they were not in Japan.
- Japanese bus companies are willing to introduce the sleeping coaches in a near future.
 - a possibility of injury risk for passenger in a running condition of a braking or slalom.
- From 2008, Japan will regulate the seat belt in passenger for bus (Class II and III).
FYR, Japan will also regulate the seat belt in vehicle occupant in rear seat from 2008.

Purpose

To investigate the effect of seatbelt for passengers for highway bus and sleeping coach under a braking or slalom running condition.





Test Procedure

- Braking test :
stable deceleration from speed of 80km/h
change (increase) deceleration level till the dummy start
to remove from the seat/berth
- Slalom test :
increase steering wheel angle gradually till the dummy start to
remove from the seat/berth





Seat type 1: luxury

Hybrid II pedestrian



Seat type 2: normal



Seat type 3: berth





Braking Test





A dummy Behavior of Braking Test





Slalom Test



A dummy Behavior of Slalom Test





Test Results

Type of test procedure	Seatbelt	Seat type		
		Luxury	Normal	Berth
Brake / Slalom	Without	○ / ○	△ / △	N / ○
	With	○ / ○	○ / ○	○ / ○

○ : a dummy was retained on the seat/berth.

△ : a dummy was removed slightly from the seat/berth.

N: a dummy was removed drastically from the seat/berth.



CONCLUSION

- The seatbelt was effective on keeping the passenger (dummy) on the seat/berth under the running condition of braking or slalom.
- During braking test:
 - The passenger on the berth without seatbelt was not retained (sliding).
 - The passenger on a seat without seatbelt was retained.
- The passenger on the luxury seat with or without seatbelt was retained under the running condition of braking or slalom.



Thank you for your attentions!

