

Relationship of Impact Location between Leg and Head in Lateral Car to Pedestrian Impact

10th IWG-DPPS
March 2021

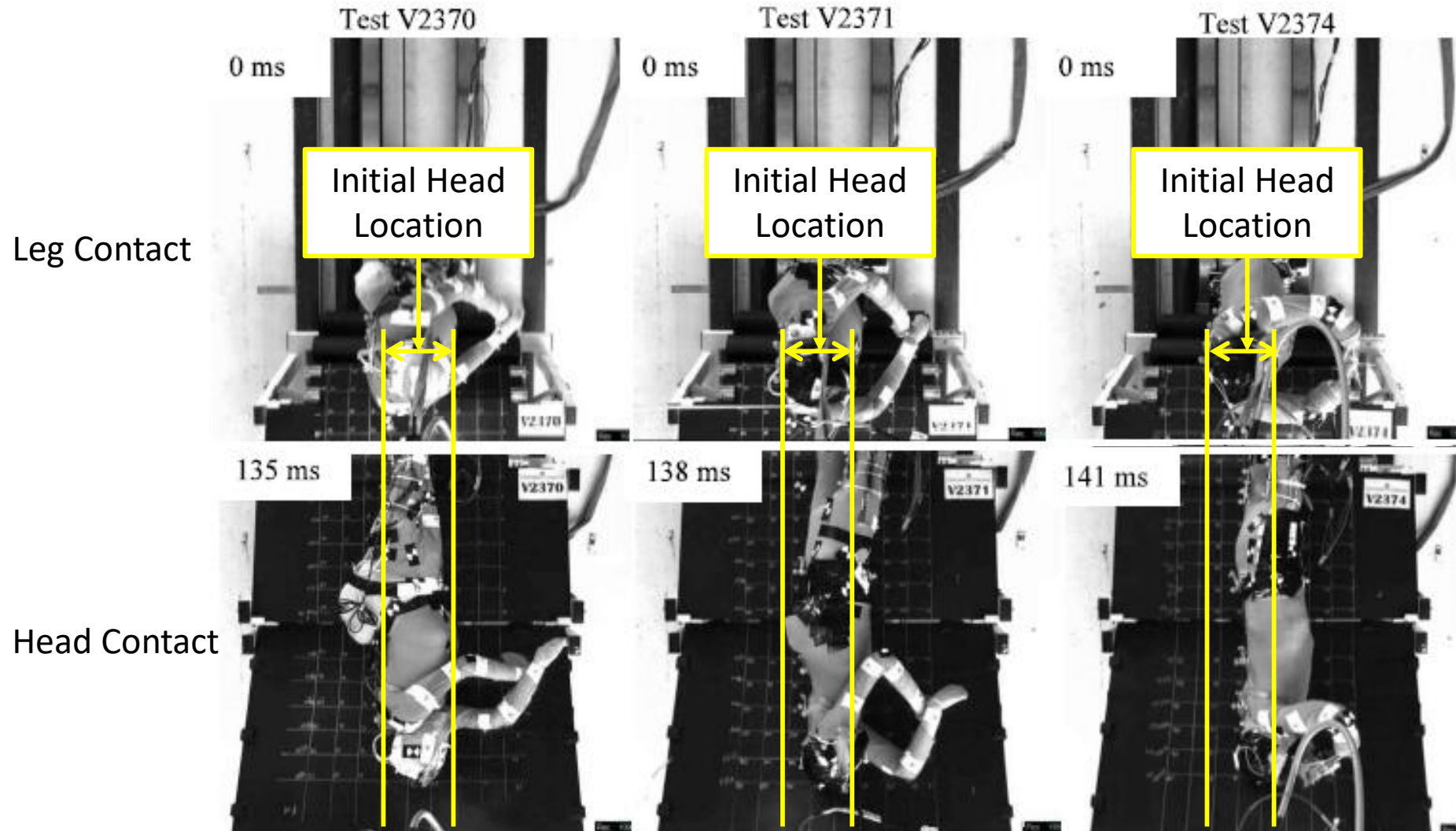


JAPAN AUTOMOBILE STANDARDS INTERNATIONALIZATION CENTER

Test Results

PMHS vs SAE Buck @ 40km/h

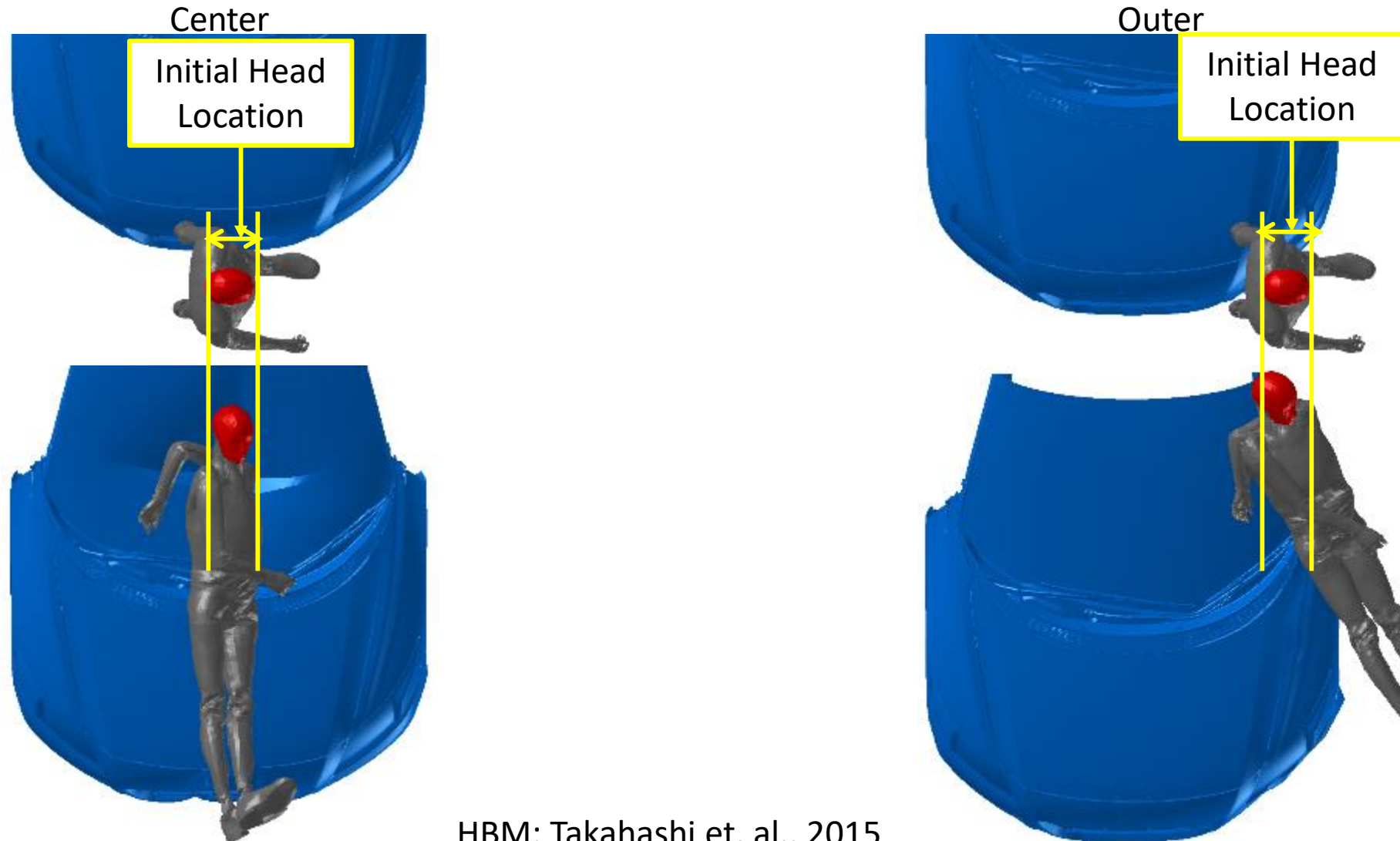
Forman et al., Stapp car Crash Journal Vol59, pp. 401-444, 2015



Lateral movement of the head until HIT seems to be small

Simulation Results

HBM vs Small Sedan @ 40km/h

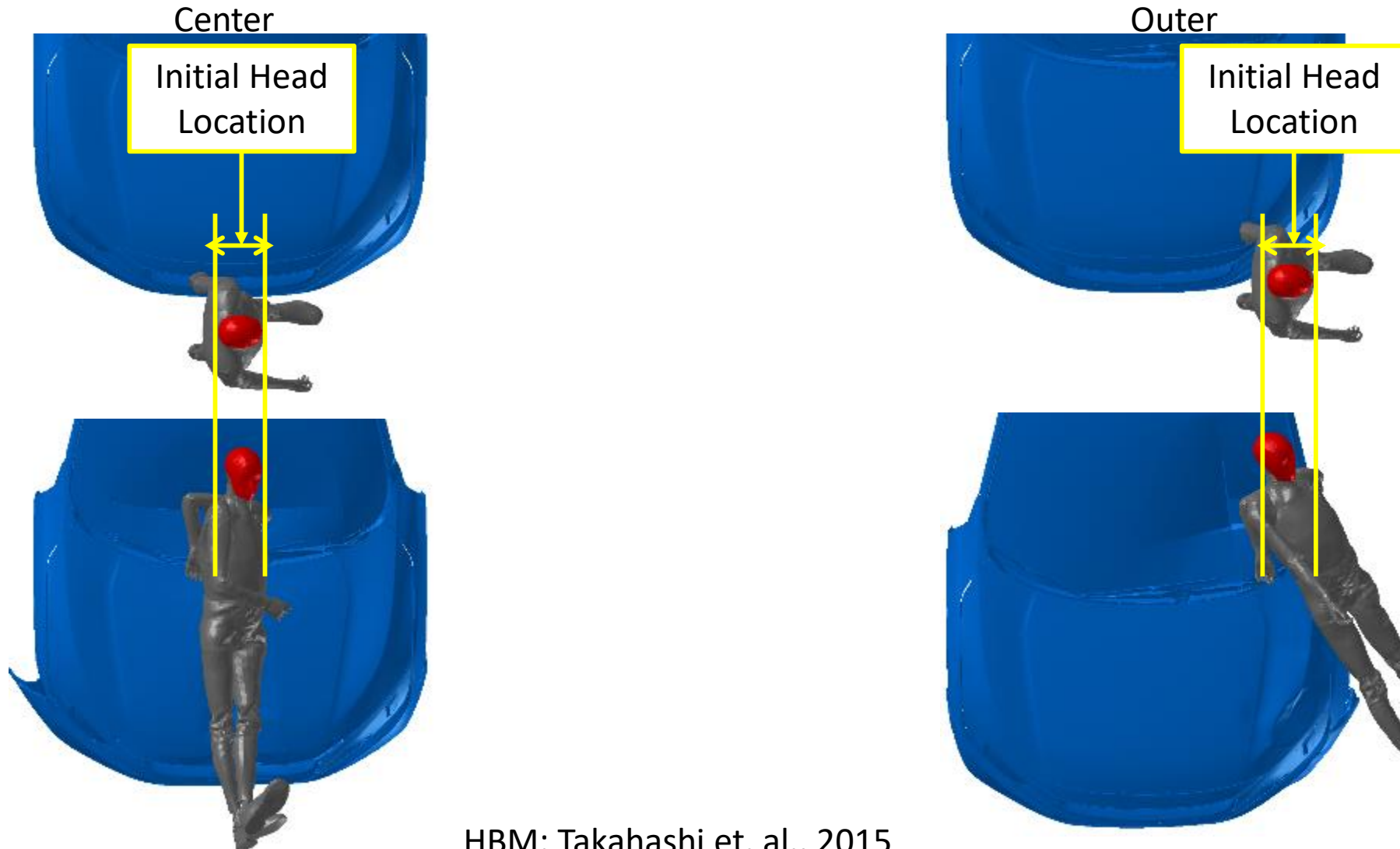


HBM: Takahashi et. al., 2015

Lateral movement of the head until HIT seems to be small

Simulation Results

HBM vs Small Sedan @ 40km/h



HBM: Takahashi et. al., 2015

Lateral movement of the head until HIT seems to be small

Simulation Results

HBM vs SUV @ 40km/h



HBM: Takahashi et. al., 2015

Lateral movement of the head until HIT seems to be small

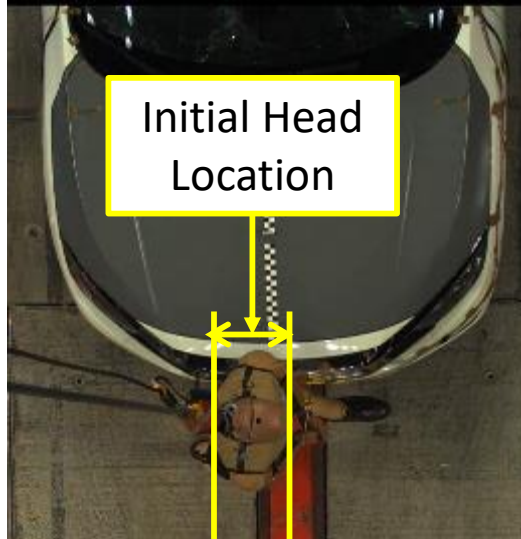
Test Results

Polar II vs Production Cars @ 40km/h

Small Sedan

Middle Sedan

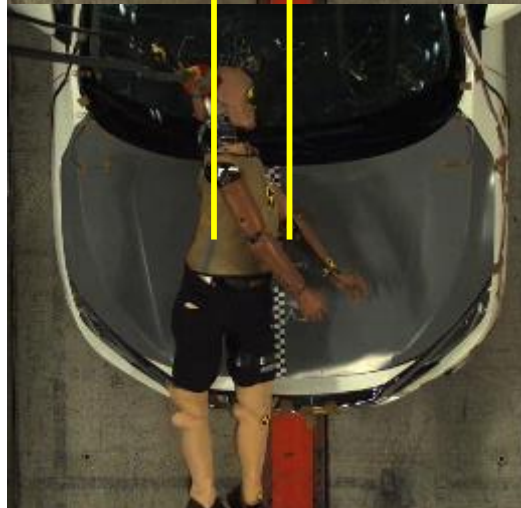
Leg Contact



Leg Contact



Head Contact



Head Contact



Lateral movement of the head until HIT seems to be small

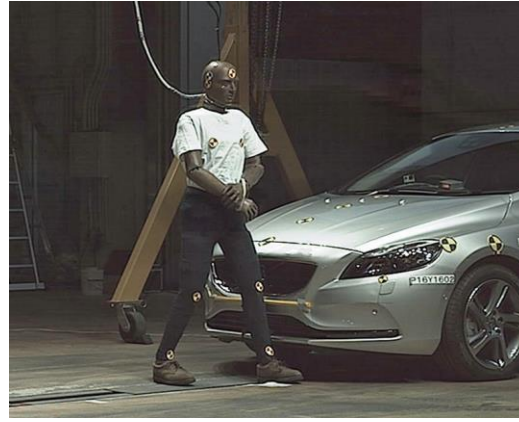
Test Results

Hybrid II AM50 vs Production Cars @ 40km/h

Tested Vehicle



Sedan A



Sedan B



Sedan C



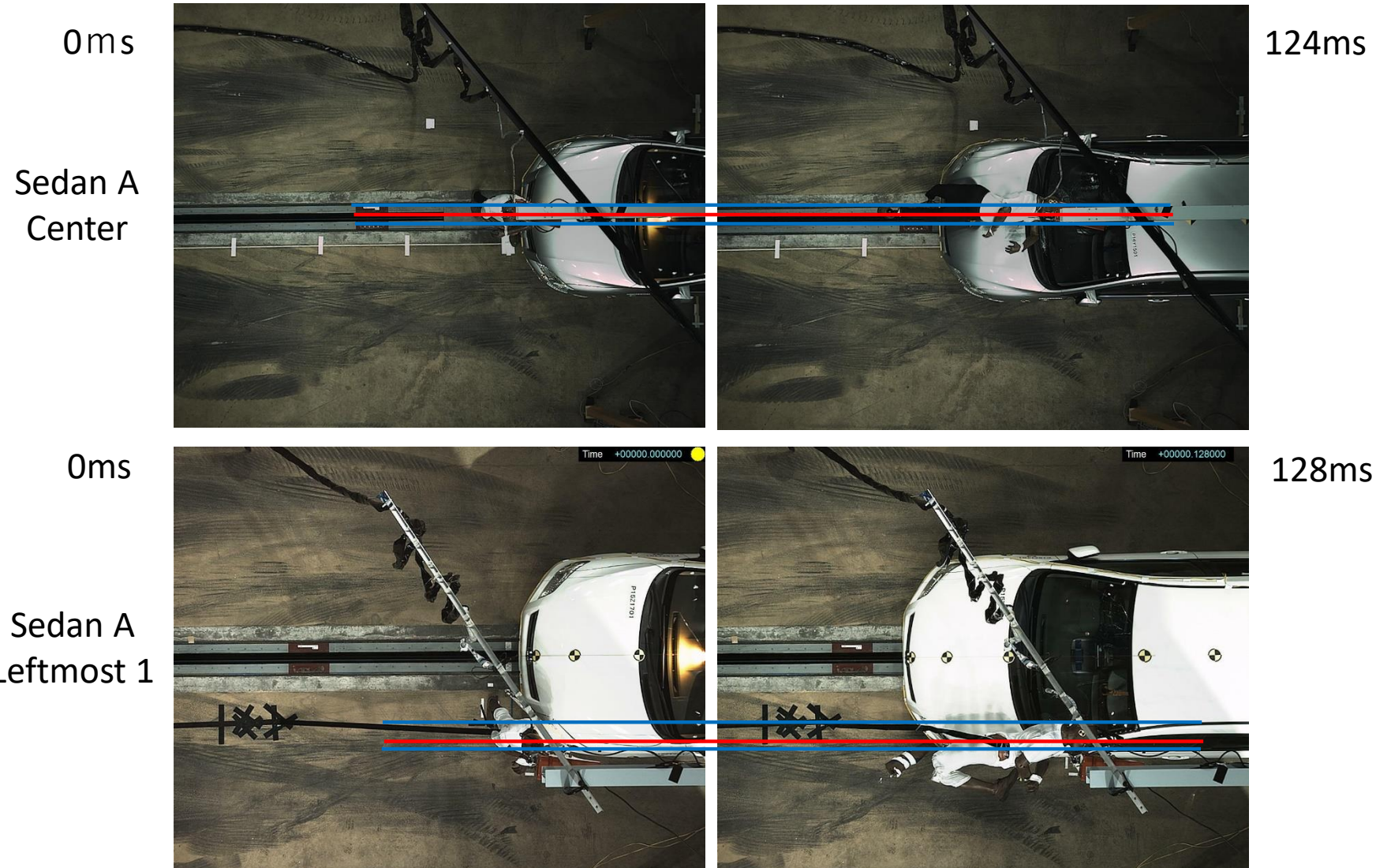
Minivan A



Kei-Car A

Test Results

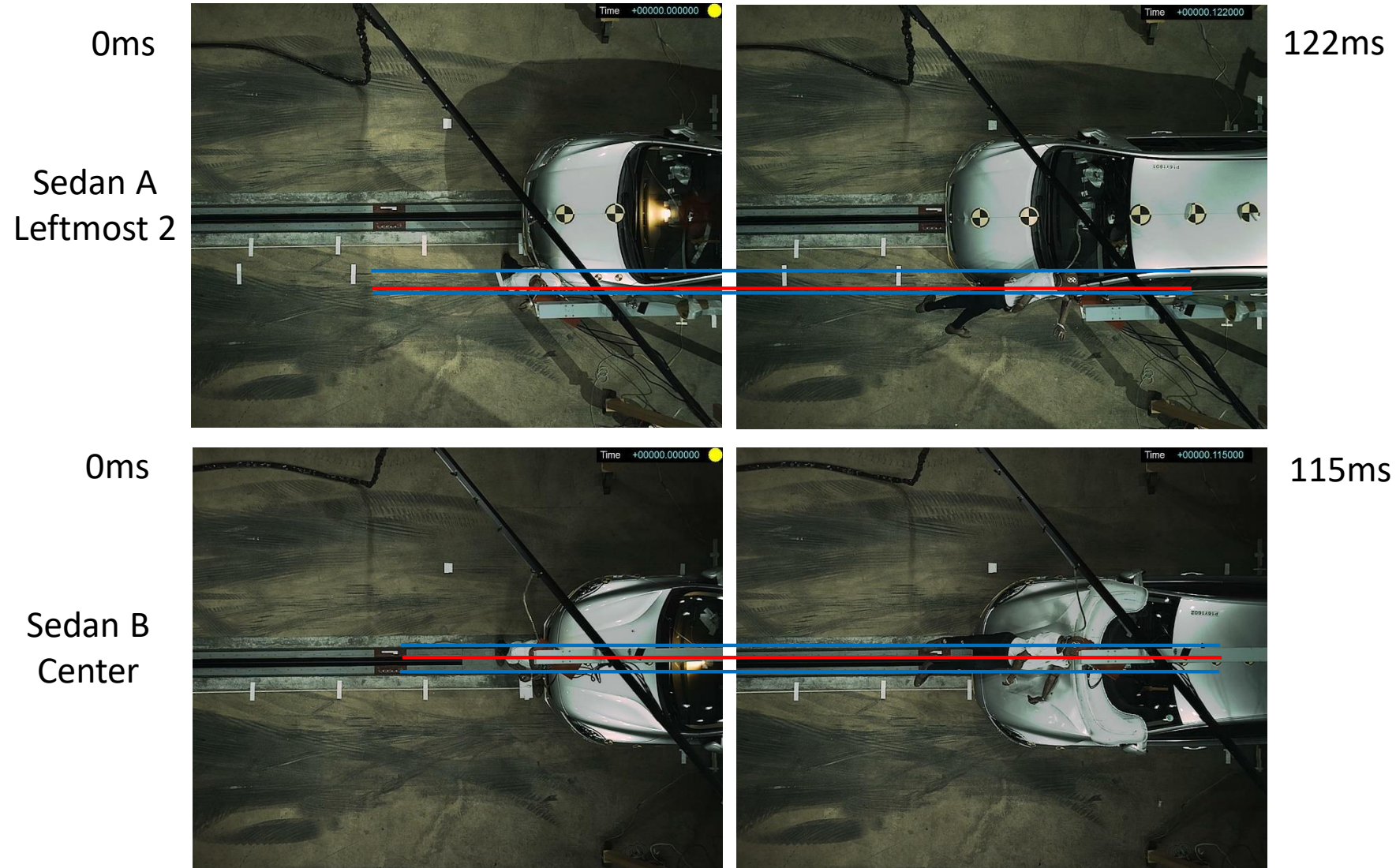
Hybrid II AM50 vs Production Cars @ 40km/h



Lateral movement of the head until HIT seems to be small

Test Results

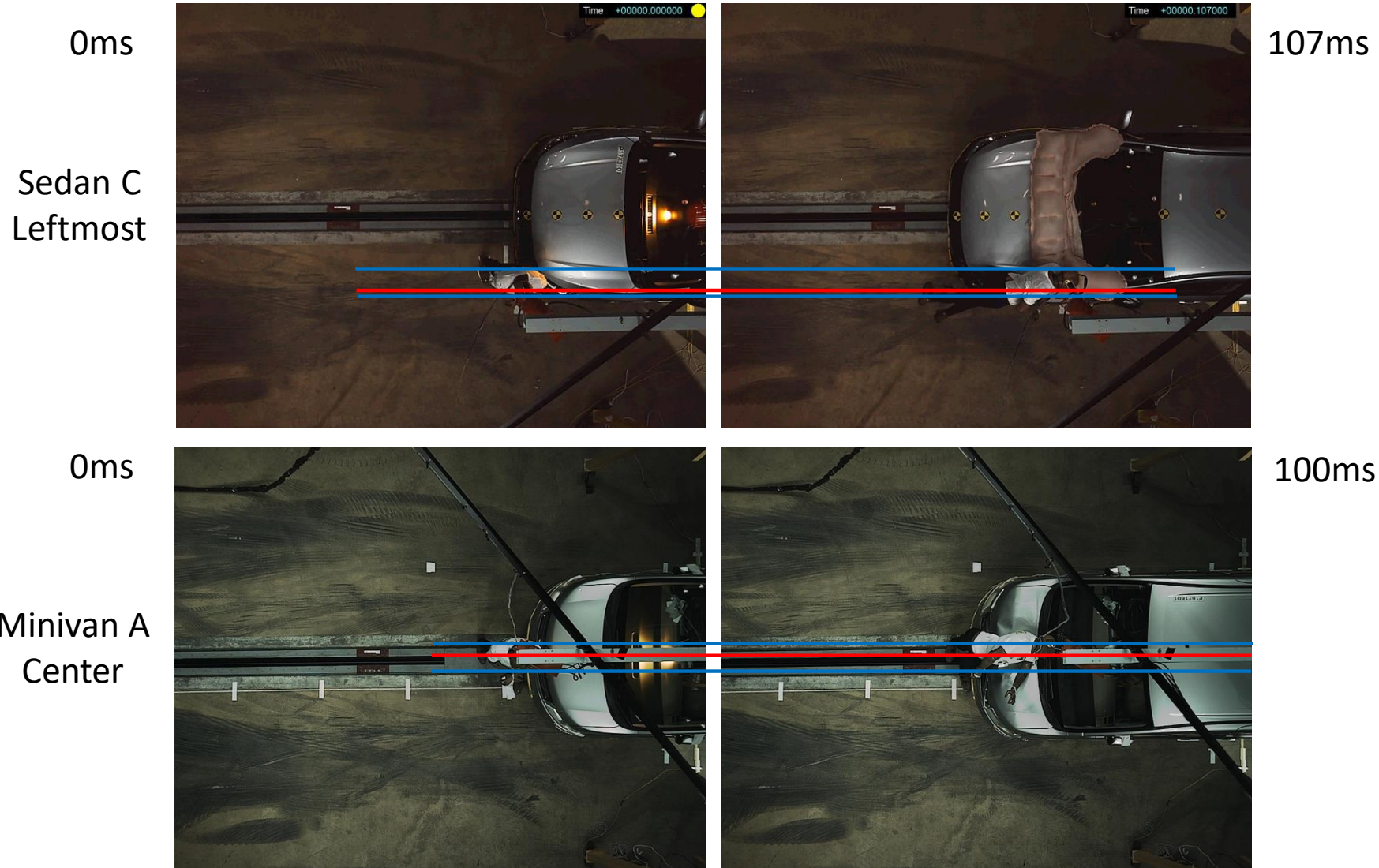
Hybrid II AM50 vs Production Cars @ 40km/h



Lateral movement of the head until HIT seems to be small

Test Results

Hybrid II AM50 vs Production Cars @ 40km/h



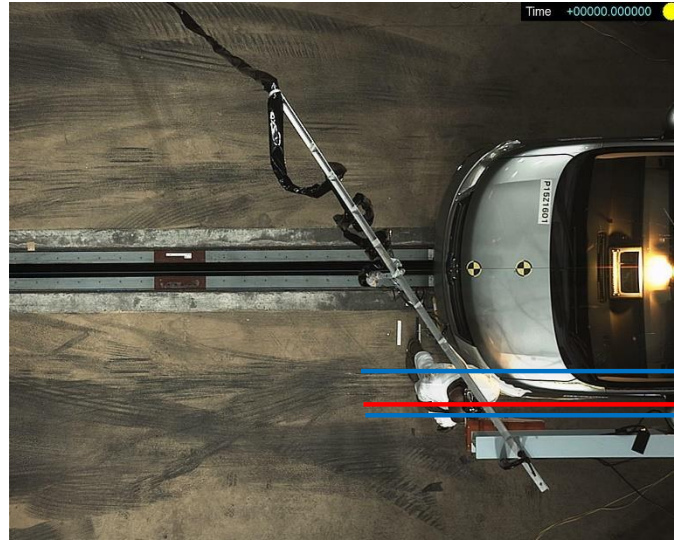
Lateral movement of the head until HIT seems to be small

Test Results

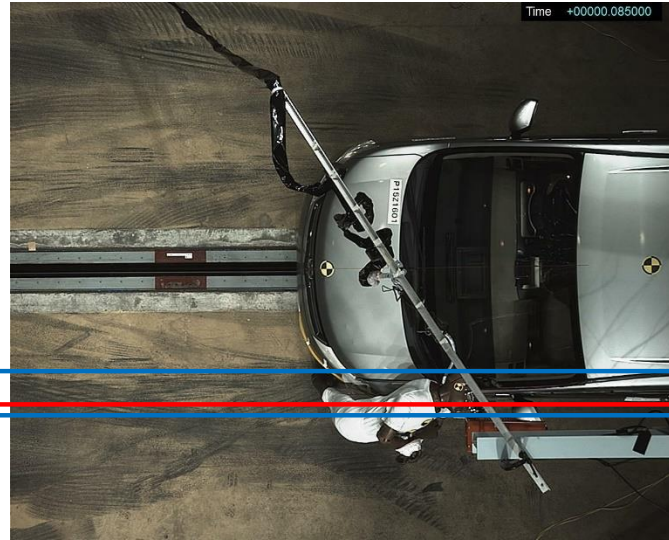
Hybrid II AM50 vs Production Cars @ 40km/h

0ms

Minivan A
Leftmost 1

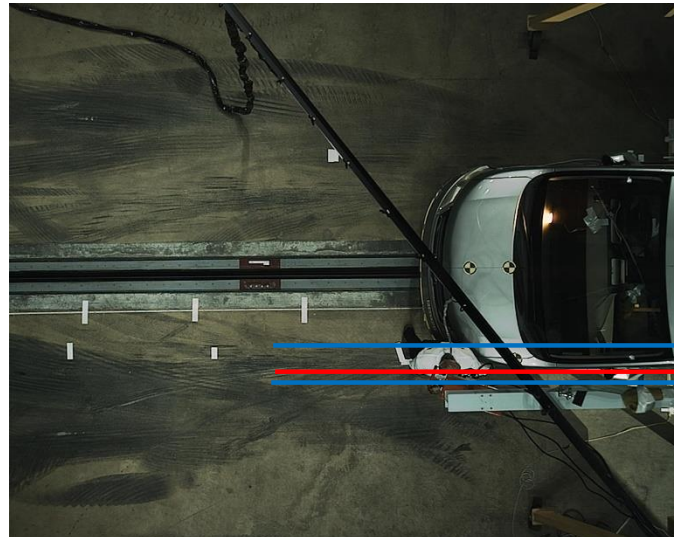


85ms

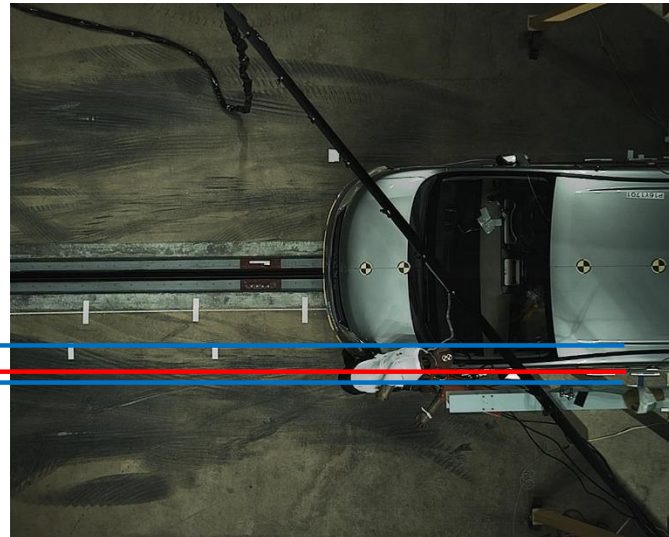


0ms

Minivan A
Leftmost 2



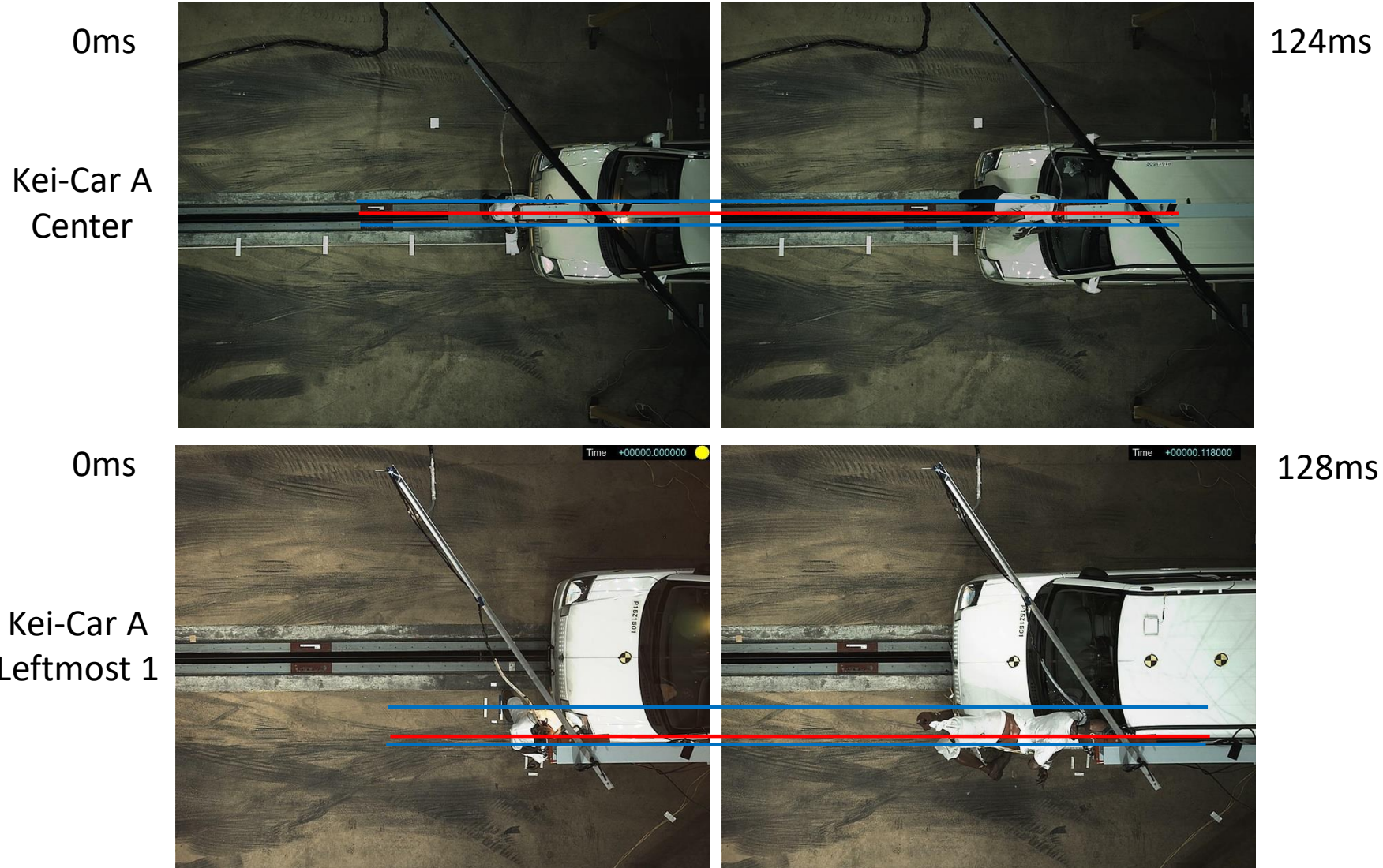
75ms



Lateral movement of the head until HIT seems to be small

Test Results

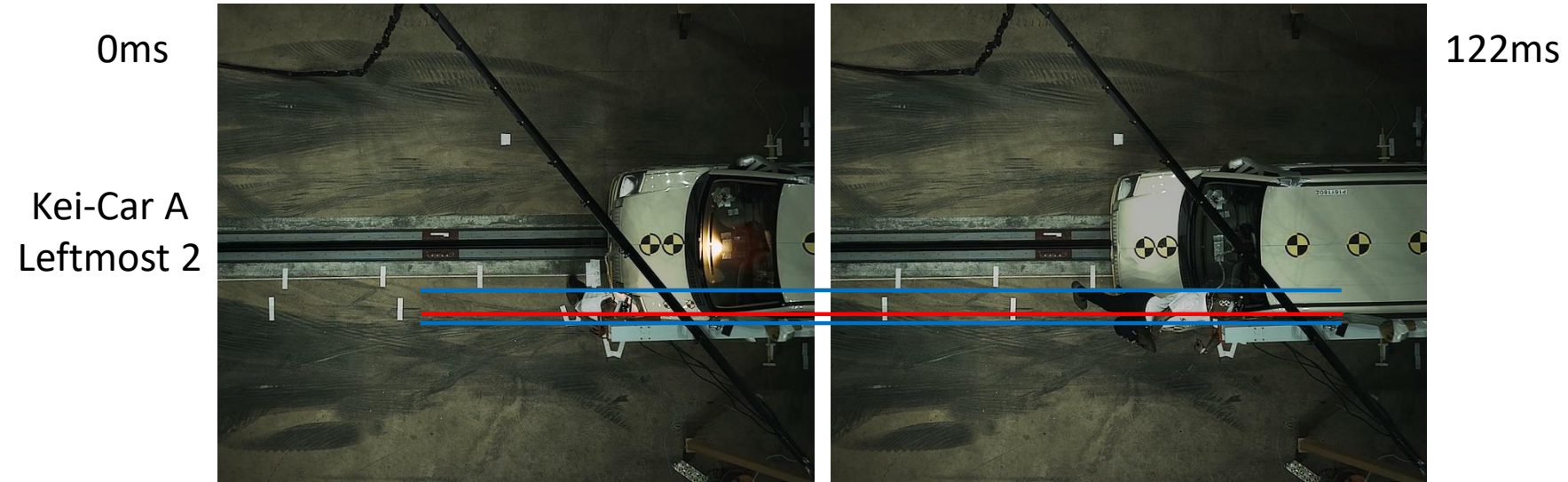
Hybrid II AM50 vs Production Cars @ 40km/h



Lateral movement of the head until HIT seems to be small

Test Results

Hybrid II AM50 vs Production Cars @ 40km/h



Lateral movement of the head until HIT seems to be small

Conclusion

Lateral movement of the head until HIT seems to be small in PMHS tests, HBM simulations and ATD tests



It can be said that the impact location of the head is regarded as same as that of the leg