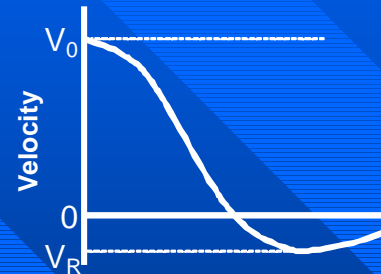
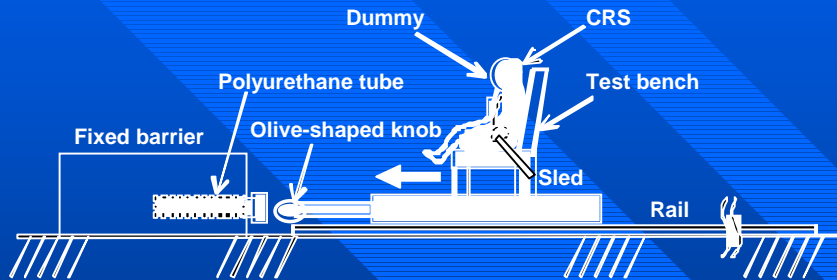


A Study on Equivalent CRS Test -Difference between Decelerating Sled and Accelerating Sled -

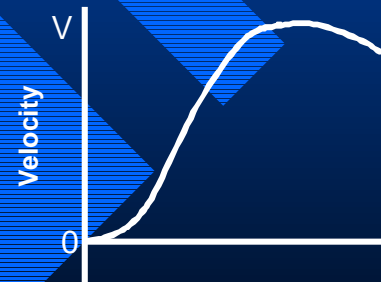
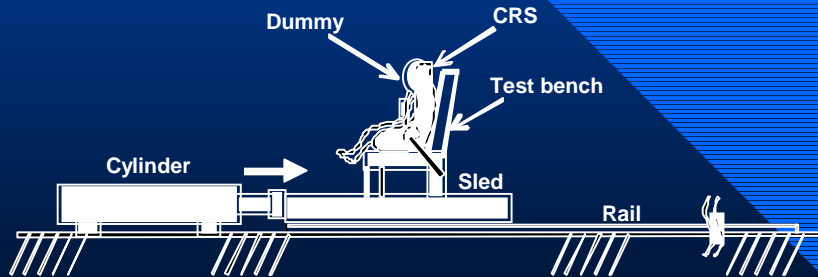
Transmitted by the Expert from Japan

Test Apparatus

Decelerating sled (ECE)



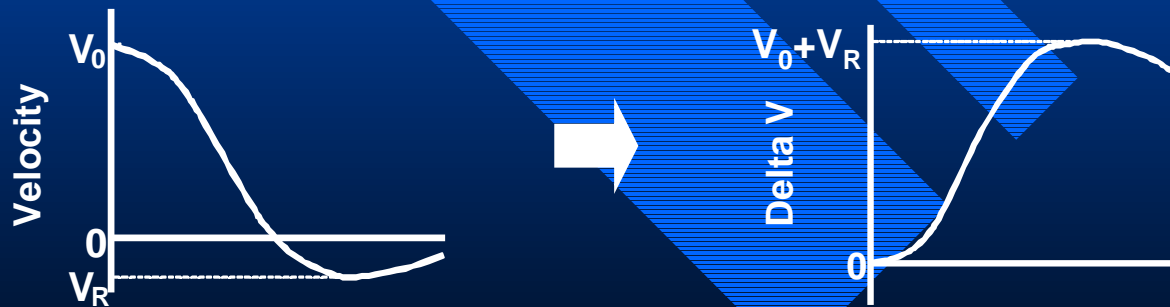
Accelerating sled



Equivalent Test Condition

CRS tests with accelerating sled and decelerating sled give the same results if the sled time history curves of acceleration and delta V are identical in the tests.

“Delta V” means velocity change from initial.



Validation Test

R. 44 CRS tests with decelerating sled are reproduced by using the accelerating sled.

- Test lab.



**Britax Roemer
(decelerating sled)**



**MPA Stuttgart
(decelerating sled)**



**JARI
(accelerating sled : HYGE)**

Validation test (cont.)

- CRS

Fulfilling the requirements of R. 44



Sample A (GI)



Sample B (GI, II, III)

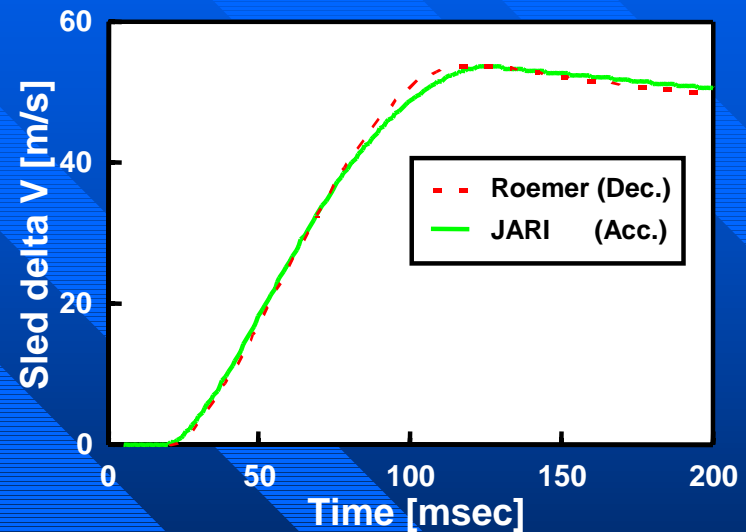
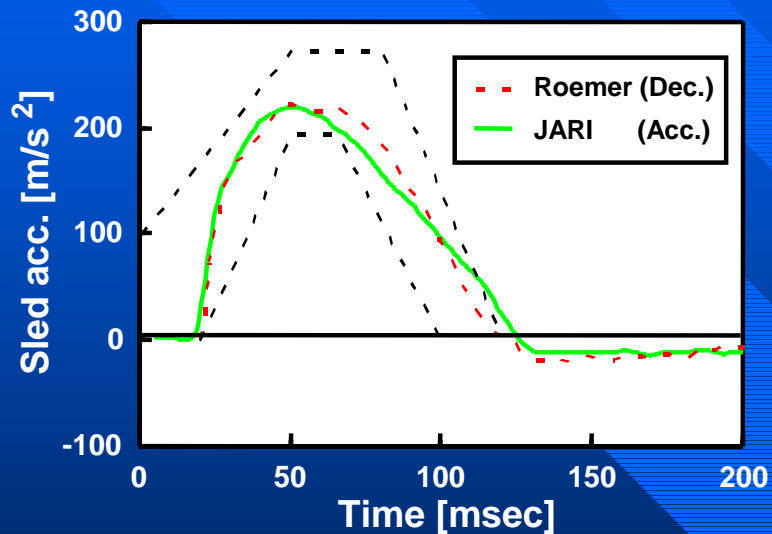
- Dummy



P3

Comparison of test condition

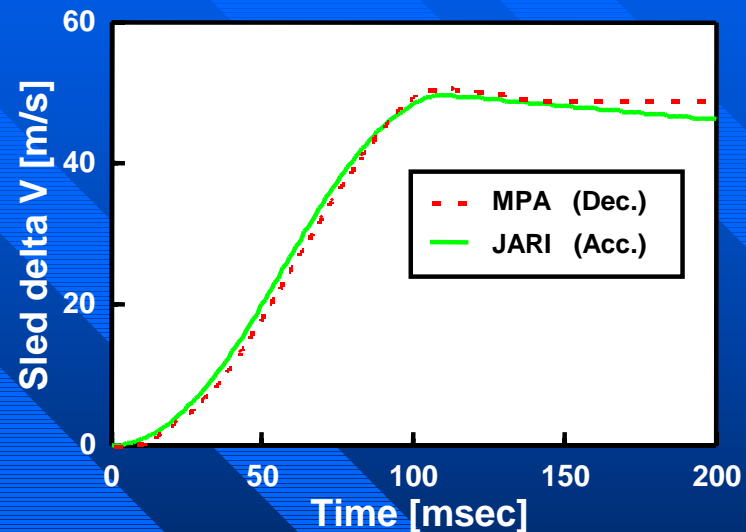
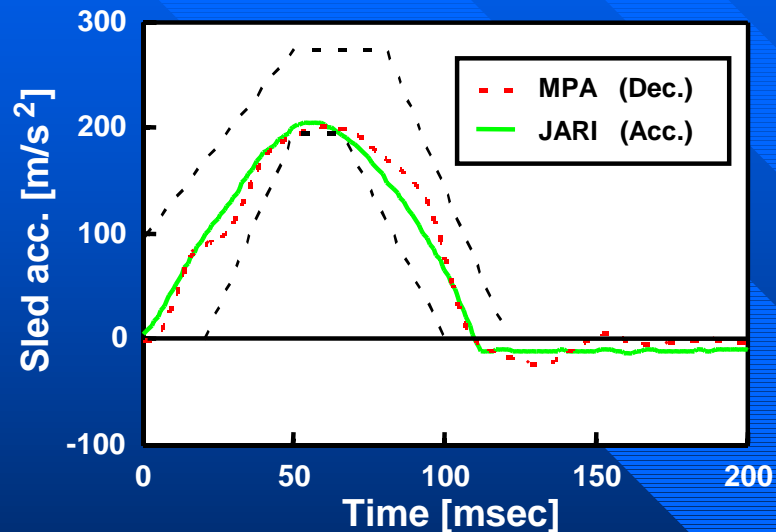
Britax Roemer



➤➤ Acceleration and delta V are almost identical in two labs.

Comparison of test condition

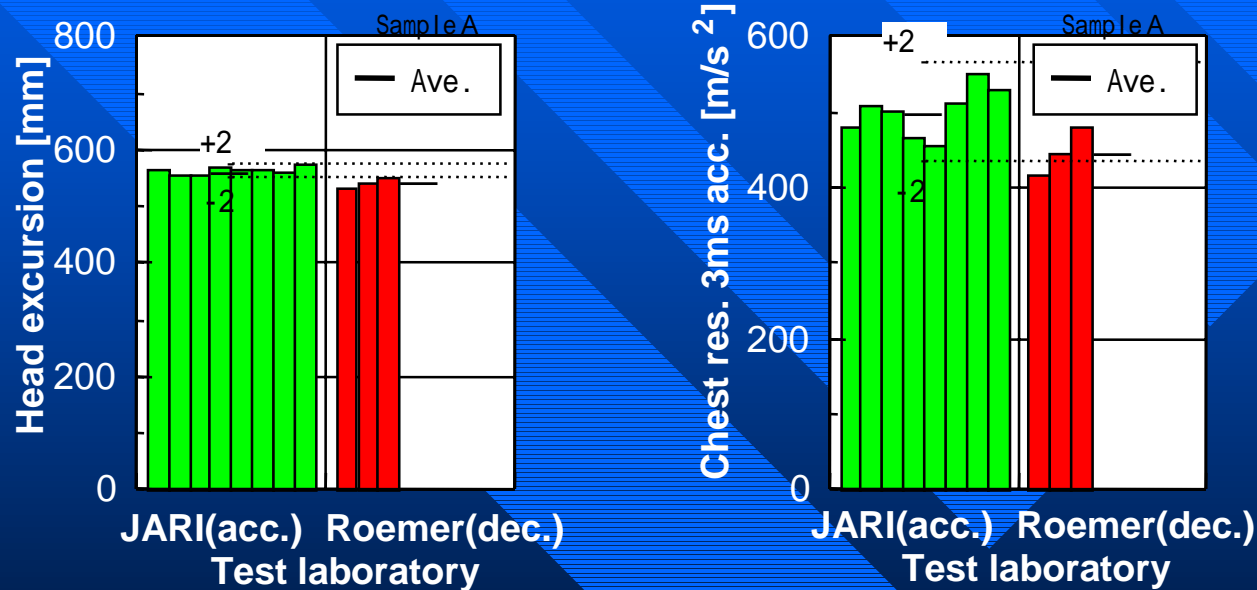
MPA



➤➤ Acceleration and delta V are almost identical in two labs.

Comparison of Test Data Head Excursion and Chest G

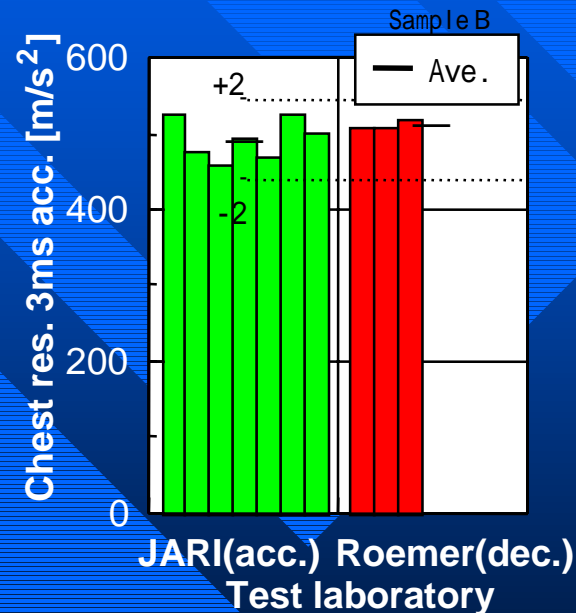
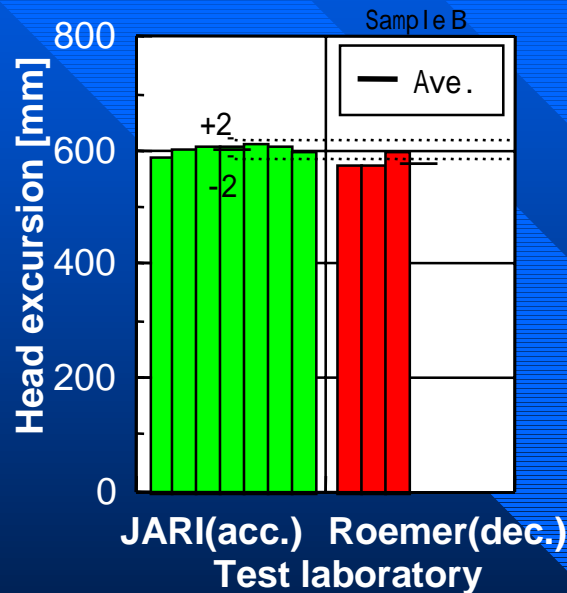
Ex. 1 Britax Roemer Sample A



Results from two labs are almost identical.

Comparison of Test Data Head Excursion and Chest G

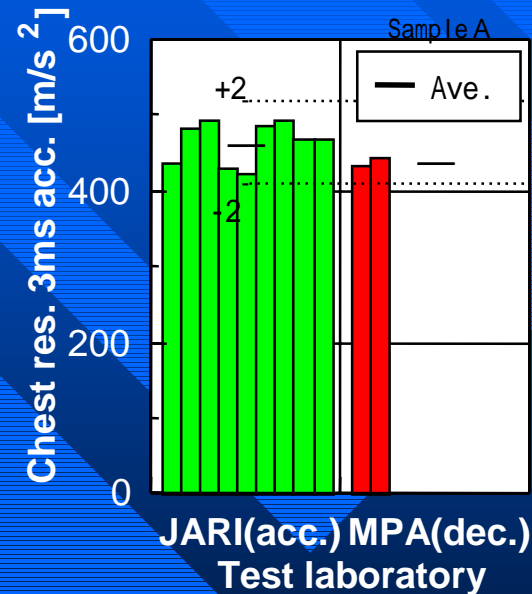
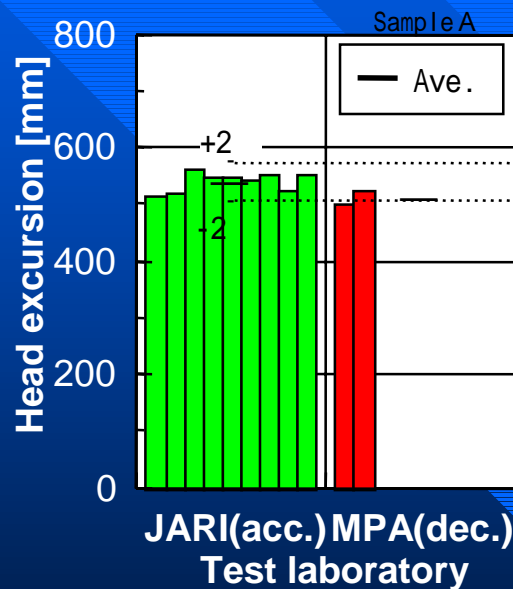
Ex. 2 Britax Roemer Sample B



Results from two labs are almost identical.

Comparison of Test Data Head Excursion and Chest G

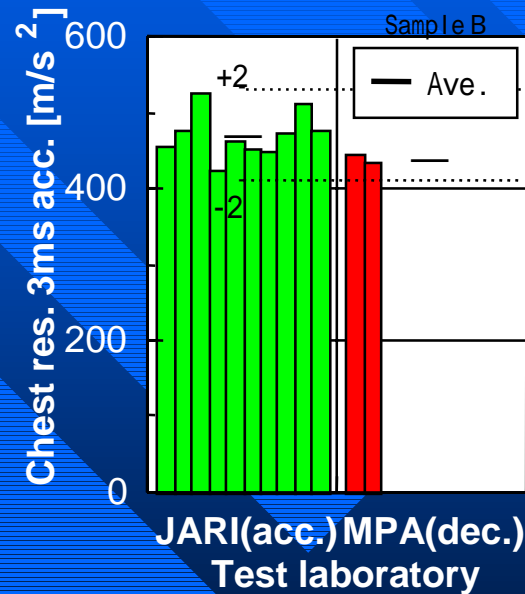
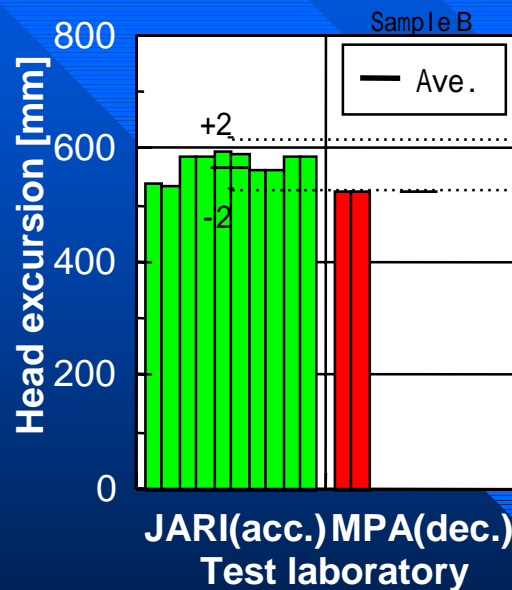
Ex. 3 MPA Sample A



Results from two labs are almost identical.

Comparison of Test Data Head Excursion and Chest G

Ex. 4 MPA Sample B



Results from two labs are almost identical.

Conclusion

Equivalent CRS test can be made when time history curves of ΔV are identical in both sleds (accelerating sled and decelerating sled).