

Proposal for R93 based SEAS assessment

JASIC

21st GRSP Informal Group on Frontal Impact

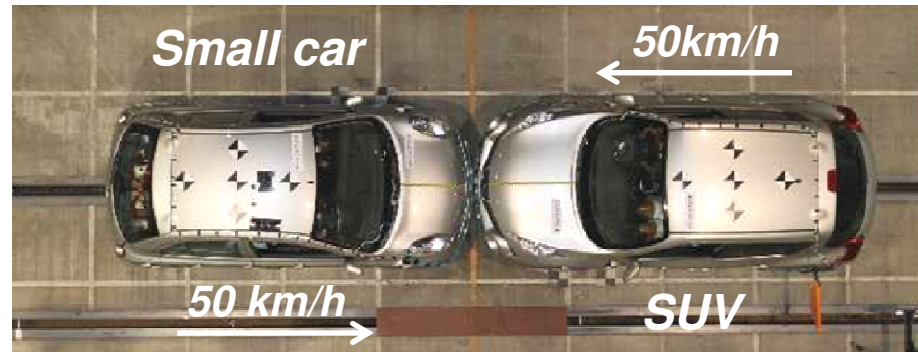
11th June , 2013

Background

- *Japan researched the effectiveness of SEAS, and showed that , in the SUV-to-small car test with vertical mismatch of PEAS, the SUV did not override the small car because the SEAS of the SUV engaged the front structures of the small car (FI-19-05).*
- *So SEAS is an important structure for structural interaction between vehicles.*
- *Therefore, when a test procedure on structural interaction is developed, it is necessary to consider an evaluation of not only PEAS but also SEAS.*

Japanese research

50 km/h Full Frontal Car-to-Car Tests



Test 1: Original height
(front rails of SUV were higher than that of small car)



Test 2: Adjusted height
(height of front rails of SUV was aligned with that of small car)

Japanese research

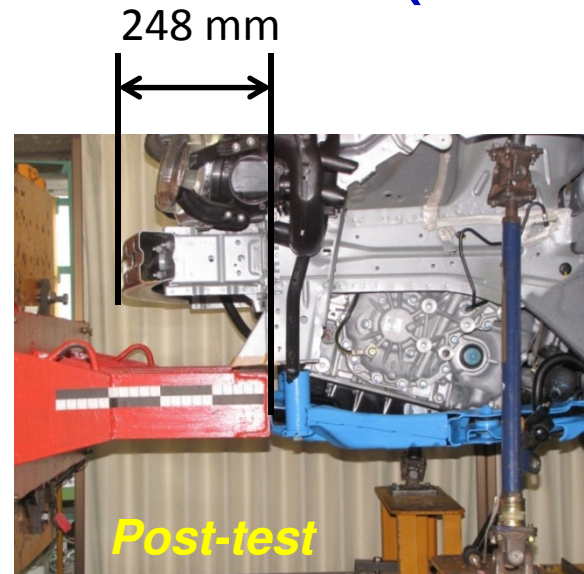
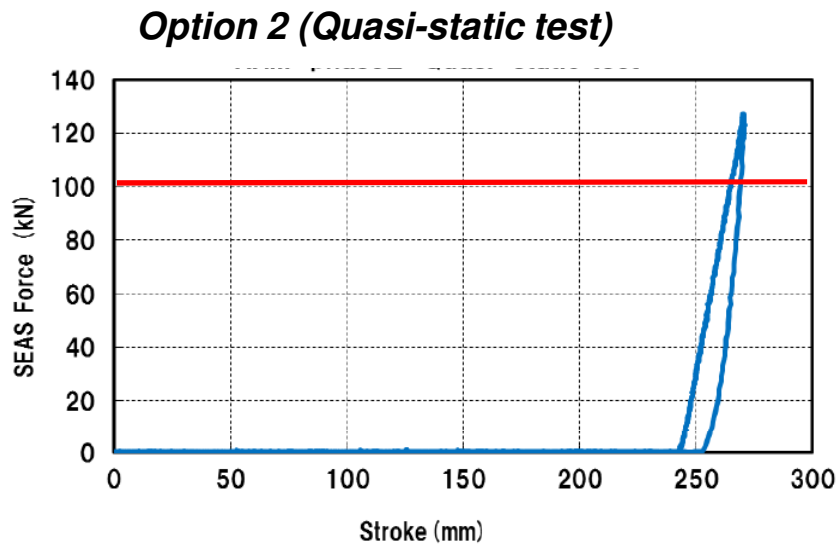
- *In the SUV-to-small car test with vertical mismatch of PEAS, the SUV did not override the small car because the SEAS of the SUV engaged the front structures of the small car.*
- *Injury levels for the driver and passenger dummies in the small car were comparable between the two tests.*
- *From the two tests, it was shown that SEAS is an important structure for structural interaction between vehicles.*
- *Therefore, when a test procedure on structural interaction is developed, it is necessary to consider an evaluation of not only PEAS but also SEAS.*

Juke (SUV)



US Voluntary Agreement (Juke)

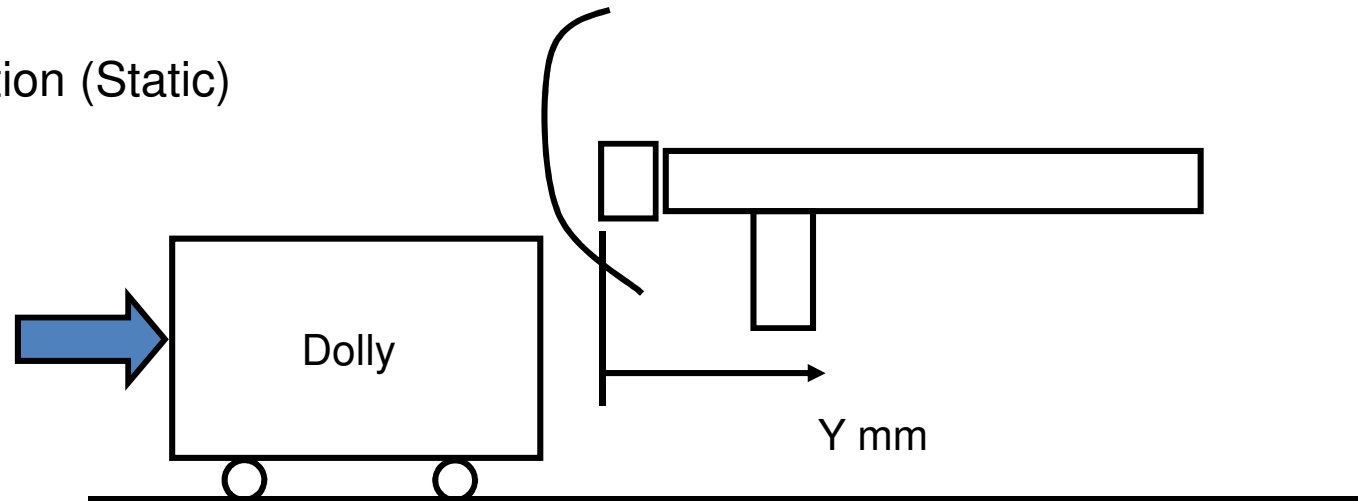
US voluntary agreement



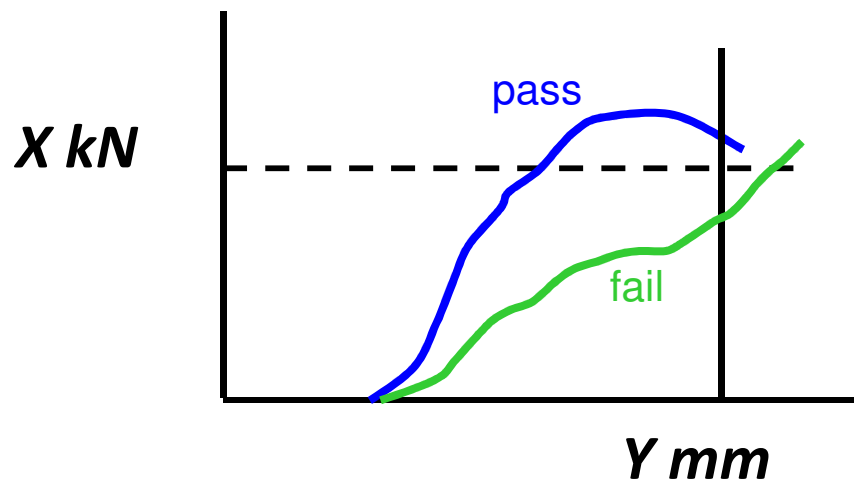
- ***Juke's SEAS had enough performance for structural interaction between vehicles at frontal impact accidents.***
- ***The stroke when the force rose up was almost 250mm.***
- ***The force load was stopped at 125kN before the breaking of SEAS. So the maximum force of Juke's SEAS was not known.***
- ***Juke's SEAS satisfied the US voluntary agreement (400mm , 100kN)***

Proposal Test Conditions

Test condition (Static)



Criteria



Japan propose the test condition, procedure as same as UN/ECE R93 (truck FURP) and US voluntarily agreement test. Criteria (X kN and Y mm) will be proposed later.