

FWDB Test Results

Japan

GRSP Informal Group on Frontal Impact

October 11, 2012

Background

- Japan once conducted 2 FWDB crash tests under the same condition using SUV vehicles to examine the repeatability in 2005.
- We show the test data.

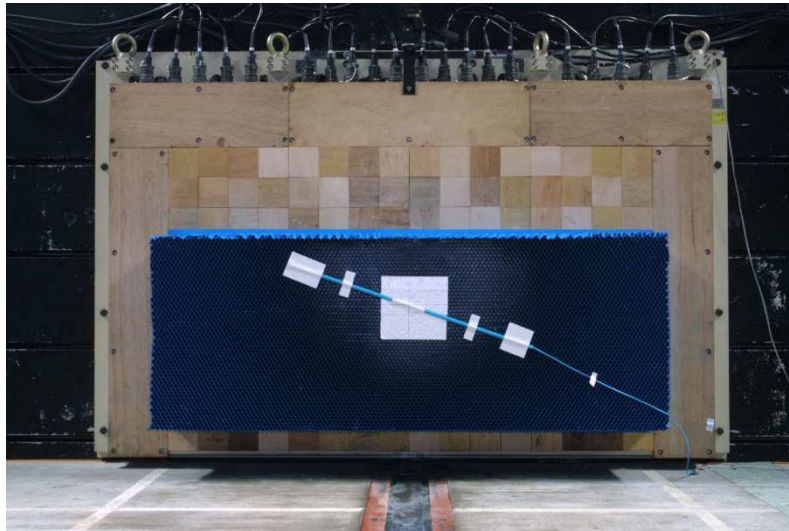
Tested Vehicle

SURF



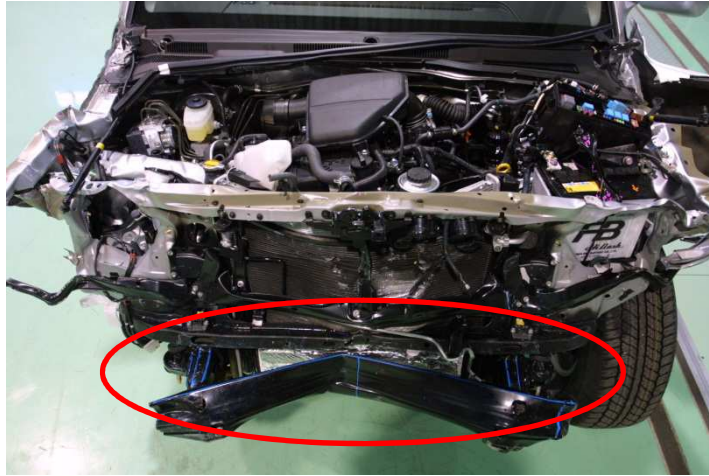
	unit	SURF
Length x width x height	mm	4805 x 1910 x 1790
Curb mass	kg	1830
Test mass	kg	2076
Engine displacement	cc	2693

FWDB

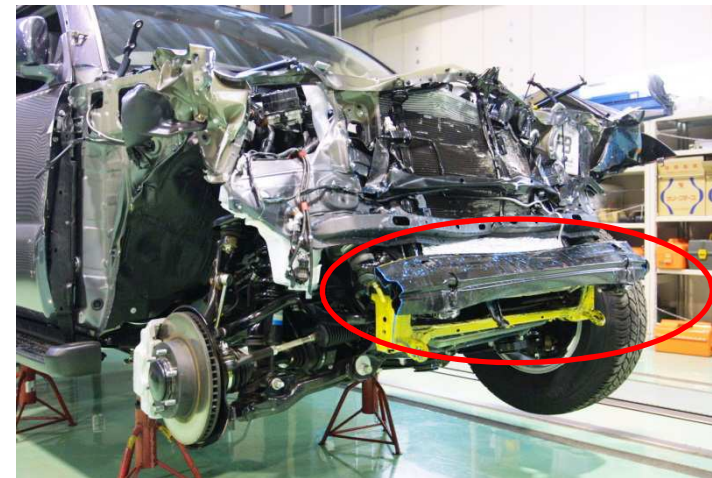
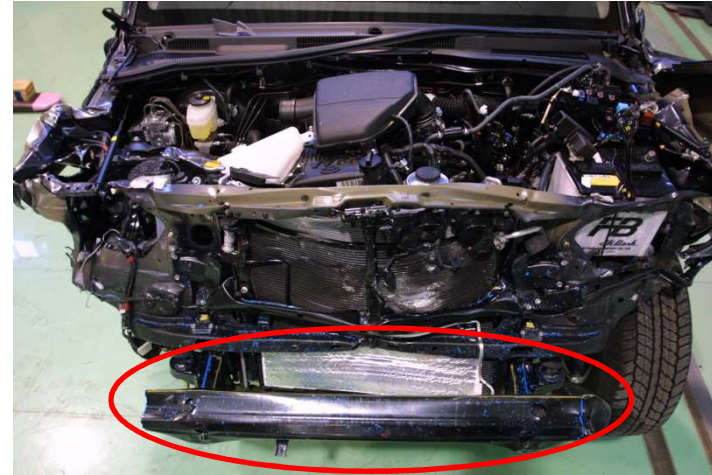


Vehicle after Tests

Test 1



Test 2



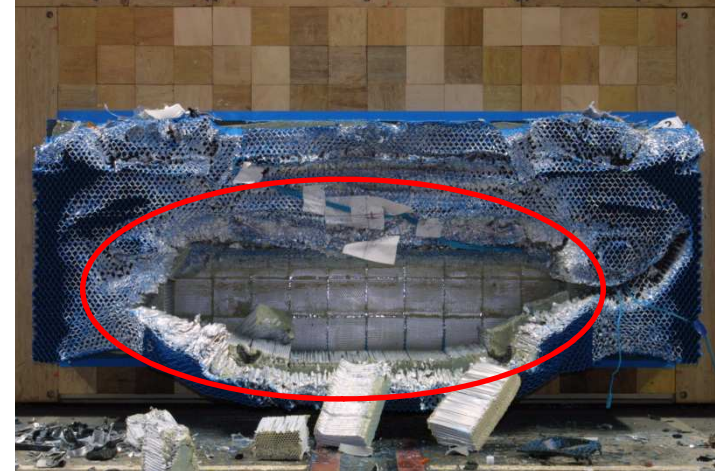
The deformation of bumper beam and SEAS were different between 2 tests

FWDB after Tests

Test 1



Test 2



The deformation of DB were different between 2 tests

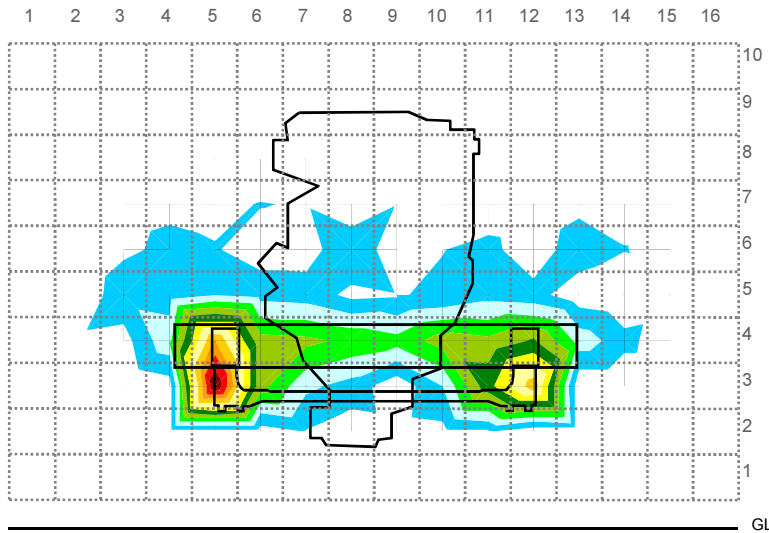
Impact speed and Location

	Impact Speed	Difference from Target Point	
		Horizontal	Vertical
unit	km/h	mm	mm
Test1	54.9	2 to left	0
Test2	54.8	13 to right	0

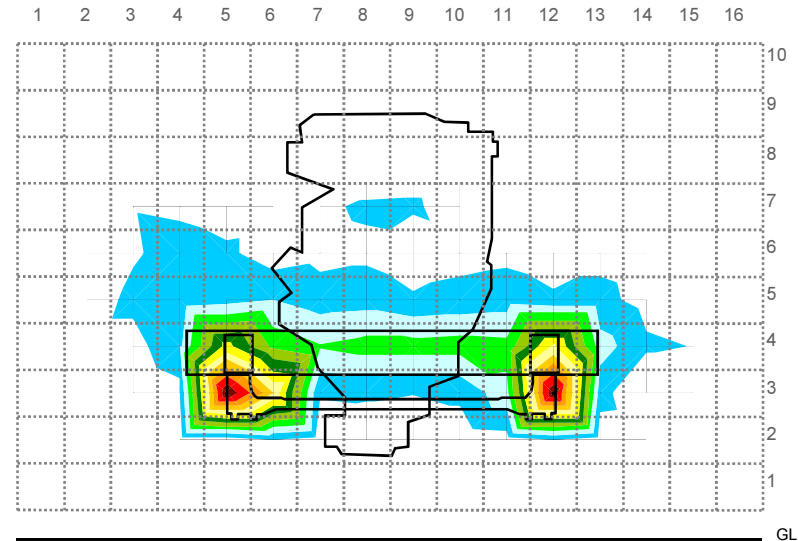
- **Impact Speeds were almost similar.**
- **The heights of the impact location were same.**

Barrier Force Distribution

Test 1



Test 2

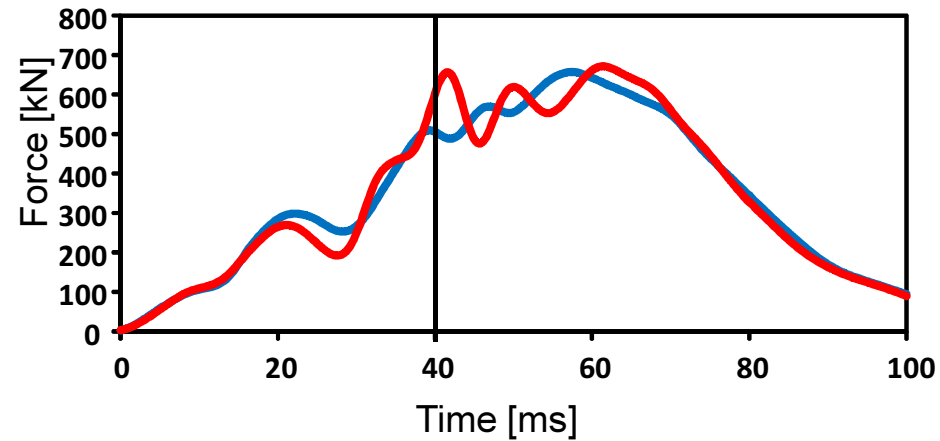


- The force of PEAS in Test 2 was higher than Test 1.
- The force between PEAS in Test 1 is higher than Test 2.

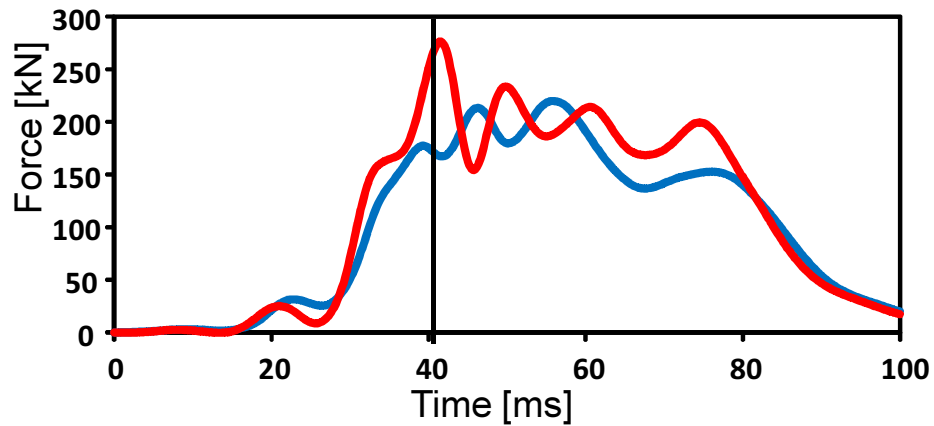
Force Time Histories

— Test1 — Test2

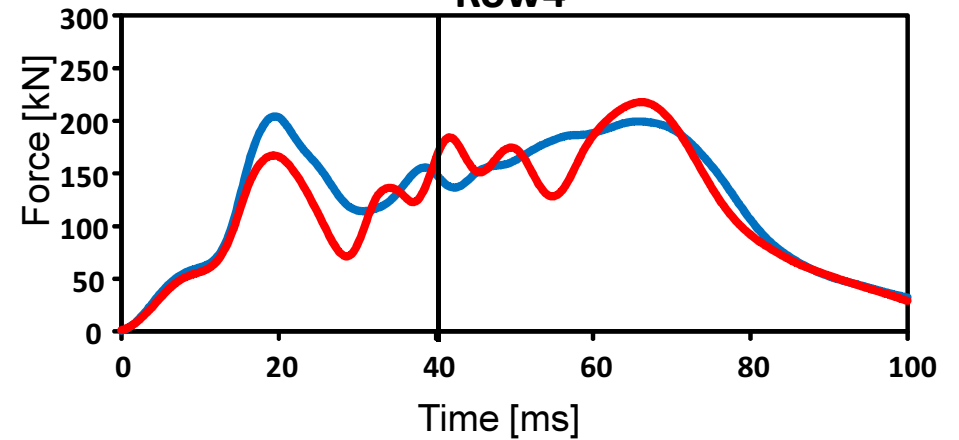
Total



Row3



Row4



Max Force @ 40ms

	Test 1	Test 2	Difference	Variation
unit	kN	kN	kN	
F4	204	167	37	14%
F3	177	250	73	24%
F3+F4	332	415	83	16%
F2	22	29	7	19%
total	510	602	92	12%

Conclusions

- The deformation of the test vehicles and DB were both different in 2 tests.
- The difference of Row3 force was 73 kN and Row4 force was 37 kN (the variation of Row3 force was 24% and Row4 force was 14%).