

IWG-DPPS

Defining Head Test Area

5th Meeting (2019.09.03~04)

Seung Hoon LEE (Senior Researcher)
Kore Automobile Testing & Research Institute, Korea Transportation Safety Authority



Consistent Head Test Area

OICA proposal

- Static Test : Defining the test area in the deployed position
- Dynamic Test: Defining the test area in the un-deployed position



2 Head Test Areas depending on the fitment of DPPS systems in the same car model

ex)



Not tested area
→ Unprotected
area

2 Head Test Areas depending on the test method(static/dynamic) in the same car model
(Even if both are fitted with DPPS, the test area may vary depending on the result of the verification test)

Defining the test area in the un-deployed position → The test area is consistent at all times

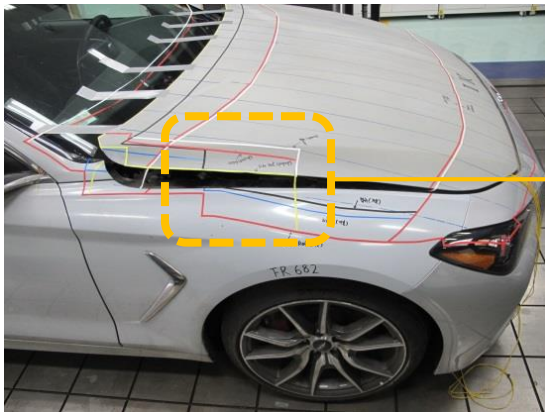
Consistent Head Test Area

OICA proposal

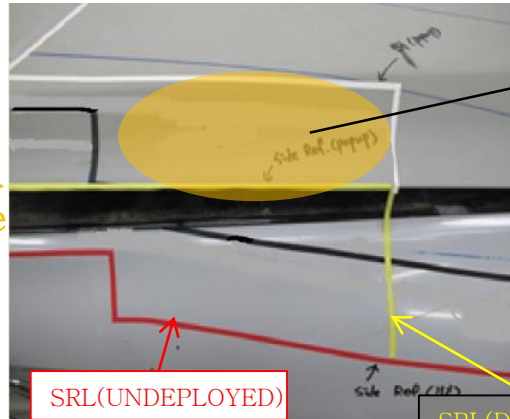
- Static Test : Defining the test area in the deployed position
- Dynamic Test: Defining the test area in the un-deployed position



This may allow manufacturers to intentionally reduce the test area using DPPS



Enlarge



Deployed position → Untestable
Un-deployed position → Testable

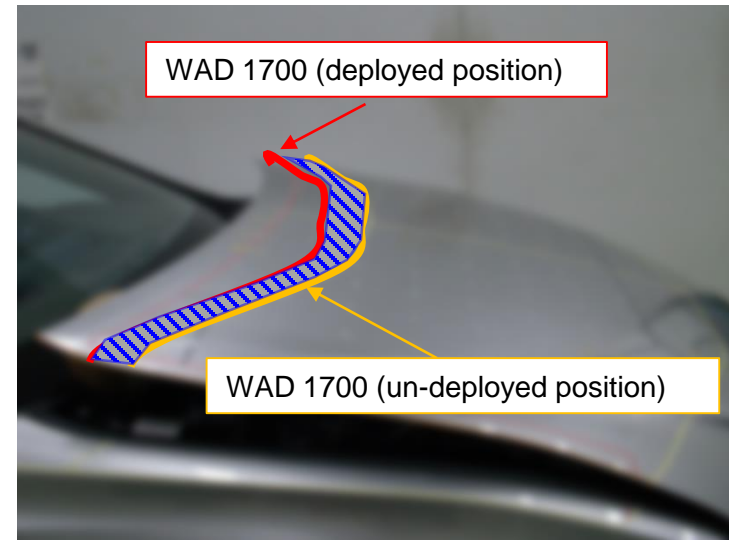
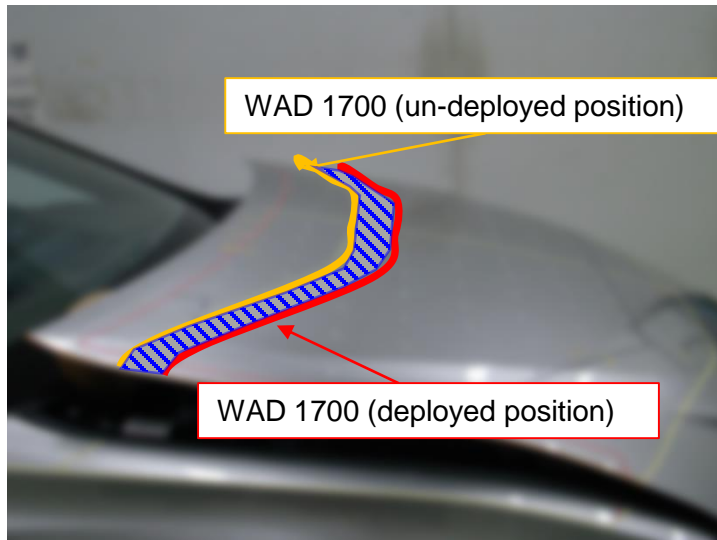
Defining the test area in the un-deployed position → The test area is consistent at all times

Practical Issues

In case of partially dynamic headform test by the results of verification test

How to define the test area by considering “in the deployed position” for static test and “in the un-deployed position” for dynamic test?

Example: in case that HIT and TRT is same at WAD 1700

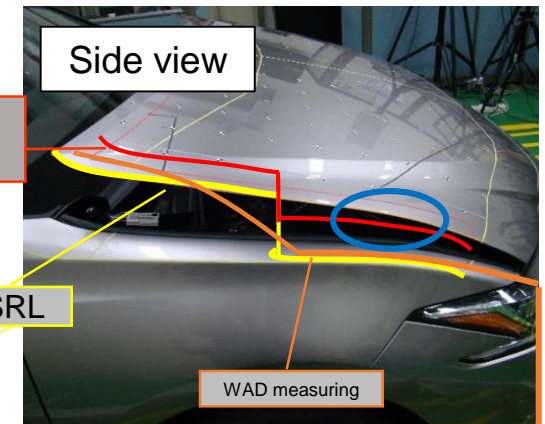
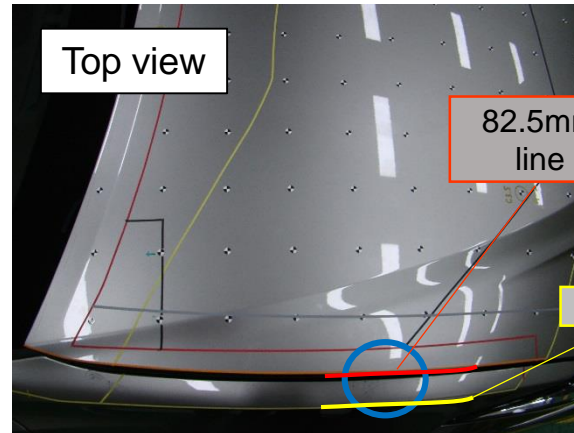


- There may be overlap(on the left) or exclusion(on the right) of area
 - how to verify the overlap and exclusion area (define, test, etc.)?
 - What about the HIC 1000/1700 zone

Practical Issues

Marking issues in defining the test area in the deployed position

○ Void space between deployed hood and body



- When the deployable hood is lifted, it may not be possible to mark reference lines or others
 - rear reference line / side reference line
 - WAD line

→ **We may need lots of new definitions to clarify these kinds of unpredicted cases !
if OICA proposal is applied**

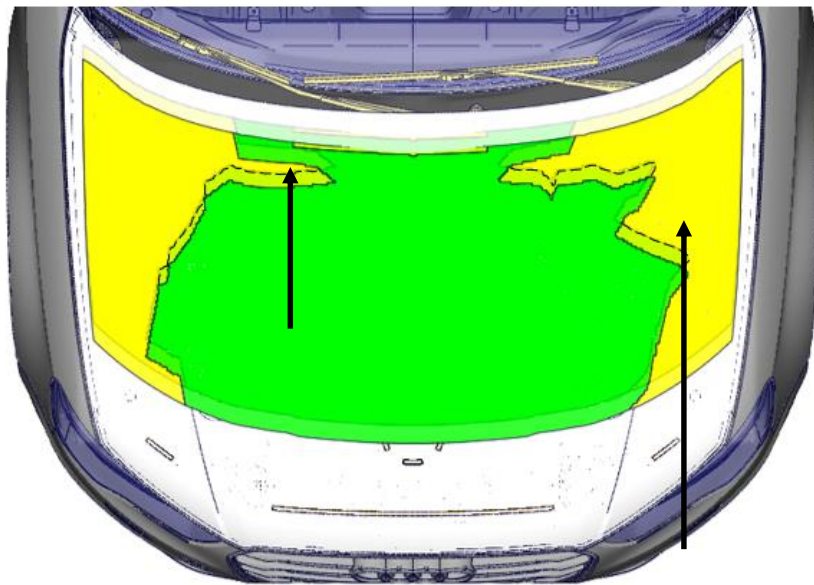
Comment on OICA opinion

IWG-DPPS-4-08e(OICA)

Example of bonnet movable in longitudinal (x) direction

Example of bonnet movable in longitudinal (x) direction – 2 -

- Deployable bonnet is moving in x-direction
- A correct determination and marking of HIC1000 zone and HIC1700 zone (2/3, 1/3) is not possible if marking is done in undeployed position



Requirement	
■	Zone HIC 1000: 67.66%
■	Zone HIC 1700: 32.34 %

HIC 1000/1700 zone is derived from the headform test result conducted at impact points, whether the test area is defined at the deployed position or at the un-deployed position

Example:

Aiming Zone marked as „compliant“ in undeployed position would be „non compliant“ in deployed position due to longitudinal movement of the bonnet

This could occur in case of dynamic test and pedestrian airbag test



Thank you very much
for your attention