

TF-BTA 7th Meeting

Web Conference, 29 August & 9 September 2014

Assessment of Proposals for the Determination of the Test Area and the Test Execution

Franz Roth (AUDI)

Winfried Schmitt (BMW)

Benjamin Bünger (Opel)

Thomas Kinsky (Opel)

Jörg Kusche (Porsche)

**on behalf of the
VDA ad-hoc Working Group Pedestrian Protection**

The logo for the Verband der Automobilindustrie (VDA), consisting of the letters 'VDA' in a bold, green, sans-serif font.

Verband der
Automobilindustrie

Overview

Industry was requested to provide their position to a number of ideas:

1. Determine Lower and Upper Bumper Reference Lines?
2. Use Smaller Corner Gauges?
3. Define Test Area over the Full Vehicle Width?

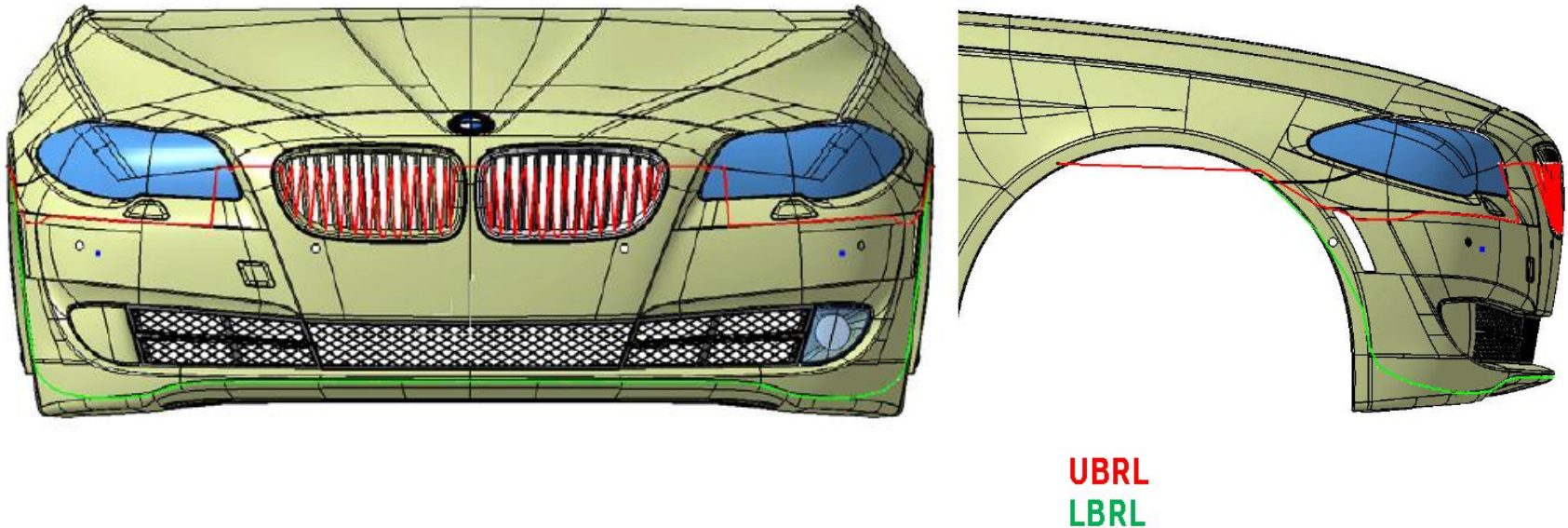
In the limited time given, a manufacturers harmonized statement is still to be developed.

1. Determine Lower and Upper Bumper Reference Lines?

- Concerns were mentioned that the lower and upper bumper reference lines cannot be determined over the whole width of the vehicle
- As industry mentioned in the discussion, this seems more an issue for the practical determination and marking of the reference lines at the vehicle that can be solved with math data from the OEM or pragmatic approaches

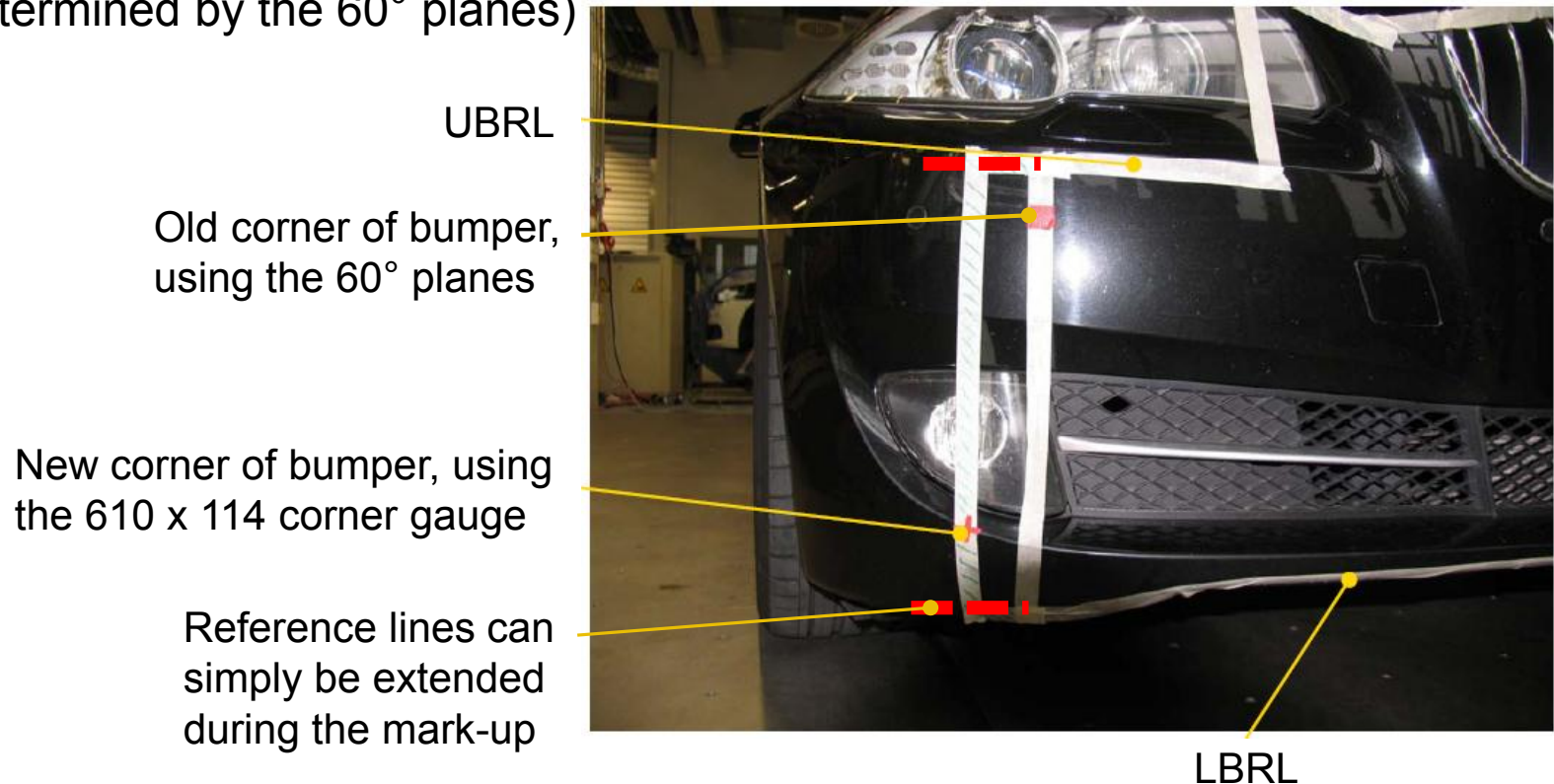
1. Determine Lower and Upper Bumper Reference Lines?

- CAD calculates reference lines over the whole vehicle width as long as there is numeric solution

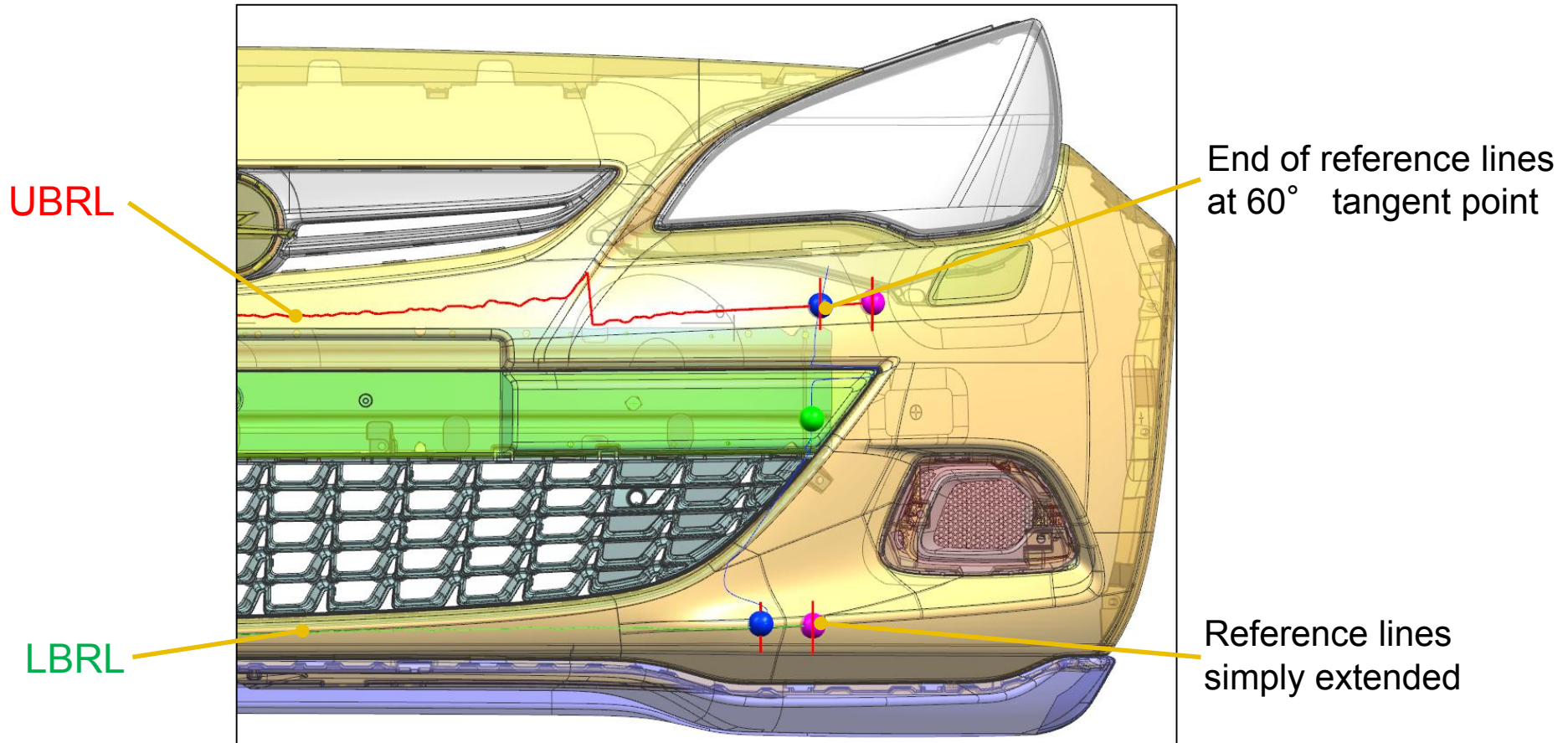


1. Determine Lower and Upper Bumper Reference Lines?

- For a “physical” determination of the LBRL and UBRL it seems sufficient to just extend the reference lines within the former corner of bumper (determined by the 60° planes)

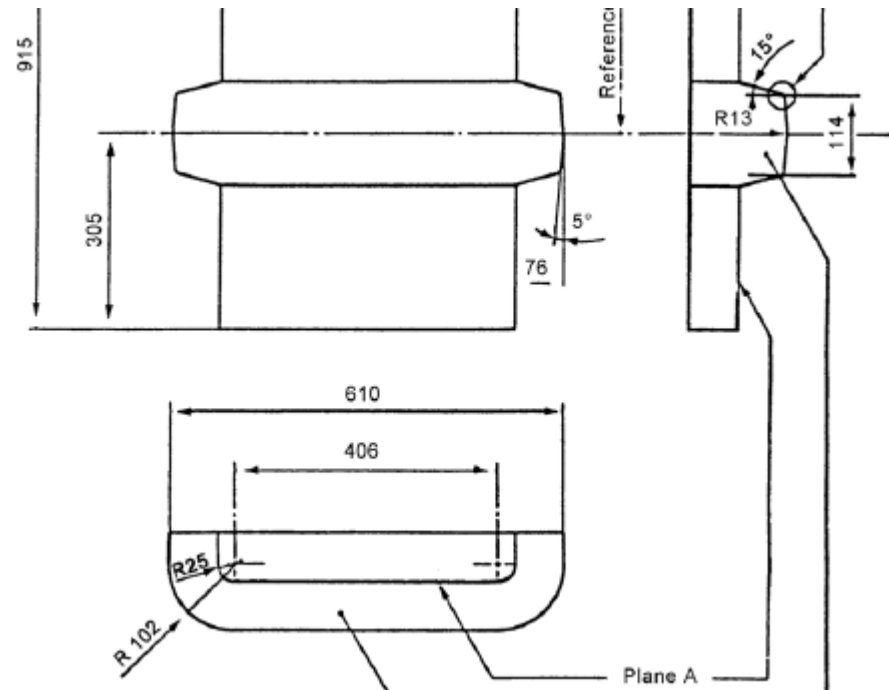


1. Determine Lower and Upper Bumper Reference Lines?



2. Use Smaller Corner Gauges?

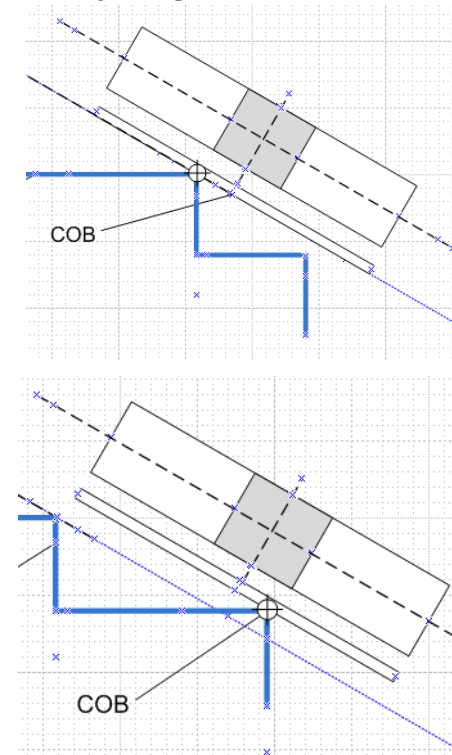
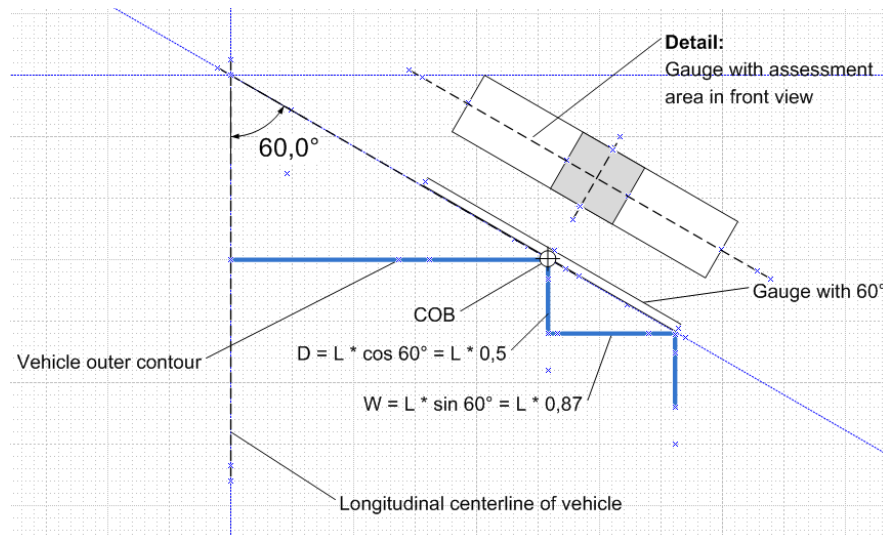
- Corner gauge idea was developed during the discussion of the TF-BTA, using a surface with a similar size as the surface of the pendulum in UN R42
- Could a smaller surface be sufficient?



Pendulum acc. to UN R42

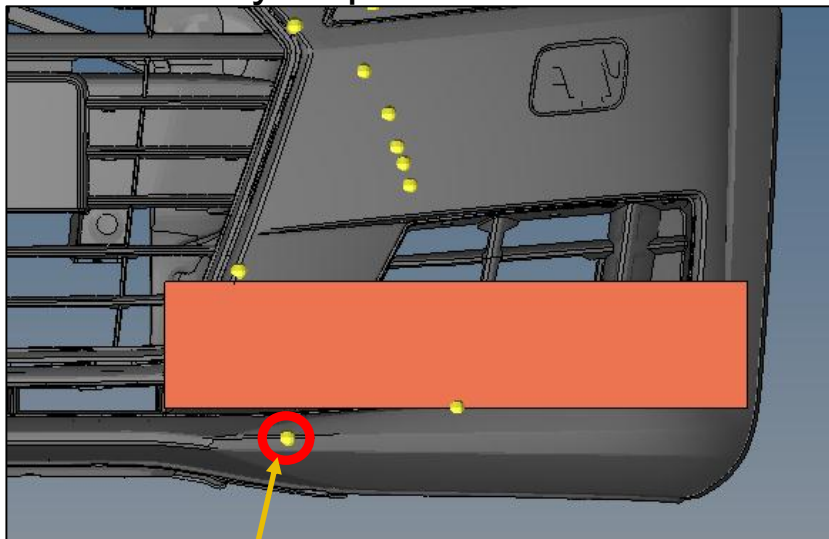
2. Use Smaller Corner Gauges?

- Sizes (width and/or depth) of possible jumps in the bumper surface certainly depend on the size of the corner gauges
- Pictures shown do NOT represent typical vehicle styling!

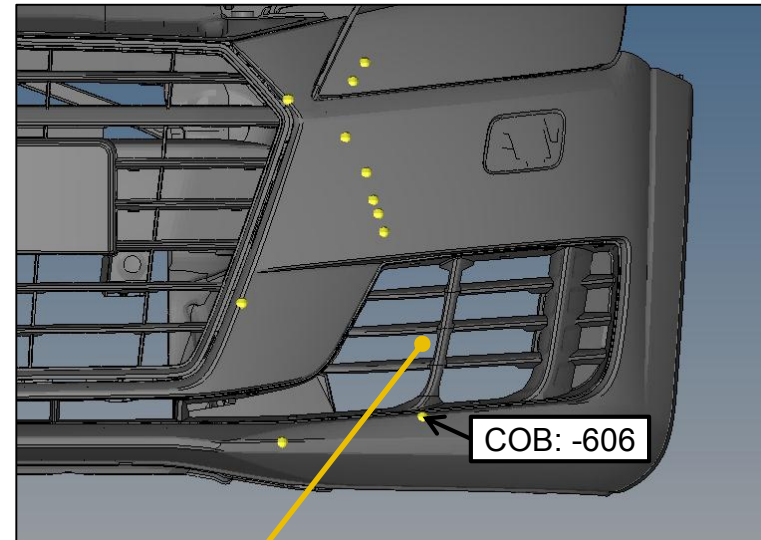


2. Use Smaller Corner Gauges?

- CoB shall represent general vehicle outer surface and must not be determined by localities like air intake openings, which may be required to compensate for loss of openings in center area due to pedestrian safety requirements.



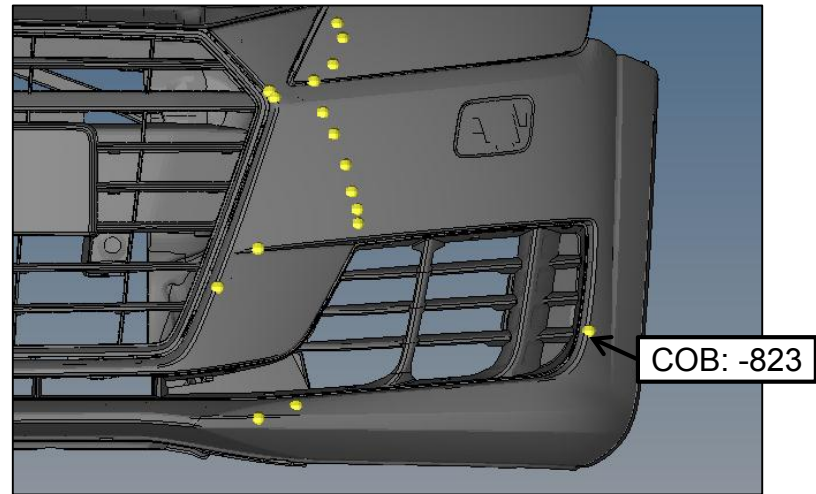
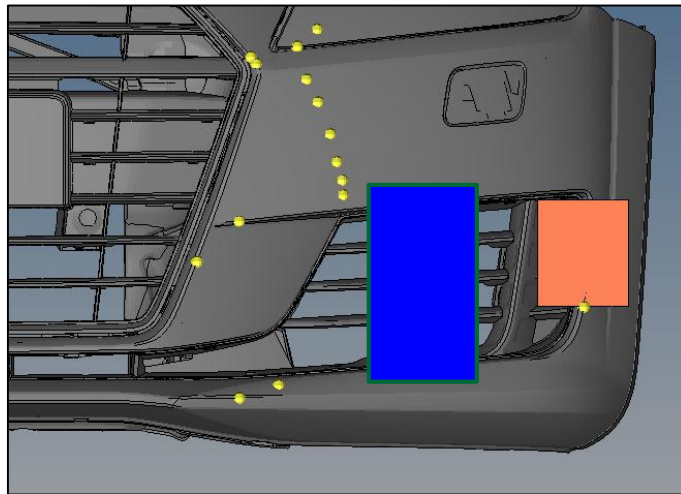
Original CoB
@ Y = -452



Large air inlet, needed to compensate the decrease of air inlets in the vehicle center

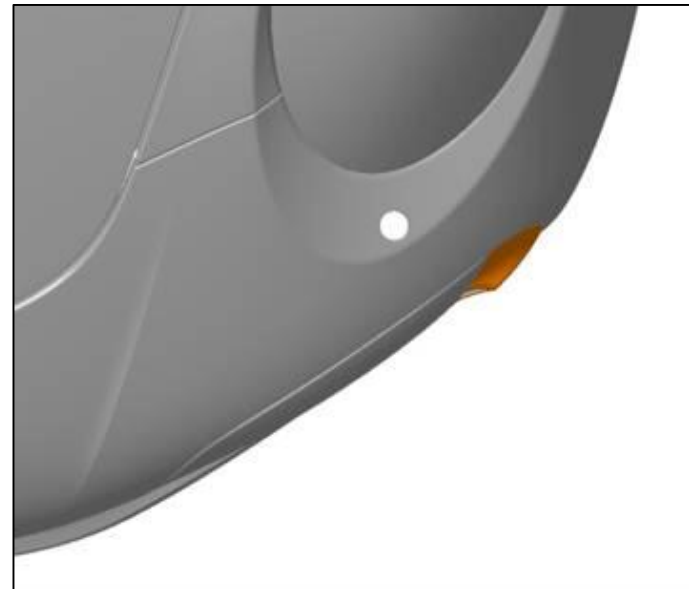
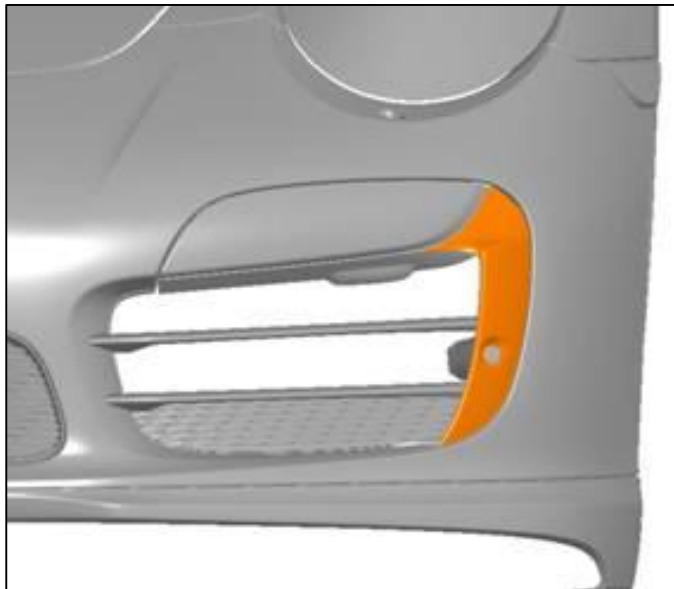
2. Use Smaller Corner Gauges?

- Small corner gauges lead to over-assessing single styling elements that have technical functionalities but that do not have any influence on pedestrian safety (example 1)



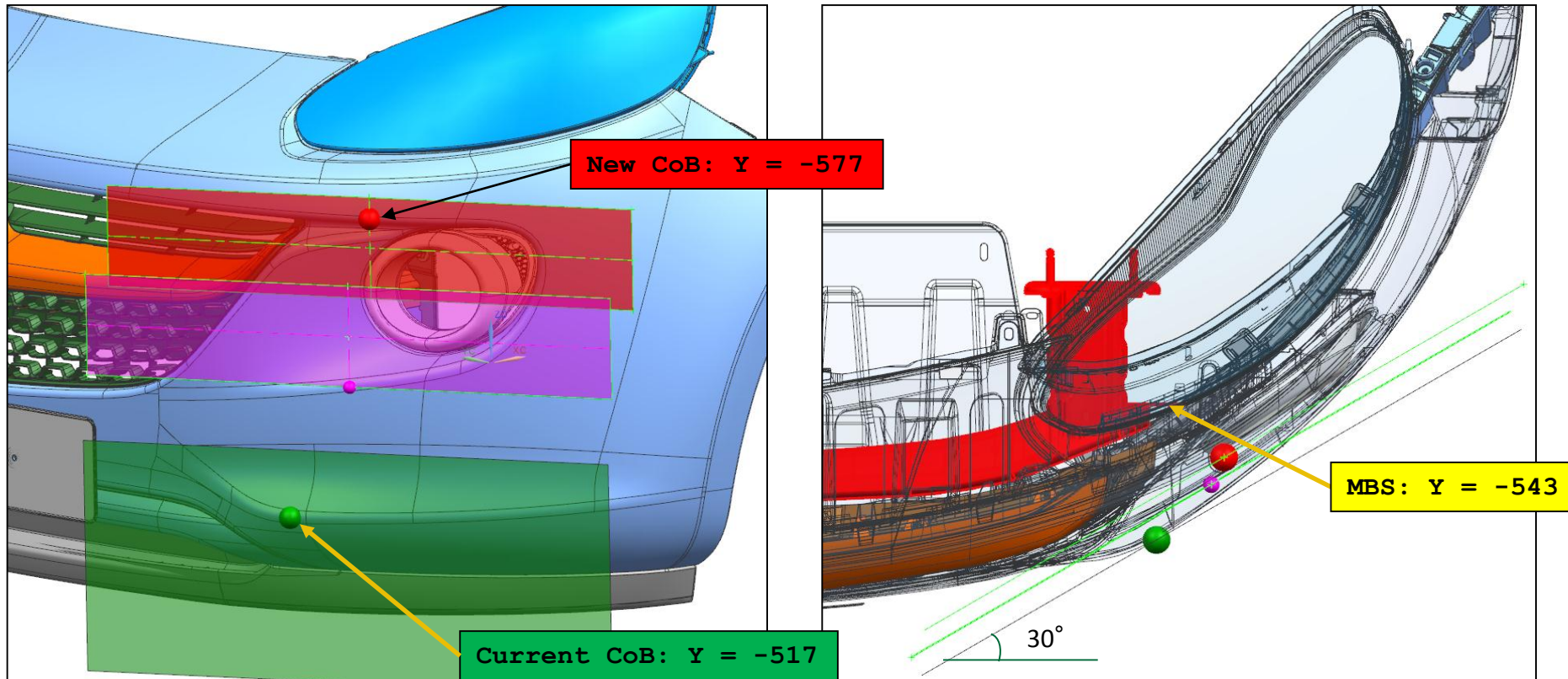
2. Use Smaller Corner Gauges?

- Small corner gauges lead to over-assessing single styling elements that have technical functionalities but that do not have any influence on pedestrian safety (example 2)



2. Use Smaller Corner Gauges?

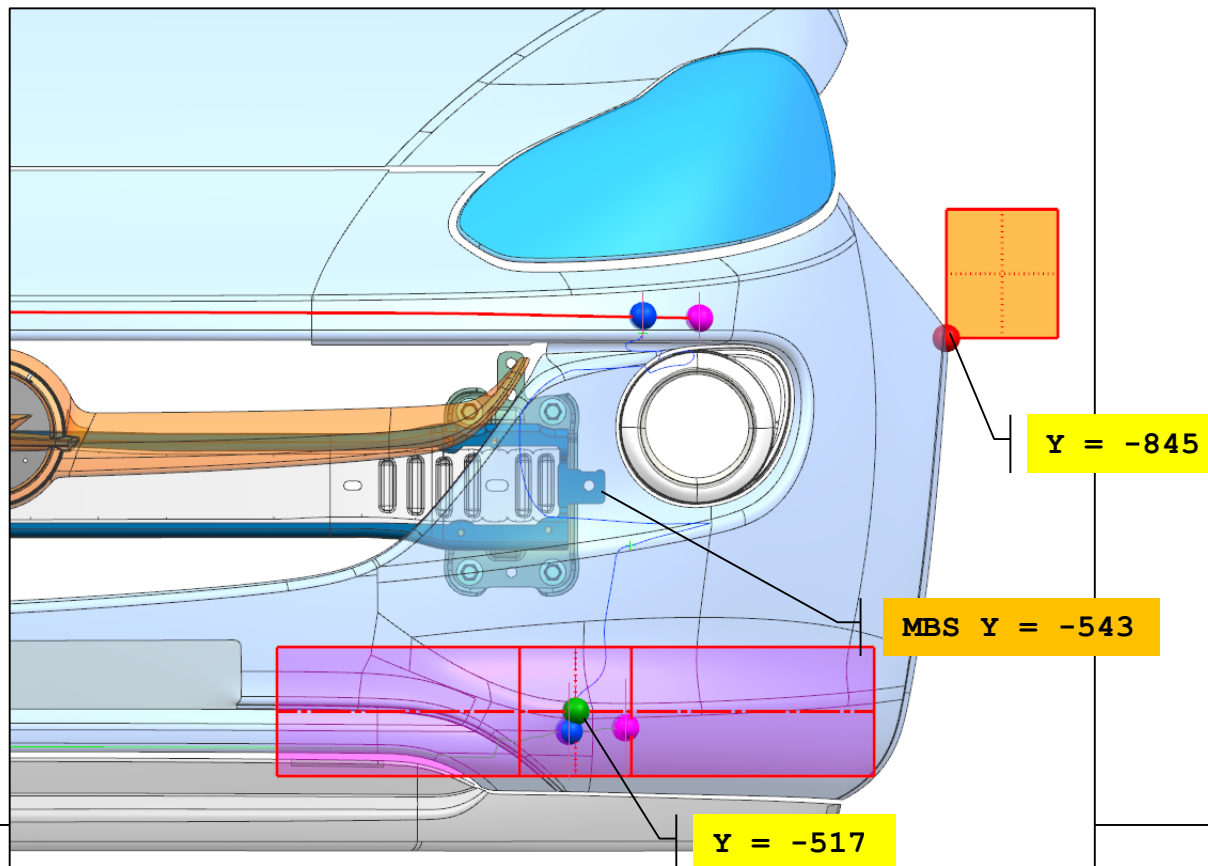
CoB = Corner of Bumper
 MBS = Main Bumper System



- Corner points do not change in each and every case but still a risk of over-assessing certain styling elements can be seen

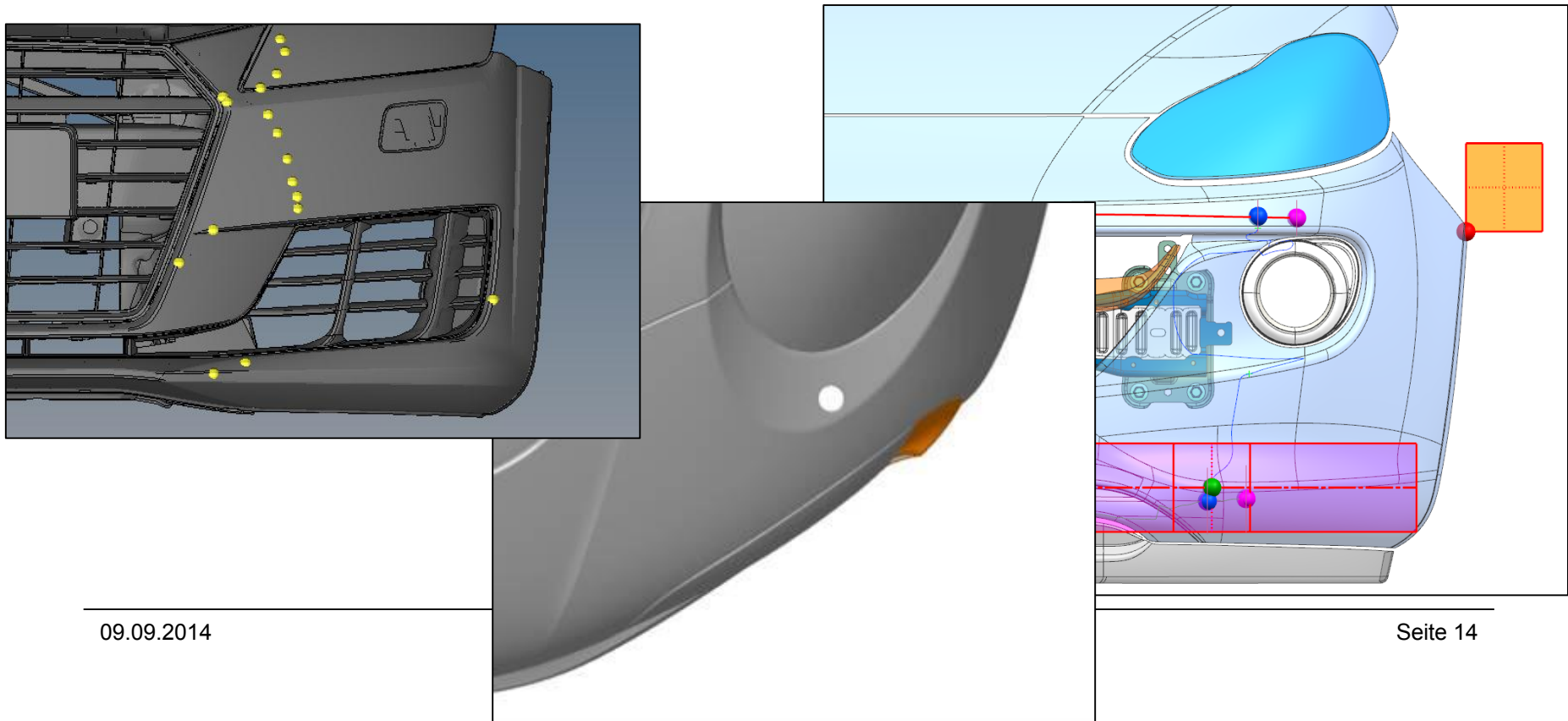
2. Use Smaller Corner Gauges?

- In all cases, corner gauges will contact the wheel arches if “any contact” to the device is required

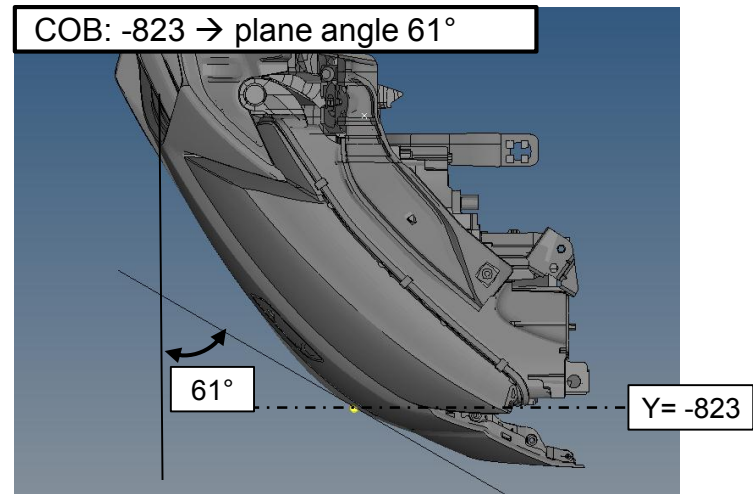
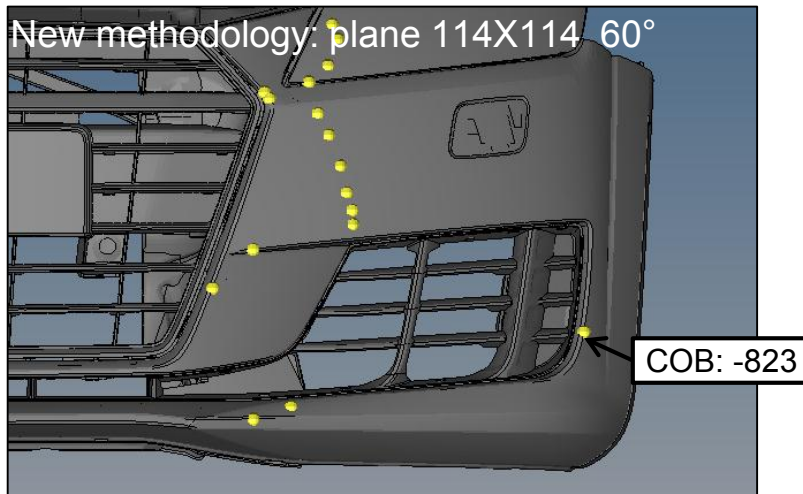
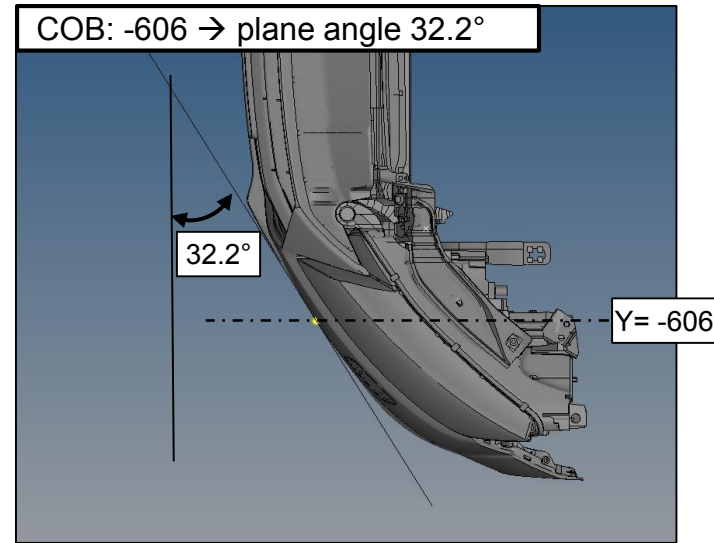
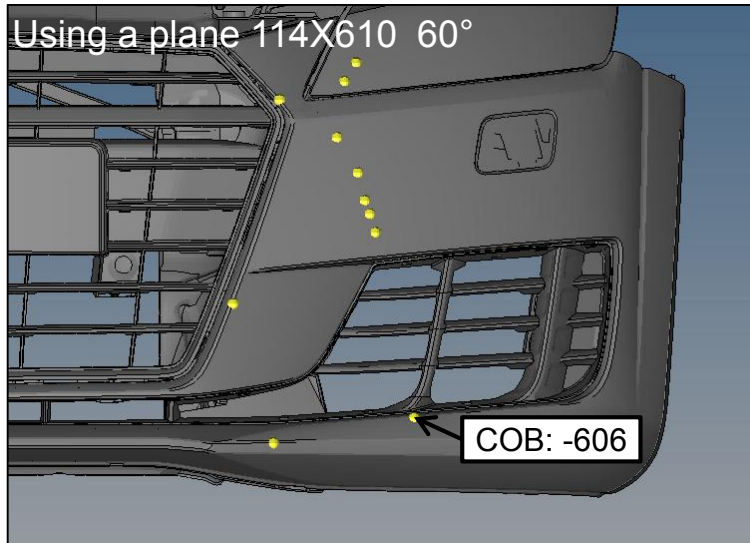


2. Use Smaller Corner Gauges?

- Finally, if small styling features are to be assessed, the issues with the FlexPLI rotation still exist (see documents TF-BTA-3-03r1, TF-BTA-3-07, TF-BTA-3-08, TF-BTA-4-03, TF-BTA-7-07) since the legform just assesses the “global” surfaces

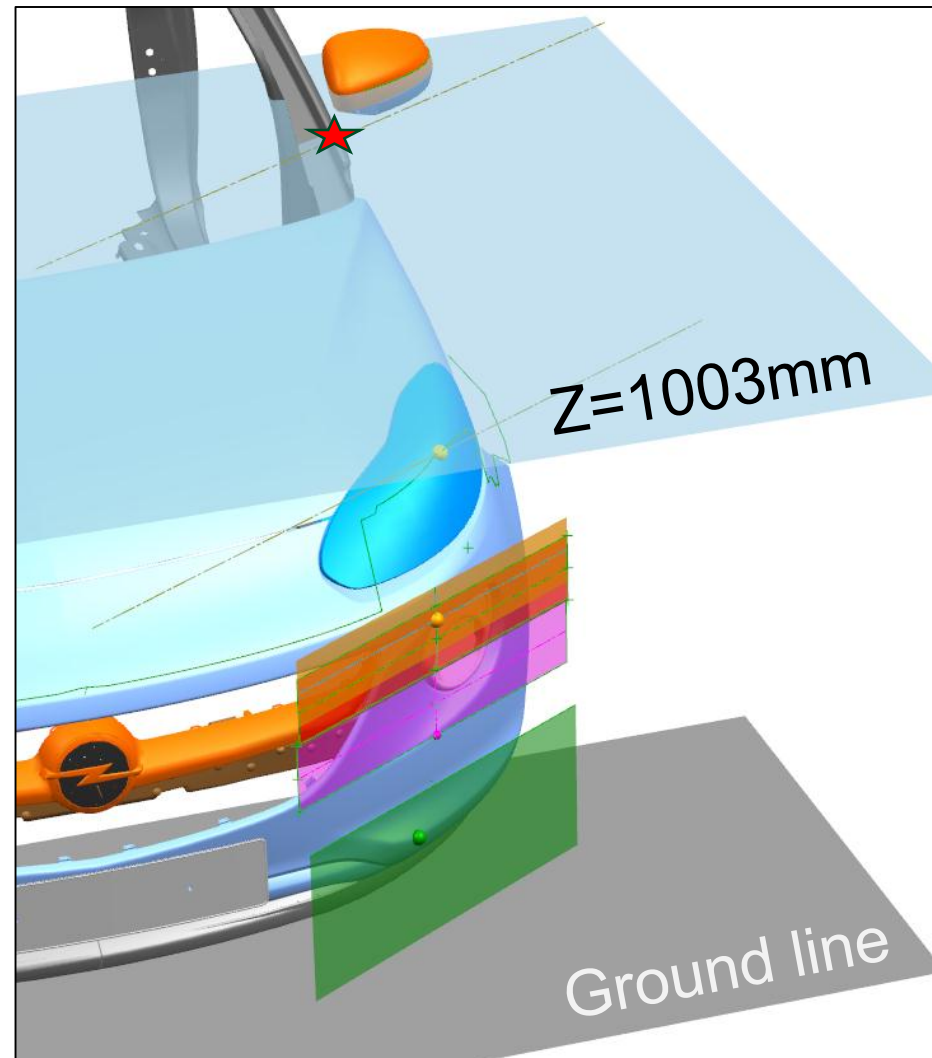


2. Use Smaller Corner Gauges?



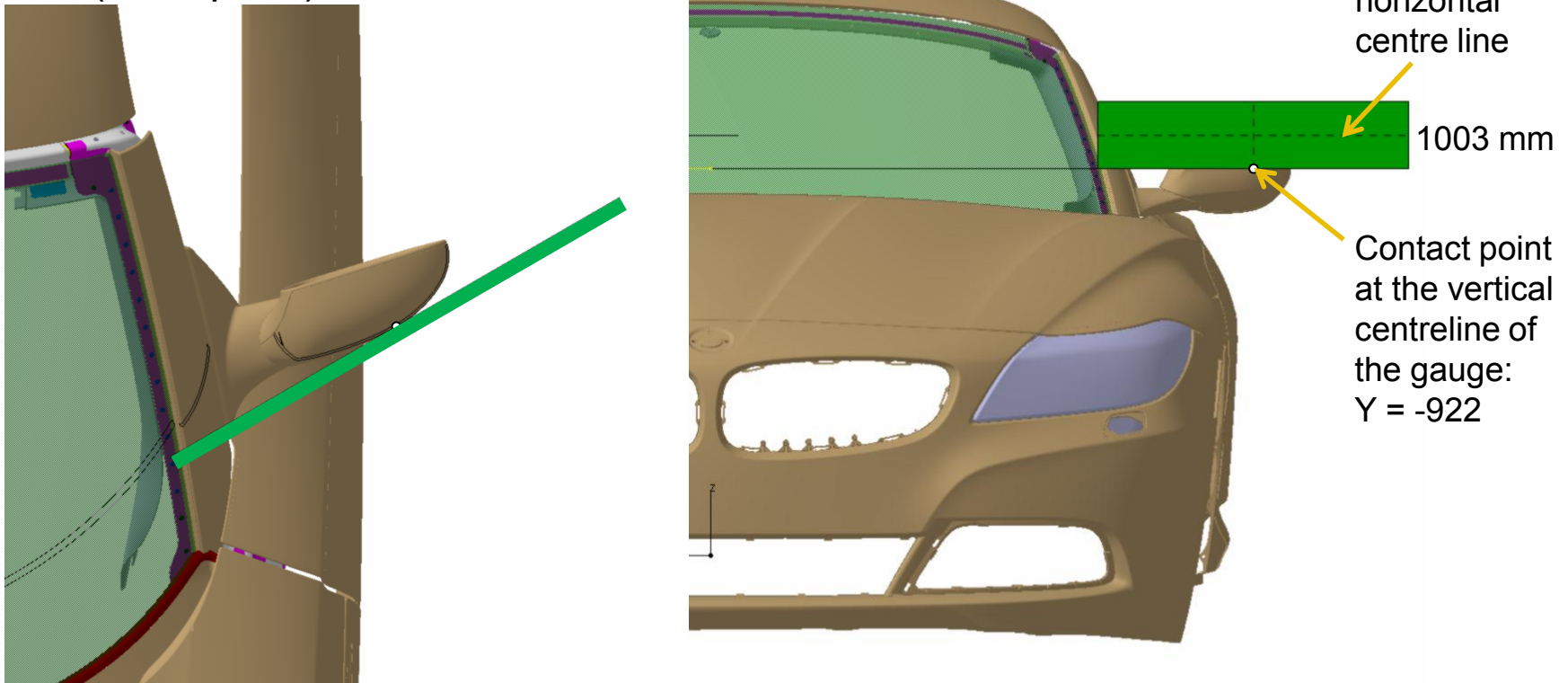
3. Define Test Area over the Full Vehicle Width?

- Height limit of touch points according to FlexPLI dimensions will lead to issues with non-lower leg related vehicle parts like A-pillars, mirrors or tires (example 1).



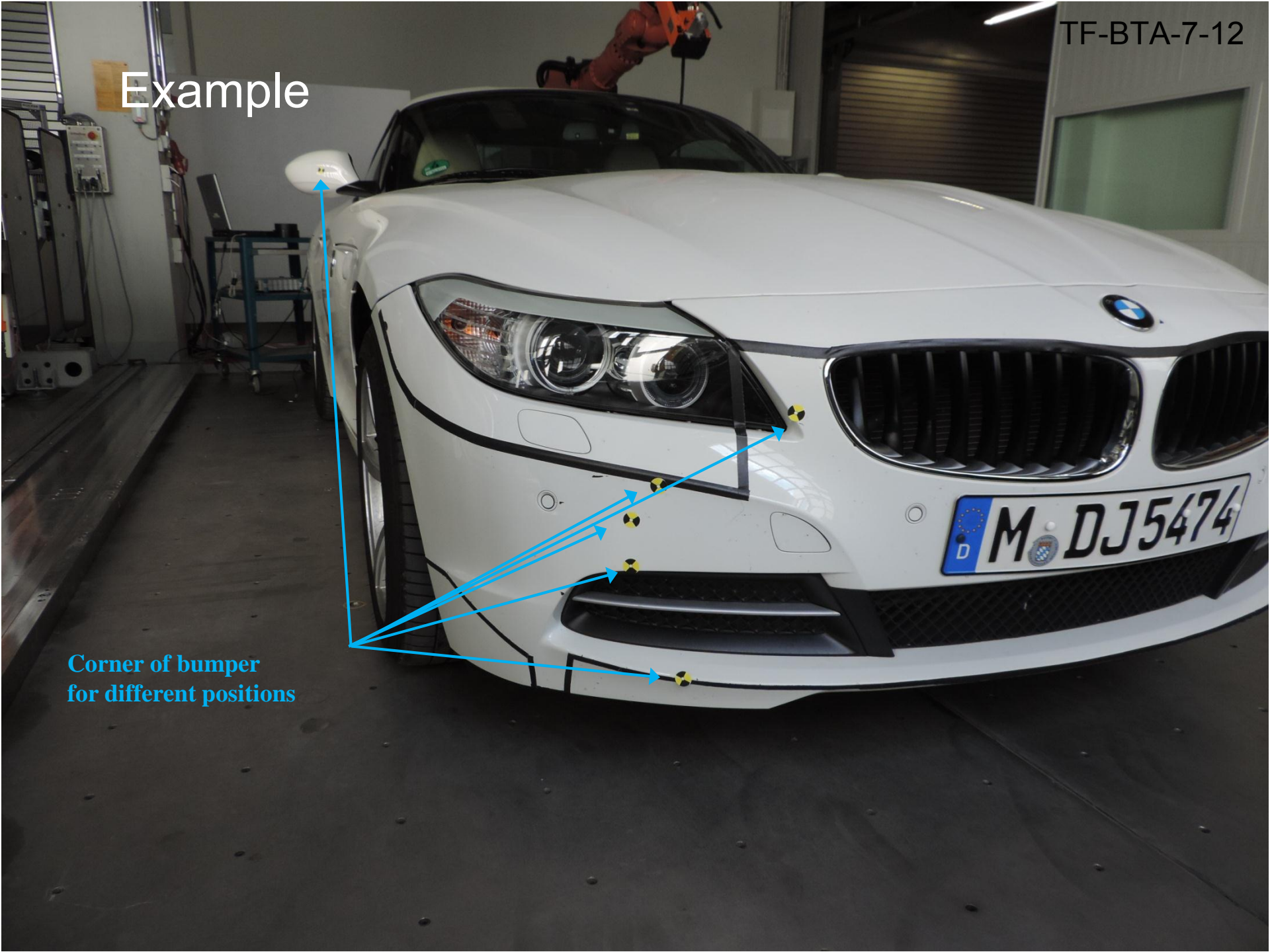
3. Define Test Area over the Full Vehicle Width?

- Height limit of touch points according to FlexPLI dimensions will lead to issues with non-lower leg related vehicle parts like A-pillars, mirrors or tires (example 2).



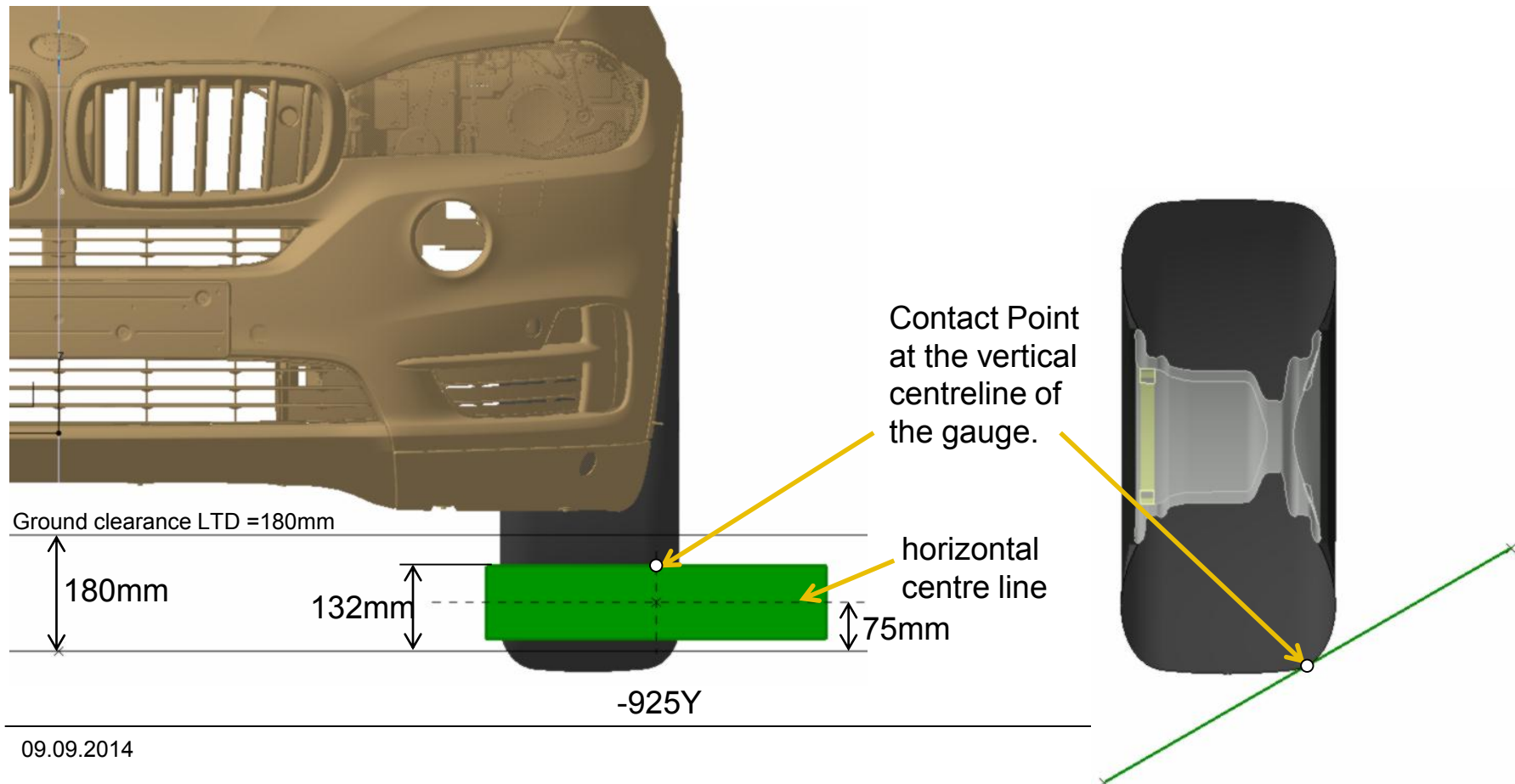
Example

Corner of bumper
for different positions



3. Define Test Area over the Full Vehicle Width?

- For SUV's, wheels are within the test area



Conclusions

- As legislation shall provide a technically feasible framework without the room for interpretation and shall incorporate a general benefit to vulnerable road users, it is therefore suggested to keep the 60° angle definition but limiting the plane to a gauge 610 x 114 mm. This gauge will be applied between the Lower and Upper Bumper Reference Lines to assess the pedestrian impactor contact surface. The most outboard contact of the intersection of vertical and horizontal centerlines of the gauge will be considered Corner of Bumper.
- This complies with the ACEA request in document TF-BTA-7-03 to use the initial proposal of document TF-BTA-6-04 for the final development of the new definition of the legform to bumper test area.

Thank you!