

odelo

Automotive Signal Lights

Otomotiv Far Tasarımında Yaya Güvenliđi ve Gerçek Zamanlı Titreşim Analizleri

Odelo R&D Center

24.10.2023

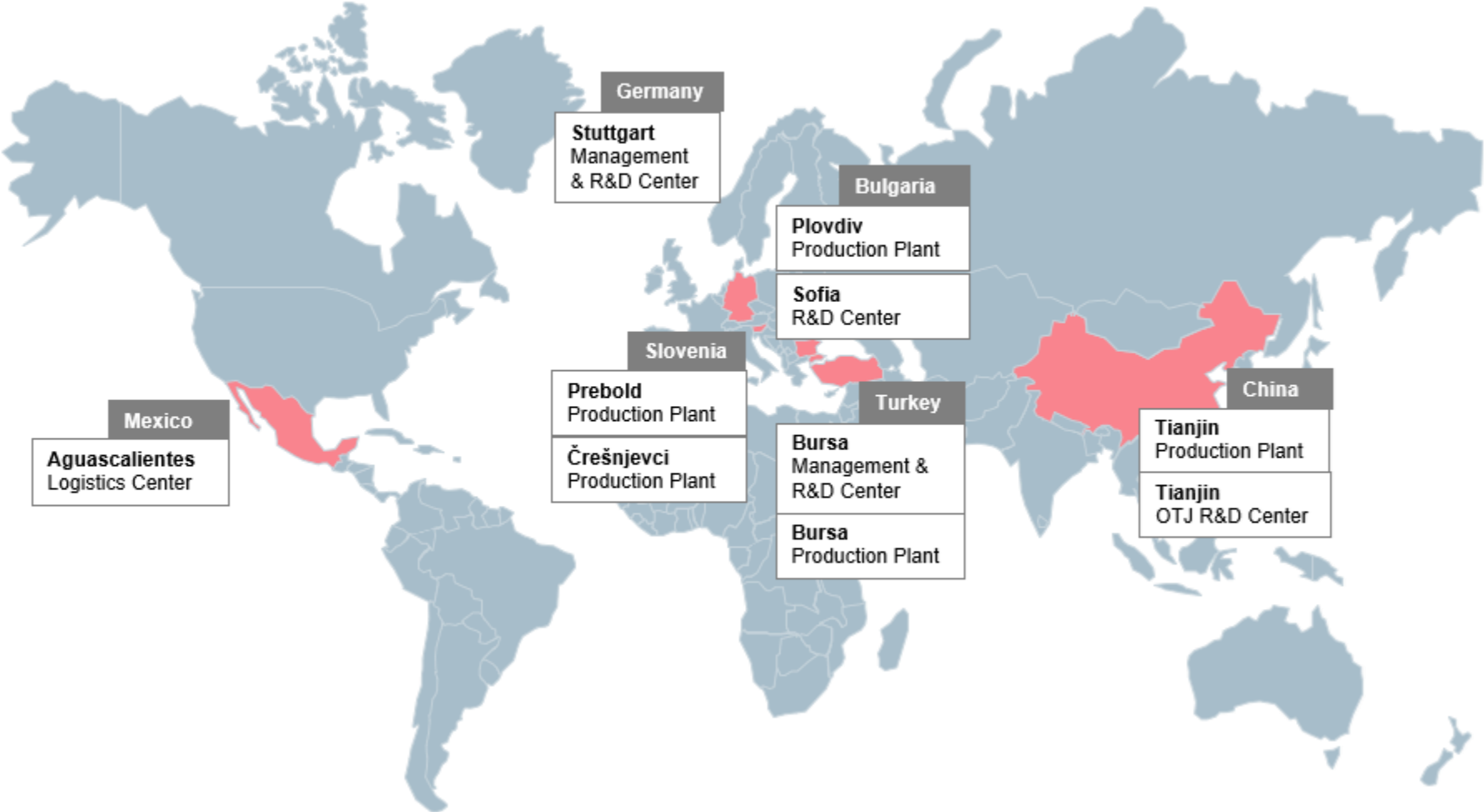


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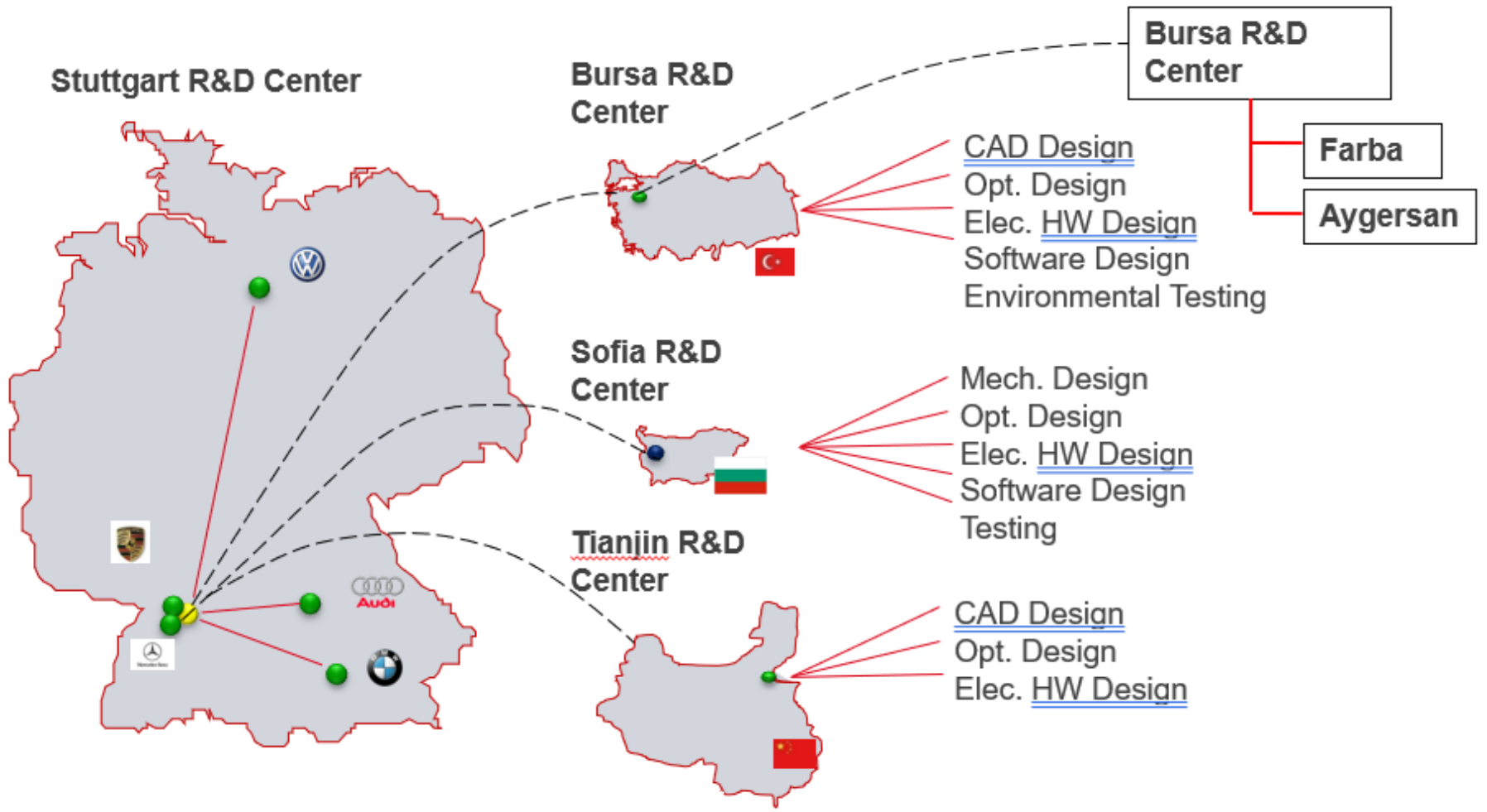
A long-exposure photograph of a city at night. The scene is dominated by tall skyscrapers with glowing windows. In the foreground, a multi-level highway interchange is visible, with light trails from cars and streetlights creating vibrant streaks of red, orange, and yellow. The sky is a deep blue, and the overall atmosphere is one of a bustling, illuminated urban environment.

We Build Lights
with **Dedication!**

Global Footprint



Global Footprint R&D Centers



Customers



Mercedes-Benz



Audi



MAYBACH



PORSCHE



Volkswagen



ŠKODA



Key Products

Rear Lights



Seat Cupra Born



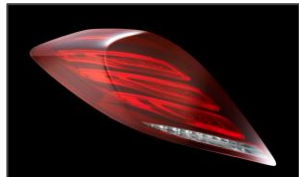
Ford Transit



Renault Clio



VW ID3



S-class (DAG)



E-class (DAG)



GLC (DAG)



B-class (DAG)



A5 (Audi)



Q3 (Audi)



A6 (Audi)



Touareg (VW)



M4 GTS (BMW)



5 Series (BMW)



i8 (BMW)



i3 (BMW)

Front Lights



Ford H625 - High



Ford Courier



Daimler Atego



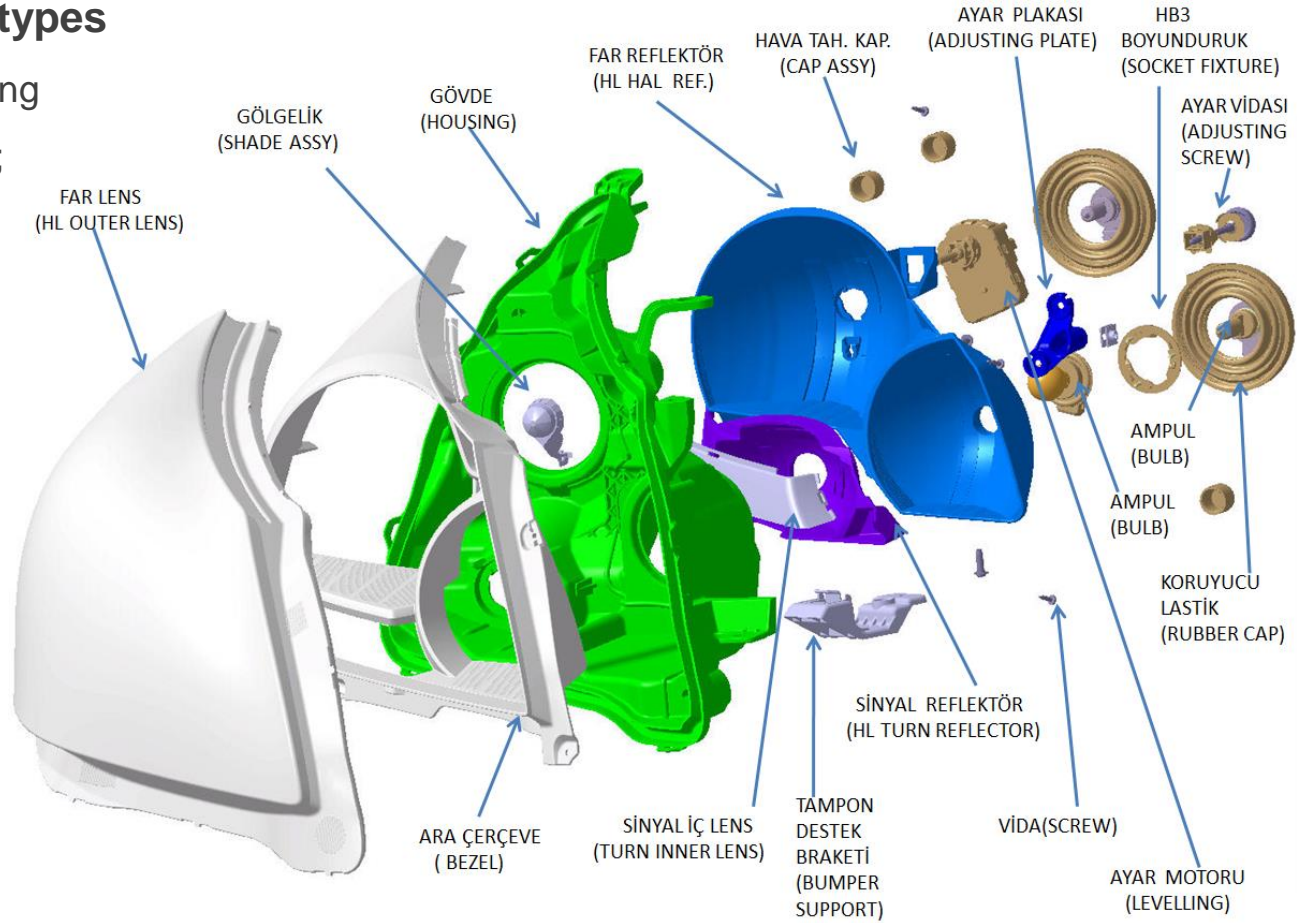
S6 (Audi)

Automotive Exterior Lighting

Product types

Front lighting

Headlamp;



HL (Head Lamps)



Automotive Exterior Lighting

Design through standards;

Headlamps,

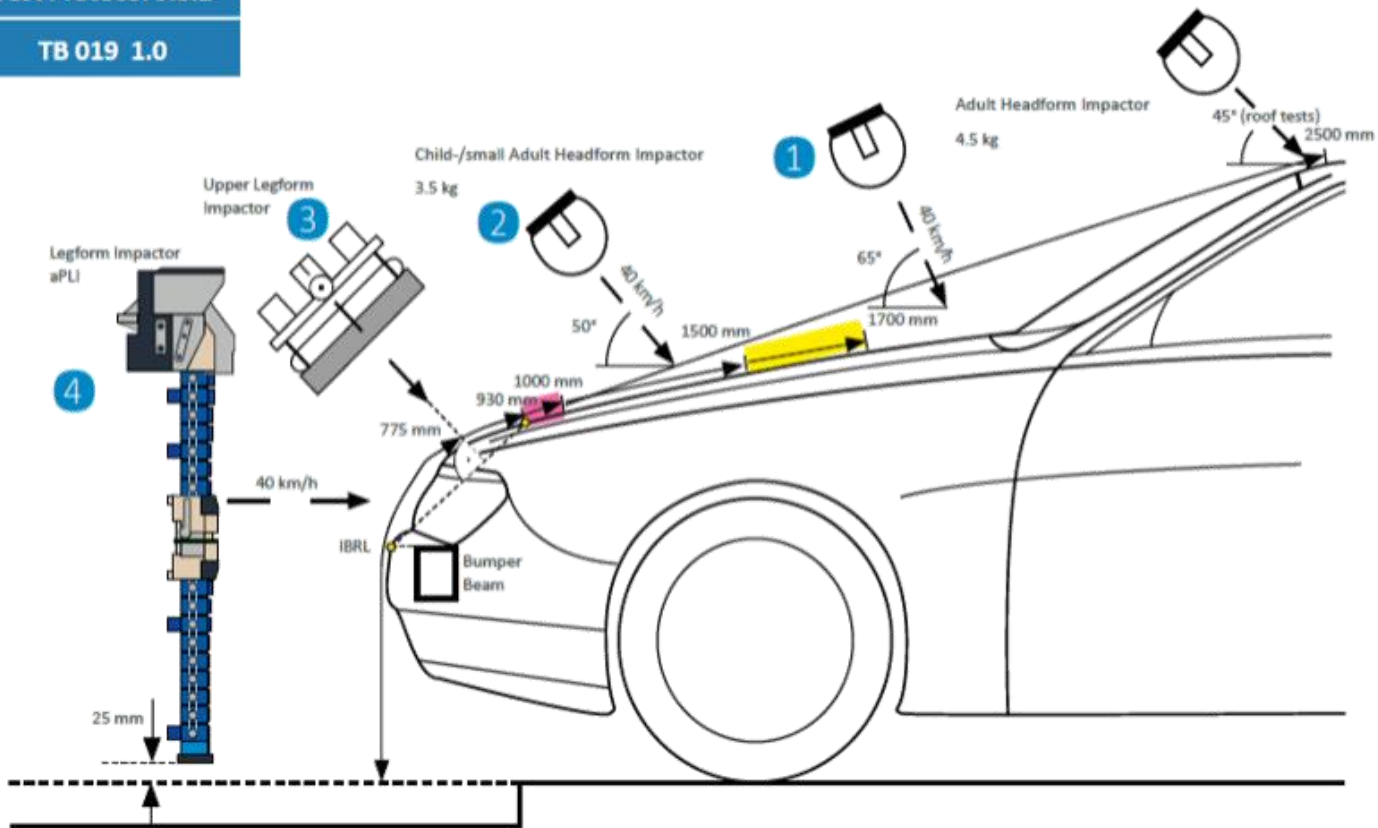
- Pedestrian protection (ECE and NCAP)
- Vibration Fatigue

Euro NCAP Pedestrian Protection Impact Areas

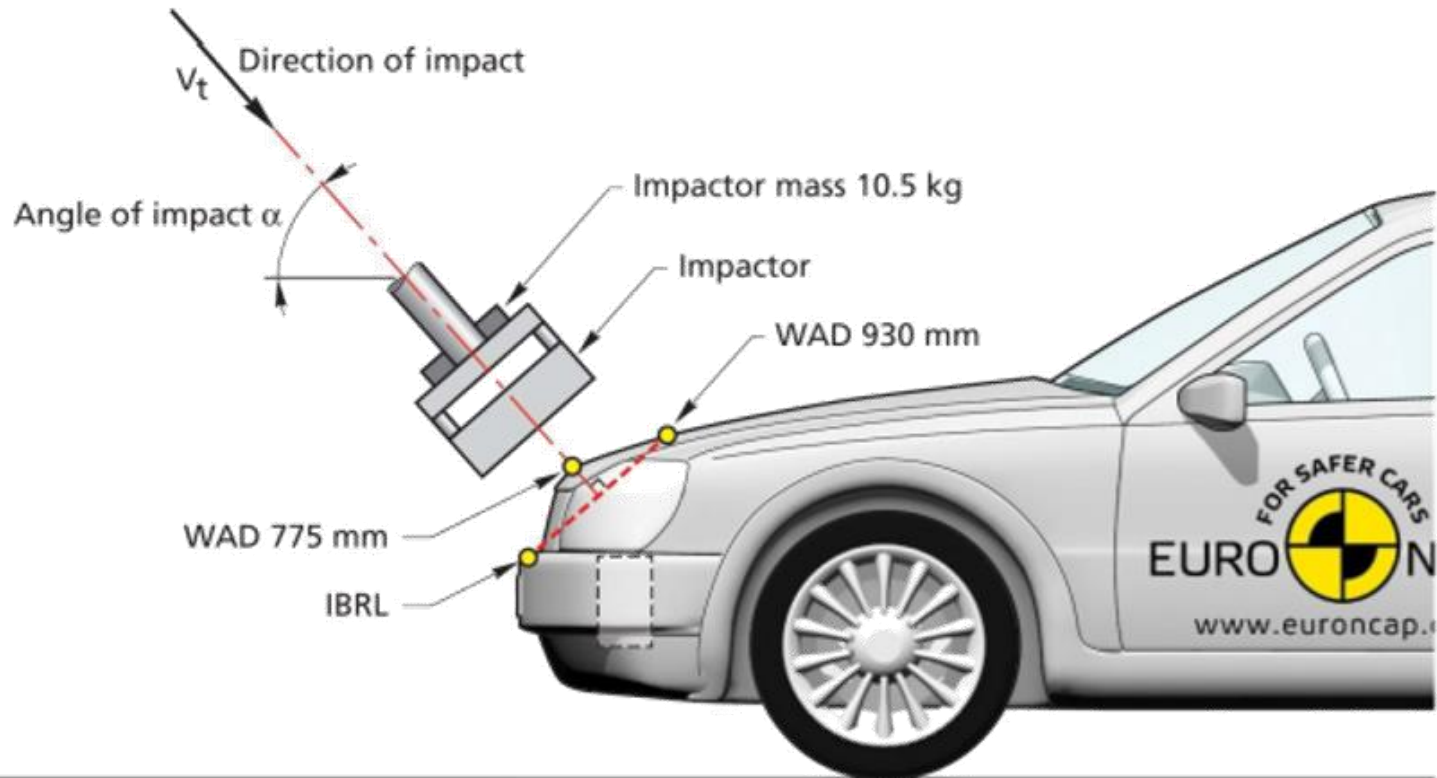
Pedestrian Protection Test Procedures
in Euro NCAP / ANCAP

Test Protocol 9.0.2

TB 019 1.0

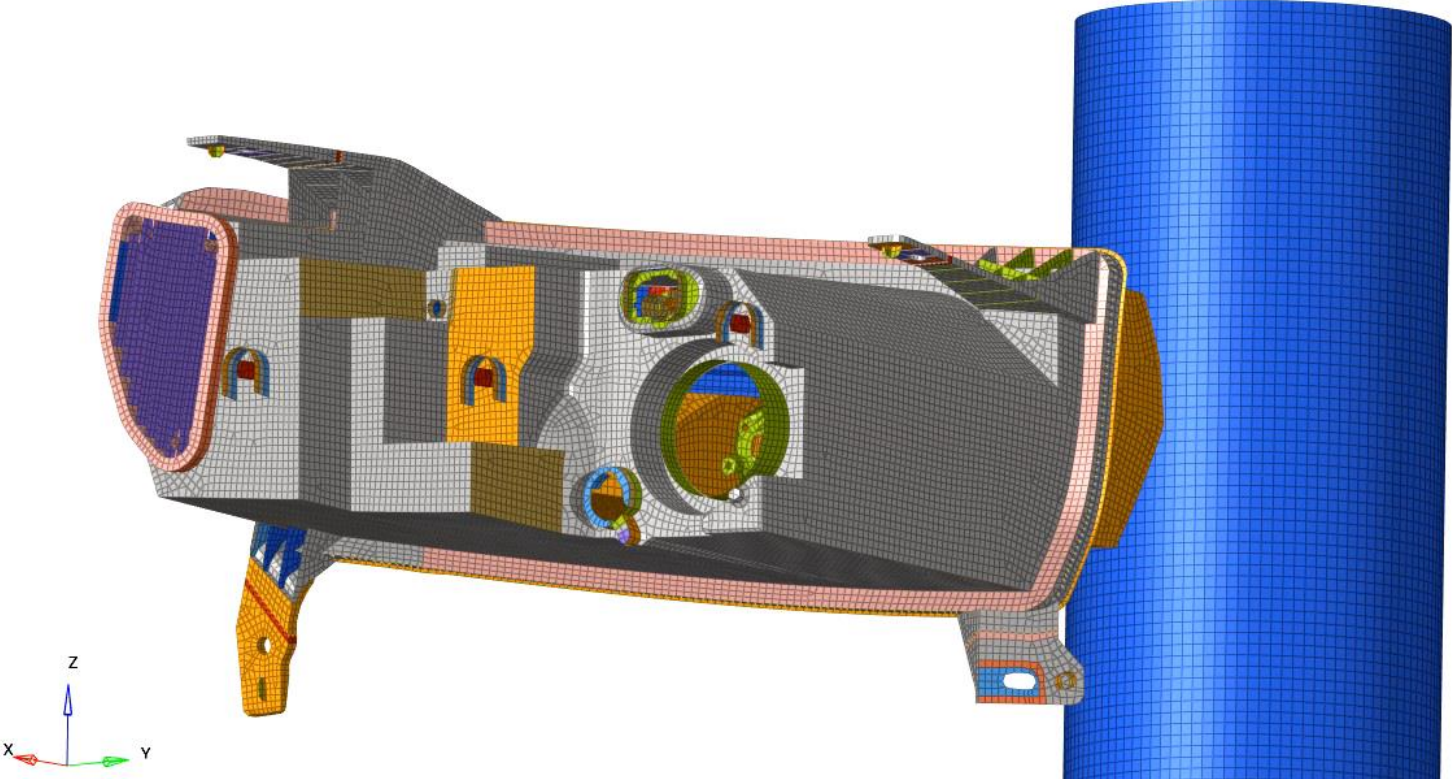


HL Euro NCAP Upper Leg Impact Test

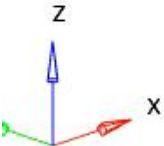
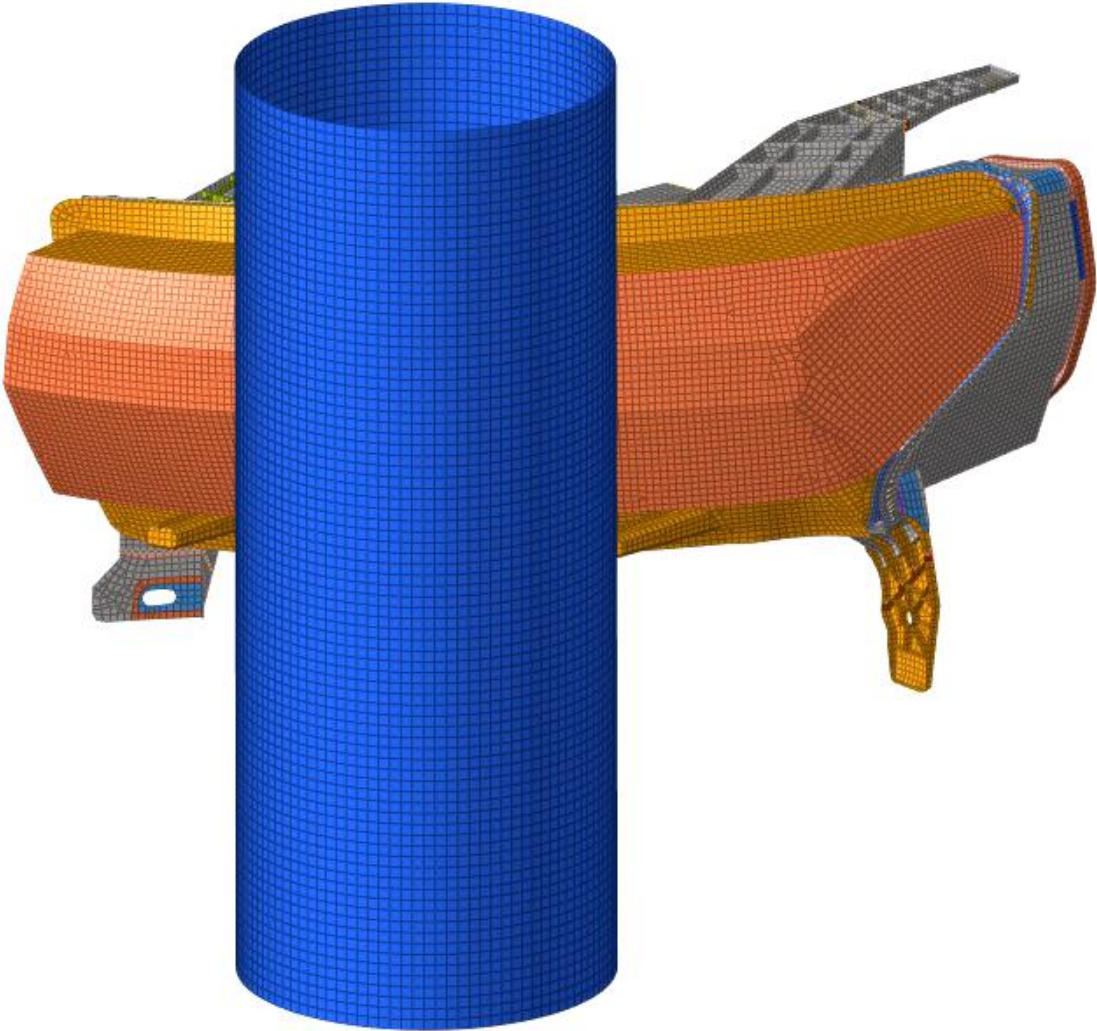


Upper Legform to WAD775mm Test

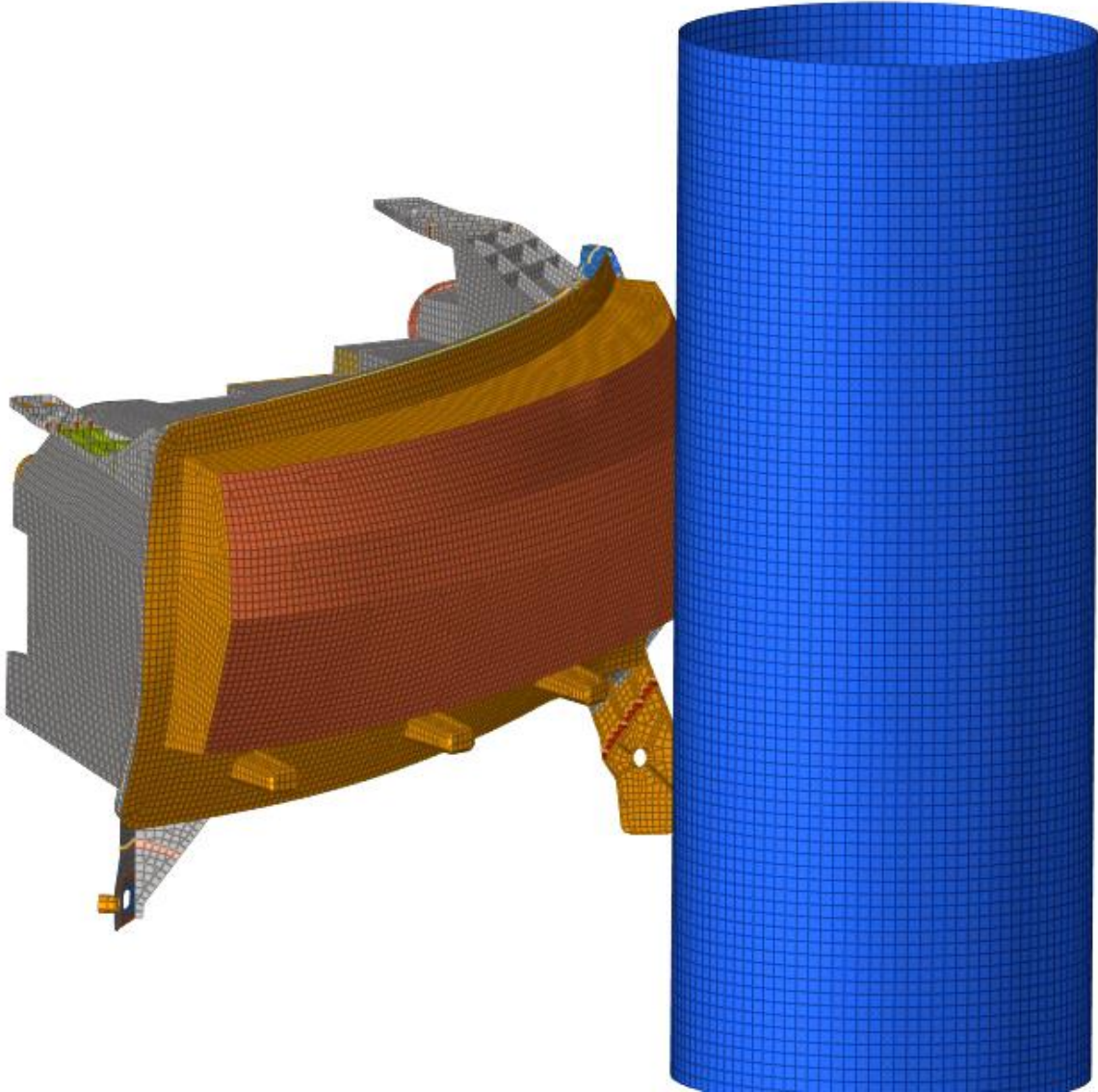
Automotive Exterior Lighting – LegForm Impact



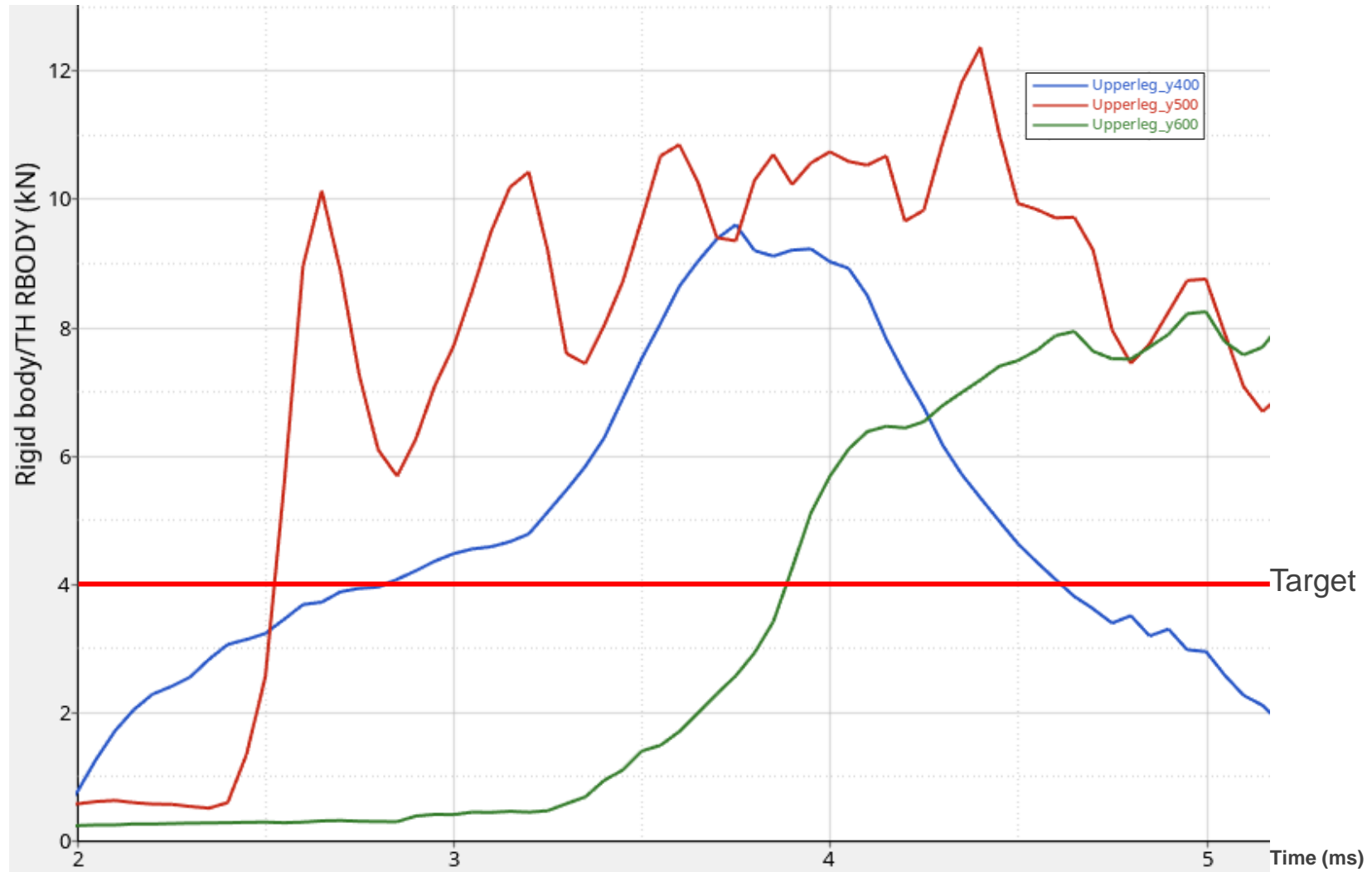
Automotive Exterior Lighting – LegForm Impact



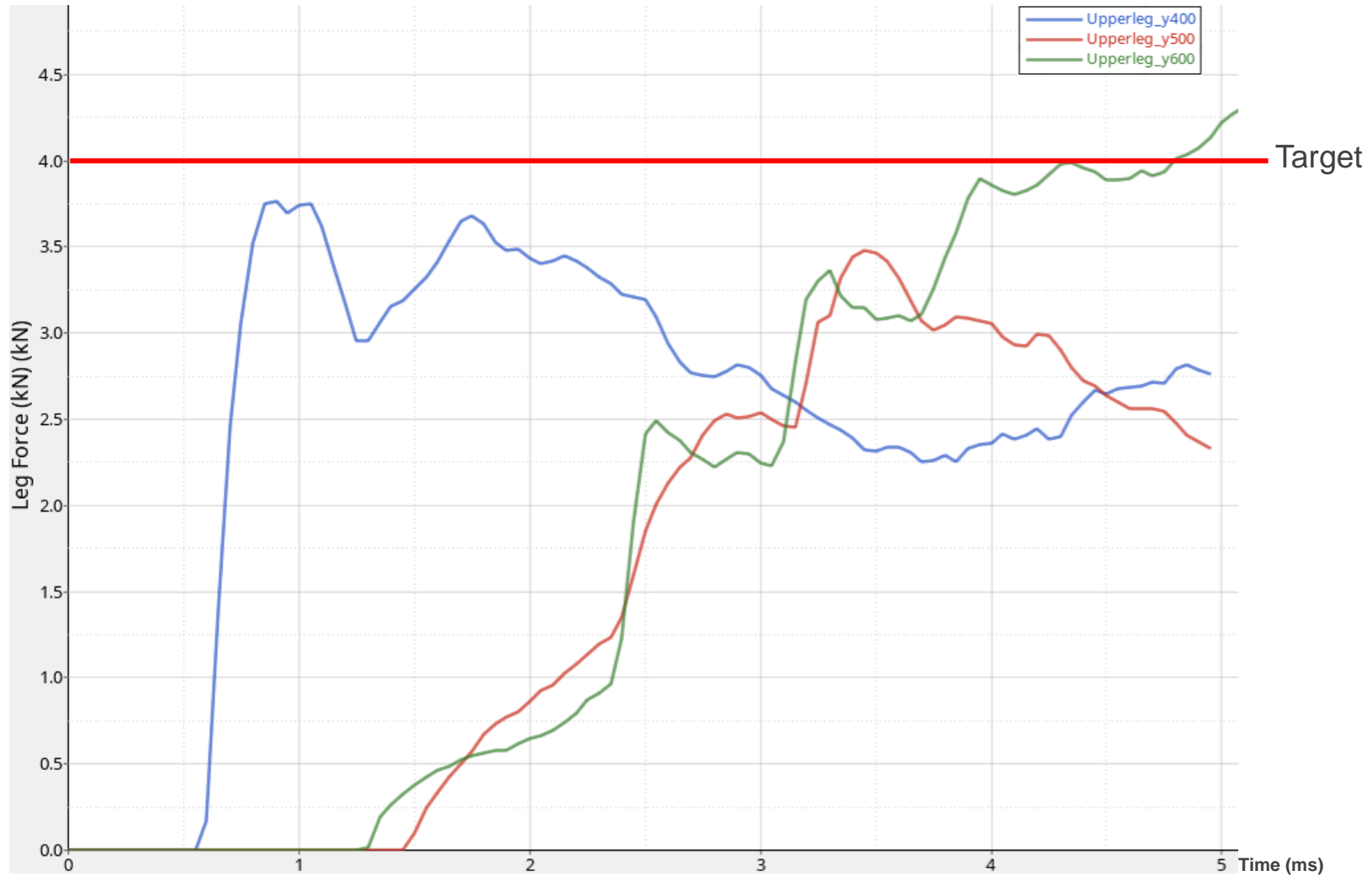
Automotive Exterior Lighting – LegForm Impact



Automotive Exterior Lighting – Leg Form Impact

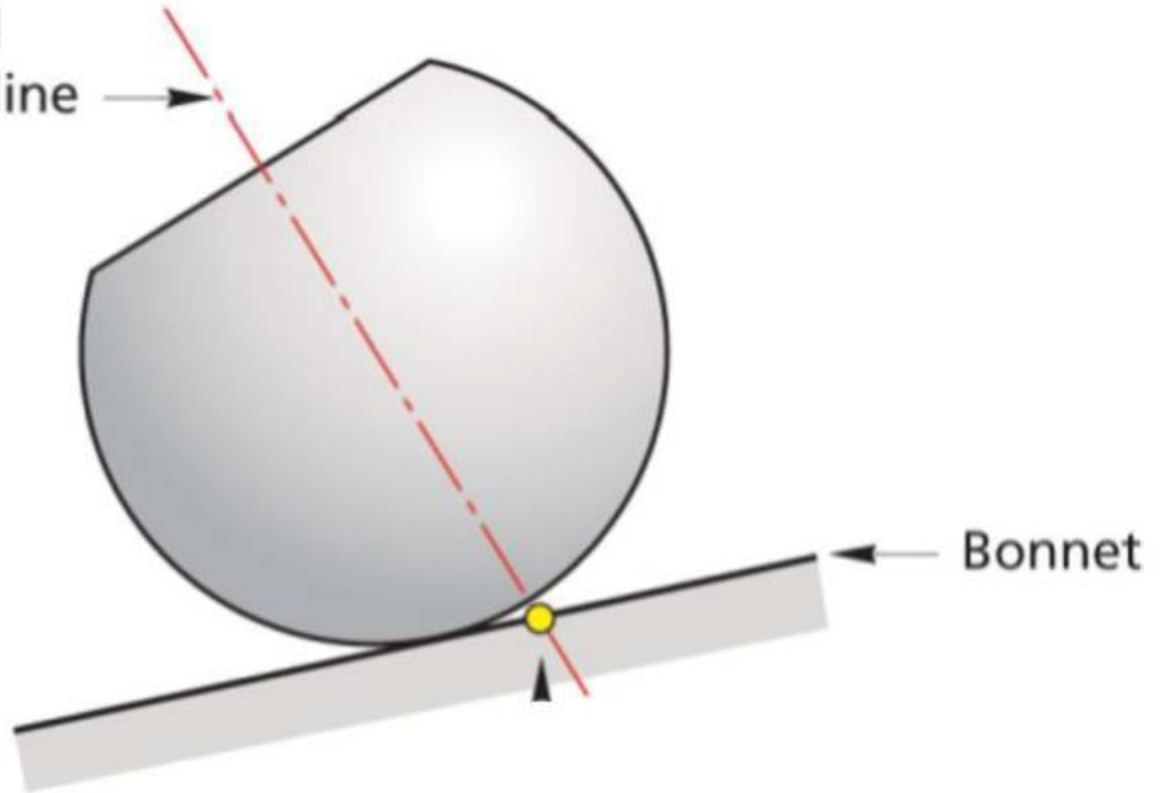


Automotive Exterior Lighting – Leg Form Impact

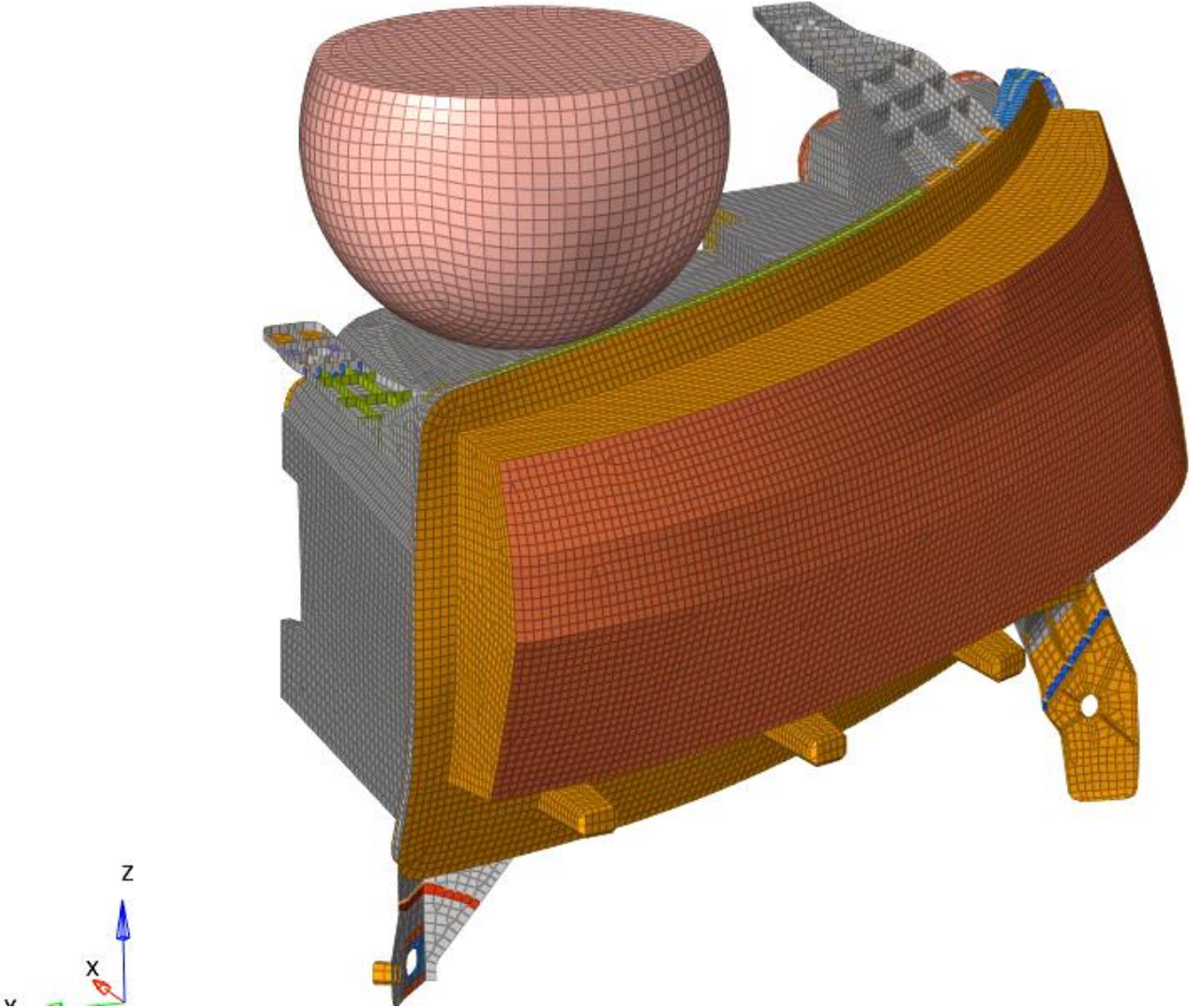


HL Euro NCAP Pedestrian Head Impact

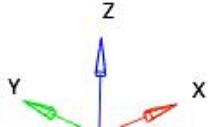
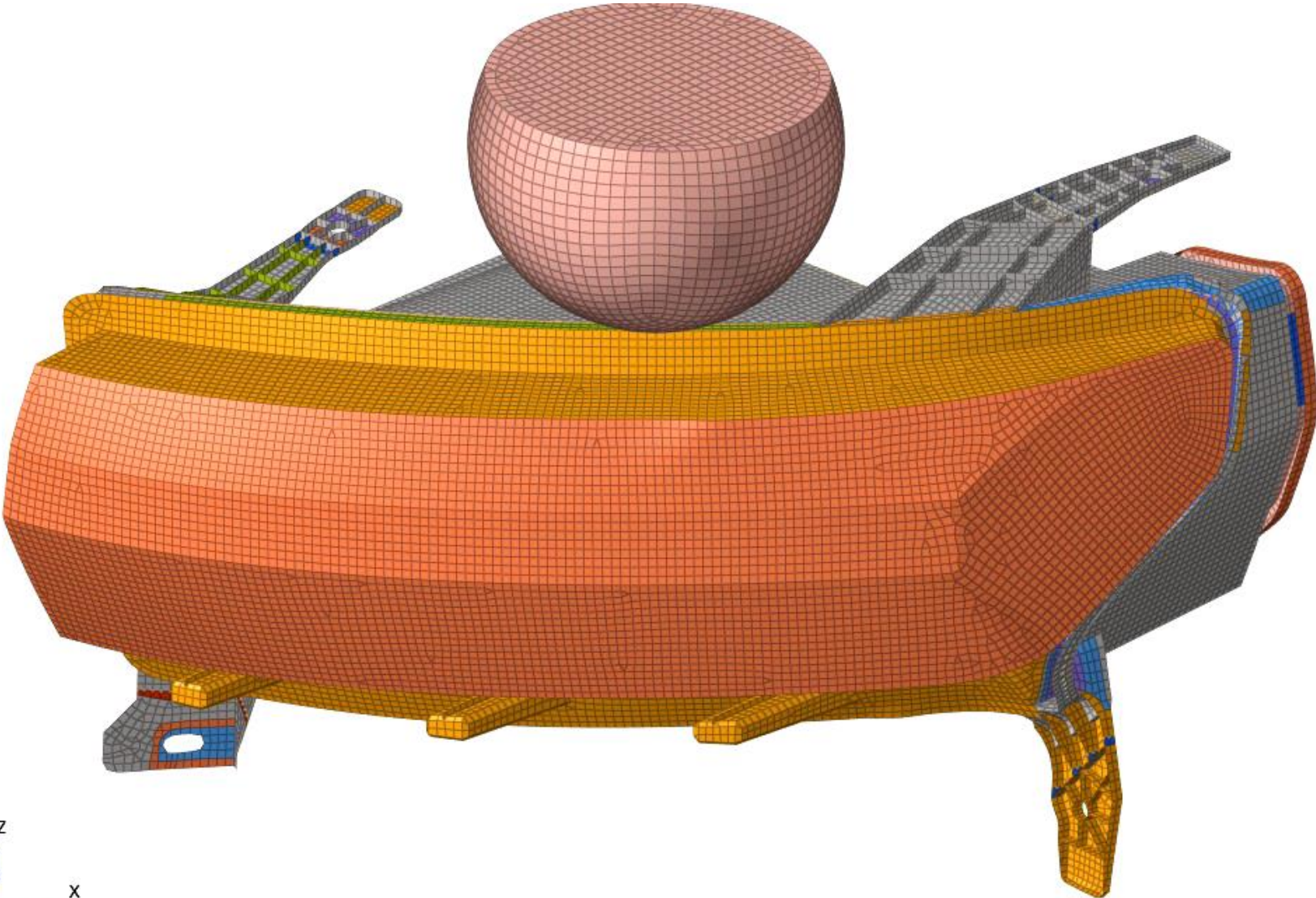
Line of flight and
headform centreline



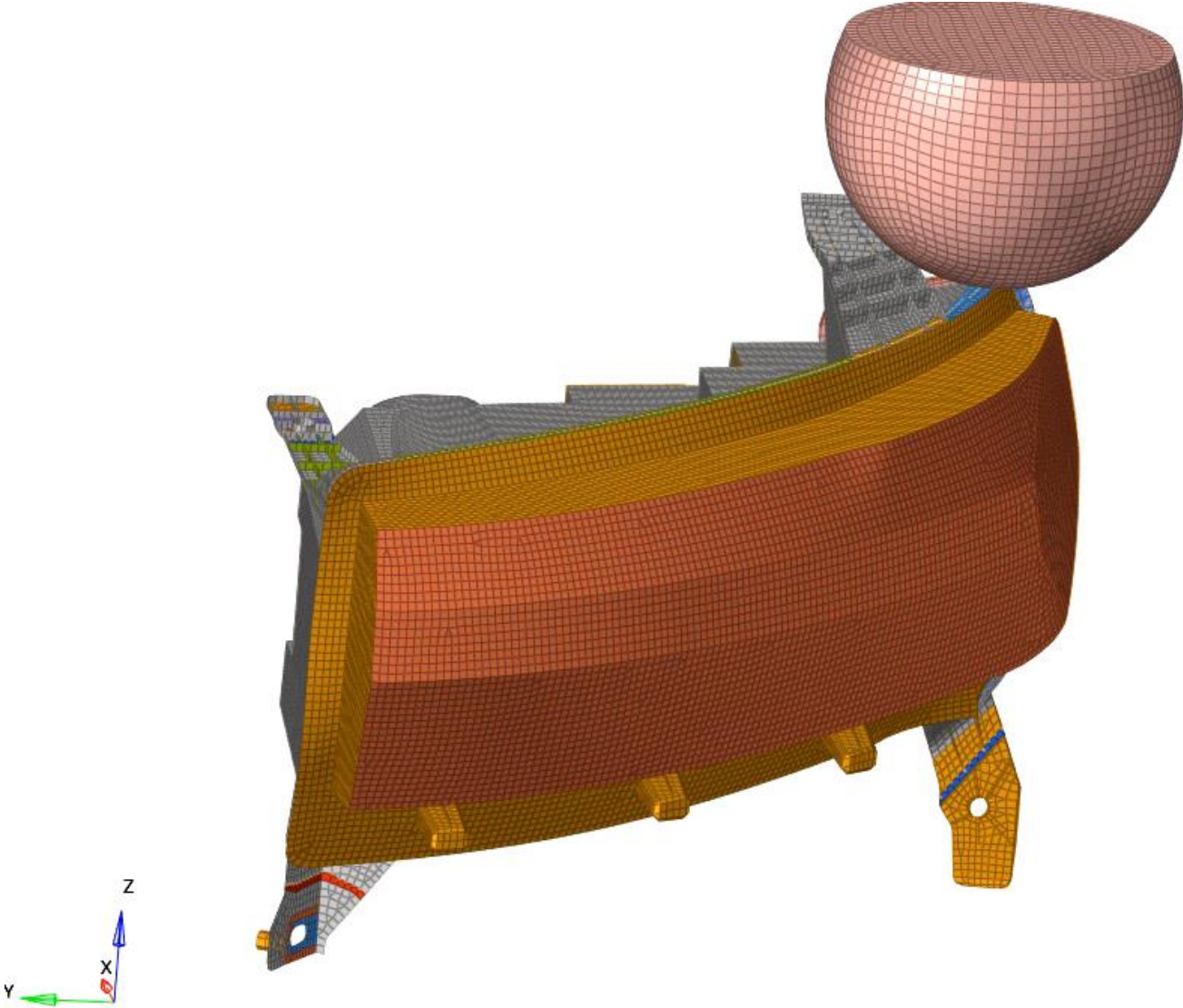
Automotive Exterior Lighting – HeadForm Impact



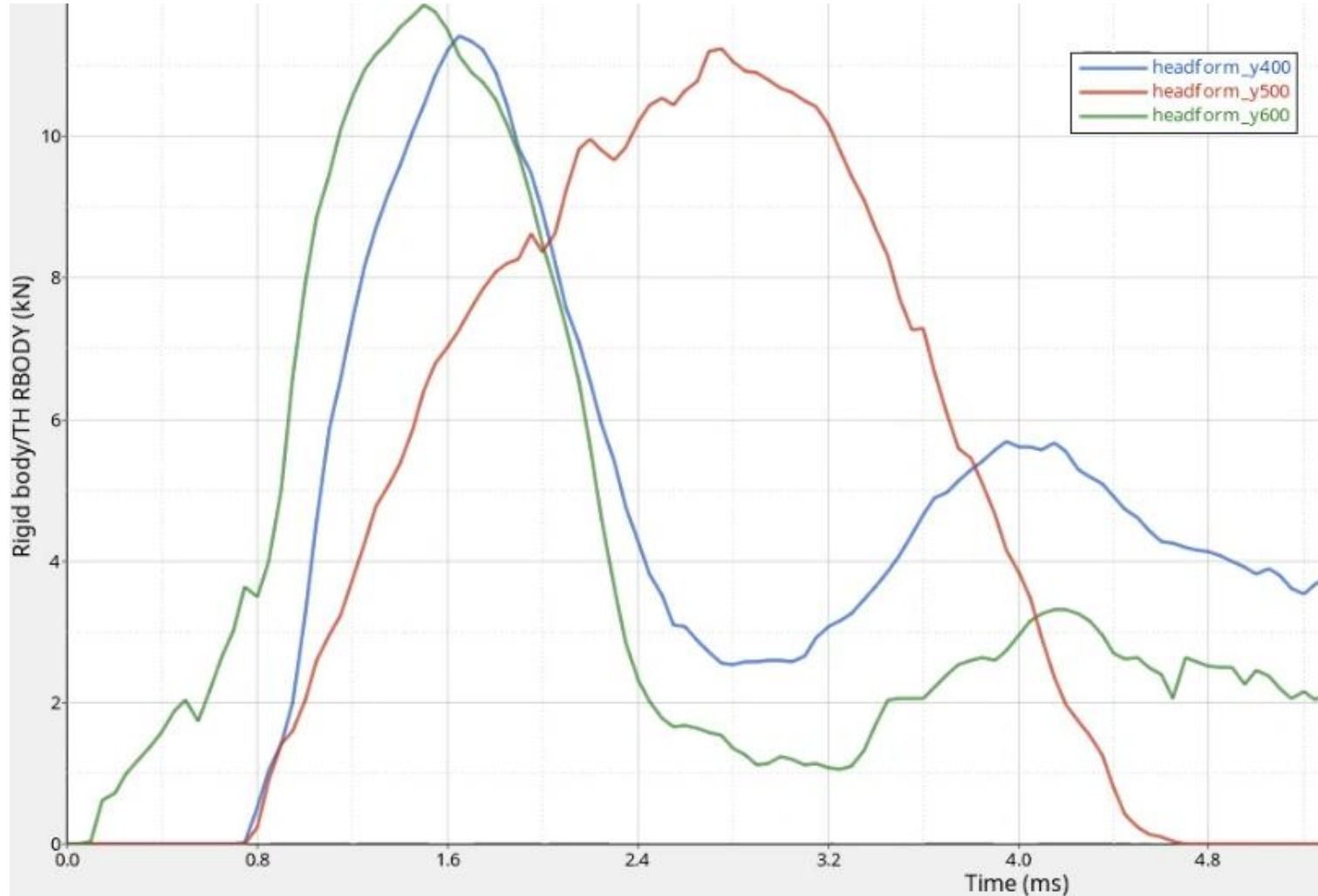
Automotive Exterior Lighting – HeadForm Impact



Automotive Exterior Lighting – HeadForm Impact

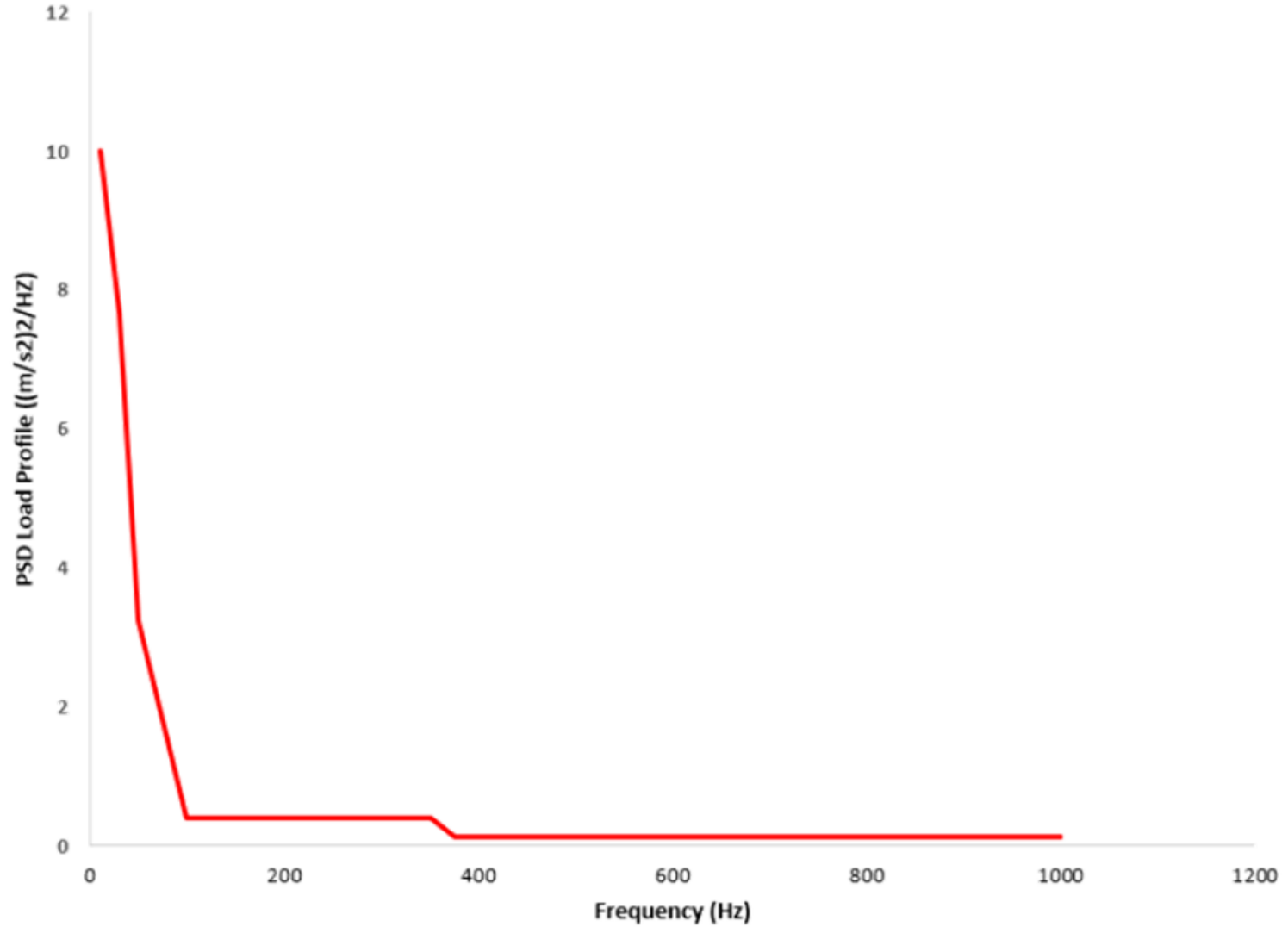


Automotive Exterior Lighting – HeadForm Impact



Automotive Exterior Lighting

Vibration Load Profile



$$NS_a^k = A \text{ (sbt.)}$$

$$\frac{N_2}{N_1} = \left(\frac{S_1}{S_2} \right)^k$$

Basquin Eşitliği

$$S_{a_I} = \sigma_a = S_f (2N_f)^b$$

σ_a : Gerilme genliği

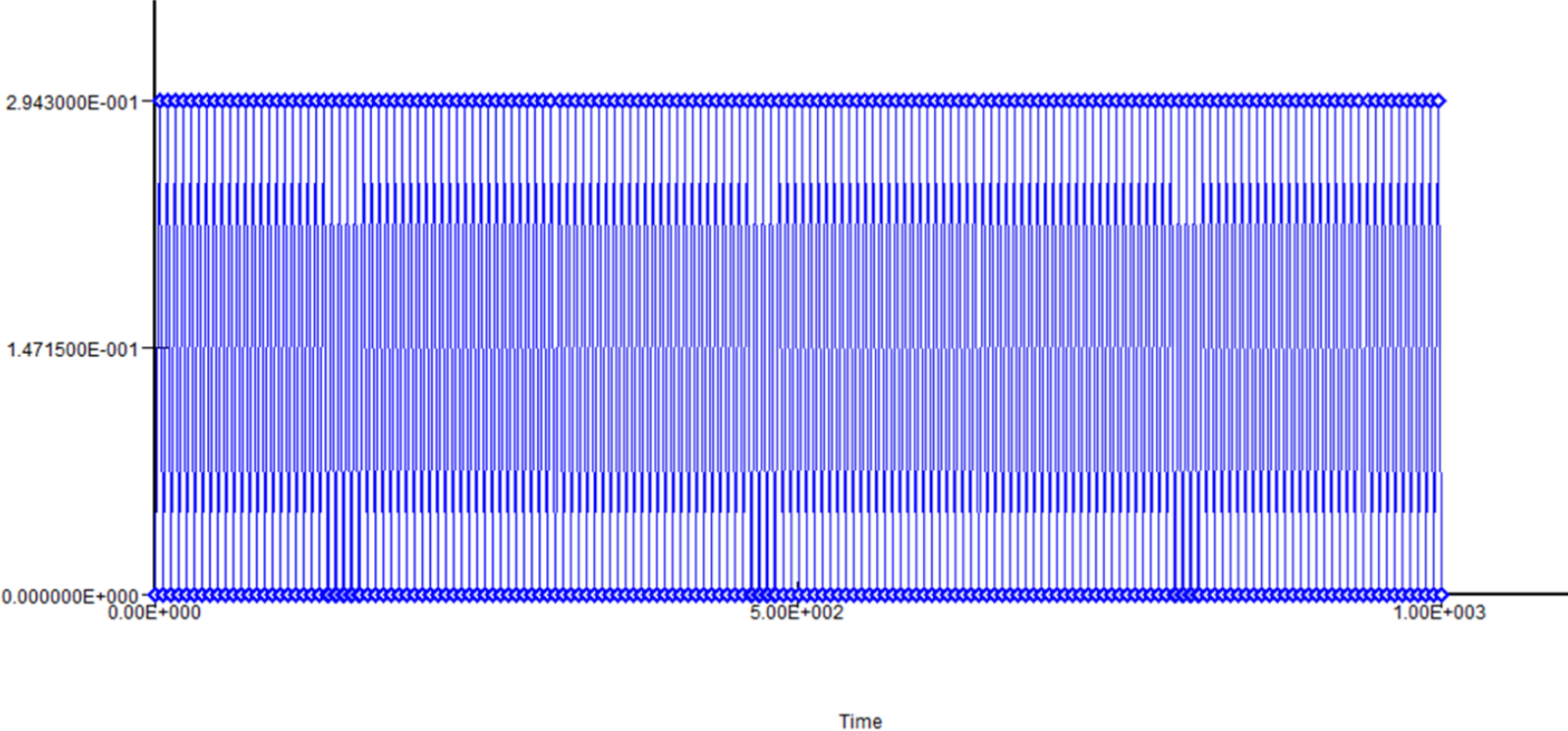
S : Uygulanan Gerilme

N_f : Hasar Çevrimi

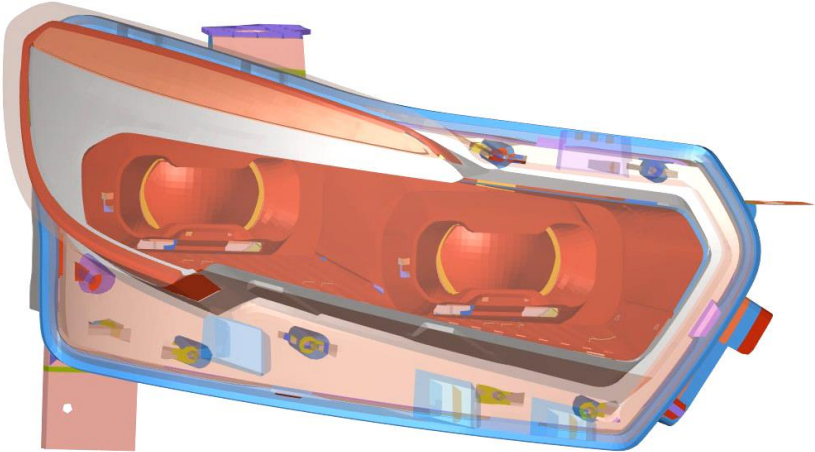
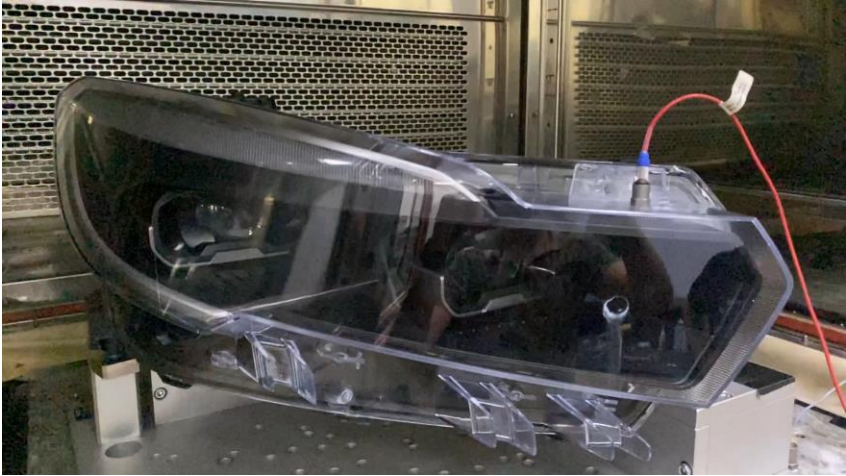
N : Çevrim Sayısı

S_f : Hasar Gerilmesi

Automotive Exterior Lighting



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Thank You
for your attention!

