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James Clayton Owens, Acting Administrator
National Highway Traffic Safety Administration
Docket Management Facility, M-30
U.S. Department of Transportation
1200 New Jersey Avenue S.E.
West Building Ground Floor, Room W12-140
Washington, DC 20590-0001

Subject: Advanced Driver Assistance Systems Draft Research Test Procedures
Docket No. NHTSA-2019-0102

Humanetics Innovative Solutions appreciates the opportunity to comment on the National Highway Traffic Safety Administration's (NHTSA) Request for Comments on the Advanced Driver Assistance Systems (ADAS) Draft Research Test Procedures published in the Federal Register on November 21, 2019 at 84 FR 64405.

Humanetics is the leading global designer, manufacturer and supplier of crash test dummies and calibration equipment, crash sensors, and crash simulation software models. Humanetics also supplies critical tools used by automotive OEMs and suppliers as well as government and testing facilities to evaluate ADAS and autonomous vehicles and support their development of crash avoidance systems and Automated Driving Systems.

Humanetics currently assists customers worldwide with ADAS testing by supplying complete, one-stop solutions for their assessment protocols which includes advanced active safety test equipment such as the Ultra-Flat Overrunable (UFO) platform robots, soft target vehicle dummies, and steering and pedal driving robots. The remote operated, GPS-enabled UFO system allows vehicle manufacturers to test the latest advanced accident avoidance systems in real world scenarios. Steering and pedal robots apply precise and repeatable inputs to control the test vehicle, thereby removing the variability that comes from a human driver. Working in tandem, the UFOs and driving robots offer a true driverless testing solution to help provide a highly accurate assessment of automated driving technologies.

Humanetics has been dedicated to the advancement of occupant safety testing to create safer vehicles for over 65 years. Humanetics serves every major OEM and Tier I safety supplier worldwide with over 850 employees across 24 facilities strategically located around the globe with the corporate headquarters situated in Farmington Hills, Michigan, USA. We are proud that we are an industry partner that relentlessly brings advanced technologies to market, raising the bar on vehicle safety standards and ultimately saving lives.

Intersection Safety Assist System Confirmation Test (DOT HS 812 714)

1. *The test procedures described in this document use three scenarios to assess ISA operation on the test track. Each scenario is performed with different combinations of SV and Principal Other Vehicle (POV) speeds, and includes both crash-imminent and near-miss test choreography.*

The Principal Other Vehicle (POV) and Subject Vehicle (SV) paths are a constant radius, but Humanetics believes the POV path should include clothoids (also known as Euler spiral or Cornu spiral) for a realistic drive. No clothoids are defined in this test. Low speeds may be feasible without clothoids.

Humanetics supports the use of a robotic controller for the SV driver.

Rear Automatic Braking Feature Confirmation Test – Draft Test Procedure Assessment (DOT HS 812 766)

1. *The test procedures described in this document describes the assessment of a draft test procedure for confirming the presence of a rear automatic braking feature. The test procedure assesses the performance of such a feature in detecting a child mannequin test object behind a backing vehicle.*

Humanetics recommends defining the speed profile as Euro NCAP does (4.5 kph, etc.) to be more comparable across worldwide protocols. This test procedure is written for vehicles with automatic transmissions. As a result, testing a vehicle with a manual transmission would require some accelerator pedal input by the driver to initiate the maneuver. This accelerator pedal input would be difficult to perform in a repeatable manner that would achieve a travel speed comparable to that which would be obtained in testing a vehicle with an automatic transmission.

Humanetics recommends the use of speed control equipment such as an accelerator, brake, or driving robot that could be employed that would allow the vehicle to be accelerated to a set speed or to simulate the speed of approach of a vehicle.

Blind Spot Detection System Confirmation Tests

1. *This document describes the methods used by NHTSA to research BSD operation on the test track.*

Humanetics recommends the use of speed control equipment such as a driving robot that could be employed that would allow the vehicle to be accelerated to a set speed or to simulate the speed of approach of a vehicle.

Humanetics recommends harmonizing the lane changing maneuvers with Euro NCAP.

Blind Spot Intervention System Confirmation Tests (DOT HS 812 760)

1. *This document describes the methods used by NHTSA to assess BSI operation on the test track.*

Humanetics recommends harmonizing the lane changing maneuvers with Euro NCAP.

Humanetics recommends defining the amount of allowable torque on the steering wheel. An override system should not be employed.

Humanetics discourages the specification of products and technology by supplier name. References for the use of testing tools should rely on technical specifications and omit specific vendors. If this is not possible, then testing tools with supplier citations should be referenced with an allowable equivalency statement.

Opposing Traffic Safety Assist (OSTA)

1. *This document describes the methods used by NHTSA to assess OTSA operation on the test track.*

Humanetics supports the Opposing Traffic Safety Assist (OSTA).

Humanetics recommends harmonizing the OSTA with Euro NCAP.

Pedestrian Automatic Emergency Braking System Confirmation Test

1. *These test procedures were developed to evaluate the PAEB systems' performance in the two most frequent crash scenarios involving pedestrian in the United States. They include the scenario in which the pedestrian crosses the road in front of the vehicle known as scenario (S1), and the scenario in which the pedestrian walks along side of the road in the path of the vehicle known as scenario (S4).*

Humanetics supports the Pedestrian Automatic Emergency Braking System Confirmation Test.

Humanetics discourages the specification of products and technology by supplier name. References for the use of testing tools should rely on technical specifications and omit specific vendors. If this is not possible, then testing tools with supplier citations should be referenced with an allowable equivalency statement.

Traffic Jam Assist System Confirmation Test

1. *The test procedures described in this document use a series of low speed car-following and crash-imminent driving scenarios to assess TJA operation.*

Humanetics recommends that the deceleration performance of the Global Vehicle Target (GVT) be evaluated like in Euro NCAP protocols and not with a deceleration tolerance. Speed variation should be controlled and subsequently defined.

General Comments

Within this set of ADAS draft test protocols, Vehicle Dimensional Measurements (GPS antennae location, vehicle centerline, front bumper position and width) as specified in the Sensor and Sensor Locations tables are defined with a 1 mm tolerance. Humanetics believes this measurement accuracy is not always reasonable for this application and suggests a minimum of 1 cm tolerance.

Humanetics encourages NHTSA to interface with all active safety equipment manufacturers. We welcome any questions or consultations on available technology used to carry out the agency's test protocols. We support all technical development of these critical tools in the future.

We appreciate the opportunity to comment on NHTSA's Request for Comments on the Advanced Driver Assistance Systems Draft Research Test Procedures.

Sincerely,

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