

NORTH AMERICAN LIGHTING

Dr. Steven Cliff - Deputy Administrator
National Highway Traffic Safety Administration,
1200 New Jersey
Avenue SE, Washington, DC 20590.

April 8, 2022

RE: Petition for Reconsideration to Docket No. NHTSA–2022–0013; RIN 2127–AL83; Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices, and Associated Equipment, Adaptive Driving Beam Headlamps; 9916 Federal Register / Vol. 87, No. 35 / Tuesday, February 22, 2022

North American Lighting, located in Farmington Hills, Michigan, is a designer and manufacturer of automotive exterior lighting products for both the U.S. and worldwide markets. We recognize the effort that NHTSA has undertaken to introduce Adaptive Driving Beam (ADB) for motor vehicle headlighting systems into FMVSS 108, with the goal of improving roadway safety and thank you for the opportunity to submit this petition for reconsideration regarding Docket No. NHTSA–2022–0013.

There is a tremendous need for improved roadway safety, especially for pedestrian detection. Pedestrian fatalities at night have been increasing, up over 60% since 2009. Majority of nighttime pedestrian fatalities occur in unlit areas (away from intersections), therefore lighting must better illuminate pedestrians to reduce fatalities. Also, NHTSA and the lighting industry recognize that light above low beam level is needed in unlit areas of the roadway. High beam usage in US is low. Semiautomatic beam switching (SABS) has improved conditions and can be increasingly found on more of the US fleet, however ADB offers improvement over SABS as shown in table below.

Driving Condition	LB + HB	SABS	ADB
Rural road, no other vehicle	HB	HB	HB
Preceding vehicle	LB	LB	HB- ADB Active
Opposing vehicle	LB	LB	HB- ADB Active
Intermittent vehicle traffic	LB	HB	HB

ADB further improves roadway illumination and pedestrian safety and the final rule should not deter the implementation of ADB in the US. However, the final rule as written, would prohibit a large majority of current ADB systems already installed on vehicles around the world, drive complex and high cost ADB systems, and impose significant self-compliance testing.

To show safety benefit from ADB, the market penetration must be quick and significant. Even with significant market penetration, the positive impact of ADB will take years to observe statistically as the US fleet is large and has a median age of 12 years. Design and testing restrictions that do not protect the driver or pedestrians should be removed from the final rule. Restrictive requirements for ADB will only diminish safety on the US roadways. Without significant market penetration, data to validate the safety benefit will never be statistically significant and ADB will fade away from the US fleet.

Component-Level Laboratory Photometric Testing - Transition zone:

SAE recognized the requirement of a transition zone between the reduced and unreduced zoned in the ADB beam pattern and NHTSA correctly agreed with the need and included a transition zone in the final rule. However, the execution in the final rule of a 1-degree transition zone requirement did not fully address/resolve the concerns raised by the commenters to the NPRM. SAE J3069 intentionally did not specify the width of the transition zone to allow for different ADB systems and beam patterns; less complicated systems, e.g. overlapping ADB beam

patterns, which is the majority of ADB systems currently implement in the world. The 1-degree requirement in the final rule would disallow a significant number of these ADB systems (manufacturers indicate from 80 to 100% of their current ADB systems) because these systems have transition zones greater than 1-degree. These current, safe, and proven ADB systems provide significantly more roadway and pedestrian illumination and significantly increases traffic safety.

NHTSA does not identify a safety benefit for requiring a 1-degree transition zone. The transition zone would provide significantly more light than the basic low beam and improve safety, so why restrict ADB systems with a 1-degree transition zone? The lab test should only verify that ADB systems meet low beam requirements with all reduced areas activated and that high beam requirements are met with all reduced areas deactivated (all unreduced areas ON). Use of a vehicle level test would verify ADB performance; glare and activation of ADB beam patterns.

Vehicle-Level Track Test Evaluating Glare:

The ADB final rule inadvertently added glare requirements to current low beam systems. Current FMVSS 108 low beams and semiautomatic beam switching systems may fail the ADB glare requirements on right hand curves (depending on headlamp aim and installation heights). This means that lamps and vehicles would need additional design features to ensure that compliant low beams meet the final rule glare requirements.

The ADB final rule should not penalize current low beam systems. A reasonable solution, based on SAE J3069, is to add an alternative to ADB glare requirement to Table XXI, allowing up to 1.25 times the ADB vehicle's low beam lux level measured at the driver/rider's eye point over the same distance and conditions during the track test.

Petition for reconsideration:

NAL believes that NHTSA recognizes the safety benefit of ADB systems and did not intend to restrict their implementation. But the final rule does inadvertently introduce significant barriers to ADB implementation in the US and NHTSA should reconsider changes based on the above.

Thank you for the opportunity submit this petition for consideration.

Sincerely,

Romeo Samoy
Regulations & IP – Manager
North American Lighting, Inc.