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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. NHTSA-2026-2476]

RIN 2127-AM69

Federal Motor Vehicle Safety Standards: Automatic Emergency Braking Systems for Light Vehicles

AGENCY: National Highway Traffic Safety Administration (NHTSA), U.S. Department of Transportation (Department or DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: NHTSA proposes to modify Federal Motor Vehicle Safety Standard No. 127; Automatic emergency braking systems for light vehicles. NHTSA proposes to delay the compliance date by two years so that manufacturers have more time to comply with the standard. NHTSA also proposes test procedures for testing the malfunction telltale and to clarify the test speed tolerance. The agency seeks comment on other potential modifications to the standard.

DATES: Comments must be received on or before **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

Proposed compliance date: Compliance would be required for all vehicles manufactured on or after September 1, 2031. Small-volume manufacturers, final-stage manufacturers, and alterers would be provided an additional year, with compliance required for all vehicles manufactured by such entities on or after September 1, 2032.

ADDRESSES: You may submit comments to the docket number identified in the heading of this document by any of the following methods:

Federal eRulemaking Portal: Go to https://www.regulations.gov. Follow the online instructions for submitting comments.

Mail or Hand Delivery: Docket Management, U.S. Department of Transportation, 1200 New Jersey Avenue SE, West Building, Room W58-213, Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except on Federal holidays. To be sure someone is there to help you, please call (202) 366-9826 or (202) 366-9317 before coming.

Fax: 202-493-2251.

Instructions: For detailed instructions on submitting comments and additional information on the rulemaking process, see the Public Participation heading of the Supplementary Information section of this document. Note that all comments received will be posted without change to https://www.regulations.gov, including any personal information provided.

Privacy Act: In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its decision-making process. DOT posts these comments, without edit, including any personal information the commenter provides, to *www.regulations.gov,* as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at *www.transportation.gov/privacy.* To facilitate comment tracking and response, the agency encourages commenters to provide their name, or the name of their organization; however, submission of names is optional. Regardless of whether commenters identify themselves, all timely comments will be considered.

Docket: For access to the docket to read background documents or comments received, go to *www.regulations.gov*, or the street address listed above. Follow the online instructions for accessing the docket.

FOR FURTHER INFORMATION CONTACT: For non-legal issues: Seiar Zia, Office of Crash Avoidance Standards (email:seiar.zia@dot.go; telephone: (202) 366-1810). For legal issues: Eli Wachtel, Office of the Chief Counsel (email: eli.wachtel@dot.gov). The mailing address for these officials is: National Highway Traffic Safety Administration, 1200 New Jersey Avenue, S.E., Washington, D.C. 20590.

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I. Executive Summary

A. Background and Summary of FMVSS No. 127

The Infrastructure Investment and Jobs Act (IIJA), enacted in November 2021,[1] mandated that the Secretary of Transportation promulgate a rule to establish minimum performance standards with respect to crash avoidance technology and to require that all passenger motor vehicles manufactured for sale in the United States be equipped with forward collision warning (FCW) and automatic emergency braking (AEB) systems that alert the driver if a collision is imminent and apply the brakes automatically if the driver fails to do so. In addition, under the authority of the National Traffic and Motor Vehicle Safety Act of 1966 (Safety Act),[2] the Secretary of Transportation is charged with establishing Federal Motor Vehicle Safety Standards (FMVSS) that are practicable, meet the need for motor vehicle safety, and are stated in objective terms. The authority to issue FMVSSs is delegated to NHTSA.[3]

NHTSA issued a Notice of Proposed Rulemaking (NPRM) on June 13, 2023, followed by a final rule on May 9, 2024, establishing a new FMVSS No. 127, "Automatic Emergency Braking Systems for Light Vehicles."[4] FMVSS No. 127 requires all passenger cars, multipurpose passenger vehicles, trucks, and buses with a gross vehicle weight rating (GVWR) less than 4,536 kg (10,000 lbs) manufactured on or after September 1, 2029 to be equipped with forward collision warning (FCW), automatic emergency braking (AEB), and pedestrian automatic emergency braking (PAEB) technology. On November 26, 2024, NHTSA issued a final rule in response to petitions for reconsideration that made clarifying amendments to the standard but largely denied the petitions.[5] The Alliance for Automotive Innovation (Alliance)

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[1] Pub. L. No. 117-58.

[2] The Safety Act is codified at 49 U.S.C. Chapter 301.

[3] 49 CFR 1.93(a).

[4] 89 FR 39686 (May 9, 2024).

[5] 89 FR 93199 (Nov. 26, 2024).

subsequently filed a challenge to FMVSS No. 127 in the United States Court of Appeals for the District of Columbia Circuit on January 17, 2025.[6]

FMVSS No. 127 includes four requirements for AEB systems to warn of and brake for both lead vehicles and pedestrians. The AEB system must: (1) provide an FCW consisting of auditory and visual warning of an impending collision with a lead vehicle at any forward speed greater than 10 km/h (6.2 mph) and less than 145 km/h (90 mph) and an FCW of an impending collision with a pedestrian at any forward speed greater than 10 km/h (6.2 mph) and less than 73 km/h (45.3 mph), (2) apply the brakes automatically at any forward speed greater 10 km/h (6.2 mph) and less than 145 km/h (90 mph) when a collision with a lead vehicle is imminent and at any forward speed greater than 10 km/h (6.2 mph) and less than 73 km/h (45.3 mph) when a collision with a pedestrian is imminent; (3) prevent the vehicle from colliding with the lead vehicle or pedestrian test device when tested according to the test procedures described in the standard, which include pedestrian tests in both daylight and darkness, and pass two false positive tests; and (4) provide telltale notification if the system detects a malfunction, or if the system adjusts its performance such that it will not meet the requirements of the standard. Compliance is required starting September 1, 2029, with applicable vehicles manufactured by small-volume manufacturers, final-stage manufacturers, and alterers required to be certified to the standard by September 1, 2030.

FMVSS No. 127 addresses significant safety problems. AEB systems employ sensor technologies and sub-systems that work together to sense when the vehicle is in a crash imminent situation, provide a warning to the driver and apply the vehicle brakes automatically if the driver has not done so, and to apply more braking force to supplement the driver's braking, to avoid or mitigate a collision. These systems can reduce the frequency and severity of both lead vehicle rear-end and pedestrian collisions. As outlined in the 2024 final rule, in 2019, 60 percent

[6] The United States Court of Appeals for the District of Columbia Circuit, Case No.: 25-1026. https://www.autosinnovate.org/posts/testimony/Auto%20Innovators%20AEB%20Petition%20Filing.pdf , accessed March 2026.

of fatal rear-end crashes and 73 percent of crashes resulting in injuries were on roads with posted speed limits of 60 mph or below, and the vast majority of fatalities, injuries, and property damage associated with rear end crashes occur at speeds above 25 mph. Similarly, most of these crashes occurred without adverse atmospheric conditions: 72 percent of fatal crashes and 74 percent of crashes resulting in injuries occurred in clear conditions. Also, about 51 percent of fatal rear-end crashes and 74 percent of rear-end crashes resulting in injuries involving light vehicles occurred in daylight conditions. In addition, 65 percent of pedestrian fatalities and 67 percent of pedestrian injuries were the result of a strike by the front of a light vehicle. About half of pedestrian injuries and 77 percent of pedestrian fatalities occurred in dark lighting conditions.

FMVSS No. 127 establishes test scenarios for both lead vehicle and pedestrian AEB systems. Lead vehicle AEB is tested at speeds up to 100 km/h (62 mph) when manual braking is applied and up to 80 km/h (50 mph) when no manual braking is applied during the test. Lead vehicle testing is performed under three representative scenarios: lead vehicle stopped, lead vehicle moving, and lead vehicle decelerating. PAEB is tested only without manual braking and at speeds up to 65 km/h (40 mph). PAEB testing is performed under three representative scenarios: pedestrian crossing the road (including an obstructed pedestrian scenario), stationary pedestrian (in the path of the vehicle), and pedestrian moving along the vehicle path. Because most pedestrian fatalities occur in darkness, PAEB performance is required under both daylight and darkness lighting conditions.

The Final Regulatory Impact Analysis for FMVSS No. 127 concluded the rule would result in a reduction of 362 fatalities and 24,321 injuries annually. The total costs of the rule were estimated to be approximately $354 million annually, most of which was attributable to the installation of software. However, NHTSA estimated that approximately five percent of the light vehicle fleet would require hardware upgrades to existing FCW and AEB systems to meet FMVSS No. 127. The lifetime monetized net benefits of the rule were projected to be between $5.82 and $7.26 billion. As discussed in the remainder of the preamble, there is uncertainty as to

whether rule-compliant AEB can be implemented throughout the fleet within the prescribed timeline, and, therefore, whether the projected fatality and injury reductions, and thus these projected benefits, would accrue as estimated in the 2024 final rule and accompanying Final Regulatory Impact Analysis.

B. Summary of this NPRM

This NPRM proposes a two-year delay in the compliance timeline for FMVSS No. 127. In the time since the finalization of FMVSS No. 127, NHTSA has continued to conduct both lead vehicle and pedestrian AEB testing as part of the New Car Assessment Program (NCAP) program, largely to the specifications in FMVSS No. 127. In addition, NHTSA has met with several stakeholders, some of whom have challenged whether the standard is practicable, meets the need for safety, and is stated in objective terms. This information is summarized in Section II of this proposed rule.

Based on the information received from stakeholders and developed by NHTSA through additional testing, NHTSA has determined that there is uncertainty in whether the fleet can comply with the standard within the current compliance timeline. There is also uncertainty around the pace of system development and deployment, and how the current compliance timeline might impact engineering and marketing decisions made years in advance of vehicle sales. As a result, NHTSA is concerned that the current timeline of FMVSS No. 127 may result in vehicles being unable to be self-certified as compliant by manufacturers, and therefore prohibited from sale. Consequently, NHTSA has determined that the current compliance date, September 1, 2029, may be impracticable for the fleet.

The agency also seeks comment on the practicability and stringency of several aspects of FMVSS No. 127. This standard is more stringent than AEB regulations developed by other countries, and uncertainty remains regarding how several aspects of the standard will impact AEB performance in the field and consumer response to that performance, both in the short and long term. This consideration applies to several aspects of the rule, but particularly to the “no

contact" requirement, the required test speeds, and the lack of multiple test trials. NHTSA is concerned that AEB system design choices made to conform with FMVSS No. 127 specifications could adversely impact consumer acceptance and introduce the possibility of safety disbenefits centered around unexpected activation of AEB at high speeds. In Section IV of this NPRM, NHTSA seeks comment on potential changes to the standard that may mitigate the risk of consumer acceptance issues while maximizing the safety benefits from AEB systems. NHTSA emphasizes that data that might enable quantification of safety risks from false positive AEB activation and data and research on real-world performance of vehicles relative to the track test performance required by FMVSS No. 127 would be particularly helpful in enabling the agency to determine potential future regulatory amendments that may be warranted.

Finally, NHTSA solicits comment on the appropriateness of portions of the standard for vehicles equipped with automated driving systems (ADS).

C. Legal Authority

This NPRM is issued under the authority in the Safety Act. Pursuant to 49 U.S.C. Chapter 301, the Secretary of Transportation is charged with establishing motor vehicle safety standards that are practicable, meet the need for motor vehicle safety, and are stated in objective terms. "Motor vehicle safety" is defined in the Safety Act as "the performance of a motor vehicle or motor vehicle equipment in a way that protects the public against unreasonable risk of accidents occurring because of the design, construction, or performance of a motor vehicle, and against unreasonable risk of death or injury in a crash and includes nonoperational safety of a motor vehicle." The phrase "Motor vehicle safety standard" means a minimum performance standard for motor vehicles or motor vehicle equipment. When prescribing such standards, the Secretary must consider all relevant, available motor vehicle safety information. The Secretary must also consider whether a standard is reasonable, practicable, and appropriate for the types of motor vehicles or motor vehicle equipment for which it is prescribed and the extent to which the standard will further the statutory purpose of reducing traffic accidents and associated deaths.

The authority to issue FMVSS is delegated to NHTSA. FMVSS No. 127 also addresses a statutory mandate under IIJA, which directed the Secretary of Transportation to promulgate a rule requiring that all passenger motor vehicles for sale in the United States be equipped with a FCW system and an AEB system.[7]

The Safety Act requires that FMVSS be practicable, meet the need for motor vehicle safety, and be stated in objective terms. To meet the requirement that standards be "practicable," NHTSA considers several factors, including technological and economic feasibility[8] and consumer acceptance.[9] Technological feasibility considerations counsel against standards for which "many technical problems have been identified and no consensus exists for their resolution."[10] NHTSA recognizes that setting overly aggressive standards can lead to deployment of technology that has not been developed fully—and with degrees of fullness that can vary widely by manufacturer. Premature deployment of technologies, even with the best of intentions and in the expectation that the technology will advance within the given lead time, can lead to consumer acceptance concerns and potentially create safety risk. This is particularly true with technology that intervenes aggressively in the driving task—such as requiring operation at up to 145 km/h (90 mph) of a technology that has long had problems with false positive AEB activation. Economic feasibility considerations focus on whether the cost on industry to comply with the standard would be prohibitive. Technology-forcing regulations, such as the requirements established in the 2024 rule, create challenges like those present here because it is difficult for a regulator to predict the development and technology investments needed to achieve the standard.

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[7] IIJA, Pub. L. No. 117-58, Section 24208, codified as 49 U.S.C. § 30129.

[8] *See, e.g., Paccar, Inc.* v. *Nat'l Highway Traffic Safety Admin.,* 573 F.2d 632, 634 n.5 ("'Practicable' is defined to require consideration of all relevant factors, including technological ability to achieve the goal of a particular standard as well as consideration of economic factors.") (citations omitted).

[9] *Pac. Legal Found.* v. *Dep't of Transp.,* 593 F.2d 1338, 1345 (D.C. Cir. 1979) (noting in reference to practicable and meet the need for safety, that "the agency cannot fulfill its statutory responsibility unless it considers popular reaction").

[10] *Simms* v. *Nat'l Highway Traffic Safety Admin.,* 45 F.3d 999, 1011 (6th Cir. 1995).

In establishing FMVSS, NHTSA must also consider consumer acceptance. In particular, the U.S. Court of Appeals for the D.C. Circuit has noted that "motor vehicle safety standards cannot be considered practicable unless we know . . . that motorists will avail themselves of the safety system. Without public cooperation, there can be no assurance that a safety system can meet the need for motor vehicle safety. And it would be difficult to term 'practicable' a system . . . that so annoyed motorists that they deactivated it."[11] Because of the importance of the AEB system to safety, FMVSS No. 127 does not permit installation of a manual control whose sole function is deactivation of the AEB system. Consumer acceptance, however, can impact purchase decisions. Because recent model year used vehicles can act as ready substitutes for a new vehicle, if an FMVSS forces adoption and application of technology that consumers reject, potential new car buyers may decide to delay any purchase or to purchase an older vehicle. This would have the effect of slowing down the adoption and use of new safety technology. NHTSA understands that if consumers do not accept a required safety technology, the technology will not deliver the safety benefits that NHTSA anticipates.[12,13]

As NHTSA acknowledged in responses to petitions for reconsideration on the final rule promulgating FMVSS No. 127, there is uncertainty regarding the real-world safety impacts of certain aspects of FMVSS No. 127 due to data limitations regarding false positives and low-speed impacts that limit the precision of some elements of the analysis or leave some aspects

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[11] *Pac. Legal Found.,* 593.F.2d at 1346 [internal quotation marks omitted].

[12] *See,* 82 FR 3854, 3920. Due to the nature of the technology, consumer acceptance was a key factor discussed in the 2017 NPRM on vehicle-to-vehicle (V2V) technology. NHTSA also conducted significant research into consumer acceptance and beliefs about V2V technology.

[13] In one of the several cases involving FMVSS No. 208, the D.C. Circuit accepted as a "sufficient explanation" for a change from a prior determination, the DOT Secretary's determination that their different estimate of public resistance to a technology was "a matter of judgment." *Pac. Legal Found.,* 593.F.2d at 1346. The court noted that the Secretary could reasonably anticipate consumers to be more willing to accept airbags than automatic seatbelts and seatbelt interlocks because, in addition to research which indicated a lower deactivation rate for airbags than interlock systems, airbags are less intrusive and do not require independent action by passengers to activate. This logic was reinforced by the high use rate of non-interlock seat belts, as well as research on the rate of passive seat belt use, air bag deactivation rate, and research suggesting that increased deployment of air bags would not reduce the use rate of seat belts.

unquantified.[14] The obligation to resolve such uncertainties to the extent possible is an integral part of NHTSA's mandate under the Safety Act and the Administrative Procedure Act.[15] As always, NHTSA will consider the data available and apply our expert judgment about the unquantifiable aspects of the rule to select the option that is practicable, stated in objective terms, and meets the need for safety. To assist the agency in resolving the uncertainties to the extent possible and selecting the approaches that are practicable and meet the need for safety, NHTSA requests that, in providing their comments, stakeholders provide research or data to support their assertions that might enable the agency to quantify the safety or consumer acceptance impact of a particular change in a requirement or to quantify the implications of the compliance margins applied by manufacturers to meet specific requirements.

In issuing this proposal, NHTSA is obligated to "examine the relevant data and articulate a satisfactory explanation for its action, including a 'rational connection between the facts found and the choice made.'"[16] This proposal reflects a reevaluation of the existing record and consideration of additional information received by NHTSA since the issuance of FMVSS No. 127. Discussed below, this includes test results from recent model year vehicles using updated test procedures, as well as additional consumer complaint information regarding AEB and FCW systems. NHTSA staff have also met with several stakeholders.[17] NHTSA proposes that additional time is necessary to provide manufacturers adequate lead time to bring to market AEB systems that meet the requirements of FMVSS No. 127 practicably, and without introducing systems that adversely affect consumer acceptance or lead to potential for safety disbenefits.

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[14] 89 FR 93199, 93204 and 93206-93207.

[15] 5 U.S.C. 551 *et seq.* and § 706.

[16] *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.,* 463 U.S. 29 (1983) (*State Farm*) (noting that a rule would normally be arbitrary and capricious if "the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.").

[17] Staff from NHTSA met with representatives of The Alliance on March 14, 2025, June 12, 2025, and January 20, 2026, Zendar, Inc. on March 19, 2025, Teledyne Technologies, Inc. on April 30, 2025, and American Honda Motor Co. (Honda) on April 30, 2025.

II. Delay of Compliance Date

A. Information Developed and Obtained Since Finalization of FMVSS No. 127

1. Data on Vehicle Performance

In developing FMVSS No. 127, NHTSA conducted research and testing over several years. NHTSA began testing lead vehicle AEB systems in 2010 and began PAEB research in 2011.[18] The latest testing that informed the 2024 final rule was performed in 2023 on six vehicles and included scenarios and conditions from FMVSS No. 127, as well as testing of other parameters and conditions outside the requirements of FMVSS No. 127.[19, 20] When tested to the conditions in FMVSS No. 127, no vehicle avoided contact in all trials conducted—one of the standard's performance requirements. The 2023 Toyota Corolla Hybrid XLE avoided contact in each scenario on most occasions, but contact occurred on some trials.

Since the issuance of the final rule, NHTSA has been testing vehicles as part of NCAP. At the time of development of this NPRM, NHTSA has collected preliminary results for the following ten model year 2025[21] vehicles: Chevrolet Equinox LT FWD, Ford Expedition Active 4x2, Hyundai Santa Fe Calligraphy 2.5T FWD, Jeep Grand Cherokee Laredo 4x4, Kia K4 GT-Line Turbo, Nissan Rogue SL FWD, Subaru Forester Premium Hybrid/SFE, Toyota 4Runner 4WD SR5, Volkswagen Tiguan S and Volvo XC40 B5 AWD Plus. The final results of these tests will be made available in the NCAP results docket for MY 2025 vehicles (final results may differ slightly from those stated in this NPRM). However, the relevant data is presented in this proposal.

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[18] 89 FR 39686 (May 9, 2024).

[19] The vehicles tested included the 2023 BMW iX, 2023 Ford F-150 Lightning, 2023 Hyundai Ioniq 5 Limited, 2024 Mazda CX-90 Turbo S, 2023 Nissan Pathfinder SL, and the 2023 Toyota Corolla Hybrid XLE.

[20] https://www.regulations.gov/document/NHTSA-2023-0021-1068, https://www.regulations.gov/document/NHTSA-2023-0021-1066.

[21] In addition to the vehicles discussed in the preamble of this NPRM, NHTSA continues to test additional vehicles as part of the NCAP program. Test reports for these vehicles are placed in a docket accessible through the NHTSA website, which can be found at https://www.nhtsa.gov/ratings/resources-related-nhtsas-new-car-assessment-program#procedures--reports.

There are four important limitations of this data. First, as with the vehicles tested for the 2024 final rule, the testing was not intended to be a representative or distributive sample of the fleet regarding class, size, price range, or performance. Therefore, as with the 2024 final rule, caution should be taken in interpreting any vehicle's performance as representative of the entire fleet or of a class of vehicles. Second, given that the requirements of FMVSS No. 127 are not currently in force, manufacturers may not have designed the AEB systems on the tested vehicles to the specifications of that regulation. Third, as with the vehicles tested for the 2024 final rule, the test results reflect only the vehicle tested, and may not indicate the AEB performance of other trim level configurations within the model line. Fourth, even if a vehicle is able to meet performance requirements at times, this alone would not satisfy the internal standards of most manufacturers to enable certification that the vehicle meets the requirements of the standard. Most manufacturers will establish criteria ensuring that all vehicles will meet requirements every time the vehicles are tested—generally providing a "compliance margin" to account for potential variations in testing. In developing this proposed rule, NHTSA made certain inferences based on this data, which is the best and most recent data available to the agency upon which it can base its decision making.[22]

The updated NCAP AEB and PAEB test parameters are substantively similar to those in FMVSS No. 127; however, there are some differences.[23, 24] Some of the most notable ones are:

1. All NCAP AEB tests are performed in 10 km/h (6.2 mph) increments at discrete speeds depending on the scenario, while FMVSS No. 127 provides ranges.

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[22] An example of an area where NHTSA may not be able to obtain conclusive data on AEB performance is related to vehicle weight. Due to the low sample and lack of information on the system design and version, NHTSA has tentatively determined that no relation can be inferred between performance and vehicle weight solely on the test data detailed in this notice. NHTSA seeks comment on how the variation in mass between trim configurations, such as engine and drive train configuration or different bed and cab configurations on pickup trucks, might contribute to AEB performance on a test track in more recent model years.

[23] The NCAP AEB and PAEB test protocols can be reviewed in detail in the docket accompanying the 2024 NCAP Final Decision Notice – Advanced Driver Assistance Systems and Roadmap (89 FR 95916) (NHTSA-2024-0077).

[24] https://www.ecfr.gov/current/title-49/subtitle-B/chapter-V/part-571/subpart-B/section-571.127, accessed November 16, 2026.

2. NCAP AEB testing in the lead vehicle stopped without manual brake application scenario is performed at speeds starting at 40 km/h (24.9 mph) and up to 80 km/h (49.7 mph). In FMVSS No. 127, testing for this scenario is performed within the speed range of 10 km/h (6.2 mph) to 80 km/h (49.7 mph).
3. NCAP PAEB testing is performed at speeds starting at 10 km/h (6.2 mph) and up to 60 km/h (37.3 mph) for all scenarios and involves more testing scenarios than FMVSS No. 127 (the results from testing these additional scenarios are not presented here). For the obstructed pedestrian crossing from the right with a 50 percent overlap, FMVSS No. 127 specifies testing only up to 50 km/h (31.1 mph), and for the stationary pedestrian on the right with a 25 percent overlap, FMVSS No. 127 specifies testing only up to 55 km/h (34.2 mph) - NCAP PAEB 60 km/h (37.3 mph) results are shown here. Further, FMVSS No. 127 specifies testing for pedestrian moving along path on the right at 25 percent overlap to be performed at speeds up to 65 km/h (40.4 mph), while no NCAP PAEB testing result exist for this speed and scenario.
4. NCAP PAEB testing is performed during the daylight and in darkness with only lower beam lighting conditions. FMVSS No. 127 PAEB testing is performed in daylight and in darkness with both lower beam and upper beam lighting conditions.
5. NCAP PAEB testing for the obstructed child pedestrian from the right with 50 percent overlap is more stringent than FMVSS No. 127 for the same scenario. In NCAP, the distance between the vehicle being tested and the obstructing vehicles, or

test devices, can be as low as 0.9 m, but no more than 1.1 m. In FMVSS No. 127, the distance between the vehicle and the obstructing vehicles is 1.15 m or more.[25, 26]

a. Lead Vehicle AEB Testing Results

The results from the agency's 2025 NCAP lead vehicle AEB testing are shown by vehicle in Tables 1 through 10. The tables have a similar format to "Table 1 to S7.1—Test Parameters When Approaching a Lead Vehicle" in FMVSS No. 127 with the addition of two columns showing the test speeds with avoidance and the test speeds with contact.

Table 1: 2025 Chevrolet Equinox Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70	80	-	-	No
	70, 80	90[1]	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Decelerating Lead Vehicle	50, 80	-	12	0.3	No
	50, 80	-	40	0.3	No
	50[2]	-	12	0.5	No
	50	80	40	0.5	No
Decelerating Lead Vehicle	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50, 80		12	0.5	Yes
	50, 80	-	40	0.5	Yes

[1] No tests performed above speed shown.
[2] Results for this scenario combination at 80 km/h not available.

Table 2: 2025 Ford Expedition Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	-	40[1]	-	-	No
	70	80[1]	-	-	Yes
	40, 50, 60, 70	80	-	-	No
	70, 80, 90	100	-	-	Yes

[25] "PEDESTRIAN AUTOMATIC EMERGENCY BRAKING AND FORWARD COLLISION WARNING SYSTEM CONFIRMATION TEST PROCEDURE" – NCAP docket NHTSA-2024-0077-0002

[26] The specified location of the obstructing vehicles in relation to the subject vehicle is the main factor affecting the available action time for the AEB system in the pedestrian crossing road scenarios. A slight increase to the distance between the subject vehicle and the obstructing vehicles increases the available perception time for the AEB systems. See 88 FR 38632 at 38671 and 89 FR 93199 at 93213.

Slower-Moving Lead Vehicle					
Decelerating Lead Vehicle Decelerating Lead Vehicle	80	50	12	0.3	No
	50	80	40	0.3	No
	80[2]	-	12	0.5	No
	50[3]	-	40	0.5	No
	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50	80	12	0.5	Yes
	50	80	40	0.5	Yes

[1] No tests performed above speed shown.
[2] Results for this scenario combination at 50 km/h not available.
[3] Results for this scenario combination at 80 km/h not available.

Table 3: 2025 Hyundai Santa Fe Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70	80	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Decelerating Lead Vehicle Decelerating Lead Vehicle	50	80	12	0.3	No
	50, 80	-	40	0.3	No
	50[1]	-	12	0.5	No
	50	80	40	0.5	No
	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50, 80	-	12	0.5	Yes
	50	80	40	0.5	Yes

[1] Results for this scenario combination at 80 km/h not available.

Table 4: 2025 Jeep Grand Cherokee Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70	80	-	-	No
	-	70[1]	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70	80[1]	-	-	Yes
Decelerating Lead Vehicle Decelerating Lead Vehicle	50	80	12	0.3	No
	50	80	40	0.3	No
	50	80	12	0.5	No
	50[2]	-	40	0.5	No
	50	80	12	0.3	Yes

	50	80	40	0.3	Yes
	50[2]	-	12	0.5	Yes
	50[2]	-	40	0.5	Yes

[1] No tests performed above speed shown.
[2] Results for this scenario combination at 80 km/h not available.

Table 5: 2025 KIA K4 GT-Line Turbo Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90	100	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Decelerating Lead Vehicle Decelerating Lead Vehicle	50	80	12	0.3	No
	-	50, 80	40	0.3	No
	50[1]	-	12	0.5	No
	-[2]	-	40	0.5	No
	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50, 80	-	12	0.5	Yes
	50	80	40	0.5	Yes

[1] Results for this scenario combination at 80 km/h not available.
[2] Results for this scenario combination at 50 km/h and 80 km/h not available.

Table 6: 2025 Nissan Rogue SL FWD Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70	80	-	-	No
	70, 80[1]	-	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Decelerating Lead Vehicle Decelerating Lead Vehicle	50[2]	-	12	0.3	No
	50	80	40	0.3	No
	50[2]	-	12	0.5	No
	50[2]	-	40	0.5	No
	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50[2]	-	12	0.5	Yes
	50	80	40	0.5	Yes

[1] Results for this scenario above speed shown not available.
[2] Results for this scenario combination at 80 km/h not available.

Table 7: 2025 Subaru Forester Hybrid Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80	90, 100	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Decelerating Lead Vehicle Decelerating Lead Vehicle	50	80	12	0.3	No
	50, 80	-	40	0.3	No
	50	80	12	0.5	No
	50	80	40	0.5	No
	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50, 80	-	12	0.5	Yes
	50	80	40	0.5	Yes

Table 8: 2025 Toyota 4Runner Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Decelerating Lead Vehicle Decelerating Lead Vehicle	50	80	12	0.3	No
	50, 80	-	40	0.3	No
	50	80	12	0.5	No
	50	80	40	0.5	No
	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50, 80	-	12	0.5	Yes
	50, 80	-	40	0.5	Yes

Table 9: 2025 Volkswagen Tiguan Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Decelerating Lead Vehicle	50, 80	-	12	0.3	No
	50, 80	-	40	0.3	No

Decelerating Lead Vehicle	50, 80	-	12	0.5	No
	50, 80	-	40	0.5	No
	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50, 80	-	12	0.5	Yes
	50, 80	-	40	0.5	Yes

Table 10: 2025 Volvo XC40 B5 AWD Plus Lead Vehicle AEB test results

Scenario	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Headway (m)	Lead vehicle Deceleration (g)	Manual Brake Application
Stopped Lead Vehicle	40, 50, 60, 70	80	-	-	No
	70	80[1]	-	-	Yes
Slower-Moving Lead Vehicle	40, 50, 60, 70, 80	-	-	-	No
	70, 80, 90, 100	-	-	-	Yes
Decelerating Lead Vehicle Decelerating Lead Vehicle	50[2]	-	12	0.3	No
	50	80	40	0.3	No
	50[2]	-	12	0.5	No
	50[2]	-	40	0.5	No
	50, 80	-	12	0.3	Yes
	50, 80	-	40	0.3	Yes
	50[2]	-	12	0.5	Yes
	50	80	40	0.5	Yes

[1] No tests performed above this speed.
[2] Results for this scenario combination at 80 km/h not available.

Although general performance improved from previous NHTSA testing, performance still varied across models within the fleet. One vehicle, the 2025 Volkswagen Tiguan, was able to avoid contact in all lead vehicle test scenarios (but not all PAEB test scenarios, as discussed in section II.A.1.b.) across all tested speeds, while all other vehicles had instances of contact. Except for four instances where contact occurred at lower test speeds (and no further tests were performed at higher speeds), when contact occurred, it was at the higher testing speeds or at the more stringent combination of parameters. Based on these results, the lead vehicle decelerating scenario remains challenging, with nine of the ten tested vehicles contacting the test device in at least one tested speed and combination of parameters. Even as overall performance when testing lead vehicle AEB has improved since previous NHTSA testing, gaps in performance across the fleet still exist.

Based on this testing, the agency has concluded tentatively that the pace of development is not proceeding as it had previously envisioned when it issued the 2024 final rule. NHTSA proposes to provide additional development time extending beyond 2029 to tune AEB systems to the requirements in FMVSS No. 127 and seeks comment on whether other changes to the FMVSS No. 127 requirements established in the 2024 rule would be appropriate.

b. Pedestrian AEB Testing Results

Results from the 2025 NCAP PAEB testing are shown by vehicle in Tables 11 through 20. The tables have a similar format to "Table 2 to S8.1.1—Test Parameters When Approaching a Pedestrian" in FMVSS No. 127 with the addition of two columns showing the test speeds with avoidance and the test speeds with contact.

Table 11: 2025 Chevrolet Equinox Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	10, 20, 30, 40, 50	60	Daylight
	Right	50	No	10, 20, 30, 40, 50	60	Daylight
	Right	50	No	10, 20, 30, 40, 50	60	Lower Beams
	Left	50	No	10, 20, 30, 40, 50,60	-	Daylight
	Right	50	Yes	10, 20, 30, 40, 50	60[1]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50	60[2]	Daylight
	Right	25	No	10, 20, 30, 40, 50	60[2]	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	None	10[4]	Lower Beams

[1] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[2] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[3] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.
[4] No tests performed above speed shown.

Table 12: 2025 Ford Expedition Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with Contact (km/h)	Lighting Condition

Pedestrian Crossing Road	Right	25	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Lower Beams
	Left	50	No	10, 20, 30, 40, 50	60	Daylight
	Right	50	Yes	10, 20, 30, 40, 50	60[1]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[2]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50, 60[2]	-	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	None	10[4]	Lower Beams

[1] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[2] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[3] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.
[4] No tests performed above speed shown.

Table 13: 2025 Hyundai Santa Fe Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	10, 20, 30, 40, 50	60	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Lower Beams
	Left	50	No	10, 20, 30, 40, 50	60	Daylight
	Right	50	Yes	10, 20, 30, 40	50[1,2]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50	60[3]	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Lower Beams

[1] No tests performed above this speed.
[2] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[3] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[4] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.

Table 14: 2025 Jeep Grand Cherokee Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	30[1], 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40	50[2]	Lower Beams
	Left	50	No	20, 30, 40, 50	10, 60	Daylight
	Right	50	Yes	10, 20, 30	40[2,3]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Daylight
	Right	25	No	-	10[2,4]	Lower Beams

[1] Results at speeds bellow 30 km/h not available.
[2] No tests performed above speed shown.
[3] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[4] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[5] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.

Table 15: 2025 KIA K4 GT-Line Turbo Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	20, 30, 40, 50	10, 60	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50	60	Lower Beams
	Left	50	No	-	40[1]	Daylight
	Right	50	Yes	10, 20, 30, 40	50[1,2]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50	60[4]	Lower Beams

[1] No tests performed above speed shown.
[2] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[3] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[4] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.

Table 16: 2025 Nissan Rogue SL FWD Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50	60	Daylight
	Right	50	No	10, 20, 30, 40	50[1]	Lower Beams
	Left	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	Yes	10, 20, 30, 40, 50	60[2]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50	60[3]	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Daylight
	Right	25	No	-	10[1,4]	Lower Beams

[1] No tests performed above speed shown.
[2] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[3] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[4] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.

Table 17: 2025 Subaru Forester Hybrid Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Lower Beams
	Left	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	Yes	10, 20, 30, 40, 50	60[1]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[2]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50[2,3]	-	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50	60[4]	Lower Beams

[1] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[2] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[3] Results for this scenario above speed shown not available.
[4] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.

Table 18: 2025 Toyota 4Runner Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	10, 20, 30, 40	50[1]	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Lower Beams
	Left	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	Yes	10, 20, 30, 40, 50, 60[2]	-	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50	60[3]	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Lower Beams

[1] No tests performed above this speed.
[2] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[3] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[4] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.

Table 19: 2025 Volkswagen Tiguan Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Lower Beams
	Left	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	Yes	10, 20, 30, 40	50[1, 2]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50	60[3]	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Lower Beams

[1] No tests performed above this speed.
[2] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[3] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[4] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.

Table 20: 2025 Volvo XC40 B5 AWD Plus Pedestrian AEB test results

Scenario	Direction	Overlap (%)	Obstructed	Test speeds with avoidance (km/h)	Test speeds with contact (km/h)	Lighting Condition
Pedestrian Crossing Road	Right	25	No	10, 20, 30, 40, 50	60	Daylight
	Right	50	No	10, 20, 30, 40, 50, 60	-	Daylight
	Right	50	No	10, 20, 30, 40, 50	60	Lower Beams
	Left	50	No	10, 20, 30, 40	50[1]	Daylight
	Right	50	Yes	10	20[1,2]	Daylight
Stationary Pedestrian	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50, 60[3]	-	Lower Beams
Pedestrian Moving Along the Path	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Daylight
	Right	25	No	10, 20, 30, 40, 50, 60[4]	-	Lower Beams

[1] No tests performed above this speed.
[2] FMVSS No. 127 testing is performed up to 50 km/h for this scenario.
[3] FMVSS No. 127 testing is performed up to 55 km/h for this scenario.
[4] FMVSS No. 127 testing is performed up to 65 km/h for this scenario.

Although pedestrian AEB system performance improved from previous NHTSA testing (especially for darkness PAEB testing), performance varied across models in the fleet, and no vehicle avoided collision at all NCAP test speeds. For the most challenging scenario, the obstructed pedestrian crossing from the right, five vehicles avoided contact up to 50 km/h (31.1 mph), the maximum test speed where FMVSS No. 127 is performed for this scenario. An additional three vehicles contacted the test target during the 50 km/h (31.1 mph) test but not at lower speed tests. The stringency of the obstructed pedestrian scenario is higher for NCAP than for FMVSS No. 127. This is because, in response to petitions for reconsideration on the 2024 Final Rule, NHTSA increased the distance between the subject vehicle and the obstructing vehicles, increasing the available perception time for the AEB systems.[27] On the other hand, two vehicles contacted at 20 km/h (12.4 mph) and 40 km/h (24.9 mph). These results suggest that the pace of development of AEB is not consistent throughout the fleet.

NHTSA observed improvement in AEB darkness performance in pedestrian test scenarios, where vehicles exhibited similar performance to the daylight testing in most scenarios. For the pedestrian moving along path scenario with lower beams, four vehicles avoided contact at all test speeds, while four other vehicles contacted at 10 km/h (6.2 mph) -with no tests conducted above this speed. These vehicles did avoid collision up to at least 50 km/h (31.1 mph) under the same lower beam condition for the stationary pedestrian scenario.

Similar to lead vehicle AEB, while overall performance when testing pedestrian AEB has improved since previous NHTSA testing, the current testing shows that gaps in performance across the fleet still exist.

As with lead vehicle AEB, based on this testing, the agency has concluded tentatively that the pace of development of PAEB systems is not proceeding as it had previously envisioned. As a result, NHTSA proposes additional development time extending beyond 2029 to tune

[27] See 88 FR 38632 at 38671 and 89 FR 93199 at 93213.

PAEB systems to the requirements in FMVSS No. 127 and seeks comment on whether other changes to the FMVSS No. 127 requirements established in the 2024 rule would be appropriate.

2. Stakeholder Meetings

Manufacturers have consistently raised concerns to NHTSA, both during the prior rulemaking and since the publication of the final rule, that they believe the requirements of FMVSS No. 127 will motivate designs that cause systems to generate false positive or unwanted activations,[28] which will in turn harm consumer acceptance of AEB or result in an increase in rear-end collisions.[29] In comments to the 2023 NPRM and in petitions for reconsideration filed following the publication of the final rule, several manufacturers and industry representatives asserted that the stringency of the performance requirements will generate disbenefits arising from consumer acceptance issues, primarily due to increased false positives. In meetings between NHTSA and industry representatives since the finalization of FMVSS No. 127, some regulated entities have expressed significant concerns about the changes in system decision-making algorithms that they believe will need to be implemented to comply with the requirements.[30]

In a series of meetings with NHTSA staff held on March 14, 2025, June 12, 2025, and January 20, 2026, the Alliance raised the following concerns. First, they expressed the concern that an attempt to meet the requirements might result in unintended safety disbenefits due to a

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[28] "False positive" refers to instances in which a system provides a warning or engages the brakes where there is no imminent crash scenario. In FMVSS No. 127, NHTSA established false positive tests that evaluate situations in which there is no object in the path of travel with which the vehicle would collide. When considering the impact of the frequency and intensity of AEB activations on consumer acceptance, it is useful to understand activations where there is no object with which a vehicle would collide as one form of a broader category of activations that may be unwanted by drivers. Other types of unwanted activations may occur and can impact consumer acceptance regardless of whether they are true or false positives. This discussion is not intended to inform determinations of whether such activations could constitute a defect.

[29] In the comments to the NPRM, Hyundai Motor Company (NHTSA-2023-0021-0791) and Honda (NHTSA-2023-0021-0484) both expressed concerns that performance requirements could lead to adverse consequences, such as false positive brake applications, which may increase consumer dissatisfaction with AEB technology. Similarly, in their responses to both the NPRM and the final rule (NHTSA-2023-0021-0844 and NHTSA-2023-0021-1071, respectively), the Alliance stated that the rule's no-contact performance requirement would increase false positives and potentially hinder public acceptance of AEB technology.

[30] Supra, note 17. Zendar and Teledyne Technologies did not express concerns with consumer acceptance.

potential increase in rear end crashes resulting from false positives, which was unquantified in the prior rulemaking. In particular, they expressed concern that, as the fleet transitions to vehicles with compliant AEB, there may be rear-end collisions from vehicles on the roads without such AEB installed that are behind vehicles that engage in AEB-induced hard braking events. They also noted risks to unbelted occupants due to AEB-induced heavy braking events. They stated that these potential disbenefits were not quantified adequately in the analysis of the final rule. They also expressed concerns with the requirement that a vehicle pass every time a test is conducted, instead of passing a portion of multiple trials. They stated that a typical test procedure builds adequate compliance margins into the performance requirements so that variability is accounted for and that companies often attempt to achieve approximately 10 percent compliance margin in vehicle performance. The Alliance also expressed concern about the practicability of darkness PAEB testing. They noted that NHTSA is obligated to consider public acceptance and balance safety against practicability.

The Alliance expressed concerns about the objectivity of some of the requirements. In particular, the Alliance stated that tests must yield identical results and expressed concern that there is variability in the AEB test results cited in the final rule beyond what is typically understood as sufficiently repeatable. For instance, they stated that the best-performing vehicle in NHTSA's testing cited in the 2024 Final Rule passed only 60 percent of total trials run in one scenario. They noted that the compliance challenges increase as vehicle weight increases. They also stated that the lack of defined conditions under which the malfunction telltale must illuminate creates a requirement that is not stated in objective terms. They stated that the practicability and objectivity concerns summarized above were inherent in the requirements of the final rule and would not be resolved through additional lead time alone.

The Alliance reiterated statements they made during the prior rulemaking stating that NHTSA's cost-benefit analysis did not consider adequately the disbenefits of increased rear-end

collisions, improved lighting needed for darkness PAEB performance, and the added cost of improved foundational braking equipment and sensor equipment .

The Alliance requested several amendments to the regulation based on these concerns. These included lower maximum test speeds for lead vehicle and pedestrian AEB for which no contact with the test device is permitted, adjustments to the darkness pedestrian testing, and incorporation of multiple trials. In addition, they requested that customers be allowed to deactivate systems with the systems reengaging on an ignition cycle, for specific use cases such as towing, offroad operation, and mounted equipment. Finally, the Alliance requested test procedures be incorporated into FMVSS No. 127 regarding the required malfunction telltale.

In its meeting with NHTSA staff, Honda expressed the concern that, to achieve compliance while utilizing a substantial compliance margin to address variability, systems may need to engage in what Honda describes as unintended braking, *i.e.*, braking that the driver would not choose to perform at that time, regardless of whether the scenario is a true or false positive. They explained that, according to their internal consumer complaint information, there is a large increase in consumer complaints for systems that initiate automatic braking at above 1.5 seconds time to collision, which may be the point at which drivers believe they remain in safe control of the situation. They explained that, when tested at speeds above 50 km/h (31.1 mph), braking will need to occur more than 1.5 seconds prior to contact to achieve a stop, which they believe will increase such complaints. They also indicated that, to avoid contact at high speeds, systems will need to initiate braking with maximum deceleration, which many drivers may experience as an unsafe or unwanted action. They also noted that early intense braking may frustrate drivers who are accustomed to retaining steering control as a method of avoiding collisions.

Honda also described concerns regarding testing PAEB. Specifically, they noted that, while nighttime pedestrian AEB should be retained, they are concerned about testing systems in darkness with upper beam headlamps deactivated. They suggested that vehicles equipped with

automatic upper beams be allowed to have such systems enabled for darkness PAEB testing. They also suggested that low-speed contact with the pedestrian test device be allowed for tests conducted at higher starting test speeds. Honda emphasized that the test conditions for the obstructed pedestrian crossing road scenario may not allow sufficient time for AEB systems to perceive the mannequin prior to initiating braking. Honda specifically mentioned road surface temperature as a point of concern for this scenario.

On April 30, 2025, NHTSA staff met with representatives from Teledyne Technologies, Inc. (Teledyne). In that meeting, Teledyne representatives detailed results from Teledyne's pedestrian AEB testing conducted in September 2024[31] utilizing a system that includes Teledyne's thermal camera sensor as part of a thermal fused system.

B. Basis for Delay

1. Pace of Development and Deployment

In addition to the range of performance observed in the MY 2025 vehicles tested, there is also uncertainty regarding the rate at which systems will improve and how that improvement will be distributed in the fleet. NHTSA recognizes that overly aggressive, technology-forcing standards can lead to consumer rejection or even negative safety consequences. When FMVSS No. 127 was finalized, NHTSA recognized both that the requirements of FMVSS No. 127 are challenging and the urgency of the safety problem. At the time the 2024 final rule was issued, NHTSA believed, given that some vehicles in the fleet had passed most test scenarios and one had passed at least one run in each scenario, despite not being designed to the requirements of the final rule, five years was adequate time for tuning of those best performing vehicles and for the remainder of the fleet to achieve similar performance.[32] Available results from current testing now indicate that, notwithstanding industry efforts, the overall performance of AEB systems has not progressed as rapidly, and as uniformly, as NHTSA had anticipated. NHTSA's

[31] Test information available at https://flir.netx.net/file/asset/68396/original/attachment (last accessed March 2026).
[32] 89 FR 39686, 39764.

2025 testing shows that performance gaps across the fleet still exist for several test conditions required by FMVSS No. 127.

Given the current pace of development, NHTSA tentatively concludes that additional time is needed for deployment of compliant systems throughout the fleet. Implementing new vehicle performance across a manufacturer's full lineup typically takes several years. For example, Toyota's technology package, which includes AEB technology version 3.0, was first introduced in passenger vehicles in 2022.[33] However, even years after its initial introduction, some models are still equipped with the previous version.[34, 35] Similarly, Ford's technology package that includes AEB, version 2.0, first introduced into passenger vehicles in 2021, is being gradually rolled out across the rest of the vehicle fleet.[36] Upgrading an existing vehicle fleet to the newest version of an active safety system—let alone one that meets the requirements of FMVSS No. 127—is not a simple matter of plug and play. Because current testing suggests that deployment of FMVSS-compliant AEB will take more time than enabled by FMVSS No. 127, NHTSA proposes an extension to provide additional time for manufacturers to develop their AEB systems and deploy the latest AEB software technologies across their fleets, and adequate time for the agency to evaluate responses to questions in this document and, if warranted, take action based on that information.

In extending the lead time for compliance, NHTSA is also taking into consideration the need of manufacturers to make design, procurement, and marketing decisions several years in advance of the model year in which a vehicle will be sold. Manufacturers may also face uncertainty about whether the improvements they can achieve in that timeline will enable those

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[33] The All-New, All-Electric Toyota bZ4X, https://pressroom.toyota.com/revealed-the-all-new-all-electric-toyota-bz4x/, accessed November 16, 2026.

[34] 2026 Tundra, https://www.toyota.com/tundra/features/mpg_other_price/8372/8386/8424, accessed November 16, 2026.

[35] 2026 Toyota Sequoia Owner's Manual, Toyota Safety Sense 2.5, https://www.toyotamanuals.org/2026-toyota-sequoia/, accessed November 16, 2026.

[36] Guide To Ford's Advanced Driver Assistance Systems (ADAS), https://www.billbrownford.net/resources/guide-ford-advanced-driver-assistance-systems-adas/, accessed November 16, 2026.

vehicles to comply. As a result, manufacturers may choose to remove vehicles from their planned lineup as the effective date approaches. This market disruption would create its own disbenefits, including a restriction in consumer choice. Additional details regarding this consideration can be found in the Preliminary Regulatory Impact Analysis (PRIA) accompanying this notice.

2. Additional Data Development on Safety Disbenefits and Consumer Acceptance

NHTSA has determined tentatively that a delay will both reduce the risk of negative consumer acceptance outcomes and provide time for manufacturers to provide data to NHTSA on and to mitigate false and nuisance AEB activations. In meetings with NHTSA staff, the Alliance and Honda emphasized the potential for safety disbenefits and consumer acceptance concerns that an overly stringent rule might generate due to increased false positive activations in the field. To date, NHTSA does not have sufficient information to quantify the safety and consumer acceptance risk of this type of false positive or nuisance braking. There continues to be insufficient data to quantify the frequency and dynamics of false positive events in part because data sources currently available to NHTSA do not provide specificity about the causes and circumstances of automatic braking events or the internal system information, such as sensor data and decision-making architecture, that result in a braking event. Developers and manufacturers may have this information or internal research that can illuminate the analysis of false positive risk. If so, NHTSA requests that information be provided to the agency, in secure form, to inform this analysis. Data limitations also continue to restrict the precision of the estimates of the injury prevention benefits of certain elements of the standard, in particular the requirement to avoid contact with the test device, even at low speeds. AEB-related consumer satisfaction problems and safety concerns have been fairly common since the technology has launched, however, with 36 recalls issued affecting more than 600,000 vehicles in the past decade. To ignore the history of AEB-related problems would be shortsighted, especially where operation of AEB is required at up to 145 km/h (90.1 mph)—without contact prohibitions—and

AEB performance is tested at up to 80 km/h (49.7 mph) subject to a no contact requirement. Vehicles with test track AEB performance at or near the level required by FMVSS No. 127 have been in the fleet for a short time, and providing additional time for NHTSA and manufacturers to review their performance may yield important information and insights into false positive frequency and severity and the resulting safety implications and consumer reaction.

NHTSA remains concerned that false activation events may introduce hard braking situations when such activations are not warranted, potentially causing rear-end crashes. The false activation tests codified in FMVSS No. 127 establish only a baseline for system functionality. They are by no means comprehensive, nor sufficient to eliminate susceptibility to false activations. Rather, the tests are a means to establish minimum performance.

Stakeholders suggested that the concerns may arise due to the compliance margins incorporated by manufacturers to be confident that certain aspects of the regulation will be met on every trial, which could result in disbenefits in the field. NHTSA is aware the manufacturers certifying that their vehicles comply with the FMVSS often exceed the minimum performance required by an FMVSS to ensure that, on any given test, the vehicle will comply with certainty given the potential for differences in the test set up or conditions. When manufacturers develop systems subject to new regulations, they tend to incorporate larger margins of compliance to account for unknown factors relating to the lack of experience certifying to the regulation.[37] These margins are adjusted during development and life cycle of the product[38] as manufacturers develop and come to understand their vehicles' performance and the requirements. When developing or amending an FMVSS, NHTSA may consider the compliance margin and how the degree of variability in certain vehicle systems might impact the size of that margin.[39]

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[37] Eckert, Claudia et al. (2020), "Design Margins in Industrial Practice," Design Science, vol. 6, e30. https://doi.org/10.1017/dsj.2020.19 (accessed November 2026).

[38] *Id.*

[39] *See*, *e.g.,* 40 FR 24915, 24916 (considering the manufacturing variability in some braking components in proposing amendments to FMVSS No. 121), and 74 FR 37122, 37131 (discussing a ten percent margin of compliance for the average stopping distance as a useful analytical and discussion tool when considering what stopping distance requirements are appropriate and practicable).

Although compliance margins are not required by the standards, they can improve safety beyond the minimum performance requirements required by the standard. Generally, a larger compliance margin will have little or no negative impact on safety and in many cases will increase safety. However, with standards that require technology that intervenes actively in the driving task, such as FMVSS No. 127, NHTSA understands that consumer acceptance may be affected adversely by unintuitive, unexpected, and assertive intervention—especially when activating sooner than would appear necessary to the driver, or activate prior to a driver's intended lane change to avoid decelerating or stopped traffic. If large AEB compliance margins result in more frequent, or more intense, alerts and automatic braking activations than necessary, this may negatively impact consumers' opinions of the safety system—even leading them to believe the system is unsafe—which could impact their willingness to purchase vehicles with the technology.

NHTSA is also concerned that manufacturers may have insufficient time before the current compliance date to resolve certain engineering challenges that result in test failures. One such challenge is variability attributable to the vehicle systems. If a manufacturer chooses to address this variability by adjusting its compliance margin via a substantial increase in sensitivity, this could, in turn, cause too frequent or too intense activations in the field, which may cause safety disbenefits or reduce consumer acceptance of the system.

Consumer acceptance of how a given feature operates is a design consideration for manufacturers. Current information available to NHTSA generally suggests that manufacturers have designed AEB systems that consumers accept. In a 2019 subscriber survey by Consumer Reports, referenced in the 2023 NPRM, 81 percent of vehicle owners reported that they were satisfied with AEB technology, 54 percent said that it had helped them avoid a crash, and 61 percent stated that they trusted the system to work every time.[40] However, these systems were

[40] Consumer Reports, (Aug. 5, 2019), Guide to automatic emergency braking: How AEB can put the brakes on car collisions, https://www.consumerreports.org/cars/car-safety/automatic-emergency-braking-guide-a1780056935/ , accessed November, 2026.

not designed to meet FMVSS No. 127. NHTSA is concerned that, in the near term, vehicles designed to meet FMVSS No. 127 may experience more frequent and more intense brake applications that occur further away from a potential obstacle, which may negatively impact consumer acceptance. This may be especially true if a driver intends to steer around an identified obstacle, and the system activates braking prior to a driver's beginning to steer.

Consumer complaint information suggests, however, that, at least for some vehicle AEB systems, acceptance is not universal. To better understand consumer acceptance of more recently deployed AEB systems, NHTSA looked at the number of consumer complaints relating to AEB activation. The Office of Defects Investigation (ODI) within NHTSA is responsible for conducting defect investigations and administering safety recalls. ODI also processes and manages consumer complaints. These complaints are received either through the Vehicle Safety Hotline or through filling out an on-line Vehicle Owner's Questionnaire.[41] This information is used by ODI, with other complaints and information, to determine if a safety-related defect trend exists, identify potential non-compliance, identify potential odometer fraud, and identify areas for safety messaging. These complaints can help to identify emerging safety issues and problems that drivers are experiencing. NHTSA may also review complaints in considering whether FMVSS amendments may be appropriate.

NHTSA reviewed complaints related to AEB received by the agency through December 31, 2024 for model year 2023 and model year 2024 vehicles.[42] Table 21 shows the ten most prevalent component complaints, as well as the total number of other complaints (other component complaints, unknown component, and 110 duplicates). AEB and FCW complaints

[41] https://www.nhtsa.gov/report-a-safety-problem#index, accessed May 30, 2025.

[42] https://static.nhtsa.gov/odi/ffdd/cmpl/COMPLAINTS_RECEIVED_2020-2024.zip, accessed April 24, 2025. The NHTSA Office of Defects Investigation vehicle owner's complaint data can be accessed by navigating https://www.nhtsa.gov/nhtsa-datasets-and-apis to the "Complaints" sections and selecting the "Download Data" submenu. Each data file contains data for a cycle of five years, except the latest data file which is still at the beginning of the cycle (cycles start at years ending in 0 and 5). Data sorted to show only complaints relating to MY 2023 and MY 2024 vehicles.

("Forward Collision Avoidance (AEB and Warning Only)" in the table) are the third most common complaint.

Table 21: Consumer Complaints for MY 2023 and MY 2024 Vehicles, by Number of Complaints

	Component	**Number of Complaints**
1	Electrical System	3318
2	Steering	1979
3	Forward Collision Avoidance (AEB and Warning Only)	1954
4	Service Brakes	1936
5	Engine	1910
6	Power Train	1531
7	Visibility	1431
8	Vehicle Speed Control	1038
9	Fuel	937
10	Forward Collision Avoidance (Other Components)	912
	Other	7670
	Total	**24616**

This data, which provides some insight into how consumers are experiencing currently available systems, may reflect complaints both of over or under-activation of AEB and FCW systems. It suggests that consumer acceptance of the technology is not universal and is an ongoing design consideration. FMVSS No. 127 leaves the tuning of alert and brake application timing up to the manufacturer. NHTSA recognizes that fine tuning AEB systems to meet both the performance requirements of the standard and to avoid driver frustration is a challenge. Data collection from multiple drivers over many miles of driving experiences takes time, and while broad parameters can be established across a manufacturer's fleet, some fine tuning may be necessary for specific models or trim lines. Given that some manufacturers who have experience designing these systems have expressed significant concerns about the impacts on consumer acceptance, NHTSA proposes to provide additional lead time to allow more development time for manufacturers to address these concerns and to allow for additional research into their frequency and impact. NHTSA also seeks comment on other potential modifications to the standard.

C. Proposed Extension to September 1, 2031

A delay in compliance may reduce the risk of consumer nonacceptance of AEB by providing manufacturers more time to design systems and provide the agency and stakeholders with additional time with which to monitor the field performance of vehicles at or near conformance with FMVSS No. 127 to determine if they result in increased false positive incidents, consumer complaint issues, or safety disbenefits. NHTSA proposes to delay the compliance date by two years. Under the current FMVSS No. 127, all passenger vehicles manufactured on or after September 1, 2029 are required to meet all requirements, except for those vehicles produced by small-volume manufacturers, final-stage manufacturers, and alterers, who are provided an additional year to comply with the rule. Under this proposal, new motor vehicles subject to the standard would be required to be equipped with AEB systems beginning September 1, 2031, with vehicles produced by small-volume manufacturers, final-stage manufacturers, and alterers, provided an additional year beyond that date.

In comments received on the 2023 NPRM, manufacturers, suppliers, and industry advocacy groups suggested several options for the appropriate amount of lead time. The Alliance, Mitsubishi, Honda, and Nissan suggested a compliance date starting seven years or more after the issuance of a final rule for large volume manufacturers, and the Alliance suggested an additional four years for small volume manufacturers. The Alliance also suggested an alternative compliance schedule that begins five years after the issuance of a final rule but noted that this would not address the outstanding technical issues and unintended consequences that they outlined in their comments. Volkswagen Group of America (Volkswagen) and Porsche Cars North America suggested a phased-in compliance process where a certain percentage of the fleet would be required to comply over a period of several years until 100 percent of the fleet was required to comply with the final rule.[43]

[43] Volkswagen suggested an additional two (2) years before beginning with the FMVSS No. 127 compliance timeline (*see* NHTSA-2023-0021-0947), and Porsche suggested an additional three (3) years, resulting in a total of seven years from the rule's publication, by incorporating a phase-in following the standard's timeline (*see* NHTSA-2023-0021-0868).

NHTSA proposes two years as an appropriate amount of additional lead time for several reasons. Primarily, the agency has determined tentatively that this amount of delay would result in no loss of safety benefits. This is discussed in more detail in Section V. It would also align the lead time with that requested by manufacturers in comments on the 2023 NPRM (seven years from the initial final rule publication). NHTSA seeks comment on whether two years is the appropriate amount of additional lead time.

Finally, NHTSA's existing test data does not appear to indicate that the challenges with compliance are specific to a certain segment of the fleet. Therefore, NHTSA has determined tentatively that a delay is appropriate fleet-wide and is not proposing a phase-in or to limit the delay by class or weight. NHTSA seeks comments on this proposal.

III. Other Proposed Amendments

A. Test Procedure for the Malfunction Telltale

The Alliance requested test procedures be incorporated into FMVSS No. 127 regarding the required malfunction telltale. NHTSA rejected similar requests made in petitions for reconsideration and in comments on the 2023 NPRM, on several grounds.[44] NHTSA has discretion to promulgate test procedures beyond what minimally would be necessary for an FMVSS, and NHTSA proposes to do so in this circumstance to increase compliance certainty for manufacturers. NHTSA is considering whether these procedures should be specified in the FMVSS or in the laboratory compliance test procedure. This proposal, if finalized, is not intended to adjust the required performance.

NHTSA proposes two test procedures that involve testing the malfunction detection telltale under conditions of an electrical fault. In developing this aspect of the proposal, NHTSA reviewed international standards and existing FMVSS malfunction detection approaches. The United Nations Economic Commission for Europe (UNECE) Regulation No. 152 contains a single test that involves simulating an AEB malfunction by disrupting electrical connections in a

[44] 89 FR 93199, 93211-93212; 89 FR 39686, 39735-39736.

similar manner to the malfunction testing in FMVSS No. 126, Electronic stability control systems for light vehicles. The proposed performance tests would confirm that the subject vehicle detects, identifies, and provides the vehicle operator with a telltale notification within 15 seconds of either vehicle start up, or an in-use malfunction.

To achieve this, NHTSA proposes to simulate a malfunction by disconnecting the power source to any AEB component or disconnecting any electrical connection between AEB components (the electrical connections for the telltale would not be disconnected). For the first performance test, the electrical connection would be disconnected prior to vehicle start up, and the malfunction telltale would be confirmed to be present while the vehicle is driven at a speed above 10 km/h (6.2 mph) for at least two minutes. The vehicle would then be turned off and after a period of five minutes it would be turned back on, driven at a speed above 10 km/h (6.2 mph) for at least two minutes to confirm the malfunction telltale notification is still present. Then, the vehicle is restored to normal operation, driven at a speed above 10 km/h (6.2 mph) for at least two minutes to confirm that after 15 seconds the telltale notification is off. The second performance test is similar, except that the malfunction is induced while the vehicle is on.

NHTSA seeks comment on this procedure overall, with particular interest on the proposed times: on/off time for vehicle and if 15 seconds is the appropriate duration prior to determining if telltale is present or not present. NHTSA also seeks comment on how and whether an appropriate test procedure should be established for evaluating malfunction detection under conditions other than electrical failure. AEB-specific testing, such as obstructed sensor tests, are not well represented in literature or industry consensus standards. For example, one potential obstructed test could include a shroud or cover with variable sized grating to obstruct a sensor enough to either induce or not induce a telltale for obstruction, then perform a compliance test consistent with either S7, S8, or S9 to determine if the subject vehicle without an active malfunction telltale can meet the requirements of this standard. On the other hand, NHTSA has previously stated that the range of possible malfunctions is sufficiently broad that an approach

involving specifying various instances of malfunction may not adequately resolve the safety problem because it would omit many possible malfunctions from the requirement. Are there test approaches that resolve this concern?

B. Clarification of the Test Speed Tolerance

The agency is proposing modifications to FMVSS No. 127 that would clarify the minimum and maximum subject vehicle test speeds for which manufacturers are required to certify performance. Currently, FMVSS No. 127 provides ranges of speeds that the agency could select when doing compliance testing (all of which a manufacturer must certify performance). It then provides a tolerance of 1.6 km/h (1.0 mph) around the selected speed. NHTSA's intention was that, for any specified range of subject vehicle speeds, the maximum testing speed—including any applicable tolerance—would not meet or exceed the upper limit of the range, and the minimum testing speed—also including any applicable tolerance—would not meet or fall below the lower limit of the range. However, this was not stated in the regulatory text or preamble. This may have inadvertently expressed a wider set of testable speeds than NHTSA intended.

Therefore, NHTSA is proposing to clarify that NHTSA will not conduct tests at subject vehicle speeds that exceed the maximum or fall below the minimum speed of the specified range available to the agency for selection. For example, when conducting a stopped lead vehicle test without manual braking, if NHTSA selects 79 km/h (49.1 mph) as the testing speed -which is within the 10 km/h (6.2 mph) to 80 km/h range (49.7 mph)- and the resulting speed during testing is 80 km/h (49.7 mph) or more, the test would not be valid. Similarly, if NHTSA were to do the same test at 11 km/h (6.8 mph) and the resulting speed during testing would be 10 km/h (6.2 mph) or less the test would not be valid. By making clear the exact range of testable speeds, this proposed modification would provide regulatory certainty for manufacturers and enable manufacturers to design in compliance margins with precision. NHTSA seeks comment on this proposed change.

IV. Request for Comment on Other Amendments to FMVSS No. 127

NHTSA seeks comment on other aspects of FMVSS No. 127 that could be adjusted to address stakeholder concerns without sacrificing safety. In the following sections, NHTSA has identified areas in which it is specifically interested in receiving comment. However, comments need not be limited to the items specifically stated and NHTSA is interested in comments on any potential amendments to FMVSS No. 127.

Although narrative responses have some benefit, to best assist the agency in resolving the uncertainties to the extent possible and selecting the approaches that are practicable and meet the need for safety, NHTSA requests that, in providing comments, stakeholders provide research or data that might enable the agency to quantify the safety impact of a particular requirement (including the impact of a change from a requirement of the 2024 final rule) or to quantify the safety implications from the compliance margins tied to specific requirements. NHTSA also seeks relevant material on the costs of complying with FMVSS No. 127, both as currently written and with respect to any suggested amendments. NHTSA seeks comment on how FMVSS No. 127 and any potential changes may implicate international harmonization.

NHTSA also recognizes that potential changes to requirements in FMVSS No. 127 could be temporary (to provide additional time for development to the full requirement) or permanent. For any change supported, NHTSA requests that stakeholders indicate whether the change should be temporary (and for how long) or permanent.

A. Low-Speed Contact

Manufacturers raised concerns about the requirement that the subject vehicle avoid contact with the test device during a test. NHTSA seeks comment on the merits of allowing contact at speeds at which serious injury or death in the field is unlikely when testing AEB or PAEB, either for a temporary period or permanently. In addition, NHTSA seeks injury risk data that may enable the agency to quantify the safety impact of allowing contact at these speeds. Commenters should endeavour to explain whether any issue raised would also be resolved by other relief contemplated in this notice, such as multiple trials.

NHTSA also specifically requests additional information regarding acceptable and reasonable contact speeds. For example, in its comment on the 2023 NPRM, Hyundai America Technical Center, Inc. (HATCI) stated that the speeds specified in 49 CFR part 581, bumper standard, which has a maximum impact speed of 4.0 km/h (2.5 mph) do not cause damage to the vehicle or test device and are highly unlikely to cause injuries to vehicle occupants. Would this contact speed accommodate concerns that might motivate design choices that increase the risk of consumer dissatisfaction or safety disbenefits, if such a change is made in combination with a multiple trials scheme? If not, what is the minimum contact speed that can do so? Would compliance margins on brake application mean that most vehicles would avoid contact even if mild contact were permitted? If so, in what scenarios and up to what test and impact speeds would this be the case?

In addition, NHTSA seeks comment on whether allowing low speed contact in FMVSS No. 127 testing will impact real world safety performance of AEB systems when operating at speeds above those tested under the standard. In particular, when operating at higher speeds on the road, will vehicles that contact test devices at low speeds during testing impact other road users at higher speeds than vehicles that avoid contact during testing? In real world scenarios, does allowing low speed contact increase the impact speed, and resulting injury risk, linearly as a

function of impact delta V plus contact speed, or would the expectation be that the injury risk would be proportional to only the contact speed allowance?

B. Test Speed Selection

NHTSA seeks comment on methods to further clarify the set of tests conducted by the agency to evaluate performance under FMVSS No. 127. One approach NHTSA is considering is limiting the maximum number of test speeds NHTSA could choose for a subject vehicle, such that the vehicle would be tested at a given set of speeds within the ranges already established. For instance, prior to testing a vehicle, NHTSA would choose up to thirteen speeds within each of the existing ranges for each test scenario. NHTSA would not be obligated to conduct the maximum number of tests or select only discrete speeds. NHTSA seeks comment on the appropriate number of selections to specify.

C. Multiple Trials

NHTSA seeks comment on allowing multiple trials to satisfy some or all test track requirements of FMVSS No. 127. NHTSA is concerned that, for systems that can achieve compliance, vehicle variability at the margin of system performance may be a factor that motivates a manufacturer to increase its compliance margin. However, the size of the compliance margin is a determination made by the manufacturer and not set by regulation. Therefore, NHTSA seeks comments on whether a multiple trials approach, either temporarily or permanently, may reduce the risks of overly aggressive AEB interventions as raised by manufacturers (which focused on false positives and consumer reaction) without sacrificing safety. NHTSA also seeks comment on whether the compliance margins utilized in AEB systems might result in systems that would perform equally in the real world to the levels envisioned in the 2024 FRIA accompanying the final rule, even if the regulation does not require compliance with every test run. The following discussion is provided to assist stakeholders in providing comment.

NHTSA's 2023 testing indicates that test run variability exists that affects manufacturers' ability to meet FMVSS No. 127 without further design changes.[45] At the margin of AEB system performance, vehicles often avoided contact at lower speeds but did not consistently avoid contact at higher test speeds (though they often reduced vehicle speed prior to contact). Of the six vehicles tested, one vehicle (2023 BMW iX xDrive50) experienced contact on some trials at several tested speeds. With four of the other five vehicles, no contact occurred until the margin of their respective AEB system performance ranges. The sixth vehicle (2023 Toyota Corolla Hybrid) avoided contact in all lead vehicle stopped and lead vehicle moving trials, which may indicate that the tests did not reach the margins of the vehicle's lead vehicle stopped and lead vehicle moving AEB performance, but experienced contact in decelerating lead vehicle tests. Similarly, in the latest testing, observed contact occurred primarily at the upper testing speeds. Also, in two instances in PAEB testing where vehicles contacted the test device at 10 km/h (6.2 mph), additional testing was performed at higher speeds (2025 KIA K4 GT-Line Turbo and 2025 Jeep Grand Cherokee). These vehicles were able to avoid contact up to 50 km/h (31.1 mph) but contacted at 60 km/h (37.3 mph). Though this testing did not conduct repeated trials of the same scenario and speed, the results indicate that the variability observed at the margins of performance in the 2023 testing data is still present.[46]

In its meetings with NHTSA staff, the Alliance stated that testing was not sufficiently repeatable because tested vehicles passed only a percentage of identical tests in some scenarios. However, the fact that a vehicle may pass only a percentage of identical test runs is not necessarily an indication that a test procedure is insufficiently repeatable or reproducible. There are two broad categories of factors that may result in variable test results across multiple trials of the same test scenario and speed when conducting AEB testing (run-to-run variability). First,

[45] https://www.regulations.gov/document/NHTSA-2023-0021-1066

[46] See results for 2025 Jeep Grand Cherokee pedestrian AEB - crossing from the left scenario and 2025 KIA K4 GT-Line Turbo pedestrian AEB – crossing from the right with 25 percent overlap scenario.

there are variations attributable to test conditions and procedures. These include factors like weather, road surface, and human test driver performance. The test conditions in S6 of FMVSS No. 127 are intended to account for these issues in a test setting. Second, there are factors attributable to the vehicle or its AEB system, such as camera frame rates, perception timing, detection confidence, decision making timing, system latency, brake performance, and tire specification. These factors may contribute to variability observed in test data at the margins of the performance that will be required by FMVSS No. 127, and many could be improved given additional time for development. The source of variability is meaningful in determining whether a test is sufficiently repeatable and in determining what changes may be appropriate to address it.

In November 2024, NHTSA denied in part petitions for reconsideration seeking multiple test trials.[47] NHTSA disagreed with the comparisons petitioners made between FMVSS No. 127 and FMVSS No. 135, which utilizes multiple trials for some tests to ensure valid test runs. NHTSA emphasized that FMVSS No. 135 utilized multiple trials as a test method to account for variability attributable to the ability of the human test driver to maximize the braking capabilities of the vehicle.[48] In contrast, the procedures in FMVSS No. 127 rely on either no brake pedal input or automated brake pedal input depending on scenario. NHTSA also found that the other sources of test variability raised by petitioners were addressed by the conditions in S6 of FMVSS No. 127 or were unpersuasive as a basis for multiple trials because they do not contribute to run-to-run variability.[49] However, based on manufacturer statements and additional testing that NHTSA conducted, NHTSA seeks comment on the value of multiple trials to provide additional compliance margin and whether this can be done without sacrificing safety benefits. The agency also requests input on whether such a scheme should be temporary, including the specific

[47] 89 FR 93199 (Nov. 26, 2024).

[48] FMVSS No. 135 affords a test driver multiple opportunities to stop within the required stopping distances for certain test scenarios. This functions to accommodate the repeatability concerns created by using human test drivers.

[49] 89 FR 93199, 93208-93209.

number of years it should remain in effect, or permanent, along with any supporting data and engineering analysis.

Potential Approaches to Multiple Test Runs

NHTSA is aware of several potential approaches to incorporating multiple trials into FMVSS No. 127, including the following:

- FMVSS No. 135, which affords six trial runs and evaluates the best run.
- NCAP's prior testing protocol, which utilizes five out of seven passing runs.[50,51]
- Options proffered in comment and petitions for reconsideration. Petitioners highlighted several approaches, including passing five out of seven runs, passing three out of five runs, and passing one out of six runs.[52] In comments on the 2023 NPRM, many entities supported allowing repeated test trials.[53] Several entities suggested a five out of seven passing threshold. Rivian Automotive recommended running between three and five tests and averaging the speed reduction achieved with a passing grade being given to vehicles that average greater than a 50 percent speed reduction. The Alliance and Porsche also recommended that a vehicle could pass after three consecutive successful tests. The Automotive Safety Council and ZF North America recommended that repeated trial testing be used at speeds of 25 mph and higher.[54]

[50] National Highway Traffic Safety Administration (Oct. 2015), Crash Imminent Brake System Performance Evaluation for the New Car Assessment Program, Docket No. NHTSA-2015-0006-0025.

[51] National Highway Traffic Safety Administration (Oct. 2015), Dynamic Brake Support Performance Evaluation Confirmation Test for the New Car Assessment Program, Docket No. NHTSA-2015-0006-0026.

[52] 89 FR 93199, 93207. See also Petitions for Reconsideration submitted by the Alliance (Docket No. NHTSA–2023–0021–1071), Toyota Motor North America (Toyota) (Docket No. NHTSA–2023–0021–1074), and Volkswagen (Docket No. NHTSA–2023–0021–1073).

[53] 89 FR 39686, 39731. These comments also largely requested that the standard use a 'speed reduction' method to determine passing rather than collision avoidance. NHTSA understands that commenters may not have suggested these same passing rates be used in a collision avoidance requirement. NHTSA is referencing these comments as a source for possible approaches but is not suggesting that commenters continue to support the same options for the current proposal.

[54] *Id.*

- UNECE R152.[55] Under R152, a test at a given speed is conducted twice, and if the vehicle fails to meet the required performance on one of the two test runs, a third test is conducted. However, R152 also includes provisions that require the subject vehicle to fail only a specified percent of the test trials conducted for any avoidance type (10 percent of the total number of test runs for lead vehicle AEB and for pedestrian AEB). Although the performance standard is less stringent than with FMVSS No. 127, the net effect is to make the system robustness in R152 significantly more stringent than a two out of three testing scheme. For PAEB, under UNECE R152, if 13 tests are completed, only one failure is permitted.
- One out of one plus. Under this approach, for any combination of subject vehicle speed, lead vehicle speed, headway, and lead vehicle deceleration, a single test run will be conducted initially. If the subject vehicle does not avoid contact with the test device, two additional test runs, using the same selected parameters, will be conducted. To pass, the subject vehicle must avoid contact with the test device in the second and third test runs.

NHTSA seeks comment on these approaches or on other multiple-trial approaches that would be appropriate for testing AEB systems. NHTSA also seeks comment on whether certain schemes would be more appropriate for some scenarios, or speed ranges, than for others, and whether multiple trial testing should be limited to tests conducted at or above specified speeds.

Evaluation of Potential Schemes

As it reviews and compares possible approaches to allowing for multiple trials, NHTSA may seek to quantify both the costs of implementing different schemes and the implications for the field performance of AEB systems that meet the minimum standard relative to systems that meet the current FMVSS No. 127 requirements. NHTSA recognizes that each additional trial can diminish the impact of both vehicle variability (*e.g.*, object detection and recognition, image

[55] United Nations Economic Commission for Europe Regulation No. 152, Addendum 151, Revision 2, June 15, 2023, https://unece.org/sites/default/files/2024-04/R152r2E.pdf, (accessed November 16, 2026).

filtering and processing cycles, brake system application timing, FCW alert timing) and environmental variability (*e.g.*, temperature fluctuations, wind, glare, road friction changes) on the outcome of the overall test sequence. This can affect how manufacturers set their compliance margins. On the other hand, increasing the number of test runs performed and the number of failed tests permitted impacts the overall cost of testing because each individual test run increases time and expense. In addition, the more times a vehicle contacts a test device, the higher the likelihood of damage to the vehicle or test equipment, which increases cost and may affect the validity of further testing. NHTSA seeks comment on these or other cost factors that should be considered when evaluating multiple-trial approaches.

NHTSA also seeks comment on appropriate statistical methods, such as binominal analysis, for evaluating the expected on-road safety performance of vehicles tested under and meeting the standards of alternative multiple trial schemes. Specifically, NHTSA seeks analyses enabling the agency to estimate the marginal increase in the probability of passing a cumulative set of trials compared against the probability of passing any individual trial that is produced by each additional allowed failed run, which can be compared to the marginal increase in the cost of testing and any impact on real-world safety performance. In addition, please provide any study results regarding alternative approaches that could provide additional space for compliance margin at a minimal cost while preserving the safety benefits expected by FMVSS No. 127.

D. Road Surface Temperature

In its meeting with NHTSA staff, Honda mentioned road surface temperature as a point of concern for compliance testing, especially with regard to the obstructed pedestrian test scenario. NHTSA seeks comment on the need to include specifications that would limit the road surface temperature during testing, and whether such a specification would ease the testing burden or increase compliance certainty.

FMVSS No. 127 specifies that testing is to be done at an ambient temperature between 0 °C and 40° C and a peak friction coefficient (PFC) of 1.02. The PFC of 1.02 specified in

FMVSS No. 127 is a limit and not dependent on the track temperature. Although the PFC limit specified in FMVSS No. 127 sufficiently describes the road surface characteristics for a manufacturer to know their vehicle's braking performance, NHTSA seeks comment on whether incorporating a temperature specification would increase compliance certainty when manufacturers self-certify. Specifically, NHTSA seeks comment on incorporating a range for the road surface temperature between 5 °C and 55 °C consistent with the "Dry Test Track Surface" for "All-Season & All-Terrain" in Table 3 of SAE J2909.[56]

E. Test Conditions for the Obstructed Pedestrian Scenario

NHTSA seeks comment on two possible adjustments to the obstructed pedestrian crossing road scenario: increasing the distance between the subject vehicle and the obstructing vehicle testing devices (VTDs) and adjusting the actual overlap tolerance. Based on information provided in the petitions for reconsideration on the 2024 final rule, the agency adjusted the distance between the subject vehicle and the VTDs for the obstructed pedestrian crossing road scenario in a previous amendment.[57] Based on the information received in its meeting with Honda, NHTSA is concerned that this scenario is still more challenging than the agency intends.

The specified location of the VTDs in relation to the subject vehicle is the main factor affecting the available action time for the AEB system in the pedestrian crossing road scenarios.[58] A slight increase in the distance between the subject vehicle and the VTDs has the potential to increase the available perception time for the AEB systems. An adjustment of 0.05 m to the distance travelled by the PTM from the edge of the VTD to the overlap may increase the available time for perception by up to 10 percent approximately.[59] However, any increase must be balanced with the test's representativeness of real-world conditions. This scenario is intended

[56] SAE International (2018), *Light Vehicle Dry & Wet Stopping Distance Test Procedure* (SAE J2909).

[57] 89 FR 93199 (Nov. 26, 2024).

[58] 88 FR 38632 at 38671, 89 FR 93199 at 93213.

[59] 89 FR 93199 at 93213. The calculation is based on numbers provided by the Alliance in its petition for reconsideration and with a maximum subject vehicle speed during test of 50 km/h (31.1 mph).

to emulate residential driving with on the road parking and the potential for children pedestrians to enter the path of the vehicle. A subject vehicle distance that is too far from the obstructing vehicle would not be representative. An alternative approach to increasing the available perception time, without increasing the distance between the subject vehicle and the VTDs, is reducing the overlap tolerance. The overlap is the location on the subject vehicle where the vehicle would collide with the pedestrian surrogate in the absence of any brake activation. FMVSS No. 127 specifies a tolerance of ±0.15 m for the overlap when testing. A narrower tolerance for the overlap, such as ±0.10 m, may also provide approximately 10 percent additional perception time.

NHTSA seeks comment on increasing the distance between the subject vehicle and VTDs for the obstructed pedestrian crossing the road scenario by 0.05 m and adjusting the overlap tolerance from ±0.15 m to ±0.10 m. Would one or both these changes adequately resolve concerns raised by manufacturers without rendering the test unrepresentative? Would any additional changes to this test be necessary to resolve those concerns?

F. Other Test Scenario Adjustments

In their petition for reconsideration, the Alliance highlighted concerns regarding the distance between the subject vehicle and vehicle testing devices (VTDs) (headway) and speeds for the decelerating lead vehicle test. Toyota and Volkswagen also highlighted concerns regarding high maximum test speeds and no contact for other scenarios. NHTSA seeks comment on adjustments to test scenarios, such as increasing headway, adjusting the overlap tolerances, and other positional changes that may allow for more practicable tests while preserving fidelity to the real world.

G. Darkness Pedestrian AEB Testing

Pedestrian fatalities in darkness are a substantial safety problem. Out of the 4,069 pedestrian fatalities in 2019 resulting from being struck by the front of a light vehicle, about 77 percent occurred in dark conditions and about 50 percent of all pedestrian fatalities occurred at

posted speeds of 40 mph (64 km/h) or less. Forty percent of all pedestrian injuries, regardless of how a pedestrian is struck, occur in dark conditions, and 57 percent of them occur at posted speeds of 40 mph (64 km/h) or less.

In comments to the NPRM, petitions for reconsideration of the final rule, and statements made in meetings with NHTSA, many industry stakeholders, including vehicle manufacturers and equipment manufacturers, opposed the PAEB darkness test conditions entirely or opposed the specification that the test be run with only lower beams active. Except for the pedestrian moving along path scenario, the tested 2025 vehicles exhibited similar PAEB performance when tested in darkness with lower beam or during daylight. For the pedestrian moving along path scenario with lower beams, four vehicles avoided contact at all test speeds, while four other vehicles of the ten tested contacted at 10 km/h (6.2 mph) -no tests conducted above this speed. The four vehicles that contacted at 10 km/h (6.2 mph) for the pedestrian moving along path scenario avoided collision up to at least 50 km/h (31.1 mph) under the same lower beam condition for the stationary pedestrian scenario. NHTSA's 2025 testing did not examine the difference between upper and lower beam performance, though the comparison to daylight testing provides some insight into how systems perform with additional illumination.

The agency seeks comments regarding the requirements and testing of pedestrian AEB in darkness. What, if any, conclusions can be drawn from the 2025 testing with regard to performance between daylight and darkness testing and testing with upper beams active compared to only lower beams? In addition, what practicability concerns impact testing AEB performance with only lower beams active in darkness conditions? Are these concerns specific to certain test scenarios or speeds, and are they expected to persist or to be resolved as systems develop given additional lead time? In addition, the agency seeks comments on the practicality and impact to safety of allowing vehicles equipped with advanced lighting features (such as automatic beam switching and adaptive driving beams) to meet the lower beam requirements with the advanced lighting features active.

H. Equipment Requirement

FMVSS No. 127 includes an equipment requirement that light vehicles have an AEB system that applies the brakes automatically at any forward speed that is greater than 10 km/h (6.2 mph) and less than 145 km/h (90.1 mph) when a collision with a lead vehicle is imminent, and at any forward speed greater than 10 km/h (6.2 mph) and less than 73 km/h (45.3 mph) when a collision with a pedestrian is imminent. It also includes a performance test requirement that, when tested according to the procedures in the rule, the subject vehicle provides a forward collision warning and applies the service brakes automatically when a collision with a lead vehicle or pedestrian is imminent such that the subject vehicle does not collide with the lead vehicle or the pedestrian. These provisions were not modified appreciably in NHTSA's response to petitions for reconsideration.

The agency declined to include performance tests associated with this equipment requirement, as the equipment requirement is designed to prevent systems from deactivating under normal driving conditions above 100 km/h (62 mph), such as those on major highways with a posted speed limit of 104.6 km/h (65 mph) or higher. NHTSA seeks comment on the appropriateness of the current minimum and maximum activation speeds for both AEB and PAEB. Is there safety data that points to a revision of either the maximum or minimum activation speeds? Is there human factors data indicative of expected opportunity (in distance and/or time) to steer around an obstacle as opposed to brake activation? Is there data showing the prevalence of unintended activation in certain circumstances, such as stopped traffic immediately in front of a freeway offramp the driver intends to take? If the maximum activation speed is lowered, what would an appropriate threshold be for system to stop being required to activate? If the equipment requirement was removed for speeds above the maximum vehicle test speed, how could the agency ensure system availability and operation in conditions where speed may vary around the maximum tested speed?

NHTSA also seeks data on increased rear-end crash risks from following vehicles presented by maximum or near-maximum braking between 113 km/h (70 mph) and 145 km/h (90 mph), and in response to braking forces necessary to meet the no-contact requirements at the top speed of 100 km/h (62 mph), which applies only if there is some braking input by the driver. On this topic, research or data highlighting the aggressiveness of following distances at such speed would be particularly helpful, as well as information enabling the agency to separate the safety risk posed by automated application of the braking system and a driver performing the same maneuver in a crash imminent scenario presented by this range. This will assist the agency in weighing the crash risk of a rear end crash by the subject vehicle into the vehicle in front of it and a following vehicle without AEB against the risk associated with a rear-end crash precipitated by the subject vehicle braking automatically and being collided in the rear by a following vehicle (and potentially being pushed into the vehicle in front of it).

I. Manual Deactivation

FMVSS No. 127 allows AEB to be deactivated automatically "during low-range four-wheel drive configurations, when the driver selects "tow mode," or when another vehicle system is activated that will have a negative ancillary impact on AEB operation." In meetings with NHTSA staff, the Alliance suggested allowing AEB to be deactivated manually in a manner similar to the procedures in UNECE R 152. NHTSA seeks comment on the safety impact of allowing a manual deactivation control. In particular, are there situations in which automatic deactivation would not occur but in which a deactivated system would provide more safety benefits than those provided by an active AEB system?

J. Forward Collision Warning Visual and Auditory Signal Requirements

In the final rule responding to petitions for reconsideration, NHTSA made several changes to the requirements for the visual and auditory signals. For the visual signal, NHTSA made clarifying changes regarding the elliptical area in which the signal must be located. For the auditory signal, NHTSA incorporated additional details regarding the conditions under which the

signal must meet the requirements, specified the location of the sound measurement device, and revised the language describing the baseline sound level against which the FCW auditory signal intensity is compared. NHTSA seeks comment on the current specifications and whether manufacturers continue to face challenges in applying this language or testing their systems.

K. Considerations for Vehicles Equipped with Automated Driving Systems

NHTSA solicits comment on the appropriateness of portions of the standard for vehicles equipped with automated driving systems (ADS). Do ADS developers or manufacturers of ADS-equipped vehicles have observations of the appropriateness of the test procedures for vehicles with ADS, including vehicles designed without manual controls? The agency also seeks comment on the appropriateness of certain modalities for forward collision warnings (FCW) for ADS-equipped vehicles. Will an FCW alert be useful for a vehicle not designed to hold occupants? Would occupants in a passenger vehicle need to receive an auditory or visual FCW alert even if unable to operate vehicle controls?

V. Summary of Estimated Impacts

A. Proposed Rule

NHTSA prepared a Preliminary Regulatory Impact Analysis (PRIA) that presents the incremental benefits and costs associated with this proposed rule.[60] NHTSA qualitatively analyzed the impacts of modifying the compliance date of FMVSS No. 127 to September 1, 2031.

When assessing the impacts of this proposed rule, NHTSA took into account a baseline that reflects the requirements of FMVSS No. 127 and the current lead time, while also taking into account new information not available at the time that the FRIA was developed in support of the 2024 final rule. However, as NHTSA is unable to quantify the benefits and costs under the baseline, it is unable to quantify the impacts under this proposed rule and, instead, discusses those qualitatively and evaluates the outcomes across the plausible scenarios.

It is possible that for some models, manufacturers may not face any uncertainty in meeting the requirements under the current lead time. To minimize costs and gain a competitive advantage among safety conscious consumers, those manufacturers will continue to equip their vehicles with rule complaint AEB systems under this proposed rule. Therefore, given no change in their behavior under this proposed rule, there would be no incremental safety benefits or costs realized by those vehicles that could meet the requirements under the current lead time.

As the effective date grows closer, those manufacturers that cannot meet the requirements for their fleet would need to pull vehicles from the market abruptly, resulting in a market disruption with cascading effects impacting not only the manufacturer, but also suppliers, dealers, and consumers. The extension in lead time granted under this proposed rule would avoid the disbenefits resulting from a disruption in the light vehicle market, which include negative impacts on competition in the light vehicle market, losses in sales and revenue for manufacturers,

[60] The Preliminary Impact Analysis of this proposed rule is available in the docket associated with this rulemaking.

restrictions in consumer choice, and potential losses in safety from delaying new or improved safety features from entering the on-the-road fleet.

Given the negative impacts resulting from the inability to sell noncompliant vehicles, manufacturers who could not meet the requirements of FMVSS No. 127 on all vehicles would implement rule-compliant AEB as soon as possible. In considering how these manufacturers would operate under this proposed rule, NHTSA considered cost impacts associated with delaying the implementation of rule-compliant AEB beyond the necessary time to develop, test, and validate their systems during the extension in lead time. To minimize costs and maintain competitiveness in the market, these manufacturers have an incentive to equip their vehicles with rule-compliant AEB as soon as possible. Therefore, the timing in which these manufacturers would implement rule-compliant AEB in their new vehicles is based on feasibility. Because the extension in lead time would not impact how these manufacturers would operate, this proposed rule would have no incremental impact on safety benefits or costs.

Overall, manufacturers must have enough time to develop their systems in a manner that meets the performance requirements of FMVSS No. 127, while ensuring consumer acceptance of AEB technologies and not generating disbenefits by producing negative safety outcomes. Although NHTSA is unable to quantify impacts under the baseline, the proposed rule would not result in incremental impacts on safety benefits or costs, as the timing in which manufacturers would implement rule compliant AEB systems on those vehicles would be based on afeasibility. In addition, the regulatory relief provided by this proposed rule would avoid a disruption in the light vehicle market that would result in negative impacts to manufacturers, consumers, and overall safety outcomes for society.

VI. Regulatory Notices and Analyses

Executive Orders 12866 and 13563

NHTSA has considered the impact of this rulemaking action under Executive Orders 12866, 13563, and 14192. This rulemaking is considered significant under Executive Order

(E.O.) 12866 and was reviewed by the Office of Management and Budget under that E.O. NHTSA has prepared a PRIA that assesses the cost and benefits of this proposed rule. The benefits, costs, and other impacts of this NPRM are discussed in the prior section.

Executive Order 14192

This proposed rule, if finalized, would be an E.O. 14192 deregulatory action. As discussed in the prior section, by extending the compliance date for the light duty AEB requirements established by NHTSA in a 2024 rulemaking by two years, the rule would reduce the risk that manufacturers would need to remove non-compliant models from the market, thus maintaining consumer choice.

Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act of 1980, Pub. L. No. 96-354, 94 Stat. 1164 (5 U.S.C. 601, *et seq.*, as amended), whenever an agency is required to publish a proposed rule for prior notice and an opportunity for comment, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (*i.e.*, small businesses, small not-for-profit organizations, and small governmental jurisdictions). An analysis is not required if the head of the agency certifies that this proposed rule will not have a significant economic impact on a substantial number of small entities.[61] I certify that this NPRM would not have a significant economic impact on a substantial number of small entities. The factual basis for this certification is provided below.

The PRIA discusses the economic impact of the proposed rule on small vehicle manufacturers, of which NHTSA is aware of 12.[62] NHTSA believes that this proposed rule would not have a significant economic impact on these manufacturers. Much of the work developing and manufacturing AEB system components would be conducted by suppliers. Although the final certification would be made by the manufacturer, the proposed rule would

[61] This authority has been delegated to the NHTSA Administrator at 49 CFR 1.81(a)(18).

[62] See accompanying PRIA in the docket associated with this rulemaking.

provide an additional two years for all manufacturers to comply. Small-volume manufacturers would have an additional year to comply beyond this extended timeframe. This approach is similar to the approach we have taken in other rulemakings in recognition of manufacturing differences between larger and smaller manufacturers. As AEB systems that meet FMVSS No. 127 are deployed on the market, AEB suppliers would likely supply larger vehicle manufacturers first, before small manufacturers. This NPRM recognizes this and proposes to provide smaller manufacturers flexibility, so they have time to obtain the equipment and work with the suppliers after the demands of the larger manufacturers are met.

This proposal may also affect final stage manufacturers, many of whom would be small businesses. It is NHTSA's understanding that final stage manufacturers rarely make modifications to a vehicle's braking system and instead rely upon the pass-through certification provided by a first-stage manufacturers. As with small-volume manufacturers, final stage manufacturers would be provided with one additional year to comply with any requirement.

Additional information concerning the potential impacts of this proposal on small business is presented in the PRIA accompanying this proposal.

Civil Justice Reform

With respect to the review of the promulgation of a new regulation, section 3(b) of E.O. 12988, "Civil Justice Reform" (61 FR 4729, Feb. 7, 1996), requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies the preemptive effect; (2) clearly specifies the effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct, while promoting simplification and burden reduction; (4) clearly specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General.

NHTSA has reviewed this NPRM and determined that it conforms to the applicable standards in section 3(b)(2) of this E.O. The preemptive effect of this rulemaking is discussed in the section discussing E.O. 13132 (Federalism). NHTSA believes that the proposed rule specifies clearly the changes NHTSA would make to the FMVSS No. 127 published in 2024 and that the rule provides a clear legal standard for manufacturers to follow. The proposed amendments would not be retroactive. NHTSA notes further that there is no requirement that individuals submit a petition for reconsideration or pursue other administrative proceeding before they may file suit in court.

National Environmental Policy Act (NEPA)

Pursuant to 49 CFR 1.81, the Secretary has delegated the "functions" under NEPA to the Administrators "as they relate to the matters within the primary responsibility of each Operating Administration." NHTSA has determined that this proposed rule is categorically excluded pursuant to 23 CFR 771.118(c)(4). Categorical exclusions are actions identified in an agency's NEPA procedures that do not normally have a significant impact on the environment and therefore do not require either an environmental assessment (EA) or environmental impact statement (EIS). *See* DOT Order 5610.1D, section 9. In analyzing the applicability of a categorical exclusion (CE), the agency must also consider whether extraordinary circumstances

are present that would warrant the preparation of an EA or EIS. *Id.* at section 9(b). Each Operating Administration (OA) within the Department may apply CEs established in another OA's procedures. *Id.* at section 9(f). To do so, the OA "must evaluate the action for extraordinary circumstances identified in the OA procedures in which the CE is established to determine if a normally excluded action may have a significant impact and coordinate with the originating OA to ensure that the CE is being applied correctly." *Id.* This proposed rule, which would amend the compliance dates and certain test procedures and tolerances in FMVSS No. 127, is categorically excluded pursuant to 23 CFR 771.118(c)(4): "Planning and administrative activities not involving or leading directly to construction, such as: Training, technical assistance and research; promulgation of rules, regulations, directives, or program guidance; approval of project concepts; engineering; and operating assistance to transit authorities to continue existing service or increase service to meet routine demand." NHTSA has coordinated with the FTA to ensure that this CE is being applied correctly. NHTSA does not anticipate any environmental impacts, and there are no extraordinary circumstances present in connection with this rulemaking.

Executive Order 13132 (Federalism)

NHTSA has examined this NPRM pursuant to E.O. 13132 (64 FR 43255, Aug. 10, 1999) and concludes that no additional consultation with States, local governments or their representatives is mandated beyond the rulemaking process. NHTSA has concluded that the rulemaking would not have sufficient federalism implications to warrant consultation with State and local officials or the preparation of a federalism summary impact statement. The rulemaking would not have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

NHTSA rules can preempt in two ways. First, the Safety Act contains an express preemption provision: When a motor vehicle safety standard is in effect under this chapter, a State or a political subdivision of a State may prescribe or continue in effect a standard

applicable to the same aspect of performance of a motor vehicle or motor vehicle equipment only if the standard is identical to the standard prescribed under this chapter. 49 U.S.C. 30103(b)(1). It is this statutory command by Congress that preempts any non-identical State legislative and administrative law addressing the same aspect of performance.

The express preemption provision described above is subject to a savings clause under which "[c]ompliance with a motor vehicle safety standard prescribed under this chapter does not exempt a person from liability at common law." 49 U.S.C. 30103(e). Pursuant to this provision, State common law tort causes of action against motor vehicle manufacturers that might otherwise be preempted by the express preemption provision are generally preserved.

NHTSA rules can also preempt State law if complying with the FMVSS would render the motor vehicle manufacturers liable under State tort law. Because most NHTSA standards established by an FMVSS are minimum standards, a State common law tort cause of action that seeks to impose a higher standard on motor vehicle manufacturers will generally not be preempted. However, if and when such a conflict does exist—for example, when the standard at issue is both a minimum and a maximum standard—the State common law tort cause of action is impliedly preempted. See *Geier v. American Honda Motor Co*., 529 U.S. 861 (2000).

Pursuant to E.O. 13132 and E.O. 12988, NHTSA has considered whether this proposed rule could or should preempt State common law causes of action. NHTSA's ability to announce its conclusion regarding the preemptive effect of one of its rules reduces the likelihood that preemption will be an issue in any subsequent tort litigation. To this end, NHTSA has examined the nature (*e.g.*, the language and structure of the regulatory text) and objectives of this NPRM and finds that this proposed rule, like many NHTSA rules, prescribes only a minimum safety standard. As such, NHTSA does not intend that this proposed rule preempt State tort law that would effectively impose a higher standard on motor vehicle manufacturers than that established by this proposed rule. Establishment of a higher standard by means of State tort law would not

conflict with the minimum standard proposed to be adopted here. Without any conflict, there could not be any implied preemption of a State common law tort cause of action.

Paperwork Reduction Act (PRA)

Under the PRA of 1995, a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid OMB control number. There are no "collection[s] of information" (as defined at 5 CFR 1320.3(c)) in this proposed rule.

National Technology Transfer and Advancement Act

Under the National Technology Transfer and Advancement Act of 1995 (NTTAA) (Pub. L. No. 104-113), all Federal agencies and departments must use technical standards developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies, such as the ISO and SAE International. The NTTAA directs Federal agencies to provide Congress, through OMB, explanations when a Federal agency decides not to use available and applicable voluntary consensus standards.

This preamble contains descriptions of UNECE Regulation No. 152 and its specifications regarding the number of trials performed for AEB testing as well as the malfunction telltale test procedure. This proposed rule is substantially similar to UNECE Regulation No. 152 regarding the malfunction telltale test. This proposed rule also seeks comment on several items relevant to alignment with UNECE Regulation No. 152.

Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (Pub. L. No. 104-4) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditures by States, local or tribal governments, in the aggregate, or by the private sector, of $100 million or more (adjusted

annually for inflation with base year of 1995) in any one year. Adjusting this amount by the Consumer Price Index for All-Urban Consumers (CPI-U) for the year 2026 relative to 1995 results in $214 million. This proposed rule is not likely to result in expenditures by State, local, or Tribal governments of more than $214 million in any one year. Furthermore, it is not estimated to result in the expenditures by motor vehicle manufacturers of more than $206 million in any one year. Nevertheless, the prior section of this NPRM contains a summary of the costs and benefits of this proposed rule, and the PRIA discusses the costs and benefits of this proposed rule in detail.

Executive Order 13609 (Promoting International Regulatory Cooperation)

The policy statement in section 1 of E.O. 13609 states, in part, that the regulatory approaches taken by foreign governments may differ from those taken by U.S. regulatory agencies to address similar issues and that, in some cases, the differences between the regulatory approaches of U.S. agencies and those of their foreign counterparts might not be necessary and might impair the ability of American businesses to export and compete internationally. The E.O. states that, in meeting shared challenges involving health, safety, labor, security, environmental, and other issues, international regulatory cooperation can identify approaches that are at least as protective as those that are or would be adopted in the absence of such cooperation and that international regulatory cooperation can also reduce, eliminate, or prevent unnecessary differences in regulatory requirements. NHTSA requests public comment on the "regulatory approaches taken by foreign governments" concerning the subject matter of this rulemaking.

Regulation Identifier Number

The Department assigns a regulation identifier number (RIN) to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. You may use the RINs contained in the heading at the beginning of this document to find this action in the Unified Agenda.

Rule Summary

This NPRM proposes to delay the compliance date for FMVSS No. 127 by two years, incorporate test procedures for the malfunction telltale, and clarify the test speed tolerance. It also seeks comments on several topics. As required by 5 U.S.C. 553(b)(4), a summary of this rule can be found at https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202504&RIN=2127-AM69.

VII. Public Participation

How long do I have to submit comments?

Please see the ***"DATES"*** section at the beginning of this document.

How do I prepare and submit comments?

- Your comments must be written in English.
- To ensure that your comments are correctly filed in the Docket, please include the Docket Number shown at the beginning of this document in your comments.
- Your comments must not be more than 15 pages long. (49 CFR 553.21). We established this limit to encourage you to write your primary comments in a concise fashion. However, you may attach necessary additional documents to your comments. There is no limit on the length of the attachments.
- If you are submitting comments electronically as a PDF (Adobe) File, NHTSA asks that the documents be submitted using the Optical Character Recognition (OCR) process, thus allowing NHTSA to search and copy certain portions of your submissions. Comments may be submitted to the docket electronically by logging onto the Docket Management System website at http://www.regulations.gov. Follow the online instructions for submitting comments.
- You may also submit two copies of your comments, including the attachments, to Docket Management at the address given above under ADDRESSES.

Please note that pursuant to the Data Quality Act, for substantive data to be relied upon and used by the agency, it must meet the information quality standards set forth in the OMB and DOT Data Quality Act guidelines. Accordingly, we encourage you to consult the guidelines in preparing your comments. OMB's guidelines may be accessed at http://www.whitehouse.gov/omb/information-regulatory-affairs/information-policy/. DOT's guidelines may be accessed at http://www.transportation.gov/dot-information-dissemination-quality-guidelines.

How can I be sure that my comments were received?

If you wish Docket Management to notify you upon its receipt of your comments, enclose a self-addressed, stamped postcard in the envelope containing your comments. Upon receiving your comments, Docket Management will return the postcard by mail.

How do I submit confidential business information?

You should submit a redacted "public version" of your comment (including redacted versions of any additional documents or attachments) to the docket using any of the methods identified under **ADDRESSES**. This "public version" of your comment should contain only the portions for which no claim of confidential treatment is made and from which those portions for which confidential treatment is claimed has been redacted. See below for further instructions on how to do this.

You also need to submit a request for confidential treatment directly to the Office of Chief Counsel. Requests for confidential treatment are governed by 49 CFR part 512. Your request must set forth the information specified in part 512. This includes the materials for which confidentiality is being requested (as explained in more detail below); supporting information, pursuant to § 512.8; and a certificate, pursuant to § 512.4(b) and part 512, appendix A.

You are required to submit to the Office of Chief Counsel one unredacted "confidential version" of the information for which you are seeking confidential treatment. Pursuant to § 512.6, the words "ENTIRE PAGE CONFIDENTIAL BUSINESS INFORMATION" or "CONFIDENTIAL BUSINESS INFORMATION CONTAINED WITHIN BRACKETS" (as applicable) must appear at the top of each page containing information claimed to be confidential. In the latter situation, where not all information on the page is claimed to be confidential, identify each item of information for which confidentiality is requested within brackets: "[ ]."

You are also required to submit to the Office of Chief Counsel one redacted "public version" of the information for which you are seeking confidential treatment. Pursuant to § 512.5(a)(2), the redacted "public version" should include redactions of any information for

which you are seeking confidential treatment (*i.e.*, the only information that should be unredacted is information for which you are not seeking confidential treatment).

NHTSA is currently treating electronic submission as an acceptable method for submitting confidential business information to the agency under part 512. Please do not send a hardcopy of a request for confidential treatment to NHTSA's headquarters. The request should be sent to Dan Rabinovitz in the Office of the Chief Counsel at *Daniel.Rabinovitz@dot.gov.* You may either submit your request via email or request a secure file transfer link. Manufacturers or any companies that already have a Confidential Business Information (CBI) Portal account or an Enterprise Account with NHTSA should use the CBI Portal for their submission. If you submit a CBI request, please also email a courtesy copy of the request to Eli Wachtel, Office of the Chief Counsel at email: eli.wachtel@dot.gov.

Will the agency consider late comments?

We will consider all comments that Docket Management receives before the close of business on the comment closing date indicated above under DATES. To the extent possible, we will also consider comments that Docket Management receives after that date. If Docket Management receives a comment too late for us to consider in developing the final rule, we will consider that comment as an informal suggestion for future rulemaking action.

How can I read the comments submitted by other people?

You may read the comments received by Docket Management at the address given above under ADDRESSES. The hours of the Docket are indicated above in the same location. You may also see the comments on the Internet. To read the comments on the Internet, go to http://www.regulations.gov. Follow the online instructions for accessing the dockets.

Please note that, even after the comment closing date, we will continue to file relevant information in the Docket as it becomes available. Further, some people may submit late comments. Accordingly, we recommend that you periodically check the Docket for new material.

VIII. Regulatory Text

List of Subjects in 49 CFR part 571

Motor vehicles, Motor vehicle safety, Rubber and rubber products.

For the reasons stated in the preamble, NHTSA proposes to amend 49 CFR part 571 as set forth below:

PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

1. The authority citation for part 571 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.95.

2. Section 571.127 is amended by:

a. Revising S5(a) and (b), S7.3.2(d), S7.4.2(d), S7.5.2(b)(3), S8.3.4(c), S8.4.2(c), and S8.5.2(c).

b. Adding S11.

The revisions read as follows:

§ 571.127 Standard No. 127; Automatic emergency braking systems for light vehicles.

* * * * *

S5. *Requirements.*

(a) Except as provided in S5(b), vehicles manufactured on or after September 1, 2031, must meet the requirements of this standard.

(b) The requirements of S5(a) do not apply to small-volume manufacturers, final-stage manufacturers, and alterers until one year after the dates specified in S5(a).

* * * * *

S7.3.2 *Test conduct prior to forward collision warning onset.*

* * * * *

(d) Beginning when the headway corresponds to L_0, the subject vehicle speed is maintained within 1.6 km/h of the test speed with minimal and smooth accelerator pedal inputs.

The subject vehicle speed will not exceed the applicable maximum value or fall below the applicable minimum value in S7.3.1.

* * * * *

S7.4.2 *Test conduct prior to forward collision warning onset.*

* * * * *

(d) Beginning when the headway corresponds to L_0, the subject vehicle and lead vehicle speed is maintained within 1.6 km/h of the test speed with minimal and smooth accelerator pedal inputs. The subject vehicle speed will not exceed the applicable maximum value or fall below the applicable minimum value in S7.4.1.

* * * * *

S7.5.2 *Test conduct prior to forward collision warning onset***.**

* * * * *

(b) * * *

(3) The subject vehicle's speed is maintained within 1.6 km/h of the test speed with minimal and smooth accelerator pedal inputs prior to forward collision warning onset. The subject vehicle speed will not exceed the applicable maximum value or fall below the applicable minimum value in S7.5.1.

* * * * *

S8.3.4 *Test conduct prior to forward collision warning or subject vehicle braking onset.*

* * * * *

(c) Beginning when the headway corresponds to L_0, the subject vehicle speed is maintained within 1.6 km/h of the test speed with minimal and smooth accelerator pedal inputs. The subject vehicle speed will not exceed the applicable maximum value or fall below the applicable minimum value in S8.3.1 (g), S8.3.2 (g), or S8.3.3 (h).

* * * * *

S8.4.2 *Test conduct prior to forward collision warning or subject vehicle braking onset.*

* * * * *

(c) Beginning when the headway corresponds to L_0, the subject vehicle speed is maintained within 1.6 km/h of the test speed with minimal and smooth accelerator pedal inputs. The subject vehicle speed will not exceed the applicable maximum value or fall below the applicable minimum value in S8.4.1 (e).

* * * * *

S8.5.2 *Test conduct prior to forward collision warning or subject vehicle braking onset.*

* * * * *

(c) Beginning when the headway corresponds to L_0, the subject vehicle speed is maintained within 1.6 km/h of the test speed with minimal and smooth accelerator pedal inputs. The subject vehicle speed will not exceed the applicable maximum value or fall below the applicable minimum value in S8.5.1 (f).

* * * * *

S11 *Testing the malfunction detection.*

S11.1 *Testing the malfunction detection at vehicle start.*

S11.1.1 One or more AEB malfunction(s) are simulated by disconnecting the power source to any AEB component or disconnecting any electrical connection between AEB components (with the vehicle power off). When simulating an AEB malfunction, the electrical connections for the telltale are not to be disconnected.

S11.1.2 With the vehicle initially stationary, the propulsion system is activated. The vehicle is placed in any forward gear and driven for at least two minutes. After 15 seconds, it is confirmed that a telltale notification as specified in S5.4 is provided.

S11.1.3 The vehicle is stopped and turned off. After a five-minute period, the vehicle is turned on and the propulsion system is activated. It is confirmed that the telltale notification is provided as long as the propulsion system is running or until the fault is corrected.

S11.1.4 The vehicle is turned off. The AEB system is restored to normal operation, and

the vehicle is turned on and the propulsion system is activated. The vehicle is placed in any forward gear and driven for at least two minutes. After 15 seconds of the vehicle achieving a speed of 10 km/h (6.2 mph), it is confirmed that the telltale notification is off.

S11.2 *Testing the malfunction detection during operation.*

S11.2.1 With the vehicle initially stationary, the propulsion system is activated. The vehicle is placed in any forward gear and driven to obtain a vehicle speed of at least 10 km/h (6.2 mph). The vehicle is driven for at least two minutes.

S11.2.2 The vehicle is stopped (with the vehicle power on). With the vehicle's propulsion system active, one or more AEB malfunction(s) are simulated by disconnecting the power source to any AEB component or disconnecting any electrical connection between AEB components. When simulating an AEB malfunction, the electrical connections for the telltale are not to be disconnected. The vehicle is placed in any forward gear and driven for at least two minutes. After 15 seconds, it is confirmed that a telltale notification as specified in S5.4 is provided.

S11.2.3 The vehicle is stopped and turned off. After a five-minute period, the vehicle is turned on and the propulsion system is activated. It is confirmed that the telltale notification is provided as long as the propulsion system is running or until the fault is corrected.

S11.2.4 The vehicle is turned off. The AEB system is restored to normal operation, and the vehicle is turned on and the propulsion system is activated. The vehicle is placed in any forward gear and driven for at least two minutes. After 15 seconds of the vehicle achieving a speed of 10 km/h (6.2 mph), it is confirmed that the telltale notification is off.

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Issued under authority delegated in 49 CFR part 1.95.

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Jonathan Morrison,
Administrator.

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