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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. NHTSA-2017-0005]

Federal Motor Vehicle Safety Standards; Automatic Emergency Braking

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

ACTION: Denial of petition for rulemaking.

SUMMARY: This document denies a January 13, 2016 rulemaking petition jointly submitted by Consumer Watchdog, Center for Auto Safety, and Public Citizen. The petition requested NHTSA to begin a rulemaking proceeding to mandate that all light vehicles be equipped with three types of automatic emergency braking (AEB) technologies: forward crash warning, crash imminent braking, and dynamic brake support. NHTSA is denying the petition because the Agency has already taken significant steps to incentivize the installation of these technologies in a way that allows for continued innovation and technological advancement. First, NHTSA has expanded its New Car Assessment Program (NCAP) so that the NCAP information for a vehicle notes whether the vehicle is equipped with one or more of these technologies. Second, it has sought public comment on its plans to revise NCAP so that the presence and level of performance of these technologies affects the overall rating of light motor vehicles.

To reinforce these improvements to the NCAP program, NHTSA encouraged and facilitated a process that resulted in 20 light vehicle manufacturers, representing more than 99 percent of light motor vehicle sales in the United States, committing to voluntarily installing forward crash warning and crash imminent braking. While NHTSA's actions will help create

availability and market push for AEB technologies, private sector organizations such as the Insurance Institute for Highway Safety and Consumer Reports are helping to create market pull through a variety of outreach activities that are helping consumers understand the benefits of AEB as well as differences among various vehicle models. Together with NCAP, the industry commitment and the actions of other stakeholders will lead to the installation of a growing array of AEB technologies in substantially all light vehicles and will foster innovation and competition in this technologically dynamic area. As the manufacturers respond to NCAP and carry out their commitments, the Agency is continuously monitoring their efforts to assess whether additional steps, including the possibility of a rulemaking to establish a new standard, might be needed in the future to ensure realization of the potential benefits from the full array of automatic emergency braking technologies.

DATES: January 18, 2017.

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SUPPLEMENTARY INFORMATION:

Table of Contents

I. Background

A. National Traffic and Motor Vehicle Safety Act

B. Automatic emergency braking technologies

C. Chronology of NHTSA actions and other events related to automatic emergency braking

II. Petition

III. NHTSA's consideration of the petition

A. General principles

B. Context for considering the petition

C. Analysis of the petition

IV. Conclusion

I. Background

A. National Traffic and Motor Vehicle Safety Act

The National Traffic and Motor Vehicle Safety Act (“Safety Act”) (49 U.S.C. 30101 et seq.) authorizes NHTSA to issue safety standards for new motor vehicles and new items of motor vehicle equipment. Each safety standard must be practicable, meet the need for motor vehicle safety, and be stated in objective terms. NHTSA does not endorse any vehicles or items of equipment. Further, NHTSA does not approve or certify vehicles or equipment. Instead, the Safety Act establishes a “self-certification” process under which each manufacturer is responsible for certifying that its products meet all applicable safety standards. Pursuant to the Safety Act and the Motor Vehicle Information and Cost Savings Act, the Agency also issues guidelines and establishes test procedures and rating systems to encourage the development and installation of additional and improved safety technologies under the New Car Assessment Program (NCAP) for light motor vehicles.

B. Automatic emergency braking technologies

An Automatic Emergency Braking (AEB) system uses forward-looking sensors, typically radars and/or cameras, to detect objects, e.g., vehicles, ahead on the roadway. There are three complementary types of automatic emergency braking technologies. They are listed below:

1. Forward Collision Warning (FCW)

FCW is a system that uses information from forward-looking sensors to determine whether or not a crash is likely or unavoidable and that, in such cases, warns the driver so the driver can brake and/or steer to avoid a crash or minimize the force of the crash. The system is based on two components: a sensing system capable of detecting a vehicle in front of the subject vehicle, and a warning system sending a signal to the driver. The sensing system consists of forward-looking radar, LIDAR,¹ camera systems, or a combination thereof. The sensor data are digitally processed by a computer software algorithm that determines whether an object it has detected poses a safety risk (e.g., whether the object is a motor vehicle, etc.), determines if an impact with the detected object is imminent, decides if and when a warning signal should be sent to the driver, and finally, sends the warning signal. The warning may be a visual signal, such as a light on the dash, an audio signal, such as a chime or buzzer, or a haptic feedback signal that applies rapid vibrations or motions to the driver.

2. Crash Imminent Braking (CIB)

CIB is a system that uses information from forward-looking sensors to automatically apply the brakes in driving situations in which a crash is likely or unavoidable and the driver makes no attempt to avoid the crash. When an object in front of the driver's forward-moving vehicle is detected, a computer software algorithm reviews the available data from the input signal of the sensing system. If the algorithm determines that a rear-end crash with another motor

¹ LIDAR is a device that uses pulsed lasers to detect nearby stationary and moving objects in the driving environment, calculate their distance and direction, and help to create a digital representation of nearby objects and other driving environment features that will be used to determine what path it is safe for a vehicle to take.

vehicle is imminent, then a signal is sent to the electronic brake controller to automatically activate the brakes of the driver's vehicle.

3. Dynamic Brake Support (DBS)

DBS is a system that uses information from forward-looking sensors about driving situations in which a crash is likely or unavoidable to supplement automatically the output of the brakes when the DBS system senses that the force being applied by the driver to the brake pedal is insufficient to avoid the crash. FCW most often works in concert with DBS by first warning the driver of the situation and thereby providing the opportunity for the driver to initiate the necessary braking. If the driver's brake application is insufficient, DBS provides the additional braking needed to avoid or mitigate the crash.

DBS is similar to CIB; the difference is that CIB activates when the driver has not pressed on the brake pedal, and DBS activates when the driver has pressed on the brake pedal, but not hard enough.

C. Chronology of NHTSA actions and other events related to automatic emergency braking

July 2011—NHTSA added FCW to NCAP. (July 29, 2011; 76 Fed Reg 45453).

July 2012—NHTSA published a notice informing the public that the Agency had, for about two years, been studying advanced braking technologies that rely on forward-looking sensors to supplement driver braking or to actuate automatic braking in response to an impending crash. NHTSA stated that it believes these technologies show promise for enhancing vehicle safety by helping drivers to avoid crashes or mitigate the severity and effects of crashes. NHTSA solicited comments on the results of its research thus far to help guide its continued efforts in this area. (July 3, 2012; 77 FR 39561).

January 2015—NHTSA published a notice requesting public comments on Agency plans for adding CIB and DBS as recommended technologies to NCAP. (January 28, 2015; 80 FR 4630).

September 2015—NHTSA and the Insurance Institute for Highway Safety (IIHS) announced a commitment by 10 vehicle manufacturers to install FCW and CIB in their light motor vehicles.

October 2015—NHTSA published a notice granting a petition by Center for Auto Safety, Advocates for Highway and Auto Safety, and the Truck Safety Coalition to initiate a rulemaking to mandate the installation of FCW, CIB, and DBS in heavy trucks and other heavy vehicles. (October 16, 2015; 80 FR 62487).

November 2015—NHTSA published a final decision adding CIB and DBS as recommended technologies in NCAP, effective with model year 2018. FCW had previously been added to NCAP. Thus, if FCW, CIB or DBS were installed in a light motor vehicle, the NCAP information for that vehicle would note the presence of the technologies. However, the vehicle's overall NCAP score would not be affected. (November 5, 2015; 80 FR 68604).

December 2015—NHTSA published a notice requesting public comments on a new plan under which the scoring system would be revised such that, in the future, the installation and performance of FCW, CIB or DBS in a light motor vehicle would increase the vehicle's overall NCAP score. In addition, a pedestrian safety rating would be assigned to new vehicles, based on tests that determine how well the vehicles minimize injuries and fatalities to pedestrians. The rating would reflect the results from four crashworthiness pedestrian tests and the system performance tests of two advanced crash avoidance technologies that have the potential to avoid

or mitigate crashes that involve a pedestrian and improve pedestrian safety—pedestrian AEB and rear automatic braking. (December 16, 2015; 80 FR 78521).

January 2016—Consumer Watchdog, Center for Auto Safety, and Public Citizen (“Petitioners”) submitted a petition for rulemaking (dated January 13, 2016) asking NHTSA to initiate a rulemaking to mandate FCW, CIB, and DBS in all light motor vehicles.

March 2016—NHTSA and IIHS announced that 20 vehicle manufacturers, representing more than 99 percent of light motor vehicle sales in the United States, voluntarily committed to installing FCW and CIB in substantially all of their light motor vehicles.² Under their commitments, the manufacturers will make FCW and CIB standard on virtually all light cars and trucks with a gross vehicle weight of 8,500 lbs. or less beginning no later than September 1, 2022. FCW and CIB will be standard on substantially all trucks with a gross vehicle weight between 8,501 lbs. and 10,000 lbs., beginning no later than September 1, 2025. The manufacturers further committed to submitting annual reports on their implementation of their commitments. IIHS and NHTSA agreed to publish progress reports.

May 2016—Petitioners sent NHTSA a letter (dated May 23, 2016) asking the Agency to either grant or deny their petition.

² The making of the commitments was preceded by a series of meetings in late 2015 and early 2016 attended by the representatives of the following:

Automakers

BMW, Fiat-Chrysler, Ford, General Motors, Honda, Hyundai-Kia, Jaguar Land-Rover, Mazda, Mercedes Benz, Mitsubishi, Nissan, Subaru, Tesla, Toyota, Volkswagen\Audi, Volvo

Government Agencies

National Highway Traffic Safety Administration, Transport Canada

Non-Government Organizations

Alliance of Automobile Manufacturers, Association of Global Automakers, Insurance Institute for Highway Safety

To keep the public informed about the progress on developing the commitments, the agency prepared minutes of the meetings and placed them in docket NHTSA-2015-0101, available at www.regulations.gov. The minutes for the 6th meeting on February 1, 2016, also recounted a January 29, 2016 meeting with other stakeholder groups: Advocates for Highway and Auto Safety, Automotive Safety Council, Consumer Federation of American, Consumer Reports, Consumer Watchdog, Public Citizen and Transport Canada.

II. Petition

Petitioners submitted a petition for rulemaking, dated January 13, 2016, requesting NHTSA to initiate a rulemaking to issue a safety standard requiring that light vehicles be equipped with three AEB technologies: FCW, CIB and DBS. Based on their petition and their follow-up letter submitted in May 2016, it appears that the petitioners further intend that the Agency include in that rulemaking all of the tests, including test speeds, either adopted or planned for inclusion in NCAP or developed through Agency research projects. Alternatively, the petitioners ask that the Agency explain why it was not including any of those tests.

In support of their petition, petitioners stated the following:

- It is feasible to issue a light motor vehicle AEB standard now given that the technologies are mature and NHTSA has: researched the AEB technologies extensively; granted a petition for rulemaking for heavy vehicle AEB; incorporated FCW and CIB into NCAP and announced plans to incorporate the third AEB technology, DBS, in NCAP.

- Neither a voluntary commitment nor NCAP is an adequate substitute for a safety standard because neither is enforceable.

- The commitment is not comprehensive or stringent enough. It does not include DBS. Further, with respect to FCW and CIB, the commitment does not include some of the performance requirements included in NCAP. In addition, while the commitment includes other performance requirements, it does so at reduced levels of stringency.

III. NHTSA's consideration of the petition

A. General principles

Petitions for rulemaking are governed by 49 CFR part 552. Pursuant to Part 552, the Agency conducts a technical review of the petition, which may consist of an analysis of the

material submitted, together with information already in possession of the Agency. In deciding whether to grant or deny a petition, the Agency considers this technical review as well as appropriate factors, which may include, among others, allocation of Agency resources and Agency priorities.

B. Context for considering the petition

1. Overview of vehicle safety in the United States

Two sets of numbers serve to convey the state of vehicle safety and identify the way forward. First, in 2015, 35,092 people lost their lives on the Nation's roadways, making motor vehicle crashes a leading cause of death in the United States. That was an increase of more than 7 percent over the total for 2014. Preliminary figures indicate that, for the first nine months of 2016, fatalities were up again, approximately 8 percent, compared to the same portion of 2015.³ The third quarter of 2016 represents the eighth consecutive quarter with increases in fatalities as compared to the corresponding quarters in the previous years.⁴

Second, 94 percent of vehicle crashes can be traced to human choices (e.g., choices about safety belt use or consumption of alcohol) or error. If there were technological means to prevent those human choices or behaviors from affecting vehicle safety, we could potentially prevent or mitigate 19 of every 20 crashes on the road.

2. Technologies for improving vehicle safety performance and tools for implementing them

Automated vehicles, which depend on technologies like automatic emergency braking, hold the promise of being the means that will prevent human choice or error from causing crashes. That is why NHTSA and the Department of Transportation have focused on trying to

³ Early Estimate of Motor Vehicle Traffic Fatalities For the First 9 Months of 2016. DOT HS 812 358. January 2017.

⁴ Ibid.

accelerate the safe development and deployment of highly automated and connected vehicles.⁵ Vehicle automation and connectedness could cut roadway fatalities dramatically.

To realize this potential, NHTSA has a variety of tools that it has used in the past to improve vehicle safety. The primary traditional approach to improving vehicle safety has been developing and writing new standards prescribing detailed, specific requirements and test procedures and then conducting a notice-and-comment rulemaking process to adopt and implement those standards.

However, because many modern vehicle safety technologies are software-controlled and still relatively new, they are evolving very quickly. Standard setting at this early stage of technological evolution must be undertaken with great care, given the risk of inadvertently stymieing innovation and stalling the development and introduction of successively better versions of these technologies.

Further, rulemaking, and the research that must precede it in order to select the appropriate thresholds of performance and the test procedures for measuring compliance, take considerable time, often six to ten years for full implementation in new vehicles. The increasing complexity of vehicle safety technologies factors into the lengthening of the Agency's rulemaking proceedings. In the immediate term, through proactive collaboration with industry and other stakeholders, much has been and can be accomplished.

Accordingly, the Agency has sought to adapt the lessons and practices of the Federal Aviation Administration and the aviation industry regarding proactive safety and apply them,

⁵ Connected vehicles are vehicles equipped with mean of exchanging “here I am” messages on portions of spectrum set aside by FCC for that purpose. The message includes, e.g., speed, direction and GPS determined vehicle location. Vehicle can be equipped with software that analyzes messages from nearby vehicles to determine which vehicles may be on a collision course with it and warn the vehicle's driver when necessary to avoid a collision. For more information, see 82 Fed. Reg. 3854; January 12, 2017, available at <https://www.gpo.gov/fdsys/pkg/FR-2017-01-12/pdf/2016-31059.pdf>.

where appropriate, to the motor-vehicle sector. The Agency has revamped or expanded its use of its non-rulemaking tools in an effort to be more responsive to safety issues and more proactive about preventing them.

For several decades, NHTSA used NCAP to encourage light vehicle manufacturers to offer, and consumers to demand, levels of crash protection above and beyond those required by the safety standards. In recent years, the Agency has begun to expand NCAP to encourage the installation of safety-focused advanced crash avoidance systems.

More recently, the Agency has begun issuing guidance documents to promote the development and adoption of safer designs of evolving, complex electronic vehicle safety systems. Guidance documents are more adaptive tools than standards with respect to the ease of being updated to reflect the latest developments in these technologies. The prime example to date of Agency guidance is the vehicle performance guidance for automated vehicles included in the Federal Automated Vehicles Policy⁶ issued in September 2016. This Policy is the right tool at the right time. It answers a call from industry, state and local governments, safety and mobility advocates and many others to lay a clear path forward for the safe development and deployment of automated vehicles and technologies. This Policy also allows NHTSA to work with automakers and developers on the front end, to ensure that sound approaches to safety are followed from the very beginning and throughout the entire design and development process. Further, this Policy will help us accomplish two goals: first, to make sure that new technologies are developed and deployed safely; and second, to leave room for flexibility and safety innovation.

C. Analysis of the petition

⁶ Available at <https://one.nhtsa.gov/nhtsa/av/av-policy.html>.

NHTSA shares the petitioners' belief that AEB technologies will lead to important safety benefits. These technologies are vital to automated vehicles. NHTSA has already invested substantial resources and taken significant steps to increase the installation of these technologies by expanding NCAP and facilitating a process that resulted in light vehicle manufacturers committing voluntarily to install forward crash warning and crash imminent braking.

Based on its consideration and analysis of the petition, NHTSA notes the following points:

1. NCAP is influencing light vehicle manufacturers to increase their installation of AEB technologies and to improve their performance.

NHTSA has already added FCW, CIB and DBS to NCAP to promote the installation of those and other advanced crash avoidance technologies. In addition, in December 2015, NHTSA requested comments on revising the NCAP scoring system so that the installation of FCW, CIB or DBS in a motor vehicle would increase that vehicle's overall NCAP score. These revisions are already promoting wider spread installation of a broad array of these technologies.

2. The complementary commitments made by light vehicle manufacturers and the ratings programs of IIHS and Consumer Reports are magnifying the effects of NCAP.

The monitoring of the industry commitment shows that there has been an upturn in the rate of AEB installation.

3. The combined effects of the above activities are expected to produce benefits substantially similar to those that would eventually result from the rulemaking requested by the petitioners.

The Agency believes that the benefits of the AEB aspects of NCAP, in combination with the benefits of the industry commitment and the stakeholder rating programs, would be substantially similar to the benefits of the rulemaking requested by the petitioners. The petitioners did not make any showing to the contrary.

4. The Agency does not have evidence before it showing that there is a market failure warranting the initiating of rulemaking.

One of the principles of regulation in Executive Order 12866, Regulatory Planning and Review, is that agencies seeking to initiate rulemaking should identify the market failure that necessitates regulation. At the current time, on account of the combined effects of NCAP, the industry commitment, and various stakeholder rating programs, there is not any evidence showing that there is a market failure with respect to the offering of AEB technologies.

5. These activities will make AEB standard on new light vehicles faster than could be achieved through the formal regulatory process.

Based on the Agency's rulemaking proceedings on complex issues in recent years, if the Agency were to grant the petition, conduct research, tentatively select required levels of performance, conduct a notice-and-comment rulemaking and provide sufficient leadtime to enable manufacturers to phase-in compliance, the delay in making AEB standard equipment on light vehicles would be as many as three years, and possibly longer.⁷

6. Making AEB standard equipment earlier than could be achieved through rulemaking will provide significant additional safety benefits.

⁷ NHTSA press release issued March 17, 2016, available at <https://www.nhtsa.gov/press-releases/us-dot-and-iihs-announce-historic-commitment-20-automakers-make-automatic-emergency>.

According to IIHS estimates made in March 2016, the benefits of making AEB standard equipment three years earlier will be to prevent 28,000 crashes and 12,000 injuries during that time period.⁸

7. Given the success of light vehicle AEB activities described above and the large array of rulemakings either mandated by Congress or initiated by the Agency in response to petitions or at the Agency's discretion, the Agency should place priority at this time on conducting rulemakings in areas other than light-vehicle AEB.

Among the higher priority rulemakings is the one on light vehicle vehicle-to-vehicle communication, for which the agency recently published a notice of proposed rulemaking, and heavy vehicle AEB. As noted above, in late 2015, NHTSA granted a petition for rulemaking to initiate rulemaking on heavy vehicle AEB. In addition, the Agency is involved in some nonrulemaking activities that are of higher priority, such as the continued expansion and strengthening of NCAP and the issuance of guidance in areas such as automated vehicles, driver distraction and cybersecurity.

8. A rulemaking can be commenced later if it proves necessary.

As the manufacturers carryout their commitments, the Agency will continuously monitor their efforts and assess whether and when additional steps, including rulemaking, might be needed in the future to ensure realization of the potential benefits from the full array of automatic emergency braking technologies.

⁸ Ibid.

IV. Conclusion

In accordance with 49 CFR part 552, and for the forgoing reasons, NHTSA hereby denies, without prejudice, the January 13, 2016 petition by Consumer Watchdog, Center for Auto Safety, and Public Citizen to commence a rulemaking proceeding to require all light vehicles to be equipped with FCW, CIB and DBS.

Authority: 49 U.S.C. 322, 30111, 30115, 30117, and 30162; delegation of authority at 49 CFR 1.95.

Issued in Washington, DC, under authority delegated in 49 CFR 1.95

Raymond R. Posten
Associate Administrator for Rulemaking

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