DAIMLER

Daimler Trucks North America
Andy Jones
Manager
Compliance and Regulatory Affairs

June 4, 2020

Administrator
National Highway Traffic Safety Administration
Attention: Recall Management Division
1200 New Jersey Avenue S.E.
Washington D.C. 20590

Re: Petition for Exemption from Notification and Remedy Provisions of Motor Vehicle Safety Act for Noncompliance with FMVSS No. 108, Lamps, Reflective Devices and Associated Equipment

Daimler Trucks North America (DTNA) has determined that certain vehicles it manufactured do not fully comply with the requirements contained in the Federal Motor Vehicle Safety Standard (FMVSS) 108, "Lamps, Reflective Devices and Associated Equipment", and has filed a Defect Information Report on May 12, 2020 for a hazard warning signal involved in certain extreme Active Brake Assist (ABA) events. DTNA hereby petitions the National Highway Traffic Safety Administration for an exemption from the notice and remedy requirements of the Motor Vehicle Safety Act, pursuant to 49 U.S.C. §§ 30118(d) and 30120(h), and 49 C.F.R. part 556, because DTNA believes that the noncompliance is inconsequential to motor vehicle safety based upon the following factors:

1. The noncompliance occurs only in extremely rare situations,
2. It occurs only for very short duration, and
3. Even in the cases when it does happen, it helps to reduce potential for rear end collision.

Attached are copies of DTNA's Defect Information Report. In addition, DTNA provides the following information in accordance with 49 C.F.R. § 556.4(b) (3):

- Full name and address of applicant: Daimler Trucks North America LLC, 4747 N. Channel Avenue, Portland, OR 97217-7699
- Nature of organization: Limited Liability Company
- State or country under laws of which DTNA is organized: Delaware, USA

Background

Approximately 24,282 Freightliner New Cascadia vehicles ("subject vehicles") built from Jan 16, 2019 to March 27, 2020 are configured such that, during certain very limited ABA events involving an unusually aggressive full brake application to avoid a collision, the hazard warning signals would flash at a rate of 140 flashes per min lasting less than 3 seconds until the vehicle reaches a complete stop.

Hazard warning signal flash rate outside the bandwidth of the standard photometric requirements can be viewed as an impairment of the effectiveness of the hazard warning signal lights, but these on the subject vehicles are rare, short duration, and effective at showing the nature of the unusually aggressive braking.

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FMVSS 108 S6.1.5.1 Hazard warning signal states that "In all passenger cars, multipurpose passenger vehicles, trucks, and buses, the activation of the vehicular hazard warning signal operating unit must cause to flash simultaneously sufficient turn signal lamps to meet, as a minimum, the turn signal photometric requirements of this standard".

The noncompliance occurs only in extremely rare situations and for very short durations

Under certain rare occurrences, during an Emergency Braking (EB) stage of ABA event, if the vehicle is being operated at 20 Km/h or more, hazard warning signal lights are actuated at a flash rate of140 flashes per min. However, this occurs only if the operator fails to disengage the vehicle during the first two stages of an ABA event. With the average EB event only lasting less than 1 second and the maximum observed in millions of miles of recorded data lasting less than 3 seconds, the number of blink cycles between the maximum permissible flash rate and emergency braking flash rate on the subject vehicles is minimal.

The EB feature is the most aggressive of three phases of ABA, so it will engage only rarely. This feature will go through three phases of ABA - Optic Acoustic Warning (OAW), Warn (Haptic) Braking (WB/HB), and EB. OAW warns the operator of a possible collision with a pop-up and audio alert only. If the driver does not apply sufficient deceleration by applying service brakes, then the system will intervene with the Warn Braking phase. Warn Braking applies 50% deceleration to the vehicle in order to assist the driver on mitigating a possible collision. If the system deems necessary, it will follow into the emergency braking phase applying maximum braking force to assist the driver in bringing the truck to a complete halt. Only in this maximum braking event, EB, will the warning system in question engage.

During ABA development, 32 trucks ran for an aggregate of 3,244,755 Km (2.016 million miles). On the subject vehicles, DTNA has identified only four cases of EB events, with an average duration of 0.99 seconds and a maximum observed duration of 2.90 seconds, which proves that EB event is an extremely rare scenario that is visible only for a short period of time in only the rarest of extreme braking events. For the maximum observed EB scenario, the stopping distance of the subject vehicle from the reference object was 80m and during this period, there were 6-7 hazard warning signal flash cycles at a frequency of 140 flashes per min. This conveys that an EB event has an extremely short occurrence with a negligible reaction time to notice the change in hazard warning signal flash rate. DTNA has videos and data, which demonstrates how quickly these EB events are executed.

The flashing warning provides other vehicles with a safe indication of the aggressiveness of the braking

DTNA has developed and implemented the flashing warning of the ABA system to provide signaling to following drivers during emergency braking event. NHTSA have sponsored studies, which shows that flashing warning under certain extreme braking events may be regarded as a safer indicator for rear signaling.

In Docket No. DOT HS 810 846 (published in October 2007), Analysis of Rear-End Crashes and Near-Crashes in the 100-Car Naturalistic Driving Study to Support Rear-Signaling Countermeasure Development. As per crash data and the study results, *"it was determined that a rear-signaling system that extinguishes somewhat after a vehicle comes to a complete stop should provide benefit by reducing a substantial percentage of collisions with stopped lead vehicles, while reducing annoyance caused by extended signaling after a vehicle is stopped. Data suggest this type of signal would address approximately 45 percent (10 out of 22) of stopped-lead-vehicle crashes. Moreover, a rear-signaling system that*

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communicates moderate to hard lead-vehicle decelerations can potentially decrease the incidence of rear-end near-crashes and incidents. For example, a system to signal hard lead-vehicle decelerations (peak braking above 0.55g) could potentially address 56 percent (109 out of 194) of near-crash events."

During an EB event, if the vehicle is operating at a speed of 20Km/h and above, vehicle would autonomously activate the horn, hazards warning signals would be actuated at a rate of 140 flashes per min and high beams would flash for less than 3 seconds until the vehicle reaches to a complete forced stop. The following attributes have been implemented to provide hard signals to indicate sudden vehicle deceleration as mentioned in the above referred research document.

Recently, FMCSA has granted an approval for implementing amber brake lights for all hazmat hauler tanker trucks following a 30-month study that ended last year. Groendyke Transportation learned that the addition of a relatively simple, pulsating amber brake light reduced rear-end collisions by roughly 34%. "*The Oklahoma-based hazmat hauler had received an exemption from the Federal Motor Carrier Safety Administration (FMCSA) to mount the light on the back of 632 of its tanker trucks, and in two-and-half-years they saw a 33.7% drop in rear-end crashes along with the elimination of all railroad crossing rear-end accidents.*"

DTNA is not aware of any accidents, injuries, owner complaints or field reports related to this condition on the subject vehicles.

DTNA notes that NHTSA has previously granted petitions for decisions of inconsequential noncompliance for lighting requirements where a technical non-compliance exists, but does not create a negative impact on safety.

<u>NHTSA has allowed similar rear-signaling noncompliance</u>

The feature of hazard warning signal flashers has been designed to provide an extra attention of caution to the nearby drivers. Previously, NHTSA has granted an inconsequentiality petition that emphasizes on momentary activation of CHMSL to provide extra caution to the nearby vehicles for a decelerating vehicle.

In Docket No. NHTSA–2000–7312 (published on June 18, 2001), a Petition for Inconsequentiality by GM was granted by NHTSA. In this instance, certain models could have unintended CHMSL illumination briefly if the hazard warning lamp switch is depressed to its limit of travel. NHTSA stated: *"The intended use of a hazard warning lamp and the momentary activation of a CHMSL do not provide a conflicting message. The illumination of the CHMSL is intended to signify that the vehicles brakes are being applied and that the vehicle might be decelerating. Hazard warning lamps are intended as a more general message to nearby drivers that extra attention should be given to the vehicle. A brief illumination of the CHMSL while activating the hazard warning lamps would not confuse the intended general message, nor would the brief illumination in the absence of the other brake lamps cause confusion that the brakes were unintentionally applied."*

<u>NHTSA has allowed noncompliance like the present one under extremely rare occurrences</u>

Previously, NHTSA has granted similar inconsequentiality petitions for noncompliance with low probability of occurrence, which occurs under specific and rare conditions. As described above, DTNA's system functions extremely rarely.

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In Docket No. NHTSA-2014-0125 (published on Feb 02, 2018), a Petition for Inconsequentiality by GM was granted by NHTSA. In this instance, under certain conditions the parking lamps on the subject vehicles fail to meet the requirement that parking lamps must be activated when headlamps are activated in a steady burning state. NHTSA stated: *"…The Agency agrees with GM that in this case this situation would have a low probability of occurrence and, if it should occur, it would neither be long lasting nor likely to occur during a period when parking lamps are generally in use. Importantly, when the noncompliance does occur, other lamps remain functional. The combination of all of the factors, specific to this case, abate the risk to safety."*

In Docket No. NHTSA-2012-0006 (published 06/12/2013), a Petition for Inconsequentiality by GM was granted by NHTSA. In this instance, GM explained that the noncompliance occurs on rare occasions, the front passenger air bag suppression status telltale lamp may remain illuminated during a particular ignition cycle and indicate that the passenger airbag is OFF. NHTSA stated: " *The Agency has reviewed and accepts GM's analyses that in this case front passenger classification and air bag suppression system complies with the safety performance requirements of the standard except under a very specific and rare set of conditions that can occur during an ignition cycle and cause the front passenger air bag OFF telltale to remain illuminated. When this occurs, the telltale is the only part that is affected and occupation classification system will operate as designed."*

<u>NHTSA precedents that were granted for short duration of occurrence</u>

An average Emergency Braking event is expected to last for less than 3 seconds, until the vehicle reaches a complete forced stop. Previously, NHTSA has granted similar inconsequentiality petitions for noncompliance that would last for a very short period of time.

In Docket No. NHTSA-2017-0020 (published 03/06/2019), a Petition for Inconsequentiality by Volkswagen group of America was granted by NHTSA. In this instance, Volkswagen stated that the during an electronic stability control (ESC) malfunction, the malfunction telltale illuminated as required by FMVSS 126 unless the steering angle sensor is the source of malfunction. Volkswagen stated that the condition is inconsequential as the ESC malfunction warning telltale immediately re-illuminates when the vehicle starts to move and reaches 2km/h or 1.2mph. NHTSA stated, "*The agency believes that ESC malfunction telltale will illuminate for very short period of time at very low speeds, conditions under which a vehicle loss of control due to instabilities that require the ESC system to activate will not occur"*

In Docket No. NHTSA-2014-0034 (published 01/13/2016), a Petition for Inconsequentiality by Maserati S.p.A and Maserati North America was granted by NHTSA. In this instance, MNA explains that after the car's ignition is switched to ON position, the Tire Pressure Monitoring System (TPMS) immediately seeks to confirm if all wheel sensors are present. If the TPMS detects a sensor is not present, an internal timer is started. If the sensor detected as missing was also detected as missing during the previous ignition cycle, the malfunction indicator will illuminate as required to indicate a fault is still active. If the engine is subsequently started again and left in its steady state idle, the warning lamp continue to illuminate. However, if the car is driven, then warning lamp will extinguish. Once the vehicle moves above 22mph for 15 seconds and the internal timer reaches 160 seconds, and then TPMS starts illuminating correctly. NHTSA stated, "*The agency agrees with MNA that the malfunction indicator will not illuminate as required only during very short periods of time when the vehicle is travelling at low speeds and thus poses little risk to vehicle safety".*

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In Docket No.NHTSA-96-082 (published 11/04/1996), a Petition for Inconsequentiality by GM was granted by NHTSA. In this instance, GM discovered that turn signal self-canceling feature only works intermittently after left turns on certain 1996 Buick Skylarks because of a defective multifunction switch, however Skylarks are equipped with a reminder chime that activates if the turn signal is still on after 0.5 mile of driving. NHTSA stated, "*All 1996 Skylarks have a turn signal reminder chime that will signal the driver if the turn signal indicator is on after 0.5 mile of driving. Therefore, even in those instances when the self-cancel feature fails, driver will get an additional notice*."

DTNA believes that a technical non-compliance exists in our subject vehicles, but it does not create a negative impact on safety when the hazard warning signal flashes at rate of 140 flashes per min during certain rare occurrences for a very short duration of time. Therefore, we respectfully request that this noncompliance to be deemed inconsequential.

Please contact me if you have any questions, or concerns.
Sincerely yours,

Andy Jones

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Part 573 Safety Recall Report 20V-268

Manufacturer Name : Daimler Trucks North America LLC
Submission Date : MAY 12, 2020
NHTSA Recall No. : 20V-268
Manufacturer Recall No. : FL-851

Manufacturer Information :

Manufacturer Name : Daimler Trucks North America LLC
Address : 4747 N. Channel Avenue
Portland OR 97217-3849
Company phone : 800-745-8000

Population :

Number of potentially involved : 24,282
Estimated percentage with defect : 100 %

Vehicle Information :

Vehicle 1 : 2020-2021 Freightliner Cascadia
Vehicle Type :
Body Style :
Power Train : NR
Descriptive Information : On the affected vehicles, during certain Advanced Brake Assist (ABA) events that require a full brake application to avoid a collision, the hazard warning signal flashes at a rate of 140 flashes per min.
Production Dates : JAN 16, 2019 - MAR 27, 2020
VIN Range 1 : Begin : NR End : NR ☐ Not sequential

Description of Noncompliance :

Description of the Noncompliance : On the affected vehicles, during certain Advanced Brake Assist (ABA) events that require a full brake application to avoid a collision, the hazard warning signal flashes at a rate of 140 flashes per min. FMVSS 108, requires the hazard warning signal flashing rate to be between 60-120 flashes per min.

FMVSS 1 : 108 - Lamps, reflective devices, and assoc. Equipment
FMVSS 2 : NR

Description of the Safety Risk : DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the Safety Act on the grounds this noncompliance is inconsequential as it relates to motor vehicle safety.
ABA events with full braking are rare and only occurs after multiple warnings to the driver including haptic warning and partial braking during which time a driver can disengage ABA before the hazard warning signals begin to flash at 140 flashes per min.

Description of the Cause : NR

Identification of Any Warning that can Occur :	NR

Involved Components :

Component Name 1 :	NR
Component Description :	NR
Component Part Number :	NR

Supplier Identification :

Component Manufacturer

Name :	NR
Address :	NR
	NR
Country :	NR

Chronology :

February 2020, DTNA began in investigation to review all its features related to ABA events as part of a study to develop systems for new trucks. During this study, it was identified that certain features may need further review to ensure the current product was compliant. March 2020 through April 2020, Product validation conducted test on certain vehicles to identify any potential noncompliance, and an extensive engineering investigation was undertaken to understand all the features of ABA and how they interact together. During this study, it was identified that in certain situations the hazard warning signals flash at a rate of 140 flashes per min. An in-depth review of NHTSA regulations and interpretations related to this issue indicated a potential noncompliance. May 6, 2020, DTNA determined that a noncompliance existed and decided to file a Part 573 noncompliance information report and petition for exemption from the notice and remedy provisions of the Safety Act for this issue. DTNA believes that this noncompliance is inconsequential as it relates to motor vehicle safety, as the occurrence will be extremely rare, for a very short duration.

Description of Remedy :

Description of Remedy Program :	DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the safety act on the grounds this noncompliance is nonconsequential as it relates to motor vehicle safety

How Remedy Component Differs from Recalled Component :	NR
Identify How/When Recall Condition was Corrected in Production :	NR

Recall Schedule :

Description of Recall Schedule :	DTNA intends to petition the agency pursuant to 49 CFR 556 for exemption from the notice and remedy provisions of the Safety Act on the grounds this noncompliance is inconsequential as it relates to motor vehicle safety.
Planned Dealer Notification Date :	NR - NR
Planned Owner Notification Date :	NR - NR

* NR - Not Reported