



[4910-EX-P]

DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

[Docket No. FMCSA-2019-0286]

Parts and Accessories Necessary for Safe Operation; Robert Bosch, LLC and Mekra Lang North America, LLC Application for an Exemption

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), Transportation (DOT).

ACTION: Notice of final disposition.

SUMMARY: The Federal Motor Carrier Safety Administration (FMCSA) announces its decision to grant a limited 5-year exemption to Robert Bosch, LLC and Mekra Lang North America, LLC (Bosch and Mekra Lang) to allow motor carriers to operate commercial motor vehicles (CMVs) with the companies' CV (Commercial Vehicle) Digital Mirror System installed as an alternative to the two rear-vision mirrors required by the Federal Motor Carrier Safety Regulations (FMCSRs). The Agency has determined that granting the exemption would likely achieve a level of safety equivalent to or greater than the level of safety provided by the regulation.

DATES: This exemption is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER] and ending September 17, 2025.

FOR FURTHER INFORMATION CONTACT: Mr. Luke Loy, Vehicle and Roadside Operations Division, Office of Carrier, Driver, and Vehicle Safety, MC-PSV, Federal Motor Carrier Safety Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590-0001; (202) 366-0676; luke.loy@dot.gov.

Docket: For access to the docket to read background documents or comments submitted to notice requesting public comments on the exemption application, go to www.regulations.gov at any time or visit Room W12-140 on the ground level of the West Building, 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., ET, Monday through Friday, except Federal holidays. To be sure someone is there to help you, please call (202) 366-9317 or (202) 366-9826 before visiting Docket Operations. The on-line Federal document management system is available 24 hours each day, 365 days each year.

The docket number is listed at the beginning of this notice.

SUPPLEMENTARY INFORMATION:

BACKGROUND

FMCSA has authority under 49 U.S.C. 31136(e) and 31315 to grant exemptions from certain parts of the FMCSRs. FMCSA must publish a notice of each exemption request in the Federal Register (49 CFR 381.315(a)). The Agency must provide the public an opportunity to inspect the information relevant to the application, including any safety analyses that have been conducted. The Agency must also provide an opportunity for public comment on the request.

The Agency reviews safety analyses and public comments submitted, and determines whether granting the exemption would likely achieve a level of safety equivalent to, or greater than, the level that would be achieved by the current regulation (49 CFR 381.305). The decision of the Agency must be published in the Federal Register (49 CFR 381.315(b)) with the reasons for denying or granting the application and, if granted, the name of the person or class of persons receiving the exemption, and the

regulatory provision from which the exemption is granted. The notice must also specify the effective period (up to 5 years) and explain the terms and conditions of the exemption. The exemption may be renewed (49 CFR 381.300(b)).

Bosch and Mekra Lang Application for Exemption

Bosch and Mekra Lang applied for an exemption from 49 CFR 393.80(a) to allow its CV Digital Mirror System to be installed as an alternative to the two rear-vision mirrors required on CMVs. A copy of the application is included in the docket referenced at the beginning of this notice.

Section 393.80(a) of the FMCSRs requires that each bus, truck, and truck-tractor be equipped with two rear-vision mirrors, one at each side. The mirrors must be positioned to reflect to the driver a view of the highway to the rear and the area along both sides of the CMV. Section 393.80(a) cross-references the National Highway Traffic Safety Administration's (NHTSA) standards for mirrors on motor vehicles (49 CFR 571.111, Federal Motor Vehicle Safety Standard [FMVSS] No. 111). Paragraph S7.1 of FMVSS No. 111 provides requirements for mirrors on multipurpose passenger vehicles and trucks with a gross vehicle weight rating (GVWR) greater than 4,536 kg and less than 11,340 kg and each bus, other than a school bus, with a GVWR of more than 4,536 kg. Paragraph S8.1 provides requirements for mirrors on multipurpose passenger vehicles and trucks with a GVWR of 11,340 kg or more.

The CV Digital Mirror System consists of multiple digital cameras firmly mounted high on the exterior of the vehicle, enclosed in an aerodynamic package that provides both environmental protection for the cameras and a mounting location for optimal visibility. Each camera has proprietary video processing software that presents a

clear, high-definition image to the driver by means of a monitor firmly mounted to the left and right A-pillar of the CMV, i.e., the structural member between the windshield and door of the cab. Bosch and Mekra Lang explain that attaching the monitors to the A-pillars avoids the creation of additional blind spots while eliminating the blind spots associated with conventional mirrors. Bosch and Mekra Lang state that its CV Digital Mirror System meets or exceeds the visibility requirements provided in FMVSS No. 111 based on the following factors:

- The cameras and screens are securely mounted to ensure that vibration does not adversely affect field of vision or cause the driver to misinterpret images.
- The system tracks the end of the trailer and pans the camera's view to ensure that the trailer's end remains in view while it is in motion.
- The left and right video channels are processed independently so that a failure of one camera or one monitor does not affect the camera or monitor on the opposite side.
- The system reduces glare from ambient light, provides color night vision, and uses lowlight functionality.
- The screen uses anti-glare, anti-reflection, and anti-fingerprinting coating to keep the screens readable in a variety of environmental conditions.
- The system's ergonomics are such that it requires reduced upper-body range of motion, thereby reducing driver fatigue.
- The system's fixed-mount design eliminates the need for aim adjusting for different drivers.

- Polarization of the screen is aligned with that in polarized sunglasses so that the screen remains visible to operators using such sunglasses.

The exemption would apply to all CMV operators driving vehicles with the CV Digital Mirror System. Bosch and Mekra Lang believe that mounting the system as described would maintain a level of safety that is equivalent to, or greater than, the level of safety achieved without the exemption.

Request for Comments

FMCSA published a notice of the application in the **Federal Register** on January 30, 2020, and asked for public comment (85 FR 5534). The Agency received 3 comments, from the American Bus Association (ABA) and 2 individuals.

ABA supports granting the application, stating:

Camera-based visibility systems or CBVSSs, like the CV Digital Mirror System technology, are vehicle technology advancements ABA believes should be deployed to improve safety of CMV operations. Such systems are currently being installed and tested by equipment manufacturers in limited capacity; however, to ascertain real-world viability, equipment manufacturers need to deploy these systems for use in actual commercial operations. As with FMCSA's decision to grant an exemption to Stoneridge, Inc. for use of its MirrorEye Camera Monitor System (see Docket No. FMCSA-2018-0141, published February 21, 2019), and Vision Systems North America for its SmartVision system (see Docket No. FMCSA-FMCSA-2019-0159, published January 15, 2020) in place of mirrors[, the CV Digital Mirror System] will achieve a level of safety equivalent to or greater than the level of safety provided by the regulation.

In addition, ABA stated that when compared to traditional mirrors, the CV Digital Mirror System provides additional visibility benefits including (1) anti-glare, (2) improved visibility at night and during adverse weather conditions, and (3) elimination of blind spots by providing a broader field of vision around the vehicle. ABA noted that the improvements in driver visibility can lead to enhanced maneuverability in backing up or turning a large vehicle. ABA also stated that eliminating the side mirrors may also provide fuel efficiency gains and carbon emission reductions, and may assist in reducing actions that lead to increased driver fatigue such as head and eye movements. In

addition to noting that the exemption would be consistent with FMCSA's decision to grant exemptions to Stoneridge, Inc. and Vision Systems for similar systems, ABA also stated that granting the exemption is consistent with recent activities by NHTSA relating to possible revisions to FMVSS No. 111. Specifically, NHTSA published a notice and request for public comment on August 28, 2019 (84 FR 45209), on a proposed collection of information relating to a multi-year research effort to learn about drivers' use of camera-based systems designed to replace traditional outside rearview mirrors. Initial research will focus on light vehicles, and be followed by research examining camera-based visibility systems on heavy trucks. Additionally, NHTSA published an advance notice of proposed rulemaking on October 10, 2019 (84 FR 54533), seeking public comment on permitting camera-based rear visibility systems as an alternative to inside and outside rearview mirrors.

Two individuals provided comments and noted concerns with the CV Digital Mirror System. One commenter suggested that the cameras be used in conjunction with standard rearview mirrors, rather than replacing them, due to concerns that an unsafe operating condition would exist in the event of a camera failure. Another commenter noted that neither the FMCSRs nor the CVSA out-of-service criteria address camera-based mirror systems.

FMCSA Decision

The FMCSA has evaluated the Bosch and Mekra Lang exemption application, and the comments received. For the reasons discussed below, FMCSA believes that granting the exemption to allow motor carriers to operate CMVs with the CV Digital Mirror System installed as an alternative to the two rear-vision mirrors required by the

FMCSRs is likely to achieve a level of safety equivalent to or greater than the level of safety provided by the regulation.

Use of the CV Digital Mirror System provides CMV drivers with an enhanced field of view when compared to the required rear-vision mirrors because (1) it eliminates the blind spots on both sides of the vehicle created by the required rear-vision mirrors, (2) the multi-camera system expands the field of view compared to the required rear-vision mirrors by an estimated 25 percent, and (3) the system uses high definition cameras and monitors that include features such as color night vision, low light sensitivity, and light and glare reduction that together help provide drivers with improved vision in the field of view when compared to traditional rear-vision mirrors.

FMCSA notes that the CV Digital Mirror system is currently being used in a number of European countries as a legal alternative to the traditional rear-vision mirrors under the requirements of ISO (International Organization for Standardization) 16505 Rev 2019. That standard provides minimum safety, ergonomic, and performance requirements for camera monitor systems to replace mandatory inside and outside rearview mirrors for road vehicles. The ISO standard addresses camera monitor systems that will be used in road vehicles to present the required outside information of a specific field of view inside the vehicle. The CV Digital Mirror System has also been validated to meet ISO 26262-2011, *Road Vehicles – Functional Safety*; and United Nations Economic Commission for Europe (UNECE) R46 rev 06 – *Devices for Indirect Vision*.

FMCSA acknowledges the concerns of the two individual commenters regarding use of the CV Digital Mirror System. The FMCSRs impose several operational controls that will help ensure that the CV Digital Mirror System is functioning properly at

all times. Section 396.7 of the FMCSRs, “Unsafe operations forbidden,” prohibits any vehicle from being operated in such a condition as to likely cause an accident or breakdown of the vehicle. Section 392.7(a) requires each CMV driver to satisfy himself/herself that a vehicle is in safe condition before operating the vehicle, which would include ensuring that the rear-vision mirrors are (or in this case, that the CV Digital Mirror System is) in good working order. Similarly, section 396.13(a) of the FMCSRs requires that, before driving a vehicle, a driver must be satisfied that the vehicle is in safe operating condition. If the CV Digital Mirror System (effectively functioning as the rear vision mirrors) fails during operation, the driver must complete a driver vehicle inspection report at the completion of the work day as required by section 396.11 of the FMCSRs, and the motor carrier must ensure that the defect is corrected.

Terms and Conditions for the Exemption

The Agency hereby grants the exemption for a 5-year period, beginning [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER] and ending September 17, 2025. During the temporary exemption period, motor carriers operating CMVs may utilize the Bosch and Mekra Lang CV Digital Mirror System installed in lieu of the two rear-vision mirrors required by section 393.80 of the FMCSRs. FMCSA emphasizes that this exemption is limited to the Bosch and Mekra Lang CV Digital Mirror System, and does not apply to any other camera-based mirror replacement system/technology. Section 396.7 of the FMCSRs, “Unsafe operations forbidden,” prohibits any vehicle from being operated in such a condition as to likely cause an accident or a breakdown of the vehicle. If the camera or monitor system fails during normal vehicle operation on the highway, continued operation of the vehicle shall be

forbidden until (1) the CV Digital Mirror system can be repaired, or (2) conventional rear-vision mirrors that are compliant with section 393.80 are installed on the vehicle.

The exemption will be valid for 5 years unless rescinded earlier by FMCSA. The exemption will be rescinded if: (1) motor carriers and/or CMVs fail to comply with the terms and conditions of the exemption; (2) the exemption has resulted in a lower level of safety than was maintained before it was granted; or (3) continuation of the exemption would not be consistent with the goals and objectives of 49 U.S.C. 31136(e) and 31315(b).

Interested parties possessing information that would demonstrate that motor carriers operating CMVs utilizing the Bosch and Mekra Lang CV Digital Mirror System installed as an alternative to two rear-vision mirrors are not achieving the requisite statutory level of safety should immediately notify FMCSA. The Agency will evaluate any such information and, if safety is being compromised or if the continuation of the exemption is not consistent with 49 U.S.C. 31136(e) and 31315(b), will take immediate steps to revoke the exemption.

Preemption

In accordance with 49 U.S.C. 31313(d), as implemented by 49 CFR 381.600, during the period this exemption is in effect, no State shall enforce any law or regulation applicable to interstate commerce that conflicts with or is inconsistent with this exemption with respect to a firm or person operating under the exemption. States may, but are not required to, adopt the same exemption with respect to operations in intrastate commerce.

James W. Deck,

Deputy Administrator.

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