TechBrief

FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION

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Visual Requirements for Commercial Motor Vehicle Drivers

The goal of the Federal Motor Carrier Safety Administration (FMCSA) is to reduce the number and severity of large truck- and bus-involved crashes through more commercial motor vehicle and operator inspections and compliance reviews, stronger enforcement measures against violators, expedited completion of rulemaking proceedings, scientifically sound research, and effective CDL testing, recordkeeping, and sanctions. The Office of Research and Technology manages research and technology development and deployment programs for the FMCSA.

FMCSA R&T activities encompass a range of issues and disciplines relating to motor carrier safety, including problem assessment; policy, safety management, and outreach; drivers; truck and bus vehicle safety performance; and compliance, enforcement and operations.

Driver physical qualifications **concentrates on the research of specific medical conditions in relation to CMV driving safety, with emphasis on medical standards guidelines.**

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Introduction

For several years the Federal Motor Carrier Safety Administration (FMCSA), formerly the Office of Motor Carriers of the Federal Highway Administration (FHWA), has examined whether to revise its vision requirements for commercial motor vehicle (CMV) drivers. In 1997 the FHWA convened a panel of medical experts to propose recommendations for amending the current vision requirements (49 CFR 391.41(b)(10)) to more precisely evaluate the visual performance necessary for safe CMV operation. This Tech Brief summarizes the final report issued by the medical panel, *Visual Requirements and Commercial Drivers.*

Background

FMCSA vision requirements must promote:

- highway safety, by ensuring that only physically qualified drivers operate CMVs; and
- the general goals expressed in the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 that affect policymaking and persons with disabilities.

The current requirements are made up of widely accepted and easily administered vision tests, which evaluate CMV drivers' central static "visual acuity," i.e., clearness of vision, and static peripheral horizontal visual field. Under the requirements drivers must have:

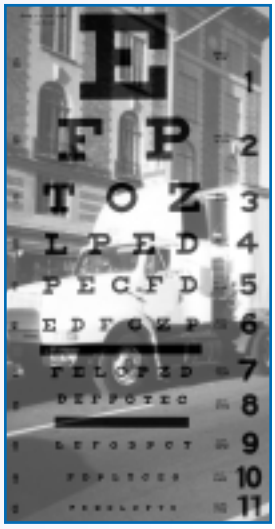
- distant visual acuity of at least 20/40 (as measured by the standard Snellen chart test) in each eye without corrective lenses, or visual acuity separately corrected to 20/40 or better with corrective lenses;
- distant binocular acuity of at least 20/40 in both eyes, with or without corrective lenses;
- a field of vision of at least 70 degrees in the horizontal meridian in each eye; and
- the ability to recognize the standard red, green, and amber colors in traffic signals and similar devices.

Vision Requirement Waivers

To gather data for a possible change in the vision standards, in 1992 the FHWA created a vision waiver program. After the U.S. Court of Appeals for the District of Columbia Circuit concluded in *Advocates for Highway and Auto Safety v. FHWA* that the waiver program was contrary to law, the FHWA ended the program in 1996. CMV drivers who already had received waivers were allowed to continue to drive, subject to stringent requirements including an annual vision evaluation.

Medical Panel

In 1997 the FHWA convened a panel of four medical experts to develop recommendations for improving the vision standard for CMV drivers. Any proposed changes to the requirements would have to maintain a standard set of vision tests that could be administered using accessible technology. The panelists held several meetings and discussed their proposed recommendations with FHWA officials before submitting their final report in October 1998.



CMV drivers must pass standard vision tests, including the Snellen chart test. The FMCSA plans to seek comments on a proposal to amend the visual requirements for CMV drivers as recommended by the medical panel.

Snellen visual acuity chart (superimposed over truck photo) courtesy of the National Eye Institute, National Institutes of Health

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Distribution
This Tech Brief is distributed according to a standard distribution. Direct distribution is made to the Service Centers and Divisions.

Availability
This Tech Brief is available from the National Technical Information Service, No. PB2001-102803.

Key Words
commercial motor vehicle, driver, exemption, vision, visual field, waiver

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U.S. Department of Transportation
Federal Motor Carrier Safety Administration

June 2001
Publication No. FMCSA-MCRT-01-007

Findings & Recommendations

The report identifies two major problem areas in the vision testing requirements. First, confrontation testing (i.e., abbreviated field assessment that tests vision of selected horizontal points) could miss significant field defects, which have as much—if not more—impact on visual function when driving than visual acuity. Second, visualcognitive/motor skill variables are much more relevant than static vision tests, but using a driving simulator to evaluate these skills is currently impractical, except as part of a research study.

Field of Vision Requirement

The panel agreed with an earlier study that the field of vision standard of at least 70 degrees in the horizontal meridian in each eye was intended to restate the binocular requirement in terms of monocular testing, and the monocular field should have been 140 degrees (Decina et al., 1991). To eliminate this ambiguity, the panel supported a revision of the field of vision standard to require at least 120 degrees of horizontal field in each eye, instead of 70. The panel also recommended a new requirement of at least 20 degrees of visual field both above and below the horizontal axis in each eye.

The suggested field of vision requirements may be confirmed by a modified protocol using confrontation visual field testing of each eye separately. CMV drivers who either fail to meet these screening testing standards or have been identified as having a disease that could compromise the visual field—such as glaucoma, retinitis pigmentosa, stroke, or brain tumor—should be required to have a full visual evaluation by an ophthalmologist or optometrist, including formal visual field testing and a determination whether the drivers' vision satisfies the standard.

Other Recommendations

The panel suggested that the other three requirements—distant visual acuity, distant binocular visual acuity, and color vision—be left unchanged. Two further studies were recommended: one would determine the extent to which visually impaired drivers, with careful evaluation and monitoring, could safely operate CMVs; the other study would evaluate a computerized driving task simulator as a potential mode to test CMV driving performance.

Further Developments

In 1998 the Transportation Equity Act for the 21st Century (Public Law 105-178) allowed the FHWA to grant renewable 2-year exemptions from the vision standard if they are likely to achieve an equivalent or greater level of safety than without such exemptions. The FMCSA receives petitions for vision exemptions submitted by CMV drivers, evaluates their merits, and then determines whether to grant the exemptions. The results are published in the Federal Register.

The FMCSA plans to publish a Notice of Proposed Rulemaking this year seeking comments on a proposal to amend the visual field requirement as recommended by the medical panel. The proposed action would require a total horizontal visual field of 120 degrees in each eye and would add a requirement for a total vertical visual field of 40 degrees—20 above the horizontal meridian and 20 below the horizontal meridian. After a public comment period the FMCSA will consider all relevant information and decide whether to issue a final rule revising the vision standard.

References

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