

Compliance Test Results
of Independently Manufactured
Automotive Replacement Headlamps
to FMVSS 108
Overview of Two Studies

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Summary

On March 26, 2002, the CAPA Technical Committee, after four months of cooperative development with lighting manufacturers, collision repairers, insurers, and automotive lighting experts, approved a quality standard for lighting which was based on two basic tenets: Compliance to U.S. FMVSS 108, the regulation that provides standards for the performance of automotive exterior lamps and reflective devices; and comparability to the car company service counterpart, including fit, appearance, material, photometric, color, electrical, life, durability, and aiming devices.

Compliance with FMVSS 108 is required of both original equipment and replacement lighting components. Replacement lighting components include those manufactured under a car company's brand as well as independently produced replacement parts.

While it was anticipated that there might be some incidences of non-compliance, it was assumed during the standard development and review process that aftermarket parts in the US market would generally meet the requirements outlined in FMVSS 108. However, it became apparent during the testing required for standard development that there could be critical issues related to the product development and photometric inspection processes that could seriously affect a part's ability to meet FMVSS 108. As such, CAPA conducted two studies of FMVSS compliance among selected aftermarket parts.

Summary

CAPA Lighting Study I examined independently produced lights and their compliance with FMVSS 108 requirements. Two of the top ten selling headlamp models supplied by independent manufacturers, (replacements for the Pontiac Grand Am 1999-2003 and Ford Taurus 1996-1998), were evaluated for conformance to FMVSS 108: The headlamps were manufactured by TYC and DEPO, two leading independent automotive lighting suppliers. Forty samples were tested and 82% of the independently manufactured replacement headlamps included in this evaluation failed to conform to the photometric requirements of FMVSS 108.

Due to the high failure rate observed in the first study, a second study was implemented. Its purpose was to verify the results of the first study and to evaluate whether car company branded parts had similar issues with compliance to FMVSS 108.

CAPA Lighting Study II documented two additional top ten selling headlamp models manufactured by TYC and DEPO for conformance to FMVSS 108: Replacements for the Ford Taurus (2000-2003) and Toyota Camry (2000-2001). In addition to headlamps manufactured by TYC and DEPO, car company brand replacement lamps were also included in the study.

Summary

One hundred percent of the fifteen samples of independently manufactured replacement headlamps in this evaluation failed to conform to the photometric requirements of FMVSS 108. Ten percent of the ten car company manufactured replacement headlamp samples failed to conform to the photometric requirements of FMVSS 108.

The failure rate of independently manufactured headlamps implies either: a) a misinterpretation of the designated FMVSS 108 aiming methods intended for use on each headlamp; b) failure to comply with the designated FMVSS 108 aiming methods on each headlamp; c) significant variation in the assembly of the aftermarket-manufactured headlamps from the car company's original design; or d) some combination thereof.