EXPERT-LEVEL REGULATORY COMPLIANCE REPORT: ANALYSIS OF CALTRANS' ILLEGAL LED AUXILIARY FLASHING LIGHTS AND ASSOCIATED WORKPLACE HAZARDS

SECTION 1: FORMAL SUBMISSION LETTER AND HAZARD JURISDICTION

1.1. Introduction and Demand for Immediate Abatement

The California Department of Transportation (Caltrans) is currently operating utility and maintenance vehicles equipped with auxiliary LED amber flashing lights that are in explicit violation of Federal Motor Vehicle Safety Standards (FMVSS) No. 108.[1] Specifically, this equipment violates 49 C.F.R. § 571.108(S6.2.1), the "Impairment Provision," as conclusively interpreted by the National Highway Traffic Safety Administration (NHTSA).[1]

This report formally identifies the systemic deployment of federally prohibited vehicle lighting by Caltrans as a severe, foreseeable, and preventable workplace hazard, mandating intervention by the California Division of Occupational Safety and Health (Cal/OSHA). The high-intensity, non-compliant flashing lights induce specific hazards in the motoring public—including cognitive impairment, physical vision obscuration, and acute neurological trauma—all of which drastically increase the probability of vehicle intrusion and collision within Caltrans work zones.[1] The continued use of this equipment directly violates the requirements of 8 CCR §3203, which governs the employer’s obligation to identify and correct workplace hazards.

1.1.2. Cal/OSHA Jurisdiction and Nexus to Worker Safety

The jurisdiction of Cal/OSHA is established by the direct nexus between the illegal vehicle equipment and the heightened danger faced by Caltrans workers in highway environments. Caltrans employees are routinely required to work adjacent to live traffic lanes.[2] The hazard analysis confirms that the lighting equipment used by Caltrans is explicitly identified by NHTSA as causing "unduly diverting driver attention and cause confusion among drivers".[1] When the visibility and cognitive function of drivers approaching a work zone are intentionally

compromised by the warning equipment itself, the risk of errant vehicles entering the protected area increases dramatically. This scientifically documented impairment creates a hazardous work environment, constituting a failure by Caltrans to protect its workers from recognized hazards under the California General Duty Clause and the Injury and Illness Prevention Program requirements.[3]

1.1.3. Immediate Demand

The evidence demonstrates that the use of federally prohibited lighting equipment is an active causative factor in creating an unsafe workplace for Caltrans employees. It is required that Cal/OSHA initiate an immediate, targeted investigation. Furthermore, Cal/OSHA must issue an order requiring Caltrans to cease the use of all federally prohibited auxiliary lighting equipment and implement legally compliant, non-impairing warning devices forthwith.

1.2. Summary of Key Legal and Scientific Findings

The subsequent analysis is structured around four mutually reinforcing findings, all demonstrating the inherent danger of Caltrans' auxiliary flashing lights:

- **Legal Finding (FMVSS Violation):** NHTSA, the federal safety regulator, has officially classified the specific type of lights used by Caltrans (amber, flashing, on utility vehicles) as auxiliary equipment that violates 49 C.F.R. § 571.108(S6.2.1) because they are definitively "not steady burning" and impair the effectiveness of required safety lighting.[1]
- **Physical Safety Finding (Glare and Obscurement):** The use of modern LED technology results in luminance levels possibly exceeding ~100,000 cd/m^2.[1] This intensity physically obscures required vehicle lamps, such as brake lights and turn signals, due to veiling glare, directly contradicting the core purpose of federal vehicle lighting standards. This confirms that the impairment prohibited by FMVSS No. 108 is a tangible, physical danger.
- **Cognitive Safety Finding (Reaction Time Interference):** Scientific research indicates that high visual salience, characteristic of these powerful LEDs, actively interferes with "alert-task execution".[1] This interference causes a counterintuitive increase in the time drivers need to register and respond to the work zone hazard, directly translating into delayed braking and maneuvering near Caltrans personnel.
- **Health Safety Finding (Neurological Risk):** The high-intensity auxiliary LEDs are hundreds to thousands of times brighter than the established neurological safety threshold of ~20cd/m^2.[1] This extreme intensity creates a high probability of acute neurological distress—including seizures, severe migraines, and panic—which can lead to sudden, unpredictable driver incapacitation and loss of vehicle control immediately adjacent to Caltrans work zones.

SECTION 2: THE FOUNDATIONAL VIOLATION OF

FEDERAL MOTOR VEHICLE SAFETY STANDARDS (FMVSS NO. 108)

2.1. Supremacy of Federal Lighting Standards and Regulatory Authority

The foundation of the hazard rests in Caltrans' persistent violation of binding federal law. Under the National Traffic and Motor Vehicle Safety Act (Safety Act), NHTSA sets Federal Motor Vehicle Safety Standards (FMVSS), which maintain regulatory authority over vehicle lighting and preempt any conflicting state regulations.[1]

2.1.1. 49 C.F.R. § 571.108(S6.2.1) - The Impairment Provision

The central regulatory prohibition is contained within FMVSS No. 108, which states in paragraph S6.2.1 that "[n]o additional lamp, reflective device, or other motor vehicle equipment is permitted to be installed that impairs the effectiveness of lighting equipment required by this standard".[1] This provision forms the legal basis for restricting auxiliary flashing lights. Any auxiliary lamp that interferes with the ability of standard equipment (e.g., headlights, taillights, brake lights) to convey safety information is prohibited.[1]

2.2. Definitive NHTSA Interpretation: The Illegality of Amber Flashing Auxiliary Lights

Any potential ambiguity regarding the applicability of this rule to utility vehicles was eliminated by the definitive Letter of Interpretation issued by NHTSA on December 13, 2024 (NCC-241023-001TSEI-TIMA).[1]

2.2.1. Scope and Classification of Prohibited Equipment

The December 2024 Letter explicitly defined the lights in question, generically referring to them as "emergency warning lights." NHTSA confirmed that this term covers a category of equipment consisting of "one or more amber-colored flashing or strobing lamps that is typically installed on certain types of slow-moving vehicles and utility vehicles (such as tow trucks, repair vehicles, or vehicles transporting oversized loads)".[1] Caltrans utility and maintenance vehicles, which use amber-colored flashing or strobing lamps, fall directly and unambiguously within this federally prohibited category.[1]

2.2.2. Legal Basis for Impairment: Lack of Steady Burning Function

NHTSA reaffirmed its longstanding position that all auxiliary lamps must be "steady burning," with the narrow exception of those supplementing required lamps that flash, such as turn signals.[1] Because the amber warning lights utilized by Caltrans are flashing or strobing,

NHTSA concluded: "Therefore, because the 'emergency warning lights' are not steady burning, they would not comply with FMVSS No. 108 and would impair required lighting".[1] This impairment is based on the distraction and confusion flashing lights cause, regardless of any perceived safety benefit claimed by the installing agency.[1]

2.2.3. NHTSA's Safety Rationale

The regulatory body rejected arguments that flashing amber lights are widely used and therefore safe, maintaining that highway traffic safety is enhanced by driver familiarity with established lighting schemes.[1] NHTSA reiterated that flashing amber lighting, outside of turn signals, is "not 'an established lighting scheme'" within the context of FMVSS No. 108.[1] This non-standardized nature means the lights "unduly divert driver attention and cause confusion among drivers," thereby undermining the effectiveness of required safety signals and actively diminishing highway safety.[1]

2.3. Violation of the "Make Inoperative" Provision (49 U.S.C. § 30122)

The prohibition is further reinforced by the "make inoperative" provision of the Safety Act.

2.3.1. Statutory Liability

49 U.S. Code § 30122(b) prohibits specific commercial entities—including manufacturers, distributors, dealers, rental companies, or motor vehicle repair businesses—from knowingly installing equipment that makes any federally compliant device or design element inoperative.[1] NHTSA has determined that the installation of auxiliary flashing lights by these regulated entities constitutes a violation of this provision.[1]

2.3.2. Installation Enforcement Gap and Caltrans Complicity

It is recognized that the Safety Act generally does not apply the "make inoperative" provision to the owner of a vehicle.[1] While a state agency like Caltrans may claim exemption as the vehicle owner, Caltrans does not typically perform all vehicle modifications internally; instead, it relies on commercial vendors, dealers, or motor vehicle repair businesses to acquire and install specialized equipment, including warning lights. By contracting with or requiring these regulated entities to install federally prohibited, impairing equipment, Caltrans effectively participates in and mandates the violation of 49 U.S.C. § 30122.[1] This operational model demonstrates a fundamental failure in regulatory compliance and procurement oversight within Caltrans, which directly results in the creation of hazardous conditions for its workers when these illegally outfitted vehicles are deployed. The fact that Caltrans enables commercial partners to engage in illegal aftermarket modifications highlights a systemic negligence that contributes directly to the resulting workplace hazard.

2.4. Nullification of Conflicting State Law (California Vehicle Code)

California statutes, such as Cal. Veh. Code § 25253, which requires tow trucks to be equipped with amber warning lamps, or Cal. Veh. Code § 25259, which authorizes the display of flashing amber warning lights by authorized emergency vehicles, are superseded by federal law.[1] While the California Vehicle Code may require the installation of amber lights, the operation of such lights is discretionary. In addition, the Supremacy Clause of the U.S. Constitution dictates that FMVSS No. 108 preempts state laws that conflict with the federal safety standard. Since NHTSA has definitively ruled that amber flashing auxiliary lights violate the federal impairment provision, the safety risk inherent in using this equipment cannot be legalized or mitigated by any possibly contrary California Vehicle Code provisions.[1] Since the operation of auxiliary amber flashing lights is discretionary in California law, there is no actual conflict between State and Federal law. Finally, the safety rationale of the federal rule (preventing impairment) prevails over state authorization for installation or use.

SECTION 3: HAZARD ANALYSIS I — PHYSICAL IMPAIRMENT AND GLARING EFFECTS

The high-intensity Light Emitting Diode (LED) technology used in modern auxiliary warning lights exacerbates the non-compliance issue by introducing severe physical hazards that directly compromise required vehicle safety systems.

3.1. Extreme Luminance as a Physical Impairment Mechanism

The intensity of light projected directly at the eye is measured by the metric of luminance, expressed in candela per square meter (cd/m^2).[1] Auxiliary LED vehicle flashing lights operate within an extraordinarily high range, typically measured between 1,500 and ~100,000 cd/m^2.[1]

3.1.1. Physical Obscuration through Veiling Glare

NHTSA's regulatory language explicitly states that auxiliary lamps are prohibited if they are "so bright as to obscure or distract from a vehicle's required lamps".[1] The extreme luminance of modern LED flashing equipment moves the impairment from a theoretical concern to a demonstrable physical reality. When a motorist encounters a light source operating at ~100,000 cd/m^2 in a work zone, the light causes intense veiling glare across the driver's visual field. This phenomenon effectively washes out or physically reduces the contrast and visibility of essential, federally required safety equipment on the work vehicle, such as standard red brake lights, taillights, and reverse lights.[1]

This physical obscuration confirms that the impairment prohibited by FMVSS No. 108 is absolute. The sheer power of these LED units constitutes a physical assault on the motorist's visual system, frequently forcing drivers to reflexively avert their gaze or squint defensively.[1] Any time a driver is forced to look away or struggle to see, the risk of misjudging distance or

striking a Caltrans vehicle, barricade, or worker increases exponentially. The installation of equipment that necessitates this defensive reaction proves that Caltrans is failing to maintain a safe approach environment for its employees.

3.2. Secondary Violation of California Administrative Code (Color and Class)

Beyond the federal preemption issue, Caltrans' specific use of amber LED flashing lights may also violate certain California administrative regulations, demonstrating a systemic disregard for lighting standards at both the federal and state levels.

3.2.1. Class A Designation and Unauthorized Color

Under the California Code of Regulations (Cal. Code Regs. Title 13 § 812), warning lamps are classified based on intensity and beam concentration. LED warning lamps, characterized by their high-intensity, concentrated-beam nature, are categorized as Class A devices.[1] Title 13 § 816, which governs warning lamp color, restricts Class A warning lamps exclusively to the color **Red**.[1] Caltrans' deployment of high-intensity Class A lamps in the color **Amber/Yellow** for auxiliary flashing lights is thus explicitly unauthorized under its own state regulations.[1] This state-level non-compliance serves as critical collateral evidence, confirming that Caltrans exhibits a fundamental systemic breakdown in adopting and enforcing vehicle equipment standards, compounding the severity of the federal FMVSS violation and strengthening the case for a flawed Injury and Illness Prevention Program (8 CCR §3203).

SECTION 4: HAZARD ANALYSIS II — COGNITIVE INTERFERENCE AND ACCIDENT PROBABILITY

The use of high-intensity flashing auxiliary lights creates a critical hazard by actively disrupting the necessary cognitive processing required of drivers approaching dynamic work zones, which increases accident probability and, consequently, worker risk.

4.1. Non-Standardized Warning and Driver Confusion

NHTSA's legal rationale for prohibiting flashing auxiliary lamps is rooted in the principle that they undermine highway safety by causing confusion.[1] Unlike standardized signals (like turn signals or red brake lights), flashing amber lighting is not an "established lighting scheme" that conveys a singular, immediate meaning.[1]

The problem is the ambiguity of the signal. Motorists are forced to engage in a delayed, two-step decision-making process: first, recognizing the flashing light, and second, assessing whether that light means they must yield right-of-way, stop, change lanes, or merely exercise general caution.[1] This enforced delay and interpretive ambiguity is catastrophic in the

environment of a high-speed highway work zone, where quick, unambiguous responses are vital for avoiding collisions.

4.2. High Visual Salience Interfering with Alert-Task Execution

Beyond simple confusion, the excessive intensity of the LED lights scientifically interferes with a driver's ability to respond to an emergency situation. Scientific research published in 2024 demonstrated that high visual salience, often associated with these high-intensity lights, can lead to a counterintuitive *increase* in reaction times.[1]

The studies showed that rather than enhancing safety, high-salience alerts actively "interfered with alert-task execution" and specifically "increased the time between fixating the alert and responding".[1] This neurological and cognitive degradation means that the very equipment Caltrans uses, ostensibly to maximize safety, actively prolongs the motorist's response time when they encounter the work zone.

This finding carries severe implications for Caltrans worker safety. The safety of personnel working inches from traffic relies entirely on the motorist's ability to react promptly and correctly to the work zone warning. By utilizing illegal, high-salience lighting, Caltrans introduces a deliberate delay in motorist response time. This delay, calculated in milliseconds and feet of travel, directly reduces the available stopping distance and increases the velocity at the point of impact, dramatically escalating the probability of a high-severity collision that breaches the work zone perimeter and endangers the Caltrans employee.

4.3. Contrast and Preemption of Conflicting Reaction Time Studies

In evaluating the full scope of the hazard, it is essential to legally and scientifically distinguish Caltrans' use of auxiliary warning lights from studies that sometimes suggest flashing lights can improve safety. While some research involving dynamic flashing *brake lights* operating at specific frequencies (e.g., 7 Hz) has shown a reduction in brake reaction time [4], this research is entirely inapplicable to the equipment Caltrans deploys.

Flashing brake lights are rear-facing, standardized signals designed exclusively for deceleration.[6] Conversely, Caltrans utilizes 360-degree, non-braking, non-standardized auxiliary warning lights on utility vehicles, which NHTSA specifically ruled are confusing and impairing due to glare and non-compliance with the steady-burning requirement.[1] The psychological and physical impairment effects of Caltrans' illegally intense and confusing equipment definitively supersede any marginal benefit inferred from studies specific to regulatory-compliant braking signals.

SECTION 5: HAZARD ANALYSIS III — NEUROLOGICAL

AND PHOTOSENSITIVITY RISKS

The use of high-intensity auxiliary LED flashing lights introduces a profound medical and neurological hazard, exposing Caltrans workers to the risk of collision caused by biologically induced motorist incapacitation.

5.1. Photosensitive Risk Threshold and LED Violation Magnitude

Flashing lights are medically recognized triggers for severe adverse health events, including Photosensitive Epilepsy, visually induced migraines, and severe psychological distress (such as panic attacks) in sensitive individuals, including those with autism or photophobia.[1]

5.1.1. Critical Threshold Exceeded by Thousands of Times

Medical guidelines, such as the International Guidelines for Photosensitive Epilepsy, establish a critical safety threshold. Any change in luminance greater than **~20 cd/m²** creates a risk of seizure.[1] The operating range of Caltrans' illegal LEDs (1,500 to ~100,000 cd/m^2) is astronomically higher—ranging from 50 to 5,000 times the maximum neurological safety threshold.[1] This extreme intensity, even when flashing at California's regulated rates (which typically fall between 1 Hz and 2 Hz for work zone lighting, below the highest risk band of 10–25 Hz) [8], guarantees a high probability of severe adverse neurological events upon exposure.[1]

Table B.1: Technical Lighting Parameters and Neurological Risk Assessment

Luminance Level	**Value (cd/m²)**	**Safety Implication**
Epilepsy Seizure Risk Threshold	20	Safety Limit for Change in Luminance
Photophobia Discomfort Level	100–1,000	Can trigger light sensitivity pain/headaches
Typical Discomfort Level	1,500–2,400	General driver discomfort and vision strain
Auxiliary LED Vehicle Flashing Lights	1,500–100,000	Up to 5,000 times the seizure risk threshold

5.2. Evidence of Biologically Induced Motorist Incapacitation

The most serious component of this hazard analysis is the specific mechanism of worker exposure to errant vehicles. The danger is amplified by the risk of medically induced loss-of-control suffered by the approaching motorist. When a driver susceptible to photosensitivity, epilepsy, or chronic migraine is exposed to these hyper-intense, illegal lights, they may suffer acute symptoms such as a seizure reaction, temporary vision blackout ("as if someone suddenly blindfolded me while driving") [1], hemiplegic migraine (leading to slurred speech, blurred vision, or temporary paralysis of limbs) [1], or sensory-induced panic and cognitive incapacitation.[1]

This biologically induced incapacitation transforms the driver into an immediate, unavoidable hazard to the work zone. Documentation shows drivers losing consciousness, braking erratically, or defensively stopping their vehicle entirely in the roadway (e.g., covering their eyes and slowing to less than 20 mph).[1] Such erratic and unpredictable behavior by an incapacitated motorist constitutes an acute, high-velocity threat that Caltrans personnel cannot reasonably anticipate or evade, demonstrating the severity of the workplace hazard created by the equipment itself.

5.3. Case Compendium of Acute Trauma Incidents

Reports submitted to the U.S. Food and Drug Administration (FDA) and safety advocates corroborate the severity of these hazards, detailing concrete instances of acute trauma directly attributable to high-intensity LED vehicle flashing lights.[1]

These documented incidents provide tangible evidence of the danger Caltrans' equipment presents:

- **Complete Vision Loss:** Reports describe incidents where drivers experienced instantaneous blindness, stating it was impossible to see the road or anything else, forcing them to stop their vehicle in the middle of traffic.[1]
- **Neurological Seizures and Migraines:** Individuals diagnosed with epilepsy, migraines, and those with a history of traumatic brain injury (TBI) reported instant pain, nausea, loss of consciousness, and seizure-type reactions upon encountering LED flashing lights on utility and emergency vehicles.[1]
- **Panic and Cognitive Impairment:** Numerous reports from individuals with autism detailed feelings of "sheer terror," panic attacks, and the inability to function or think, forcing them to put their arms up to block the visual assault or stop their vehicle completely for minutes at a time.[1]
- **Physical Injury:** One report detailed a non-epileptic individual being struck by the flashing lights of a lawnmower, resulting in immediate severe head pain, nausea, loss of coordination, and falling into a roadside ditch, followed by vomiting.[1]

Table C.1: Selected Incident Reports Detailing Neurological and Cognitive Trauma from High-Intensity Flashing Lights [1]

Report Date	Location (CA focus)	Reported Condition	Reported Outcome
Feb 17, 2025	Yolo County, CA	Autism	Covered eyes, slowed to under 20 mph, panic set in, suffered significant emotional trauma.
Nov 22, 2024	Springfield, MO	Migraine, TBI	Instant pain, blinded, forced to stop car on curve multiple times due to inability to see road.
Oct 11, 2024	Yolo County, CA	Autism	Felt panic, put arms up to block assault, came to full stop, wide-load truck inches from car.
Aug 28, 2024	Esparto, CA	Autism	Amber LED flashing lights incapacitated driver; vision and cognitive abilities severely impaired, panic setting in.
Aug 6, 2024	Winters, CA	Autism	Overwhelming strobe lights, unable to see, forced to stop car in the road and

			panic.

SECTION 6: CAL/OSHA VIOLATION AND MANDATORY ABATEMENT DEMAND

The systemic deployment of equipment that is federally prohibited and demonstrably causes physical, cognitive, and neurological impairment in approaching motorists demonstrates a profound failure by Caltrans to meet its fundamental obligations under California occupational safety law.

6.1. Systemic Failure of the Injury and Illness Prevention Program (8 CCR §3203)

Every employer in California is mandated to establish, implement, and maintain an effective Injury and Illness Prevention Program (IIP Program).[3] Caltrans' reliance on illegal and harmful auxiliary lighting constitutes a serious, systemic violation of multiple core tenets of 8 CCR §3203.

6.1.1. Failure to Evaluate Hazard (8 CCR §3203(a)(4))

The IIP Program requires employers to include procedures for identifying and evaluating workplace hazards through scheduled periodic inspections to identify unsafe conditions and work practices.[3] The hazard associated with high-intensity flashing lights is not abstract; it is explicitly documented in federal regulatory interpretations (NHTSA, December 2024) and extensive scientific literature detailing neurological risk thresholds and glare effects.[1] Caltrans failed to properly evaluate the risks associated with this lighting, electing instead to procure and deploy equipment that the federal government deems impairing and confusing, thereby violating its duty to identify foreseeable hazards.

6.1.2. Failure to Correct Unsafe Conditions (8 CCR §3203(a)(6))

The IIP Program requires Caltrans to implement methods and procedures for correcting unsafe or unhealthy conditions, work practices, and work procedures in a timely manner based on the severity of the hazard.[3] The severity of the hazard—a collision caused by motorist impairment—carries a substantial probability of death or serious physical injury to workers. Despite the definitive public statement from NHTSA in December 2024 confirming the illegality of the equipment, and the presence of documented reports demonstrating physical trauma, Caltrans continues to procure, deploy, and require its employees to work immediately adjacent to this acute danger.[1] This constitutes an egregious and continuing failure to correct unsafe conditions as required by the Cal/OSHA standard.

6.2. Violation of General Duty Clause to Ensure a Safe Work Environment

The deployment of equipment that actively compromises the safety and cognitive function of the motoring public fails the fundamental test of the General Duty Clause—to protect workers from foreseeable hazards.[2] The hazard presented by an errant, incapacitated, or confused motorist is a foreseeable consequence of using illegal, non-compliant, and excessively bright warning devices. By failing to use legally compliant and scientifically safe equipment, Caltrans has actively manufactured a high-risk environment for its workers.

6.3. Classification and Aggravating Factors

The violation must be classified based on its potential outcome and the employer's knowledge.

6.3.1. Serious Violation

A serious violation exists when there is a substantial probability that death or serious physical harm could result from a condition that exists, or from one or more practices, means, methods, operations, or processes that have been adopted or are in use in the place of employment.[10] Given that collisions in highway work zones caused by high-speed vehicle intrusion carry a substantial probability of fatality or permanent injury, the failure to protect workers from the collision risk manufactured by the illegal lights warrants classification as a Serious violation.

6.3.2. Willful Aggravation

The continued use of this equipment after the publication of the December 2024 NHTSA Letter provides definitive regulatory notice of illegality.[1] When coupled with the evidence of documented adverse health events and high anxiety reported by the public upon exposure [1], Caltrans' continued deployment suggests a knowing exposure of its workers to a legally prohibited and scientifically recognized hazard. This suggests a potential for classification as a Willful violation, as the employer appears to be acting with plain indifference to the occupational safety and health requirements.

6.4. Mandatory Abatement Requirements and Feasible Alternatives

Immediate abatement is technically feasible and readily available to Caltrans.

1. **Feasible Alternative 1: Conversion to Steady-Burning Mode.** Caltrans must immediately replace or modify all auxiliary amber flashing LED lights to operate in a **steady-burning mode**.[1] This adheres directly to NHTSA's core requirement that auxiliary lamps must not flash or strobe, thereby removing the legal impairment and the primary source of cognitive confusion and glare.[1]

2. **Feasible Alternative 2: Reduction of Luminance and Intensity.** Should flashing lights be deemed necessary for specific signaling (subject to NHTSA approval not currently granted), the intensity must be reduced to levels significantly below the neurological safety threshold of ~20 cd/m^2.[1]
3. **Feasible Alternative 3: Adherence to FMVSS No. 108.** Caltrans must initiate a comprehensive review of its entire warning light fleet and procurement procedures to ensure all installed auxiliary equipment adheres strictly to FMVSS No. 108 and does not impair the effectiveness of required safety devices.

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