SUMMARY: The Commission requests comments on a petition filed by Culver Communications Corp. seeking the allotment of Channel 221A to Lockport, NY, as the community's first local FM service. Channel 221A can be allotted to Lockport in compliance with the Commission's minimum distance separation requirements, with request to domestic allotments, without the imposition of a site restriction, at coordinates 43–10–12 North Latitude and 78–41–54 West Longitude. However, Lockport is located within 320 kilometers (200 miles) of the U.S.-Canadian border, and the allotment would result in short-spacings to Station CKPC–FM, Channel 221C1, Brantford, Ontario, Channels 219C1, St. Catherine, Ontario, 220B, Peterboro, Ontario, 222B, Oshawa, Ontario, and 223B, Toronto, Ontario, Canada. Petitioner states that appropriate protection of all of the above channels, with the exception of Station CKPC–FM, can be accomplished with the proposed Lockport station operating nondirectionally with 6 kilowatts of power at 100 meters above average terrain. With regard to the short-spacing to Station CKPC–FM, petitioner states that it will directionalize its signal to avoid any prohibited interference. Therefore, we will request concurrence by the Canadian Government in the allotment of Channel 221A to Lockport as a specially negotiated allotment.

DATES: Comments must be filed on or before January 27, 1997, and reply comments on or before February 11, 1997.

ADDRESSES: Federal Communications Commission, Washington, D.C. 20554. In addition to filing comments with the FCC, interested parties should serve the petitioner, or its counsel or consultant, as follows: Richard C. Greene, President, Culver Communications Corporation, P.O. Box 477, Lockport, New York 14095 (Petitioner).

FOR FURTHER INFORMATION CONTACT: Leslie K. Shapiro, Mass Media Bureau, (202) 418–2180.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Commission's Notice of Proposed Rule Making, MM Docket No. 96–240, adopted November 29, 1996, and released December 6, 1996. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Reference Center (Room 239), 1919 M Street, NW, Washington, D.C. The complete text of this decision may also be purchased from the Commission's copy contractor, International Transcription Services, Inc., (202) 857–3800, 2100 M Street, N.W., Suite 140, Washington, D.C. 20037.

Provisions of the Regulatory Flexibility Act of 1980 do not apply to this proceeding.

Members of the public should note that from the time a Notice of Proposed Rule Making is issued until the matter is no longer subject to Commission consideration or court review, all *ex parte* contacts are prohibited in Commission proceedings, such as this one, which involve channel allotments. See 47 CFR 1.1204(b) for rules governing permissible *ex parte* contacts.

For information regarding proper filing procedures for comments, see 47 CFR 1.415 and 1.420.

List of Subjects in 47 CFR Part 73

Radio broadcasting.

Federal Communications Commission.

John A. Karousos,

Chief, Allocations Branch, Policy and Rules Division, Mass Media Bureau.

[FR Doc. 96–31654 Filed 12–12–96; 8:45 am]

BILLING CODE 6712–01–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

RIN AG–38

[Docket No. 96–41, Notice 01]

Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices and Associated Equipment

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Notice of request for comments.

SUMMARY: This document seeks public comment on the value of several signal lamp ideas which have been suggested to the agency, and on whether NHTSA should permit auxiliary signal lamps in addition to those required by Federal Motor Vehicle Safety Standard No. 108. NHTSA also seeks comment on a policy for the disposition of petitions for rulemaking that request the agency to require or permit safety lighting inventions and which are submitted without proof of their effectiveness.

DATES: Comments are due March 13, 1997.

ADDRESSES: Comments should refer to Docket No. 96–41, Notice 1, and be submitted to: Docket Section, room 5109, 400 Seventh Street S. W., Washington, DC 20590 (Docket hours are from 9:30 a.m. to 4 p.m.) It is requested that 10 copies of the comments be provided.

FOR FURTHER INFORMATION CONTACT:

For technical issues: Richard Van Iderstine, Office of Crash Avoidance Standards, NPS–21, telephone (202) 366–5280, FAX (202) 366–4329.

For legal issues: Taylor Vinson, Office of Chief Counsel, NCC- 20, (202) 366–5263, FAX (202) 366–3820.

Both may be reached at the National Highway Traffic Safety Administration, 400 Seventh St., S.W., Washington, D.C., 20590. Comments should not be sent or FAXed to these persons, but should be sent to the Docket Section.

SUPPLEMENTARY INFORMATION

Background

Federal Motor Vehicle Safety Standard No. 108 (''Standard No. 108''), *Lamps, Reflective Devices and Associated Equipment* (49 CFR 571.108) includes requirements for specified types of signal lamps to be installed on new motor vehicles, and regulates their performance in terms of color, brightness, quantity, duty cycle (steady or flashing) and details of activation (e.g., turned on with the headlamps). The purpose of these specifications is to establish the presence of a vehicle in the roadway, and to signal its driver's intentions to other motorists and pedestrians. Communication via these signal lamps is best accomplished with a degree of standardization in order to minimize ambiguity. In drafting the signal lamp requirements, NHTSA has balanced the need for standardization with its desire to allow as much design freedom as possible for the location, shape, styling, and light source design of the lamps. For example, the intensity ranges of taillamps and stop lamps are regulated so that a person can distinguish a red stop lamp from a red taillamp immediately at the initiation of braking, without having to notice the transition. However, the size and shape of stop lamps and taillamps are left to the designer of the device. Likewise, stop lamps are required to be steady-burning to distinguish them from the required flashing of turn signals and hazard warning signal lamps of the same brightness and color. Paragraph S5.1.3 of Standard No. 108 also allows for auxiliary lighting equipment beyond the required equipment, provided that the auxiliary equipment does not ''impair the effectiveness'' of the required lamps and reflectors. (In the case of auxiliary lamps of emergency vehicles and tow trucks, the usual agency policy is to leave the specifications to the discretion of State governments.)

Standard No. 108 is more flexible than the lighting regulations of most

other countries and many of the States. For example, while many countries require lamps to be located within specific dimensions, such as ''not more than 3 inches from the edge of the vehicle'', Standard No. 108 generally allows a manufacturer to locate lamps at such maximum heights and widths as the manufacturer determines are ''practicable.'' Also, many States prohibit auxiliary lamps unless expressly permitted by their lighting codes, even if they are permitted as optional equipment under Standard No. 108 because they do not ''impair the effectiveness'' of the lighting equipment required by the Federal standard.

The agency is publishing this notice to obtain comment on four signal lighting ideas which their proponents believe will improve communication between drivers. The ideas are:

(1) The activation of stop lamps upon sudden release of the accelerator pedal,

(2) The flashing of center high mounted stop lamps (CHMSLs) at one or more rates to indicate heavy braking (or Anti-lock Braking System activation),

(3) The flashing of one or more stop lamps to indicate a stopped vehicle, and

(4) Stop lamps on the front of vehicles.

NHTSA is also seeking comments to aid in developing a general policy that would maximize its consideration of potential safety advances and suggestions by inventors while enabling it to carefully screen new ideas to ensure that the public is not burdened with unjustified cost or annoyance, or subjected to hazards. Despite the relative degree of flexibility of Standard No. 108, inventors who have developed new signal lamps or new ways of using existing lamps nevertheless often find that their devices are in conflict with Standard No. 108 and State regulations. In addition, inventors commonly expect that NHTSA ought to require their inventions to be installed on new motor vehicles. At the same time, these requests are often accompanied by only very limited substantiation of the potential safety benefits. Adoption of some requests would not only increase the cost of new motor vehicles, but also in some cases reduce instead of increase safety.

Idea No. 1: Stop Lamps Activated by Rapid Release of the Accelerator Pedal

In a situation on the road when hard braking is required to avoid an accident, it is an intuitively attractive idea to light the stop lamps sooner than in normal braking. However, this is not permitted by Standard No. 108, which requires that stop lamps be activated only upon application of the service brakes (paragraph S5.5.4).

In 1994, Baran Advanced Technology Ltd. petitioned the agency to permit activation of the stop lamps using its Advanced Brake Warning System (ABWS). This system is designed to activate the stop lamps if the accelerator pedal is lifted at a rate greater than 0.3 meter a second, simulating the response of a driver in panic braking. Baran claimed that this lights the stop lamps 0.25 second sooner and could prevent a significant portion of rear end collisions. In support of its petition, Baran presented a study of the stop lamp activations of a small fleet of vehicles equipped with ABWS, operated over a period of several months by drivers unaware of the ABWS equipment. In about one-fourth of the instances in which the ABWS activated the stop lamps, the driver did not touch the brake pedal, creating a ''false alarm'' lasting one second. However, the study also recorded a large number of instances in which there were brake applications that lasted one second or less. Baran concluded that the false alarms would increase, by only a few percentage points, the total number of short stop lamp indications and would not be noticeable as false alarms to the driving public. It argued that the agency should not, therefore, be concerned that the false alarms would dilute the effectiveness of the stop lamps and cause motorists to begin to discount the significance of stop lamp activation.

NHTSA was concerned that ABWS might decrease the public's responsiveness to the message sent by the stop lamps. Today's stop lamps, which are activated only by the service brake system, send an unambiguous message to following drivers that the driver ahead is using the brakes. The precise purpose of the brake application (panic stop, ordinary stop, deceleration, disengagement of cruise control) requires the following driver to be aware of the traffic environment ahead. NHTSA believes that to the extent that the public would come to associate stop lamp activation with movements of the accelerator pedal rather than movements of the brake pedal, a dilution in the meaning of the present signal will occur. The petitioner showed that ordinary short brake applications would vastly outnumber ABWS false alarms and argued that the public would not be sensitive to false alarms. However, it is also possible that if the public were aware of the operation of the ABWS, it would incorrectly attribute many of the short brake applications to ABWS false alarms, creating an inappropriately high level of skepticism of stop lamp signals. Also, the fact that drivers experienced a large number of short inconsequential brake applications makes it less likely that they would use to advantage an earlier warning of only a fraction of a second, given the fact that so few brake applications actually resulted in a rapid deceleration.

A related concern is the potential abuse of ABWS to create intentional false alarms. An increasing level of aggression and lack of courtesy on the part of drivers is now being reported. The safest way to deal with tailgating drivers on multilane highways is to pull over and allow them to pass. However, some drivers choose to return discourtesy by tapping the brake pedal to startle the tailgater. It is possible that the ease of lighting the stop lamps using the ABWS alone would tempt more drivers to contribute to traffic aggression, and that such behavior would dilute the message of stop lamp signals if a tailgating driver suspected that the vehicle ahead was equipped with ABWS.

There is the possibility of some small benefit of ABWS in the following situation. Assuming that two vehicles are moving one behind the other at the same speed and that the lead driver brakes extremely hard and the trailing driver brakes equally hard at the first glimmer of the lead vehicle's stop light, some collisions could be prevented between vehicles with ordinarily insufficient headway provided that the driver of the trailing vehicle brakes 0.25 second sooner than (s)he would in response to current lighting systems. The benefits reported in Baran's analysis under these assumptions were greatest for braking at 1 g under ideal pavement conditions because the assumed 0.25 second advantage does not result in much speed reduction when the pavement is slippery. It is not clear that these assumptions are realistic.

Baran cited studies reporting that over 20 percent of drivers observed on a Michigan urban interstate highway maintained less than 1 second headway and that 4 to 5 percent maintained a headway of less than half a second, supporting its point about the headway assumed to demonstrate the effectiveness of its ABWS. However, NHTSA questions the assumption that the trailing driver would react instinctively by braking extremely hard at the instant (s)he perceived a stop lamp illuminated by ABWS. If that driver knew the vehicle was equipped with ABWS and that false alarms do occur, (s)he might not react instinctively. At that instant, the lead car has not yet begun to brake, and there

is no speed differential between the two vehicles. Until tire squeal or extreme pitching motion of the lead car occurs, a trailing driver has no reason to slam on his or her brakes. The trailing driver in this analysis is a tailgater. It is possible that a tailgater who believes that ABWS false alarms are a regular occurrence will be even less likely to assume that hard braking is the required response upon suddenly seeing a stop light. In short, it is easy to foresee a situation in which the driver of a car being tailgated activates the stop lamps by ABWS several times without braking and then is confronted with an immediate need to brake fast, and the stop signal is initially ignored by the driver of the tailgating car.

However, the typical rear-end crash does not involve a tailgating pair of vehicles with drivers attentive enough to respond to a minutely advanced stop signal. The agency's report *Assessment of IVHS Countermeasures for Collision Avoidance: Rear-End Crashes,* DOT HS 807 995 May 1993, characterizes a rear-end crash as largely a dry/straight road phenomenon associated with driver inattention. In three-fourths of the rear-end crashes studied, the lead vehicle had been stopped, usually for 2 to 6 seconds before it was struck. There was adequate time to provide the following driver a warning with conventional stop lamps and for the following driver to avoid the crash. Of the other one-fourth of rear-end crashes, two-thirds did not involve following too closely. And most of the crashes attributed to following too closely also involved inattention on the part of the following driver.

The assumption that even an attentive driver receives a 0.25 second sooner warning of panic braking of the car ahead may be optimistic. A report by the Technical University of Darmstadt in Germany, titled *Efficiency of Advanced Brake Light Devices,* FO57 May 1994, found that responses by attentive test subjects improved as a result of ABWS by only 0.10 to 0.15 second rather than by 0.25 second. The experiment simulated a convoy of three closely spaced vehicles. The center vehicle operated with and without ABWS. The time between the activation of the stop lamp of the lead vehicle and the braking response of the driver of the third vehicle was measured. With the vehicles stationary, the third driver responded 0.15 second sooner when the second vehicle used ABWS to active its stop lamps. This was approximately the same time taken by the driver of the second vehicle to move his foot from the accelerator to the brake pedal. When the experiment was replicated with the convoy traveling on public roads, the advantage provided by the ABWS diminished to 0.10 second as a result of the demands of the driving task on even an attentive test driver.

The Darmstadt report also includes a study of the effect of a CHMSL on the lead car of the same convoy. Cars in Germany are not yet equipped with center high mounted stop lamps (CHMSLs). Under the same conditions in which the ABWS produced a response 0.10 second earlier by the third driver, the CHMSL produced a 0.45 second earlier response. The CHMSL enabled the driver of the third car to respond to the lead car before seeing the stop lamps of the second car. A similar effect occurred in night tests without the CHMSL because the third driver was able to see reflections of the lead car's stop lamps in the windshield of the second car.

The most compelling argument for benefits is the implication that, if there are a large number of tailgating rear-end accidents, some of them must contain circumstances in which viewing a stop lamp 0.15 to 0.25 second earlier would make a positive difference. Even if following drivers would not be willing to brake at the sight of a lamp (and many may be too inattentive to notice it immediately), it could be argued that the lamp may at least raise the state of expectancy of some following drivers sooner.

In 1994, the agency denied Baran's petition to allow ABWS (59 FR 39522). In the agency's opinion, the perception among drivers that ABWS allowed systematic and intentional false alarms would dilute the unambiguous message of conventional stop lamps. NHTSA concluded that the potential safety benefits of ABWS were not significant enough to outweigh its potential disadvantages. However, the notice of denial stated that NHTSA would consider the results of a fleet test of effectiveness of ABWS being conducted in Israel at that time. The objective of the Israeli study was to determine whether ABWS, already permitted in Israel, should be made mandatory. Germany also permits ABWS.

In 1995, Baran and its United States partner, Allied Signal, Inc., submitted another petition for an amendment to Standard No. 108 to permit the optional use of ABWS. The petition bases its principal argument on NHTSA's statement in the 1994 denial that ''a manufacturer should not be precluded from offering its product, even if safety benefits cannot be demonstrated, unless there are potential safety disbenefits created by the product.'' The petition maintains that the agency's concern that stop lamp signals would become more ambiguous to the driving public is unfounded. Also, it disagrees that ABWS would be abused to create intentionally false braking or stop signals. It also reported that preliminary results from the ongoing Israeli fleet test showed that vehicles equipped with ABWS had been involved in fewer relevant collisions than ordinary vehicles, but that the numbers of comparative accidents were too few to establish statistical significance. The agency has granted that petition.

The disagreement between the agency and Baran rests to a large degree on differences in assumptions of how ABWS would be used and perceived by drivers in the United States. Thus, the agency is particularly interested in comments from the driver's point of view, whether the individual drives for pleasure or is a professional driver of a commercial vehicle. The agency is interested in the views of researchers as well. If commenters know of relevant research data, they should provide the data.

The questions which NHTSA asks commenters to address are:

(1) How likely is it that an ABWS-type system would be abused to create intentionally false braking signals? What is the likely consequence of a false braking signal in a tailgating situation?

(2) To what extent would the knowledge that stop lamps could be activated by rapid accelerator release change drivers' perceptions of the meaning of the stop lamp message?

(3) If the answer to either question 1) or 2) is yes, would there be any changes in driver behavior, and if so, what would these changes likely be?

(4) Should NHTSA propose to amend Standard No. 108 to permit an advance stop lamp warning system such as ABWS at the manufacturer's option or should the agency retain the present requirement that automobile stop lamps may only be activated by the purposeful application of the brake pedal by the driver? Would drivers buy such a system as an option, and if so, why?

(5) Should NHTSA propose to amend Standard No. 108 to require an advance stop lamp warning system such as ABWS on new vehicles or should the agency retain the present requirement that automobile stop lamps may only be activated by the purposeful application of the brake pedal by the driver?

(6) If an advance stop lamp warning system such as ABWS were configured to activate the CHMSL but not the other required stop lamps, would this reduce its potential for abuse to create intentionally false braking signals? How would this modification affect the intended purpose of a system such as

ABWS? How would this modification affect the intended purpose of the CHMSL?

(7) Should NHTSA propose amending Standard No. 108 to (a) permit or (b) require a system such as ABWS which would activate only CHMSLs and not the other stop lamps?

(8) Are there other bases for concluding that a system such as ABWS, either optional or mandatory, would degrade safety? If so, what are those bases?

Idea No. 2: Flashing CHMSLs To Warn of Hard Braking

Many inventors have urged the agency to require CHMSLs to flash as a signal of hard braking. The agency presumes that the inventors hold design patents on specific devices which trigger and regulate a flashing lamp because the general concept of a flashing stop lamp would seem to be too much an obvious idea to be patentable. In addition, the flashing CHMSL is an idea which has been disclosed in public literature for at least 15 years.

In many instances, inventors who petition NHTSA seem to believe that they can create a market for their patented products if they could have them incorporated into the Federal motor vehicle safety standards. This is an unrealistic expectation. A ''Motor vehicle safety standard'' is defined by 49 U.S.C. 30102(a)(9) as ''a minimum standard for motor vehicle performance.'' Motor vehicle safety standards are required to be ''practicable, meet the need for motor vehicle safety, and be stated in objective terms.'' (49 U.S.C. 30111(a)). This means that Standard No. 108 must and does express its requirements in terms of performance rather than design, leaving the individual manufacturer free to choose the means most appropriate to that manufacturer for achieving the stipulated performance. For example, if Standard No. 108 were to require a flashing CHMSL for hard braking, it would specify the color, brightness, flash rate and trigger condition (deceleration rate, ABS activation or other appropriate condition), but the operating principle of the device would be left to the manufacturer and not expressed in Standard No. 108. Manufacturers would be free to devise ways of satisfying a flashing CHMSL standard without infringing on existing patents. No Federal motor vehicle safety standard requires the use of patented designs. Of course, a manufacturer may decide that buying the rights to use a patented device is the most advantageous way of complying with a Federal motor vehicle safety standard.

The agency, has in fact, studied the possibility of flashing CHMSLs, as was reported in the report *Field Test Evaluation of Rear Lighting Deceleration Signals*, DOT HS–806–125 October 1981. Each of 600 taxis in a test fleet was equipped with one of three types of a CHMSL. The fleet traveled a cumulative 40.7 million miles during the study. The steady-burning CHMSL (the type adopted in Standard No. 108) was compared with two types of flashing CHMSLs. One flashed at a rate of 2.5 Hz whenever the brake pedal was depressed. The other flashed at 1.5 Hz, 2.5 Hz, 4 Hz or 7 Hz to relate higher braking rates to faster CHMSL flash rates. The highest flash rate occurred for all braking at greater than 0.3 g. Some of the rear-end accidents experienced by the test fleet did not involve braking by the struck vehicle. The remaining 129 accidents, in which stop lamp usage could be presumed, were placed into three categories: vehicle stopped in traffic, vehicle stopping slowly, and vehicle stopping quickly. Seventy-eight percent of the rear-end accidents involved vehicles stopped in traffic. The other twenty-two percent were divided about equally between the stopping-slowly and stopping-quickly categories.

A CHMSL that flashes to warn of hard braking would be expected to manifest its potential benefit by reducing accidents in which the struck vehicle was stopping quickly. Of the 48 rear end crashes experienced by the test vehicles equipped with ordinary steady-burning CHMSLs, six occurred while the vehicles were stopping quickly. Of the 54 rear-end crashes experienced by the test vehicles equipped with CHMSLs with a flash rate proportional to the deceleration rate, four occurred while the vehicles were stopping quickly. That fewer vehicles with the hard-braking warning were struck while stopping quickly is suggestive of the expected desirable result, but the difference between six and four rear-end accidents was not great enough to be statistically significant. In other words, the apparent reduction from six to four accidents (given the total number of accidents and test vehicles) was not great enough to outweigh the possibility that the reduction was due to chance rather than to the effectiveness of the warning.

The remaining third of the test vehicles were equipped with CHMSLs which flashed at same rate for all brake applications, regardless of deceleration rate. Of the 55 rear-end crashes experienced by the test vehicles equipped with constant-rate flashing CHMSLs, four occurred while the vehicles were stopping quickly. The accident results were the same for vehicles equipped with flashing CHMSLs with or without a distinct signal for hard braking. This suggests that the flashing action rather than the hard-braking warning (i.e., the increasing flash rate) was the source of whatever benefits the enhanced CHMSLs could provide over the performance of the ordinary steady-burning CHMSL. However, this comparison also lacks statistical significance.

Speculation about these comparisons, which lack statistical significance, leads to an inconsistency when one considers the crashes into vehicles stopping slowly. It is a reasonable theory that flashing signals could counteract to some degree the effect of inattention that is an important cause of rear-end crashes. Under that theory, it is logical that fewer rear-end crashes occurred during quick stopping with either of the two flashing-CHMSL fleets than with the steady-burning CHMSL fleet. It is also logical to assume that inattention is the prevalent causal factor for rear-end crashes into vehicles stopping slowly because even partially attentive drivers have an opportunity to avoid such collisions. However, the fewest crashes into vehicles stopping slowly occurred in the fleet having steady-burning CHMSLs. The differences between fleets in crashes into vehicles stopping slowly were also too small to be statistically significant, and thus it is not surprising that the trends in performance of various types of CHMSLs were inconsistent.

While the study provided no evidence that CHMSLs with flashing deceleration signals would be more effective than steady-burning CHMSLs, it did not rule out the possibility of an effectiveness benefit too small for statistical significance within the scope of the study. However, the study did conclude that any possible effectiveness would be limited to a small proportion of rear-end crashes. It cited studies conducted before 1981 to demonstrate that the large proportion of rear-end crashes into stopped vehicles was not limited to studies of taxi fleets, and the much more recent studies cited above support the general finding that about three-fourths of the struck vehicles are stopped. A flashing warning of hard braking also has the possible disadvantage of an inherent time delay for the driver to see enough cycles to decide that the lamp is indeed flashing, if that driver does not brake on the first sight of red.

At the time of this study of possible CHMSL enhancements, the agency had become convinced of the effectiveness of the steady-burning CHMSL through previous studies with unambiguous

results. NHTSA decided that it would not be in the interest of safety to delay a requirement for the basic steady-burning CHMSL while pursuing variants that were proving insignificant. The resulting requirement for CHMSLs permitted only steady burning CHMSLs despite the contemporary study of flashing CHMSLs. The result is that inventors regard the prohibition of flashing CHMSLs as unfair to their ideas.

Neither the research reports nor the CHMSL rulemaking notices discussed the possibility of optional variants to the steady-burning CHMSL that might enhance its message. A favorable cost effectiveness was established for the steady-burning CHMSL, but no additional benefits have been found for flashing as a warning of hard braking that would justify the additional cost of requiring CHMSLs to flash. It is self evident that simplicity and a minimum of ambiguity are essential elements of signaling. Accordingly, NHTSA did not consider it necessary to seek comment on the option of a flashing CHMSL for hard braking when it proposed the requirement for a steady-burning CHMSL. The preamble to the final rule adopting the CHMSL expressed the possibility of future enhancements of brake signaling but in the context of requirements justified by effectiveness rather than as options (48 FR 4823). The CHMSL enhancement study theorized that the basic CHMSL was effective because it was less likely than ordinary stop lamps to be confused with other rear signals. The coexistence of more than one type of CHMSL signal would seem to undermine the clarity gained by the required CHMSL in comparison with conventional stop lamps.

NHTSA studied CHMSLs that flash to indicate deceleration through hard braking as a potential requirement for a CHMSL but was not able to prove added effectiveness over steady-burning CHMSLs. Further, the agency believes that the lack of ambiguity or complexity of the conventional CHMSL is partly responsible for its effectiveness.

With respect to this issue, NHTSA asks that commenters address the following questions:

(1) Should NHTSA (a) permit, or (b) require CHMSLs to flash to indicate deceleration rate?

(2) If flashing CHMSL deceleration signals were allowed but installed on only a few vehicles, would drivers understand their meaning?

(3) Would the coexistence of flashing and steady-burning CHMSLs on the road create ambiguity? If the answer is yes, would the ambiguity be such as to diminish the effectiveness of the present steady-burning CHMSL?

(4) Are there better cues than flashing to signal deceleration, e.g., an increase in lamp size or intensity?

Idea No. 3: Use of Flashing CHMSLs To Identify a Stopped Vehicle

Two general conclusions of the research reports cited above are that most vehicles struck in rear-end crashes are stationary when they are struck and that inattention on the part of the driver of the striking vehicle is the prevailing cause of the crashes. These conclusions suggest that an attention-getting signal denoting a stopped vehicle has the potential to affect the conditions commonly involved in rear-end crashes. The potential value of a stopped vehicle signal was pointed out in the 1981 report, *Field Test Evaluation of Rear Lighting Deceleration Signals* (DOT HS–806–125), and the more recent NHTSA study of rear end crashes appears to support its reasoning.

At least two inventors have approached the agency with the idea that a flashing CHMSL of one or more compartments could also be used as a stopped-vehicle signal. The flashing lamp is intended to gain the attention of approaching drivers better than a steady-burning lamp and to present a signal distinct from the usual stop signal. One inventor suggested several other embellishments to the CHMSL that flashes to indicate a stopped vehicle. These included having the CHMSL automatically flash whenever the vehicle speed is less than 22 mph, regardless of braking; having the CHMSL automatically flash at a higher intensity if the brakes are applied with the vehicle traveling at less than 22 mph; having the CHMSL automatically flash at a still higher intensity coupled with a faster flash rate to denote hard braking; and having the CHMSL maintain the hard-braking signal for a duration of several minutes after a crash.

Once again, the requirement of Standard No. 108 that stop lamp be steady-burning is an impediment to allowing a flashing CHMSL signal for stopped or slow-moving vehicles. Also, the requirement that the CHMSL be activated only upon application of the service brakes prohibits any type of activation without brake use. In its interpretations of Standard No. 108 (e..g., letter to Ferguson, July 30, 1993), the agency has also said that the Standard prohibits a flashing auxiliary lamp, which was not intended to replace the standard CHMSL, because it could draw attention away from the required lamps and confuse their meaning. The inventors have urged the agency to change Standard No. 108 to allow the optional use of their stopped-vehicle signal devices.

The idea of an attention-getting signal for stopped vehicles is attractive because it is aimed at the large percentage of rear-end accidents involving the combined factors of driver inattention and the striking of a stopped vehicle. But it is far from certain that the idea is practical and would actually prevent accidents. The idea seems practical in light traffic on rural roads. A single vehicle with a flashing CHMSL should attract attention and convey to the vehicles behind that it has stopped, if their drivers understand the meaning of the flashing lamp. But picture the situation if most of the vehicles in a traffic jam on an urban interstate highway were equipped with a CHMSL that automatically flashed when they were stopped or moving slowly. At the very least, it would be extremely annoying to be confronted with the flashing lamps of hundreds of vehicles, and it is likely that a concentrated array of vehicles with flashing CHMSLs would make ordinary brake, turn or hazard warning signals much less noticeable.

It is difficult to determine the effectiveness of a device which may have different consequences if used universally by all vehicles on the road rather than in a small test fleet that is dispersed among the general vehicle population. Even a small test fleet study (which may cost about $750,000) is beyond the means of most inventors, and a major undertaking for the agency as well. In the case of the steady burning CHMSL, there were no potential safety disadvantages to its widespread use, but the level of benefits measured in fleet tests compared with follow up studies of accidents involving production vehicles suggest a novelty effect. Fleet tests of the CHMSL before it was required recorded reductions in rear-end accidents of about 50 percent. A follow-up evaluation by the agency after the CHMSL had been required equipment for a few years reported a 17 percent effectiveness for only those crashes that were police-reported, and a study by the Insurance Institute for Highway Safety reported only a 3 to 7 percent effectiveness.

The lower effectiveness can be attributed in part, to a smaller percentage of crashes being reported to police than are reported to researchers during a fleet study. It may also be that drivers have become accustomed to the CHMSL and no longer respond to it as quickly. NHTSA is now measuring its long-term effectiveness. However, the

CHMSL experience suggests that the results of fleet studies are no indication that the long term universal use of a safety device will achieve the same degree of beneficial results.

The following hypothetical example illustrates issues concerning the stopped-vehicle signal. The inventor and the research are imaginary, as are the hypothetical decisions of the agency.

Assume that an inventor makes a large investment in testing a fleet of vehicles with a flashing CHMSL stopped-vehicle signal and finds a reduction in accidents. He expects the agency to permit or possibly require his device. But the fleet study cannot address the issue of widespread use. The agency believes that the experiment demonstrates the potential of the signal, but does not address the annoyance factor and signal masking in urban stop-and-go traffic. The agency decides not to amend Standard No. 108 to permit the stopped-vehicle signal unless the stop-and- go traffic problems are effectively addressed based on its judgment that stop-and-go traffic problems would exist if the device were in widespread use. However, it does not invest public money in an attempt to show by special tests that the widespread use of the device would cause a problem in stop-and-go traffic. The inventor views the result as unjust because he believes that he has supplied supportive facts at great cost and has been thwarted by what he regards as opinion and conjecture on the part of the agency.

Taking the hypothetical example further, assume that the inventor later devises a way of solving the disadvantages of the stopped-vehicle signal in congested traffic, perhaps using rear-facing radar to turn off the signal after the vehicle behind has stopped. However, the improved device is too expensive relative to its probable benefits to justify its adoption as required equipment for new vehicles. The agency would remain interested in the idea in the hope that future technology or other solutions to its disadvantages in congested traffic will eventually lead to a practical and cost effective mandatory stopped-vehicle signal.

Relative to the stopped-vehicle signal, NHTSA requests that commenters address the following questions:

(1) Should NHTSA disregard the potential irritant and distraction of automatically flashing stopped-vehicle CHMSL signals to permit their optional use (a) on the basis of an intuitive expectation of benefits in some circumstances? (b) on the basis of a fleet test demonstration of benefits as discussed in the hypothetical example?

(2) Should the hypothetical improved, but not cost-effective flashing CHMSL signal be permitted as optional equipment? Will drivers understand the meaning of a CHMSL flashing under these circumstances since it is not standard equipment?

(3) In the hypothetical example, based on its judgement of the public interest, the agency declined to change a safety standard that conflicted with an inventor's desire to sell products. Also, the agency declined to perform costly research for the purpose of attempting to confirm its judgment that the device had undesirable side effects. The question is whether NHTSA should base decisions against the wishes of petitioners on its judgement alone when no test data are available. In short, should the agency spend public money on research solely in an attempt to generate data to test a judgment decision about a seemingly clear problem with a petitioner's invention?

Idea No. 4: Front ''Brake'' Lamp Systems

In its least costly form, a front ''brake'' lamp would use the front turn signal filament as a steady burning light to denote braking (but be overriden to indicate a turn, in the same manner as a combined red rear turn signal and stop lamp can indicate braking until the turn signal is activated). Thus, the front braking signal would be a bright amber lamp. The implementation is less simple than it appears because it would require wiring changes to present vehicles to prevent the deactivation of front side marker lamps wired to operate when the turn signals are activated (well nigh universal though not required by Standard No. 108), and to prevent the activation of amber rear turn signals during use of the front turn signal filaments as a steady braking signal.

In a more costly form, presented by some proponents, front ''brake'' lamps would be an additional pair of lamps, mounted at the front corners of the vehicle, and wired to operate with the red rear stop lamps.

Standard No. 108 does not expressly address front ''brake'' lamps. They would not be prohibited unless they interfered with the effectiveness of required front lighting equipment (paragraph S5.1.3). Unlike the other devices discussed, front ''brake'' lamps could be offered as optional equipment on new vehicles without further rulemaking. While the proponents of the other ideas are currently seeking amendments to permit optional use of their devices, the proponents of front ''brake'' lamps insist that they lamps be mandatory on new vehicles. Such a request in the form of a petition for rulemaking was recently denied (61 FR 10556).

The argument in favor of front ''brake'' lamps is that, by identifying the braking actions of a driver (driver A) to the drivers in front of him, oncoming drivers can better determine when driver A is yielding the right of way to them and the driver immediately ahead and going the same direction as driver A can better determine when driver A is failing to stop when necessary. According to the proponents, in the latter case, a driver stopped in traffic, seeing in the rear view mirror an approaching vehicle without a front braking signal, would be expected to sound the horn and vacate the lane.

The agency does not anticipate any benefit from the front ''brake'' lamp. Until every car in use is equipped with a front braking signal, a stopped driver seeing in the rear view mirror an approaching vehicle without the signal would not know with certainty what its absence meant and whether a collision was imminent. Even after full implementation, the agency does not expect any benefits. NHTSA believes that, while it could be wise in some circumstances for a stopped driver to sound the horn upon seeing a vehicle approaching from the rear without illuminated front ''brake'' lamps, taking evasive action is likely to lead to the higher risk of a side or head-on collision with another driver who has the right-of-way.

The agency also believes that the signal's activation would cause a dangerous disregard for State right-of-way laws at intersections by oncoming drivers who misinterpret the front stop signal on vehicles that have the right-of-way. Proponents of front ''brake'' lamps claim that their use will ''confirm'' the validity of a flashing turn signal, and thus allow drivers to determine at a distance whether a vehicle is surrendering the right-of-way. However, the use of signals does not cause a vehicle with the right-of-way to surrender it. The signaling driver is free to change his or her intentions, or the signal may be accidental. Consider the following scenario. A driver at a stop sign sees an approaching vehicle with the right-of-way displaying a turn signal and a front ''brake'' signal. The driver concludes that the front ''brake'' signal confirms the intent to turn, and pulls into the intersection. The operator of the other car, however, does not turn and a collision results. Perhaps the operator was slowing to check the name of the

street sign, with the intention of turning at a different street, or perhaps the turn signal was accidental and the braking unrelated. The likely result of widespread use of front braking lamps is not an enhancement of safety but an increase in traffic accidents due to a greater number of failures to yield the right of way. The only vehicles with a possible use for braking information about approaching vehicles are emergency vehicles which are allowed the right-of-way over all other vehicles on emergency runs.

NHTSA asks commenters to address the following questions about front ''brake'' lamp systems:

(1) Should NHTSA expressly prohibit front ''brake'' lamp systems?

(2) Should NHTSA take no action on the presumption that the public would not choose to have front ''brake'' lamps, even if they were offered?

NHTSA Policy Considerations About Vehicle Signal Lamps Suggested by the Public

Inventors who ask NHTSA to mandate their signal lamps as new vehicle equipment are often disappointed to learn that their idea is, in fact, not even allowed even as optional equipment because of restrictions in Standard No. 108 that either explicitly or implicitly prohibit them. Many of these ideas appear to be new but have been discussed for years, yet they have not been adopted because they are not permissible under Standard No. 108. The agency is willing to remove unintended impediments to the use of optional signal lamps if these are called to its attention, but it believes that the restrictions are necessary for motor vehicle safety. It is important that the integrity of the required signal lamps be maintained, and that auxiliary signal lamps not detract attention from the messages that the required signal lamps are sending. A vehicle signaling system must be as simple and as unambiguous as possible to others who share the roadway if traffic is to proceed in a safe and orderly fashion. As noted earlier, in many other countries, all auxiliary exterior lamps are expressly forbidden unless there is a specific regulation allowing it.

Reasonable people may differ with NHTSA's views on the importance of a standardized signaling system, and the agency's conclusion that their auxiliary signal lamp design impairs the effectiveness of lighting equipment required by Standard No. 108, not understanding why the effectiveness of the required lamps should be favored over their inventions.

Virtually all ideas suggested to NHTSA as safety improvements in vehicle signaling are based upon the intuition of the inventor, without any field data to support such intuition. NHTSA's prohibitive conclusions may seem intuitive as well, but the agency's decisions are based upon the criticality of maintaining standardization of vehicle signaling systems, and it does not conduct research solely for the purpose of verifying its intuition.

The value of standardization of signals is largely treated as axiomatic in vehicle safety literature. The agency's survey of literature, *Analytic Assessment of Motor Vehicle Rear Signaling Systems* (1969), contains a typical discussion:

> To be maximally distinctive, by definition, the pattern must be unique; if maximum accuracy and speed of interpretation are to be obtained, the pattern must be unambiguously informative. A variety of patterns, even if some or all are more or less distinctive, cannot be as effective as a single *standard* pattern. (p. 78)

Inventors must accept the fact that, when it is a question of the effect on required signals by auxiliary signals, NHTSA, the arbiter of the nation's traffic safety, is the proper party to make this judgment. It must be recognized also that this judgment is difficult to make, and must be made conservatively. The influence of many signaling ideas on driving behavior and crash causation is sufficiently subtle and the role of signaling systems in crash prevention and causation is sufficiently intertwined with that of other vehicle, driver and environmental factors that it is difficult to isolate and assess the effects of those ideas. Even if there were large sums of money available to the agency for conducting demonstration projects, the merits of one system versus another at full implementation would usually be hard to establish. Given the safety need to minimize the ambiguity in communication between drivers and the difficulty in establishing the ultimate net affect of changes in the signaling systems, the agency must be very cautious in permitting any changes.

Another aspect of the agency's exercise of its rulemaking authority is that EO 12866 requires that benefits exceed costs if that is not inconsistent with the statute under which a regulation is issued. As noted above, it is difficult to demonstrate the effectiveness of signaling devices intended to avoid collisions. NHTSA has used large scale fleet tests, at great expense, to demonstrate the effectiveness of such items as the CHMSL and conspicuity treatment which have become requirements of Standard No. 108. However, even fleet tests cannot answer questions about the consequences of the use of a device on all vehicles rather than on just a few. Even an inventor with a large test budget may have to defer to the judgment of NHTSA on an issue which may be unprovable.

Assuming that a suggested safety improvement is deemed cost effective and the agency wished to issue a rule adopting it as a requirement, 49 U.S.C. 30102(a)(9) dictates that the rule be expressed in terms of performance rather than design. Further, as a matter of policy, the agency is careful in its establishment of Federal Motor Vehicle Safety Standards not to adopt requirements for which compliance is dependent upon a patent that is not freely made available to all interested parties. These factors make it very unlikely that a patent holder would benefit if the agency were to issue a rule based generally upon an idea that the holder has suggested to the agency. Inventors who petition NHTSA in the expectation that the agency will issue rules creating a monopolistic market for their patents or devices, should be aware of probable outcome of their petitions before approaching the agency. In short, the rarity of cost-effective practical signal lighting ideas, the formidable task of proving their effectiveness, the existence of issues requiring NHTSA judgment, and the non-design nature of Standard No. 108 make it unlikely that an inventor will ever profit from a signal lamp suggestion.

Other issues are raised by petitions for rulemaking to amend Standard No. 108 to permit specific auxiliary signaling systems at the option of the vehicle manufacturer. One issue, as discussed above, is whether a signal without universal application will be meaningful to the motoring public or simply a source of confusion. NHTSA is also reluctant to allow an optional system to operate through an existing required lamp, (e.g., allowing a CHMSL to flash) because in the future the agency may wish to use the mode of operation of the optional system (e.g., flashing) for a cost-effective mandatory signal and find that public experience and familiarity with the existing use of that mode has the practical effect of precluding the use or at least making it more difficult to use that mode for another purpose. Above all, there is the importance that the agency ascribes to minimizing ambiguity through standardization, and the diminution of standardization that may result from the introduction of optional signaling systems.

The agency notes that it is not necessary for an inventor or manufacturer to seek an amendment of Standard No. 108 in order to perform a fleet test of a new signaling system. If a vehicle manufacturer wishes to produce a test fleet of vehicles incorporating lighting systems that may be prohibited by Standard No. 108, under 49 U.S.C. 30113(b)(3)(B)(ii) it may petition for a temporary exemption from compliance with Standard No. 108 on the basis that ''the exemption would make easier the development or field evaluation of a new motor vehicle safety feature providing a safety level at least equal to the safety level of the standard.'' Alternatively, if a fleet owner wishes to install the equipment on a fleet of vehicles in service, the owner may accomplish this modification in its own garage without violating Federal law. The prohibition of 49 U.S.C. 30122 against making inoperative safety equipment installed in compliance with a Federal motor vehicle safety standard applies to manufacturers, distributors, dealers, and motor vehicle repair businesses, but not to persons who modify their own vehicles in self-owned repair facilities.

The agency wishes to continue to receive suggestions for safety improvements from any source, even though few are likely to result in the incorporation of new requirements in Standard No. 108. However, petitioners should not have unrealistic expectations. They should understand that a petition for rulemaking does not obligate the agency to perform research on the effectiveness of the idea suggested. The agency's research plans flow from an internal process of defining priorities, formulating research plans, seeking appropriations, allocating available funds among the priorities and awarding research contracts. The effect of NHTSA's receipt of a petition for rulemaking is to cause the agency to begin evaluating the probability of the suggestion becoming a new requirement in a safety standard. This evaluation is based on information provided by the petitioner and other information the agency may have or obtain. Since few petitioners offer little more than speculation or testimonials about the effectiveness of their ideas, their petitions are unlikely to alter the agency's research priorities. Thus, the petitions are usually denied unless they relate to an existing agency research project.

Petitioners should also understand that the agency is statutorily required to publish a notice when it denies a petition. In that notice, the agency must explain the reasons for the denial, which may require a discussion on the possible disadvantages of the system for which rulemaking had been sought.

The agency believes that, in the long run, it would be more productive, both for inventors and the agency, if suggestions were presented to NHTSA's Office of Research and Development as candidates for future agency research. If the suggestions have merit, they can influence agency priorities and be included in research with the possibility of rulemaking at the conclusion of the research project. A petitioner who instead submits a petition is, more likely than not, likely to be frustrated in its dealings with NHTSA. It is the agency's hope that by explaining in this notice the factors that go into its decisions on lighting safety ideas, the public will have a clearer understanding of those factors and be guided thereby.

In summary, a petitioner seeking to persuade the agency to mandate a lighting invention for new vehicles bears the initial burden of establishing its safety value and cost effectiveness. The burden for those inventors seeking to make an invention optional is to convince the agency that the invention will not impair the effectiveness of required lighting equipment through creating ambiguity or negatively affecting standardization of signals.

The questions relating to these topics for which NHTSA seeks answers from the public are:

(1) (a) Should NHTSA permit all auxiliary signals, regardless of their nature, their effect on required signals (other than physical interference), or their effect on signal standardization?

(b) Should the agency permit the required signals only? Should the agency continue to prohibit auxiliary signals which, in its judgment, diminish the value of required, standard signals?

(2) If an auxiliary signal can be demonstrated to have some effectiveness, but not enough to support requiring it, should the agency attempt to balance this limited benefit against the desirability of standardized signals in determining whether to allow the auxiliary signal as optional equipment?

(3) Should NHTSA establish a policy to treat all new signal petitions as suggestions for future agency research if they do not present scientific evidence of effectiveness?

Rulemaking Analyses and Notices

Executive Order 12866 and DOT Regulatory Policies and Procedures

This rulemaking document was not reviewed under E.O. 12866, ''Regulatory Planning and Review.'' NHTSA has analyzed the impact of this rulemaking action and determined that it is not ''significant'' under the Department of Transportation's regulatory policies and procedures. NHTSA does not anticipate that new requirements would be imposed on manufacturers as a result of this request for comments. The main topic of the document is whether the agency should permit four types of signal lamps which, except for front signal lamps, have been suggested as optional rather than mandatory equipment.

Procedures for Filing Comments

Interested persons are invited to submit written comments, and answers to the questions posed above. Please submit comments in 10 copies to reduce duplicating costs to the government .

Comments must not exceed 15 pages in length (49 CFR 553.21). This limitation is intended to encourage commenters to detail their primary arguments in concise fashion. Necessary attachments, however, may be appended to those comments without regard to the 15-page limit.

If a commenter wishes to submit certain information under a claim of confidentiality, three copies of the complete submission including the purportedly confidential business information should be submitted to the Chief Counsel, NHTSA at the street address shown above, and seven copies from which the purportedly confidential information has been expunged should be submitted to the Docket Section. A request for confidentiality should be accompanied by a cover letter setting forth the information specified in 49 CFR 512, the agency's confidential business information regulation.

All comments received on or before the close of business on the comment closing date indicated above for the notice will be considered, and will be available to the public for examination in the docket at the above address both before and after the closing date. To the extent possible, comments received after the closing date will be considered by the agency in its decisions as to the issues raised in this notice. Comments on the notice will be available for public inspection in the docket. NHTSA will continue to file relevant information in the docket after the closing date, and it is recommended that interested persons continue to monitor the docket for new material.

Those persons desiring to be notified upon receipt of their comments in the rules docket should enclose a self-addressed stamped postcard in the envelope with their comments. Upon receiving the comments the docket

supervisor will return the postcard by mail.

Authority: 49 U.S.C. 322, 30111, 30115, 30117, and 30166; delegation of authority at 49 CFR 1.50 and 501.8.

Issued on: December 10, 1996.

L. Robert Shelton,

Associate Administrator for Safety Performance Standards.

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