DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA-2017-0021; Notice 2]

Gillig, LLC, Denial of Petition for Decision of Inconsequential Noncompliance

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

ACTION: Denial of petition.

SUMMARY: Gillig LLC (Gillig) has determined that certain model year (MY) 1997-2016 Gillig Low Floor buses do not fully comply with Federal Motor Vehicle Safety Standard (FMVSS) No. 108, *Lamps, Reflective Devices, and Associated Equipment*. Gillig filed a noncompliance report dated February 24, 2017. Gillig also petitioned NHTSA on March 24, 2017, and supplemented its petition on May 10, 2017, for a decision that the subject noncompliance is inconsequential as it relates to motor vehicle safety.

FOR FURTHER INFORMATION CONTACT:

Leroy Angeles, Office of Vehicle Safety Compliance, NHTSA, telephone (202) 366-5304, facsimile (202) 366-3081.

SUPPLEMENTARY INFORMATION:

I. Overview:

Gillig LLC (Gillig) has determined that certain model year (MY) 1997-2016 Gillig Low Floor buses do not fully comply with paragraph S7.1.1.13.1 of FMVSS No. 108, *Lamps, Reflective Devices, and Associated Equipment* (49 CFR 571.108). Gillig filed a noncompliance report dated February 24, 2017, pursuant to 49 CFR part 573, *Defect and Noncompliance Responsibility and Reports.* As stated in the noncompliance report, turn signal lights that do not meet the requirements of the standard may not be sufficiently visible to other drivers or pedestrians, potentially increasing the risk of a crash. Gillig also petitioned NHTSA on March 24, 2017, and supplemented its petition on May 10, 2017, for an exemption from the notification and remedy requirements of 49 U.S.C. Chapter 301 on the basis that this noncompliance is inconsequential as it relates to motor vehicle safety, pursuant to 49 U.S.C. 30118(d) and 30120(h) and 49 CFR part 556.

Notice of receipt of the petition was published with a 30-day public comment period, on October 4, 2017, in the **Federal Register** (82 FR 46346). No comments were received.

II. Buses Involved:

Approximately 17,138 MY 1997-2016 Gillig Low Floor buses, manufactured between December 31, 1997, and February 3, 2017, are potentially involved.

III. Noncompliance:

Gillig stated that it installed six different generations of turn signal assemblies in the subject buses; however, after receiving two complaints that their Generation 7 turn signal assemblies were not sufficiently visible, Gillig and the turn signal manufacturer went back and tested the previous generations to see if they met the requirements of FMVSS No. 108. Test results for generations 1 through 6 of the turn signal assemblies showed that they do not meet all the minimum photometry requirements of paragraph S7.1.1.13.1 of FMVSS No. 108.

IV. Rule Text:

Paragraph S7.1.1.13.1 of FMVSS No. 108 includes the requirements relevant to this petition:

- When tested according to the procedure of S14.2.1, each front turn signal lamp must be designed to conform to the base photometry requirements plus any applicable multipliers as shown in Tables VI-a and VI-b for the number of lamp compartments or individual lamps and the type of vehicle it is installed on.

V. Summary of Gillig's Petition:

Gillig described the subject noncompliance and stated its belief that the noncompliance is inconsequential as it relates to motor vehicle safety.

In support of its petition, Gillig submitted the following arguments:

1. **Analysis:** For front turn signals, the FMVSS No. 108 photometry requirements provide that "when tested according to the procedure of S14.2.1, each front turn signal lamp must be designed to conform to the base photometry requirements plus any applicable multipliers[1] for the number of lamp compartments or individual lamps and the type of vehicle it is installed on." *See* FMVSS No. 108, S7.1.1.13.1.

A front turn signal lamp meets the photometry requirements of FMVSS No. 108 if it: (1) meets the minimum photometric intensity (PI) requirement in each of the five test groups, (2) none of the values for the individual test points are less than 60% of its own minimum PI value, and (3) the minimum PI value between test points is not less than the lower specified minimum value of the two closest adjacent test points on a horizontal or vertical line. Stated another way, an individual test point may be up to 40% below its minimum PI value as long as the group in which it is contained achieves the overall group minimum PI value. Based on this approach, even if the turn signal did not meet the minimum photometry requirements at multiple individual test points, the assembly complies with the

[1] All of the designs of the turn signal assemblies employ a reflector. Since the spacing from the geometric centroid of the turn signal to the lighted edge of the lower beam of the headlamp is greater than 100 mm, a multiplier is not applicable. (FMVSS No. 108, S7.1.1.10.3, S7.1.1.10.4(a)).

standard as long as the overall light intensity of all the test points included within the group does not fall below the required minimum value of the group. (*See* 61 FR 1663; January 23, 1996) ("The photometric requirements for turn signal lamps may be met at zones or groups of test points, instead of at individual test points.")

Gillig, in concert with Hamsar Diversco (Hamsar), its lighting supplier, conducted a series of compliance testing for Generations 1 to 6. In order to accurately execute the tests, Hamsar used CAD drawings of the Gillig Low Floor bus to construct an aluminum test stand fixture. The test stand precisely matched the orientation and angle at which the turn signal would have been installed on a Gillig Low Floor bus. Hamsar then conducted a series of tests measuring the PI output using samples of each of the available generations of turn signals. A summary of test data shows:

a) For Generations 1 and 2 (the oldest generations), the assemblies meet the minimum photometric intensity (PI) requirements for 3 of 5 test groups and allowable 60% of minimum PI at 13 of 19 individual test points. The turn signal's overall PI output of 1271 candelas is approximately 25% below the combined minimum requirements for all 5 groups (1710 candelas).

b) For turn signals in Generation 3, the assemblies meet the minimum PI requirements for 3 of 5 test groups and allowable 60% of minimum PI at 13 of 19 individual test points. However, the overall PI output for Generation 3 turn signals of 2506 candelas is 47% greater than the combined minimum requirements for all 5 groups (1710 candelas).[2]

c) For turn signals in Generation 4, the assemblies meet the minimum PI requirements for 3 of 5 test groups and allowable 60% of minimum PI at 15 of 19 individual test points. However, the overall PI output for Generation 4 turn signals of 2120 candelas is 24% greater than the combined minimum requirements for all 5 groups (1710 candelas).

d) For turn signals in Generation 5, the assemblies meet the minimum PI requirements for 2 of 5 test groups and allowable 60% of minimum PI at 8 of 19 individual test points. However, the overall PI output for Generation 5 turn signals of 1403 candelas is only 18% below the combined minimum requirements for all 5 groups (1710 candelas).

[2] In addition, the integrated side markers for Generation 3 turn signals were tested and meet all photometric requirements.

e) For turn signal assemblies in Generation 6, the assemblies also meet the minimum photometric intensity for 3 of 5 test groups and allowable 60% of minimum photometric intensity at 12 of 19 individual test points. The overall photometric intensity output for Generation 6 turn signals of 4201 candelas is 146% greater than the combined minimum requirements for all 5 groups (1710 candelas).

Gillig states that for the test groups in each generation that meet the PI requirements, the values for those groups well exceed the minimum values for the group. The PI output for groups exceeding the minimum values in Generations 1 and 2 achieve 119%-242% of minimum values. The PI output for Generation 3 turn signals achieve 105%-575% of minimum values. The PI output for Generation 4 turn signals achieve 109%-386% of minimum values. The PI output for Generation 5 turn signals achieve 224%-267% of minimum values. Finally, the PI output for Generation 6 turn signals achieve 114%-1022% of minimum values.

Gillig further contends that the turn signals are sufficiently bright and visible overall and there is little if any perceptible difference in light output when compared with a compliant turn signal. The comparisons also illustrate how visually similar the performance of the

earlier generations of the assemblies are to the FMVSS No. 108 standard, and why their noncompliance garnered no attention, by Gillig or its customers, in over twenty years of production.

2. **NHTSA has Previously Granted Petitions Where Lighting Equipment Did Not Meet the Photometry Requirements:** Gillig contends that from its inception, the Safety Act has included a provision recognizing that some noncompliances pose little or no safety risk. In applying this recognition to particular fact situations, Gillig asserts that the agency considers whether the noncompliance gives rise to "a significantly greater risk than...in a compliant vehicle." See 69 FR 19897-19900 (April 14, 2000).

Relying on this same principle, Gillig contends that despite the technical noncompliance with the PI requirements, the light output in Generation 1-6 turn signals is sufficiently bright and does not create a greater risk than turn signal assemblies that fully meet the photometric parameters. Gillig states that NHTSA has considered deviations from these photometric parameters on numerous occasions, frequently finding that there is no need for a recall remedy campaign when there are other factors contributing to the overall brightness of the equipment.

For example, the agency granted a petition by General Motors[3] where its turn signals met the photometry requirements in 3 of 4 test groups and produced, on average, 90% of the required PI output. For the three complying groups of turn signals, the assemblies exceeded the light intensity requirements by at least 20%.

Gillig further states that the agency granted similar petitions for inconsequential noncompliance where the product did not meet the photometric intensity requirements.[4]

Here, Gillig asserts that because the PI output of the compliant test groups within Generations 3, 4 and 6 exceeds the candela requirements by a substantial margin, a range of 24% - 146% above, the additional candela offsets the overall performance of the turn signals.[5]

Gillig observes that in some instances, involving reduced photometric output, NHTSA has denied the petition on the basis that the condition created a measurable impact on the driver's ability to see objects on or above the road.[6] In contrast, according to Gillig, the only indication of such an impact involves the Generation 7 assemblies for which Gillig is in the process of conducting a recall

[3] 61 FR 1663-1664 (January 22, 1996)
[4] 78 FR 46000 (July 30, 2013); 55 FR 37602 (September 12, 1990); 61 FR 1663 (January 22, 1996)
[5] 63 FR 70179 (December 18, 1998); 61 FR 1663-1664 (January 22, 1996
[6] 66 FR 38340 (July 23, 2001)

remedy campaign. Gillig states that there is no indication that the deviation in performance for Generations 1-6 has led to any difficulty in seeing and responding to the turn signals, and as supported by the field history, the turn signal assemblies have operated successfully for years and in some cases decades.

Gillig states that the agency has long considered changes in light output in the range presented here as being visually imperceptible to vehicle occupants or other drivers.[7] Gillig also states that the agency has noted that turn signals, unlike headlamps, do not affect road illumination so that a reduced amount of light output would not, by itself, create an increased risk to the public.[8]

Finally, according to Gillig, the environment in which the Gillig turn signals are used diminishes any potential risk to safety. Gillig explains that because the buses in which the subject turn signals are installed are predominantly public transit buses, they are managed by fleet operators and undergo regular maintenance and reviews by skilled technicians.[9] Part of that process includes a pre-trip inspection. That protocol requires a review of the

[7] 59 FR 65428 (December 19, 1994)
[8] 66 FR 38341 (July 23, 2001)
[9] According to Gillig, the typical life cycle for a public transit bus is either 12 years or 500,000 miles, meaning that the majority of the vehicles with Generation 1-6 turn signals may no longer be in service. However, arguments that only a small number of vehicles or items of motor vehicle equipment are affected by a noncompliance do not justify granting an inconsequentiality petition.

bus's operating systems, including a review of the turn signals. Consequently, according to Gillig, if the photometric intensity of the Generations 1-6 lights were inadequate, trained professional service personnel and drivers would have identified this over the years, and in some cases, decades of pre-trip inspections.[10] Gillig states it has never received a complaint, notice or report related to visibility concerns with the Generation 1-6 turn signals, underscoring the overall visibility of the turn signals.

Gillig concludes by stating that the subject noncompliance is inconsequential as it relates to motor vehicle safety, and that its petition to be exempted from providing notification of the noncompliance, as required by 49 U.S.C. 30118, and a remedy for the noncompliance, as required by 49 U.S.C. 30120, should be granted.

3. **Supplemental Petition:** In April 2017, and as part of its ongoing quality review process, Gillig contracted with an independent lighting certification laboratory (Calcoast-ITL) to conduct a series of additional compliance tests for the turn signals included in Generations 1-6. In order to accurately execute the testing, CAD drawings of the front of the Gillig Low Floor bus were used to construct an

[10] 64 FR 44575 (August 16, 1999)

aluminum test stand fixture. The test stand precisely matched the orientation and angles at which the right and left front turn signals would have been installed on the bus. The laboratory then conducted a series of tests measuring the PI output using samples of each of the available generations of turn signals. The testing was certified to have been conducted in accordance with the FMVSS 108 Test Procedure (TP-108-13). A summary of the test data provides:

a) For Generations 1 and 2 (the oldest generations), the assemblies meet the minimum photometric intensity (PI) requirements for 3 of 5 test groups and allowable 60% of minimum PI at 13 of 19 individual test points. The turn signal’s overall PI output of 1364 candelas is approximately 20% below the combined minimum requirements for all 5 groups (1710 candelas).

b) For turn signals in Generation 3, the assemblies meet the minimum PI requirements for 3 of 5 test groups and allowable 60% of minimum PI at 15 of 19 individual test points. However, the overall PI output for Generation 3 turn signals of 2387 candelas is 40%

greater than the combined minimum requirements for all 5 groups (1710 candelas).[11]

c) For turn signals in Generation 4, the assemblies meet the minimum PI requirements for 4 of 5 test groups and allowable 60% of minimum PI at 15 of 19 individual test points. However, the overall PI output for Generation 4 turn signals of 3307 candelas is 93% greater than the combined minimum requirements for all 5 groups (1710 candelas).

d) For turn signals in Generation 5, the assemblies meet the minimum PI requirements for 2 of 5 test groups and allowable 60% of minimum PI at 12 of 19 individual test points. However, the overall PI output for Generation 5 turn signals of 2385 candelas is only 39% below the combined minimum requirements for all 5 groups (1710 candelas).

e) For turn signal assemblies in Generation 6, the assemblies also meet the minimum photometric intensity for 4 of 5 test groups and allowable 60% of minimum photometric intensity at 17 of 19 individual test points. The overall photometric intensity output for Generation 6 turn signals of 5655 candelas is 231%

[11] In addition, the integrated side markers for Generation 3 turn signals were tested and meet all photometric requirements.

greater than the combined minimum requirements for all 5 groups (1710 candelas).

Thus, the new PI output for groups that exceed the minimum values are:

- Generations 1 and 2 achieve 122% - 267% of minimum values.
- Generation 3 achieves 192% - 428% of minimum values.
- Generation 4 achieves 125% - 598% of minimum values.
- Generation 5 achieves 367% - 445% of minimum values.
- Generation 6 achieves 143% - 1185% of minimum values.

As a result, according to Gillig, the groups that exceed the minimum values in each lamp compensate for the groups that are below the minimums to the extent that the overall PI outputs of the most recent four generation of lights (Generations 3-6) significantly exceed the overall PI output required for a front turn signal lamp (1710 candelas).

As part of Gillig's supplemental petition, it included a video which shows a side-by-side comparison of Generation 1-6 turn signal assemblies with a newer generation of turn signal that exceeds all FMVSS No. 108 minimum requirements for photometry. Gillig says that the comparisons were performed with the lights in their various generations installed on the same bus as it was driven through a turning maneuver (filmed indoors

to control ambient lighting throughout the comparisons). Gillig believes that it is evident from the multiple angles in the video that the lights from Generation 1-6 are so bright and large that they are virtually indistinguishable from the newer version.

Gillig's complete petition and all supporting documents are available by logging onto the Federal Docket Management System (FDMS) website at: https://www.regulations.gov and following the online search instructions to locate the docket number listed in the heading of this notice.

VI. NHTSA Analysis:

As part of Gillig's petition, Gillig submitted third-party compliance test reports which indicated that the turn signal lamps failed to meet the turn signal lamp photometry requirements in Table VI of FMVSS No. 108 as outlined below:

- Generation 1 and 2 turn signal lamps -
  - Two out of the five groups failed to meet the group minimum photometric intensity.
  - Six out of the nineteen test points fell below 60% of the minimum requirement (the values ranged from 32% to 49% of the minimum requirement).
- Generation 3 turn signal lamps -
  - Two out of the five groups failed to meet the group minimum photometric intensity.

    - Four out of the nineteen test points fell below 60% of the minimum requirement (the values ranged from 40% to 53% of the minimum requirement).
- Generation 4 turn signal lamps -
    - Two out of the five groups failed to meet the group minimum photometric intensity.
    - Four out of the nineteen test points fell below 60% of the minimum requirement (the values ranged from 41% to 50% of the minimum requirement).
- Generation 5 turn signal lamps -
    - Three out of the five groups failed to meet the group minimum photometric intensity.
    - Seven out of the nineteen test points fell below 60% of the minimum requirement (the values ranged from 14% to 55% of the minimum requirement).
- Generation 6 turn signal lamps -
    - Two out of the five groups failed to meet the minimum photometric intensity.
    - Two out of the nineteen test points fell below 60% of the minimum requirement (the values ranged from 30% to 50% of the minimum requirement).

The above summary indicates that the turn signal lamps in these vehicles are noncompliant.

According to Gillig, the assemblies were certified as compliant using an axis of reference that did not correspond to the actual orientation of the lighting as installed on the bus. Gillig's petition concerns the ability of the lamps to meet FMVSS No. 108 for certain test points when tested at their final installation angle.

NHTSA does not find Gillig's arguments persuasive that the noncompliant light output from the installed lamps is inconsequential to safety, as explained below:

Consistent with what was previously stated in 63 FR 1663 (January 23, 1996), NHTSA herein reiterates that the photometric requirements for turn signal lamps may be met at zones or groups of test points, instead of at individual test points as long as each individual test point is at least 60% of the minimum requirement. However, Gillig attempted to justify the noncompliance by pointing to the sum of all group minimums. Overall photometric intensity output, as described in Gillig's petition, is not defined by FMVSS No. 108 as the cumulative value of group minimums. Rather, FMVSS No. 108 per Table VI-a footnote 1 permits a test point in a group to be less than the minimum required value, if and only if it is also not less than 60% of the minimum and the group minimum can be still met when adjacent test points within the group make up the difference. A group failing to meet the group minimum requirements is a

noncompliance. In addition, it should also be noted that if a test point in a group has a value that is less than 60% of the minimum required value, then it is also non-compliant. The lamps as installed in Gillig's buses do not meet minimums and therefore will provide insufficient output to signal appropriately to motorists and pedestrians. The need for safety for this requirement is to have a vehicle's turn signal be clearly visible at all zones/groups.

Furthermore, based on NHTSA's review of the submitted test reports, it appears that the turn signal lamps subject to the petition were not tested for visibility in their installed position. Having insufficient visibility would create a potentially unsafe condition if other motorists or pedestrians could not see the turn signal as intended by the standard.

NHTSA reviewed Gillig's referenced inconsequential non-compliance petitions used to support its petition and found them to be unpersuasive. 61 FR 1663-1664 (January 22, 1996) showed failed photometric values of 10% below the minimum and 78 FR 46000 (July 30, 2013) showed photometric values of 4% below the lower limit, both of which are supported by 55 FR 37602 (September 12, 1990) and "Driver Perception of Just Noticeable Differences of Automotive Signal Lamp Intensities" (DOT HS 808 209, September 1994) where a reduction of 25% of luminous intensity is required before the human eye can detect the

difference between two lamps. 55 FR 37602 (September 12, 1990) and "Driver Perception of Just Noticeable Differences of Automotive Signal Lamp Intensities" (DOT HS 808 209, September 1994) does not apply to Gillig's petition since each generation contained a failing group ranging from 41% to 77% below the required group minimum. 63 FR 70179 (December 18, 1998) is unpersuasive as this pertains to stop lamps which have different activation requirements than turn signal lamps and more than one light source will always be illuminated, as opposed to turn signal lamps. 66 FR 38341 (July 23, 2001) is irrelevant because the term "less critical" does not necessarily mean it does not impact safety. 64 FR 44575 (August 16, 1999) is irrelevant because replacement of a turn signal bulb will restore optimal performance to the turn signal assembly and a more rigorous maintenance schedule is intended to compensate for an improper turn signal bulb outage indicator.

VII. NHTSA's Decision:

In consideration of the foregoing, NHTSA finds that Gillig has not met its burden of persuasion that the FMVSS No. 108 noncompliance is inconsequential as it relates to motor vehicle safety. Accordingly, Gillig's petition is hereby denied and Gillig is obligated to provide notification of, and a remedy for, that noncompliance under 49 U.S.C. 30118 through 30120.

Authority: (49 U.S.C. 30118, 30120: delegations of authority at 49 CFR 1.95 and 501.8)

Jeffrey Mark Giuseppe,

Associate Administrator for Enforcement.

Billing Code 4910-59-P

[FR Doc. 2019-01920 Filed: 2/11/2019 8:45 am; Publication Date: 2/12/2019]