SUBARU

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October 23, 2019
Ref. No.: GR19-035

Mr. James Owens
Acting Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue, S.E., Room W40-308
Washington, DC 20590

Part 556 – Subaru Petition for Inconsequential Noncompliance with FMVSS No. 108, "Lamps, reflective devices, and associated equipment"

Dear Mr. Owens,

Pursuant to 49 U.S.C. 30118(d) and 30120(h) and the provisions at 49 CFR Part 556, North American Subaru, Inc ("NASI") on behalf of SUBARU CORPORATION and Subaru of America, petitions for an exemption from the notification and remedy requirements of 49 U.S.C. Chapter 301 on the basis that the noncompliance identified in the Part 573 information report discussed below is inconsequential to motor vehicle safety.

Noncompliance Information Report

On October 10, 2019, NASI filed a Part 573 report informing NHTSA that it has determined that certain Subaru vehicles may not fully meet requirements set forth in FMVSS No. 108, Lamps, reflective devices, and associated equipment. A copy of the Part 573 report is attached.

Affected Vehicles

As discussed in NASI's Part 573 letter, the noncompliance relates to the following vehicles:

- 63,697 2016-2020 MY Subaru Impreza 4-door vehicles, produced between October 18, 2016 and August 7, 2019
- 124,703 2016-2020 MY Subaru Impreza station wagon vehicles, produced between September 23, 2016 and August 6, 2019

Noncompliant Condition

On affected 2016-2020 MY Subaru Impreza vehicles, the left front and right front halogen headlamp assemblies, containing the side reflex reflector and low beam reflector, may not fully meet requirements set forth in FMVSS No. 108, Lamps, reflective devices, and associated equipment. Additional details regarding the noncompliance are below.

ES19-003800

Side reflex reflector photometry

Among the requirements for reflex reflectors, FMVSS 108 requires that reflex reflectors meet the photometric requirements contained in S8.1.11 shown below.

> S8.1.11 *Photometry.* Each reflex reflector must be designed to conform to the photometry requirements of Table XVI-a when tested according to the procedure of S14.2.3 for the reflex reflector color as specified by this section.

In compliance testing conducted by CALCOAST–ITL on behalf of NHTSA (see NHTSA Report No. 108-CAN-19-002), four of four headlamps assemblies tested (samples LH1, LH2, LH3 and LH4) failed to comply at certain test points. The table below shows the measured values as compared to the required values.

CALCOAST-ITL side reflex reflector photometry test data for sample number LH1 and LH2

Report No: 190614-02D DOT/NHTSA No: 108-CAN-19-002

PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Subaru Impreza VOR Replaceable Bulb (H11/HB3) Headlamp (LH)

Sample Number: LH1

Specification: FMVSS 108 Table XVI-a: Reflex Reflector
Color: Yellow
Specific Intensity, Candela / Footcandle

Test Point	Measured 0.2°	Required Minimum	Measured 1.5°	Required Minimum
LH1				
10.0U V	6.757*	7.50	0.585	0.13
H 20.0L	4.796	3.75	0.396	0.08
H V	8.215*	11.25	0.666	0.18
H 20.0R	4.909	3.75	0.390	0.08
10.0D V	6.648*	7.50	0.610	0.13
0.2° Maximum: 8.585 @ 1.1U/3.5R				
LH2				
10.0U V	6.973*	7.50	0.688	0.13
H 20.0L	5.023	3.75	0.414	0.08
H V	8.949*	11.25	0.699	0.18
H 20.0R	5.016	3.75	0.401	0.08
10.0D V	7.090*	7.50	0.637	0.13
0.2° Maximum: 9.129 @ 1.2U/0.5L				

Incident Illumination upon sample: 0.956 fc (10.29 Lux)

*** - Denotes Failure.**

Aim: Sample mounted on fixture provided by Valeo. Fixture mounted on level goniometer with reflex center located at goniometer center of rotation and tilt with fixture edges aligned parallel and perpendicular to projector axis at HV.

Note: Entire device excluding reflex masked off during testing.

As shown in the table above, reflectance measurements for samples LH1 and LH2 were taken at 5 test points. Sample LH1 was found to be out of compliance at three test points by margins of 9.9%, 26.9%, and 11.4%, respectively. Sample LH2 was found to be out of compliance at three test points by margins of 7.0%, 20.5%, and 5.5%, respectively.

CALCOAST-ITL side reflex reflector photometry test data for sample number LH3 and LH4

Report No: 190614-02D DOT/NHTSA No: 108-CAN-19-002

PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Subaru Impreza VOR Replaceable Bulb (H11/HB3) Headlamp (LH)

Sample Number: LH3 and LH4

Specification: FMVSS 108 Table XVI-a: Reflex Reflector
Color: Yellow
Specific Intensity, Candela / Footcandle

Test Point	Measured 0.2°	Required Minimum	Measured 1.5°	Required Minimum
10.0U V	6.921*	7.50	0.588	0.13
H 20.0L	4.934	3.75	0.400	0.08
H V	8.515*	11.25	0.697	0.18
H 20.0R	4.908	3.75	0.384	0.08
10.0D V	6.745*	7.50	0.621	0.13
0.2° Maximum: 8.930 @ 1.5U/3.0R				
LH4				
10.0U V	6.550*	7.50	0.596	0.13
H 20.0L	4.818	3.75	0.392	0.08
H V	8.128*	11.25	0.670	0.18
H 20.0R	4.752	3.75	0.367	0.08
10.0D V	6.647*	7.50	0.614	0.13
0.2° Maximum: 8.530 @ 1.5U/3.4R				

Incident Illumination upon sample: 0.956 fc (10.29 Lux)

* - **Denotes Failure.**

Aim: Sample mounted on fixture provided by Valeo. Fixture mounted on level goniometer with reflex center located at goniometer center of rotation and tilt with fixture edges aligned parallel and perpendicular to projector axis at HV.

Note: Entire device excluding reflex masked off during testing.

As shown in the table above, reflectance measurements for samples LH3 and LH4 were taken at 5 test points. Sample LH3 was found to be out of compliance at three test points by margins of 7.7%, 24.3%, and 10.1%, respectively. Sample LH4 was found to be out of compliance at three test points by margins of 12.7%, 27.7%, and 11.4% respectively.

Low beam photometry

Among the requirements for headlamp assemblies, FMVSS 108 requires that replaceable bulb headlamps meet the photometric requirements contained in S10.15.6 shown below.

S10.15.6 *Photometry*. Each replaceable bulb headlamp must be designed to conform to the photometry requirements of Table XVIII for upper beam and Table XIX for lower beam as specified in Table II-d for the specific headlamp unit and aiming method, when tested according to the procedure of S14.2.5 using any replaceable light source designated for use in the system under test.

The photometry requirements of S10.15.6 are intended to assure a minimum level of emitted light intensity, that help drivers see potential nighttime roadway hazards, maintain safe lane keeping and reduce glare to oncoming drivers, while still illuminating roadway signs.
In compliance testing conducted by CALCOAST–ITL on behalf of NHTSA (see NHTSA Report No. 108-CAN-19-002), two of four headlamps assemblies tested (samples LH1 and LH4) failed to comply with the low beam photometry requirements in S10.15.6. The table below shows the measured values as compared to the required values for test sample LH1.

CALCOAST-ITL low beam photometry test data for sample number LH1

Report No: 190614-02D DOT/NHTSA No: 108-CAN-19-002

PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Subaru Impreza VOR Replaceable Bulb (H11/HB3) Headlamp (LH)

Sample Number: LH1

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)
Color: White, Lower Beam
Luminous Intensity, Candela

Test Point		Location	Measured	Reaim	Minimum	Maximum
4.0U 8.0L			394.62		64	-
4.0U 8.0R			230.11		64	-
2.0U 4.0L			589.33		135	-
1.5U 1.0R TO 3.0R		3.0R	504.14		200	-
1.5U 1.0R TO R		1.1R	547.49		-	1400
1.0U 1.5L TO L		9.1L	879.48	779.83*	-	700
0.5U 1.5L TO L		9.9L	1368.98	1047.09*	-	1000
0.5U 1.0R TO 3.0R		1.0R	1329.49		500	-
0.5U 1.0R TO 3.0R		2.8R	1418.52		-	2700
H 8.0L			2597.31		64	-
H 4.0L			2874.56		135	-
H V			5766.18		-	-
0.6D 1.3R			17197.73		10000	-
0.9D 3.5L			9836.25		1800	12000
0.9D V			21075.03		4500	-
1.5D 2.0R			19510.31		15000	-
2.0D 15.0L			5444.10		1000	-
2.0D 9.0L			9290.53		1250	-
2.0D 9.0R			4897.38		1250	-
2.0D 15.0R			2964.61		1000	-
4.0D 20.0L			2861.66		300	-
4.0D V			6259.75		-	-
4.0D 4.0R			5207.73		-	12500
4.0D 20.0R			235.75	261.00*	300	-
MAXIMUM	1.2D	0.5R	24751.00		-	-
MX(10U-90U/90L-90R)	10.0U	7.3R	135.83*		-	125

* - Denotes Failure.

Bulb: Seasoned Osram H11 furnished with sample @ 12.80V / 4.561A

Aim: Sample mounted on fixture provided by Valeo. Fixture mounted on level goniometer with H11 filament located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim).

As shown in the table above, headlamp assembly sample LH1 low beam photometry was measured at twenty-four test points. At two of the twenty-four test points, the sample LH1 exceeded the maximum allowable luminous intensity values by small amounts (11.4% and 4.7%). At one of the twenty-four test points, the sample LH1 was below the minimum acceptable luminous intensity value by 13.0%. At 21 of 24 test points, sample LH1 complied with the specified luminous intensity values listed in Table XIX-a (LB2V). Additionally, a point within the Zone 10U-90U/90L-90R at 10.00U-7.3R exceeded the maximum by 8.7%.

The table below shows the measured values as compared to the required values for test sample LH4.

CALCOAST-ITL low beam photometry test data for sample number LH4

Report No: 190614-02D DOT/NHTSA No: 108-CAN-19-002

PHOTOMETRIC TEST DATA SHEET

Project Name: 2018 Subaru Impreza VOR Replaceable Bulb (H11/HB3) Headlamp (LH)

Sample Number: LH4

Specification: FMVSS108 Table XIX-a: LB2V (VO Headlamp - 2 Lamp System)
Color: White, Lower Beam
Luminous Intensity, Candela

Test Point	Location	Measured	Reaim	Minimum	Maximum
4.0U 8.0L		378.79		64	-
4.0U 8.0R		231.83		64	-
2.0U 4.0L		638.19		135	-
1.5U 1.0R TO 3.0R	2.8R	544.58		200	-
1.5U 1.0R TO R	1.9R	582.47		-	1400
1.0U 1.5L TO L	8.7L	957.57	817.48*	-	700
0.5U 1.5L TO L	8.6L	1539.52	1193.98*	-	1000
0.5U 1.0R TO 3.0R	2.4R	1424.89		500	-
0.5U 1.0R TO 3.0R	1.3R	1524.48		-	2700
H 8.0L		3067.46		64	-
H 4.0L		3252.02		135	-
H V		6114.88		-	-
0.6D 1.3R		18304.40		10000	-
0.9D 3.5L		10254.25		1800	12000
0.9D V		21753.99		4500	-
1.5D 2.0R		19698.38		15000	-
2.0D 15.0L		5368.78		1000	-
2.0D 9.0L		9565.54		1250	-
2.0D 9.0R		4970.23		1250	-
2.0D 15.0R		2744.68		1000	-
4.0D 20.0L		2820.77		300	-
4.0D V		6034.84		-	-
4.0D 4.0R		4803.60		-	12500
4.0D 20.0R		288.85	308.28	300	-
MAXIMUM	1.2D 0.6R	25307.52		-	-
MX(10U-90U/90L-90R)	10.0U 12.0L	82.02		-	125

* - Denotes Failure.

Bulb: Seasoned Osram H11 furnished with sample @ 12.80V / 4.556A

Aim: Sample mounted on fixture provided by Valeo. Fixture mounted on level goniometer with H11 filament located at goniometer center of rotation and tilt with fixture markings aligned parallel and perpendicular to detector axis at HV. Adjusted aim hardware until LB Gmax located at H/2.0R and level from H/1.0R to H/3.0R (VOR aim).

As shown in the table above, headlamp assembly sample LH4 low beam photometry was measured at 24 test points. At two of the twenty-four test points, the sample LH4 exceeded the maximum allowable luminous intensity values by small amounts (16.8% and 19.4%). At 22 of 24 test points, sample LH4 complied with the specified luminous intensity values listed in Table XIX-a (LB2V).

Inconsequentiality of the noncompliance

Reflex Reflector Photometry Noncompliance

NASI submits that the nonconformance relating to side reflex reflector photometry is inconsequential as it relates to motor vehicle safety for the following reasons:

- Real world testing conducted by Subaru showed that noncompliant and compliant reflex reflectors are equally detectable in real world conditions. An overview of cognitive performance testing of the compliant and noncompliant reflex reflectors is attached to this petition. The test set-up simulated a condition typical of a vehicle approaching an unlit, perpendicular vehicle stalled in the driving lane. This test condition simulates a real world condition where side reflex reflectors would support improved visibility of that vehicle. The test results show that, with respect to light reflectance and their ability to be detected, there is no noticeable difference observable between the fully compliant reflex reflector and the reflex reflector that marginally under-complies at select test points.

- At a majority of the test points where the tested reflex reflectors were found to have measured intensities below the required minimum values, the measured values were generally only slightly less than the required minimum. For two of the four lamp assemblies tested, there was one point (point HV) where measured values slightly exceeded the 25% threshold cited by NHTSA and others in the past as being the threshold at which the difference between two lamp intensities of less than 25% cannot be detected reliably by most drivers (see DOT report, *Driver Perception of Just Noticeable Differences of Automotive Signal Lamp Intensities,* DOT HS 808 209, September 1994). The two measured values were below the required minimums by 26.9% (sample LH1) and 27.7% (sample LH4). We note that, on average (for the four samples tested by Calcoast), the HV test point was only 24.8% below the required minimum. We also note, as mentioned above, that the cognitive performance testing conducted by Subaru found there to be no noticeable differences in detectability for the compliant and noncompliant reflex reflectors in question.

- For a dynamic situation, light reflecting at a particular test point will be observed for only a short period of time. Compared to a light source that is constantly illuminated, the intensity originating from a reflex reflector is more fleeting to an observer. Reflex reflector intensity varies significantly depending on the angle of the driver's eyes to the reflector's central axis. Larger angles mean less light will be seen from the reflex reflector. Smaller angles mean more light will be seen from the reflex reflector. As a result, a nonconformity at a given test point for a reflex reflector will generally have a minimal impact on detectability. Thus, minor nonconformances at any one test point should be inconsequential with respect to safety risk.

- It has been recognized by NHTSA in the past that it is inherently difficult to manufacture all lamps to comply with all test points and that random failures do occur. FMVSS 108 requires lighting equipment be designed to conform to relevant requirements as opposed to simply comply with relevant requirements. According to NHTSA (see 62 FR 63416), occasional random non-compliances are to be expected in this very complicated design and manufacturing process and it is for this reason that the "designed to comply" provision is contained in the lighting standard. See commentary from the Oct. 12, 2018 (83 FR 51766) NPRM in which NHTSA proposed to amend FMVSS 108 to permit the certification of adaptive driving beam headlighting systems. In that notice, the agency noted that, historically, there has never been an absolute requirement that every motor vehicle lighting device meet every single photometric test point to comply with FMVSS 108.

- NHTSA has previously granted Subaru and General Motors petitions for inconsequentiality involving side reflex reflectors which were determined to be nonconforming at select test points by varying degrees. See 56 FR 59971 from November 26, 1991 (Subaru petition grant) and 57 FR 45867 from Oct. 5, 1992 (GM petition grant).

- NASI is not aware of any field or customer complaints related to the performance of the side reflex reflectors contained the subject headlamp assemblies, nor have we been made aware of any accidents or injuries that have occurred relating to the performance of these lamp assemblies.

Low Beam Photometry Noncompliance

NASI submits that the nonconforming condition relating to low beam photometry is inconsequential as it relates to motor vehicle safety for the following reasons:

- In compliance testing conducted by CALCOAST–ITL on behalf of NHTSA (see NHTSA Report No. 108-CAN-19-002), two of four headlamps assemblies tested (samples LH1 and LH4) failed to comply with certain low beam photometry requirements in S10.15.6.
    - Sample LH1:
        - Headlamp assembly sample LH1 photometry was measured at twenty-four test points. At two of the twenty-four test points, sample LH1 exceeded the maximum allowable luminous intensity values by small amounts (11.4% and 4.7%). At one of the twenty-four test points, sample LH1 was below the minimum acceptable luminous intensity value by 13.0%.
        - At 21 of 24 test points, sample LH1 complied with the specified luminous intensity values listed in Table XIX-a (LB2V).
    - Sample LH4
        - Headlamp assembly sample LH4 photometry was measured at 24 test points. At two of the twenty-four test points, the sample LH4 exceeded the maximum allowable luminous intensity values by small amounts (16.8% and 19.4%). At 22 of 24 test points, sample LH4 complied with the specified luminous intensity values listed in Table XIX-a (LB2V).
    - For both sample LH1 and LH4, test points at which the max. allowable luminous intensity values were exceeded at test points 1.0 degree and 0.5 degree up from the horizontal, respectively. These test points, which were taken in the range of 1.5 degrees to 9.9 degrees left of center, are in place to ensure that glare is minimized to oncoming drivers. In the UMTRI report entitled "Just Noticeable Differences for Low-Beam Headlamp Intensities" (UMTRI-97-4), testing was conducted to evaluate "just noticeable differences" or JNDs for glare intensities of oncoming low-beam headlamps. Specifically, UMTRI looked at whether the 25% rule established by NHTSA for signal lamps would be applicable for the range of intensities relevant to low-beam headlamps. Based on the testing conducted by UMTRI using low-beam headlamps, UMTRI concluded that applying the 25% limit for inconsequential noncompliance to a photometric test point that specifies a maximum for glare protection would be appropriate.

      Given the UMTRI conclusion, we believe that the small exceedances in max intensities for these two test points are inconsequential to safety.
    - For sample LH1, test point 4.0D 20.0R was the third point which was noncompliant per the measurements taken. This test point measures light intensity down and to the right (4 degrees below the horizontal and 20 degrees to the right of center). The minimum intensity value ensures adequate light down and far right (e.g., sidewalk to right of vehicle). Samples LH1 measured light intensity was 13% less than the required value.

      Of the four samples tested by Calcoast, only one sample was noncompliant at this test point. This degree of nonconformity was minimal (13% below the required value). When the other three samples were tested, the measured intensities at this test point over-complied by margins of 47.2%, 27.8% and 2.8%.

For sample LH1, a point within the Zone 10U-90U/90L-90R at 10.00U-7.3R exceeded the maximum permissible intensity threshold by 8.7%. The maximum allowable intensity of 125 candela in this zone was established to reduce the amount of glare to the driver of the car with the subject headlamp in driving conditions involving poor weather (rain, fog, snow, etc.). The consequence of one of four samples having a measurement 8.7% above the maximum allowable value is inconsequential given the exceedance is far less than the 25% just noticeable difference.

As discussed previously in this petition, it has been recognized by NHTSA in the past that it is inherently difficult to manufacture all lamps to comply with all test points and that random failures do occur. FMVSS 108 requires lighting equipment be designed to conform to relevant requirements as opposed to simply comply with relevant requirements. Occasional random non-compliances are to be expected (see 62 FR 63416). This is why there has never been an absolute requirement that every motor vehicle lighting device meet every single photometric test point to comply with FMVSS 108 (see 83 FR 51766).

Based on the data before us, we believe that the light intensity measured at test point 4.0D 20.0R for one of four samples tested is inconsequential to safety.

- NASI is not aware of any field or customer complaints related to the low-beam performance of the subject headlamp assemblies, nor have we been made aware of any accidents or injuries that have occurred relating to the performance of these lamp assemblies.

Conclusion

For the forgoing reasons, NASI submits that the subject non-compliance does not present an unreasonable risk, is inconsequential as it relates to motor vehicle safety and requests an exemption from the notification and remedy requirements of the Motor Vehicle Safety Act pursuant to 49 U.S.C. 30118(d) and associated regulations at 49 C.F.R. Part 556.

If you require any additional information or have any questions related to this petition, please do not hesitate to contact John Frooshani of my staff at (443) 430-3619.

Sincerely,

Makoto Ikemura

Makoto Ikemura
President
North American Subaru, Inc. (NASI)

Attachments enclosed with this petition:
1. Subaru Part 573 Non-compliance Information Report (NCIR)
2. Subaru in-house testing comparing compliant vs. noncompliant reflex reflectors

cc: Otto Matheke, Director, Office of Vehicle Safety Compliance

Vehicle Report

Transaction No: NA

-Manufacturer: Subaru of America, Inc.

One Subaru Drive
Camden NJ 08103

Nick Aplin
856-488-3476

Are you reporting a ☐ Safety Defect ☒ Non-Compliance
☒ Please select this box if you intend to file a petition pursuant to 49 CFR 556.

-Vehicle Information

Add Product
Model Yr. Start: 2016 **Model Yr. End:** 2020
Type: LIGHT VEHICLES
Body Style: 4-DOOR
Powertrain: GAS
Make: SUBARU
Model: IMPREZA
Production Dates **Begin:** 10/18/2016 **End:** 08/07/2019
VIN Range **Begin:** **End:**
Descriptive Information: *(max 2000 characters)*

-Description of the issue: The left front and right front halogen headlamp assemblies, containing the side reflex reflector and low beam reflector, may not fully meet requirements set forth in FMVSS No. 108 – Lamps, Reflective Devices, and Associated Equipment.

-The basis for how the recall population was determined: Potentially affected vehicles were identified using left front side reflex reflector component test data and vehicle production records. The potentially affected vehicle populations for the right front side reflex reflector and left front low beam reflector are smaller, and completely included, subsets of the total population. The right front low beam reflector is not affected. The headlamp assembly contains both the side reflex reflector and the low beam reflector components.

-How the recalled products differ from products that were not included in the recall: Vehicles equipped with a halogen headlamp assembly with a side reflex reflector and low beam reflector that are manufactured after the countermeasure implementation and verification date are not affected. Vehicles equipped with LED headlamps are not affected.

The recall population includes certain 2016 - 2020 model year Impreza 4-DOOR vehicles. The number of potentially affected Impreza 4-DOOR vehicles is 63,697.

☒ **Not sequential VINs**

Add Product

Model Yr. Start: 2016 **Model Yr. End:** 2020
Type: LIGHT VEHICLES
Body Style: STATIONWAGON
Powertrain: GAS
Make: SUBARU
Model: IMPREZA
Production Dates **Begin:** 09/23/2016 **End:** 08/06/2019
VIN Range **Begin:** **End:**
Descriptive Information: *(max 2000 characters)*

-Description of the issue: The left front and right front halogen headlamp assemblies, containing the side reflex reflector and low beam reflector, may not fully meet requirements set forth in FMVSS No. 108 – Lamps, Reflective Devices, and Associated Equipment.

-The basis for how the recall population was determined: Potentially affected vehicles were identified using left front side reflex reflector component test data and vehicle production records. The potentially affected vehicle populations for the right front side reflex reflector and left front low beam reflector are smaller, and completely included, subsets of the total population. The right front low beam reflector is not affected. The headlamp assembly contains both the side reflex reflector and the low beam reflector components.

-How the recalled products differ from products that were not included in the recall: Vehicles equipped with a halogen headlamp assembly with a side reflex reflector and low beam reflector that are manufactured after the countermeasure implementation and verification date are not affected. Vehicles equipped with LED headlamps are not affected.

The recall population includes certain 2016 - 2020 model year Impreza STATIONWAGON vehicles. The number of potentially affected Impreza STATIONWAGON vehicles is 124,703.

☒ **Not sequential VINs**

Number potentially involved: 188,400 Estimated percentage of involved with defect: 100%

Defect / Noncompliance Description

Describe the defect or noncompliance: *(max 2000 characters)*

The left front and right front halogen headlamp assemblies, containing the side reflex reflector and low beam reflector, may not fully meet requirements set forth in FMVSS No. 108 – Lamps, Reflective Devices, and Associated Equipment.

If a noncompliance, provide the applicable FMVSS:

108 - Lamps, Reflective Devices, and Associated Equipment

Describe the safety risk: *(max 2000 characters)*

Subaru decided that certain vehicles may not comply with the requirements set forth in FMVSS No. 108. Subaru intends to file a petition for an exemption from the recall requirements of 49 U.S.C. Chapter 301 – Motor Vehicle Safety on the basis that the noncompliance is inconsequential as it relates to motor vehicle safety.

Describe the cause: *(max 2000 characters)*

During the manufacturing process, a side reflex reflector part was caught in the mold resulting in damage to the mold. Some side reflex reflectors produced after this damage occurred had diminished reflective performance. At a later date, the mold used in production of the halogen low beam headlamp reflector was worn to a point where production parts may no longer meet certain data point performance requirements.

Identify any warning which can precede or occur: *(max 2000 characters)*

None.

☐ Check if this recall only affects products in certain geographic regions.

If applicable, identify the manufacturer of the defective or noncompliant component. If the manufacturer of the component is unknown, provide the information for the company that supplied the subject component.

☒Component manufacturer ☐ Component manufacturer is unknown, information is for our supplier

Company Information
Company Name: Valeo Lighting System North America, LLC
Country: U.S.A
Address 1: 1231 A Avenue
Address 2:
City: Seymour, IN
Zip/Postal Code: 47274

Company Contact Information
First Name: Scott
Last Name: Hashagen
Position: Regional Operations Quality Director
Email: scott.hashagen@valeo.com
Phone: +1-812-524-5356

Chronology of Defect / Noncompliance Determination

Provide the chronology of events leading up to the defect decision or test data for the noncompliance: *(max 2000 characters)*

July 18, 2019 – Subaru was informed by NHTSA that testing indicated a noncompliance for the left front halogen headlamp assembly.

July 24, 2019 – A mold insert of the side reflex reflector was replaced as a preliminary countermeasure. In addition, the inspection frequency for the side reflex reflector and the halogen low beam reflector was increased from once-per-month to once-per-week.

July 25 - September 25, 2019 – From the result of the continued investigation, it was determined that a damaged mold used for the side reflex reflector and a worn mold for the halogen low beam reflector had caused a change in product performance. Subaru traced the potentially affected halogen headlamp assemblies to a vehicle manufacturing period of September 23, 2016 through August 7, 2019.

September 26, 2019 – Subaru decided that certain vehicles may not comply with the requirements set forth in FMVSS No. 108. Subaru intends to file a petition for an exemption from the recall requirements of 49 U.S.C. Chapter 301 – Motor Vehicle Safety on the basis that the noncompliance is inconsequential as it relates to motor vehicle safety.

Identify the Remedy

Describe the defect / noncompliance remedy program, including the manufacturer's plan for reimbursement. *(max 2000 characters)*

NR

Describe what distinguishes the remedy component from the recalled component. *(max 2000 characters)*
-The **Name, description,** and **part number** of the recalled component(s) must also be reported.

NR

Identify and describe how and when the recall condition was corrected in production. *(max 2000 characters)*

At the supplier, the mold insert for the LF and RF side reflex reflectors was replaced on July 24, 2019.

The inspection frequency for the side reflex reflector and the halogen low beam reflector was increased from once-per-month to once-per-week on July 24, 2019.

Remedied parts were implemented on the vehicle production line on July 30, 2019.

Identify the Recall Schedule

Describe the recall schedule for notifications: *(max 2000 characters)*

Subaru intends to file a petition for an exemption from the recall requirements of 49 U.S.C. Chapter 301 – Motor Vehicle Safety on the basis that the noncompliance is inconsequential as it relates to motor vehicle safety.

Planned Dealer Notification Begin Date:
Planned Dealer Notification End Date:
Planned Owner Notification Begin Date:
Planned Owner Notification End Date:

Manufacturer's identification code for this recall (if applicable): WUN-99

Please be reminded that owner notification letters must be mailed no more than 60 days from submission of this report.

Manufacturer Comments to NHTSA Staff *(max 2000 characters)*

Subaru intends to file a petition for an exemption from the recall requirements of 49 U.S.C. Chapter 301 – Motor Vehicle Safety on the basis that the noncompliance is inconsequential as it relates to motor vehicle safety. This applies to both the LF & RF side reflex reflectors and the LF low beam reflector.

2018MY Subaru Impreza Cognitive Performance Tests of Compliant and Noncompliant Reflex Reflectors at Different Stopping Distances

2019.9.13

1. Purpose

Compare cognitive performance at different stopping distances between compliant and noncompliant reflex reflectors (RR). The background of RR criteria of FMVSS108 is to support visibility from oncoming vehicle during nighttime light off parking situation, etc.

2. Conclusion

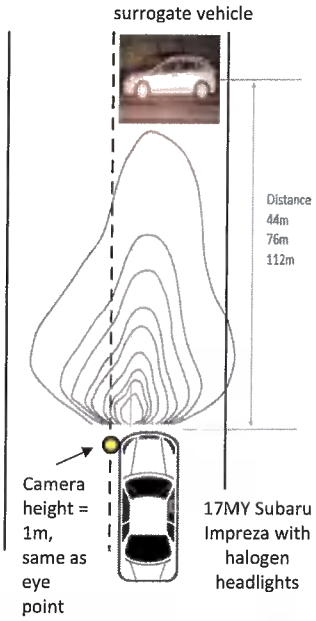
Both Failed and Pass RR are able to be detected within stopping distance.
Both RR shows real-world safety.

3. Evaluation method

Subaru evaluated cognitive performance from each stopping distance by using Failed RR and Pass RR. This experiment was conducted outdoors in cloudy weather, with 0 lux ambient light illuminance. The failed RR H-V values from compliance test at Calcoast are below.
Each detail FMVSS 108 performance of RR are as follows.

FMVSS108 RR test results

Reflex Reflector	Criteria (Min)	Compliance test@Calcoast	(SBR)In-House Fail sample	(SBR)In-House Pass sample
Production date		2019.2.08	2019.7.19	2016.4.15
H-V	11.25	**8.215**	**7.59**	19.7
10U-V	7.5	**6.757**	**5.92**	15.5
10D-V	7.5	**6.648**	**6.47**	17.8
H-20L	3.75	4.796	4.52	12.7
H-20R	3.75	4.909	4.35	11.5



4. Detail results

Vehicle speed (kph)	60	80	100
Stopping distance of above vehicle speed (m)[1]	44	76	112

Headlight type	Stopping distance	Fail sample (H-V 7.59) (Headlight Production date 2019.7.19)		Pass sample (H-V 19.7) (Headlight Production date 2016.4.15)	
	(m)	Visibility	Camera View[2]	Visibility	Camera View[2]
Vehicle (Halogen)	112	OK		OK	
	76	OK		OK	
	44	OK		OK	

1: These stopping distances and corresponding vehicle speeds are chosen to represent real-world driving scenarios (source: Japan MLIT)
2: The camera exposure settings were same for all trials. No flash was used.

Part 573 Safety Recall Report 19V-725

Manufacturer Name : Subaru of America, Inc.
Submission Date : OCT 10, 2019
NHTSA Recall No. : 19V-725
Manufacturer Recall No. : WUN-99

Manufacturer Information :

Manufacturer Name : Subaru of America, Inc.
Address : One Subaru Drive
Camden NJ 08103
Company phone : 844-373-6614

Population :

Number of potentially involved : 188,400
Estimated percentage with defect : 100 %

Vehicle Information :

Vehicle 1 : 2016-2020 Subaru Impreza
Vehicle Type : LIGHT VEHICLES
Body Style : 4-DOOR
Power Train : GAS
Descriptive Information : -Description of the issue: The left front and right front halogen headlamp assemblies, containing the side reflex reflector and low beam reflector, may not fully meet requirements set forth in FMVSS No. 108 – Lamps, Reflective Devices, and Associated Equipment.

-The basis for how the recall population was determined: Potentially affected vehicles were identified using left front side reflex reflector component test data and vehicle production records. The potentially affected vehicle populations for the right front side reflex reflector and left front low beam reflector are smaller, and completely included, subsets of the total population. The right front low beam reflector is not affected. The headlamp assembly contains both the side reflex reflector and the low beam reflector components.

-How the recalled products differ from products that were not included in the recall: Vehicles equipped with a halogen headlamp assembly with a side reflex reflector and low beam reflector that are manufactured after the countermeasure implementation and verification date are not affected. Vehicles equipped with LED headlamps are not affected.

The recall population includes certain 2016 - 2020 model year Impreza 4-DOOR vehicles. The number of potentially affected Impreza 4-DOOR vehicles is 63,697.

Production Dates : OCT 18, 2016 - AUG 07, 2019
VIN Range 1 : Begin : NR End : NR ☐ Not sequential

Vehicle 2 : 2016-2020 Subaru Impreza
Vehicle Type : LIGHT VEHICLES
Body Style : STATIONWAGON

Power Train :	GAS
Descriptive Information :	-Description of the issue: The left front and right front halogen headlamp assemblies, containing the side reflex reflector and low beam reflector, may not fully meet requirements set forth in FMVSS No. 108 – Lamps, Reflective Devices, and Associated Equipment. -The basis for how the recall population was determined: Potentially affected vehicles were identified using left front side reflex reflector component test data and vehicle production records. The potentially affected vehicle populations for the right front side reflex reflector and left front low beam reflector are smaller, and completely included, subsets of the total population. The right front low beam reflector is not affected. The headlamp assembly contains both the side reflex reflector and the low beam reflector components. -How the recalled products differ from products that were not included in the recall: Vehicles equipped with a halogen headlamp assembly with a side reflex reflector and low beam reflector that are manufactured after the countermeasure implementation and verification date are not affected. Vehicles equipped with LED headlamps are not affected. The recall population includes certain 2016 - 2020 model year Impreza STATIONWAGON vehicles. The number of potentially affected Impreza STATIONWAGON vehicles is 124,703.
Production Dates :	SEP 23, 2016 - AUG 06, 2019
VIN Range 1 : Begin :	NR End : NR ☐ Not sequential

Description of Noncompliance :

Description of the Noncompliance :	The left front and right front halogen headlamp assemblies, containing the side reflex reflector and low beam reflector, may not fully meet requirements set forth in FMVSS No. 108 – Lamps, Reflective Devices, and Associated Equipment.
FMVSS 1 :	108 - Lamps, reflective devices, and assoc. Equipment
FMVSS 2 :	NR
Description of the Safety Risk :	Subaru decided that certain vehicles may not comply with the requirements set forth in FMVSS No. 108. Subaru intends to file a petition for an exemption from the recall requirements of 49 U.S.C. Chapter 301 – Motor Vehicle Safety on the basis that the noncompliance is inconsequential as it relates to motor vehicle safety.
Description of the Cause :	During the manufacturing process, a side reflex reflector part was caught in the mold resulting in damage to the mold. Some side reflex reflectors produced after this damage occurred had diminished reflective performance. At a later date, the mold used in production of the halogen low beam headlamp reflector was worn to a point where production parts may no longer meet certain data point performance requirements.

Identification of Any Warning that can Occur :	None.

Supplier Identification :

Component Manufacturer

Name :	Valeo Lighting System North America, LLC
Address :	1231 A Avenue Seymour INDIANA 47274
Country :	United States

Chronology :

July 18, 2019 – Subaru was informed by NHTSA that testing indicated a noncompliance for the left front halogen headlamp assembly.

July 24, 2019 – A mold insert of the side reflex reflector was replaced as a preliminary countermeasure. In addition, the inspection frequency for the side reflex reflector and the halogen low beam reflector was increased from once-per-month to once-per-week.

July 25 - September 25, 2019 – From the result of the continued investigation, it was determined that a damaged mold used for the side reflex reflector and a worn mold for the halogen low beam reflector had caused a change in product performance. Subaru traced the potentially affected halogen headlamp assemblies to a vehicle manufacturing period of September 23, 2016 through August 7, 2019.

September 26, 2019 – Subaru decided that certain vehicles may not comply with the requirements set forth in FMVSS No. 108. Subaru intends to file a petition for an exemption from the recall requirements of 49 U.S.C. Chapter 301 – Motor Vehicle Safety on the basis that the noncompliance is inconsequential as it relates to motor vehicle safety.

Description of Remedy :

Description of Remedy Program :	NR
How Remedy Component Differs from Recalled Component :	NR

Identify How/When Recall Condition was Corrected in Production :	At the supplier, the mold insert for the LF and RF side reflex reflectors was replaced on July 24, 2019. The inspection frequency for the side reflex reflector and the halogen low beam reflector was increased from once-per-month to once-per-week on July 24, 2019. Remedied parts were implemented on the vehicle production line on July 30, 2019.

Recall Schedule :

Description of Recall Schedule :	Subaru intends to file a petition for an exemption from the recall requirements of 49 U.S.C. Chapter 301 – Motor Vehicle Safety on the basis that the noncompliance is inconsequential as it relates to motor vehicle safety.
Planned Dealer Notification Date :	NR - NR
Planned Owner Notification Date :	NR - NR

* NR - Not Reported