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TEST REPORT 210304-2228861

Report Date: March 3, 2021
Test Component: ABC 2228861 18 LED Amber Parking and Rear Turn Lamp
Devices Tested: Three (3) each submitted February 23, 2021

Test Summary (FMVSS-108)

Photometric Tests – Parking and Rear Turn Lamp

FMVSS 108 – Table XIV – Parking Lamp	PASSED
FMVSS 108 – Table VII – Rear Turn Lamp	PASSED

Mechanical Tests per SAE J575e

Vibration	PASSED
Moisture	PASSED
Thermal	PASSED
Impact	PASSED
Durability	PASSED
LED Life	PASSED
Color (SAE J578c)	PASSED
Dimensional Tests	PASSED
Socket Tests per SAE J567b	Not Applicable

Signature of responsible engineer:

Gary I. Robin

DESCRIPTION SHEET

Test Component: ABC 2228861 18 LED Amber Parking and Rear Turn Lamp

Markings:

Lens: DOT SAE PI6 20
Housing: None

Lens Information:

Material: Polycarbonate (amber transparent)
Coating: None
Shape/Dimensions: 12-inch long strip
Method of attachment to housing: Vibration weld
Gasket: None

Housing:

Material: Polycarbonate (black)
Shape/Dimensions: 12-inch long strip
Method of attachment to lens: Vibration weld
Gasket: None

SOURCE	FUNCTION	QUANTITY	VOLTAGE
LED	PI6	18	12.8/14V

Note: lens complies with SAE J576 JUL 91 requirements as specified in FMVSS 108.

TEST RESULT SHEET

Test Component: ABC 2228861 18 LED Amber Parking and Rear Turn Lamp

MECHANICAL TESTS: SAE J575e

Sample: 2

Vibration test (Shock test).

There was no evidence of material physical weakness,
lens rotation, displacement or rupture of components.
LEDs were not damaged.

PASSED

Moisture Test:

Lamp had 0cc of moisture accumulation inside of its cavity
(≤ 2 cc required).

PASSED

Dust Test:

No dust was found on the interior surfaces of the device.
The maximum candlepower after external cleaning was
at least 100% of the HV candlepower prior to exposure.

NOT REQUIRED

Corrosion Test:

There was no evidence of excessive corrosion which
would affect the proper functioning of the device.

NOT REQUIRED

Thermal Test:

There was no evidence of reduced function from
temperature or humidity.

PASSED

PASSED

Durability Test:

PASSED

Color Test:

PASSED

Impact Test:

PASSED

LED Life Test:

Lamp is not blinking, blackening or shutting off after
1000 hrs.

PASSED

FMVSS 108 – Table VII – Rear Turn Lamp

PASSED

FMVSS 108 – Table VI-a – Front Turn Lamp

PASSED

FMVSS 108 – Table XIV – Parking

PASSED

Tests reviewed by: Gary I. Robin

TEST RESULT SHEET

Test Component: ABC 2228861 18 LED Amber Parking and Rear Turn Lamp

PHOTOMETRIC TESTS

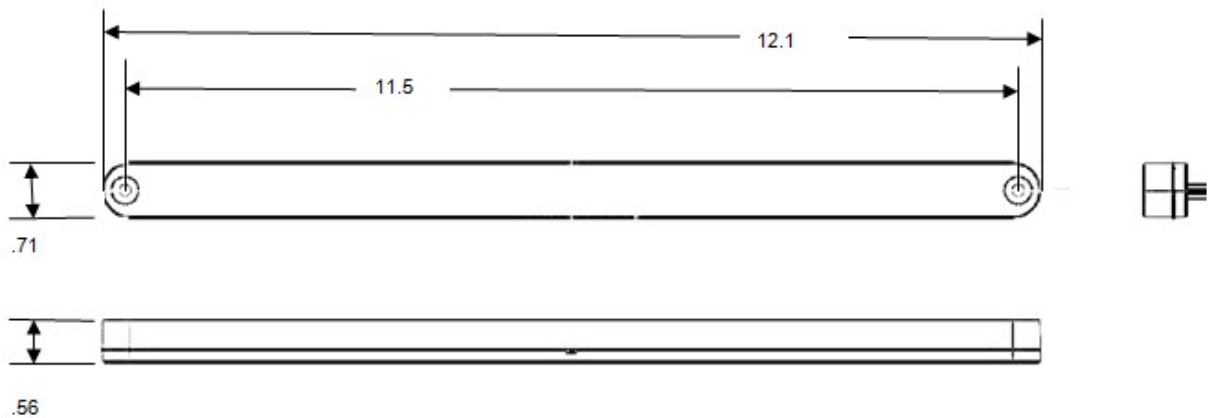
Specification(s): FMVSS 108 – Table VII – Rear Turn
FMVSS 108 – Table VIa – 3-Front Turn
FMVSS 108 – Table XIV - Parking
SAE J578C chroma test.

Tests reviewed by: Gary I. Robin

Results: Meets requirements at all points and passes chroma test.

Note: The bulb socket requirements are not applicable because the lamp is a sealed unit.

OUTLINE DRAWING



PHOTOMETRIC TEST DATA SHEET

Test Component: ABC 2228861 18 LED Amber Parking and Rear Turn Lamp
Sample: 2
Specification: FMVSS 108 -Table XIV, Parking
Test Distance: 3.16M
Units: cd
Test Voltage: 14.0 Volts
Test Current: 10 mAmps
Test Power: 0.14 Watts
Aim: Lamp mounted perpendicular to HV

LUMINOUS INTENSITY, CANDELLA

<u>TEST POINT</u>	<u>MIN</u>	<u>MAX</u>	<u>MEASURED</u>
10U-5L	0.8	125	5.1
10U-5R	0.8	125	5.2
5U-20L	0.4	125	3.8
5U-10L	0.8	125	7.0
5U-V	2.8	125	10.2
5U-10R	0.8	125	8.4
5U-20R	0.4	125	3.3
H-10L	1.4	125	7.1
H-5L	3.6	125	11.5
HV	4.0	125	14.1
H-5R	3.6	125	14.5
H-10R	1.4	125	10.2
5D-20R	0.4	250	3.5
5D-10R	0.8	250	9.5
5D-V	2.8	250	12.5
5D-10L	0.8	250	7.4
5D-20L	0.4	250	4.1
10D-5L	0.8	250	6.4
10D-5R	0.8	250	5.9
GROUP 1	74		198.6
GROUP 2	135		254.4
GROUP 3	520		686.4
GROUP 4	135		269.5
GROUP 5	74		183.9

Device meets requirements at all points.

PHOTOMETRIC TEST DATA SHEET

Test Component: ABC 2228861 18 LED Amber Parking and Rear Turn Lamp
Sample: 1
Specification: FMVSS 108 – Table VII, Rear Turn
Test Distance: 3.16M
Units: cd
Test Voltage: 12.8 Volts
Test Current: 280 mAmps
Test Power: 3.58 Watts
Aim: Lamp mounted perpendicular to HV

LUMINOUS INTENSITY, CANDELLA

<u>TEST POINT</u>	<u>MIN</u>	<u>MAX</u>	<u>MEASURED</u>
10U-5L	35	900	138.2
10U-5R	35	900	140.1
5U-20L	25	900	104.7
5U-10L	65	900	191.3
5U-V	150	900	277.2
5U-10R	65	900	226.1
5U-20R	25	900	88.4
H-10L	90	900	193.5
H-5L	175	900	315.8
HV	175	900	385.3
H-5R	175	900	394.4
5D-20R	25	900	95.3
5D-10R	65	900	259.7
5D-V	150	900	343.7
5D-10L	65	900	202.3
5D-20L	25	900	112.9
10D-5L	35	900	176.7
10D-5R	35	900	201.4
GROUP 1	120		532.5
GROUP 2	220		587.2
GROUP 3	825		1716.4
GROUP 4	220		762.6
GROUP 5	120		525.2

Device meets requirements at all points.

PHOTOMETRIC TEST DATA SHEET

Test Component: ABC 2228861 18 LED Amber Parking and Rear Turn Lamp
Sample: 1
Specification: FMVSS 108 – Table VIa, Front Turn
Test Distance: 3.16M
Units: cd
Test Voltage: 12.8 Volts
Test Current: 280 mAmps
Test Power: 3.58 Watts
Aim: Lamp mounted perpendicular to HV

LUMINOUS INTENSITY, CANDELLA

<u>TEST POINT</u>	<u>MIN</u>	<u>MAX</u>	<u>MEASURED</u>
10U-5L	40		138.9
10U-5R	40		141.9
5U-20L	25		105.9
5U-10L	75		191.2
5U-V	175		278.9
5U-10R	75		227.9
5U-20R	25		88.4
H-10L	100		193.4
H-5L	200		317.0
HV	200		387.1
H-5R	200		396.1
5D-20R	25		94.8
5D-10R	75		260.6
5D-V	175		344.6
5D-10L	75		202.9
5D-20L	25		112.7
10D-5L	40		176.3
10D-5R	40		201.2
GROUP 1	130		533.9
GROUP 2	250		587.5
GROUP 3	950		1723.8
GROUP 4	250		767.2
GROUP 5	130		526.3

Device meets requirements at all points.

Reviewed and approved for submittal by:

A handwritten signature in black ink, reading "Gary I. Robin". The signature is fluid and cursive, with the first name "Gary" and last name "Robin" clearly legible.

Gary I. Robin
Responsible Engineer

March 3, 2021