



4800 Eastland Dr. - Elkhart, IN 46516  
Phone: (574) 293-9399 - Fax: (574) 293-5801  
[www.abcmktginc.com](http://www.abcmktginc.com)

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## TEST REPORT 190501-2225283-R

Report Date: May 1, 2019  
Test Component: Stellar 2225283-R 12 LED Stop and Tail Lamp Bar – 9 inch  
Devices Tested: Three (3) each submitted April 24, 2019

### Test Summary (FMVSS-108)

#### Photometric Tests – Stop and Tail Lamp

FMVSS-108 Table VIII Tail Lamp (3 Section)	PASSED
FMVSS-108 Table IX Stop Lamp (3 Section)	PASSED

#### Mechanical Tests per SAE J575e

IP X7 Water Immersion	PASSED
Vibration	PASSED
Thermal	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: Stellar 2225283-R 12 LED Stop and Tail Lamp Bar - 9 inch

### Markings:

Lens: DOT SAE ST 18  
Housing: None

### Lens Information:

Material: PC (Transparent)  
Attachment: A/B adhesive

### Housing:

Material: N/A

<b>BULB</b>	<b>QUANTITY</b>	<b>VOLTAGE</b>
LED	12	12.8/14V

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

## TEST RESULT SHEET

Test Component: Stellar 2225283-R 12 LED Stop and Tail Lamp Bar - 9 inch

**MECHANICAL TESTS:** SAE J575e

Sample: 3

Vibration test (Shock test).

There was no evidence of material degradation, displacement or rupture of components. LEDs were not damaged.

PASSED

Moisture Test (IP X7):

Lamp had no moisture intrusion inside of its cavity

PASSED

Dust Test:

NOT REQUIRED

Corrosion Test:

NOT REQUIRED

Thermal Test:

There was no evidence of reduced function, material degradation or discoloration

PASSED

PASSED

Durability Test:

Lamp operation remains normal after testing

PASSED

LED Life Test:

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

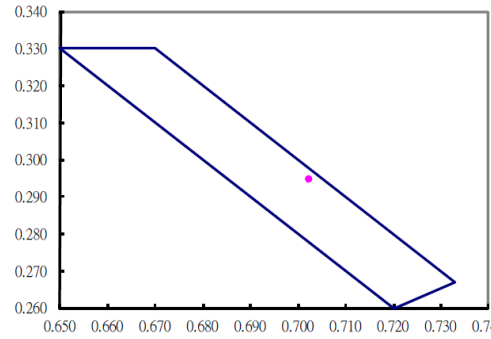
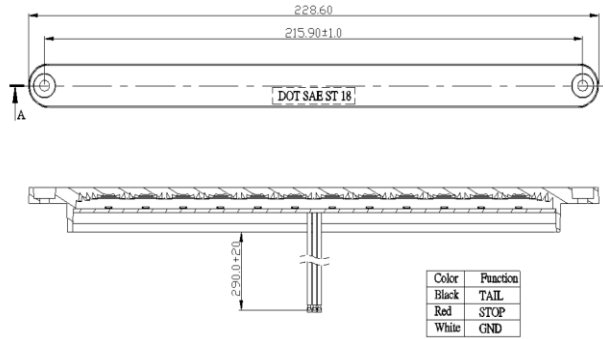
PASSED

Tests reviewed by:

Gary I. Robin

## TEST DATA SHEET

Test Component: Stellar 2225283-R 12 LED Stop and Tail Lamp Bar - 9 inch

Test Item	Chroma Test per SAE J578C								
Test Date	4.25.19								
Equipment	power Supply, chroma Meter								
<b>Test Condition:</b> 1. 23~28° C 2. Voltage: 12.8 V									
<b>Test Method :</b> Mount specimen on tooling, chroma test at a distance of 1.5 M using CIE fixture.									
<b>Determined Standard :</b> $Y \leq 0.33$ ( yellow boundary ) $Y \geq 0.98 - X$ (purple boundary)									
<b>Test Result :</b> $X=0.702$ $Y=0.295$									
	 <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Color</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Black</td> <td>TAIL</td> </tr> <tr> <td>Red</td> <td>STOP</td> </tr> <tr> <td>White</td> <td>GND</td> </tr> </tbody> </table>	Color	Function	Black	TAIL	Red	STOP	White	GND
Color	Function								
Black	TAIL								
Red	STOP								
White	GND								

Result: PASSED SAE J578C color test

By:

Gay / Rubin

## PHOTOMETRIC TEST DATA SHEET

Test Component: Stellar 2225283-R 12 LED Stop and Tail Lamp Bar 9 inch

Sample: 1  
 Specification: FMVSS 108 Table VIII Tail Lamp (3 or more sections)  
 Test Distance: 3.16M  
 Test Voltage: 14.00 Volts  
 Test Current: 0.03 Amps  
 Test Power: 0.42 Watts

### LUMINOUS INTENSITY, CANDELLA

<u>TEST POINT</u>	<u>MIN</u>	<u>MAX</u>	<u>MEASURED</u>	<u>H-REAIM</u>	<u>V-REAIM</u>
10U-5L	1	25	4.67	-5	+10
10U-5R	1	25	3.83	+5	+10
5U-20L	.7	25	2.78	-20	+5
5U-10L	2	25	6.03	-10	+5
5U-V	4.5	25	8.99	0	+5
5U-10R	2	25	3.83	+10	+5
5U-20R	.7	25	4.91	+20	+5
H-10L	2	25	5.52	-10	0
H-5L	5	25	10.00	-5	0
H-V	5	25	19.23	0	0
H-5R	5	25	13.82	+5	0
H-10R	2	25	9.32	+10	0
5D-20L	.7		2.79	-20	-5
5D-10L	2		5.82	-10	-5
5D-V	4.5		9.66	0	-5
5D-10R	2		7.28	+10	-5
5D-20R	.7		4.73	+20	-5
10D-5L	1		4.43	-5	-10
10D-5R	1		4.70	+5	-10
GROUP 1	3.5		23.49		
GROUP 2	6		17.37		
GROUP 3	24		61.70		
GROUP 4	6		23.49		
GROUP 5	3.5		18.16		

Device meets requirements at all points.

## PHOTOMETRIC TEST DATA SHEET

Test Component: Stellar 2225283-R 12 LED Stop and Tail Lamp Bar 9 inch

Sample: 1  
 Specification: FMVSS 108 Table IX Stop Lamp (3 or more sections)  
 Test Distance: 3.16M  
 Test Voltage: 12.80 Volts  
 Test Current: 0.22 Amps  
 Test Power: 2.82 Watts

### LUMINOUS INTENSITY, CANDELLA

<u>TEST POINT</u>	<u>MIN</u>	<u>MAX</u>	<u>MEASURED</u>	<u>H-REAIM</u>	<u>V-REAIM</u>
10U-5L	22	420	53.40	-5	+10
10U-5R	22	420	45.29	+5	+10
5U-20L	15	420	33.24	-20	+5
5U-10L	40	420	72.02	-10	+5
5U-V	95	420	105.79	0	+5
5U-10R	40	420	81.59	+10	+5
5U-20R	15	420	57.53	+20	+5
H-10L	55	420	65.70	-10	0
H-5L	110	420	117.83	-5	0
H-V	110	420	229.49	0	0
H-5R	110	420	160.81	+5	0
H-10R	55	420	110.11	+10	0
5D-20L	15	420	33.29	-20	-5
5D-10L	40	420	68.83	-10	-5
5D-V	95	420	113.94	0	-5
5D-10R	40	420	85.41	+10	-5
5D-20R	15	420	55.52	+20	-5
10D-5L	22	420	52.50	-5	-10
10D-5R	22	420	48.86	+5	-10
GROUP 1	70		172.43		
GROUP 2	135		206.55		
GROUP 3	520		727.86		
GROUP 4	135		277.11		
GROUP 5	70		207.20		

Device meets requirements at all points.

Reviewed and approved for submittal by:

A handwritten signature in black ink that reads "Gary I. Robin". The signature is written in a cursive style with a prominent initial "G".

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**Gary I. Robin**  
*Responsible Engineer*

May 1, 2019