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### TEST REPORT 160224-4216143

Report Date: February 24, 2016  
Test Component: ABC Marketing, 4216143, 6" oval, 20 LED, backup lamp (R)  
Devices Tested: Two (2) Submitted 2/10/2016

#### TEST SUMMARY (FMVSS-108)

Photometric Tests - Backup Lamp

SAE J593c (Back Up Lamp) PASSED

Mechanical Tests - SAE J575e

PASSED

Color Tests – SAE J578c

PASSED

Socket Tests – SAE J567b

NOT APPLICABLE

Dimensional Tests (All Vehicle Types)

PASSED

Signature of responsible engineer:

A handwritten signature in black ink, appearing to read 'Gary I. Robin', written in a cursive style.

Gary I. Robin

## DESCRIPTION SHEET

Device Name: ABC Marketing, 4216143, 6" oval, 20 LED, backup lamp (R)

MARKINGS:

LENS: "DOT SAE R 15"

LENS

MATERIAL: PMMA (transparent)

HOUSING

MATERIAL: ABS (black)

BULB:

FUNCTION	QUANTITY	TRADE NO.	VOLTAGE
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R	20	LED	12.8V
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Lens complies with SAE J576 JUL 91 requirements as specified in FMVSS-108

## TEST RESULT SHEET

Device Name: ABC Marketing, 4216143, 6" oval, 20 LED, backup lamp (R)

### PHOTOMETRIC TESTS

Specification (s): FMVSS-108 (SAE J593c)

Tests performed by: Gary I. Robin

Meets requirements at all points for:

SAE J593c (Back Up Lamp)

Test distance: 3.16 M

All photometry tests performed at 12.80V after 10 minute warm-up (SAE J1889 methodology).

All lamps seasoned 10 hours prior to testing.

### LENS AREA REQUIREMENTS

Lamp is a backup - Lens Area requirements are not applicable

### BULB SOCKET REQUIREMENTS – SAE J567b

Lamp uses LEDs -The bulb socket requirements are not applicable.

## TEST RESULT SHEET

Device Name: ABC Marketing, 4216143, 6" oval, 20 LED, backup lamp (R)

**MECHANICAL TESTS:** SAE J575e

Test performed by: Gary I. Robin

Sample #2

Vibration Test (Shock test): PASSED

There was no evidence of material physical weakness,  
lens or reflector rotation, displacement or rupture of parts.  
LED parts were not damaged.

Moisture Test PASSED

Lamp had 0cc of moisture accumulation inside  
of the cavity. ( $\leq$ 2cc required).

Dust Test: NOT REQUIRED

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.

Corrosion Test: NOT REQUIRED

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

Thermal Test: PASSED

Durability Test: PASSED

LED Life Test: PASSED

Lamp are not blinking, blacking or shutting off after 1000 hrs.

## TEST DATA SHEET

Device Name: ABC Marketing, 4216143, 6" oval, 20 LED, backup lamp (R)

Test Item	Chroma Test
Test Date	2/16/2016
Equipment	Power Supply, Chroma Meter

Test Condition :

1. 25~30

Normal indoor temperature 25-30

2.Voltage: 12.8 V

Test Method :

Attach lamp to tooling, test at a distance of 1.5 m, Chroma Test in CIE fixture.

Determined Standard :

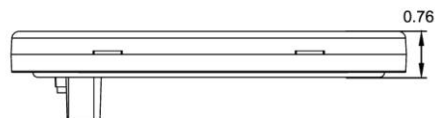
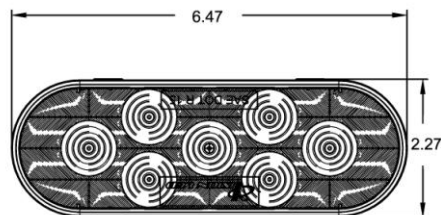
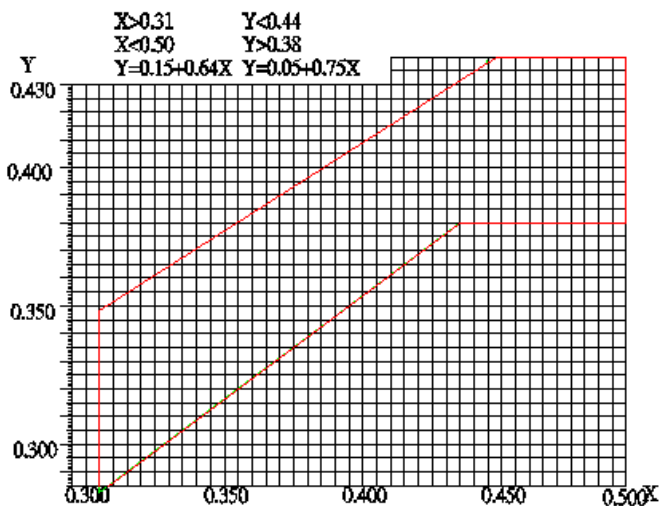
$X > 0.31$        $Y < 0.44$

$X < 0.5$        $Y > 0.38$

$Y = 0.15 + 0.64X$      $Y = 0.05 + 0.75X$

Test Result :

$X = 0.398$ ,  $Y = 0.362$



Result: Passed SAE J578C color test

By:

*Say / Rahni*

## PHOTOMETRIC TEST DATA SHEET

Device Name: ABC Marketing, 4216143, 6" oval, 20 LED, backup lamp (R)

Sample number: #1 / Specification: SAE J593c (Backup Lamp)

Volts: 12.80 / Amps: 0.330 / Bulb:20xLED

Location	Measured	Min CP	Max CP	Zone
10U 10L	158.47	10	300	3
10U V	203.68	15	300	3
10U 10R	175.31	10	300	3
5U 45R	35.92	15	300	6
5U 10R	176.34	20	300	3
5U V	177.11	25	300	3
5U 10L	166.55	20	300	3
5U 45L	36.71	15	300	1
H 45L	35.58	15	300	1
H 30L	71.52	25	300	2
H 10L	171.67	50	300	4
H V	150.12	80	300	4
H 10R	174.66	50	300	4
H 30R	59.15	25	300	5
H 45R	36.40	15	300	6
5D 45R	37.15	15	-	6
5D 30R	59.34	25	-	5
5D 10R	173.93	50	-	4
5D V	174.09	80	-	4
5D 10L	163.96	50	-	4
5D 30L	72.10	25	-	2
5D 45L	35.60	15	-	1

Zone	Candela	Req Min	Req Max
1	107.89	45	-
2	143.62	50	-
3	1057.46	100	-
4	1008.43	360	-
5	118.49	50	-
6	109.47	45	-

Result: Passed SAE J593c Photometric Backup Test.

By:



Reviewed and approved for submittal by:

A handwritten signature in black ink, reading "Gary I. Robin". The signature is written in a cursive style with a large, stylized "G" and "R".

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**Gary I. Robin**

*Responsible Engineer*

February 24, 2016