AUTOMOTIVE MANUFACTURERS EQUIPMENT COMPLIANCE AGENCY, INC.

AMECA NOTICE OF EQUIPMENT COMPLIANCE™

This notice verifies that the item described below has been tested by an accredited laboratory and has been found to be in compliance with the jurisdictional standard(s) listed below where applicable. The issuance of this AMECA Notice of Equipment Compliance™ does not denote or imply any endorsement or recommendation of the item described below. AMECA does not warranty or guaranty parts. Parts warranties/guaranties are between the buyer and seller and can vary by state and jurisdictions involved.

Notification Number: 211336

Test Report Date: August 24, 2021
Expiration Date: January 1, 2025

Item: "20-FD035/FD-036" - Combination Turn Signal, Parking, Headlamp, Daytime Running And Side Marker Lamp With Reflex Reflector - White And Yellow In Color

Use: On 2011-2016 Model Years Ford F250 Super Duty Motor Vehicles

Jurisdictional Compliance Standard(S)
Identical To: United States FMVSS 571.108 Photometric Only

Markings	
Lens	Housing
LOGO DOT SAE HL A P2 DRL I5 P 11 20-FD035(Or FD036) VOR	12V

Light Source: Turn Signal/Parking Lamp: 4157NAK, 12.8/14.0V
Daytime Running Lamp: 36 LED's, 12.8V
Lower Beam Headlamp: 3 LED's, 12.8V
Upper Beam Headlamp: 6 LED's, 12.8V

Test Lab: ISOQA Technical Service Co., Ltd.
Report Number: 108-ISOQA-21-0479

Executive Director

AUTOMOTIVE MANUFACTURERS EQUIPMENT COMPLIANCE AGENCY, INC. CORPORATE SEAL 1994 MARYLAND

"AMECA"; "AMECA Edge Code" (for automotive brake friction material); and the AMECA Logo are trademarks registered with the US Patent & Trademark Office and with the US Department of Homeland Security - Customs and Border Patrol. These trademarks are solely owned by Automotive Manufacturers Equipment Compliance Agency, Inc. and may not be used without the express written permission of AMECA.

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

SAFETY COMPLIANCE TESTING FOR FMVSS 108

Lamps, Reflective Devices, and Associated Equipment

* *

ISOQA Technical Service Co., Ltd.

60, Yong Long Road,
Da-Li, Taichung, 41257
Taiwan

TEST REPORT

- This report becomes effective when the signatory signs it and affixed the seal to the document.
- No part of this report may be altered and may not be reproduced except in full without the written approval of the test laboratory.
- The specification and basic data of this test report are provided by the applicant. The applicant shall be responsible for it if the information provided is incorrect and effects the test results.
- The test results only apply to the test sample(s) received.
- The test samples are selected and provided by the applicant. The laboratory does not responsible for implement sampling.

Archer Chang

ISOQA
2021-08-24
ISOQA TECHNICAL SERVICE CO., LTD.

Signature of Responsible Laboratory Official

Title: Laboratory Manager

Approval Date

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

TABLE OF CONTENTS

Contents	Number of page in each report
Cover Page	1
Contents	1
Product information	2
Front Turn Signal Lamp	4
Parking Lamp	4
Headlamp - Lower Beam Headlamp - Upper Beam	5
Daytime Running Lamp	4
Side Marker Lamp	4
Reflex Reflector	3
Drawing	1
Total Pages	29

Report Prepared By : Lisa Liu

Review By : J.Y Pan

Approval By : Arthur Chang

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

PRODUCT INFORMATION

Test Component	20-FD035/20-FD036
Applicant	Morimoto Lighting
Manufacturer	same as Applicant
Trade Mark	MORIMOTO
Lens Material	CHIMEI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $
Coating of Exterior Lens	UVHC 3000
Inner Lens Material	CHIMEI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $ CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE A-202 Yellow
Reflex Reflector Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE A-202 Yellow
Applicable Vehicle	FORD F250 Super Duty 2011-2016
Rated Voltage	12 V
Marking on Lens	RH: DOT SAE HL A P2 DRL I5 P 11 20-FD035 VOR LOGO LH: LOGO DOT SAE HL A P2 DRL I5 P 11 20-FD036 VOR
Marking on Housing	12V
Method of Mounting to Vehicle	bolted

* Above-mentioned information is provided by the applicant ('-' = not applicable or no information provided)

Functions			Front Turn Signal Lamp	Parking Lamp	Headlamp - Lower Beam	Headlamp - Upper Beam	Daytime Running Lamp
Requirements			FMVSS 108 SAE J588	FMVSS 108 SAE J222	FMVSS 108	FMVSS 108	FMVSS 108 SAE J2087
Identification Code of SAE J759			I5	P	HL	HL	DRL
Number of Compartments or Lamps			1	1	1	1	1
Color of External Lens			Clear	Clear	Clear	Clear	Clear
Color of Inner Lens or Filter			Clear	Clear	-	-	Clear
Color of Light Emitted			Yellow	Yellow	White	White	White
Light Source Designation			4157NAK × 1	4157NAK × 1	LED × 3	LED × 6	LED × 36
Design Voltage			12.8 V	14 V	12.8 V	12.8 V	12.8 V
Rated Mean Spherical Candlepower			-	-	-	-	-
Effective projected illuminated area of lens (mm^2)			5669	N/A	N/A	N/A	17360
Method of determination			Projected	N/A	N/A	N/A	Projected
Test Item	Inspector	Date	Number of Tested				
Physical Inspection	Bo Yang Lee	2021/7/8	2	2	2	2	2
Photometry Test	Bo Yang Lee	2021/7/9	2	2	2	2	2
Color Test	Bo Yang Lee	2021/8/23	2	2	2	2	2

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

Functions			Side Marker Lamp	Reflex Reflector			
Requirements			FMVSS 108 SAE J592	FMVSS 108 SAE J594			
Identification Code of SAE J759			P2	A			
Number of Compartments or Lamps			1	1			
Color of External Lens			Clear	Clear			
Color of Inner Lens or Filter			Yellow	-			
Color of Light Emitted			Yellow	Yellow			
Light Source type and Trade Number			LED × 9	N/A			
Design Voltage			12.8 V	N/A			
Rated Mean Spherical Candlepower			-	N/A			
Effective Projected Luminous Lens Area (mm^2)			N/A	N/A			
Method of determination			N/A	N/A			
Test Item	Inspector	Date	Number of Tested				
Physical Inspection	Bo Yang Lee	2021/7/8	2	2			
Photometry Test	Bo Yang Lee	2021/7/9	2	2			
Color Test	Bo Yang Lee	2021/8/23	2	2			

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

TURN SIGNAL LAMP TEST REPORT

Test Component	20-FD035/20-FD036
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2021/7/8 - 2021/8/23
Report Number	108-ISOQA-21-0479
Number of devices tested	See below
Light source Designation	4157NAK × 1

SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-
- Dust Test	Not Tested	-
- Moisture Test	Not Tested	-
- Corrosion Test	Not Tested	-
- Vibration Test	Not Tested	-

Remarks :

Archer Chang

Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : August 24, 2021

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2021/7/8

Marking on Lens	RH: DOT SAE HL A P2 DRL I5 P 11 20-FD035 VOR LOGO LH: LOGO DOT SAE HL A P2 DRL I5 P 11 20-FD036 VOR	
Marking on Housing	12V	
Lens Material	CHIMEI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear	
Coating of External Lens	UVHC 3000	
Light Sources Used	Trade No/ Designation	4157NAK
	Quantity	1
	Rated Voltage	12 V

Remarks :

EFFECTIVE PROJECTED LUMINOUS LENS AREA

Test Performed by : Bo Yang Lee Date : 2021/7/8

Vehicle Type	Passenger cars, multipurpose passenger vehicles, trucks, trailers, and buses of less than 2032 mm in overall width		
Method of determination	Projected		
Effective projected illuminated area of lens (mm^2)	Requirement	Value	Result
	2200	5669	PASSED

Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/7/9
Test distance(m)	:	3.167 m	Light Source Designation	:	4157NAK × 1
Tested Voltage	:	12.8 V	Lighted Sections	:	1

Test Points	Zone	Rto.	Minimum (cd)	Maximum (cd)	Sample 1 (LH)		Sample 2 (RH)	
		Parking Lamp			Rto	Measured (1)	Rto	Measured (1)
5U - 20L	1	3	62.5	-	6.8	58.280	6.9	52.040
5D - 20L	1	-	62.5	-	19.8	60.600	6.8	43.770
10U - 5L	1	3	100	-	16.0	181.200	18.5	221.900
10D - 5L	1	-	100	-	15.9	191.200	28.8	325.100
5U - 10L	2	3	187.5	-	21.2	304.900	17.8	206.800
H - 10L	2	3	250	-	34.5	425.200	20.7	265.900
5D - 10L	2	-	187.5	-	9.6	117.900	13.8	179.200
5U - V	3	5	437.5	-	91.2	581.100	38.8	490.100
H - 5L	3	5	500	-	89.1	625.100	50.8	561.600
H - V	3	5	500	-	118.3	852.000	114.4	737.900
H - 5R	3	5	500	-	59.3	594.900	66.8	576.100
5D - V	3	-	437.5	-	29.4	339.300	47.7	474.400
5U - 10R	4	3	187.5	-	20.9	267.100	12.7	172.100
H - 10R	4	3	250	-	28.0	348.800	24.1	337.700
5D - 10R	4	-	187.5	-	11.3	150.700	12.4	190.700
10U - 5R	5	3	100	-	22.5	243.300	12.7	121.900
10D - 5R	5	-	100	-	25.0	352.400	12.2	178.000
5U - 20R	5	3	62.5	-	6.3	66.030	7.2	54.260
5D - 20R	5	-	62.5	-	11.6	57.530	17.7	88.800
Visibility			0.3	-	-	(2.625)	-	(2.883)

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1 (LH)	Sample 2 (RH)
1	325	491.280	642.810
2	625	848.000	651.900
3	2375	2992.400	2840.100
4	625	766.600	700.500
5	325	719.260	442.960

(1) The measured values at each individual test point shall not be less than 60% of the required minimum value shown for that individual test point location. The sum of the luminous intensity measurements at each test point within a zone shall not be less than the Zone Total Luminous Intensity shown.

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

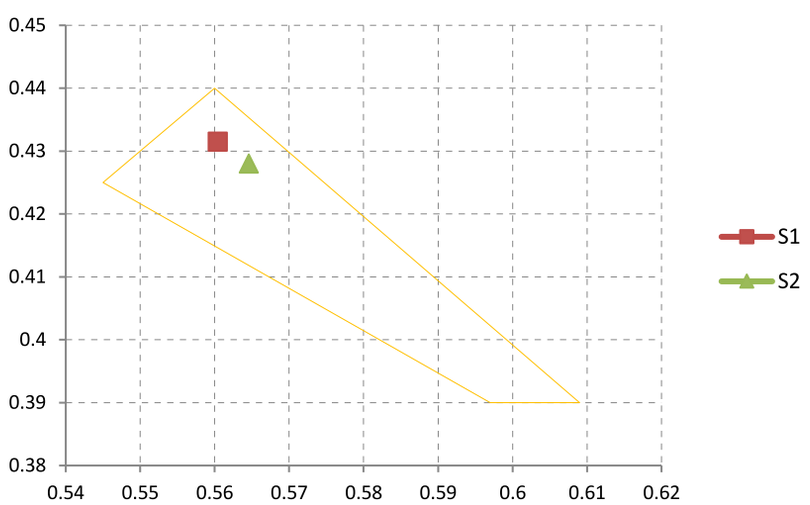
Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/8/23
Test distance(m)	:	3.073 m	Light Source Designation	:	4157NAK × 1
Color of Light Emitted	:	Yellow			

		Sample 1 (LH)	Sample 2 (RH)
Color emitted from HV point	x=	0.5604	0.5646
	y=	0.4315	0.4280



Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PARKING LAMP TEST REPORT

Test Component	20-FD035/20-FD036
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2021/7/8 - 2021/8/23
Report Number	108-ISOQA-21-0479
Number of devices tested	See below
Light source Designation	4157NAK × 1

SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-
- Dust Test	Not Tested	-
- Moisture Test	Not Tested	-
- Corrosion Test	Not Tested	-
- Vibration Test	Not Tested	-

Remarks :

Archer Chang

Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : August 24, 2021

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2021/7/8

Marking on Lens	RH: DOT SAE HL A P2 DRL I5 P 11 20-FD035 VOR LOGO LH: LOGO DOT SAE HL A P2 DRL I5 P 11 20-FD036 VOR	
Marking on Housing	12V	
Lens Material	CHIMEI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear	
Coating of External Lens	UVHC 3000	
Light Sources Used	Trade No/ Designation	4157NAK
	Quantity	1
	Rated Voltage	12 V

Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/7/9
Test distance(m)	:	3.167 m	Light Source Designation	:	4157NAK × 1
Tested Voltage	:	14 V			

Test Points	Zone	Minimum (cd)	Maximum (cd)	Sample 1 (LH)	Sample 2 (RH)
				Measured (1)	Measured (1)
5U - 20L	1	0.4	125	8.600	7.529
5D - 20L	1	0.4	250	3.061	6.410
10U - 5L	1	0.8	125	11.330	11.990
10D - 5L	1	0.8	250	12.020	11.290
5U - 10L	2	0.8	125	14.400	11.610
H - 10L	2	1.4	125	12.340	12.870
5D - 10L	2	0.8	250	12.250	12.960
5U - V	3	2.8	125	6.373	12.640
H - 5L	3	3.6	125	7.018	11.050
H - V	3	4	125	7.203	6.450
H - 5R	3	3.6	125	10.030	8.620
5D - V	3	2.8	250	11.560	9.950
5U - 10R	4	0.8	125	12.770	13.550
H - 10R	4	1.4	125	12.460	14.010
5D - 10R	4	0.8	250	13.350	15.370
10U - 5R	5	0.8	125	10.810	9.590
10D - 5R	5	0.8	250	14.090	14.580
5U - 20R	5	0.4	125	10.530	7.579
5D - 20R	5	0.4	250	4.940	5.021
Visibility on or above HH		0.05	125	(0.249) 24.189	(0.249) 28.104
Visibility below HH		0.05	250	(0.202) 24.537	(0.219) 28.275

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1 (LH)	Sample 2 (RH)
1	2.4	35.011	37.219
2	3.0	38.990	37.440
3	16.8	42.184	48.710
4	3.0	38.580	42.930
5	2.4	40.370	36.770

(1) The measured values at each individual test point shall not be less than 60% of the required minimum value shown for that individual test point location. The sum of the luminous intensity measurements at each test point within a zone shall not be less than the Zone Total Luminous Intensity shown.

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

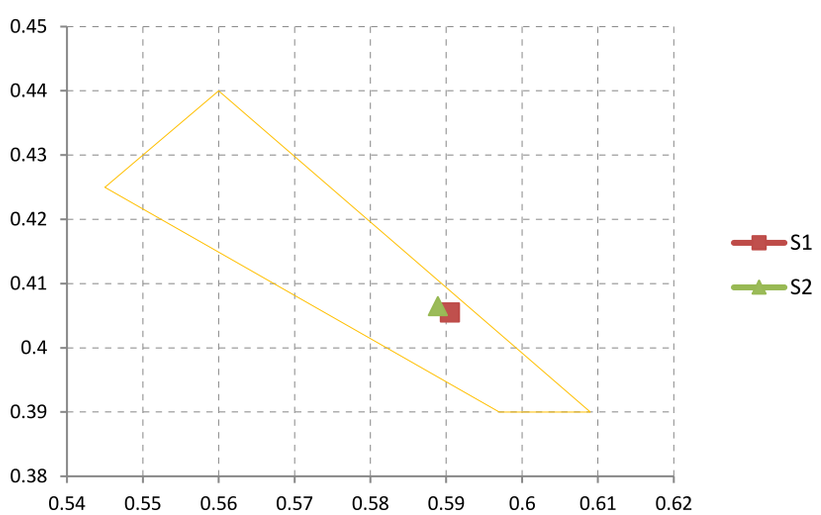
Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/8/23
Test distance(m)	:	3.073 m	Light Source Designation	:	4157NAK × 1
Color of Light Emitted	:	Yellow			

		Sample 1 (LH)	Sample 2 (RH)
Color emitted from HV point	x=	0.5905	0.5889
	y=	0.4055	0.4065



Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

HEADLAMP TEST REPORT

Test Component	20-FD035/20-FD036
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2021/7/8 - 2021/8/23
Report Number	108-ISOQA-21-0479
Number of devices tested	See below
Light source Designation	Upper Beam - LED × 6 Lower Beam - LED × 3

SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-
- Dust Test	Not Tested	-
- Corrosion Test	Not Tested	-
- Vibration Test	Not Tested	-
- Abrasion Test	Not Tested	-
- Chemical Resistance Test	Not Tested	-
- Temp. Cycle Test	Not Tested	-
- Internal Heat Test	Not Tested	-
- Humidity Test	Not Tested	-

Remarks :

Archer Chang

Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : August 24, 2021

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2021/7/8

Marking on Lens	RH: DOT SAE HL A P2 DRL I5 P 11 20-FD035 VOR LOGO LH: LOGO DOT SAE HL A P2 DRL I5 P 11 20-FD036 VOR		
Marking on Housing	12V		
Lens Material	CHIMEI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear		
Coating of External Lens	UVHC 3000		
Light Sources Used	Function	Upper Beam	Lower Beam
	Trade No/ Designation	LED	LED
	Quantity	6	3
	Rated Voltage	12 V	12 V

Remarks : The lower beam light source remain permanently activated when the upper beam light source is activated.

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHOTOMETRY TEST

Test Performed by : Bo Yang Lee Date : 2021/7/9

Test distance(m) : 25 m Test Voltage : 12.8 V

Light Source Designation : Upper Beam - LED × 6 / Lower Beam - LED × 3

Steady Burning at H - V (according to SAE J2650)	Sample 1 (LH)			Sample 2 (RH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	72710.0	68620.0	1.06	74430.0	70840.0	1.05

UB2 - Upper Beam Photometric Test Point Values

Test Points	Minimum (cd)	Maximum (cd)	Sample 1 (LH)	Sample 2 (RH)
			Measured	Measured
2U - V	1500	-	14530.000	11850.000
1U - 3L	5000	-	10750.000	7880.000
1U - 3R	5000	-	15890.000	11520.000
H - V	40000	75000	68620.000	70840.000
H - 3L	15000	-	26580.000	21580.000
H - 3R	15000	-	38620.000	45170.000
H - 6L	5000	-	9690.000	8420.000
H - 6R	5000	-	15260.000	15560.000
H - 9L	3000	-	4951.000	5040.000
H - 9R	3000	-	9250.000	7917.000
H - 12L	1500	-	3118.000	3177.000
H - 12R	1500	-	5953.000	4557.000
1.5D - V	5000	-	37710.000	45300.000
1.5D - 9L	2000	-	9510.000	9280.000
1.5D - 9R	2000	-	6987.000	10330.000
2.5D - V	2500	-	5628.000	8113.000
2.5D - 12L	1000	-	2909.000	2366.000
2.5D - 12R	1000	-	2667.000	2874.000
4D - V	-	12000	2415.000	2973.000

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

Steady Burning at 1.5D - 2R (according to SAE J2650)	Sample 1 (LH)			Sample 2 (RH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	22590.0	19490.0	1.16	28260.0	26520.0	1.07

LB2V - Lower Beam Photometric Test Point Values

Test Points	Minimum (cd)	Maximum (cd)	Sample 1 (LH)	Sample 2 (RH)
			Measured	Measured
10U to 90U	-	125	23.875	19.261
4U - 8L	64	-	74.500	68.100
4U - 8R	64	-	81.300	80.300
2U - 4L	135	-	238.300	166.600
1.5U - 1R to 3R	200	-	383.586	322.499
1.5U - 1R to R	-	1400	465.874	462.898
1U - 1.5L to L	-	700	436.924	269.187
0.5U - 1.5L to L	-	1000	611.456	437.095
0.5U - 1R to 3R	500	2700	(692.162)	(749.54)
			924.718	874.500
H - 4L	135	-	496.300	362.800
H - 8L	64	-	288.500	251.500
0.6D - 1.3R	10000	-	31370.000	28600.000
0.86D - V	4500	-	32430.000	29770.000
0.86D - 3.5L	1800	12000	9980.000	9230.000
1.5D - 2R	15000	-	19490.000	26520.000
2D - 9L	1250	-	4043.000	3470.000
2D - 9R	1250	-	3895.000	4502.000
2D - 15L	1000	-	2031.000	1695.000
2D - 15R	1000	-	2427.000	2507.000
4D - 4R	-	12500	2414.000	2769.000
4D - 20L	300	-	712.600	562.200
4D - 20R	300	-	673.800	778.000

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

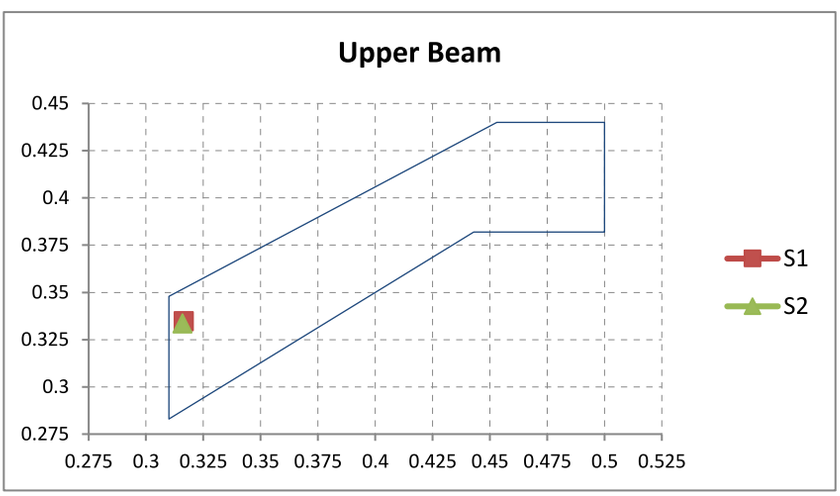
Applicant : Morimoto Lighting

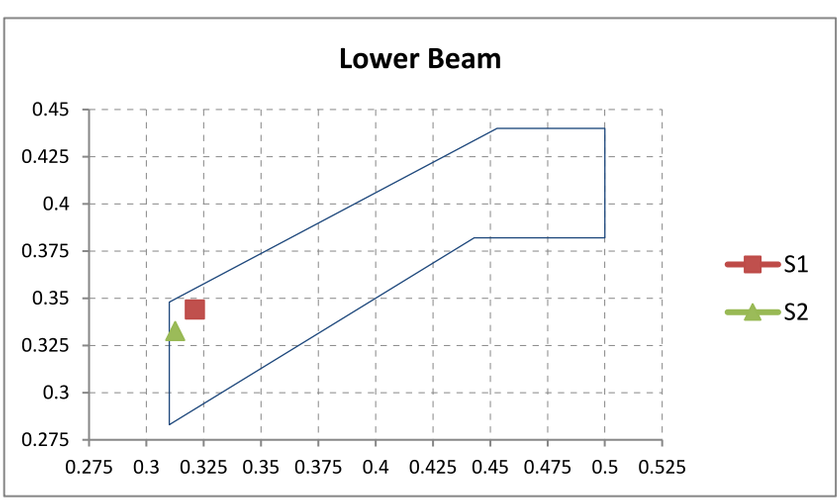
ISOQA
www.isoqa.org | isoqa@isoqa.org

COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/8/23
Test distance(m)	:	3.073 m	Color of Light Emitted	:	White

Color emitted from HV point		Sample 1 (LH)	Sample 2 (RH)
Upper Beam	x=	0.3165	0.3160
	y=	0.3349	0.3336
Lower Beam	x=	0.3211	0.3125
	y=	0.3441	0.3327





Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

DAYTIME RUNNING LAMP TEST REPORT

Test Component	20-FD035/20-FD036
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2021/7/8 - 2021/8/23
Report Number	108-ISOQA-21-0479
Number of devices tested	See below
Light source Designation	LED × 36

SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-
- Dust Test	Not Tested	-
- Moisture Test	Not Tested	-
- Corrosion Test	Not Tested	-
- Vibration Test	Not Tested	-

Remarks :

Archer Chang

Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : August 24, 2021

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2021/7/8

Marking on Lens	RH: DOT SAE HL A P2 DRL I5 P 11 20-FD035 VOR LOGO LH: LOGO DOT SAE HL A P2 DRL I5 P 11 20-FD036 VOR	
Marking on Housing	12V	
Lens Material	CHIMEI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear	
Coating of External Lens	UVHC 3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	36
	Rated Voltage	12 V

Remarks :

Unobstructed Effective Projected Luminous Lens Area

Test Performed by : Bo Yang Lee Date : 2021/7/9

Vehicle Type	Passenger cars, multipurpose passenger vehicles, trucks, trailers, and buses of less than 2032 mm in overall width		
Method of determination	Projected		
Unobstructed effective projected luminous lens area (mm^2)	Requirement	Value	Result
	2500	17360	PASSED

Remarks : Required by SAE J2087

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/7/9
Test distance(m)	:	3.167 m	Light Source Designation	:	LED × 36
Test Voltage	:	12.8 V	Lighted Sections	:	N/A

Steady Burning at H-V (according to SAE J1889)	Sample 1 (LH)			Sample 2 (RH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	2145.0	2112.0	1.02	2266.0	2210.0	1.03

Test Points	Zone	Minimum (cd)	Maximum (cd)	Sample 1 (LH)	Sample 2 (RH)
				Measured (1)	Measured (1)
H - V	2	500	2500	2112.000	2210.000
10U - 5L	3	80	2500	1747.000	1607.000
10U - V	3	80	2500	1752.000	1764.000
10U - 5R	3	80	2500	1585.000	1722.000
5U - 20L	1	40	2500	879.000	399.500
5U - 10L	1	80	2500	1837.000	1317.000
5U - V	2	280	2500	2076.000	2105.000
5U - 10R	4	80	2500	1350.000	1887.000
5U - 20R	4	40	2500	413.400	886.000
H - 20L	1	100	2500	863.000	402.100
H - 10L	1	280	2500	1847.000	1371.000
H - 5L	2	360	2500	2124.000	1928.000
H - 5R	2	360	2500	1809.000	2239.000
H - 10R	4	280	2500	1332.000	1993.000
H - 20R	4	100	2500	397.400	925.000
5D - 20L	1	40	2500	785.800	390.000
5D - 10L	1	80	2500	1686.000	1291.000
5D - V	2	280	2500	1897.000	1991.000
5D - 10R	4	80	2500	1284.000	1806.000
5D - 20R	4	40	2500	390.400	834.000

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1 (LH)	Sample 2 (RH)
1	620.0	7897.800	5170.600
2	1680.0	10018.000	10473.000
3	240.0	5084.000	5093.000
4	620.0	5167.200	8331.000

(1) The measured values at each individual test point shall not be less than 60% of the required minimum value shown for that individual test point location. The sum of the luminous intensity measurements at each test point within a zone shall not be less than the Zone Total Luminous Intensity shown.

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

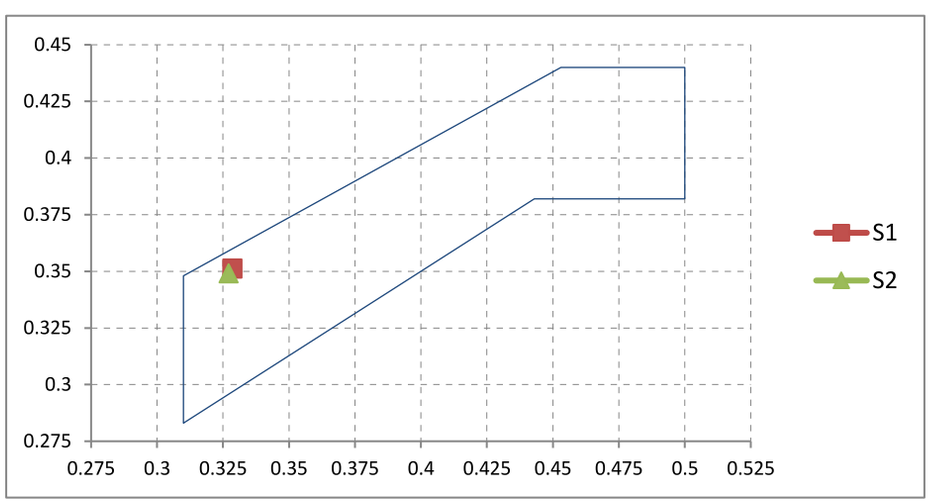
Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/8/23
Test distance(m)	:	3.073 m	Light Source Designation	:	LED × 36
Color of Light Emitted	:	White			

		Sample 1 (LH)	Sample 2 (RH)
Color emitted from HV point	x=	0.3285	0.3271
	y=	0.3512	0.3492



Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

SIDE MARKER LAMP TEST REPORT

Test Component	20-FD035/20-FD036
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2021/7/8 - 2021/8/23
Report Number	108-ISOQA-21-0479
Number of devices tested	See below
Light source Designation	LED × 9

SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-
- Dust Test	Not Tested	-
- Moisture Test	Not Tested	-
- Corrosion Test	Not Tested	-
- Vibration Test	Not Tested	-

Remarks :

Archer Chang

Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : August 24, 2021

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2021/7/8

Marking on Lens	RH: DOT SAE HL A P2 DRL I5 P 11 20-FD035 VOR LOGO LH: LOGO DOT SAE HL A P2 DRL I5 P 11 20-FD036 VOR	
Marking on Housing	12V	
Lens Material	CHIMEI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear	
Coating of External Lens	UVHC 3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	9
	Rated Voltage	12 V

Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/7/9
Test distance(m)	:	3.167 m	Light Source Designation	:	LED × 9
Tested Voltage	:	12.8 V			

Steady Burning at H-V (according to SAE J1889)	Sample 1 (LH)			Sample 2 (RH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	78.73	77.72	1.01	76.65	75.71	1.01

Test Points		Minimum (cd)		Sample 1 (LH)	Sample 2 (RH)
LHM	RHM	FMVSS 108	SAE J2042	Measured	Measured
H - V	H - V	0.62	-	77.720	75.710
10U - 45R	10U - 45R	0.62	-	29.500	27.540
10U - V	10U - V	0.62	-	72.000	71.110
10U - 45L	10U - 45L	0.62	-	24.220	25.110
H - 45L	H - 45L	0.62	-	27.970	32.170
H - 45R	H - 45R	0.62	-	33.300	31.780
10D - 45R	10D - 45R	0.62	-	28.990	17.230
10D - V	10D - V	0.62	-	71.070	66.220
10D - 45L	10D - 45L	0.62	-	19.160	24.070

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

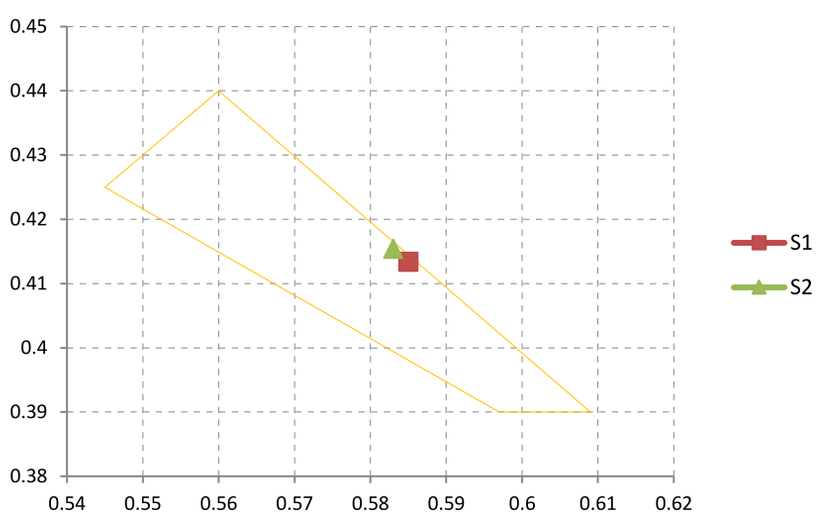
Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2021/8/23
Test distance(m)	:	3.073 m	Light Source Designation	:	LED × 9
Color of Light Emitted	:	Yellow			

		Sample 1 (LH)	Sample 2 (RH)
Color emitted from HV point	x=	0.5850	0.5830
	y=	0.4134	0.4154



Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

REFLEX REFLECTOR TEST REPORT

Test Component	20-FD035/20-FD036
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2021/7/8 - 2021/8/23
Report Number	108-ISOQA-21-0479
Number of devices tested	See below
Light source Designation	N/A

SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-
- Dust Test	Not Tested	-
- Moisture Test	Not Tested	-
- Corrosion Test	Not Tested	-
- Vibration Test	Not Tested	-

Remarks :

Archer Chang

Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : August 24, 2021

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

www.isoqa.org | isoqa@isoqa.org

PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2021/7/8

Marking on Lens	RH: DOT SAE HL A P2 DRL I5 P 11 20-FD035 VOR LOGO LH: LOGO DOT SAE HL A P2 DRL I5 P 11 20-FD036 VOR	
Marking on Housing	12V	
Reflex Reflector Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE A-202 Yellow	
Coating of External Lens	UVHC 3000	
Light Sources Used	Trade No/ Designation	N/A
	Quantity	N/A
	Rated Voltage	N/A

Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

ISOQA
www.isoqa.org | isoqa@isoqa.org

PHOTOMETRY TEST

Test Performed by : Bo Yang Lee Date : 2021/7/9

Test distance(m) : 100 ft Color of Light Emitted : Yellow

Observe Angle	Entrance Angle		Minimum (Mcd/ Lux)	Sample 1 (LH)	Sample 2 (RH)
0.2	H	V	1050	1252.000	1494.000
0.2	H	10U	700	920.000	1054.000
0.2	H	10D	700	947.000	1103.000
0.2	20L	V	350	613.000	759.000
0.2	20R	V	350	757.000	594.000
1.5	H	V	15	85.000	85.600
1.5	H	10U	12.5	69.000	70.800
1.5	H	10D	12.5	74.500	76.700
1.5	20L	V	7.5	48.200	53.100
1.5	20R	V	7.5	38.600	24.700

COLOR TEST

Test Performed by : Bo Yang Lee Date : 2021/8/23

Color of Light Emitted : Yellow

Requirement (Visual Method)	PASS	FAILED
Yellow (Amber). Yellow is not acceptable if it is less saturated (paler), greener, or redder than the limit standards.	x	

Remarks :

Report No. : 108-ISOQA-21-0479

Test Component : 20-FD035/20-FD036

Applicant : Morimoto Lighting

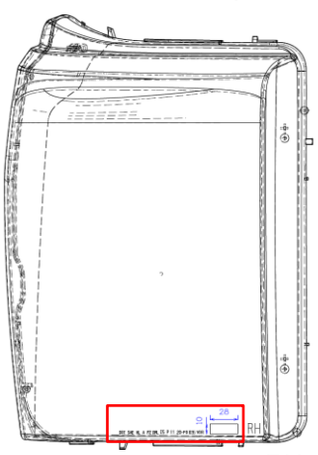
www.isoqa.org | isoqa@isoqa.org

Front View

Side View

Top View

Rear View



LOGO

RH: DOT SAE HL A P2 DRL I5 P 11 20-FD035 VOR **LOGO**

LH: **LOGO** DOT SAE HL A P2 DRL I5 P 11 20-FD036 VOR

Marking