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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.

Notification Number: 201275

Test Report Date: September 15, 2020
Expiration Date: January 1, 2024

Item: "20-FD021/20-FD022" - Combination Turn Signal, Parking, Headlamp, Side Marker And Daytime Running Lamp With Reflex Reflector - White And Yellow In Color

Use: On 2018+ Model Years Ford F150 Motor Vehicles

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

Item Markings: Lens: (Morimoto Logo) 20-FD021 (Or 20-FD022) DOT SAE I5 HL A P2 P DRL VOL 18
Housing: 12V

Lightsource:		
	Turn Signal Lamp:	18 LED's, 12.8V
	Parking Lamp:	48 LED's, 12.8V
	Lower Beam Headlamp:	12 LED's, 12.8V
	Upper Beam Headlamp:	12 LED's, 12.8V
	Daytime Running Lamp:	48 LED's, 12.8V
	Side Marker Lamp:	3 LED's, 12.8V

Test Lab: ISOQA Technical Service Co., Ltd.
Report Number: 108-ISOQA-20-0599

Executive Director

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Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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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

Archer Chang

ISOQA TECHNICAL SERVICE CO., LTD.
2020-09-15

Signature of Responsible Laboratory Official
Title: Laboratory Manager

Approval Date

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

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Report	Prepared By	:	Lisa Liu
	Review By	:	J.Y Pan
	Approval By	:	Arthur Chang

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PRODUCT INFORMATION

Test Component	20-FD021 / 20-FD022
Applicant	Morimoto Lighting
Manufacturer	same as Applicant
Trade Mark	
Lens Material	CHIMEI-ASAHI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $
Coating of Exterior Lens	UVHC3000
Inner Lens Material	CHIMEI-ASAHI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $
Reflex Reflector Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE A-202 Yellow
Applicable Vehicle	FORD F150 2018+
Rated Voltage	12 V
Marking on Lens	RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 LOGO LH: : LOGO DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022
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	White	White	White	White
Light Source Designation			LED × 18	LED × 48	LED × 12	LED × 12	LED × 48
Design Voltage			12.8 V	12.8 V	12.8 V	12.8 V	12.8 V
Rated Mean Spherical Candlepower			N/A	N/A	N/A	N/A	N/A
Effective projected illuminated area of lens (mm^2)			5500	N/A	N/A	N/A	9900
Method of determination			Projected	N/A	N/A	N/A	Projected
Test Item	Inspector	Date	Number of Tested				
Physical Inspection	Bo Yang Lee	2020/8/20	2	2	2	2	2
Photometry Test	Bo Yang Lee	2020/8/20	2	2	2	2	2
Color Test	Bo Yang Lee	2020/8/20	2	2	2	2	2

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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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	Yellow			
Color of Inner Lens or Filter			Clear	-			
Color of Light Emitted			Yellow	Yellow			
Light Source type and Trade Number			LED × 3	N/A			
Design Voltage			12.8 V	N/A			
Rated Mean Spherical Candlepower			N/A	N/A			
Effective Projected Luminous Lens Area (cm^2)			N/A	N/A			
Method of determination			N/A	N/A			
Test Item	Inspector	Date	Number of Tested				
Physical Inspection	Bo Yang Lee	2020/8/20	2	2			
Photometry Test	Bo Yang Lee	2020/8/20	2	2			
Color Test	Bo Yang Lee	2020/8/20	2	2			

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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TURN SIGNAL LAMP TEST REPORT

Test Component	20-FD021 / 20-FD022
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2020/8/20
Report Number	108-ISOQA-20-0599
Number of devices tested	See below
Light source Designation	LED × 18

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 : The optically functional lens area of DRL are partially common with turn signal lamp, which will be deactivated when the turn signal lamp is actived.
The requirments of FMVSS 108 S7.10.10.1 are complined.
See Drawing sheet for furnther information.

Archer Chang

Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : September 15, 2020

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2020/8/20

Marking on Lens	RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 LOGO LH: : LOGO DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022	
Marking on Housing	12V	
Lens Material	CHIMEI-ASAHI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $	
Coating of External Lens	UVHC3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	18
	Rated Voltage	12 V

Remarks :

EFFECTIVE PROJECTED LUMINOUS LENS AREA

Test Performed by : Bo Yang Lee Date : 2020/8/20

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	5500	PASSED

Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.167 m	Light Source Designation	:	LED × 18
Tested Voltage	:	12.8 V	Lighted Sections	:	3

Steady Burning at H-V (according to SAE J1889)	Sample 1 (LHM)			Sample 2 (RHM)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	816.70	793.30	1.03	767.20	747.90	1.03

Test Points	Zone	Rto. Parking Lamp	Minimum (cd)	Maximum (cd)	Sample 1 (LHM)		Sample 2 (RHM)	
					Rto	Measured (1)	Rto	Measured (1)
5U - 20L	1	3	87.5	-	7.3	367.500	4.4	192.000
5D - 20L	1	-	87.5	-	9.3	488.200	4.3	173.900
10U - 5L	1	3	137.5	-	4.5	277.000	4.8	282.100
10D - 5L	1	-	137.5	-	10.2	857.000	9.2	860.000
5U - 10L	2	3	250	-	5.3	446.900	5.0	356.900
H - 10L	2	3	350	-	6.3	622.000	5.2	414.100
5D - 10L	2	-	250	-	6.8	616.300	5.6	420.200
5U - V	3	5	587.5	-	5.3	529.600	6.2	542.300
H - 5L	3	5	687.5	-	6.7	751.100	5.8	567.000
H - V	3	5	687.5	-	6.9	793.300	7.1	747.900
H - 5R	3	5	687.5	-	6.8	712.400	7.6	731.300
5D - V	3	-	587.5	-	7.9	871.000	9.7	1055.000
5U - 10R	4	3	250	-	5.0	405.600	7.2	480.600
H - 10R	4	3	350	-	6.7	584.300	7.1	580.500
5D - 10R	4	-	250	-	7.5	572.200	7.7	630.800
10U - 5R	5	3	137.5	-	3.8	250.800	6.5	352.800
10D - 5R	5	-	137.5	-	10.1	836.000	13.2	1277.000
5U - 20R	5	3	87.5	-	5.1	236.600	8.3	360.000
5D - 20R	5	-	87.5	-	7.1	277.800	8.2	427.500
Visibility			0.3	-	-	3.903	-	1.905

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1 (LHM)	Sample 2 (RHM)
1	450	1989.700	1508.000
2	850	1685.200	1191.200
3	3237.5	3657.400	3643.500
4	850	1562.100	1691.900
5	450	1601.200	2417.300

(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-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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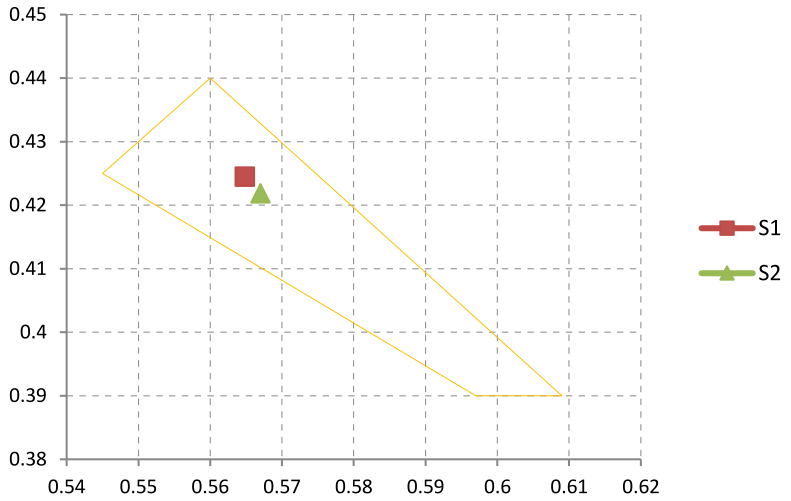
COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.073 m	Light Source Designation	:	LED × 18
Color of Light Emitted	:	Yellow			

		Sample 1 (LHM)	Sample 2 (RHM)
Color emitted from HV point	x=	0.5648	0.5670
	y=	0.4245	0.4219



Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PARKING LAMP TEST REPORT

Test Component	20-FD021 / 20-FD022
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2020/8/20
Report Number	108-ISOQA-20-0599
Number of devices tested	See below
Light source Designation	LED × 48

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: : September 15, 2020

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2020/8/20

Marking on Lens	RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 LOGO LH: : LOGO DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022	
Marking on Housing	12V	
Lens Material	CHIMEI-ASAHI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $	
Coating of External Lens	UVHC3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	48
	Rated Voltage	12 V

Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.167 m	Light Source Designation	:	LED × 48
Tested Voltage	:	12.8 V			

Steady Burning at H-V (according to SAE J1889)	Sample 1 (LHM)			Sample 2 (RHM)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	115.90	114.40	1.01	106.60	104.80	1.02

Test Points	Zone	Minimum (cd)	Maximum (cd)	Sample 1 (LHM)	Sample 2 (RHM)
				Measured (1)	Measured (1)
5U - 20L	1	0.4	125	50.480	43.810
5D - 20L	1	0.4	250	52.240	40.460
10U - 5L	1	0.8	125	62.230	58.630
10D - 5L	1	0.8	250	83.700	93.200
5U - 10L	2	0.8	125	85.000	71.730
H - 10L	2	1.4	125	98.500	79.500
5D - 10L	2	0.8	250	90.200	74.710
5U - V	3	2.8	125	100.700	87.000
H - 5L	3	3.6	125	111.900	97.100
H - V	3	4	125	114.400	104.800
H - 5R	3	3.6	125	104.800	96.500
5D - V	3	2.8	250	109.700	108.500
5U - 10R	4	0.8	125	80.500	67.080
H - 10R	4	1.4	125	86.700	81.800
5D - 10R	4	0.8	250	76.590	82.400
10U - 5R	5	0.8	125	66.190	54.290
10D - 5R	5	0.8	250	83.000	97.000
5U - 20R	5	0.4	125	46.390	43.490
5D - 20R	5	0.4	250	39.040	51.820
Visibility on or above HH		0.05	125	(1.719) 115.722	(1.308) 103.808
Visibility below HH		0.05	250	(0.918) 115.888	(0.590) 111.700

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1 (LHM)	Sample 2 (RHM)
1	2.4	248.650	236.100
2	3.0	273.700	225.940
3	16.8	541.500	493.900
4	3.0	243.790	231.280
5	2.4	234.620	246.600

(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-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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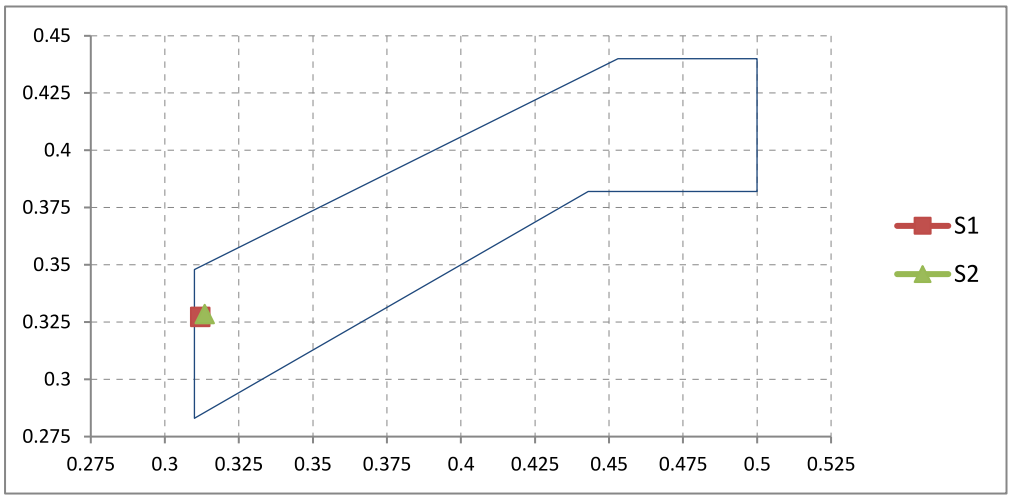
COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.073 m	Light Source Designation	:	LED × 48
Color of Light Emitted	:	White			

		Sample 1 (LHM)	Sample 2 (RHM)
Color emitted from HV point	x=	0.3120	0.3135
	y=	0.3273	0.3285



Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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HEADLAMP TEST REPORT

Test Component	20-FD021 / 20-FD022
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2020/8/20
Report Number	108-ISOQA-20-0599
Number of devices tested	See below
Light source Designation	Upper Beam - LED × 12 Lower Beam - LED × 12

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: : September 15, 2020

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2020/8/20

Marking on Lens	RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 LOGO LH: : LOGO DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022		
Marking on Housing	12V		
Lens Material	CHIMEI-ASAHI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $		
Coating of External Lens	UVHC3000		
Light Sources Used	Function	Upper Beam	Lower Beam
	Trade No/ Designation	LED	LED
	Quantity	12	12
	Rated Voltage	12 V	12 V

Remarks : The headlamps designed to provide alternately a driving-beam and a passing-beam

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	25 m	Test Voltage	:	12.8 V
Light Source Designation	:	Upper Beam - LED × 12 / Lower Beam - LED × 12			

Steady Burning at H - V (according to SAE J2650)	Sample 1 (LHM)			Sample 2 (RHM)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	59280.0	49300.0	1.20	60900.0	52920.0	1.15

UB2 - Upper Beam Photometric Test Point Values

Test Points	Minimum (cd)	Maximum (cd)	Sample 1 (LHM)	Sample 2 (RHM)
			Measured	Measured
2U - V	1500	-	48650.000	30400.000
1U - 3L	5000	-	39950.000	35140.000
1U - 3R	5000	-	34480.000	29440.000
H - V	40000	75000	49300.000	52920.000
H - 3L	15000	-	36140.000	34700.000
H - 3R	15000	-	35410.000	31220.000
H - 6L	5000	-	17420.000	15190.000
H - 6R	5000	-	18030.000	14010.000
H - 9L	3000	-	8950.000	7840.000
H - 9R	3000	-	9380.000	6767.000
H - 12L	1500	-	5362.000	5335.000
H - 12R	1500	-	6820.000	2937.000
1.5D - V	5000	-	31440.000	38660.000
1.5D - 9L	2000	-	8160.000	11270.000
1.5D - 9R	2000	-	11160.000	12880.000
2.5D - V	2500	-	18010.000	24390.000
2.5D - 12L	1000	-	5907.000	5745.000
2.5D - 12R	1000	-	6162.000	7433.000
4D - V	-	12000	7272.000	8075.000

Steady Burning at 1.5D - 2R (according to SAE J2650)	Sample 1 (LHM)			Sample 2 (RHM)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	34410.0	29530.0	1.17	44070.0	38630.0	1.14

LB2V - Lower Beam Photometric Test Point Values

Test Points	Minimum (cd)	Maximum (cd)	Sample 1 (LHM)	Sample 2 (RHM)
			Measured	Measured
10U to 90U	-	125	101.608	103.739
4U - 8L	64	-	67.600	93.900
4U - 8R	64	-	79.800	101.300
2U - 4L	135	-	162.100	253.800
1.5U - 1R to 3R	200	-	614.800	751.932
1.5U - 1R to R	-	1400	677.377	802.808
1U - 1.5L to L	-	700	407.292	536.448
0.5U - 1.5L to L	-	1000	735.038	700.559
0.5U - 1R to 3R	500	2700	(1849.755) 2262.661	(1426.43) 1622.305
H - 4L	135	-	1035.000	735.200
H - 8L	64	-	587.700	670.200
0.6D - 1.3R	10000	-	47260.000	49210.000
0.86D - V	4500	-	38490.000	30940.000
0.86D - 3.5L	1800	12000	5797.000	2241.000
1.5D - 2R	15000	-	29530.000	38630.000
2D - 9L	1250	-	7940.000	9100.000
2D - 9R	1250	-	8460.000	12960.000
2D - 15L	1000	-	3696.000	4500.000
2D - 15R	1000	-	4593.000	6031.000
4D - 4R	-	12500	5629.000	6217.000
4D - 20L	300	-	1926.000	1580.000
4D - 20R	300	-	1924.000	2341.000

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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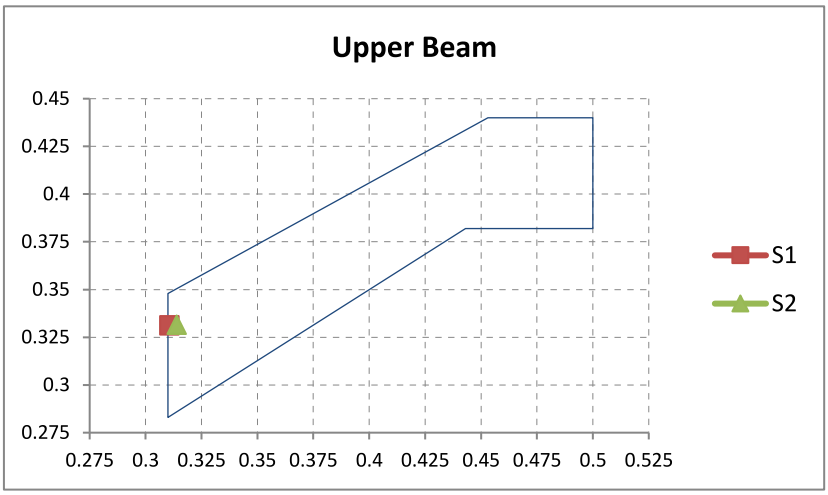
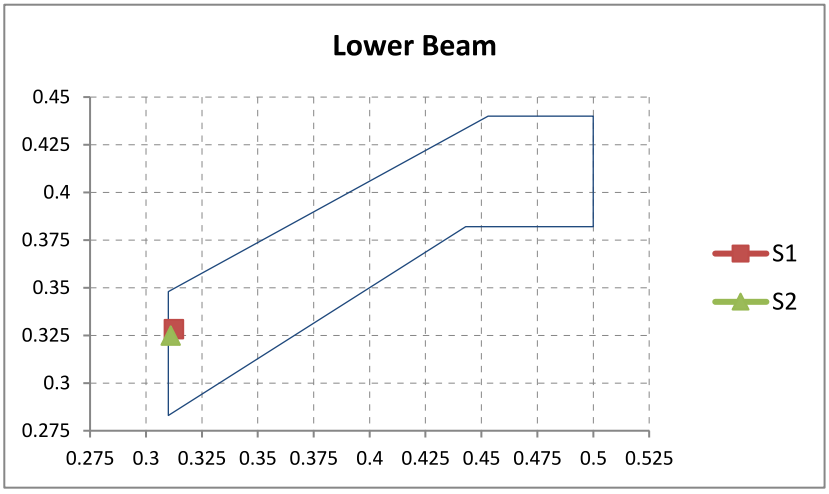
COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.073 m	Color of Light Emitted	:	White

Color emitted from HV point		Sample 1 (LHM)	Sample 2 (RHM)
Upper Beam	x=	0.3107	0.3140
	y=	0.3314	0.3316
Lower Beam	x=	0.3124	0.3110
	y=	0.3284	0.3249





Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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DAYTIME RUNNING LAMP TEST REPORT

Test Component	20-FD021 / 20-FD022
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2020/8/20
Report Number	108-ISOQA-20-0599
Number of devices tested	See below
Light source Designation	LED × 48

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: : September 15, 2020

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2020/8/20

Marking on Lens	RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 LOGO LH: : LOGO DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022	
Marking on Housing	12V	
Lens Material	CHIMEI-ASAHI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $	
Coating of External Lens	UVHC3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	48
	Rated Voltage	12 V

Remarks : The optically functional lens area of DRL are partially common with turn signal lamp, which will be deactivated when the turn signal lamp is actived.
The requirments of FMVSS 108 S7.10.10.1 are complined.
See Drawing sheet for furnther information.

Unobstructed Effective Projected Luminous Lens Area

Test Performed by : Bo Yang Lee Date : 2020/8/20

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	9900	PASSED

Remarks : Required by SAE J2087

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.167 m	Light Source Designation	:	LED × 48
Test Voltage	:	12.8 V	Lighted Sections	:	N/A

Steady Burning at H-V (according to SAE J1889)	Sample 1 (LHM)			Sample 2 (RHM)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	1189.0	1141.0	1.04	1065.0	1016.0	1.05

Test Points	Zone	Minimum (cd)	Maximum (cd)	Sample 1 (LHM)	Sample 2 (RHM)
				Measured (1)	Measured (1)
5U - V	1	350	2500	984.000	857.000
H - 5L	1	450	2500	1093.000	963.000
H - V	1	500	2500	1141.000	1016.000
H - 5R	1	450	2500	1038.000	941.000
5D - V	1	350	2500	1102.000	1080.000
5U - 10L	2	100	2500	827.000	709.900
H - 20L	2	50	2500	566.300	450.400
H - 10L	2	350	2500	963.000	785.600
5D - 10L	2	100	2500	887.000	741.500
5U - 10R	3	100	2500	798.000	655.200
H - 10R	3	350	2500	867.000	797.000
H - 20R	3	50	2500	470.200	497.700
5D - 10R	3	100	2500	770.500	810.000

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1 (LHM)	Sample 2 (RHM)
1	2100.0	5358.000	4857.000
2	600.0	3243.300	2687.400
3	600.0	2905.700	2759.900

(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-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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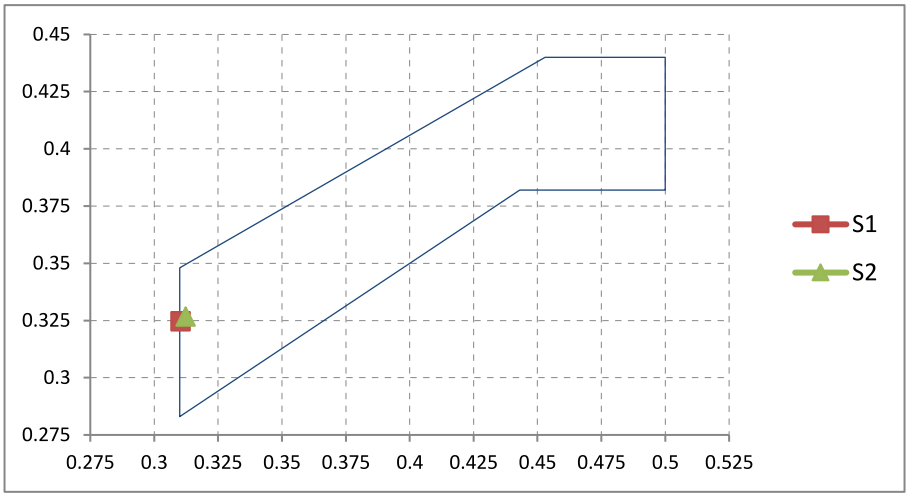
COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.073 m	Light Source Designation	:	LED × 48
Color of Light Emitted	:	White			

		Sample 1 (LHM)	Sample 2 (RHM)
Color emitted from HV point	x=	0.3103	0.3123
	y=	0.3246	0.3267



Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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SIDE MARKER LAMP TEST REPORT

Test Component	20-FD021 / 20-FD022
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2020/8/20
Report Number	108-ISOQA-20-0599
Number of devices tested	See below
Light source Designation	LED × 3

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: : September 15, 2020

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2020/8/20

Marking on Lens	RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 LOGO LH: : LOGO DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022	
Marking on Housing	12V	
Lens Material	CHIMEI-ASAHI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear $	
Coating of External Lens	UVHC3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	3
	Rated Voltage	12 V

Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHOTOMETRY TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.167 m	Light Source Designation	:	LED × 3
Tested Voltage	:	12.8 V			
Overall Length	:	5890 mm	Inboard Angle	:	33°

Steady Burning at H-V (according to SAE J1889)	Sample 1 (LHM)			Sample 2 (RHM)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	30.61	29.66	1.03	27.67	26.90	1.03

Test Points		Minimum (cd)		Sample 1 (LHM)	Sample 2 (RHM)
LHM	RHM	FMVSS 108	SAE J2042	Measured	Measured
H - V	H - V	0.62	-	29.660	26.900
10U - 33L	10U - 45L	0.62	-	7.199	5.790
10U - V	10U - V	0.62	-	29.560	26.870
10U - 45R	10U - 33R	0.62	-	5.481	6.354
H - 33L	H - 45L	0.62	-	0.643	6.261
H - 45R	H - 33R	0.62	-	5.651	1.280
10D - 33L	10D - 45L	0.62	-	0.897	5.615
10D - V	10D - V	0.62	-	30.700	27.420
10D - 45R	10D - 33R	0.62	-	5.911	2.913

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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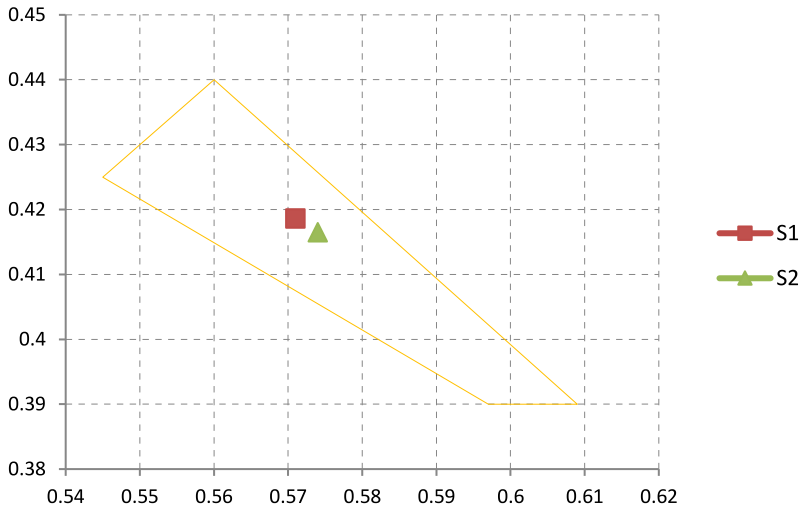
COLOR TEST

Test Performed by	:	Bo Yang Lee	Date	:	2020/8/20
Test distance(m)	:	3.073 m	Light Source Designation	:	LED × 3
Color of Light Emitted	:	Yellow			

		Sample 1 (LHM)	Sample 2 (RHM)
Color emitted from HV point	x=	0.5710	0.5740
	y=	0.4186	0.4165



Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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REFLEX REFLECTOR TEST REPORT

Test Component	20-FD021 / 20-FD022
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2020/8/20
Report Number	108-ISOQA-20-0599
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: : September 15, 2020

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2020/8/20

Marking on Lens	RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 LOGO LH: : LOGO DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022	
Marking on Housing	12V	
Reflex Reflector Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE A-202 Yellow	
Coating of External Lens	UVHC3000	
Light Sources Used	Trade No/ Designation	N/A
	Quantity	N/A
	Rated Voltage	N/A

Remarks :

Report No. : 108-ISOQA-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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PHOTOMETRY TEST

Test Performed by : Bo Yang Lee Date : 2020/8/20

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

Observe Angle	Entrance Angle		Minimum (Mcd/ Lux)	Sample 1 (LHM)	Sample 2 (RHM)
0.2	H	V	1050	1120.000	1075.000
0.2	H	10U	700	877.000	901.000
0.2	H	10D	700	895.000	887.000
0.2	20L	V	350	414.000	843.000
0.2	20R	V	350	876.000	436.000
1.5	H	V	15	55.400	46.000
1.5	H	10U	12.5	26.700	24.800
1.5	H	10D	12.5	27.300	30.400
1.5	20L	V	7.5	13.000	21.200
1.5	20R	V	7.5	22.100	23.800

COLOR TEST

Test Performed by : Bo Yang Lee Date : 2020/8/20

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-20-0599

Test Component : 20-FD021 / 20-FD022

Applicant : Morimoto Lighting

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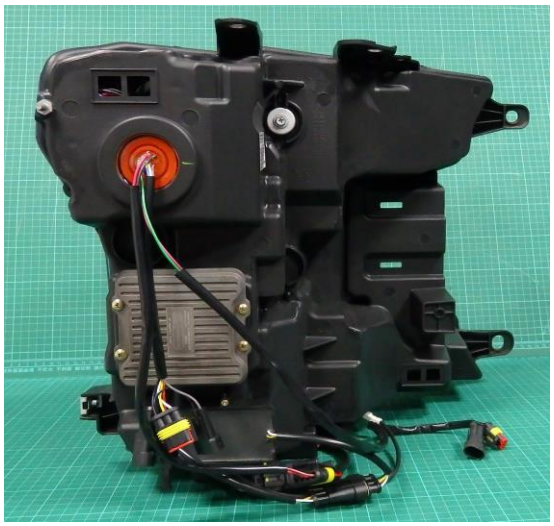
Front View

Side View

Top View



Rear View

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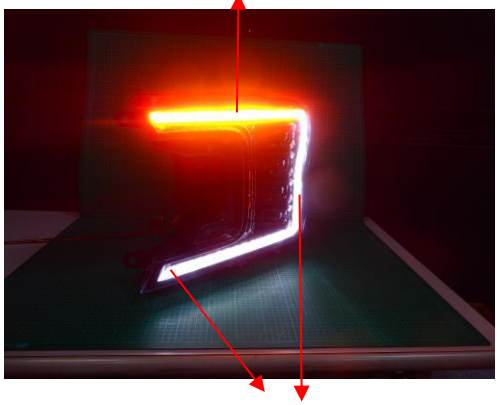
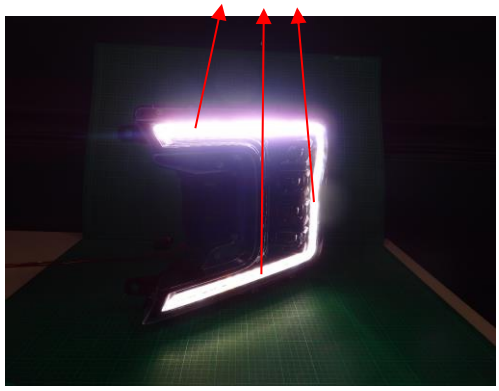
the turn signal lamp



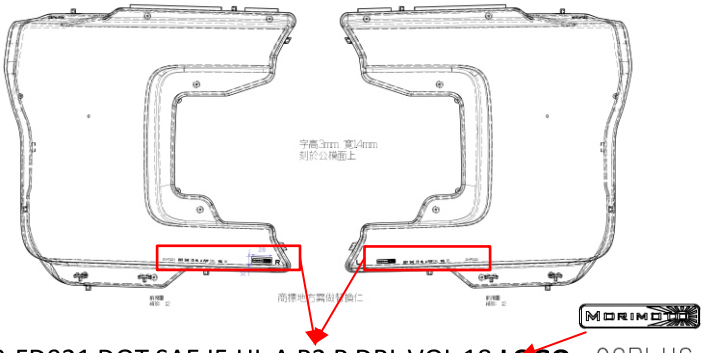
the DRL / Parking lamp lighting area

Turn signal lamp is activated

the DRL / Parking lamp lighting area



Turn signal lamp is deactivated



RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 **LOGO** COPLUS
LH: **LOGO** DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022

RH: 20-FD021 DOT SAE I5 HL A P2 P DRL VOL 18 **LOGO**
LH: : **LOGO** DOT SAE I5 HL A P2 P DRL VOL 18 20-FD022

Marking