



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.

Notification Number: 181845

Test Report Date: November 28, 2018

Expiration Date: January 1, 2022

Item: "20-FD005/20-FD006" - Combination Turn Signal, Parking, Headlamp, Daytime Running and Side Marker Lamp With Reflex Reflector - White and Yellow In Color

Use: On 2015 Model Years Ford F150 Motor Vehicles

Jurisdictional Compliance Standard(S)


Identical To: United States FMVSS 571.108 Photometric Only

Item Markings: Lens: Morimoto (Morimoto Logo) DOT SAE I5HL(2)A(2)P2P DRL  
VOL 15 20-FD005  
Housing: 12V

Lightsource: Turn Signal Lamp:	15 LED's, 12.8V
Parking Lamp:	45 LED's, 12.8V
Lower Beam:	6 LED's, 12.8V
Upper Beam:	6 LED's, 12.8V
Daytime Running Lamp:	45 LED's, 12.8V
Side Marker Lamp:	3 (2X) LED's, 12.8V

Test Lab: ISOQA Technical Service Co., Ltd.

Report Number: ISOQA-18-0596

  
Executive Director



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**Report No. : ISOQA-18-0596**

Test Component : R : 20-FD005/ L : 20-FD006

Applicant : Morimoto Lighting

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## **SAFETY COMPLIANCE TESTING FOR FMVSS 108**

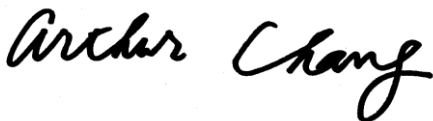
Lamps, Reflective Devices, and Associated Equipment

\* \* \* \* \*

### **ISOQA Technical Service Co., Ltd.**

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

## **TEST REPORT**



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Signature of Responsible Laboratory Official  
Title: Laboratory Manager

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Approval Date



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

## PRODUCT INFORMATION

Test Component	R : 20-FD005/ L : 20-FD006
Applicant	Morimoto Lighting
Manufacturer	same as Applicant
Trade Mark	MORIMOTO 
Lens Material	Chimei WONDERLITE PC-110L Polycarbonate N-102
Coating of Exterior Lens	UVHC 3000
Inner Lens Material	Chimei WONDERLITE PC-110L Polycarbonate N-102 CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE A-001 Yellow
Reflex Reflector Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE A-001 Yellow
Applicable Vehicle	FORD F150 2015
Rated Voltage	12 V
Marking on Lens	 DOT SAE I5 HL (2)A (2)P2 P DRL VOL 15 20-FD005
Marking on Housing	12 V
Method of Mounting to Vehicle	bolted

\* Above-mentioned information is provided by the applicant

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 Lens	Clear	Clear	Clear	Clear	Clear	
Color of Light Emitted	Yellow	White	White	White	White	
Light Source Designation	LED × 15	LED × 45	LED × 6	LED × 6	LED × 45	
Design Voltage	12.8 V	12.8 V	12.8 V	12.8 V	12.8 V	
Rated Mean Spherical Candlepower	-	-	-	-	-	
Effective projected illuminated area of lens (mm <sup>2</sup> )	4470	N/A	N/A	N/A	10070	
Method of determination	Projected	N/A	N/A	N/A	Projected	
Test Item	Inspector	Date	Number of Tested			
Physical Inspection	Bo Yang Lee	2018/10/24	2	2	2	2
Photometry Test	Bo Yang Lee	2018/10/24	2	2	2	2
Color Test	Bo Yang Lee	2018/10/24	2	2	2	2



**Report No. : ISOQA-18-0596**

Test Component : R : 20-FD005/ L : 20-FD006

Applicant : Morimoto Lighting

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			2	1			
Color of Lens			Clear and Yellow	Clear			
Color of Light Emitted			Yellow	Yellow			
Light Source type and Trade Number			LED × 3 (each lamp	N/A			
Design Voltage			12.8 V	N/A			
Rated Mean Spherical Candlepower			-	N/A			
Effective Projected Luminous Lens Area (cm <sup>2</sup> )			N/A	N/A			
Method of determination			N/A	N/A			
Test Item	Inspector	Date	Number of Tested				
Physical Inspection	Bo Yang Lee	2018/10/24	2	2			
Photometry Test	Bo Yang Lee	2018/10/24	2	2			
Color Test	Bo Yang Lee	2018/10/24	2	2			

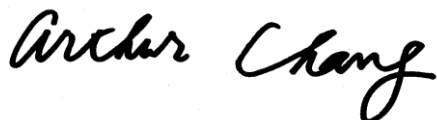
## TURN SIGNAL LAMP TEST REPORT

Test Component	R : 20-FD005/ L : 20-FD006
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2018/10/24
Report Number	ISOQA-18-0596
Number of devices tested	See below
Light source Designation	LED × 15

### SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-

Remarks : \_\_\_\_\_



Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : November 28, 2018


**Report No. : ISOQA-18-0596**

Test Component : R : 20-FD005/ L : 20-FD006

Applicant : Morimoto Lighting

**PHYSICAL INSPECTION**

Inspection Performed by : Bo Yang Lee Date : 2018/10/24

Marking on Lens	 DOT SAE I5 HL (2)A (2)P2 P DRL VOL 15 20-FD005		
Marking on Housing	12 V		
Lens Material	Chimei WONDERLITE PC-110L Polycarbonate N-102		
Coating of External Lens	UVHC 3000		
Light Sources Used	Trade No/ Designation	LED	
	Quantity	15	
	Rated Voltage	12 V	

Remarks : \_\_\_\_\_

**EFFECTIVE PROJECTED LUMINOUS LENS AREA**

Test Performed by : Bo Yang Lee Date : 2018/10/24

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 <sup>2</sup> )	Requirement	Value	Result
	2200	4470	PASSED

Remarks : \_\_\_\_\_

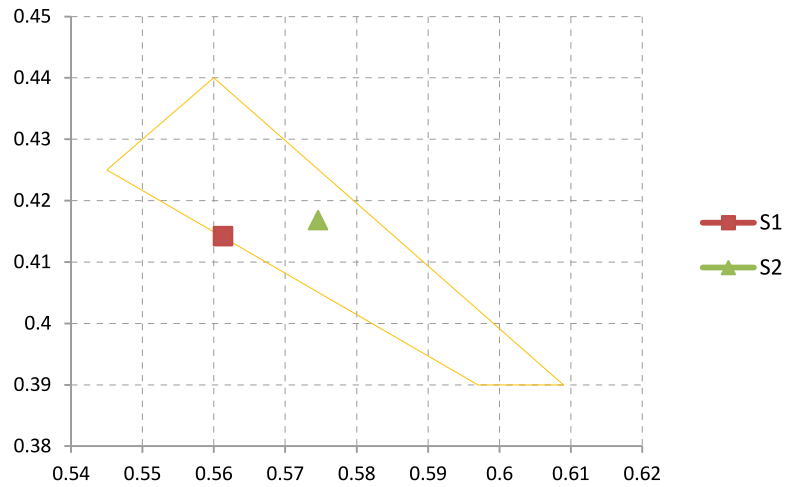




**COLOR TEST**

Test Performed by : Bo Yang Lee                      Date : 2018/10/24  
 Test distance(m) : 3.073 m                      Light Source Designation : LED × 15  
 Color of Light Emitted : Yellow

Color emitted from HV point	Sample 1		Sample 2
	x=	0.5613	0.5746
	y=	0.4142	0.4168



Remarks : \_\_\_\_\_

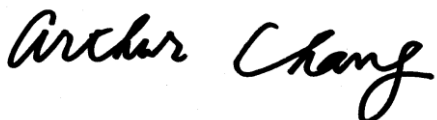
## PARKING LAMP TEST REPORT

Test Component	R : 20-FD005/ L : 20-FD006
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2018/10/24
Report Number	ISOQA-18-0596
Number of devices tested	See below
Light source Designation	LED × 45

### SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-

Remarks : \_\_\_\_\_



\_\_\_\_\_  
Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : November 28, 2018


**Report No. : ISOQA-18-0596**

Test Component : R : 20-FD005/ L : 20-FD006

Applicant : Morimoto Lighting

**PHYSICAL INSPECTION**

Inspection Performed by : Bo Yang Lee Date : 2018/10/24

Marking on Lens	 DOT SAE I5 HL (2)A (2)P2 P DRL VOL 15 20-FD005	
Marking on Housing	12 V	
Lens Material	Chimei WONDERLITE PC-110L Polycarbonate N-102	
Coating of External Lens	UVHC 3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	45
	Rated Voltage	12 V

Remarks : \_\_\_\_\_







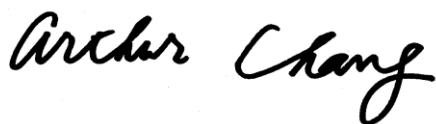
## HEADLAMP TEST REPORT

Test Component	R : 20-FD005/ L : 20-FD006
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2018/10/24
Report Number	ISOQA-18-0596
Number of devices tested	See below
Light source Designation	Upper Beam - LED × 6 Lower Beam - LED × 6

### SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-

Remarks : \_\_\_\_\_



\_\_\_\_\_  
Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : November 28, 2018


**Report No. : ISOQA-18-0596**

Test Component : R : 20-FD005/ L : 20-FD006

Applicant : Morimoto Lighting

**PHYSICAL INSPECTION**

Inspection Performed by : Bo Yang Lee Date : 2018/10/24

Marking on Lens	 DOT SAE I5 HL (2)A (2)P2 P DRL VOL 15 20-FD005		
Marking on Housing	12 V		
Lens Material	Chimei WONDERLITE PC-110L Polycarbonate N-102		
Coating of External Lens	UVHC 3000		
Light Sources Used	Function	Upper Beam	Lower Beam
	Trade No/ Designation	LED	LED
	Quantity	6	6
	Rated Voltage	12 V	12 V

Remarks : \_\_\_\_\_





Steady Burning at 1.5D - 2R (according to SAE J2650)	Sample 1			Sample 2		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	34070	30160	1.13	37160	32430	1.15

**LB2V - Lower Beam Photometric Test Point Values**

Test Points	Minimum (cd)	Maximum (cd)	Sample 1	Sample 2
			Measured	Measured
10U to 90U	-	125	38.20	55.46
4U - 8L	64	-	78.60	78.90
4U - 8R	64	-	107.60	272.50
2U - 4L	135	-	237.10	263.60
1.5U - 1R to 3R	200	-	509.38	743.85
1.5U - 1R to R	-	1400	546.60	944.33
1U - 1.5L to L	-	700	499.40	603.47
0.5U - 1.5L to L	-	1000	661.10	756.93
0.5U - 1R to 3R	500	2700	(927.05) 966.29	(1292.35) 1550.19
H - 4L	135	-	580.90	580.10
H - 8L	64	-	286.50	232.30
0.6D - 1.3R	10000	-	16620.00	30670.00
0.86D - V	4500	-	25170.00	35270.00
0.86D - 3.5L	1800	12000	8870.00	9490.00
1.5D - 2R	15000	-	30160.00	32430.00
2D - 9L	1250	-	6432.00	6108.00
2D - 9R	1250	-	6728.00	7198.00
2D - 15L	1000	-	4228.00	3884.00
2D - 15R	1000	-	3533.00	2930.00
4D - 4R	-	12500	6690.00	7579.00
4D - 20L	300	-	1701.00	1261.00
4D - 20R	300	-	1543.00	1674.00



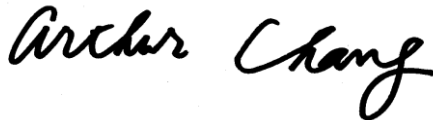
## DAYTIME RUNNING LAMP TEST REPORT

Test Component	R : 20-FD005/ L : 20-FD006
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2018/10/24
Report Number	ISOQA-18-0596
Number of devices tested	See below
Light source Designation	LED × 45

### SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-

Remarks : \_\_\_\_\_



Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : November 28, 2018


**Report No. : ISOQA-18-0596**

Test Component : R : 20-FD005/ L : 20-FD006

Applicant : Morimoto Lighting

**PHYSICAL INSPECTION**

Inspection Performed by : Bo Yang Lee Date : 2018/10/24

Marking on Lens	 DOT SAE I5 HL (2)A (2)P2 P DRL VOL 15 20-FD005	
Marking on Housing	12 V	
Lens Material	Chimei WONDERLITE PC-110L Polycarbonate N-102	
Coating of External Lens	UVHC 3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	45
	Rated Voltage	12 V

Remarks : \_\_\_\_\_







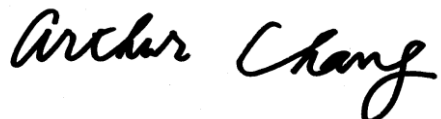
## SIDE MARKER LAMP TEST REPORT

Test Component	R : 20-FD005/ L : 20-FD006
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2018/10/24
Report Number	ISOQA-18-0596
Number of devices tested	See below
Light source Designation	LED × 3 (each lamp)

### SUMMARY

Test Description	Test Results	
	Number Passed	Number Failed
- Physical Inspection	2	-
- Photometry Test	2	-
- Color Test	2	-

Remarks : \_\_\_\_\_



\_\_\_\_\_  
Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : November 28, 2018


**Report No. : ISOQA-18-0596**

Test Component : R : 20-FD005/ L : 20-FD006

Applicant : Morimoto Lighting

**PHYSICAL INSPECTION**

Inspection Performed by : Bo Yang Lee Date : 2018/10/24

Marking on Lens	 DOT SAE I5 HL (2)A (2)P2 P DRL VOL 15 20-FD005	
Marking on Housing	12 V	
Lens Material	Chimei WONDERLITE PC-110L Polycarbonate N-102	
Coating of External Lens	UVHC 3000	
Light Sources Used	Trade No/ Designation	LED
	Quantity	3 (each lamp)
	Rated Voltage	12 V

Remarks : \_\_\_\_\_







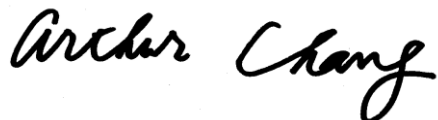
## REFLEX REFLECTOR TEST REPORT

Test Component	R : 20-FD005/ L : 20-FD006
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2018/10/24
Report Number	ISOQA-18-0596
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	-

Remarks : \_\_\_\_\_



\_\_\_\_\_  
Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : November 28, 2018


**Report No. : ISOQA-18-0596**

Test Component : R : 20-FD005/ L : 20-FD006

Applicant : Morimoto Lighting

**PHYSICAL INSPECTION**

Inspection Performed by : Bo Yang Lee Date : 2018/10/24

Marking on Lens	 DOT SAE I5 HL (2)A (2)P2 P DRL VOL 15 20-FD005	
Marking on Housing	12 V	
Reflex Reflector Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE A-001 Yellow	
Coating of External Lens	-	
Light Sources Used	Trade No/ Designation	N/A
	Quantity	N/A
	Rated Voltage	N/A

Remarks : \_\_\_\_\_

PHOTOMETRY TEST

Test Performed by : Bo Yang Lee Date : 2018/10/24  
Test distance(m) : 100 ft Color of Light Emitted : Yellow

Observe Angle	Entrance Angle		Minimum (Mcd/ Lux)	Sample 1	Sample 2
0.2	0	0	1050	1969.00	2049.00
0.2	H	10U	700	1688.00	1612.00
0.2	H	10D	700	1437.00	1559.00
0.2	20L	V	350	869.00	483.00
0.2	20R	V	350	1071.00	483.00
1.5	0	0	15	139.20	220.00
1.5	H	10U	12.5	70.10	93.00
1.5	H	10D	12.5	75.30	112.80
1.5	20L	V	7.5	30.90	18.30
1.5	20R	V	7.5	99.90	56.10

COLOR TEST

Test Performed by : Bo Yang Lee Date : 2018/10/24  
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 : \_\_\_\_\_



Front View



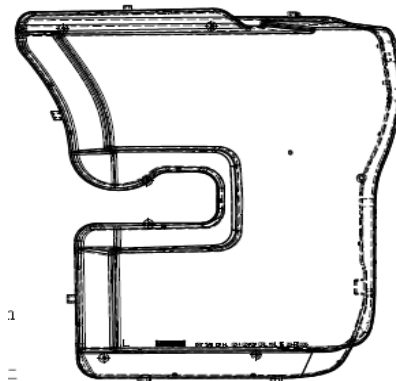
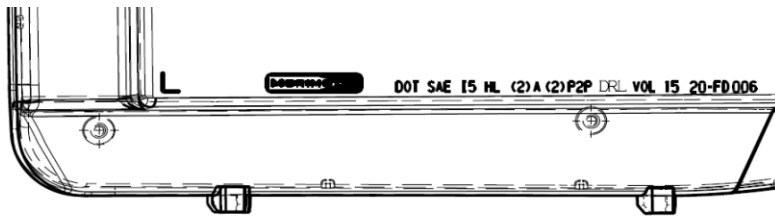
Side View




Top View



Rear View



 DOT SAE 15 HL (2)A (2)P2 P DRL VOL 15 20-FD005

Marking