

Report No. : ISOQA-19-0414

Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting



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

Signature of Responsible Laboratory Official
Title: Laboratory Manager

Approval Date

Report No. : ISOQA-19-0414

Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting

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Report Prepared By : Jason Lee
 Review By : Julie Wu
 Approval By : Arthur Chang

Report No. : ISOQA-19-0414

Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting

PRODUCT INFORMATION

Test Component	11-FD001 / 11-FD002
Applicant	Morimoto Lighting
Manufacturer	same as Applicant
Trade Mark	
Lens Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE S-001 Smoke
Coating of Exterior Lens	N/A
Inner Lens Material	CHIMEI-ASAHI Corporation WONDERLITE PC-110L POLYCARBONATE N-102 Clear \$
Reflex Reflector Material	-
Applicable Vehicle	FORD MUSTANG 2015 - 2017
Rated Voltage	12 V
Marking on Lens	DOT SAE STI 15 11-FD002 (OR 11-FD001) 
Marking on Housing	12 V
Method of Mounting to Vehicle	bolted

* Above-mentioned information is provided by the applicant

Functions	Rear Turn Signal Lamp	Tail Lamp	Stop Lamp			
Requirements	FMVSS 108 SAE J588	FMVSS 108 SAE J585	FMVSS 108 SAE J586			
Identification Code of SAE J759	I	T	S			
Number of Compartments or Lamps	1	1	1			
Color of Lens	Clear	Clear	Clear			
Color of Light Emitted	Red	Red	Red			
Light Source Designation	LED × 60	LED × 60	LED × 60			
Design Voltage	12.8 V	12.8 V	12.8 V			
Rated Mean Spherical Candlepower	-	-	-			
Effective projected illuminated area of lens (mm ²)	9100	N/A	9100			
Method of determination	Projected	N/A	Projected			
Test Item	Inspector	Date	Number of Tested			
Physical Inspection	Bo Yang Lee	2019/7/24	2	2	2	
Photometry Test	Bo Yang Lee	2019/7/24	2	2	2	
Color Test	Bo Yang Lee	2019/7/24	2	2	2	

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TURN SIGNAL LAMP TEST REPORT

Test Component	11-FD001 / 11-FD002
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2019/7/24
Report Number	ISOQA-19-0414
Number of devices tested	See below
Light source Designation	LED × 60

SUMMARY

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

Remarks : _____

Arthur Chang

Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : August 7, 2019


Report No. : ISOQA-19-0414

Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting

PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2019/7/24

Marking on Lens	DOT SAE STI 15 11-FD002 (OR 11-FD001) 		
Marking on Housing	12 V		
Lens Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE S-001 Smoke		
Coating of External Lens	N/A		
Light Sources Used	Trade No/ Designation	LED	
	Quantity	60	
	Rated Voltage	12 V	

Remarks : _____

EFFECTIVE PROJECTED LUMINOUS LENS AREA

Test Performed by : Bo Yang Lee Date : 2019/7/24

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 ²)	Requirement	Value	Result
	5000	9100	PASSED

Remarks : _____

Report No. : ISOQA-19-0414

Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting

PHOTOMETRY TEST

Test Performed by : Bo Yang Lee Date : 2019/7/24
 Test distance(m) : 3.167 m Light Source Designation : LED × 60
 Tested Voltage : 12.8 V Lighted Sections : 3

Steady Burning at H-V (according to SAE J1889)	Sample 1			Sample 2		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	284.8	227.9	1.25	279.5	224.1	1.25

Test Points	Zone	Rto.	Minimum (cd)	Maximum (cd)	Sample 1		Sample 2	
		Tail Lamp			Rto	Measured ⁽¹⁾	Rto	Measured ⁽¹⁾
5U - 20L	1	3	15	420	10.8	72.99	11.4	68.34
5D - 20L	1	3	15	420	10.8	89.60	11.4	82.00
10U - 5L	1	3	22	420	10.7	72.81	11.6	87.20
10D - 5L	1	3	22	420	11.0	192.60	11.2	157.40
5U - 10L	2	3	40	420	10.9	211.20	11.5	201.30
H - 10L	2	3	55	420	11.0	229.40	11.4	214.40
5D - 10L	2	3	40	420	10.9	220.90	11.4	208.50
5U - V	3	5	95	420	10.8	228.60	11.5	224.10
H - 5L	3	5	110	420	10.9	245.10	11.4	235.30
H - V	3	5	110	420	11.0	227.90	10.7	224.10
H - 5R	3	5	110	420	11.0	227.10	11.4	213.10
5D - V	3	3	95	420	10.9	219.70	11.4	212.40
5U - 10R	4	3	40	420	10.8	198.00	11.5	202.20
H - 10R	4	3	55	420	10.9	226.30	11.4	228.30
5D - 10R	4	3	40	420	10.9	225.30	11.4	230.80
10U - 5R	5	3	22	420	10.8	70.67	11.6	85.10
10D - 5R	5	3	22	420	10.9	205.40	11.1	181.70
5U - 20R	5	3	15	420	10.7	118.90	11.4	123.90
5D - 20R	5	3	15	420	10.7	112.00	11.2	118.70
Visibility			0.3	420	-	(6.73) 257.88	-	(6.27) 245.10

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1	Sample 2
1	70	428.00	394.94
2	135	661.50	624.20
3	520	1148.40	1109.00
4	135	649.60	661.30
5	70	506.97	509.40

(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.

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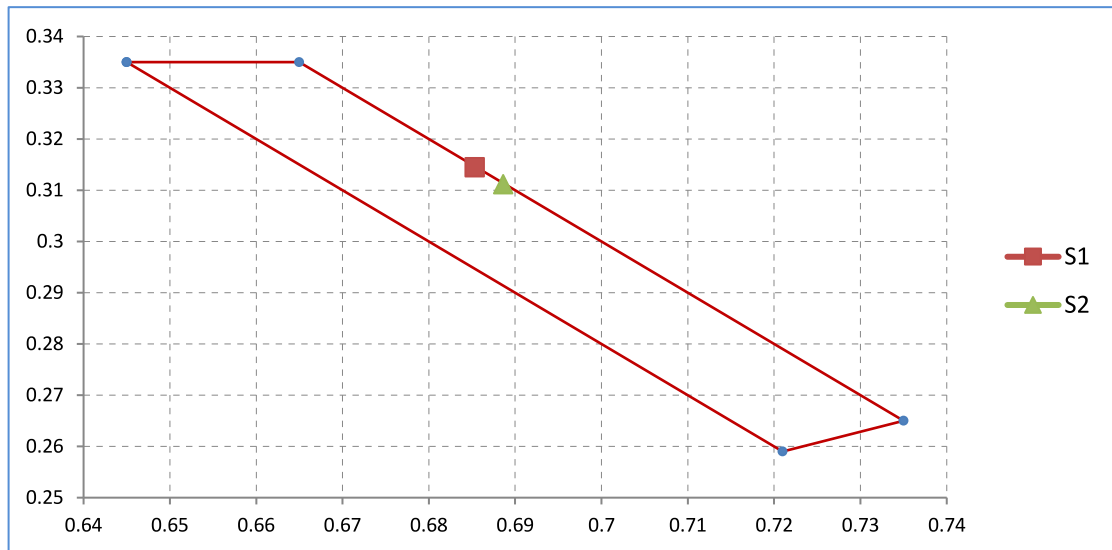
Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting

COLOR TEST

Test Performed by : Bo Yang Lee Date : 2019/7/24
Test distance(m) : 3.073 m Light Source Designation : LED × 60
Color of Light Emitted : Red

Color emitted from HV point		Sample 1	Sample 2
	x=	0.6853	0.6886
	y=	0.3145	0.3112



Remarks : _____

Report No. : ISOQA-19-0414

Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting



TAIL LAMP TEST REPORT

Test Component	11-FD001 / 11-FD002
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2019/7/24
Report Number	ISOQA-19-0414
Number of devices tested	See below
Light source Designation	LED × 60

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: : August 7, 2019

Report No. : ISOQA-19-0414

Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting

PHOTOMETRY TEST

Test Performed by : Bo Yang Lee Date : 2019/7/24
 Test distance(m) : 3.167 m Light Source Designation : LED × 60
 Tested Voltage : 12.8 V Lighted Sections : 3

Steady Burning at H-V (according to SAE J1889)	Sample 1			Sample 2		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	20.74	20.72	1.00	21.04	20.98	1.00

Test Points	Zone	Minimum (cd)	Maximum (cd)	Sample 1	Sample 2
				Measured ⁽¹⁾	Measured ⁽¹⁾
5U - 20L	1	0.7	25	6.76	5.98
5D - 20L	1	0.7	-	8.30	7.22
10U - 5L	1	1	25	6.80	7.51
10D - 5L	1	1	-	17.57	14.07
5U - 10L	2	2	25	19.41	17.56
H - 10L	2	2	25	20.94	18.75
5D - 10L	2	2	-	20.22	18.34
5U - V	3	4.5	25	21.12	19.52
H - 5L	3	5	25	22.41	20.60
H - V	3	5	25	20.72	20.98
H - 5R	3	5	25	20.70	18.65
5D - V	3	4.5	-	20.21	18.63
5U - 10R	4	2	25	18.32	17.64
H - 10R	4	2	25	20.81	20.08
5D - 10R	4	2	-	20.70	20.33
10U - 5R	5	1	25	6.56	7.33
10D - 5R	5	1	-	18.86	16.30
5U - 20R	5	0.7	25	11.14	10.87
5D - 20R	5	0.7	-	10.47	10.56
Visibility below HH		0.05	-	0.61	0.54
Visibility on or above HH		0.05	25	(0.61) 23.22	(0.51) 21.22

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1	Sample 2
1	3.5	39.43	34.78
2	6	60.57	54.65
3	24	105.16	98.38
4	6	59.83	58.05
5	3.5	47.03	45.06

(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.

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COLOR TEST

Test Performed by : Bo Yang Lee

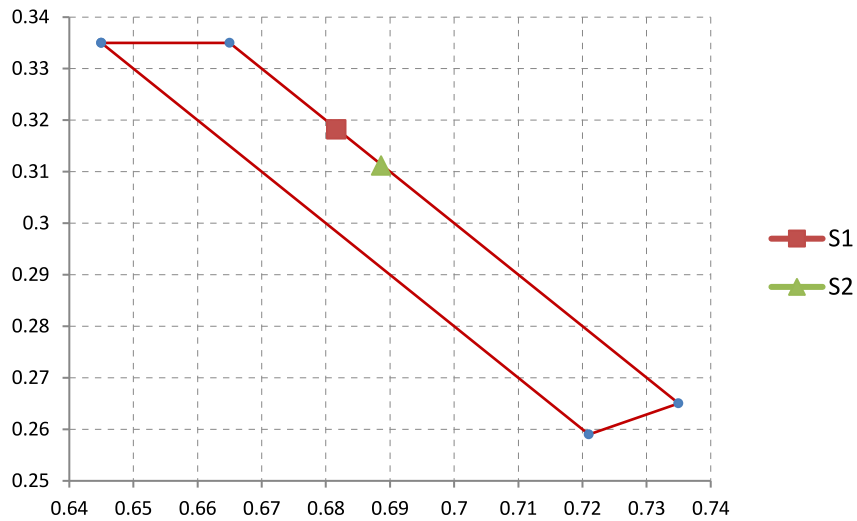
Date : 2019/7/24

Test distance(m) : 3.073 m

Light Source Designation : LED × 60

Color of Light Emitted : Red

Color emitted from HV point	Sample 1		Sample 2	
	x=	0.6816	0.6886	
	y=	0.3182	0.3112	



Remarks :

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Applicant : Morimoto Lighting



STOP LAMP TEST REPORT

Test Component	11-FD001 / 11-FD002
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2019/7/24
Report Number	ISOQA-19-0414
Number of devices tested	See below
Light source Designation	LED × 60

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: : August 7, 2019


Report No. : ISOQA-19-0414

Test Component : 11-FD001 / 11-FD002

Applicant : Morimoto Lighting

PHYSICAL INSPECTION

Inspection Performed by : Bo Yang Lee Date : 2019/7/24

Marking on Lens	DOT SAE STI 15 11-FD002 (OR 11-FD001) 		
Marking on Housing	12 V		
Lens Material	CHIMEI Corporation ACRYREX CM-205 POLYMETHYL METHACRYLATE S-001 Smoke		
Coating of External Lens	N/A		
Light Sources Used	Trade No/ Designation	LED	
	Quantity	60	
	Rated Voltage	12 V	

Remarks : _____

EFFECTIVE PROJECTED LUMINOUS LENS AREA

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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
	5000	9100	PASSED

Remarks : _____

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Test Component : 11-FD001 / 11-FD002

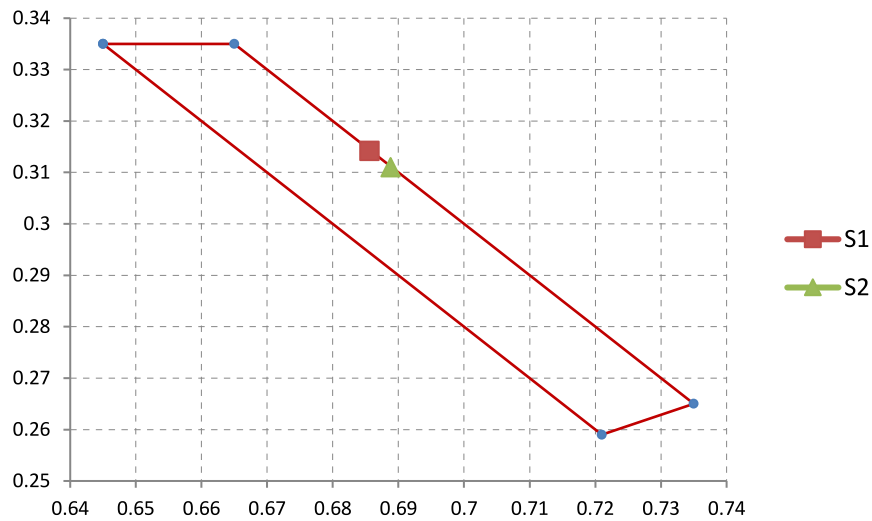
Applicant : Morimoto Lighting



COLOR TEST

Test Performed by : Bo Yang Lee Date : 2019/7/24
Test distance(m) : 3.073 m Light Source Designation : LED × 60
Color of Light Emitted : Red

Color emitted from HV point		Sample 1	Sample 2
	x=	0.6856	0.6888
	y=	0.3142	0.3110



Remarks :

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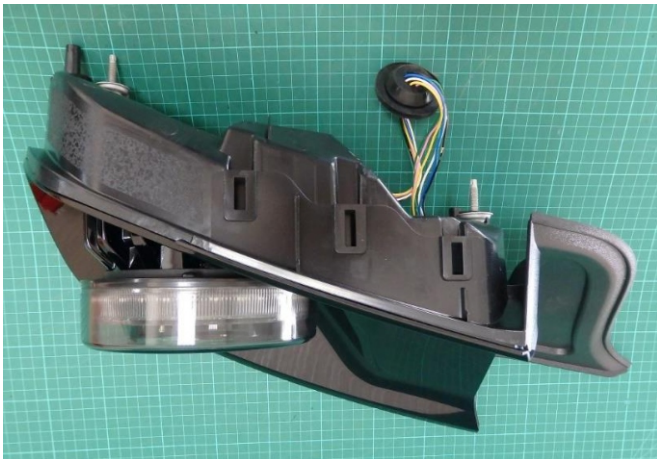
Applicant : Morimoto Lighting



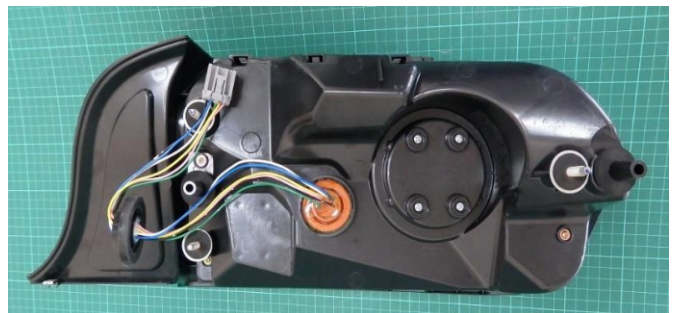
Front View



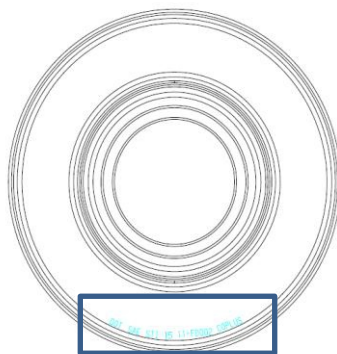
Side View




Top View



Rear View



DOT SAE STI 15 11-FD002 (OR 11-FD001) 

Marking