

Report No. : 108-ISOQA-23-0625 **Rev.** : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

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

- 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.
- The decision rule is inherent in the requested specification or standard, a further consideration of the level of risk and MU is not necessary.



Signature of Responsible Laboratory Official

Title: Laboratory Manager

Approval Date

Report No. : 108-ISOQA-23-0625 **Rev.** : 00

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TABLE OF CONTENTS

Contents	Number of page in each report
Cover Page	1
Contents	1
Product information	1
Parking Lamp	5
Headlamp - Lower Beam	7
Headlamp - Upper Beam	7
Drawing	1
Revision History	1
Total Pages	17

Report Prepared By : Jenny Zhou
Review By : Julie Wu
Approval By : Arthur Chang

Report No. : 108-ISOQA-23-0625 **Rev.** : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting



PRODUCT INFORMATION

Test Component	YAA-993-0521-95 (LF993C /LF993M)
Variant	LF993C : LEDs emitted Warm white color of light
	LF993M : LEDs emitted Cool white color of light
Applicant	Morimoto Lighting 2281 Defoor Hills Rd Atlanta GA 30318, United States
Manufacturer	Zhejiang Hongguan Lighting Technology Co., Ltd. No. 185, Fengdu 2nd Road, Tangxia Town, Rui'an City, Zhejiang Province, 325200 China
Trade Mark	MORIMOTO
Lens Material	Plastic
Coating of Exterior Lens	---
Inner Lens Material	---
Reflex Reflector Material	---
Applicable Vehicle	Porsche 993 1995-1998
Rated Voltage	12 V
Marking on Lens	see Drawing
Marking on Housing	see Drawing
Method of Mounting to Vehicle	bolted

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

Functions	Parking Lamp	Headlamp - Lower Beam	Headlamp - Upper Beam		
Requirements	FMVSS 108	FMVSS 108	FMVSS 108		
SAE Standards for Reference	SAE J222	---	---		
Identification Code of SAE J759	P	HL	HL		
Number of Compartments or Lamps	1	1	1		
Color of External Lens	Clear	Clear	Clear		
Color of Inner Lens or Filter	Clear	---	---		
Color of Light Emitted	White	White	White		
Light Source Designation	LED x 4	LED x 9	LED x 9		
Design Voltage	12.8 V	12.8 V	12.8 V		
Rated Mean Spherical Candlepower	N/A	N/A	N/A		
Effective projected illuminated area of lens (mm ²)	N/A	N/A	N/A		
Method of determination	N/A	N/A	N/A		
Test Item	Inspector	Date	Number of Tested		
Physical Inspection	Tan Liao	2023/8/24	2	2	2
Photometry Test	Tan Liao	2023/8/24	2	2	2
Color Test	Tan Liao	2023/8/24	2	2	2

** Upon the applicant's request, the examination is conducted to check whether the test component(s) is in compliance with the photometric and color requirements of the FMVSS 108. Functions and/or test items not included in this test report, if any, will not be considered.
The issuance of this report does not denote or imply that the test component(s) complies with other requirements of FMVSS 108.

Report No. : 108-ISOQA-23-0625 Rev. : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting

PARKING LAMP TEST REPORT

Test Component	YAA-993-0521-95 (LF993C /LF993M)
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2023/8/24
Report Number	108-ISOQA-23-0625
Number of devices tested	See below
Light source Designation	LED x 4

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 : _____



Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : September 1, 2023

Report No. : 108-ISOQA-23-0625 **Rev.** : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting



PHYSICAL INSPECTION

Inspection Performed by : Tan Liao Date : 2023/8/24

Marking on Lens	see Drawing	
Marking on Housing	see Drawing	
Lens Material	Plastic	
Coating of External Lens	---	
Light Sources Used	Trade No/ Designation	LED
	Quantity	4
	Rated Voltage	12 V

Remarks : _____

Report No. : 108-ISOQA-23-0625 Rev. : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting



PHOTOMETRY TEST - LF993C

Test Performed by : Tan Liao Date : 2023/8/24
 Test distance(m) : 3.182 m Light Source Designation : LED x 4
 Tested Voltage : 12.8 V

Steady Burning at H-V (according to SAE J1889)	Sample 1 (RH)			Sample 2 (LH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	82.40	80.80	1.02	82.0	80.74	1.02

Test Points	Zone	Minimum (cd)	Maximum (cd)	Sample 1 (RH)	Sample 2 (LH)
				Measured ⁽¹⁾	Measured ⁽¹⁾
5U - 20L	1	0.4	125	52.830	53.430
5D - 20L	1	0.4	250	45.530	45.510
10U - 5L	1	0.8	125	82.500	83.600
10D - 5L	1	0.8	250	64.040	64.160
5U - 10L	2	0.8	125	77.670	78.500
H - 10L	2	1.4	125	76.750	77.370
5D - 10L	2	0.8	250	71.500	71.660
5U - V	3	2.8	125	84.700	84.400
H - 5L	3	3.6	125	80.590	81.130
H - V	3	4	125	80.800	80.740
H - 5R	3	3.6	125	77.680	78.160
5D - V	3	2.8	250	75.270	75.550
5U - 10R	4	0.8	125	75.680	76.580
H - 10R	4	1.4	125	71.520	72.030
5D - 10R	4	0.8	250	64.310	64.620
10U - 5R	5	0.8	125	85.100	85.100
10D - 5R	5	0.8	250	59.870	60.020
5U - 20R	5	0.4	125	46.180	46.800
5D - 20R	5	0.4	250	37.560	37.700
Visibility on or above HH		0.05	125	(0.510) 86.842	(0.586) 86.856
Visibility below HH		0.05	250	(0.249) 81.915	(0.182) 81.859

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1 (RH)	Sample 2 (LH)
1	2.4	244.900	246.700
2	3.0	225.920	227.530
3	16.8	399.040	399.980
4	3.0	211.510	213.230
5	2.4	228.710	229.620

(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-23-0625 Rev. : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting



PHOTOMETRY TEST - LF993M

Test Performed by : Tan Liao Date : 2023/8/24
 Test distance(m) : 3.182 m Light Source Designation : LED x 4
 Tested Voltage : 12.8 V

Steady Burning at H-V (according to SAE J1889)	Sample 1 (RH)			Sample 2 (LH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	70.77	69.10	1.02	70.86	68.86	1.03

Test Points	Zone	Minimum (cd)	Maximum (cd)	Sample 1 (RH)	Sample 2 (LH)
				Measured ⁽¹⁾	Measured ⁽¹⁾
5U - 20L	1	0.4	125	40.210	39.540
5D - 20L	1	0.4	250	31.070	33.090
10U - 5L	1	0.8	125	70.130	66.750
10D - 5L	1	0.8	250	50.710	56.410
5U - 10L	2	0.8	125	65.180	59.510
H - 10L	2	1.4	125	63.460	57.280
5D - 10L	2	0.8	250	54.670	55.490
5U - V	3	2.8	125	71.340	69.480
H - 5L	3	3.6	125	67.130	66.870
H - V	3	4	125	69.100	68.860
H - 5R	3	3.6	125	65.850	65.500
5D - V	3	2.8	250	61.520	65.010
5U - 10R	4	0.8	125	65.510	63.010
H - 10R	4	1.4	125	60.660	61.550
5D - 10R	4	0.8	250	54.180	59.790
10U - 5R	5	0.8	125	70.250	69.770
10D - 5R	5	0.8	250	49.520	58.240
5U - 20R	5	0.4	125	49.140	37.290
5D - 20R	5	0.4	250	33.730	38.530
Visibility on or above HH		0.05	125	(0.457) 74.603	(0.380) 73.164
Visibility below HH		0.05	250	(0.321) 69.481	(0.159) 68.539

Zone Total Luminous Intensity

Zone	Minimum (cd)	Sample 1 (RH)	Sample 2 (LH)
1	2.4	192.120	195.790
2	3.0	183.310	172.280
3	16.8	334.940	335.720
4	3.0	180.350	184.350
5	2.4	202.640	203.830

(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-23-0625 Rev. : 00

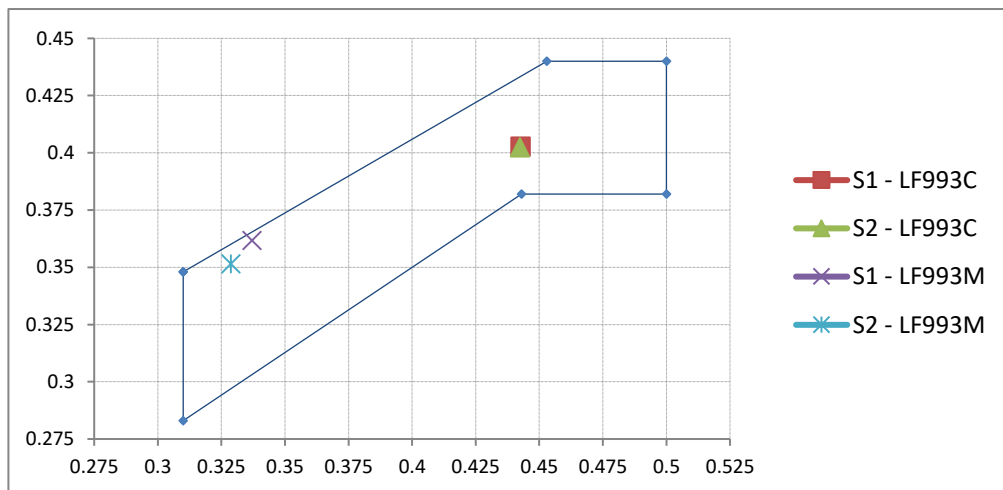
Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting

COLOR TEST

Test Performed by : Tan Liao Date : 2023/8/24
Test distance(m) : 3.182 m Light Source Designation : LED x 4
Color of Light Emitted : White

Color emitted from HV point		Sample 1 (RH)	Sample 2 (LH)
LF993C	x=	0.4426	0.4424
	y=	0.4027	0.4024
LF993M	x=	0.3370	0.3288
	y=	0.3617	0.3515



Remarks :

Report No. : 108-ISOQA-23-0625 Rev. : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting

HEADLAMP TEST REPORT

Test Component	YAA-993-0521-95 (LF993C /LF993M)
Applicant	Morimoto Lighting
Test Laboratory	ISOQA Technical Service Co., Ltd.
Test Date	2023/8/24
Report Number	108-ISOQA-23-0625
Number of devices tested	See below
Light source Designation	Upper Beam - LED x 9 Lower Beam - LED x 9

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 : _____



Signature of Responsible Laboratory Official

Title : Laboratory Manager

Date: : September 1, 2023

Report No. : 108-ISOQA-23-0625 **Rev.** : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting



PHYSICAL INSPECTION

Inspection Performed by : Tan Liao Date : 2023/8/24

Marking on Lens	see Drawing		
Marking on Housing	see Drawing		
Lens Material	Plastic		
Coating of External Lens	---		
Light Sources Used	Function	Upper Beam	Lower Beam
	Trade No/ Designation	LED	LED
	Quantity	9	9
	Rated Voltage	12 V	12 V

Remarks : _____

Report No. : 108-ISOQA-23-0625 Rev. : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting



PHOTOMETRY TEST - LF993C

Test Performed by : Tan Liao Date : 2023/8/24
 Test distance(m) : 25 m Test Voltage : 12.8 V
 Light Source Designation : Upper Beam - LED x 9 / Lower Beam - LED x 9

Vertical Aim	Requirement	Sample 1 (RH)	Sample 2 (LH)
Maximum Gradient	G ≥ 0.13	0.43	0.45
Maximum Inclination	within ± 0.20 degree	0.02°	0.02°

Steady Burning at H - V (according to SAE J2650)	Sample 1 (RH)			Sample 2 (LH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	44733.67	40302.25	1.11	43903.41	40232.23	1.09

UB2 - Upper Beam Photometric Test Point Values

Test Points	Minimum (cd)	Maximum (cd)	Sample 1 (RH)	Sample 2 (LH)
			Measured	Measured
2U - V	1500	-	24277.770	23767.600
1U - 3L	5000	-	23077.380	22907.330
1U - 3R	5000	-	22797.290	22607.230
H - V	40000	75000	40302.250	40232.230
H - 3L	15000	-	29279.370	29199.340
H - 3R	15000	-	27568.820	27628.840
H - 6L	5000	-	18976.070	18796.010
H - 6R	5000	-	18846.030	18735.990
H - 9L	3000	-	9733.113	9593.068
H - 9R	3000	-	10883.480	10683.420
H - 12L	1500	-	4220.350	4194.342
H - 12R	1500	-	4787.532	4623.479
1.5D - V	5000	-	29389.400	29649.480
1.5D - 9L	2000	-	10883.480	11023.530
1.5D - 9R	2000	-	9993.197	10213.270
2.5D - V	2500	-	20746.640	21076.740
2.5D - 12L	1000	-	4609.475	4635.483
2.5D - 12R	1000	-	4211.347	4240.356
4D - V	-	12000	7684.458	7829.505

Report No. : 108-ISOQA-23-0625 **Rev.** : 00

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Steady Burning at 1.5D - 2R (according to SAE J2650)	Sample 1 (RH)			Sample 2 (LH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	29029.29	26278.41	1.10	30969.91	26738.55	1.16

LB2V - Lower Beam Photometric Test Point Values

Test Points	Minimum (cd)	Maximum (cd)	Sample 1 (RH)	Sample 2 (LH)
			Measured	Measured
10U to 90U	-	125	107.030	101.197
4U - 8L	64	-	118.938	121.539
4U - 8R	64	-	112.336	114.137
2U - 4L	135	-	265.785	268.186
1.5U - 1R to 3R	200	-	316.405	317.810
1.5U - 1R to R	-	1400	344.215	343.957
1U - 1.5L to L	-	700	348.785	351.540
0.5U - 1.5L to L	-	1000	429.788	429.860
0.5U - 1R to 3R	500	2700	(652.448)	(609.23)
			766.953	752.896
H - 4L	135	-	743.738	771.147
H - 8L	64	-	772.347	872.279
0.6D - 1.3R	10000	-	32230.310	32660.450
0.86D - V	4500	-	31019.920	31430.050
0.86D - 3.5L	1800	12000	7714.560	7653.088
1.5D - 2R	15000	-	26278.410	26738.550
2D - 9L	1250	-	9272.967	9443.021
2D - 9R	1250	-	8552.736	8732.794
2D - 15L	1000	-	2692.861	2730.874
2D - 15R	1000	-	2434.779	2432.778
4D - 4R	-	12500	6977.232	7171.294
4D - 20L	300	-	852.273	862.276
4D - 20R	300	-	886.284	889.285

Report No. : 108-ISOQA-23-0625 Rev. : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting



PHOTOMETRY TEST - LF993M

Test Performed by : Tan Liao Date : 2023/8/24
 Test distance(m) : 25 m Test Voltage : 12.8 V
 Light Source Designation : Upper Beam - LED x 9 / Lower Beam - LED x 9

Vertical Aim	Requirement	Sample 1 (RH)	Sample 2 (LH)
Maximum Gradient	G ≥ 0.13	0.54	0.59
Maximum Inclination	within ± 0.20 degree	0.02°	0.01°

Steady Burning at H - V (according to SAE J2650)	Sample 1 (RH)			Sample 2 (LH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	43903.41	40232.23	1.09	59138.92	54837.54	1.08

UB2 - Upper Beam Photometric Test Point Values

Test Points	Minimum (cd)	Maximum (cd)	Sample 1 (RH)	Sample 2 (LH)
			Measured	Measured
2U - V	1500	-	23767.600	39892.760
1U - 3L	5000	-	22907.330	35781.450
1U - 3R	5000	-	22607.230	42013.440
H - V	40000	75000	40232.230	54837.540
H - 3L	15000	-	29199.340	43563.940
H - 3R	15000	-	27628.840	47955.340
H - 6L	5000	-	18796.010	29729.510
H - 6R	5000	-	18735.990	36521.680
H - 9L	3000	-	9593.068	15494.960
H - 9R	3000	-	10683.420	23507.520
H - 12L	1500	-	4194.342	6903.208
H - 12R	1500	-	4623.479	11313.620
1.5D - V	5000	-	29649.480	40472.950
1.5D - 9L	2000	-	11023.530	14784.730
1.5D - 9R	2000	-	10213.270	19386.200
2.5D - V	2500	-	21076.740	26538.490
2.5D - 12L	1000	-	4635.483	6913.211
2.5D - 12R	1000	-	4240.356	8902.848
4D - V	-	12000	7829.505	10133.240

Report No. : 108-ISOQA-23-0625 **Rev.** : 00

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Steady Burning at 1.5D - 2R (according to SAE J2650)	Sample 1 (RH)			Sample 2 (LH)		
	1 min.	Steady	Ratio	1 min.	Steady	Ratio
	45314.5	38602.35	1.17	44744.31	39352.59	1.14

LB2V - Lower Beam Photometric Test Point Values

Test Points	Minimum (cd)	Maximum (cd)	Sample 1 (RH)	Sample 2 (LH)
			Measured	Measured
10U to 90U	-	125	105.977	105.924
4U - 8L	64	-	232.474	241.877
4U - 8R	64	-	226.973	334.807
2U - 4L	135	-	517.685	602.993
1.5U - 1R to 3R	200	-	561.223	607.088
1.5U - 1R to R	-	1400	562.007	621.761
1U - 1.5L to L	-	700	587.802	611.432
0.5U - 1.5L to L	-	1000	833.215	730.132
0.5U - 1R to 3R	500	2700	1398.340	1734.023
			1685.284	1791.148
H - 4L	135	-	1383.443	1385.443
H - 8L	64	-	1498.479	956.306
0.6D - 1.3R	10000	-	48255.440	48165.410
0.86D - V	4500	-	47525.200	43083.780
0.86D - 3.5L	1800	12000	9272.967	8752.800
1.5D - 2R	15000	-	38602.350	39352.590
2D - 9L	1250	-	13754.400	12764.080
2D - 9R	1250	-	12584.030	16445.260
2D - 15L	1000	-	4447.423	4037.292
2D - 15R	1000	-	4320.382	5555.777
4D - 4R	-	12500	9282.970	9133.240
4D - 20L	300	-	1440.461	1369.438
4D - 20R	300	-	1530.490	1807.578

Report No. : 108-ISOQA-23-0625 Rev. : 00

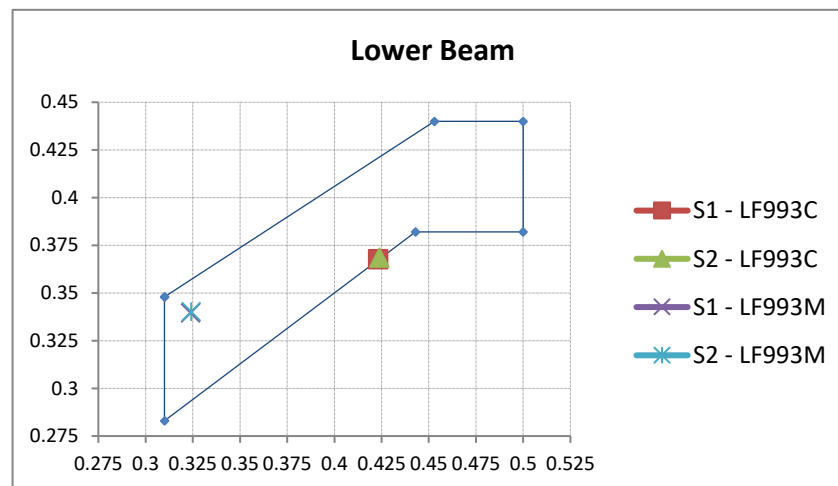
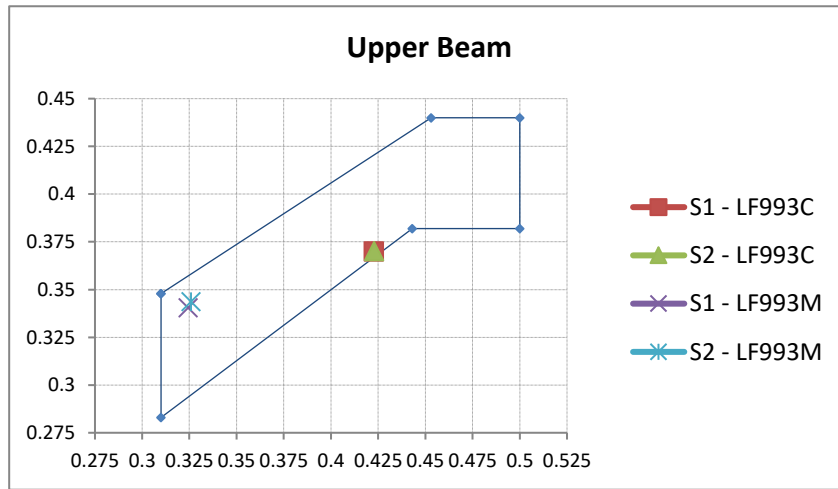
Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting

COLOR TEST

Test Performed by : Tan Liao Date : 2023/8/24
 Test distance(m) : 3.182 m Color of Light Emitted : White

Color emitted from HV point			Sample 1 (RH)	Sample 2 (LH)
LF993C	Upper Beam	x=	0.4227	0.4229
		y=	0.3701	0.3702
	Lower Beam	x=	0.4231	0.4238
		y=	0.3678	0.3686
LF993M	Upper Beam	x=	0.3244	0.3260
		y=	0.3406	0.3437
	Lower Beam	x=	0.3238	0.3242
		y=	0.3396	0.3402



Remarks :

DRAWING / PHOTO



Front View



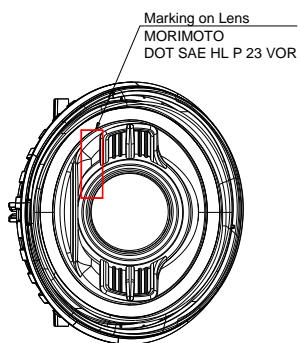
Side View



Top View

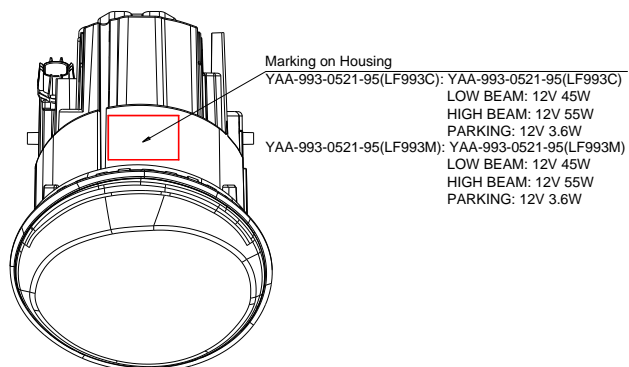


Rear View



MORIMOTO DOT SAE HL P 23 VOR

Marking on Lens



YAA-993-0521-95(LF993C/LF993M) 12V

Marking on Housing

Report No. : 108-ISOQA-23-0625 **Rev.** : 00

Test Component : YAA-993-0521-95 (LF993C /LF993M)

Applicant : Morimoto Lighting



REVISION HISTORY

Version	Issued Date	Description
00	September 1, 2023	Initial issue of the test report.