

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P277718

Luminaire Tested: **ML4D09_D2WE - TIR45SP15 - TL45R6GMWWB - TL46S6GMWWB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P277718
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1808-893-3)
Test Lab: INNOVATION CENTER(G3)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML4D09_D2WE - TIR45SP15 - TL45R6GMWWB - TL46S6GMWWB
Description: ML4 900LM 3000K, D2W, 15° SP OPTIC, WITH ROUND ASYMM WW, LINEAR SPREAD LENS, MATTE WHITE FLANGE, WHITE LENS FRAME
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 512.0 lumens
Efficiency: N/A
Efficacy: 42.7 lumens/watt
Spacing Criteria (0/90/45): 0.46 / 0.67 / 0.57
Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')
CIE Type: Direct

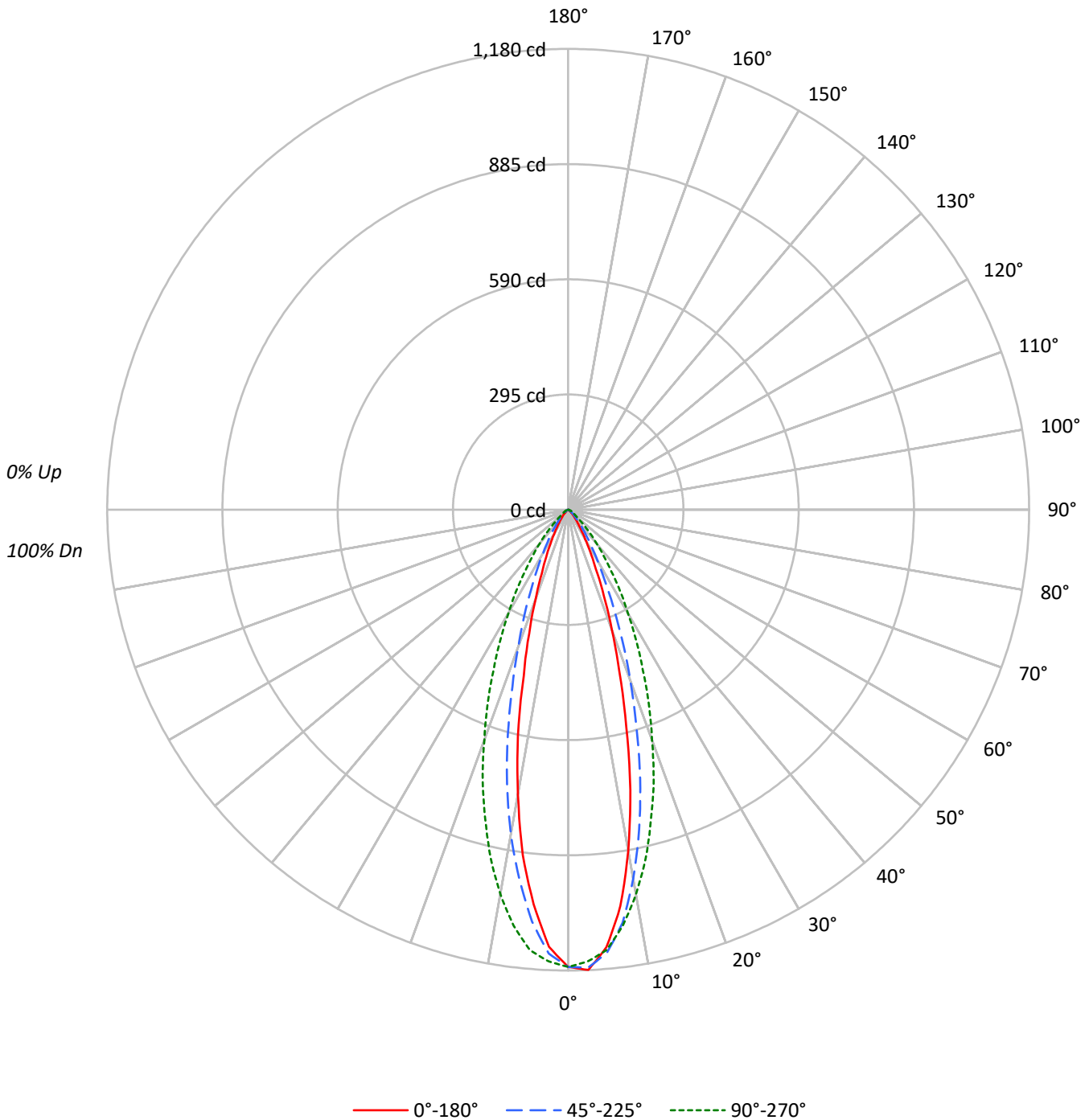
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	114	111	109	107	112	109	107	105	105	104	102	101	100	99	98	97	96	94					94			
2	109	104	101	98	107	103	99	96	99	97	94	97	94	92	94	92	90	89					89			
3	104	98	94	90	102	97	93	89	94	91	88	92	89	86	90	87	85	84					84			
4	99	93	88	84	98	92	87	83	89	85	82	87	84	81	86	83	80	79					79			
5	95	88	82	78	94	87	82	78	85	81	77	83	80	77	82	79	76	75					75			
6	91	83	78	74	90	82	77	74	81	77	73	80	76	73	78	75	72	71					71			
7	87	79	74	70	86	78	73	70	77	73	69	76	72	69	75	71	69	67					67			
8	84	75	70	66	83	75	70	66	74	69	66	73	69	66	72	68	65	64					64			
9	81	72	67	63	80	72	67	63	71	66	63	70	66	63	69	65	63	61					61			
10	78	69	64	60	77	69	64	60	68	63	60	67	63	60	66	63	60	59					59			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	453607	453607	453607
5°	437446	440169	394309
10°	348503	393359	291094
15°	230592	328838	176474
20°	134803	258885	100577
25°	71787	193214	57293
30°	38928	136426	32216
35°	21287	91251	18922
40°	12140	57666	11634
45°	7672	33428	7672
50°	4823	17482	5426
55°	3378	11485	4054
60°	2325	9300	3100
65°	1834	7335	1834
70°	2266	5665	1133
75°	1497	2994	0
80°	0	0	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.7	19.3
10°-20°	181.4	35.4
20°-30°	128.3	25.1
30°-40°	63.1	12.3
40°-50°	25.0	4.9
50°-60°	9.6	1.9
60°-70°	4.5	0.9
70°-80°	1.3	0.3
80°-90°	0.0	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	408.4	79.8
0°-40°	471.6	92.1
0°-60°	506.2	98.9
0°-90°	512.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	512.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1171	1171	1171	1171	1171	
5°	1125	1139	1132	1059	1014	100
15°	575	712	820	596	440	158
25°	168	270	452	222	134	82
35°	45	81	193	75	40	30
45°	14	24	61	25	14	11
55°	5	8	17	10	6	5
65°	2	3	8	4	2	2
75°	1	1	2	1	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	1170.6	1170.6	1170.6	1170.6	1170.6	1170.6	1170.6	1170.6	1170.6
2.5°	1179.6	1169.6	1173.6	1163.6	1157.6	1151.6	1137.6	1129.6	1120.6
5°	1124.6	1120.6	1138.6	1130.6	1131.6	1103.6	1058.7	1046.7	1013.7
7.5°	1023.7	1033.7	1066.6	1078.6	1073.6	1026.7	954.7	911.7	891.7
10°	885.7	918.7	959.7	1008.7	999.7	936.7	844.7	776.7	739.8
12.5°	734.8	765.7	838.7	901.7	915.7	830.7	722.8	625.8	594.8
15°	574.8	618.8	711.8	797.7	819.7	731.8	595.8	481.8	439.9
17.5°	433.9	484.8	579.8	692.8	727.8	630.8	474.8	367.9	332.9
20°	326.9	361.9	462.8	585.8	627.8	532.8	372.9	271.9	243.9
22.5°	238.9	267.9	359.9	485.8	539.8	441.9	292.9	202.9	176.9
25°	167.9	194.9	269.9	400.9	451.9	358.9	221.9	151.9	134.0
27.5°	123.0	141.0	198.9	313.9	375.9	289.9	169.9	112.0	96.0
30°	87.0	100.0	150.0	247.9	304.9	231.9	129.0	83.0	72.0
32.5°	62.0	74.0	110.0	193.9	248.9	183.9	98.0	63.0	53.0
35°	45.0	52.0	81.0	148.0	192.9	142.0	75.0	47.0	40.0
37.5°	33.0	38.0	59.0	110.0	150.0	110.0	56.0	35.0	30.0
40°	24.0	28.0	44.0	82.0	114.0	83.0	43.0	27.0	23.0
42.5°	18.0	21.0	32.0	61.0	85.0	62.0	33.0	21.0	18.0
45°	14.0	16.0	24.0	45.0	61.0	46.0	25.0	16.0	14.0
47.5°	11.0	12.0	18.0	32.0	42.0	34.0	20.0	13.0	11.0
50°	8.0	9.0	13.0	23.0	29.0	25.0	16.0	11.0	9.0
52.5°	7.0	7.0	10.0	17.0	22.0	19.0	13.0	8.0	7.0
55°	5.0	6.0	8.0	12.0	17.0	15.0	10.0	7.0	6.0
57.5°	4.0	5.0	6.0	10.0	14.0	13.0	8.0	6.0	5.0
60°	3.0	4.0	5.0	8.0	12.0	11.0	7.0	5.0	4.0
62.5°	3.0	3.0	4.0	6.0	10.0	9.0	5.0	4.0	3.0
65°	2.0	3.0	3.0	5.0	8.0	8.0	4.0	3.0	2.0
67.5°	2.0	2.0	2.0	4.0	7.0	6.0	3.0	2.0	2.0
70°	2.0	2.0	2.0	3.0	5.0	5.0	2.0	1.0	1.0
72.5°	1.0	1.0	1.0	2.0	4.0	3.0	2.0	1.0	1.0
75°	1.0	1.0	1.0	1.0	2.0	2.0	1.0	0.0	0.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)