

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: P277720

Luminaire Tested: **ML4D09_D2WE - TIR45SP15 - TL45R6GMWBB - TL46S6GMWBB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P277720
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1808-893-5)
Test Lab: INNOVATION CENTER(G3)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML4D09_D2WE - TIR45SP15 - TL45R6GMWBB - TL46S6GMWBB
Description: ML4 900LM 3000K, D2W, 15° SP OPTIC, WITH SQUARE ASYMM WW, LINEAR SPREAD LENS, MATTE WHITE FLANGE, BLACK LENS FRAME
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 523.4 lumens
Efficiency: N/A
Efficacy: 43.6 lumens/watt
Spacing Criteria (0/90/45): 0.46 / 0.68 / 0.58
Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')
CIE Type: Direct

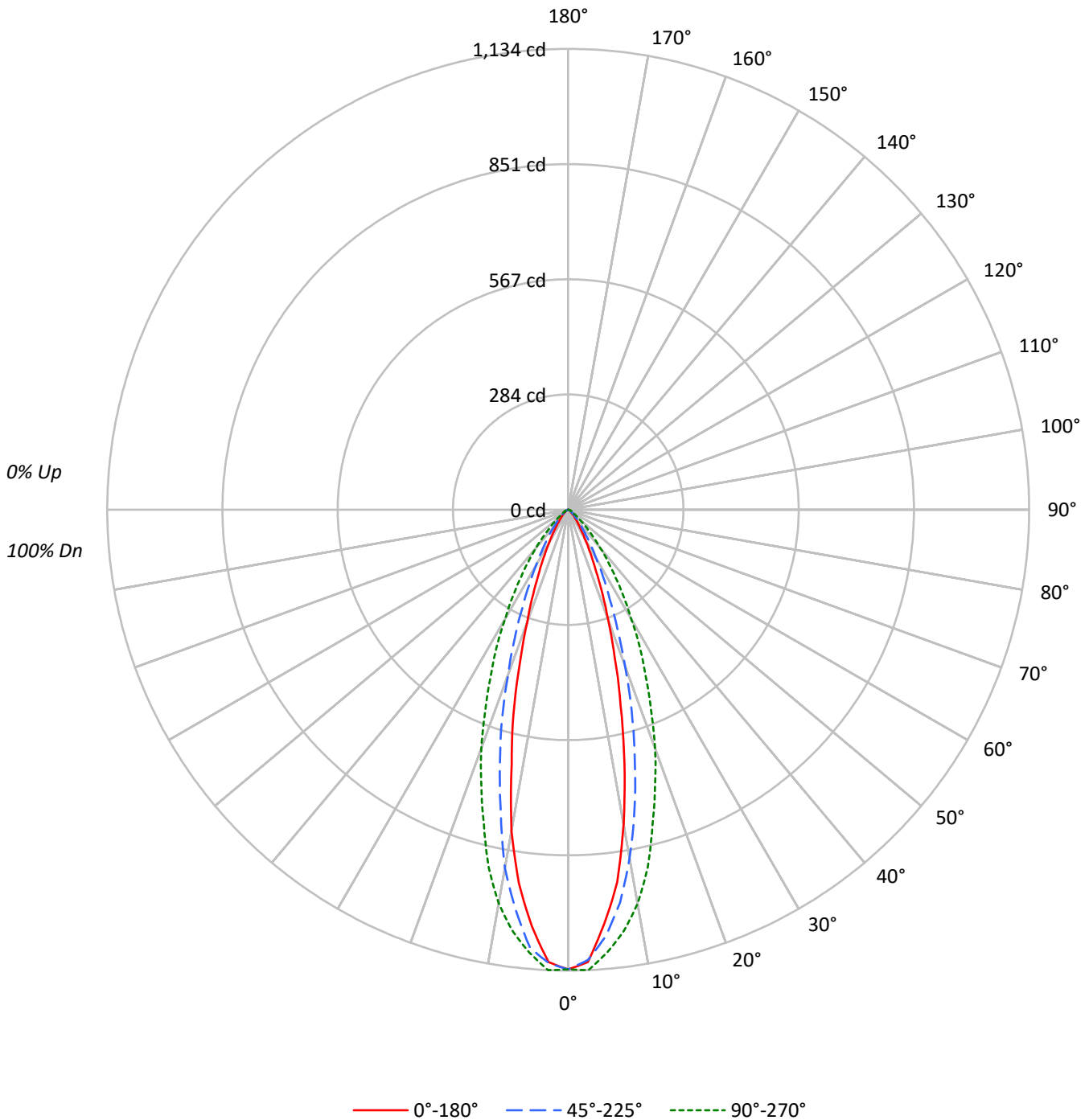
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	106	111	109	107	105	105	103	102	101	100	99	98	97	96	94					94			
2	108	104	100	97	106	102	99	96	99	96	94	96	94	92	93	91	90	88					88			
3	103	97	93	89	102	96	92	88	93	90	87	91	88	85	89	86	84	83					83			
4	99	92	87	83	97	91	86	82	88	84	81	87	83	80	85	82	79	78					78			
5	94	87	81	77	93	86	81	77	84	80	76	82	79	76	81	78	75	73					73			
6	90	82	77	73	89	81	76	72	80	75	72	78	74	71	77	74	71	70					70			
7	86	78	72	69	85	77	72	68	76	71	68	75	71	68	74	70	67	66					66			
8	83	74	69	65	82	74	68	65	73	68	65	72	67	64	71	67	64	63					63			
9	80	71	65	62	79	70	65	62	69	65	61	69	64	61	68	64	61	60					60			
10	77	68	62	59	76	67	62	59	67	62	59	66	62	59	65	61	58	57					57			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	438339	438339	438339
5°	397615	425621	399949
10°	308919	387260	316002
15°	200223	321778	208648
20°	117937	257771	122061
25°	65416	192444	71402
30°	36243	138753	41612
35°	20814	96029	25072
40°	12646	62219	15681
45°	8220	37264	10960
50°	6028	20497	8440
55°	4729	12161	6756
60°	3875	10075	5425
65°	3668	8252	4585
70°	3399	6798	4532
75°	2994	4492	2994
80°	2232	4463	2232
85°	0	4446	4446



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	95.8	18.3
10°-20°	179.3	34.3
20°-30°	130.9	25.0
30°-40°	67.4	12.9
40°-50°	28.5	5.5
50°-60°	11.7	2.2
60°-70°	6.2	1.2
70°-80°	2.8	0.5
80°-90°	0.7	0.1
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°	406.1	77.6
0°-40°	473.5	90.5
0°-60°	513.7	98.2
0°-90°	523.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	523.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1131	1131	1131	1131	1131	
5°	1022	1054	1094	1081	1028	91
15°	499	633	802	649	520	138
25°	153	241	450	268	167	74
35°	44	75	203	92	53	29
45°	15	24	68	33	20	12
55°	7	10	18	13	10	6
65°	4	5	9	6	5	4
75°	2	2	3	3	2	2
85°	0	0	1	1	1	0
90°	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°	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2	1131.2
2.5°	1114.2	1109.2	1109.2	1117.2	1134.2	1121.2	1116.2	1117.2	1114.2
5°	1022.2	1053.2	1054.2	1079.2	1094.2	1084.2	1081.2	1048.2	1028.2
7.5°	924.1	941.2	975.2	1022.2	1046.2	1027.2	992.2	950.2	927.1
10°	785.1	804.1	870.1	943.2	984.2	949.2	896.1	826.1	803.1
12.5°	638.1	667.1	754.1	859.1	903.1	864.1	766.1	700.1	641.1
15°	499.1	538.1	633.1	749.1	802.1	757.1	649.1	569.1	520.1
17.5°	381.1	418.1	518.1	642.1	711.1	662.1	542.1	443.1	394.1
20°	286.0	317.1	408.1	545.1	625.1	562.1	433.1	329.1	296.0
22.5°	212.0	233.0	315.1	449.1	532.1	477.1	345.1	252.0	224.0
25°	153.0	172.0	241.0	367.1	450.1	397.1	268.0	189.0	167.0
27.5°	112.0	128.0	186.0	294.0	382.1	326.1	205.0	143.0	126.0
30°	81.0	94.0	136.0	232.0	310.1	266.0	158.0	106.0	93.0
32.5°	60.0	70.0	104.0	181.0	254.0	206.0	121.0	81.0	71.0
35°	44.0	50.0	75.0	139.0	203.0	164.0	92.0	60.0	53.0
37.5°	34.0	38.0	56.0	109.0	161.0	128.0	72.0	47.0	41.0
40°	25.0	28.0	43.0	81.0	123.0	99.0	55.0	36.0	31.0
42.5°	20.0	22.0	32.0	61.0	93.0	74.0	42.0	28.0	25.0
45°	15.0	17.0	24.0	46.0	68.0	54.0	33.0	23.0	20.0
47.5°	12.0	13.0	19.0	34.0	49.0	40.0	26.0	18.0	16.0
50°	10.0	11.0	15.0	25.0	34.0	30.0	20.0	15.0	14.0
52.5°	8.0	9.0	12.0	18.0	25.0	22.0	16.0	13.0	11.0
55°	7.0	7.0	10.0	14.0	18.0	17.0	13.0	11.0	10.0
57.5°	6.0	6.0	8.0	11.0	15.0	14.0	11.0	9.0	8.0
60°	5.0	5.0	7.0	9.0	13.0	12.0	9.0	8.0	7.0
62.5°	4.0	5.0	6.0	8.0	11.0	10.0	8.0	7.0	6.0
65°	4.0	4.0	5.0	6.0	9.0	8.0	6.0	6.0	5.0
67.5°	3.0	3.0	4.0	5.0	8.0	7.0	5.0	5.0	4.0
70°	3.0	3.0	3.0	4.0	6.0	5.0	4.0	4.0	4.0
72.5°	2.0	3.0	3.0	4.0	5.0	4.0	3.0	3.0	3.0
75°	2.0	2.0	2.0	3.0	3.0	3.0	3.0	2.0	2.0
77.5°	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80°	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0
82.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
85°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
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)