

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: P277708

Luminaire Tested: **ML4D09_D2WE - TIR45WFL55 - TL45R6GMWWB - TL46S6GMWWB**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P277708
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1808-893-13)
Test Lab: INNOVATION CENTER(G3)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML4D09_D2WE - TIR45WFL55 - TL45R6GMWWB - TL46S6GMWWB
Description: ML4 900LM 3000K, D2W, 55° WFL 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: 491.2 lumens
Efficiency: N/A
Efficacy: 40.9 lumens/watt
Spacing Criteria (0/90/45): 0.73 / 0.79 / 0.79
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

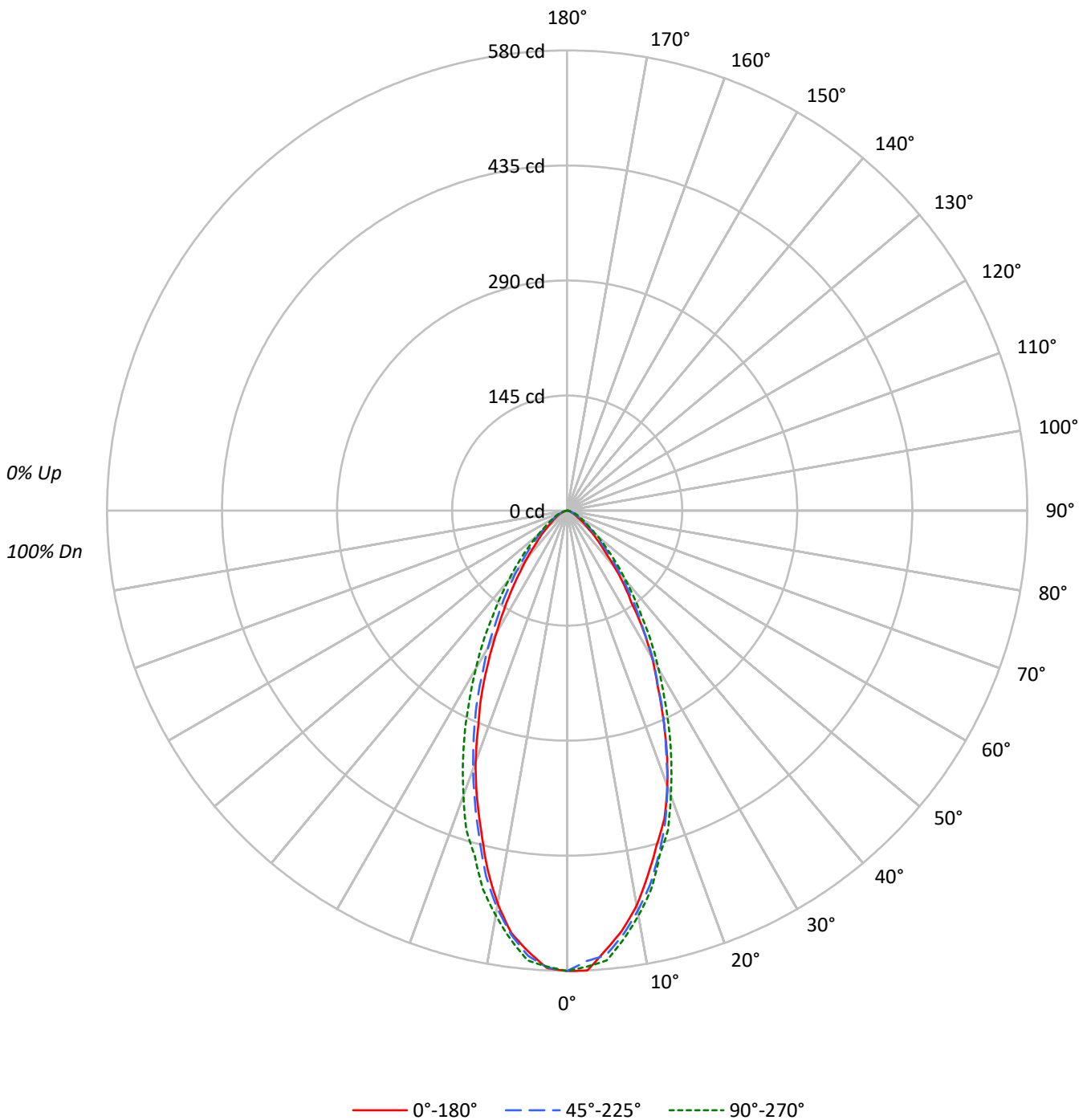
Input Watts (W): 12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	113	110	107	104	110	107	105	103	103	101	100	100	98	97	96	95	94	92					92			
2	106	101	96	93	104	99	95	92	96	92	90	93	90	88	90	88	86	84					84			
3	100	93	88	83	98	92	87	82	89	85	81	87	83	80	84	81	79	77					77			
4	95	86	80	75	93	85	79	75	83	78	74	81	77	73	79	75	72	71					71			
5	89	80	74	69	88	79	73	69	77	72	68	76	71	67	74	70	67	65					65			
6	84	75	68	64	83	74	68	63	72	67	63	71	66	62	70	65	62	60					60			
7	80	70	63	59	79	69	63	59	68	62	58	67	62	58	66	61	58	56					56			
8	76	66	59	55	75	65	59	55	64	58	54	63	58	54	62	57	54	52					52			
9	72	62	55	51	71	61	55	51	60	55	51	59	54	51	59	54	51	49					49			
10	69	58	52	48	68	58	52	48	57	52	48	56	51	48	55	51	48	46					46			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	286308	286308	286308
5°	275515	281954	276506
10°	253151	259663	252149
15°	222804	230006	213610
20°	193846	200672	177045
25°	155258	165602	138872
30°	121974	131089	101465
35°	84985	99441	72939
40°	59962	74131	50881
45°	39771	53726	34887
50°	26097	37611	24562
55°	18064	26666	18924
60°	12828	20722	14801
65°	9339	17512	11674
70°	7213	14425	8655
75°	5719	9531	5719
80°	2841	5683	5683
85°	0	5661	5661



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.0	10.6
10°-20°	122.4	24.9
20°-30°	129.5	26.4
30°-40°	93.1	19.0
40°-50°	51.8	10.5
50°-60°	25.0	5.1
60°-70°	12.1	2.5
70°-80°	4.5	0.9
80°-90°	0.8	0.2
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°	303.9	61.9
0°-40°	397.0	80.8
0°-60°	473.7	96.4
0°-90°	491.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	491.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	580	580	580	580	580	
5°	556	562	569	563	558	52
15°	436	447	450	427	418	122
25°	285	287	304	270	255	131
35°	141	152	165	142	121	91
45°	57	68	77	65	50	45
55°	21	27	31	28	22	19
65°	8	11	15	13	10	8
75°	3	4	5	4	3	3
85°	0	1	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°	580.3	580.3	580.3	580.3	580.3	580.3	580.3	580.3	580.3
2.5°	580.3	567.3	568.3	577.3	575.3	575.3	576.3	579.3	577.3
5°	556.3	561.3	562.3	567.3	569.3	563.3	563.3	565.3	558.3
7.5°	533.3	538.3	539.3	541.3	545.3	543.3	539.3	540.3	537.3
10°	505.3	511.3	512.3	517.3	518.3	505.3	508.3	505.3	503.3
12.5°	470.3	476.3	483.3	487.3	489.3	477.3	472.3	465.3	463.3
15°	436.2	442.2	447.3	457.3	450.3	441.2	427.2	424.2	418.2
17.5°	407.2	404.2	411.2	421.2	422.2	404.2	386.2	381.2	378.2
20°	369.2	366.2	369.2	385.2	382.2	366.2	346.2	342.2	337.2
22.5°	328.2	326.2	325.2	347.2	343.2	326.2	307.2	297.2	292.2
25°	285.2	287.2	287.2	303.2	304.2	287.2	270.2	259.1	255.1
27.5°	246.1	248.1	247.1	263.1	265.1	246.1	231.1	221.1	215.1
30°	214.1	211.1	216.1	226.1	230.1	213.1	199.1	188.1	178.1
32.5°	178.1	176.1	179.1	193.1	198.1	180.1	167.1	156.1	148.1
35°	141.1	146.1	152.1	161.1	165.1	153.1	142.1	129.1	121.1
37.5°	118.1	119.1	126.1	135.1	139.1	128.1	118.1	105.1	97.1
40°	93.1	95.1	103.1	111.1	115.1	106.1	97.1	85.0	79.0
42.5°	71.0	76.0	84.0	91.1	95.1	87.0	80.0	68.0	62.0
45°	57.0	60.0	68.0	73.0	77.0	72.0	65.0	55.0	50.0
47.5°	45.0	48.0	54.0	59.0	62.0	59.0	54.0	45.0	42.0
50°	34.0	37.0	44.0	47.0	49.0	48.0	43.0	36.0	32.0
52.5°	27.0	29.0	35.0	38.0	38.0	38.0	35.0	29.0	26.0
55°	21.0	23.0	27.0	30.0	31.0	31.0	28.0	24.0	22.0
57.5°	16.0	18.0	22.0	24.0	26.0	25.0	23.0	20.0	18.0
60°	13.0	14.0	17.0	19.0	21.0	21.0	19.0	16.0	15.0
62.5°	10.0	11.0	14.0	16.0	18.0	18.0	15.0	13.0	12.0
65°	8.0	9.0	11.0	13.0	15.0	15.0	13.0	11.0	10.0
67.5°	6.0	7.0	9.0	11.0	12.0	12.0	10.0	9.0	8.0
70°	5.0	6.0	7.0	9.0	10.0	10.0	8.0	7.0	6.0
72.5°	4.0	5.0	5.0	6.0	7.0	7.0	6.0	5.0	5.0
75°	3.0	3.0	4.0	5.0	5.0	5.0	4.0	4.0	3.0
77.5°	2.0	2.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0
80°	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
82.5°	1.0	1.0	1.0	1.0	2.0	2.0	1.0	1.0	1.0
85°	0.0	1.0	1.0	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)