

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: P277703

Luminaire Tested: **ML4D09\_D2WE - TIR45FL40 - TL45R6GMWWB - TL46S6GMWWB**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P277703  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1808-893-8)  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO  
Catalog Number: ML4D09\_D2WE - TIR45FL40 - TL45R6GMWWB - TL46S6GMWWB  
Description: ML4 900LM 3000K, D2W, 40° FL 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: 528.7 lumens  
Efficiency: N/A  
Efficacy: 44.1 lumens/watt  
Spacing Criteria (0/90/45): 0.58 / 0.69 / 0.66  
Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')  
CIE Type: Direct

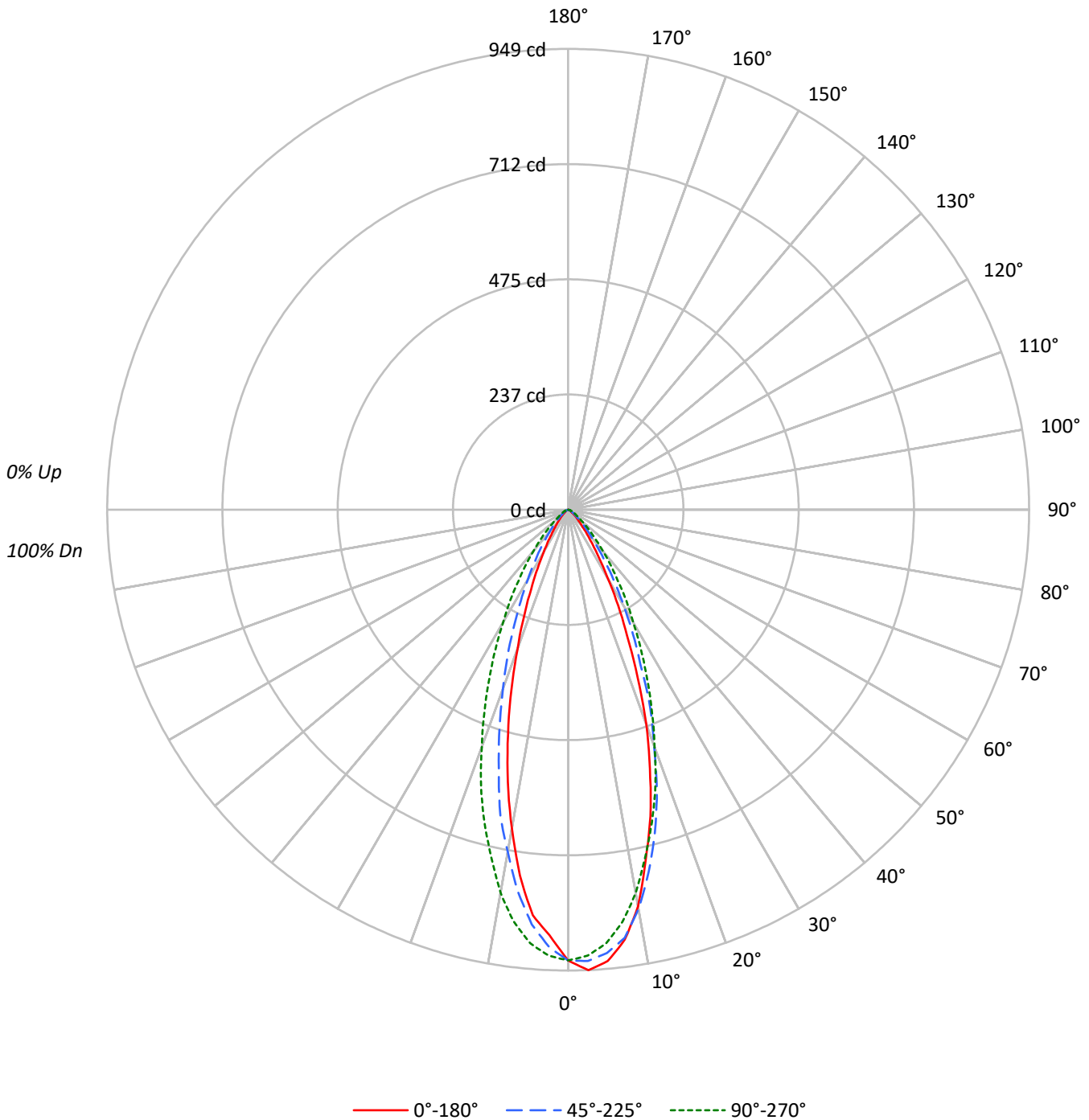
Input Watts (W): 12  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P277703

CATALOG NUMBER: ML4D09\_D2WE - TIR45FL40 - TL45R6GMWWB - TL46S6GMWWB

### Luminous Intensity Polar Plot





TEST NUMBER: P277703

CATALOG NUMBER: ML4D09\_D2WE - TIR45FL40 - TL45R6GMWWB - TL46S6GMWWB

**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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	108	106	111	109	107	105	105	103	101	101	100	98	98	96	95	94
2	108	103	99	96	106	102	98	95	98	95	93	95	93	91	93	91	89	87
3	103	97	92	88	101	95	91	87	93	89	86	90	87	85	88	85	83	82
4	98	91	85	81	96	90	85	81	87	83	80	85	82	79	84	81	78	76
5	93	85	80	76	92	84	79	75	83	78	75	81	77	74	79	76	73	72
6	89	81	75	71	88	80	74	70	78	73	70	77	73	69	76	72	69	68
7	85	76	70	66	84	76	70	66	74	69	66	73	69	65	72	68	65	64
8	81	72	67	63	80	72	66	62	71	66	62	70	65	62	69	65	62	60
9	78	69	63	59	77	68	63	59	67	62	59	66	62	59	66	62	59	57
10	75	65	60	56	74	65	60	56	64	59	56	63	59	56	63	59	56	54

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	359677	359677	359677
5°	362996	348603	326043
10°	326271	315254	262489
15°	262405	267219	191799
20°	193854	214473	125814
25°	122324	164225	76960
30°	72934	119513	44745
35°	41628	83730	25545
40°	23775	56655	16187
45°	14248	36168	10412
50°	9043	21702	7234
55°	6080	14863	5405
60°	3875	11625	3875
65°	3668	9169	2751
70°	2266	6798	1133
75°	2994	4492	0
80°	2232	0	0
85°	0	0	0



TEST NUMBER: P277703

CATALOG NUMBER: ML4D09\_D2WE - TIR45FL40 - TL45R6GMWWB - TL46S6GMWWB

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	81.2	15.4
10°-20°	170.6	32.3
20°-30°	143.1	27.1
30°-40°	78.3	14.8
40°-50°	34.0	6.4
50°-60°	13.6	2.6
60°-70°	6.1	1.2
70°-80°	1.8	0.3
80°-90°	0.1	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°	394.9	74.7
0°-40°	473.2	89.5
0°-60°	520.7	98.5
0°-90°	528.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	528.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	928	928	928	928	928	
5°	933	916	896	857	838	86
15°	654	689	666	552	478	179
25°	286	352	384	262	180	135
35°	88	136	177	102	54	58
45°	26	43	66	36	19	21
55°	9	14	22	14	8	8
65°	4	5	10	6	3	4
75°	2	2	3	1	0	2
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



TEST NUMBER: P277703

CATALOG NUMBER: ML4D09\_D2WE - TIR45FL40 - TL45R6GMWWB - TL46S6GMWWB

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	928.2	928.2	928.2	928.2	928.2	928.2	928.2	928.2	928.2
2.5°	949.2	940.2	930.2	921.2	919.2	904.2	901.2	899.2	877.2
5°	933.2	922.2	916.2	910.2	896.2	875.2	857.2	842.2	838.2
7.5°	893.2	892.2	889.2	873.2	856.2	823.2	793.2	773.2	760.2
10°	829.2	837.2	834.2	820.2	801.2	763.2	716.1	687.1	667.1
12.5°	737.1	761.2	764.2	761.2	732.1	687.1	645.1	593.1	574.1
15°	654.1	672.1	689.1	687.1	666.1	618.1	552.1	508.1	478.1
17.5°	559.1	576.1	607.1	615.1	597.1	544.1	469.1	417.1	388.1
20°	470.1	487.1	516.1	539.1	520.1	469.1	392.1	331.1	305.1
22.5°	373.1	396.1	441.1	460.1	451.1	398.1	326.1	268.1	238.0
25°	286.1	312.1	352.1	388.1	384.1	335.1	262.1	203.0	180.0
27.5°	223.0	241.0	289.1	324.1	324.1	281.1	211.0	155.0	136.0
30°	163.0	181.0	228.0	265.1	267.1	230.0	166.0	118.0	100.0
32.5°	120.0	136.0	180.0	215.0	223.0	185.0	130.0	88.0	75.0
35°	88.0	100.0	136.0	173.0	177.0	150.0	102.0	65.0	54.0
37.5°	64.0	73.0	104.0	135.0	143.0	118.0	78.0	49.0	41.0
40°	47.0	53.0	78.0	109.0	112.0	92.0	60.0	38.0	32.0
42.5°	34.0	40.0	59.0	82.0	86.0	72.0	46.0	29.0	25.0
45°	26.0	30.0	43.0	63.0	66.0	54.0	36.0	23.0	19.0
47.5°	20.0	23.0	33.0	47.0	49.0	41.0	28.0	18.0	15.0
50°	15.0	17.0	24.0	35.0	36.0	31.0	21.0	15.0	12.0
52.5°	11.0	13.0	18.0	25.0	27.0	24.0	17.0	12.0	10.0
55°	9.0	10.0	14.0	19.0	22.0	20.0	14.0	10.0	8.0
57.5°	7.0	8.0	11.0	14.0	18.0	16.0	11.0	8.0	7.0
60°	5.0	6.0	8.0	11.0	15.0	13.0	9.0	6.0	5.0
62.5°	4.0	5.0	7.0	9.0	12.0	11.0	7.0	5.0	4.0
65°	4.0	4.0	5.0	7.0	10.0	9.0	6.0	4.0	3.0
67.5°	3.0	3.0	4.0	6.0	8.0	7.0	5.0	3.0	2.0
70°	2.0	2.0	3.0	4.0	6.0	6.0	3.0	2.0	1.0
72.5°	2.0	2.0	2.0	3.0	5.0	4.0	2.0	1.0	1.0
75°	2.0	2.0	2.0	2.0	3.0	2.0	1.0	1.0	0.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
80°	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.0	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)