

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: P85085

Luminaire Tested: **EL405827-TL409WW**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P85085
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (P21178)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: EL405827-TL409WW
Description: HALO 4 INCH RECESSED WALL WASH WITH WHITE ROUND TRIM, HAZE REFLECTOR, SPECULAR KICKER AND SOFT FOCUS LENS. ---ABSOLUTE PHOTOMETRY IS BASED ON CALIBRATION FACTORS CREATED USING A 500 WATT, NIST TRACEABLE, OMNI-DIRECTIONAL LAB LUMEN STANDARD IN THE GONIOPHOTOMETER WITH TEST DISTANCE OF 28.75 FEET----
Light Source: (1) SMT LED 2700K
(1) 221 14 WATTS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 538 (1 lamp)
Luminaire Lumens: 538.4 lumens
Efficiency: 100.1%
Efficacy: 39.3 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.26 / 1.25
Luminous Opening: Vertical Cylinder (Dia: 0.33' x H: 0.1')
CIE Type: Direct

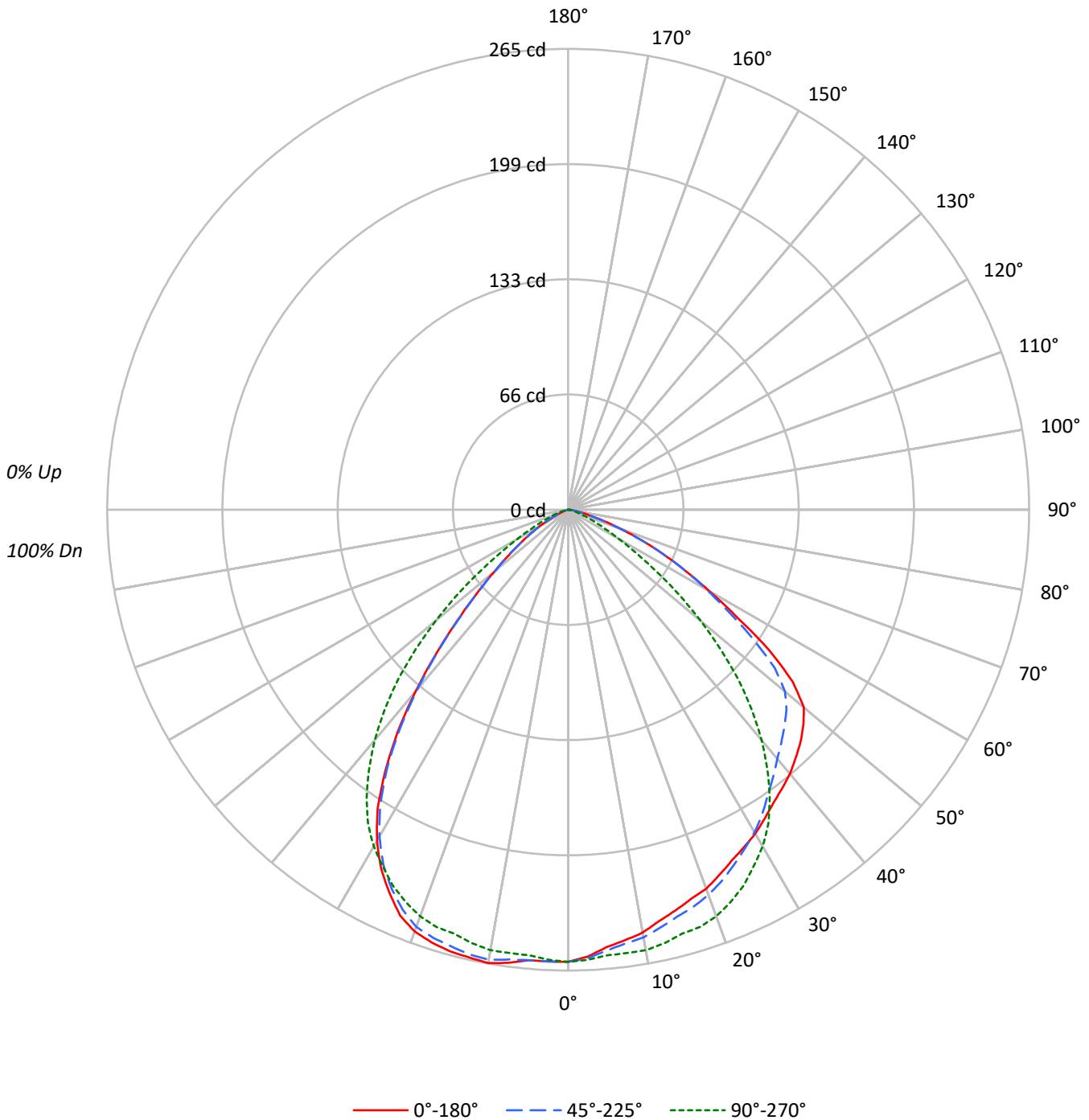
Input Watts (W): 13.7
Input Voltage (V): NR
Input Current (A_{in}): 0.12026
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	108	104	101	109	105	102	100	101	99	97	97	95	94	94	92	91	89					89			
2	103	96	91	86	101	95	90	85	91	87	83	88	85	82	85	82	80	78					78			
3	95	87	80	74	93	85	79	74	82	77	72	80	75	71	77	73	70	68					68			
4	88	78	71	65	86	77	70	64	74	68	64	72	67	63	70	66	62	60					60			
5	82	71	63	57	80	70	62	57	68	61	56	66	60	56	64	59	55	53					53			
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49	47					47			
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44	42					42			
8	66	54	46	41	65	53	46	41	52	45	41	51	45	40	50	44	40	38					38			
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35					35			
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	37	33	32					32			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	32070	32070	32070
5°	30253	30816	31151
10°	28972	30181	31061
15°	27628	29250	30443
20°	26724	28672	29744
25°	25715	27552	28083
30°	25101	26081	25649
35°	24438	23998	21776
40°	24180	21095	16644
45°	23844	17469	11335
50°	23314	13068	7279
55°	19647	8585	4689
60°	13882	5003	2776
65°	9610	2856	1203
70°	5596	1478	493
75°	2574	727	177
80°	1054	426	0
85°	501	237	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	24.5	4.6	4.6
10°-20°	71.1	13.2	13.2
20°-30°	107.7	20.0	20.0
30°-40°	120.8	22.4	22.5
40°-50°	104.7	19.4	19.5
50°-60°	70.3	13.1	13.1
60°-70°	30.9	5.7	5.7
70°-80°	7.4	1.4	1.4
80°-90°	1.0	0.2	0.2
90°-100°	0.0	0.0	0.0
100°-110°	0.0	0.0	0.0
110°-120°	0.0	0.0	0.0
120°-130°	0.0	0.0	0.0
130°-140°	0.0	0.0	0.0
140°-150°	0.0	0.0	0.0
150°-160°	0.0	0.0	0.0
160°-170°	0.0	0.0	0.0
170°-180°	0.0	0.0	0.0
0°-30°	203.3	37.8	37.8
0°-40°	324.2	60.2	60.3
0°-60°	499.1	92.7	92.8
0°-90°	538.4	100.0	100.1
90°-120°	0.0	0.0	0.0
90°-150°	0.0	0.0	0.0
90°-180°	0.0	0.0	0.0
0°-180°	538.4	100.0	100.1

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	260	260	260	260	260	
5°	252	254	257	260	260	24
15°	238	242	252	260	263	67
25°	223	225	238	240	243	103
35°	206	200	202	181	183	129
45°	189	176	138	89	90	146
55°	141	130	62	34	34	124
65°	60	60	18	8	8	60
75°	13	12	4	1	1	16
85°	2	2	1	0	0	2
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°	260.0	260.0	260.0	260.0	260.0	260.0	260.0	260.0	260.0
2.5°	257.2	257.2	258.1	258.1	259.0	259.0	260.0	260.0	260.0
5°	252.5	252.5	254.4	255.3	257.2	258.1	260.0	260.0	260.0
7.5°	249.7	250.6	251.6	254.4	257.2	259.0	260.9	261.9	262.8
10°	246.9	247.8	249.7	253.4	257.2	260.0	262.8	263.7	264.7
12.5°	242.2	243.1	246.0	250.6	255.3	259.0	261.9	263.7	263.7
15°	238.5	239.4	242.2	247.8	252.5	257.2	260.0	261.9	262.8
17.5°	234.7	235.7	239.4	245.0	251.6	255.3	258.1	260.0	260.9
20°	231.9	232.9	235.7	242.2	248.8	252.5	255.3	257.2	258.1
22.5°	227.3	228.2	231.0	237.5	244.1	246.9	248.8	250.6	252.5
25°	222.6	222.6	225.4	231.9	238.5	240.3	240.3	242.2	243.1
27.5°	218.8	217.9	219.8	225.4	231.0	231.0	230.1	231.9	232.9
30°	215.1	213.2	214.2	219.8	223.5	219.8	217.0	218.8	219.8
32.5°	210.4	208.5	207.6	212.3	214.2	205.7	201.1	202.0	203.9
35°	205.7	202.9	200.1	203.9	202.0	188.9	181.4	182.4	183.3
37.5°	202.0	197.3	193.6	194.5	188.0	168.3	159.0	159.0	160.9
40°	198.3	192.6	187.0	185.2	173.0	146.8	134.7	135.6	136.5
42.5°	193.6	188.0	181.4	174.9	156.2	125.3	111.3	111.3	112.2
45°	188.9	183.3	175.8	163.7	138.4	103.8	88.8	88.8	89.8
47.5°	183.3	178.6	170.2	152.4	118.8	84.2	70.1	70.1	71.1
50°	176.8	172.1	162.7	140.3	99.1	67.3	55.2	55.2	55.2
52.5°	162.7	158.0	149.6	125.3	80.4	52.4	43.0	43.0	43.0
55°	141.2	137.5	130.0	105.7	61.7	40.2	33.7	32.7	33.7
57.5°	115.0	113.2	109.4	87.0	45.8	29.9	25.3	25.3	25.3
60°	93.5	92.6	91.6	72.0	33.7	21.5	18.7	17.8	18.7
62.5°	75.8	75.8	75.8	59.9	24.3	15.0	13.1	12.2	12.2
65°	59.9	59.9	59.9	46.8	17.8	9.4	8.4	7.5	7.5
67.5°	44.9	44.9	44.9	34.6	12.2	5.6	4.7	4.7	4.7
70°	31.8	31.8	30.9	24.3	8.4	3.7	2.8	2.8	2.8
72.5°	21.5	21.5	20.6	15.0	5.6	1.9	1.9	1.9	0.9
75°	13.1	13.1	12.2	9.4	3.7	0.9	0.9	0.9	0.9
77.5°	8.4	8.4	7.5	5.6	1.9	0.9	0.0	0.0	0.0
80°	4.7	4.7	4.7	2.8	1.9	0.9	0.0	0.0	0.0
82.5°	2.8	2.8	2.8	1.9	0.9	0.0	0.0	0.0	0.0
85°	1.9	1.9	1.9	0.9	0.9	0.0	0.0	0.0	0.0
87.5°	0.9	0.9	0.9	0.9	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)