

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: P85084

Luminaire Tested: **EL405840-TL409WW**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P85084
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: EL405840-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 4000K
(1) 221 14 WATTS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: 633 (1 lamp)
Luminaire Lumens: 633.4 lumens
Efficiency: 100.1%
Efficacy: 46.2 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

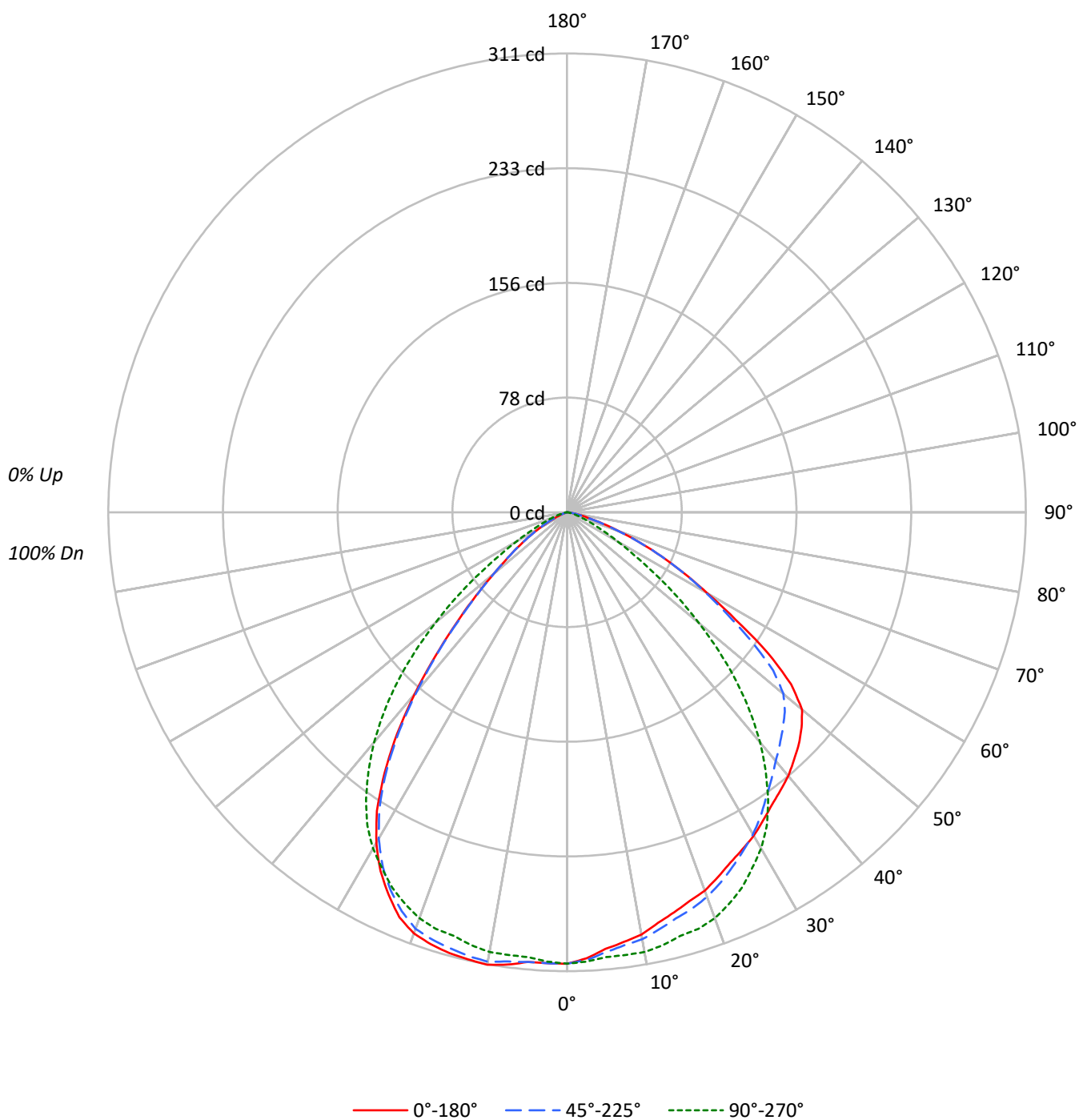
Input Watts (W): 13.7
Input Voltage (V): NR
Input Current (Ain): 0.12026
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P85084

CATALOG NUMBER: EL405840-TL409WW

Luminous Intensity Polar Plot





TEST NUMBER: P85084

CATALOG NUMBER: EL405840-TL409WW

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102
1	111	108	104	101	109	105	102	100	101	99	97	97	95	94	94	92	91
2	103	96	91	86	101	95	90	85	91	87	83	88	85	82	85	82	80
3	95	87	80	74	93	85	79	74	82	77	72	80	75	71	77	73	70
4	88	78	71	65	86	77	70	64	74	68	64	72	67	63	70	66	62
5	82	71	63	57	80	70	62	57	68	61	56	66	60	56	64	59	55
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49
7	71	59	51	45	69	58	50	45	57	50	45	55	49	45	54	48	44
8	66	54	46	41	65	53	46	41	52	45	41	51	45	40	50	44	40
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	37	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	37731	37731	37731
5°	35596	36255	36651
10°	34089	35509	36541
15°	32505	34416	35818
20°	31449	33731	34998
25°	30255	32415	33050
30°	29535	30690	30177
35°	28750	28227	25614
40°	28435	24814	19583
45°	28047	20549	13329
50°	27415	15375	8558
55°	23112	10102	5510
60°	16331	5879	3266
65°	11295	3353	1412
70°	6581	1742	581
75°	3026	865	216
80°	1234	494	0
85°	580	290	0



TEST NUMBER: P85084

CATALOG NUMBER: EL405840-TL409WW

ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	28.9	4.6	4.6
10°-20°	83.7	13.2	13.2
20°-30°	126.7	20.0	20.0
30°-40°	142.1	22.4	22.5
40°-50°	123.1	19.4	19.5
50°-60°	82.7	13.1	13.1
60°-70°	36.3	5.7	5.7
70°-80°	8.7	1.4	1.4
80°-90°	1.1	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°	239.3	37.8	37.8
0°-40°	381.4	60.2	60.3
0°-60°	587.2	92.7	92.8
0°-90°	633.4	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°	633.4	100.0	100.1

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	306	306	306	306	306	
5°	297	299	303	306	306	28
15°	281	285	297	306	309	79
25°	262	265	281	283	286	121
35°	242	235	238	213	216	152
45°	222	207	163	104	106	171
55°	166	153	73	40	40	145
65°	70	70	21	10	9	71
75°	15	14	4	1	1	19
85°	2	2	1	0	0	3
90°	0	0	0	0	0	



TEST NUMBER: P85084

CATALOG NUMBER: EL405840-TL409WW

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	305.9	305.9	305.9	305.9	305.9	305.9	305.9	305.9	305.9
2.5°	302.6	302.6	303.7	303.7	304.8	304.8	305.9	305.9	305.9
5°	297.1	297.1	299.3	300.4	302.6	303.7	305.9	305.9	305.9
7.5°	293.8	294.9	296.0	299.3	302.6	304.8	307.0	308.1	309.2
10°	290.5	291.6	293.8	298.2	302.6	305.9	309.2	310.3	311.4
12.5°	285.0	286.1	289.4	294.9	300.4	304.8	308.1	310.3	310.3
15°	280.6	281.7	285.0	291.6	297.1	302.6	305.9	308.1	309.2
17.5°	276.2	277.3	281.7	288.3	296.0	300.4	303.7	305.9	307.0
20°	272.9	274.0	277.3	285.0	292.7	297.1	300.4	302.6	303.7
22.5°	267.4	268.5	271.8	279.5	287.2	290.5	292.7	294.9	297.1
25°	261.9	261.9	265.2	272.9	280.6	282.8	282.8	285.0	286.1
27.5°	257.5	256.4	258.6	265.2	271.8	271.8	270.7	272.9	274.0
30°	253.1	250.9	252.0	258.6	263.0	258.6	255.3	257.5	258.6
32.5°	247.5	245.3	244.2	249.7	252.0	242.0	236.5	237.6	239.8
35°	242.0	238.7	235.4	239.8	237.6	222.2	213.4	214.5	215.6
37.5°	237.6	232.1	227.7	228.8	221.1	198.0	187.0	187.0	189.2
40°	233.2	226.6	220.0	217.8	203.5	172.7	158.4	159.5	160.6
42.5°	227.7	221.1	213.4	205.7	183.7	147.4	130.9	130.9	132.0
45°	222.2	215.6	206.8	192.5	162.8	122.1	104.5	104.5	105.6
47.5°	215.6	210.1	200.2	179.3	139.7	99.0	82.5	82.5	83.6
50°	207.9	202.4	191.4	165.0	116.6	79.2	64.9	64.9	64.9
52.5°	191.4	185.9	176.0	147.4	94.6	61.6	50.6	50.6	50.6
55°	166.1	161.7	152.9	124.3	72.6	47.3	39.6	38.5	39.6
57.5°	135.3	133.1	128.7	102.3	53.9	35.2	29.7	29.7	29.7
60°	110.0	108.9	107.8	84.7	39.6	25.3	22.0	20.9	22.0
62.5°	89.1	89.1	89.1	70.4	28.6	17.6	15.4	14.3	14.3
65°	70.4	70.4	70.4	55.0	20.9	11.0	9.9	8.8	8.8
67.5°	52.8	52.8	52.8	40.7	14.3	6.6	5.5	5.5	5.5
70°	37.4	37.4	36.3	28.6	9.9	4.4	3.3	3.3	3.3
72.5°	25.3	25.3	24.2	17.6	6.6	2.2	2.2	2.2	1.1
75°	15.4	15.4	14.3	11.0	4.4	1.1	1.1	1.1	1.1
77.5°	9.9	9.9	8.8	6.6	2.2	1.1	0.0	0.0	0.0
80°	5.5	5.5	5.5	3.3	2.2	1.1	0.0	0.0	0.0
82.5°	3.3	3.3	3.3	2.2	1.1	0.0	0.0	0.0	0.0
85°	2.2	2.2	2.2	1.1	1.1	0.0	0.0	0.0	0.0
87.5°	1.1	1.1	1.1	1.1	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)