

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 COMMERCIAL

Report Number: P584056

Luminaire Tested: **HC820D010-HM80520930-81RWWH**

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P584056  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-15)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 10/21/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC820D010-HM80520930-81RWWH  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1811.7 lumens  
Efficiency: N/A  
Efficacy: 90.6 lumens/watt  
Spacing Criteria (0/90/45): 1.13 / 1.07 / 1.16  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

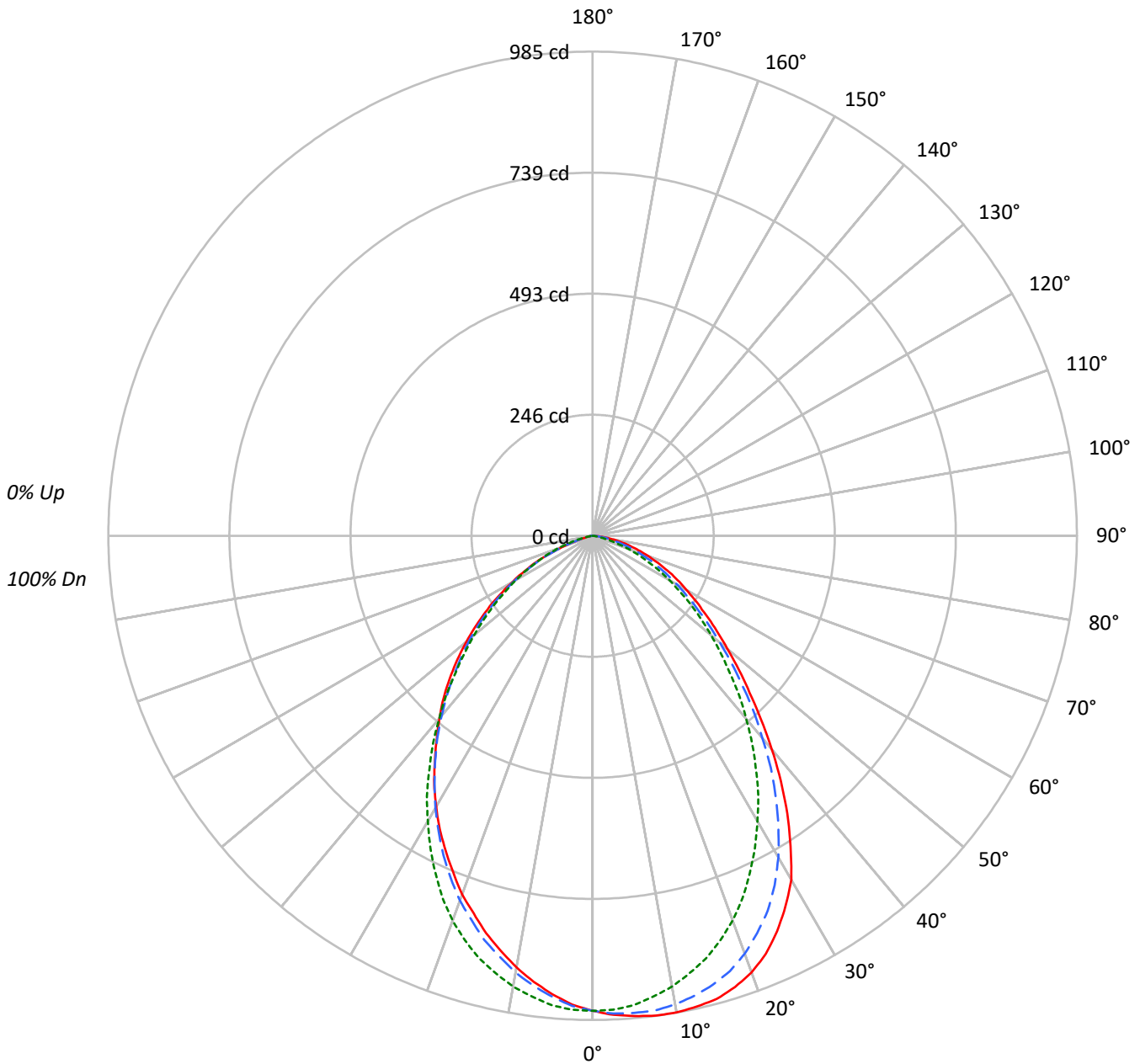
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100	100
1	111	107	104	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88	88	88	88
2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77	77	77	77
3	95	86	79	73	92	84	78	73	81	76	71	79	74	70	76	72	69	67	67	67	67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59	59	59	59
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54	52	52	52	52
6	76	64	56	50	74	63	55	50	61	54	49	60	54	49	58	53	49	47	47	47	47
7	71	58	51	45	69	58	50	45	56	49	45	55	49	44	54	48	44	42	42	42	42
8	66	54	46	41	65	53	46	41	52	45	40	51	45	40	50	44	40	38	38	38	38
9	62	50	42	37	61	49	42	37	48	41	37	47	41	37	46	41	36	35	35	35	35
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32	32	32	32

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

	0°	90°	180°
0°	29800	29800	29800
5°	30360	29673	28982
10°	30833	29155	27924
15°	31145	28428	26711
20°	31027	27329	25484
25°	30207	25749	24058
30°	28770	23871	22660
35°	25978	21788	21051
40°	22824	19555	19503
45°	19703	17191	17932
50°	17145	15078	16080
55°	15209	13096	14010
60°	13568	11064	11625
65°	12229	8975	9179
70°	10855	6726	5437
75°	9365	3896	2335
80°	7192	1385	693
85°	4635	460	460



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	90.7	5.0
10°-20°	252.6	13.9
20°-30°	357.2	19.7
30°-40°	376.4	20.8
40°-50°	319.9	17.7
50°-60°	230.4	12.7
60°-70°	132.9	7.3
70°-80°	45.5	2.5
80°-90°	6.2	0.3
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°	700.5	38.7
0°-40°	1076.9	59.4
0°-60°	1627.1	89.8
0°-90°	1811.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1811.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	966	966	966	966	966	
5°	981	974	959	942	936	94
15°	976	946	890	851	837	275
25°	888	842	757	718	707	407
35°	690	650	579	558	559	430
45°	452	431	394	397	411	351
55°	283	261	244	253	261	255
65°	168	144	123	120	126	167
75°	79	59	33	21	20	83
85°	13	8	1	1	1	18
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	966.4	966.4	966.4	966.4	966.4	966.4	966.4	966.4	966.4	966.4	966.4
2.5°	975.6	976.9	975.6	975.6	974.3	972.9	971.6	970.3	967.7	965.1	965.1
5°	980.8	983.4	980.8	980.8	976.9	974.3	971.6	967.7	962.5	958.6	958.6
7.5°	984.7	984.7	984.7	980.8	978.2	974.3	967.7	961.2	954.6	948.1	945.5
10°	984.7	984.7	983.4	978.2	975.6	967.7	961.2	952.0	942.9	933.7	931.1
12.5°	980.8	982.1	979.5	974.3	967.7	958.6	949.4	937.6	927.2	916.6	911.4
15°	975.6	974.3	971.6	965.1	957.3	945.5	936.3	923.1	908.8	895.7	890.5
17.5°	962.5	962.5	958.6	952.0	941.6	928.5	914.0	899.6	883.9	869.5	863.0
20°	945.5	945.5	940.2	932.4	921.8	904.8	889.1	872.1	853.8	839.3	832.8
22.5°	920.5	921.8	915.3	906.1	894.4	874.8	859.1	838.0	819.7	802.7	797.5
25°	887.8	890.5	883.9	874.8	859.1	842.1	822.3	802.7	781.8	764.8	756.8
27.5°	849.9	851.2	844.7	835.4	819.7	801.4	781.8	760.9	741.2	722.8	715.0
30°	808.0	802.7	800.1	788.3	771.3	755.5	733.3	716.3	695.4	679.6	670.4
32.5°	749.0	751.6	743.8	734.6	721.5	703.2	684.9	665.2	645.6	633.8	627.3
35°	690.1	692.8	688.8	679.6	665.2	649.5	631.2	616.8	599.7	585.3	578.8
37.5°	628.6	628.6	626.0	620.7	610.3	595.8	577.5	563.1	548.7	536.9	533.0
40°	567.0	564.4	563.1	559.2	550.0	536.9	525.2	513.3	498.9	491.1	485.8
42.5°	506.7	506.7	504.1	500.2	491.1	484.5	472.7	459.7	449.2	441.4	441.4
45°	451.8	453.1	449.2	446.6	441.4	430.8	420.3	411.2	402.0	396.8	394.2
47.5°	403.3	403.3	399.4	396.8	391.6	382.4	373.2	365.4	358.9	354.8	353.5
50°	357.4	357.4	357.4	350.9	344.4	337.8	331.3	322.1	318.2	315.6	314.3
52.5°	318.2	316.9	316.9	311.7	305.1	297.3	290.7	282.9	279.0	276.4	277.7
55°	282.9	282.9	281.6	275.1	268.4	260.6	254.0	247.5	244.9	242.3	243.6
56°	268.4	268.4	267.1	261.9	254.0	247.5	239.6	233.1	229.2	230.5	230.5
57°	258.0	255.3	255.3	248.8	242.3	233.1	226.6	220.0	217.4	216.1	216.1
58°	244.9	243.6	242.3	235.7	229.2	221.3	214.8	208.3	204.2	204.2	202.9
59°	231.8	231.8	229.2	223.9	217.4	209.6	202.9	196.4	192.5	191.1	191.1
60°	220.0	221.3	217.4	212.2	206.8	197.7	189.8	184.6	180.7	179.4	179.4
61°	209.6	209.6	206.8	200.3	193.8	187.2	179.4	172.8	170.2	167.6	167.6
62°	200.3	197.7	196.4	189.8	183.3	175.5	168.9	162.4	158.5	155.8	157.1
63°	188.5	187.2	184.6	179.4	172.8	165.0	157.1	151.9	148.0	144.1	145.4
64°	179.4	178.1	174.1	168.9	162.4	154.5	146.7	141.4	138.8	134.9	133.6
65°	167.6	166.3	165.0	158.5	151.9	144.1	137.5	132.3	128.4	125.8	123.0
66°	157.1	158.5	155.8	150.6	142.8	136.2	127.1	121.7	119.1	115.2	112.6
67°	148.0	148.0	145.4	140.1	132.3	125.8	119.1	112.6	108.7	104.7	103.4
67.5°	142.8	142.8	140.1	133.6	128.4	120.4	113.9	108.7	103.4	100.8	98.2
68°	137.5	137.5	136.2	131.0	124.3	116.5	110.0	103.4	98.2	94.3	93.0
69°	128.4	129.7	127.1	121.7	115.2	107.3	100.8	95.6	90.3	86.4	83.8
70°	120.4	119.1	116.5	111.3	104.7	99.5	93.0	86.4	81.2	76.0	74.6
71°	110.0	110.0	107.3	103.4	96.9	90.3	83.8	78.6	73.3	66.8	65.5
72°	102.1	102.1	99.5	94.3	89.0	82.5	76.0	69.4	65.5	59.0	56.3
72.5°	96.9	98.2	95.6	90.3	85.1	77.3	72.0	66.8	60.3	55.0	52.4
73°	94.3	93.0	91.7	86.4	79.9	74.6	68.1	62.9	56.3	51.1	48.5



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
77.5°	59.0	59.0	57.6	52.4	47.2	42.0	36.6	31.4	26.2	20.9	18.3
80°	40.5	42.0	39.2	36.6	32.7	27.5	22.2	18.3	13.1	10.5	7.8
82.5°	26.2	26.2	24.8	22.2	19.6	15.7	13.1	9.2	6.5	5.2	3.9
85°	13.1	14.4	13.1	11.8	9.2	7.8	6.5	3.9	2.6	1.3	1.3
87.5°	5.2	5.2	5.2	3.9	3.9	2.6	1.3	1.3	1.3	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	966.4	966.4	966.4	966.4	966.4	966.4	966.4	966.4	966.4	966.4
2.5°	962.5	962.5	959.9	958.6	957.3	955.9	954.6	953.3	953.3	954.6
5°	954.6	952.0	946.8	945.5	941.6	940.2	937.6	936.3	937.6	936.3
7.5°	942.9	937.6	931.1	928.5	923.1	920.5	916.6	916.6	914.0	915.3
10°	927.2	919.2	911.4	906.1	902.2	898.3	895.7	893.1	891.8	891.8
12.5°	907.5	898.3	890.5	882.6	876.1	873.4	868.2	868.2	865.6	864.3
15°	885.2	873.4	864.3	856.4	851.2	846.0	842.1	839.3	836.7	836.7
17.5°	856.4	846.0	836.7	827.6	819.7	815.8	811.9	808.0	808.0	805.3
20°	825.0	813.2	805.3	796.2	789.6	783.1	777.9	777.9	775.3	776.6
22.5°	789.6	775.3	767.4	760.9	754.2	749.0	743.8	743.8	742.5	741.2
25°	750.3	738.5	729.4	721.5	717.6	712.4	711.1	708.5	707.1	707.1
27.5°	708.5	699.3	687.5	683.6	678.3	675.7	675.7	674.4	671.7	673.0
30°	663.9	653.4	646.9	644.3	639.0	639.0	637.7	635.1	635.1	636.4
32.5°	620.7	610.3	604.9	603.6	598.4	598.4	597.1	598.4	598.4	599.7
35°	573.5	564.4	563.1	559.2	557.9	557.9	557.9	560.5	563.1	559.2
37.5°	529.1	522.4	518.5	517.2	518.5	518.5	519.8	523.7	522.4	521.1
40°	483.2	478.0	475.4	475.4	478.0	480.6	480.6	484.5	485.8	484.5
42.5°	437.3	433.4	433.4	434.7	437.3	438.6	442.7	446.6	447.9	449.2
45°	394.2	394.2	394.2	395.5	396.8	399.4	404.6	408.6	409.9	411.2
47.5°	352.2	350.9	354.8	356.1	360.2	361.5	365.4	370.6	371.9	373.2
50°	313.0	315.6	316.9	320.8	323.4	323.4	328.7	331.3	335.2	335.2
52.5°	276.4	280.3	281.6	285.5	286.8	288.1	290.7	294.7	297.3	297.3
55°	243.6	244.9	247.5	248.8	252.7	254.0	256.6	258.0	261.9	260.6
56°	229.2	231.8	233.1	235.7	238.3	239.6	242.3	243.6	246.2	247.5
57°	216.1	217.4	221.3	222.6	225.3	225.3	226.6	230.5	230.5	231.8
58°	202.9	205.5	206.8	208.3	210.9	212.2	214.8	216.1	217.4	216.1
59°	191.1	192.5	193.8	193.8	196.4	196.4	200.3	202.9	204.2	204.2
60°	179.4	179.4	180.7	182.0	184.6	185.9	185.9	188.5	188.5	188.5
61°	167.6	167.6	168.9	170.2	171.5	171.5	174.1	174.1	175.5	176.8
62°	157.1	155.8	155.8	157.1	157.1	159.8	161.1	162.4	163.7	162.4
63°	145.4	144.1	144.1	144.1	144.1	146.7	146.7	148.0	150.6	149.3
64°	132.3	132.3	132.3	132.3	133.6	133.6	136.2	137.5	138.8	140.1
65°	123.0	120.4	119.1	119.1	120.4	121.7	123.0	124.3	125.8	125.8
66°	112.6	110.0	108.7	108.7	108.7	108.7	111.3	111.3	113.9	113.9
67°	100.8	98.2	96.9	95.6	95.6	95.6	99.5	98.2	98.2	98.2
67.5°	96.9	93.0	91.7	90.3	89.0	91.7	90.3	91.7	91.7	90.3
68°	91.7	89.0	86.4	83.8	83.8	83.8	85.1	86.4	85.1	83.8
69°	81.2	79.9	76.0	73.3	72.0	73.3	72.0	73.3	72.0	73.3
70°	72.0	68.1	64.2	62.9	61.6	61.6	61.6	60.3	61.6	60.3
71°	62.9	59.0	55.0	52.4	51.1	51.1	49.8	51.1	49.8	51.1
72°	53.7	49.8	44.6	42.0	42.0	42.0	42.0	40.5	42.0	40.5
72.5°	49.8	44.6	40.5	37.9	36.6	36.6	36.6	36.6	35.3	36.6
73°	45.9	40.5	35.3	34.0	34.0	34.0	32.7	31.4	32.7	32.7





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**CANDELA DISTRIBUTION (continued):**

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
77.5°	15.7	11.8	10.5	10.5	10.5	10.5	10.5	10.5	9.2	9.2
80°	6.5	5.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
82.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
85°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
87.5°	0.0	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	0.0



Report Generated By 670245859 / DESKTOP-HRDQ47P





— 0°-180°    - - 45°-225°    - - - - 90°-270°







74°	85.1	85.1	82.5	78.6	72.0	65.5	60.3	55.0	48.5	42.0	39.2
75°	78.6	77.3	74.6	70.7	65.5	59.0	53.7	47.2	42.0	35.3	32.7







74°	37.9	31.4	28.8	26.2	26.2	26.2	24.8	24.8	24.8	26.2
75°	30.1	24.8	22.2	19.6	20.9	19.6	20.9	19.6	19.6	19.6



(END OF REPORT)