

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: HALO

Report Number: P645619

Luminaire Tested: LCR412WW9FSE020-12W-3500K

Issue Date: 3/14/2023

Test Information

Test Method: LM-79-2019
Report Number: P645619
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-759-33)
Test Lab: INNOVATION CENTER
Issue Date: 3/14/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: LCR412WW9FSE020-12W-3500K
Description: LCR 4 Wall Wash
Light Source: 3500K CCT, 93 CRI LEDS
Ballast/Driver: -

Summary

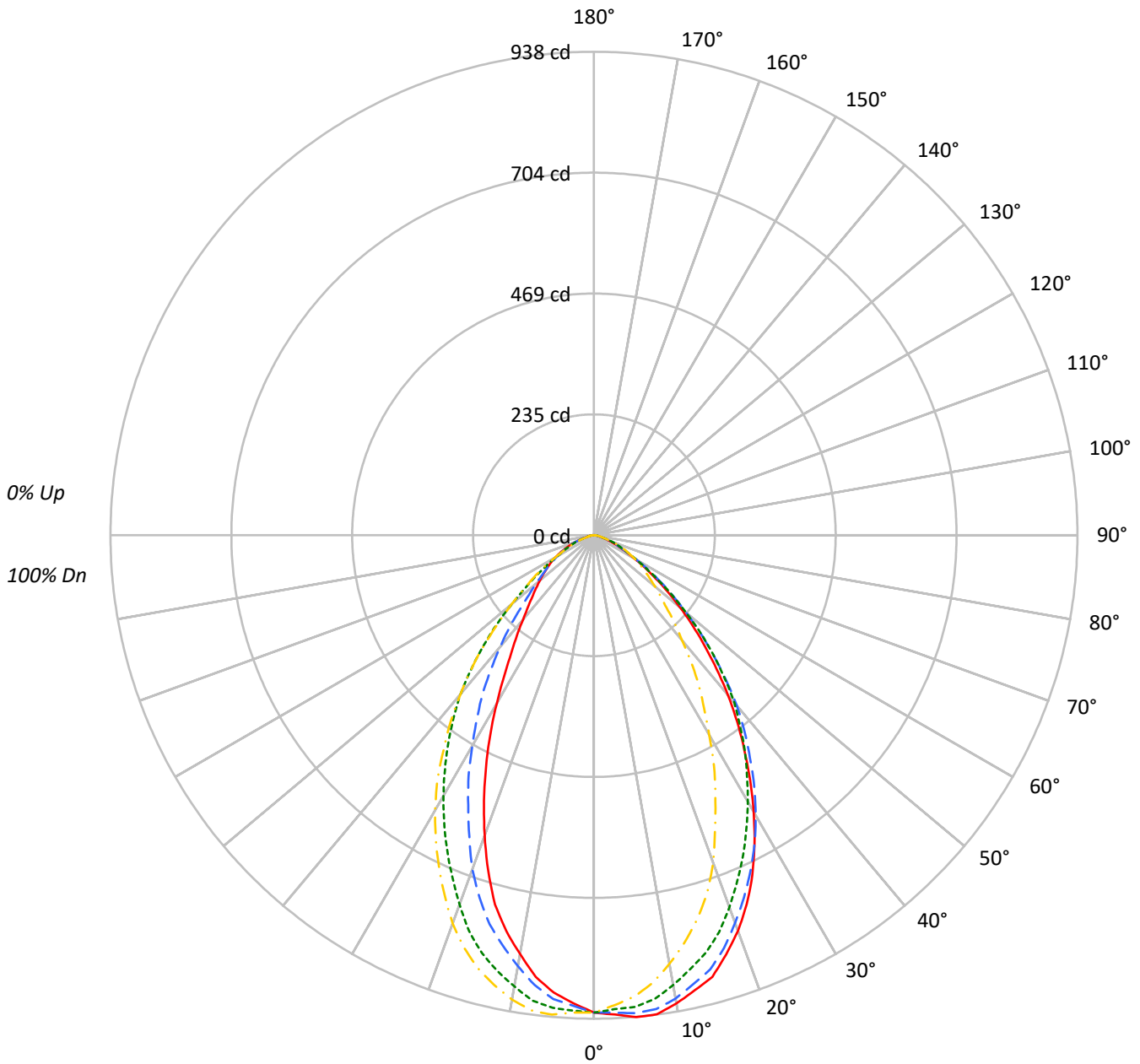
Lumens per Lamp: N/A
Luminaire Lumens: 1300.0 lumens
Efficiency: N/A
Efficacy: 107.4 lumens/watt
Spacing Criteria (0/90/45): 0.92 / 1.01 / 1.02
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 12.1
Input Voltage (V): 120
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: 24 FT



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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° ··· 90°-270° - · 135°-315°



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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
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	100	
1	112	108	105	102	109	106	103	101	102	100	97	98	96	94	95	93	92	92	90	
2	104	98	93	88	102	96	91	87	93	89	85	90	86	84	87	84	82	82	80	
3	97	89	83	77	95	87	82	77	85	80	76	82	78	74	80	76	73	73	71	
4	91	81	74	69	89	80	73	68	77	72	67	75	70	67	73	69	66	66	64	
5	85	74	67	61	83	73	66	61	71	65	61	69	64	60	68	63	59	59	58	
6	79	68	61	55	78	67	60	55	66	59	55	64	59	54	63	58	54	54	52	
7	74	63	56	50	73	62	55	50	61	55	50	59	54	50	58	53	49	49	48	
8	70	58	51	46	68	58	51	46	56	50	46	55	50	46	54	49	45	45	44	
9	66	54	47	42	65	54	47	42	53	46	42	52	46	42	51	46	42	42	40	
10	62	51	44	39	61	50	44	39	49	43	39	48	43	39	48	42	39	39	37	

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	114218	114218	114218	114218
5°	116190	113713	110296	113949
10°	115504	110983	103355	111333
15°	113267	107087	94700	107201
20°	107201	100835	81369	100087
25°	98983	93158	67409	91743
30°	88291	85043	53624	83149
35°	76584	76870	42086	74159
40°	65067	68126	34441	64906
45°	53064	56884	29515	52732
50°	41775	44692	26270	39779
55°	31483	33117	23720	29031
60°	22523	23460	21339	20870
65°	15819	17745	18037	16082
70°	11324	13704	13380	12334
75°	6338	7720	8149	8149
80°	5398	6748	7458	6748
85°	4104	5378	6793	6793

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 59535 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	86.4	6.6
10°-20°	230.2	17.7
20°-30°	294.6	22.7
30°-40°	277.6	21.3
40°-50°	206.3	15.9
50°-60°	121.5	9.3
60°-70°	58.9	4.5
70°-80°	20.0	1.5
80°-90°	4.6	0.4
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°	611.2	47.0
0°-40°	888.8	68.4
0°-60°	1216.5	93.6
0°-90°	1300.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1300.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	926	926	926	926	926	
5°	938	918	891	920	938	89
15°	887	839	742	840	887	247
25°	727	684	495	674	727	332
35°	509	510	280	492	509	318
45°	304	326	169	302	304	236
55°	146	154	110	135	146	133
65°	54	61	62	55	54	56
75°	13	16	17	17	13	17
85°	3	4	5	5	3	3
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°	202.5°	225°
0°	926.0	926.0	926.0	926.0	926.0	926.0	926.0	926.0	926.0	926.0	926.0
2.5°	930.8	928.9	927.0	924.1	920.3	915.6	912.7	909.9	908.9	910.8	913.7
5°	938.4	936.5	930.8	925.1	918.4	908.0	898.4	892.7	890.8	893.7	903.2
7.5°	937.4	932.7	927.0	919.4	907.0	890.8	875.6	867.1	864.2	869.0	880.4
10°	922.2	918.4	912.7	899.4	886.1	863.3	844.3	830.9	825.2	831.9	849.0
12.5°	904.2	899.4	891.8	879.4	862.3	835.7	810.0	793.9	786.3	794.8	815.7
15°	887.0	882.3	871.8	857.6	838.6	805.3	772.0	751.1	741.6	753.9	781.5
17.5°	852.8	852.8	839.5	827.1	807.2	769.1	729.2	695.0	682.6	702.6	737.8
20°	816.7	813.8	800.5	789.1	768.2	724.5	676.0	634.1	619.9	641.7	689.3
22.5°	774.9	768.2	760.6	748.2	726.4	676.0	614.2	570.4	557.1	580.0	632.2
25°	727.3	721.6	718.8	707.3	684.5	626.5	557.1	509.6	495.3	520.1	577.1
27.5°	675.0	677.9	675.0	662.7	640.8	583.8	504.8	450.6	435.4	463.0	526.7
30°	619.9	627.5	627.5	616.1	597.1	530.5	446.8	393.6	376.5	408.8	471.6
32.5°	563.8	577.1	579.0	570.4	552.4	482.0	397.4	341.3	324.2	357.5	422.1
35°	508.6	521.0	527.7	525.8	510.5	434.5	353.7	294.7	279.5	310.9	377.4
37.5°	456.4	469.7	480.1	483.0	464.9	390.8	309.0	257.7	245.3	266.2	328.0
40°	404.1	419.3	430.7	437.3	423.1	344.2	265.3	226.3	213.9	231.0	282.4
42.5°	352.7	365.1	377.4	389.8	374.6	297.6	232.0	197.8	189.2	197.8	243.4
45°	304.2	313.7	326.1	341.3	326.1	255.7	198.7	175.9	169.2	174.9	201.6
47.5°	259.6	268.1	278.6	293.8	280.5	215.8	174.9	157.8	152.1	155.0	171.1
50°	217.7	225.3	233.9	247.2	232.9	181.6	154.0	142.6	136.9	137.9	146.4
52.5°	180.6	186.3	193.0	198.7	191.1	153.1	136.0	127.4	123.6	122.6	126.4
55°	146.4	151.2	157.8	161.6	154.0	129.3	119.8	114.1	110.3	109.3	111.2
57.5°	116.9	120.7	125.5	127.4	120.7	109.3	104.6	100.8	98.9	96.0	96.0
60°	91.3	94.1	97.0	97.9	95.1	92.2	91.3	88.4	86.5	83.7	82.7
62.5°	70.4	72.3	74.2	75.1	75.1	78.0	77.0	75.1	74.2	70.4	70.4
65°	54.2	56.1	57.0	58.9	60.8	64.7	64.7	62.7	61.8	58.9	58.9
67.5°	40.9	42.8	44.7	46.6	49.4	52.3	52.3	49.4	48.5	47.5	47.5
70°	31.4	32.3	34.2	36.1	38.0	40.9	39.9	38.0	37.1	36.1	37.1
72.5°	21.9	22.8	23.8	25.7	27.6	29.5	28.5	27.6	27.6	26.6	27.6
75°	13.3	14.3	14.3	16.2	16.2	17.1	17.1	17.1	17.1	17.1	17.1
77.5°	10.5	10.5	10.5	11.4	12.4	12.4	13.3	13.3	13.3	13.3	13.3
80°	7.6	7.6	8.6	8.6	9.5	9.5	9.5	10.5	10.5	10.5	10.5
82.5°	4.8	5.7	5.7	5.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
85°	2.9	2.9	3.8	3.8	3.8	3.8	3.8	4.8	4.8	4.8	4.8
87.5°	1.0	1.0	1.0	1.0	1.0	1.9	1.9	1.9	1.9	1.9	1.9
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):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	926.0	926.0	926.0	926.0	926.0	926.0
2.5°	918.4	923.2	926.0	927.0	929.8	930.8
5°	911.8	920.3	927.0	933.6	937.4	938.4
7.5°	897.5	910.8	918.4	929.8	936.5	937.4
10°	872.8	888.9	900.3	914.6	918.4	922.2
12.5°	844.3	866.1	880.4	893.7	902.3	904.2
15°	812.9	839.5	856.6	869.9	881.3	887.0
17.5°	776.8	805.3	822.4	838.6	851.9	852.8
20°	732.1	762.5	780.6	801.5	813.8	816.7
22.5°	682.6	717.8	733.0	756.8	765.3	774.9
25°	636.0	674.1	689.3	711.2	722.6	727.3
27.5°	592.3	629.4	645.6	664.6	672.2	675.0
30°	545.7	583.8	598.0	616.1	614.2	619.9
32.5°	495.3	538.1	549.5	565.7	562.8	563.8
35°	452.6	492.5	502.0	508.6	507.7	508.6
37.5°	406.9	447.8	452.6	457.3	449.7	456.4
40°	356.5	403.1	406.0	403.1	402.2	404.1
42.5°	311.8	352.7	352.7	352.7	344.2	352.7
45°	262.4	302.3	302.3	300.4	300.4	304.2
47.5°	217.7	254.8	254.8	250.0	254.8	259.6
50°	177.8	207.3	210.1	209.2	213.0	217.7
52.5°	146.4	168.3	172.1	170.2	175.9	180.6
55°	119.8	135.0	137.9	141.7	143.6	146.4
57.5°	98.9	107.4	110.3	114.1	115.0	116.9
60°	81.8	84.6	85.6	87.5	89.4	91.3
62.5°	68.5	67.5	66.6	68.5	69.4	70.4
65°	57.0	55.1	53.2	53.2	53.2	54.2
67.5°	46.6	44.7	42.8	41.8	40.9	40.9
70°	37.1	34.2	33.3	32.3	30.4	31.4
72.5°	26.6	25.7	23.8	22.8	21.9	21.9
75°	17.1	17.1	15.2	14.3	14.3	13.3
77.5°	13.3	12.4	11.4	10.5	10.5	10.5
80°	10.5	9.5	8.6	8.6	7.6	7.6
82.5°	7.6	6.7	6.7	5.7	5.7	4.8
85°	4.8	4.8	3.8	3.8	3.8	2.9
87.5°	1.9	1.9	1.9	1.9	1.9	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)