

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: P645621

Luminaire Tested: LCR412WW9FSE020-12W-5000K

Issue Date: 3/14/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P645621  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-759-41)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/14/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: LCR412WW9FSE020-12W-5000K  
Description: LCR 4 Wall Wash  
Light Source: 5000K CCT, 93 CRI LEDS  
Ballast/Driver: -

**Summary**

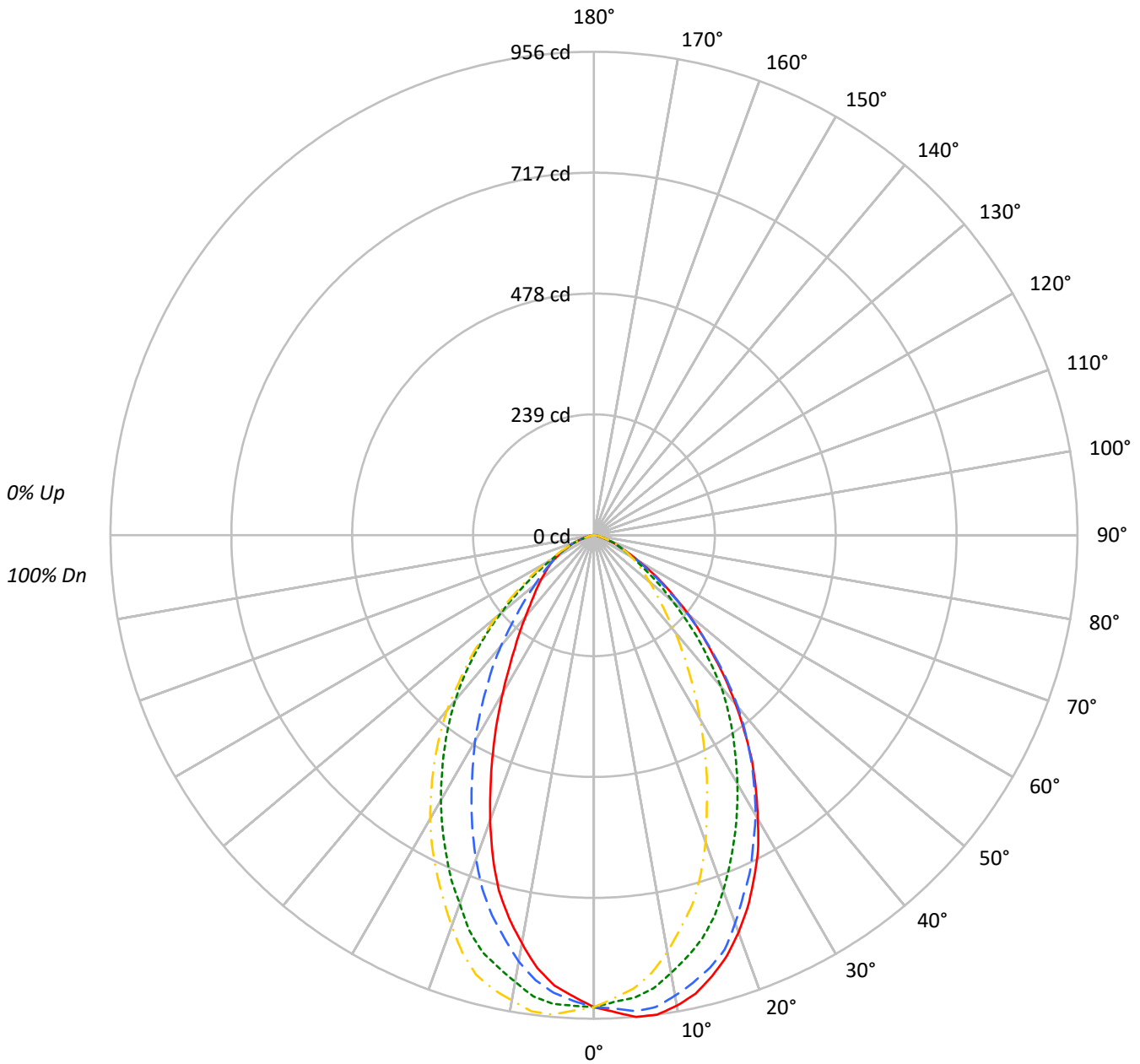
Lumens per Lamp: N/A  
Luminaire Lumens: 1320.0 lumens  
Efficiency: N/A  
Efficacy: 109.1 lumens/watt  
Spacing Criteria (0/90/45): 0.91 / 0.99 / 1.03  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	108	105	102	109	106	103	100	102	99	97	98	96	94	95	93	92	90
2	104	98	93	88	102	96	91	87	93	89	85	90	86	83	87	84	82	80
3	97	89	82	77	95	87	81	77	84	79	75	82	78	74	79	76	73	71
4	90	81	74	68	88	80	73	68	77	72	67	75	70	66	73	69	65	64
5	84	74	67	61	83	73	66	61	71	65	60	69	64	60	67	63	59	57
6	79	68	60	55	77	67	60	55	65	59	54	64	58	54	62	57	54	52
7	74	63	55	50	73	62	55	50	61	54	50	59	54	49	58	53	49	47
8	70	58	51	46	68	57	50	46	56	50	45	55	49	45	54	49	45	43
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	38	37

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

	0°	90°	180°	270°
0°	115094	115094	115094	115094
5°	118381	113639	110680	115174
10°	118310	110043	102616	112323
15°	115246	105478	92784	108900
20°	109682	98131	78691	101780
25°	101882	89525	64279	94206
30°	92321	80742	51331	86197
35°	82065	71976	41032	77592
40°	70203	62957	33862	68818
45°	57878	51197	29183	58210
50°	46975	38896	26232	46227
55°	35784	28773	23634	34128
60°	25237	21462	20747	24052
65°	17307	17015	17307	17862
70°	12081	13091	12767	13776
75°	6386	7768	8197	8674
80°	5398	6819	7458	6819
85°	4104	5378	6793	6793

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 292.5°

Vertical Angle: 45°

Luminance: 60879 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	87.1	6.6
10°-20°	231.1	17.5
20°-30°	294.7	22.3
30°-40°	280.6	21.3
40°-50°	212.9	16.1
50°-60°	127.3	9.6
60°-70°	61.1	4.6
70°-80°	20.4	1.5
80°-90°	4.8	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°	612.9	46.4
0°-40°	893.5	67.7
0°-60°	1233.7	93.5
0°-90°	1320.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1320.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	933	933	933	933	933	
5°	956	918	894	930	956	91
15°	902	826	727	853	902	253
25°	749	658	472	692	749	343
35°	545	478	272	515	545	338
45°	332	294	167	334	332	258
55°	166	134	110	159	166	150
65°	59	58	59	61	59	62
75°	13	16	17	18	13	18
85°	3	4	5	5	3	4
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°	933.1	933.1	933.1	933.1	933.1	933.1	933.1	933.1	933.1	933.1	933.1
2.5°	943.6	941.7	936.9	930.2	923.6	916.9	915.9	913.0	913.0	916.9	921.6
5°	956.1	952.2	944.6	932.2	917.8	907.3	899.7	894.9	893.9	899.7	908.3
7.5°	956.1	953.2	940.8	924.5	903.5	887.2	872.9	862.4	862.4	871.0	887.2
10°	944.6	938.9	924.5	905.4	878.6	854.7	836.6	820.3	819.3	829.9	855.7
12.5°	928.3	926.4	906.3	884.4	853.8	825.1	794.5	778.2	775.4	793.5	816.5
15°	902.5	902.5	885.3	859.5	826.0	790.7	754.3	730.4	726.6	745.7	778.2
17.5°	872.9	869.1	859.5	827.0	790.7	747.6	702.7	670.2	665.4	696.0	733.3
20°	835.6	829.9	816.5	786.8	747.6	697.9	645.3	606.1	599.5	628.1	681.7
22.5°	795.4	791.6	771.5	743.8	702.7	647.3	582.2	541.1	533.5	565.0	628.1
25°	748.6	747.6	731.4	699.8	657.8	593.7	528.7	479.0	472.3	504.8	572.7
27.5°	702.7	700.8	682.6	654.9	612.8	545.0	471.3	422.6	414.0	448.4	519.1
30°	648.2	651.1	639.6	609.0	566.9	497.2	419.7	369.0	360.4	396.8	470.4
32.5°	595.6	599.5	589.9	561.2	521.1	442.7	371.0	320.3	312.6	347.1	419.7
35°	545.0	545.0	541.1	516.3	478.0	399.6	325.1	279.2	272.5	304.0	371.0
37.5°	488.5	494.3	491.4	471.3	435.0	354.7	284.9	245.7	240.9	264.8	328.9
40°	436.0	442.7	442.7	425.4	391.0	309.8	248.6	214.2	210.3	231.4	285.9
42.5°	383.4	387.2	390.1	375.7	339.4	267.7	212.2	189.3	186.4	201.7	242.8
45°	331.8	334.6	337.5	327.0	293.5	227.5	184.5	169.2	167.3	176.9	208.4
47.5°	286.8	285.9	287.8	276.3	245.7	191.2	162.5	152.0	151.1	158.7	177.8
50°	244.8	240.9	240.9	229.5	202.7	162.5	143.4	136.7	136.7	140.5	152.0
52.5°	201.7	198.9	196.9	185.5	167.3	136.7	126.2	123.3	122.4	125.2	133.8
55°	166.4	161.6	158.7	145.3	133.8	116.6	111.9	109.9	109.9	112.8	114.7
57.5°	132.9	129.1	125.2	115.7	108.0	99.4	98.5	96.6	97.5	97.5	99.4
60°	102.3	99.4	97.5	90.8	87.0	84.1	85.1	84.1	84.1	85.1	86.0
62.5°	78.4	76.5	75.5	72.7	70.7	71.7	72.7	71.7	72.7	72.7	73.6
65°	59.3	58.3	58.3	57.4	58.3	59.3	60.2	59.3	59.3	59.3	61.2
67.5°	44.9	44.9	45.9	45.9	46.8	48.8	48.8	46.8	46.8	46.8	49.7
70°	33.5	33.5	35.4	35.4	36.3	38.2	37.3	35.4	35.4	36.3	38.2
72.5°	22.9	22.9	24.9	25.8	25.8	27.7	26.8	26.8	26.8	26.8	27.7
75°	13.4	14.3	15.3	16.3	16.3	17.2	17.2	17.2	17.2	18.2	18.2
77.5°	10.5	10.5	11.5	11.5	12.4	13.4	13.4	13.4	13.4	13.4	13.4
80°	7.6	7.6	8.6	8.6	9.6	9.6	10.5	10.5	10.5	10.5	10.5
82.5°	5.7	5.7	5.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
85°	2.9	3.8	3.8	3.8	3.8	3.8	4.8	4.8	4.8	4.8	4.8
87.5°	1.9	1.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.9
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°	933.1	933.1	933.1	933.1	933.1	933.1
2.5°	925.5	931.2	936.0	940.8	942.7	943.6
5°	918.8	930.2	941.7	951.3	955.1	956.1
7.5°	904.4	919.7	936.9	949.4	956.1	956.1
10°	875.8	896.8	920.7	934.1	942.7	944.6
12.5°	849.9	874.8	901.6	919.7	927.4	928.3
15°	817.4	852.8	880.5	899.7	901.6	902.5
17.5°	779.2	819.3	847.1	865.2	870.0	872.9
20°	736.2	775.4	808.8	822.2	832.7	835.6
22.5°	690.3	737.1	765.8	778.2	792.6	795.4
25°	643.4	692.2	722.8	736.2	746.7	748.6
27.5°	596.6	649.2	677.8	693.1	701.8	702.7
30°	550.7	605.2	632.0	647.3	649.2	648.2
32.5°	503.8	559.3	584.2	598.5	596.6	595.6
35°	458.0	515.3	538.3	550.7	546.9	545.0
37.5°	413.0	471.3	492.4	501.0	491.4	488.5
40°	367.1	427.4	446.5	452.2	439.8	436.0
42.5°	319.3	381.5	397.7	395.8	389.1	383.4
45°	273.4	333.7	349.0	348.0	335.6	331.8
47.5°	230.4	287.8	301.2	296.4	289.7	286.8
50°	188.3	240.9	256.2	252.4	246.7	244.8
52.5°	154.9	196.9	212.2	211.3	204.6	201.7
55°	128.1	158.7	174.0	174.0	170.2	166.4
57.5°	105.2	125.2	137.7	140.5	136.7	132.9
60°	87.0	97.5	109.0	110.9	106.1	102.3
62.5°	72.7	76.5	84.1	84.1	81.3	78.4
65°	60.2	61.2	64.1	64.1	61.2	59.3
67.5°	48.8	48.8	49.7	48.8	45.9	44.9
70°	38.2	38.2	38.2	36.3	34.4	33.5
72.5°	27.7	27.7	26.8	25.8	23.9	22.9
75°	18.2	18.2	17.2	15.3	14.3	13.4
77.5°	13.4	12.4	11.5	11.5	10.5	10.5
80°	10.5	9.6	9.6	8.6	7.6	7.6
82.5°	7.6	7.6	6.7	5.7	5.7	5.7
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	1.9
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)