

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: P645620

Luminaire Tested: LCR412WW9FSE020-12W-4000K

Issue Date: 3/14/2023

Test Information

Test Method: LM-79-2019
Report Number: P645620
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-759-37)
Test Lab: INNOVATION CENTER
Issue Date: 3/14/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: LCR412WW9FSE020-12W-4000K
Description: LCR 4 Wall Wash
Light Source: 4000K CCT, 93 CRI LEDS
Ballast/Driver: -

Summary

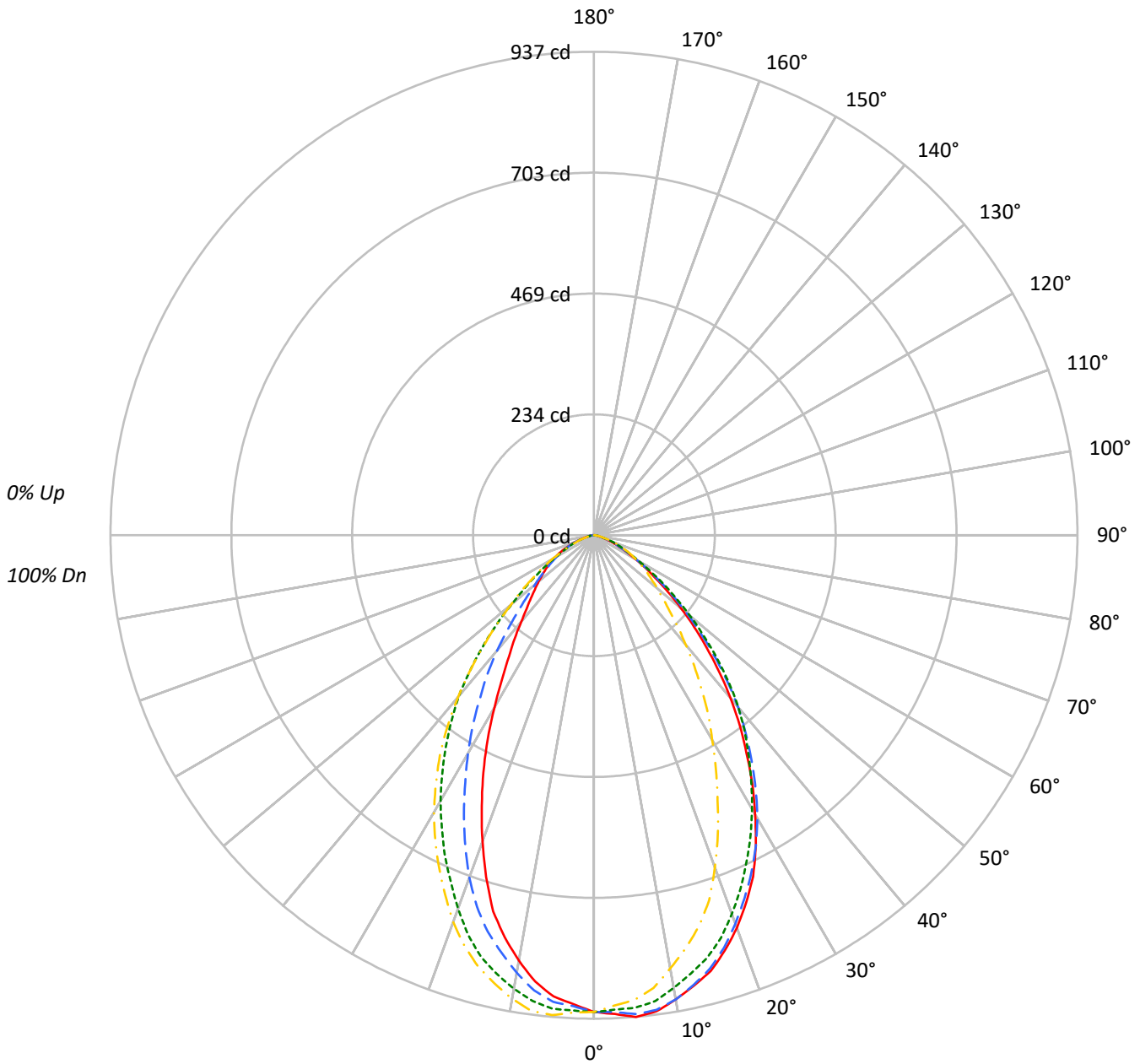
Lumens per Lamp: N/A
Luminaire Lumens: 1320.0 lumens
Efficiency: N/A
Efficacy: 109.1 lumens/watt
Spacing Criteria (0/90/45): 0.93 / 1.02 / 1.03
Luminous Opening: Circular (Dia: 0.33' x H: 0')
CIE Type: Direct

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	50	30	10	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	112	108	105	102	109	106	103	100	102	100	97	98	96	94	95	93	92	95	93	92	90
2	104	98	93	88	102	96	91	87	93	89	85	90	86	83	87	84	82	87	84	82	80
3	97	89	82	77	95	87	81	77	85	80	75	82	78	74	80	76	73	80	76	73	71
4	91	81	74	69	88	80	73	68	77	72	67	75	70	66	73	69	66	73	69	66	64
5	85	74	67	61	83	73	66	61	71	65	60	69	64	60	68	63	59	68	63	59	57
6	79	68	61	55	77	67	60	55	66	59	55	64	58	54	63	58	54	63	58	54	52
7	74	63	55	50	73	62	55	50	61	54	50	59	54	49	58	53	49	58	53	49	47
8	70	58	51	46	68	58	51	46	56	50	46	55	50	45	54	49	45	54	49	45	43
9	66	54	47	42	64	54	47	42	53	46	42	52	46	42	51	45	42	51	45	42	40
10	62	51	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	47	42	39	37

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	113959	113959	113959	113959
5°	116053	113812	111101	114048
10°	114414	111546	104871	111784
15°	111658	108249	96334	108006
20°	106269	102528	82892	101019
25°	99296	95145	68960	93077
30°	88989	87237	54948	84659
35°	77592	78737	43170	75304
40°	66258	70090	35118	65646
45°	54006	58820	30073	53011
50°	42216	46783	26865	39837
55°	31547	35440	24365	29698
60°	23263	24916	21857	21610
65°	16403	18621	18358	16403
70°	11685	14426	13740	12694
75°	6815	8149	8626	8149
80°	5398	6748	7458	6748
85°	5378	5378	6793	6793

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°

Vertical Angle: 45°

Luminance: 60809 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	86.6	6.6
10°-20°	231.7	17.6
20°-30°	298.4	22.6
30°-40°	282.8	21.4
40°-50°	210.2	15.9
50°-60°	124.3	9.4
60°-70°	60.8	4.6
70°-80°	20.5	1.6
80°-90°	4.7	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°	616.6	46.7
0°-40°	899.4	68.1
0°-60°	1234.0	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°	924	924	924	924	924	
5°	937	919	897	921	937	89
15°	874	848	754	846	874	245
25°	730	699	507	684	730	333
35°	515	523	287	500	515	322
45°	310	337	172	304	310	240
55°	147	165	113	138	147	134
65°	56	64	63	56	56	58
75°	14	17	18	17	14	18
85°	4	4	5	5	4	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°	923.9	923.9	923.9	923.9	923.9	923.9	923.9	923.9	923.9	923.9	923.9
2.5°	928.7	926.8	924.9	923.0	920.1	916.3	912.5	911.6	909.6	910.6	913.5
5°	937.3	935.4	931.6	925.8	919.2	911.6	903.9	899.2	897.3	900.1	907.7
7.5°	930.6	930.6	927.7	922.0	910.6	897.3	884.9	874.4	872.5	877.3	889.6
10°	913.5	913.5	913.5	903.9	890.6	872.5	852.5	841.1	837.3	843.9	861.1
12.5°	894.4	894.4	892.5	886.8	869.6	845.8	820.1	803.0	798.2	806.8	828.7
15°	874.4	876.3	869.6	864.9	847.7	816.3	784.9	761.1	754.4	769.6	795.3
17.5°	843.9	844.9	838.2	835.4	818.2	780.1	742.0	705.8	694.4	720.1	754.4
20°	809.6	807.7	801.1	799.2	781.1	736.3	684.9	640.1	631.5	657.2	705.8
22.5°	770.6	764.9	762.0	760.1	742.0	689.6	627.7	577.2	567.7	593.4	651.5
25°	729.6	721.1	722.0	719.1	699.1	641.0	566.7	518.2	506.7	532.5	596.3
27.5°	679.1	678.2	679.1	676.3	657.2	593.4	511.5	458.2	445.8	474.4	540.1
30°	624.8	628.7	633.4	629.6	612.5	542.9	458.2	400.1	385.8	419.1	487.7
32.5°	571.5	574.4	582.9	582.9	567.7	495.3	411.5	347.7	331.5	366.7	436.3
35°	515.3	524.8	532.5	539.1	522.9	445.8	362.9	299.1	286.7	317.2	384.8
37.5°	463.9	472.4	482.9	494.4	480.1	402.0	319.1	262.9	252.4	274.3	339.1
40°	411.5	421.0	434.3	447.7	435.3	353.4	276.2	231.5	218.1	236.2	291.5
42.5°	359.1	368.6	381.0	399.1	386.7	306.7	240.0	201.9	193.4	203.8	245.7
45°	309.6	321.0	328.6	348.6	337.2	265.8	206.7	180.0	172.4	178.1	206.7
47.5°	263.8	273.4	279.1	299.1	288.6	226.7	181.0	161.9	155.3	158.1	175.3
50°	220.0	230.5	234.3	250.5	243.8	190.5	160.0	145.7	140.0	141.0	149.5
52.5°	181.9	189.5	192.4	204.8	200.0	161.0	141.0	130.5	125.7	124.8	129.5
55°	146.7	154.3	157.2	164.8	164.8	136.2	124.8	117.2	113.3	111.4	111.4
57.5°	118.1	122.9	123.8	130.5	128.6	115.3	109.5	103.8	101.0	97.2	96.2
60°	94.3	95.3	96.2	101.0	101.0	99.1	94.3	90.5	88.6	84.8	82.9
62.5°	73.3	74.3	75.2	77.2	80.0	82.9	81.0	78.1	76.2	72.4	70.5
65°	56.2	57.2	57.2	61.0	63.8	68.6	67.6	64.8	62.9	60.0	59.1
67.5°	42.9	43.8	45.7	46.7	51.4	55.2	54.3	51.4	49.5	47.6	47.6
70°	32.4	33.3	34.3	36.2	40.0	43.8	41.9	39.1	38.1	37.1	37.1
72.5°	22.9	22.9	24.8	26.7	28.6	31.4	30.5	28.6	27.6	26.7	28.6
75°	14.3	14.3	14.3	16.2	17.1	18.1	18.1	17.1	18.1	17.1	18.1
77.5°	10.5	10.5	11.4	11.4	12.4	13.3	13.3	13.3	13.3	14.3	13.3
80°	7.6	7.6	8.6	8.6	9.5	9.5	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°	3.8	3.8	3.8	3.8	3.8	3.8	4.8	4.8	4.8	4.8	4.8
87.5°	1.9	1.9	1.0	1.9	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°	923.9	923.9	923.9	923.9	923.9	923.9
2.5°	917.3	922.0	923.0	925.8	928.7	928.7
5°	915.4	921.1	926.8	933.5	936.3	937.3
7.5°	903.0	910.6	920.1	929.7	930.6	930.6
10°	880.1	892.5	903.9	912.5	913.5	913.5
12.5°	855.4	870.6	883.9	889.6	892.5	894.4
15°	825.8	845.8	862.0	865.8	872.5	874.4
17.5°	788.7	811.5	826.8	834.4	839.2	843.9
20°	747.7	769.6	785.8	797.3	801.1	809.6
22.5°	702.0	725.8	739.1	753.4	760.1	770.6
25°	654.4	683.9	695.3	710.6	722.0	729.6
27.5°	606.7	638.2	651.5	665.8	672.5	679.1
30°	559.1	594.4	605.8	620.1	620.1	624.8
32.5°	509.6	546.7	557.2	569.6	566.7	571.5
35°	463.9	500.1	510.5	520.1	515.3	515.3
37.5°	416.2	453.4	459.1	465.8	459.1	463.9
40°	367.7	407.7	410.5	409.6	410.5	411.5
42.5°	317.2	355.3	357.2	354.3	356.2	359.1
45°	265.8	303.9	304.8	301.0	301.9	309.6
47.5°	218.1	255.3	258.1	254.3	260.0	263.8
50°	178.1	207.6	212.4	210.5	216.2	220.0
52.5°	145.7	169.5	175.3	176.2	176.2	181.9
55°	120.0	138.1	143.8	143.8	146.7	146.7
57.5°	99.1	110.5	116.2	119.1	118.1	118.1
60°	82.9	87.6	91.4	94.3	93.3	94.3
62.5°	69.5	69.5	70.5	70.5	72.4	73.3
65°	57.2	56.2	56.2	55.2	55.2	56.2
67.5°	47.6	44.8	44.8	42.9	42.9	42.9
70°	37.1	35.2	34.3	33.3	31.4	32.4
72.5°	26.7	25.7	24.8	23.8	22.9	22.9
75°	17.1	17.1	16.2	15.2	14.3	14.3
77.5°	13.3	12.4	11.4	11.4	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	5.7
85°	4.8	4.8	3.8	3.8	3.8	3.8
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)