

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P990914

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D40FL-TL4SDMB-1000LM-3500K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990914
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMB-1000LM-3500K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE BLACK TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
 Ballast/Driver: -

Summary

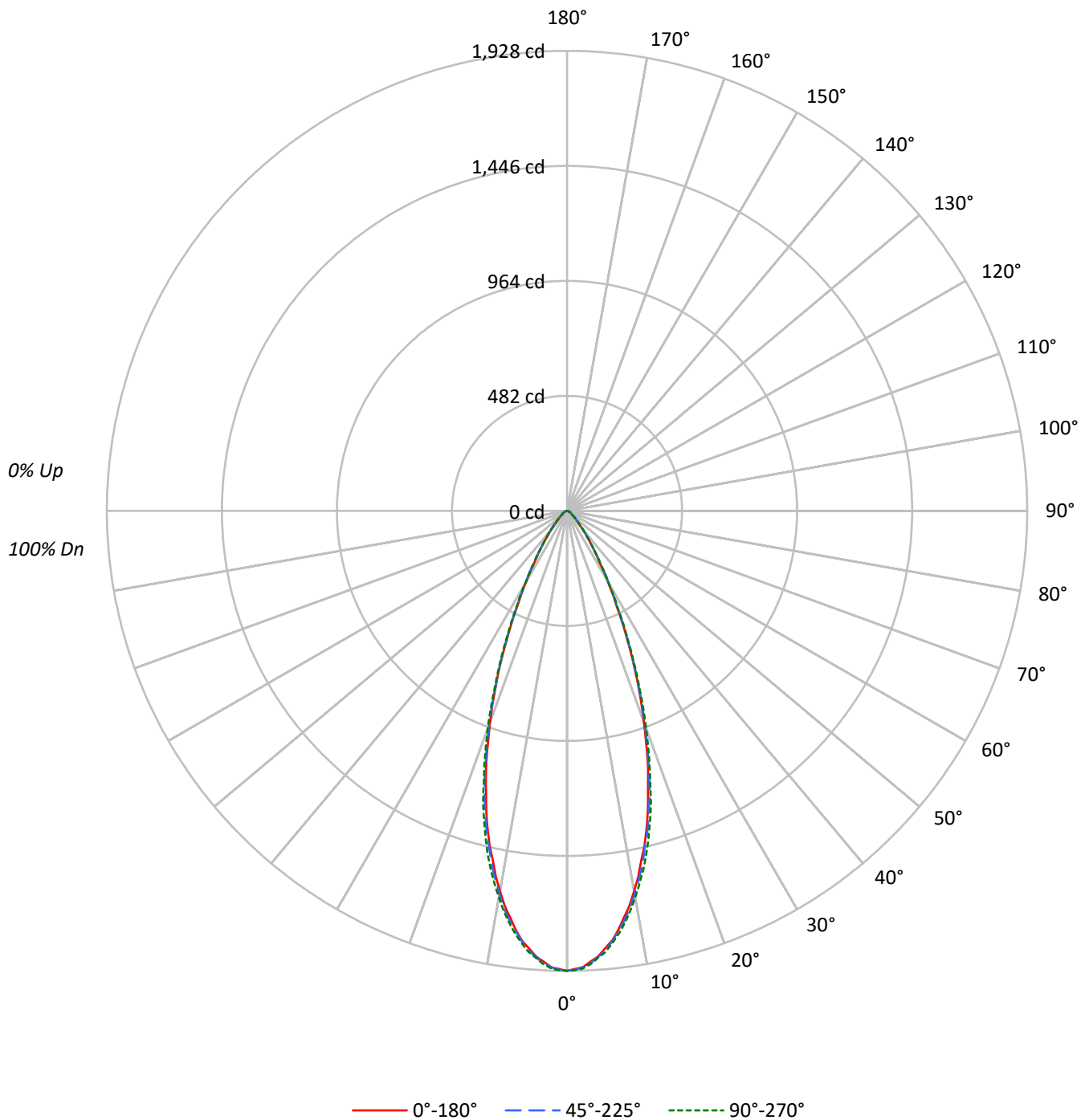
Lumens per Lamp: N/A
 Luminaire Lumens: 1031.1 lumens
 Efficiency: N/A
 Efficacy: 79.3 lumens/watt
 Spacing Criteria (0/90/45): 0.64 / 0.65 / 0.64
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 13
 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

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	114	111	109	106	111	109	107	105	105	103	102		101	100	98		98
2	108	104	100	97	106	102	98	95	99	96	93		96	93	91		93
3	103	97	92	89	101	96	91	88	93	90	87		91	88	85		89
4	99	91	86	82	97	90	85	82	88	84	81		86	83	80		84
5	94	86	81	77	93	85	80	76	84	79	76		82	78	75		80
6	90	82	76	72	89	81	76	72	79	75	71		78	74	71		77
7	86	78	72	68	85	77	72	68	76	71	67		74	70	67		73
8	83	74	68	64	81	73	68	64	72	67	64		71	67	64		70
9	79	70	65	61	78	70	65	61	69	64	61		68	64	61		67
10	76	67	62	58	75	67	62	58	66	61	58		65	61	58		65

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	186747	186747	186747
5°	178932	179632	180439
10°	159172	160294	161818
15°	131033	132477	134753
20°	97237	98196	100113
25°	64091	64754	65748
30°	38324	39018	39129
35°	22210	23061	23061
40°	13316	14101	13443
45°	8343	8768	8056
50°	5441	6059	5290
55°	3834	4526	4003
60°	3391	3798	3391
65°	3072	3553	3301
70°	2634	3512	2917
75°	1946	3107	1946
80°	558	1172	558
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	169.4	16.4
10°-20°	361.2	35.0
20°-30°	279.4	27.1
30°-40°	126.2	12.2
40°-50°	50.3	4.9
50°-60°	23.2	2.2
60°-70°	14.4	1.4
70°-80°	6.7	0.6
80°-90°	0.3	0.0
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°	810.0	78.6
0°-40°	936.2	90.8
0°-60°	1009.7	97.9
0°-90°	1031.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1031.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1928	1928	1928	1928	1928	
5°	1840	1845	1847	1847	1856	169
15°	1306	1310	1321	1337	1344	357
25°	600	600	606	606	615	276
35°	188	190	195	195	195	123
45°	61	62	64	62	59	49
55°	23	25	27	25	24	22
65°	13	14	16	14	14	13
75°	5	6	8	6	5	5
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1927.7	1927.7	1927.7	1927.7	1927.7
1°	1920.5	1924.6	1923.6	1921.5	1925.7
2°	1913.3	1913.3	1913.3	1912.2	1918.4
3°	1891.6	1898.8	1896.8	1895.7	1901.9
4°	1871.0	1872.0	1874.1	1874.1	1877.2
5°	1840.0	1845.2	1847.2	1847.2	1855.5
6°	1810.1	1809.1	1813.2	1815.2	1820.4
7°	1767.8	1769.8	1771.9	1780.2	1784.3
8°	1719.3	1723.4	1732.7	1736.8	1743.0
9°	1673.9	1674.9	1685.2	1688.3	1696.6
10°	1618.1	1622.3	1629.5	1641.9	1645.0
11°	1561.4	1564.5	1572.7	1583.0	1591.3
12°	1495.3	1505.7	1516.0	1526.3	1536.6
13°	1441.7	1442.7	1447.9	1466.4	1476.8
14°	1374.6	1378.7	1389.0	1397.3	1411.7
15°	1306.5	1309.6	1320.9	1337.4	1343.6
16°	1230.1	1239.4	1252.8	1261.1	1275.5
17°	1162.0	1165.1	1180.6	1187.8	1193.0
18°	1091.8	1091.8	1102.1	1112.5	1120.7
19°	1011.3	1019.6	1026.8	1038.2	1043.3
20°	943.2	947.4	952.5	962.8	971.1
22.5°	767.8	764.7	770.9	778.1	782.2
25°	599.6	599.6	605.8	605.8	615.1
27.5°	451.0	455.1	461.3	461.3	465.4
30°	342.6	343.6	348.8	349.8	349.8
32.5°	249.7	255.9	261.1	261.1	259.0
35°	187.8	189.9	195.0	195.0	195.0
37.5°	140.3	142.4	146.5	144.5	141.4
40°	105.3	106.3	111.5	108.4	106.3
42.5°	79.5	80.5	83.6	81.5	78.4
45°	60.9	61.9	64.0	61.9	58.8
47.5°	46.4	47.5	49.5	47.5	45.4
50°	36.1	37.2	40.2	37.2	35.1
52.5°	27.9	29.9	32.0	29.9	27.9
55°	22.7	24.8	26.8	24.8	23.7
57.5°	19.6	20.6	22.7	21.7	20.6
60°	17.5	17.5	19.6	18.6	17.5
62.5°	15.5	15.5	17.5	16.5	15.5
65°	13.4	14.4	15.5	14.4	14.4
67.5°	11.4	12.4	13.4	13.4	12.4
70°	9.3	10.3	12.4	11.4	10.3
72.5°	8.3	8.3	10.3	9.3	8.3
75°	5.2	6.2	8.3	6.2	5.2
77.5°	2.1	4.1	5.2	3.1	3.1
80°	1.0	1.0	2.1	1.0	1.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
82.5°	0.0	1.0	1.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)