

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: P887045

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDSL-1200LM-2700K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887045
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-52)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D40FL-TL4SDSL-1200LM-2700K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, METALLIC SILVER TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

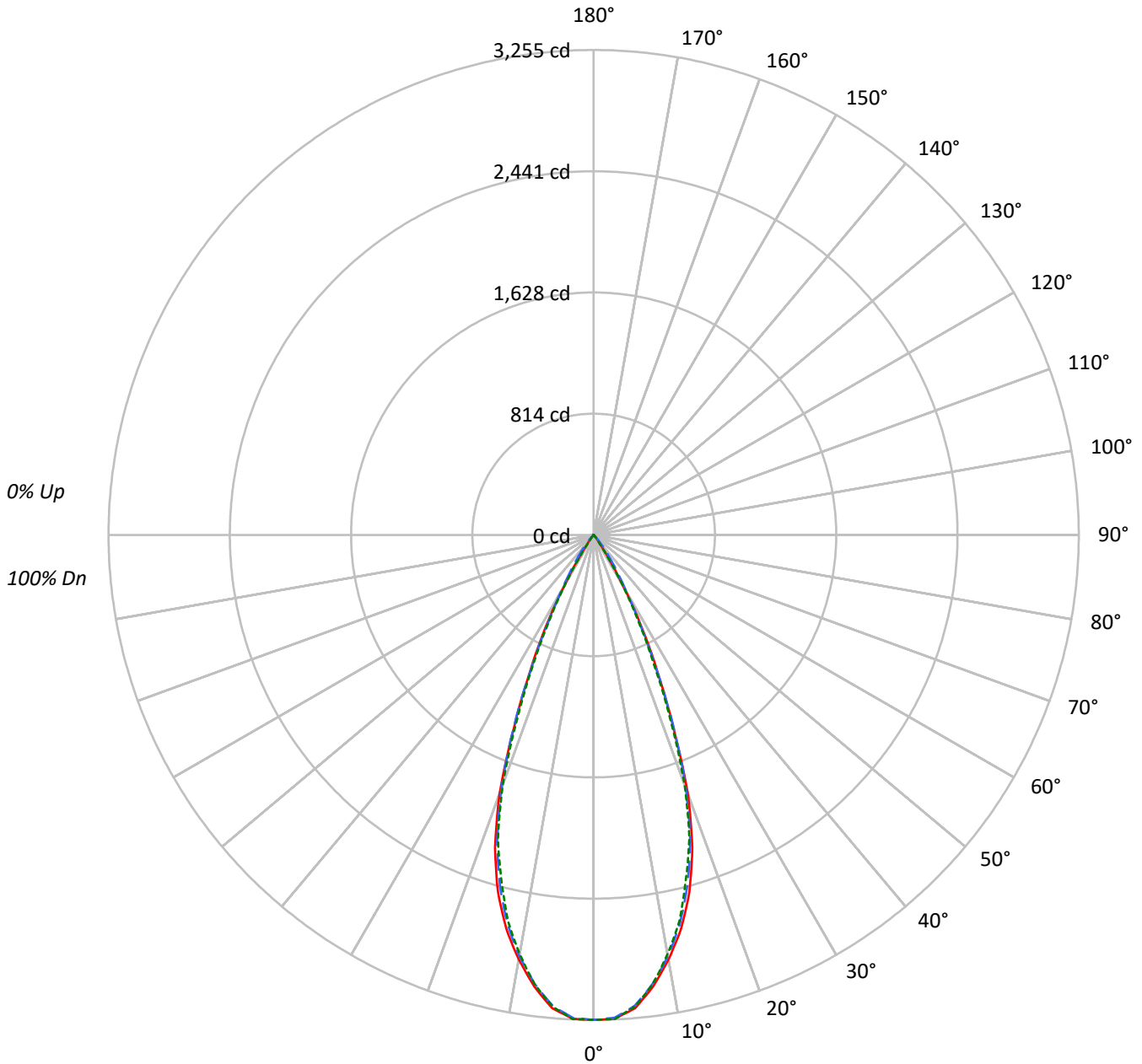
Lumens per Lamp: N/A
Luminaire Lumens: 1531.0 lumens
Efficiency: N/A
Efficacy: 87.0 lumens/watt
Spacing Criteria (0/90/45): 0.7 / 0.69 / 0.64
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 17.6
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: 24 FT



TEST NUMBER: P887045
CATALOG NUMBER: ML412LSFL9FS1E-TIR4D40FL-TL4SDSL-1200LM-2700K

Luminous Intensity Polar Plot





TEST NUMBER: P887045

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D40FL-TL4SDSL-1200LM-2700K

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	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			
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95					95			
2	110	106	103	100	108	104	101	99	101	99	97	98	96	94	96	94	93	91					91			
3	106	101	96	93	104	99	95	92	97	94	91	94	92	90	92	90	88	87					87			
4	102	96	91	88	100	95	90	87	92	89	86	91	88	85	89	86	84	83					83			
5	98	91	86	83	96	90	86	83	89	85	82	87	84	81	86	83	80	79					79			
6	94	87	82	79	93	86	82	78	85	81	78	84	80	77	82	79	77	76					76			
7	91	83	78	75	90	83	78	75	82	77	74	80	77	74	79	76	74	73					73			
8	88	80	75	72	87	79	75	72	78	74	71	77	74	71	77	73	71	70					70			
9	84	77	72	69	84	76	72	68	75	71	68	75	71	68	74	70	68	67					67			
10	82	74	69	66	81	73	69	66	73	68	66	72	68	65	71	68	65	64					64			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	315300	315300	315300
5°	310087	308433	308920
10°	284643	282381	281003
15°	248877	243962	239951
20°	190247	186330	183649
25°	107874	106591	102102
30°	44420	48783	42183
35°	8870	22352	7805
40°	1770	8094	1770
45°	685	1781	548
50°	452	603	452
55°	338	338	338
60°	388	388	194
65°	229	229	229
70°	283	283	283
75°	374	374	374
80°	0	558	558
85°	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 1781 cd/sqm



TEST NUMBER: P887045

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D40FL-TL4SDSL-1200LM-2700K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.4	19.2
10°-20°	666.6	43.5
20°-30°	462.3	30.2
30°-40°	96.5	6.3
40°-50°	8.0	0.5
50°-60°	2.0	0.1
60°-70°	1.2	0.1
70°-80°	1.0	0.1
80°-90°	0.1	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°	1422.2	92.9
0°-40°	1518.7	99.2
0°-60°	1528.7	99.8
0°-90°	1531.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1531.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3255	3255	3255	3255	3255	
5°	3189	3181	3172	3173	3177	294
15°	2482	2470	2432	2408	2392	677
25°	1009	1009	997	973	955	469
35°	75	117	189	108	66	74
45°	5	5	13	5	4	5
55°	2	2	2	2	2	2
65°	1	1	1	1	1	1
75°	1	1	1	1	1	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



TEST NUMBER: P887045

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D40FL-TL4SDSL-1200LM-2700K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3254.7	3254.7	3254.7	3254.7	3254.7
2.5°	3249.7	3248.7	3242.7	3245.7	3251.7
5°	3188.7	3180.7	3171.7	3172.7	3176.7
7.5°	3056.7	3061.7	3037.7	3042.7	3039.7
10°	2893.6	2883.6	2870.6	2865.6	2856.6
12.5°	2708.6	2696.6	2673.6	2652.6	2655.6
15°	2481.5	2470.5	2432.5	2408.5	2392.5
17.5°	2201.5	2188.5	2154.5	2145.5	2134.5
20°	1845.4	1836.4	1807.4	1782.4	1781.4
22.5°	1394.3	1411.3	1409.3	1368.3	1352.3
25°	1009.2	1009.2	997.2	973.2	955.2
27.5°	698.1	683.1	661.1	654.1	637.1
30°	397.1	427.1	436.1	414.1	377.1
32.5°	187.0	248.1	291.1	233.0	164.0
35°	75.0	117.0	189.0	108.0	66.0
37.5°	33.0	51.0	118.0	47.0	31.0
40°	14.0	23.0	64.0	22.0	14.0
42.5°	8.0	11.0	31.0	10.0	7.0
45°	5.0	5.0	13.0	5.0	4.0
47.5°	3.0	4.0	6.0	3.0	3.0
50°	3.0	3.0	4.0	3.0	3.0
52.5°	2.0	2.0	3.0	2.0	2.0
55°	2.0	2.0	2.0	2.0	2.0
57.5°	2.0	2.0	2.0	2.0	2.0
60°	2.0	2.0	2.0	2.0	1.0
62.5°	1.0	1.0	2.0	1.0	1.0
65°	1.0	1.0	1.0	1.0	1.0
67.5°	1.0	1.0	1.0	1.0	1.0
70°	1.0	1.0	1.0	1.0	1.0
72.5°	1.0	1.0	1.0	1.0	1.0
75°	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	1.0	1.0	1.0	1.0
80°	0.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	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

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Report Generated By 670245859 / DESKTOP-T8S5UU9

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report





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

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



(END OF REPORT)