

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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: NEO-RAY

Report Number: P927662

Luminaire Tested: DFN2DIP-HX4F0-070D120US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927662
REPORT IS A COMBINATION OF REPORTS P900970 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D120US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

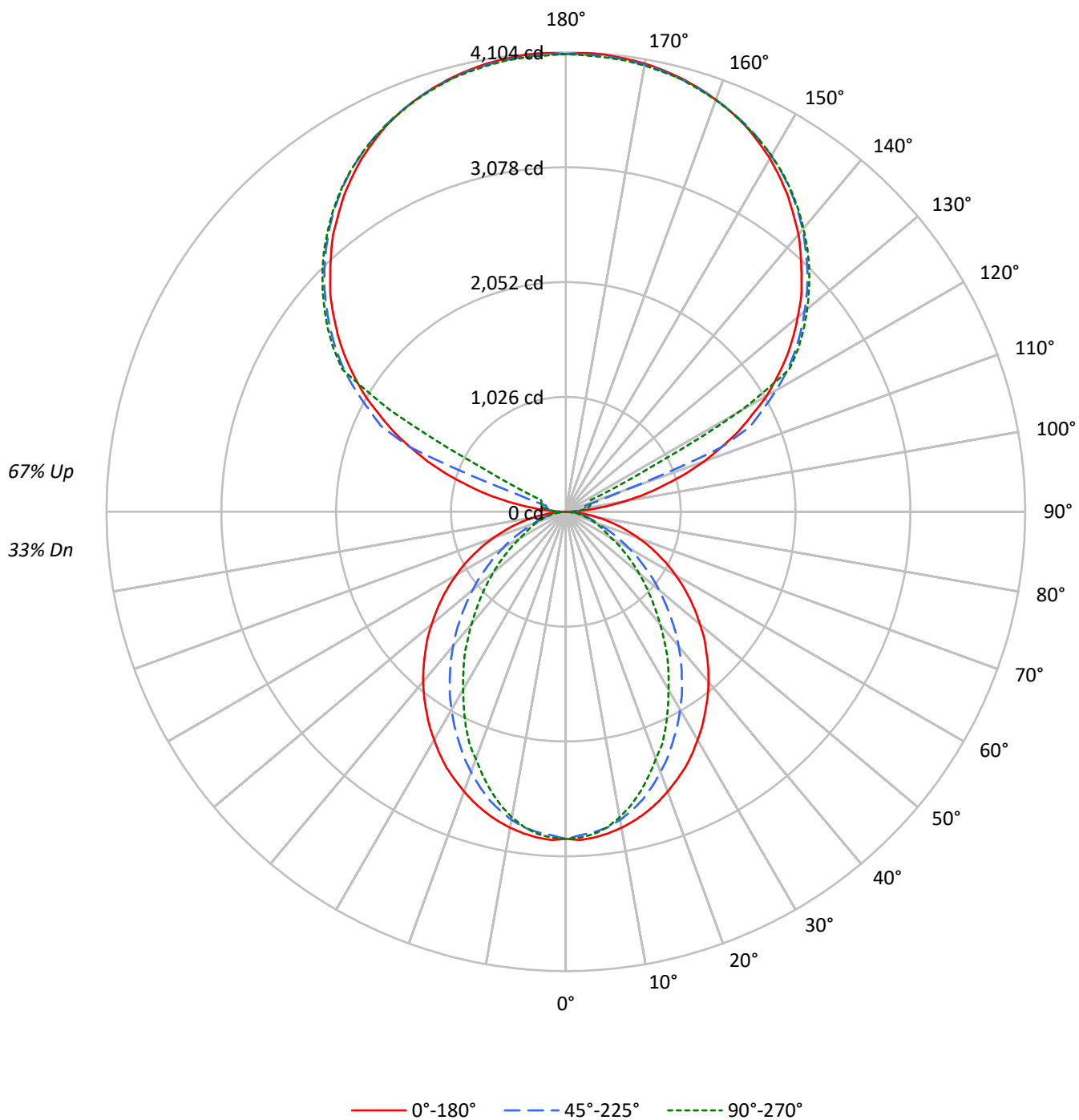
Lumens per Lamp: N/A
Luminaire Lumens: 18004.7 lumens
Efficiency: N/A
Efficacy: 111.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 162.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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



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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	30	10
RCR																	
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	87	83	85	82	79	76	65	63	61	50	49	48	37	36	35
2	86	79	73	69	78	72	67	63	58	54	51	45	42	40	33	31	30
3	79	70	63	57	71	63	57	53	51	47	43	40	37	35	29	27	26
4	72	62	54	49	65	56	50	45	45	41	37	36	32	30	26	24	23
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20
6	61	50	42	36	55	45	38	34	37	32	28	29	25	23	22	19	18
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	18	16
8	52	41	33	28	47	37	31	26	30	26	22	24	21	18	18	16	14
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13
10	45	34	27	22	41	31	25	21	26	21	18	21	17	15	16	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2172	2172	2172
5°	2176	2138	2152
10°	2155	2096	2082
15°	2125	2027	1974
20°	2086	1932	1841
25°	2046	1825	1713
30°	1992	1715	1550
35°	1940	1598	1407
40°	1886	1476	1243
45°	1824	1340	1095
50°	1759	1204	950
55°	1692	1057	811
60°	1614	905	667
65°	1525	750	601
70°	1416	605	544
75°	1280	533	495
80°	1083	448	430
85°	757	300	324

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2101 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	1.5
10°-20°	751.6	4.2
20°-30°	1055.3	5.9
30°-40°	1150.3	6.4
40°-50°	1057.3	5.9
50°-60°	830.3	4.6
60°-70°	540.5	3.0
70°-80°	278.2	1.5
80°-90°	78.2	0.4
90°-100°	134.8	0.7
100°-110°	502.7	2.8
110°-120°	1333.2	7.4
120°-130°	2211.3	12.3
130°-140°	2348.9	13.0
140°-150°	2183.0	12.1
150°-160°	1755.1	9.7
160°-170°	1130.9	6.3
170°-180°	389.2	2.2
0°-30°	2080.7	11.6
0°-40°	3231.0	17.9
0°-60°	5118.6	28.4
0°-90°	6015.5	33.4
90°-120°	1970.8	10.9
90°-150°	8714.0	48.4
90°-180°	11989.0	66.6
0°-180°	18004.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1599	1322	1134	1071	1372
55°	1351	1145	859	701	650	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	514
85°	114	58	50	50	50	130
90°	3	35	59	74	80	17
95°	192	94	115	130	127	228
105°	900	988	181	213	225	961
115°	1701	1752	1826	456	243	1675
125°	2406	2444	2501	2521	2530	2146
135°	2977	3024	3051	3081	3075	2300
145°	3454	3450	3501	3521	3506	2160
155°	3802	3776	3812	3829	3806	1752
165°	4007	3989	3998	4019	3998	1132
175°	4098	4078	4084	4104	4075	390
180°	4090	4090	4090	4090	4090	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.5	2921.5	2921.5	2921.5	2921.5
2.5°	2934.6	2921.5	2892.3	2918.9	2913.6
5°	2921.5	2908.2	2873.8	2897.6	2889.7
7.5°	2897.6	2881.9	2844.9	2855.2	2842.1
10°	2865.9	2847.4	2794.6	2786.5	2770.8
12.5°	2826.3	2802.5	2731.0	2715.3	2686.1
15°	2778.7	2749.5	2659.7	2609.5	2583.2
17.5°	2723.1	2680.8	2569.7	2511.6	2469.3
20°	2659.7	2606.7	2474.6	2408.7	2350.3
22.5°	2591.0	2530.2	2376.7	2286.9	2247.4
25°	2522.3	2437.6	2263.1	2154.8	2115.0
27.5°	2440.4	2350.3	2157.3	2033.1	1972.2
30°	2353.1	2252.5	2040.9	1906.3	1834.8
32.5°	2268.4	2146.7	1930.1	1771.4	1705.1
35°	2173.3	2038.4	1805.9	1639.3	1580.9
37.5°	2080.8	1935.2	1689.5	1506.8	1441.0
40°	1982.8	1824.4	1567.7	1380.1	1311.3
42.5°	1882.5	1713.3	1446.2	1250.4	1184.6
45°	1776.7	1599.4	1322.0	1134.1	1070.7
47.5°	1676.3	1488.6	1203.1	1015.2	957.1
50°	1565.2	1377.6	1086.6	904.1	848.8
52.5°	1456.6	1258.3	975.6	801.1	750.9
55°	1350.9	1144.7	859.1	700.7	650.5
57.5°	1242.7	1031.1	756.2	608.1	565.8
60°	1131.6	920.0	647.7	513.1	470.7
62.5°	1023.2	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.4	592.1	370.3	325.1	317.3
70°	695.3	489.1	306.6	280.2	269.5
72.5°	589.6	393.8	256.4	235.4	230.0
75°	486.4	301.2	211.5	193.0	190.4
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.8	103.2	87.2	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	2.8	35.4	59.1	74.1	79.8
92.5°	74.1	62.2	71.0	76.9	79.8
95°	192.2	94.5	115.2	130.4	127.2
97.5°	346.2	103.7	150.8	159.9	162.7
100°	523.9	118.4	168.6	192.2	198.2
102.5°	719.0	713.3	174.6	207.0	216.1
105°	899.5	988.5	180.7	213.0	224.9
107.5°	1109.7	1183.5	186.6	218.9	230.8
110°	1311.0	1372.9	517.9	222.1	233.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1500.5	1553.5	1503.3	227.7	236.8
115°	1701.4	1751.7	1825.8	455.7	242.9
117.5°	1876.1	1935.2	1985.8	1562.3	787.1
120°	2071.5	2115.7	2169.2	2204.7	1805.1
122.5°	2237.0	2284.5	2343.8	2361.4	2364.5
125°	2405.6	2444.3	2500.6	2521.3	2530.1
127.5°	2559.5	2601.0	2645.7	2675.2	2678.0
130°	2704.6	2752.1	2784.4	2817.1	2814.3
132.5°	2852.6	2891.3	2923.6	2950.3	2947.5
135°	2977.0	3024.5	3050.8	3080.7	3074.7
137.5°	3107.1	3142.5	3172.4	3201.9	3193.1
140°	3234.3	3258.1	3290.4	3317.2	3302.4
142.5°	3341.0	3361.8	3400.1	3423.6	3408.9
145°	3453.5	3450.4	3500.6	3521.4	3506.5
147.5°	3550.9	3542.1	3592.4	3607.1	3595.5
150°	3645.7	3625.0	3672.4	3690.0	3675.3
152.5°	3725.5	3701.9	3746.3	3764.1	3743.4
155°	3802.4	3776.0	3811.6	3829.2	3805.6
157.5°	3864.6	3841.1	3867.8	3888.5	3864.6
160°	3918.0	3900.2	3918.0	3935.6	3914.9
162.5°	3965.2	3947.6	3962.4	3983.1	3956.4
165°	4006.6	3989.0	3997.8	4018.6	3997.8
167.5°	4039.3	4021.3	4030.5	4051.2	4024.6
170°	4066.0	4048.1	4054.0	4074.7	4048.1
172.5°	4083.5	4066.0	4072.0	4092.7	4066.0
175°	4098.3	4077.6	4083.5	4104.3	4074.7
177.5°	4104.3	4083.5	4086.8	4107.5	4080.8
180°	4089.6	4089.6	4089.6	4089.6	4089.6

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	8.06	8.77	9.15	9.86	11.35	4.03	4.74	5.13	5.83	7.32
	3H	9.73	10.36	10.83	11.46	12.97	5.21	5.85	6.32	6.95	8.45
	4H	10.33	10.93	11.44	12.03	13.55	5.66	6.26	6.77	7.36	8.88
	6H	10.75	11.30	11.87	12.40	13.93	5.98	6.53	7.10	7.63	9.16
	8H	10.87	11.40	12.00	12.51	14.03	6.06	6.59	7.19	7.71	9.23
	12H	10.93	11.43	12.06	12.54	14.08	6.11	6.61	7.23	7.71	9.26
4H	2H	8.06	8.67	9.18	9.76	11.28	4.61	5.22	5.73	6.31	7.83
	3H	9.88	10.38	11.01	11.51	13.04	5.96	6.46	7.08	7.58	9.11
	4H	10.57	11.03	11.70	12.14	13.69	6.50	6.96	7.63	8.07	9.62
	6H	11.08	11.47	12.22	12.61	14.15	6.91	7.31	8.05	8.44	9.98
	8H	11.25	11.62	12.39	12.75	14.31	7.04	7.41	8.18	8.54	10.09
	12H	11.34	11.68	12.50	12.82	14.38	7.10	7.44	8.25	8.58	10.14
8H	4H	10.53	10.90	11.66	12.03	13.58	6.77	7.14	7.91	8.27	9.82
	6H	11.09	11.40	12.25	12.57	14.12	7.29	7.59	8.44	8.76	10.31
	8H	11.31	11.57	12.47	12.72	14.30	7.48	7.74	8.64	8.89	10.47
	12H	11.44	11.68	12.61	12.82	14.43	7.60	7.83	8.76	8.97	10.58
12H	4H	10.48	10.81	11.63	11.95	13.51	6.77	7.10	7.92	8.24	9.80
	6H	11.07	11.33	12.23	12.48	14.06	7.34	7.60	8.50	8.75	10.32
	8H	11.28	11.52	12.45	12.66	14.27	7.54	7.78	8.71	8.92	10.53