

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: P927650

Luminaire Tested: DFN2DIP-HX4F0-070D090US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927650
REPORT IS A COMBINATION OF REPORTS P900916 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D090US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

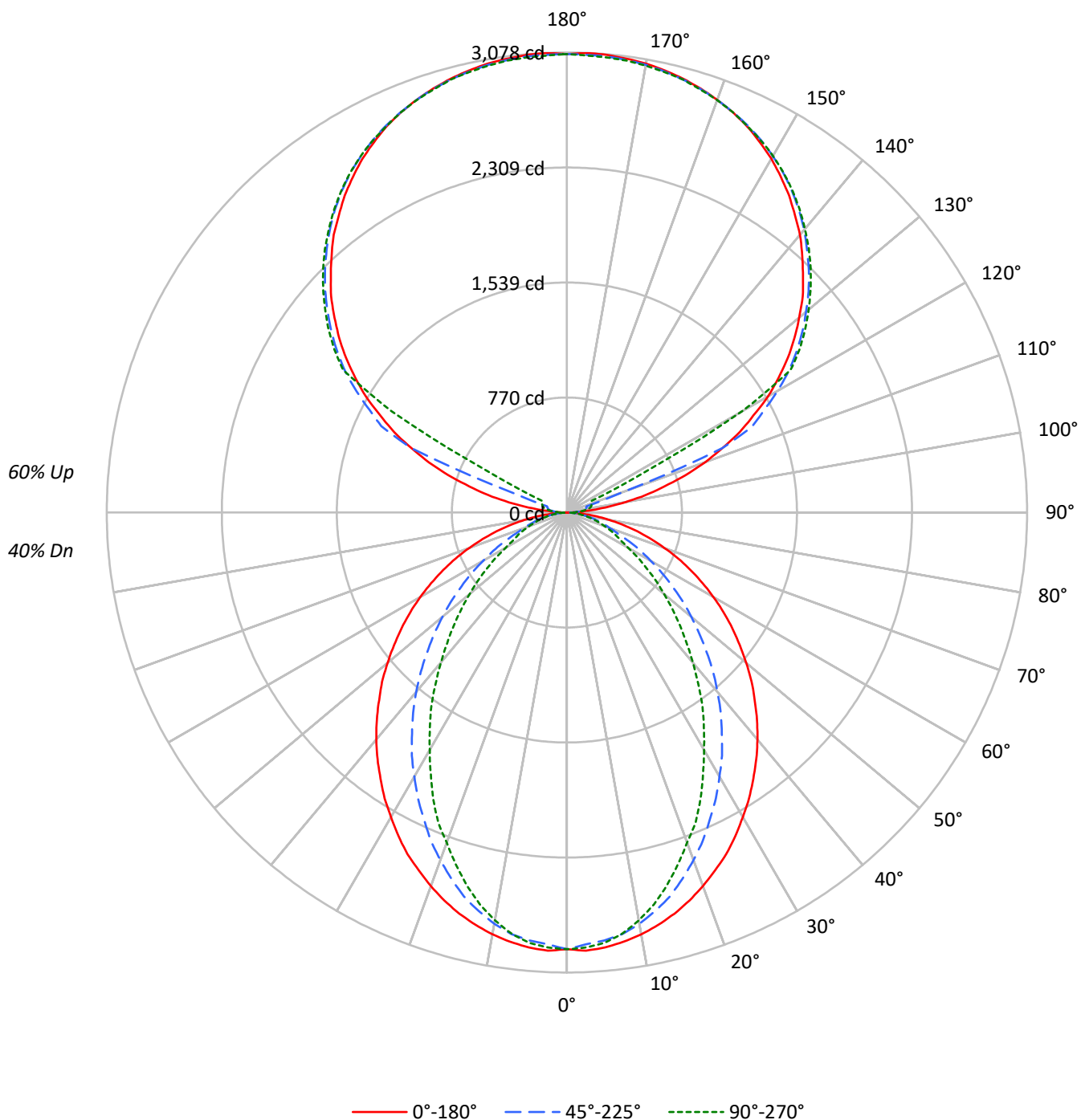
Lumens per Lamp: N/A
Luminaire Lumens: 15005.6 lumens
Efficiency: N/A
Efficacy: 111.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 134.2
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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	92	88	85	87	84	81	78	69	67	65	55	53	52	42	41	40
2	88	81	75	70	80	74	69	64	61	57	54	49	46	44	38	36	35
3	80	71	64	59	73	65	59	54	54	49	46	43	40	38	34	32	30
4	74	63	56	50	67	58	51	46	48	43	39	39	35	33	30	28	26
5	68	56	49	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	22	20
7	58	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	54	42	34	29	49	38	32	27	32	27	24	27	23	20	21	18	16
9	50	38	31	26	45	35	29	24	30	25	21	24	21	18	20	17	15
10	47	35	28	23	43	32	26	22	27	22	19	23	19	16	18	16	14

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: 0°

Vertical Angle: 45°

Luminance: 1824 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	1.8
10°-20°	751.6	5.0
20°-30°	1055.3	7.0
30°-40°	1150.3	7.7
40°-50°	1057.3	7.0
50°-60°	830.3	5.5
60°-70°	540.5	3.6
70°-80°	278.2	1.9
80°-90°	76.4	0.5
90°-100°	101.1	0.7
100°-110°	377.0	2.5
110°-120°	999.9	6.7
120°-130°	1658.4	11.1
130°-140°	1761.7	11.7
140°-150°	1637.3	10.9
150°-160°	1316.3	8.8
160°-170°	848.2	5.7
170°-180°	291.9	1.9
0°-30°	2080.7	13.9
0°-40°	3231.0	21.5
0°-60°	5118.6	34.1
0°-90°	6013.7	40.1
90°-120°	1478.1	9.9
90°-150°	6535.5	43.6
90°-180°	8992.0	59.9
0°-180°	15005.6	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°	2	27	44	56	60	14
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1369	342	182	1256
125°	1804	1833	1875	1891	1898	1609
135°	2233	2268	2288	2310	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2998	3014	2998	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	

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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°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.7	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.6
102.5°	539.2	535.0	131.0	155.2	162.1
105°	674.6	741.4	135.4	159.8	168.6
107.5°	832.3	887.6	140.0	164.2	173.2
110°	983.2	1029.7	388.5	166.5	175.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.3	1165.1	1127.4	170.8	177.6
115°	1276.1	1313.7	1369.4	341.8	182.1
117.5°	1407.1	1451.4	1489.3	1171.8	590.3
120°	1553.6	1586.8	1626.9	1653.4	1353.8
122.5°	1677.8	1713.3	1757.9	1771.0	1773.4
125°	1804.2	1833.2	1875.4	1891.0	1897.5
127.5°	1919.6	1950.7	1984.3	2006.4	2008.5
130°	2028.5	2064.1	2088.4	2112.8	2110.8
132.5°	2139.5	2168.4	2192.7	2212.8	2210.7
135°	2232.8	2268.3	2288.1	2310.5	2306.1
137.5°	2330.3	2356.9	2379.3	2401.4	2394.8
140°	2425.6	2443.6	2467.9	2487.8	2476.8
142.5°	2505.8	2521.4	2550.0	2567.7	2556.7
145°	2590.1	2587.7	2625.5	2641.0	2629.9
147.5°	2663.1	2656.6	2694.2	2705.4	2696.6
150°	2734.3	2718.8	2754.3	2767.5	2756.5
152.5°	2794.1	2776.4	2809.7	2823.1	2807.5
155°	2851.9	2832.1	2858.6	2871.9	2854.2
157.5°	2898.5	2880.9	2900.9	2916.4	2898.5
160°	2938.5	2925.1	2938.5	2951.7	2936.2
162.5°	2973.9	2960.6	2971.7	2987.3	2967.3
165°	3005.0	2991.7	2998.4	3014.0	2998.4
167.5°	3029.5	3016.1	3022.8	3038.4	3018.4
170°	3049.5	3036.1	3040.5	3056.1	3036.1
172.5°	3062.7	3049.5	3053.9	3069.5	3049.5
175°	3073.7	3058.2	3062.7	3078.2	3056.1
177.5°	3078.2	3062.7	3065.0	3080.6	3060.6
180°	3067.2	3067.2	3067.2	3067.2	3067.2

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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	8.84	9.60	9.88	10.64	12.05	4.81	5.57	5.86	6.61	8.02
	3H	10.51	11.19	11.57	12.24	13.67	6.00	6.67	7.05	7.73	9.16
	4H	11.12	11.76	12.18	12.81	14.25	6.45	7.09	7.51	8.14	9.58
	6H	11.54	12.13	12.61	13.19	14.63	6.77	7.35	7.84	8.41	9.86
	8H	11.66	12.22	12.74	13.30	14.74	6.85	7.41	7.93	8.49	9.93
	12H	11.72	12.25	12.81	13.32	14.79	6.90	7.43	7.98	8.50	9.96
4H	2H	8.85	9.49	9.92	10.55	11.98	5.40	6.04	6.47	7.10	8.53
	3H	10.67	11.21	11.75	12.29	13.74	6.75	7.28	7.82	8.36	9.81
	4H	11.36	11.85	12.45	12.93	14.39	7.29	7.78	8.38	8.85	10.32
	6H	11.88	12.29	12.97	13.39	14.85	7.71	8.13	8.80	9.22	10.69
	8H	12.05	12.44	13.14	13.53	15.01	7.84	8.23	8.93	9.32	10.80
	12H	12.14	12.49	13.25	13.60	15.08	7.90	8.25	9.01	9.36	10.84
8H	4H	11.33	11.72	12.42	12.81	14.28	7.57	7.96	8.66	9.05	10.53
	6H	11.89	12.21	13.01	13.34	14.82	8.09	8.41	9.20	9.54	11.01
	8H	12.11	12.39	13.23	13.50	15.00	8.28	8.56	9.40	9.67	11.17
	12H	12.24	12.49	13.37	13.60	15.13	8.40	8.64	9.52	9.75	11.29
12H	4H	11.27	11.63	12.38	12.73	14.21	7.57	7.92	8.68	9.02	10.51
	6H	11.87	12.15	12.99	13.26	14.76	8.13	8.42	9.26	9.53	11.03
	8H	12.08	12.33	13.21	13.44	14.97	8.34	8.59	9.47	9.70	11.23