

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: P927656

Luminaire Tested: DFN2DIP-HX4F0-070D110US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927656
REPORT IS A COMBINATION OF REPORTS P900951 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D110US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

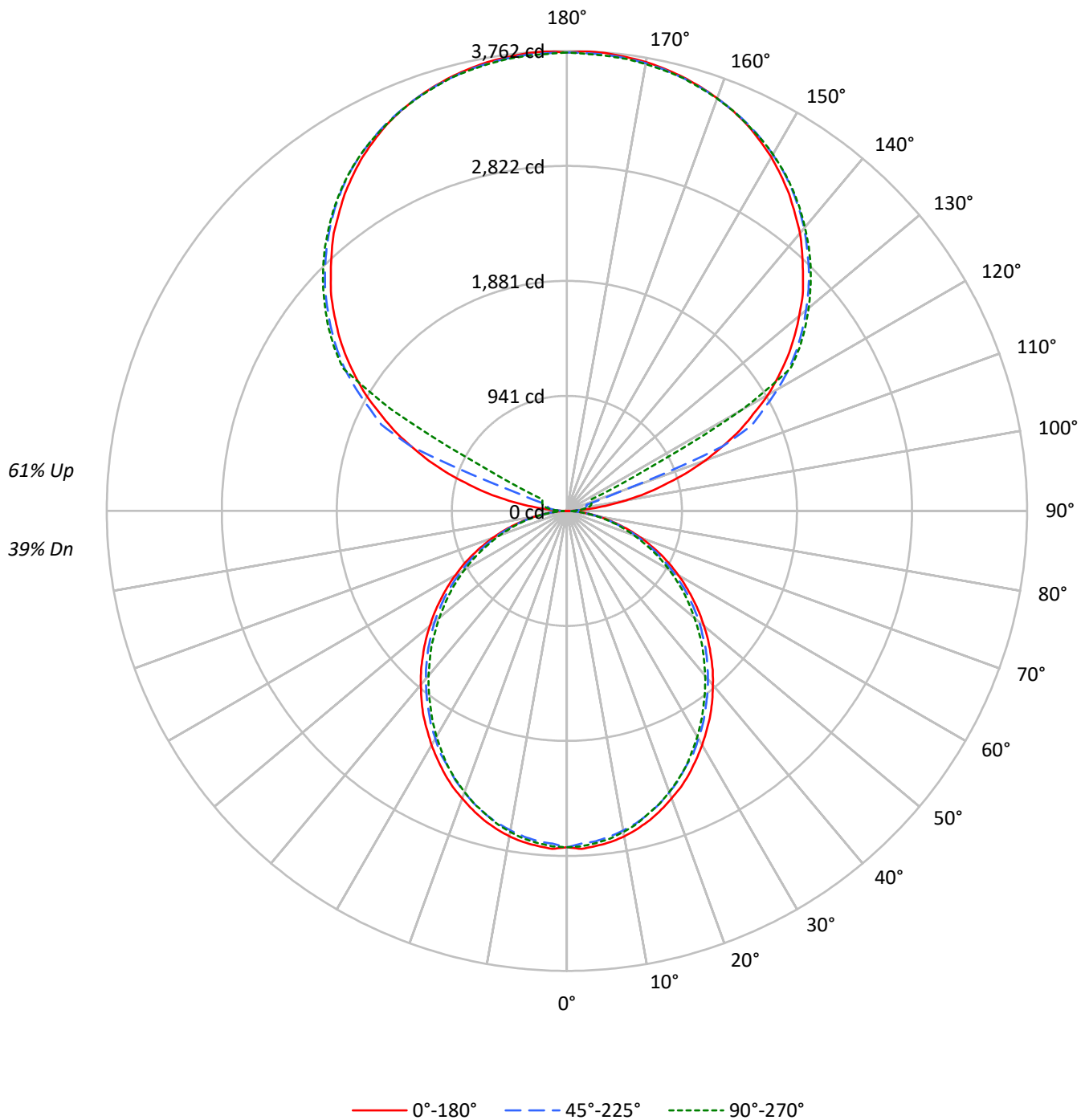
Lumens per Lamp: N/A
Luminaire Lumens: 17994.6 lumens
Efficiency: N/A
Efficacy: 117.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 153.5
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	77	77	77	61	61	61	46	46	46
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39
2	87	79	73	68	79	72	67	63	59	56	52	47	44	42	36	34	33
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13
10	45	34	26	22	41	31	25	20	26	21	17	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2045	2045	2045
5°	2049	2017	2030
10°	2032	1990	2003
15°	2002	1957	1960
20°	1962	1912	1916
25°	1922	1858	1866
30°	1872	1807	1801
35°	1825	1748	1733
40°	1766	1688	1668
45°	1708	1627	1601
50°	1644	1564	1524
55°	1577	1491	1453
60°	1502	1404	1373
65°	1419	1314	1277
70°	1315	1205	1174
75°	1169	1073	1079
80°	995	907	898
85°	723	618	597

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1925 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	1.4
10°-20°	728.4	4.0
20°-30°	1070.4	5.9
30°-40°	1243.2	6.9
40°-50°	1241.7	6.9
50°-60°	1082.7	6.0
60°-70°	800.4	4.4
70°-80°	452.8	2.5
80°-90°	126.1	0.7
90°-100°	123.6	0.7
100°-110°	460.8	2.6
110°-120°	1222.1	6.8
120°-130°	2027.0	11.3
130°-140°	2153.1	12.0
140°-150°	2001.1	11.1
150°-160°	1608.8	8.9
160°-170°	1036.7	5.8
170°-180°	356.8	2.0
0°-30°	2057.6	11.4
0°-40°	3300.9	18.3
0°-60°	5625.2	31.3
0°-90°	7004.5	38.9
90°-120°	1806.5	10.0
90°-150°	7987.8	44.4
90°-180°	10990.0	61.1
0°-180°	17994.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2750	2750	2750	2750	2750	
5°	2750	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2044	2018	1976	1960	1946	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	839
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	3	32	54	68	73	17
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1535
125°	2205	2241	2292	2311	2319	1967
135°	2729	2772	2796	2824	2818	2108
145°	3166	3163	3209	3228	3214	1980
155°	3486	3461	3494	3510	3488	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3743	3762	3735	358
180°	3749	3749	3749	3749	3749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.4	2750.4	2750.4	2750.4	2750.4
2.5°	2766.4	2753.2	2724.0	2750.4	2745.3
5°	2750.4	2740.1	2710.9	2731.9	2726.9
7.5°	2731.9	2716.2	2687.0	2708.4	2703.0
10°	2703.0	2684.5	2652.7	2673.8	2666.0
12.5°	2663.1	2647.5	2615.8	2628.9	2623.6
15°	2618.3	2602.6	2568.0	2578.7	2565.5
17.5°	2562.7	2547.0	2512.5	2525.7	2512.5
20°	2501.8	2486.1	2449.1	2456.9	2446.5
22.5°	2441.2	2417.4	2382.8	2382.8	2377.5
25°	2369.7	2348.6	2303.8	2308.8	2303.8
27.5°	2290.2	2271.7	2237.5	2229.6	2216.4
30°	2211.2	2189.8	2150.3	2142.4	2131.7
32.5°	2126.3	2110.7	2068.3	2052.3	2041.6
35°	2044.4	2018.1	1975.7	1959.7	1946.5
37.5°	1951.8	1928.0	1885.6	1867.1	1853.9
40°	1856.7	1835.4	1793.0	1769.5	1758.8
42.5°	1764.1	1742.8	1700.7	1674.0	1658.3
45°	1663.6	1645.2	1605.3	1576.4	1565.7
47.5°	1565.7	1547.2	1504.8	1475.6	1460.0
50°	1462.5	1449.3	1412.2	1375.2	1362.0
52.5°	1362.0	1343.5	1309.3	1280.1	1261.5
55°	1259.0	1243.1	1211.4	1179.6	1166.4
57.5°	1155.8	1142.6	1108.1	1076.3	1065.7
60°	1052.5	1042.1	1005.2	976.0	968.1
62.5°	952.0	933.6	907.2	880.8	870.1
65°	849.1	833.1	806.7	782.9	769.7
67.5°	743.3	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.8	592.3	581.9
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.6	410.0	415.3
77.5°	354.4	343.7	338.4	330.5	322.7
80°	264.6	261.8	256.5	248.6	243.3
82.5°	179.8	179.8	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.1
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.8	160.1	189.7	198.1
105°	824.6	906.1	165.6	195.2	206.2
107.5°	1017.3	1084.8	171.1	200.6	211.7
110°	1201.8	1258.5	474.8	203.6	214.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.4	1424.0	1378.0	208.7	217.1
115°	1559.6	1605.7	1673.7	417.8	222.6
117.5°	1719.8	1773.9	1820.3	1432.1	721.5
120°	1898.8	1939.4	1988.4	2020.9	1654.7
122.5°	2050.6	2094.0	2148.5	2164.6	2167.5
125°	2205.2	2240.6	2292.1	2311.1	2319.2
127.5°	2346.3	2384.2	2425.1	2452.2	2454.8
130°	2479.3	2522.8	2552.4	2582.4	2579.8
132.5°	2614.9	2650.3	2680.0	2704.4	2701.9
135°	2729.0	2772.4	2796.5	2824.0	2818.5
137.5°	2848.1	2880.7	2908.0	2935.1	2927.0
140°	2964.8	2986.6	3016.3	3040.7	3027.2
142.5°	3062.6	3081.6	3116.7	3138.4	3124.8
145°	3165.7	3162.8	3208.8	3227.9	3214.4
147.5°	3255.0	3246.9	3293.0	3306.5	3295.9
150°	3341.9	3322.9	3366.4	3382.5	3369.0
152.5°	3415.0	3393.4	3434.0	3450.5	3431.5
155°	3485.6	3461.4	3493.9	3510.1	3488.5
157.5°	3542.6	3521.0	3545.5	3564.5	3542.6
160°	3591.6	3575.1	3591.6	3607.6	3588.6
162.5°	3634.7	3618.6	3632.1	3651.1	3626.7
165°	3672.7	3656.6	3664.7	3683.6	3664.7
167.5°	3702.6	3686.3	3694.7	3713.6	3689.2
170°	3727.2	3710.7	3716.2	3735.3	3710.7
172.5°	3743.2	3727.2	3732.6	3751.6	3727.2
175°	3756.8	3737.8	3743.2	3762.3	3735.3
177.5°	3762.3	3743.2	3746.2	3765.1	3740.7
180°	3748.8	3748.8	3748.8	3748.8	3748.8

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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	8.64	9.41	9.69	10.46	11.88	8.21	8.98	9.25	10.03	11.45
	3H	10.29	10.98	11.35	12.04	13.48	9.82	10.51	10.88	11.57	13.01
	4H	10.88	11.53	11.95	12.59	14.04	10.40	11.06	11.47	12.12	13.57
	6H	11.27	11.88	12.35	12.94	14.40	10.80	11.40	11.88	12.47	13.92
	8H	11.38	11.95	12.46	13.03	14.48	10.90	11.47	11.98	12.56	14.01
	12H	11.42	11.97	12.51	13.04	14.52	10.94	11.48	12.03	12.56	14.04
4H	2H	9.09	9.74	10.17	10.81	12.25	8.75	9.40	9.82	10.46	11.91
	3H	10.95	11.50	12.03	12.59	14.04	10.56	11.10	11.64	12.19	13.65
	4H	11.66	12.16	12.75	13.24	14.72	11.25	11.76	12.34	12.84	14.32
	6H	12.17	12.60	13.27	13.71	15.18	11.76	12.19	12.86	13.30	14.77
	8H	12.32	12.72	13.42	13.82	15.31	11.91	12.31	13.00	13.40	14.89
	12H	12.39	12.75	13.50	13.86	15.36	11.97	12.33	13.08	13.44	14.93
8H	4H	11.85	12.25	12.95	13.35	14.84	11.49	11.89	12.59	12.99	14.48
	6H	12.48	12.81	13.60	13.95	15.44	12.12	12.45	13.23	13.59	15.07
	8H	12.70	12.99	13.82	14.11	15.62	12.33	12.62	13.46	13.74	15.25
	12H	12.83	13.08	13.96	14.20	15.74	12.44	12.70	13.57	13.81	15.36
12H	4H	11.83	12.20	12.95	13.30	14.80	11.48	11.84	12.59	12.95	14.45
	6H	12.51	12.80	13.63	13.92	15.43	12.16	12.45	13.28	13.57	15.07
	8H	12.75	13.00	13.88	14.12	15.66	12.39	12.65	13.52	13.76	15.30