

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: P926970

Luminaire Tested: DFN2DIP-HX4F0-060D100US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926970
REPORT IS A COMBINATION OF REPORTS P900932 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D100US830-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

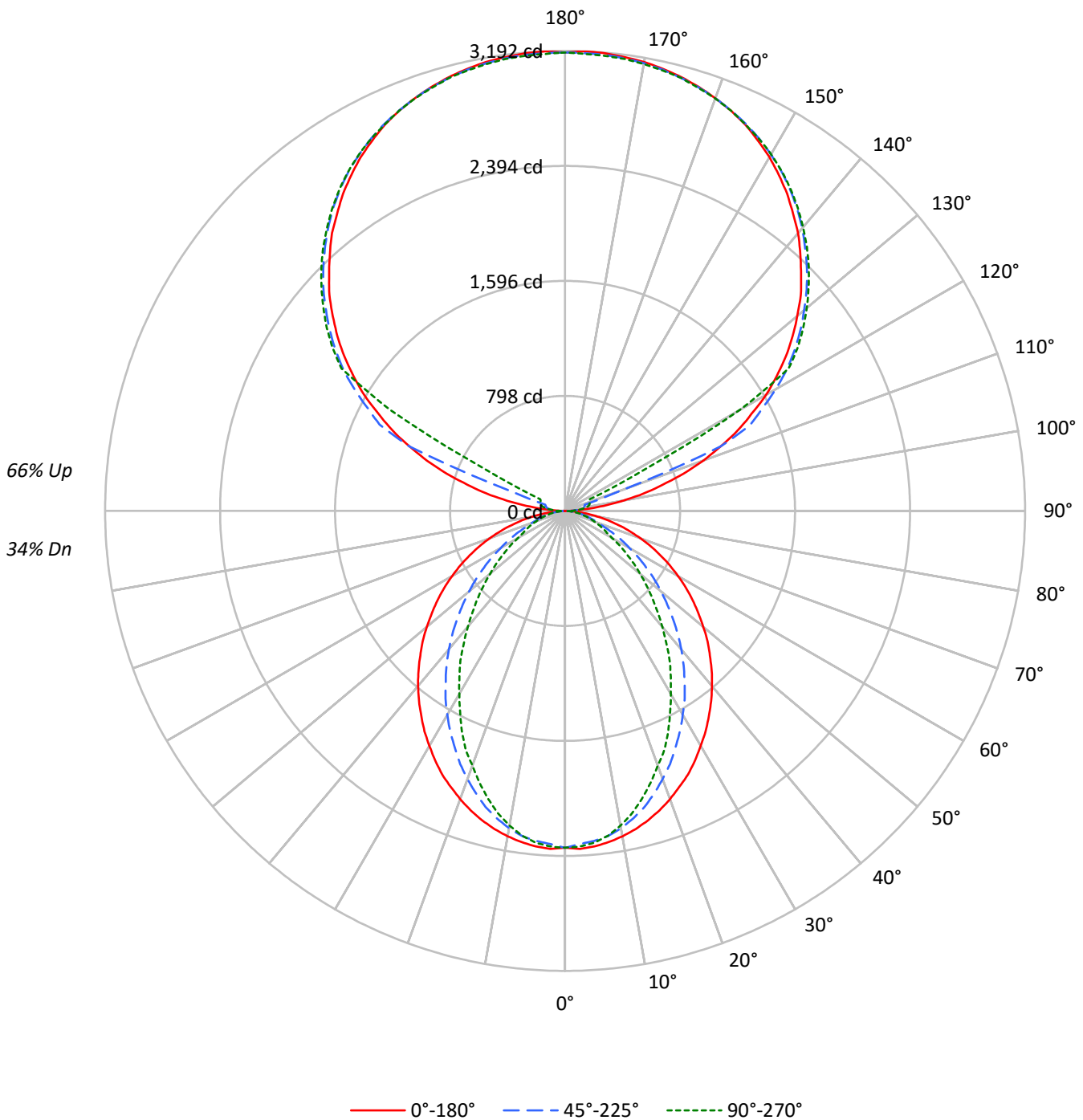
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14137.5 lumens
Efficiency: N/A
Efficacy: 108.5 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): 130.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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				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	0	
RCR																						
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	34				34
1	95	90	87	83	85	82	79	76	66	64	62	51	49	48	37	36	36	29				29
2	86	79	74	69	78	72	67	63	58	54	52	45	43	41	33	32	30	25				25
3	79	70	63	58	71	63	58	53	51	47	44	40	37	35	30	28	26	22				22
4	72	62	55	49	65	56	50	45	46	41	37	36	33	30	27	25	23	19				19
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20	17				17
6	61	50	42	36	55	45	39	34	37	32	28	29	26	23	22	20	18	15				15
7	57	45	37	32	51	41	34	30	34	29	25	27	23	20	20	18	16	13				13
8	52	41	33	28	47	37	31	26	31	26	22	24	21	18	19	16	14	12				12
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13	11				11
10	46	34	27	22	41	31	25	21	26	21	18	21	17	15	16	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1738	1738	1738
5°	1741	1710	1721
10°	1724	1677	1665
15°	1700	1622	1579
20°	1669	1546	1473
25°	1637	1460	1370
30°	1594	1372	1240
35°	1552	1278	1126
40°	1509	1180	995
45°	1459	1072	876
50°	1407	963	760
55°	1354	846	648
60°	1292	724	534
65°	1220	600	481
70°	1133	484	435
75°	1025	427	396
80°	866	358	344
85°	606	241	259

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1632 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.0	1.5
10°-20°	601.3	4.3
20°-30°	844.2	6.0
30°-40°	920.3	6.5
40°-50°	845.8	6.0
50°-60°	664.3	4.7
60°-70°	432.4	3.1
70°-80°	222.6	1.6
80°-90°	62.4	0.4
90°-100°	104.9	0.7
100°-110°	391.0	2.8
110°-120°	1037.0	7.3
120°-130°	1719.9	12.2
130°-140°	1827.0	12.9
140°-150°	1697.9	12.0
150°-160°	1365.1	9.7
160°-170°	879.6	6.2
170°-180°	302.8	2.1
0°-30°	1664.6	11.8
0°-40°	2584.9	18.3
0°-60°	4095.0	29.0
0°-90°	4812.4	34.0
90°-120°	1532.9	10.8
90°-150°	6777.7	47.9
90°-180°	9325.0	66.0
0°-180°	14137.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2337	2337	2337	2337	2337	
5°	2337	2327	2299	2318	2312	222
15°	2223	2200	2128	2088	2066	626
25°	2018	1950	1810	1724	1692	928
35°	1739	1631	1445	1311	1265	1088
45°	1421	1280	1058	907	856	1098
55°	1081	916	687	561	520	966
65°	730	558	368	296	290	724
75°	389	241	169	154	152	412
85°	91	46	40	40	40	104
90°	2	28	46	58	62	13
95°	150	74	90	101	99	177
105°	700	769	140	166	175	748
115°	1323	1362	1420	354	189	1303
125°	1871	1901	1945	1961	1968	1669
135°	2316	2352	2373	2396	2392	1789
145°	2686	2684	2723	2739	2727	1680
155°	2958	2937	2965	2978	2960	1363
165°	3116	3103	3110	3126	3110	880
175°	3188	3172	3176	3192	3169	303
180°	3181	3181	3181	3181	3181	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2337.2	2337.2	2337.2	2337.2	2337.2
2.5°	2347.8	2337.2	2313.8	2335.1	2330.9
5°	2337.2	2326.7	2299.0	2318.2	2311.9
7.5°	2318.2	2305.5	2275.9	2284.2	2273.7
10°	2292.7	2277.9	2235.8	2229.3	2216.7
12.5°	2261.2	2242.0	2184.8	2172.3	2148.9
15°	2223.0	2199.6	2127.8	2087.6	2066.5
17.5°	2178.6	2144.7	2055.8	2009.3	1975.5
20°	2127.8	2085.4	1979.7	1926.9	1880.3
22.5°	2072.8	2024.1	1901.4	1829.6	1797.9
25°	2017.9	1950.1	1810.5	1723.9	1692.1
27.5°	1952.4	1880.3	1725.9	1626.5	1577.8
30°	1882.5	1802.0	1632.8	1525.1	1467.8
32.5°	1814.8	1717.4	1544.2	1417.1	1364.2
35°	1738.7	1630.8	1444.8	1311.4	1264.7
37.5°	1664.6	1548.2	1351.6	1205.6	1152.8
40°	1586.3	1459.6	1254.2	1104.0	1049.1
42.5°	1506.0	1370.7	1157.0	1000.4	947.7
45°	1421.4	1279.5	1057.7	907.3	856.5
47.5°	1341.1	1190.9	962.5	812.2	765.7
50°	1252.2	1102.1	869.4	723.3	679.1
52.5°	1165.3	1006.7	780.5	640.9	600.7
55°	1080.8	915.8	687.4	560.6	520.4
57.5°	994.1	824.9	605.0	486.5	452.6
60°	905.3	736.1	518.2	410.5	376.5
62.5°	818.7	649.5	444.1	342.7	325.8
65°	729.8	558.3	368.0	296.2	289.7
67.5°	645.1	473.7	296.2	260.1	253.8
70°	556.3	391.3	245.2	224.2	215.6
72.5°	471.7	315.1	205.1	188.3	184.0
75°	389.2	241.0	169.2	154.4	152.4
77.5°	306.8	171.3	133.3	124.8	120.5
80°	230.4	122.7	101.4	93.1	93.1
82.5°	160.7	82.6	69.7	65.5	65.5
85°	90.9	46.5	40.2	40.2	40.2
87.5°	33.9	16.9	16.9	14.8	14.8
90°	2.2	27.6	45.9	57.7	62.0
92.5°	57.7	48.4	55.2	59.8	62.0
95°	149.5	73.5	89.6	101.4	99.0
97.5°	269.2	80.6	117.2	124.3	126.6
100°	407.5	92.1	131.2	149.5	154.2
102.5°	559.2	554.8	135.8	161.0	168.0
105°	699.7	768.8	140.5	165.6	174.9
107.5°	863.1	920.5	145.1	170.3	179.5
110°	1019.7	1067.9	402.8	172.8	181.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1167.0	1208.3	1169.3	177.1	184.3
115°	1323.4	1362.5	1420.2	354.5	188.9
117.5°	1459.2	1505.2	1544.5	1215.2	612.2
120°	1611.2	1645.6	1687.2	1714.8	1404.0
122.5°	1739.9	1776.8	1823.0	1836.6	1839.1
125°	1871.1	1901.2	1944.9	1961.1	1967.8
127.5°	1990.8	2023.1	2057.8	2080.8	2082.9
130°	2103.7	2140.6	2165.8	2191.1	2189.0
132.5°	2218.7	2248.8	2274.0	2294.7	2292.5
135°	2315.5	2352.4	2372.9	2396.1	2391.5
137.5°	2416.7	2444.3	2467.5	2490.5	2483.6
140°	2515.5	2534.2	2559.3	2580.1	2568.6
142.5°	2598.7	2614.8	2644.6	2662.8	2651.4
145°	2686.1	2683.7	2722.8	2738.9	2727.4
147.5°	2761.8	2755.0	2794.0	2805.5	2796.6
150°	2835.6	2819.5	2856.4	2870.1	2858.6
152.5°	2897.6	2879.3	2913.8	2927.7	2911.6
155°	2957.6	2937.0	2964.6	2978.3	2960.0
157.5°	3005.9	2987.6	3008.4	3024.5	3005.9
160°	3047.5	3033.5	3047.5	3061.1	3045.0
162.5°	3084.0	3070.4	3081.9	3098.0	3077.3
165°	3116.3	3102.6	3109.5	3125.6	3109.5
167.5°	3141.7	3127.8	3134.9	3151.1	3130.2
170°	3162.5	3148.6	3153.2	3169.3	3148.6
172.5°	3176.1	3162.5	3167.2	3183.3	3162.5
175°	3187.6	3171.5	3176.1	3192.3	3169.3
177.5°	3192.3	3176.1	3178.7	3194.8	3174.0
180°	3180.8	3180.8	3180.8	3180.8	3180.8



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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	7.36	8.08	8.45	9.16	10.65	3.34	4.05	4.42	5.13	6.62
	3H	9.03	9.67	10.13	10.76	12.27	4.52	5.16	5.61	6.25	7.75
	4H	9.64	10.24	10.74	11.34	12.84	4.96	5.57	6.07	6.66	8.17
	6H	10.05	10.61	11.17	11.71	13.23	5.28	5.84	6.40	6.93	8.45
	8H	10.18	10.71	11.30	11.82	13.33	5.37	5.90	6.49	7.01	8.52
	12H	10.23	10.74	11.36	11.84	13.38	5.41	5.91	6.53	7.02	8.55
4H	2H	7.37	7.97	8.48	9.07	10.57	3.92	4.52	5.03	5.62	7.13
	3H	9.19	9.69	10.31	10.81	12.33	5.26	5.76	6.38	6.88	8.40
	4H	9.88	10.34	11.00	11.45	12.99	5.80	6.27	6.93	7.38	8.92
	6H	10.39	10.78	11.52	11.91	13.45	6.22	6.62	7.35	7.75	9.28
	8H	10.56	10.93	11.69	12.05	13.60	6.35	6.72	7.48	7.84	9.39
	12H	10.65	10.98	11.80	12.12	13.67	6.41	6.74	7.56	7.88	9.43
8H	4H	9.84	10.20	10.97	11.33	12.88	6.08	6.45	7.21	7.57	9.12
	6H	10.40	10.70	11.55	11.87	13.42	6.59	6.90	7.74	8.06	9.61
	8H	10.62	10.88	11.77	12.03	13.59	6.78	7.05	7.94	8.20	9.76
	12H	10.75	10.98	11.91	12.13	13.73	6.90	7.13	8.06	8.28	9.88
12H	4H	9.78	10.12	10.93	11.25	12.81	6.08	6.41	7.22	7.55	9.10
	6H	10.37	10.64	11.53	11.79	13.35	6.64	6.91	7.80	8.05	9.62
	8H	10.59	10.82	11.75	11.97	13.57	6.85	7.08	8.01	8.23	9.83