

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: P903243

Luminaire Tested: DFN2DIP-PN4F0-060D100US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903243
REPORT IS A COMBINATION OF REPORTS P901242 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D100US830-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

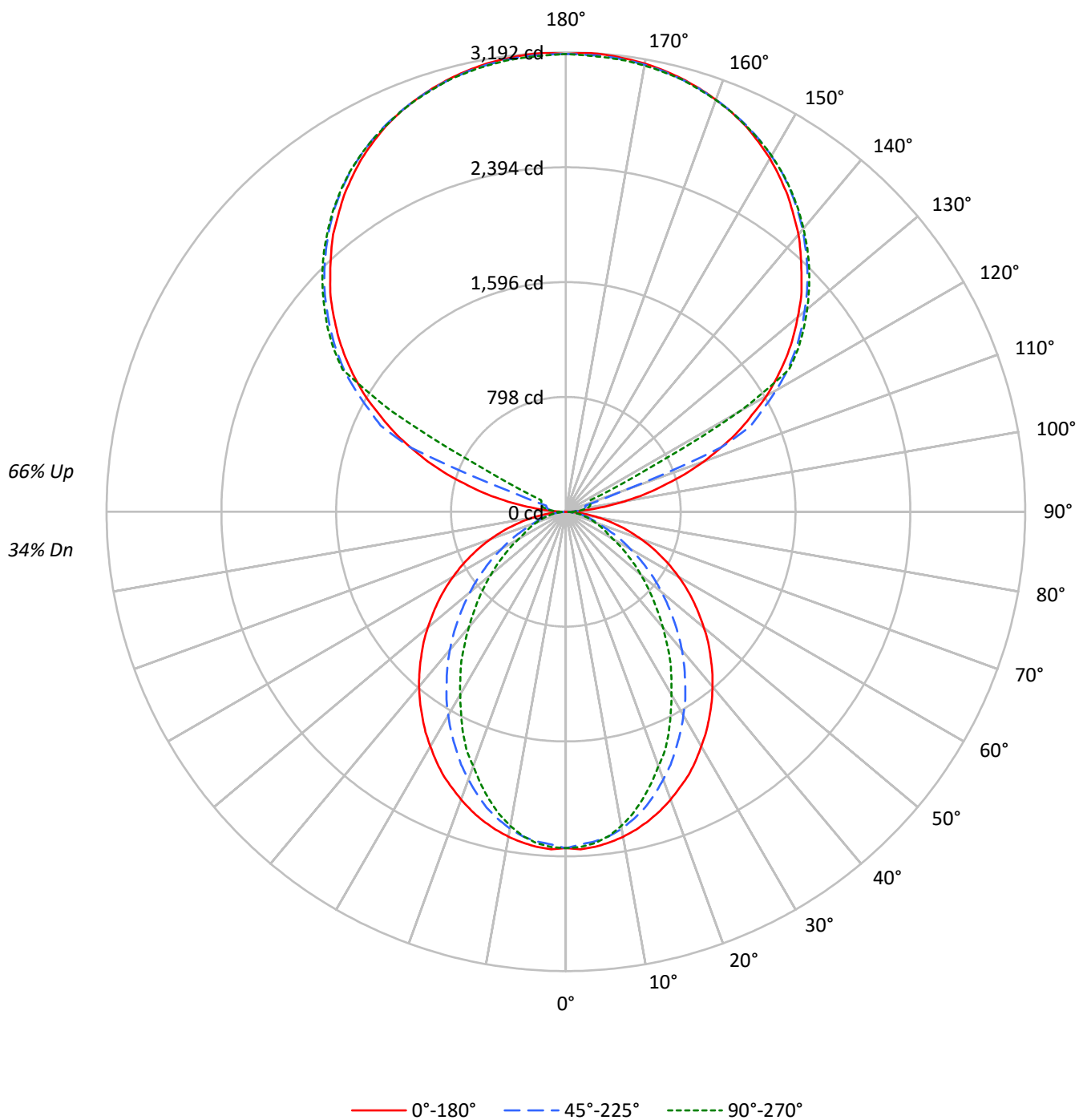
Lumens per Lamp: N/A
Luminaire Lumens: 14138.1 lumens
Efficiency: N/A
Efficacy: 109.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 129.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	95	90	87	83	85	82	79	76	66	64	62	51	49	48	37	36	36
2	86	79	74	69	78	72	67	63	58	54	52	45	43	41	33	32	30
3	79	70	63	58	71	63	58	53	51	47	44	40	37	35	30	28	26
4	72	62	55	49	65	56	50	45	46	41	37	36	33	30	27	25	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	39	34	37	32	28	29	26	23	22	20	18
7	57	45	37	32	51	41	34	30	34	29	25	27	23	20	20	18	16
8	52	41	33	28	47	37	31	26	31	26	22	24	21	18	19	16	14
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13
10	46	34	27	22	41	31	25	21	26	21	18	21	17	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1706	1706	1706
5°	1709	1679	1690
10°	1692	1647	1635
15°	1669	1592	1551
20°	1638	1518	1447
25°	1606	1434	1346
30°	1564	1348	1218
35°	1522	1255	1106
40°	1480	1159	978
45°	1431	1053	861
50°	1380	946	747
55°	1327	831	638
60°	1266	711	525
65°	1195	589	473
70°	1110	475	429
75°	1003	420	391
80°	847	353	340
85°	590	237	258

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1695 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.1	1.5
10°-20°	601.3	4.3
20°-30°	844.3	6.0
30°-40°	920.3	6.5
40°-50°	845.9	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°	1720.0	12.2
130°-140°	1827.0	12.9
140°-150°	1698.0	12.0
150°-160°	1365.2	9.7
160°-170°	879.7	6.2
170°-180°	302.8	2.1
0°-30°	1664.7	11.8
0°-40°	2585.0	18.3
0°-60°	4095.1	29.0
0°-90°	4812.5	34.0
90°-120°	1532.9	10.8
90°-150°	6778.0	47.9
90°-180°	9326.0	66.0
0°-180°	14138.1	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	2067	626
25°	2018	1950	1811	1724	1692	928
35°	1739	1631	1445	1312	1265	1088
45°	1421	1280	1058	907	857	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	2728	1680
155°	2958	2937	2965	2978	2960	1363
165°	3116	3103	3110	3126	3110	880
175°	3188	3172	3176	3192	3170	303
180°	3181	3181	3181	3181	3181	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2337.3	2337.3	2337.3	2337.3	2337.3
2.5°	2347.9	2337.3	2313.9	2335.2	2331.0
5°	2337.3	2326.8	2299.1	2318.3	2312.0
7.5°	2318.3	2305.6	2276.1	2284.3	2273.8
10°	2292.8	2278.0	2235.9	2229.4	2216.8
12.5°	2261.3	2242.1	2184.9	2172.4	2149.0
15°	2223.1	2199.7	2127.9	2087.7	2066.6
17.5°	2178.7	2144.8	2055.9	2009.4	1975.6
20°	2127.9	2085.5	1979.8	1927.0	1880.4
22.5°	2072.9	2024.2	1901.5	1829.7	1798.0
25°	2018.0	1950.2	1810.6	1724.0	1692.1
27.5°	1952.5	1880.4	1726.0	1626.5	1577.9
30°	1882.6	1802.0	1632.9	1525.1	1467.9
32.5°	1814.9	1717.5	1544.3	1417.2	1364.2
35°	1738.8	1630.9	1444.8	1311.5	1264.8
37.5°	1664.7	1548.2	1351.7	1205.6	1152.8
40°	1586.4	1459.6	1254.2	1104.1	1049.1
42.5°	1506.1	1370.7	1157.1	1000.4	947.7
45°	1421.4	1279.6	1057.7	907.3	856.6
47.5°	1341.1	1191.0	962.5	812.2	765.7
50°	1252.3	1102.1	869.4	723.3	679.1
52.5°	1165.4	1006.7	780.5	640.9	600.8
55°	1080.8	915.9	687.4	560.6	520.4
57.5°	994.2	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	558.4	368.1	296.2	289.7
67.5°	645.2	473.7	296.2	260.1	253.8
70°	556.3	391.3	245.2	224.2	215.7
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	120.6
80°	230.5	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	59.9	62.0
95°	149.5	73.5	89.6	101.4	99.0
97.5°	269.2	80.6	117.3	124.3	126.6
100°	407.6	92.1	131.2	149.5	154.2
102.5°	559.2	554.9	135.8	161.0	168.1
105°	699.7	768.8	140.5	165.6	174.9
107.5°	863.2	920.6	145.2	170.3	179.6
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°	1167.1	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	612.3
120°	1611.3	1645.7	1687.2	1714.9	1404.1
122.5°	1740.0	1776.9	1823.1	1836.7	1839.2
125°	1871.2	1901.3	1945.0	1961.1	1967.9
127.5°	1990.9	2023.2	2057.9	2080.9	2083.0
130°	2103.8	2140.7	2165.9	2191.2	2189.1
132.5°	2218.8	2248.9	2274.1	2294.8	2292.6
135°	2315.6	2352.5	2373.0	2396.2	2391.6
137.5°	2416.8	2444.4	2467.6	2490.6	2483.7
140°	2515.6	2534.3	2559.4	2580.2	2568.7
142.5°	2598.8	2614.9	2644.7	2663.0	2651.6
145°	2686.2	2683.8	2722.9	2739.0	2727.5
147.5°	2761.9	2755.1	2794.2	2805.7	2796.7
150°	2835.7	2819.6	2856.6	2870.2	2858.7
152.5°	2897.8	2879.5	2914.0	2927.8	2911.7
155°	2957.7	2937.2	2964.8	2978.4	2960.1
157.5°	3006.1	2987.8	3008.5	3024.6	3006.1
160°	3047.6	3033.7	3047.6	3061.3	3045.2
162.5°	3084.2	3070.5	3082.0	3098.1	3077.4
165°	3116.4	3102.8	3109.6	3125.8	3109.6
167.5°	3141.9	3127.9	3135.1	3151.2	3130.4
170°	3162.6	3148.8	3153.4	3169.5	3148.8
172.5°	3176.3	3162.6	3167.3	3183.4	3162.6
175°	3187.8	3171.7	3176.3	3192.5	3169.5
177.5°	3192.5	3176.3	3178.8	3194.9	3174.1
180°	3181.0	3181.0	3181.0	3181.0	3181.0

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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	7.30	8.02	8.39	9.10	10.59	3.27	3.98	4.36	5.07	6.55
	3H	8.98	9.62	10.07	10.71	12.21	4.45	5.09	5.55	6.18	7.68
	4H	9.58	10.19	10.69	11.28	12.79	4.90	5.50	6.00	6.60	8.10
	6H	10.00	10.56	11.12	11.65	13.17	5.21	5.77	6.33	6.87	8.39
	8H	10.12	10.65	11.24	11.77	13.28	5.30	5.83	6.42	6.94	8.45
	12H	10.18	10.69	11.31	11.79	13.33	5.34	5.84	6.46	6.95	8.48
4H	2H	7.31	7.91	8.42	9.01	10.52	3.85	4.46	4.97	5.55	7.06
	3H	9.13	9.63	10.25	10.76	12.28	5.19	5.70	6.31	6.82	8.34
	4H	9.82	10.28	10.95	11.39	12.93	5.74	6.20	6.86	7.31	8.85
	6H	10.33	10.73	11.46	11.86	13.39	6.15	6.55	7.28	7.68	9.21
	8H	10.51	10.88	11.64	12.00	13.55	6.28	6.65	7.41	7.77	9.32
	12H	10.60	10.93	11.75	12.07	13.62	6.34	6.67	7.49	7.81	9.36
8H	4H	9.78	10.15	10.91	11.27	12.82	6.01	6.38	7.14	7.51	9.05
	6H	10.35	10.65	11.50	11.82	13.36	6.53	6.83	7.68	8.00	9.54
	8H	10.56	10.83	11.72	11.98	13.54	6.72	6.98	7.88	8.13	9.70
	12H	10.70	10.93	11.86	12.08	13.68	6.83	7.07	7.99	8.21	9.81
12H	4H	9.73	10.06	10.87	11.20	12.75	6.01	6.35	7.16	7.48	9.04
	6H	10.32	10.59	11.48	11.73	13.30	6.58	6.84	7.73	7.99	9.55
	8H	10.54	10.77	11.70	11.92	13.52	6.78	7.02	7.94	8.16	9.76