

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: P903322

Luminaire Tested: DFN2DIP-PN4F0-080D120US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903322
REPORT IS A COMBINATION OF REPORTS P899762 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D120US830-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

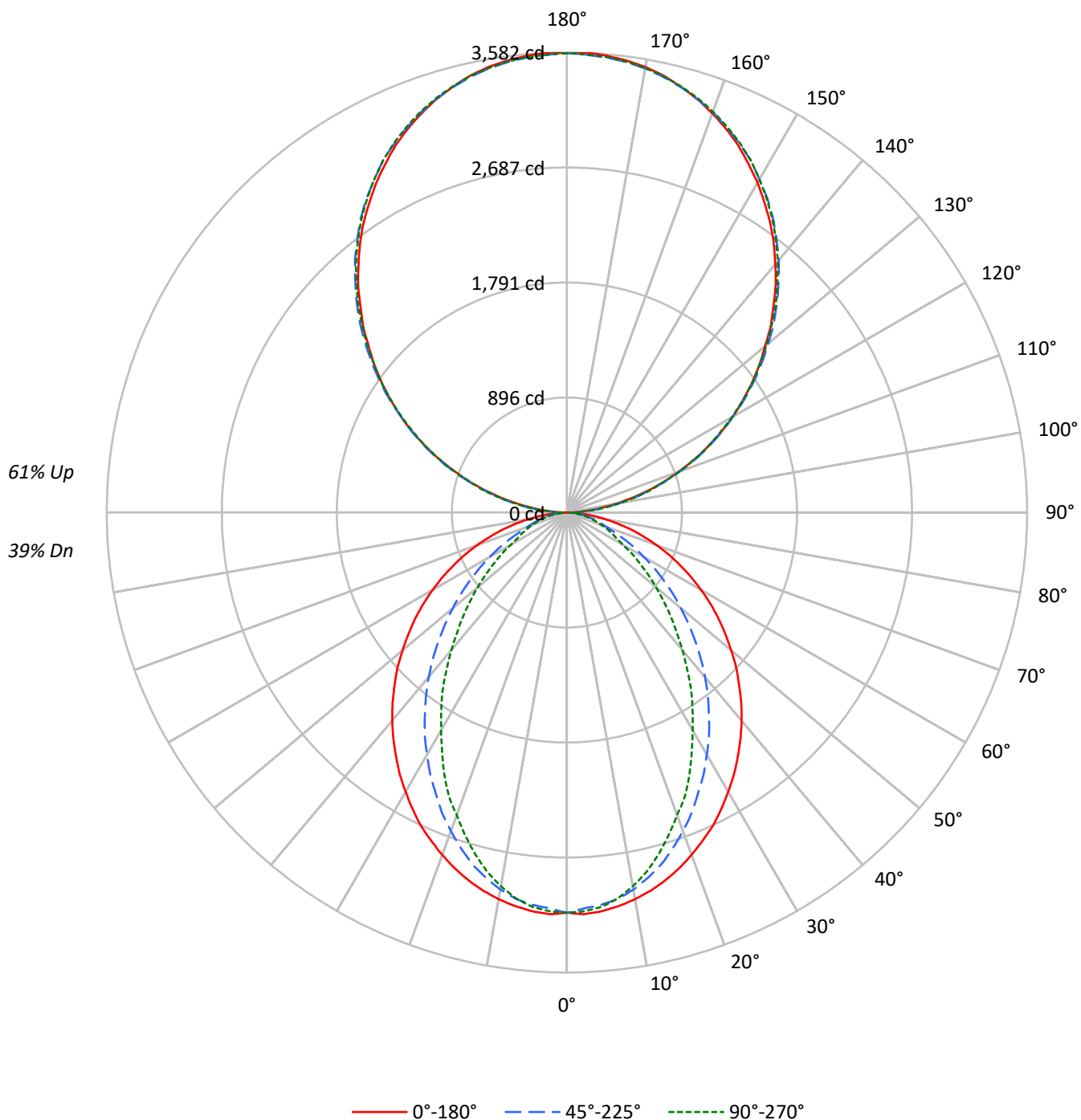
Lumens per Lamp: N/A
Luminaire Lumens: 16419.1 lumens
Efficiency: N/A
Efficacy: 90.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 180.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2275	2275	2275
5°	2278	2239	2253
10°	2256	2195	2181
15°	2225	2123	2068
20°	2184	2023	1929
25°	2142	1912	1795
30°	2085	1797	1625
35°	2030	1673	1475
40°	1974	1546	1304
45°	1908	1404	1148
50°	1840	1261	996
55°	1770	1108	851
60°	1688	948	701
65°	1594	785	631
70°	1480	634	572
75°	1337	559	521
80°	1129	470	453
85°	787	315	343

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2802 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.1	1.8
10°-20°	801.8	4.9
20°-30°	1125.7	6.9
30°-40°	1227.1	7.5
40°-50°	1127.8	6.9
50°-60°	885.7	5.4
60°-70°	576.5	3.5
70°-80°	296.8	1.8
80°-90°	85.9	0.5
90°-100°	221.3	1.3
100°-110°	703.3	4.3
110°-120°	1203.6	7.3
120°-130°	1582.9	9.6
130°-140°	1776.7	10.8
140°-150°	1742.3	10.6
150°-160°	1461.5	8.9
160°-170°	969.3	5.9
170°-180°	338.8	2.1
0°-30°	2219.6	13.5
0°-40°	3446.7	21.0
0°-60°	5460.2	33.3
0°-90°	6419.5	39.1
90°-120°	2128.2	13.0
90°-150°	7230.1	44.0
90°-180°	10000.0	60.9
0°-180°	16419.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3116	3116	3116	3116	3116	
5°	3116	3102	3066	3091	3083	296
15°	2964	2933	2837	2784	2756	835
25°	2691	2600	2414	2299	2256	1237
35°	2318	2174	1926	1749	1686	1451
45°	1895	1706	1410	1210	1142	1464
55°	1441	1221	916	747	694	1288
65°	973	744	491	395	386	965
75°	519	321	226	206	203	549
85°	121	62	54	54	54	139
90°	3	39	106	99	102	16
95°	157	188	193	193	188	175
105°	649	658	664	670	670	685
115°	1208	1225	1220	1216	1208	1195
125°	1757	1784	1775	1765	1762	1570
135°	2272	2306	2312	2309	2300	1756
145°	2758	2780	2797	2801	2789	1724
155°	3154	3163	3173	3188	3178	1452
165°	3432	3428	3428	3450	3435	968
175°	3571	3562	3556	3577	3559	339
180°	3577	3577	3577	3577	3577	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3116.4	3116.4	3116.4	3116.4	3116.4
2.5°	3130.5	3116.4	3085.3	3113.7	3108.0
5°	3116.4	3102.4	3065.5	3091.0	3082.6
7.5°	3091.0	3074.2	3034.7	3045.8	3031.7
10°	3057.1	3037.4	2981.2	2972.5	2955.7
12.5°	3015.0	2989.6	2913.2	2896.4	2865.3
15°	2964.1	2933.0	2837.2	2783.7	2755.5
17.5°	2904.8	2859.7	2741.2	2679.3	2634.0
20°	2837.2	2780.7	2639.8	2569.5	2507.2
22.5°	2763.9	2699.0	2535.3	2439.6	2397.4
25°	2690.6	2600.3	2414.1	2298.7	2256.2
27.5°	2603.2	2507.2	2301.3	2168.8	2103.8
30°	2510.2	2402.7	2177.2	2033.5	1957.2
32.5°	2419.8	2290.0	2059.0	1889.6	1819.0
35°	2318.4	2174.4	1926.4	1748.7	1686.4
37.5°	2219.6	2064.4	1802.2	1607.4	1537.1
40°	2115.3	1946.2	1672.4	1472.2	1398.8
42.5°	2008.1	1827.7	1542.8	1334.0	1263.6
45°	1895.3	1706.2	1410.2	1209.8	1142.2
47.5°	1788.2	1588.0	1283.4	1082.9	1021.0
50°	1669.6	1469.5	1159.2	964.4	905.4
52.5°	1553.9	1342.3	1040.7	854.6	801.1
55°	1441.1	1221.2	916.5	747.4	693.9
57.5°	1325.6	1099.9	806.7	648.8	603.5
60°	1207.0	981.5	690.9	547.2	502.1
62.5°	1091.6	865.9	592.2	456.9	434.5
65°	973.1	744.4	490.7	395.0	386.3
67.5°	860.3	631.7	395.0	346.8	338.5
70°	741.8	521.9	327.1	298.9	287.6
72.5°	629.0	420.1	273.5	251.1	245.3
75°	518.9	321.4	225.6	205.9	203.2
77.5°	409.1	228.3	177.8	166.4	160.7
80°	307.3	163.7	135.3	124.1	124.1
82.5°	214.2	110.1	93.0	87.4	87.4
85°	121.2	61.9	53.5	53.5	53.5
87.5°	45.1	22.4	22.4	19.8	19.8
90°	3.2	38.8	105.7	99.2	102.5
92.5°	66.8	90.6	93.8	97.1	97.1
95°	157.4	187.7	193.0	193.0	187.7
97.5°	262.0	290.1	302.0	302.0	302.0
100°	382.9	407.6	416.2	416.2	413.0
102.5°	510.1	528.4	540.3	543.6	540.3
105°	649.2	657.8	664.3	669.7	669.7
107.5°	787.2	800.2	800.2	802.3	787.2
110°	921.0	938.2	938.2	938.2	929.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1065.4	1083.8	1080.5	1072.0	1065.4
115°	1207.8	1225.1	1219.6	1216.4	1207.8
117.5°	1349.1	1372.8	1357.7	1349.1	1340.5
120°	1491.5	1515.1	1491.5	1491.5	1481.8
122.5°	1620.9	1651.1	1636.0	1627.3	1620.9
125°	1756.7	1783.7	1775.1	1765.4	1762.1
127.5°	1889.4	1922.8	1910.9	1898.0	1889.4
130°	2013.4	2052.2	2046.8	2040.3	2028.4
132.5°	2152.5	2182.7	2184.8	2169.7	2161.2
135°	2272.2	2305.6	2312.2	2308.9	2300.3
137.5°	2405.9	2432.9	2438.3	2436.1	2423.2
140°	2523.5	2550.4	2565.5	2565.5	2553.6
142.5°	2644.3	2671.3	2679.8	2683.0	2671.3
145°	2758.5	2780.1	2797.4	2800.7	2788.8
147.5°	2861.0	2887.9	2901.0	2906.3	2894.5
150°	2966.7	2985.0	2996.9	3006.6	2996.9
152.5°	3060.5	3078.8	3094.0	3105.9	3094.0
155°	3154.3	3163.0	3172.7	3187.8	3178.1
157.5°	3235.3	3241.7	3247.1	3268.6	3253.6
160°	3307.5	3314.0	3317.2	3335.6	3322.6
162.5°	3374.3	3374.3	3377.6	3398.1	3383.0
165°	3431.5	3428.3	3428.3	3449.8	3434.7
167.5°	3483.3	3473.6	3473.6	3495.1	3480.1
170°	3522.1	3513.4	3510.2	3531.8	3513.4
172.5°	3549.0	3540.4	3537.2	3558.8	3540.4
175°	3570.6	3562.0	3555.6	3577.0	3558.8
177.5°	3582.5	3573.8	3567.3	3585.7	3567.3
180°	3577.0	3577.0	3577.0	3577.0	3577.0

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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	8.90	9.65	9.95	10.70	12.12	4.86	5.61	5.91	6.66	8.08
	3H	10.57	11.24	11.63	12.30	13.74	6.05	6.71	7.11	7.78	9.22
	4H	11.18	11.81	12.25	12.87	14.32	6.49	7.13	7.56	8.19	9.64
	6H	11.60	12.18	12.68	13.25	14.71	6.81	7.39	7.89	8.46	9.92
	8H	11.72	12.28	12.81	13.36	14.81	6.90	7.45	7.98	8.53	9.99
	12H	11.78	12.31	12.87	13.39	14.86	6.94	7.47	8.03	8.54	10.02
4H	2H	8.90	9.54	9.98	10.60	12.05	5.45	6.08	6.53	7.15	8.59
	3H	10.73	11.26	11.82	12.35	13.81	6.79	7.32	7.88	8.41	9.87
	4H	11.42	11.90	12.51	12.98	14.47	7.34	7.82	8.43	8.90	10.38
	6H	11.93	12.35	13.03	13.45	14.93	7.75	8.17	8.85	9.27	10.75
	8H	12.11	12.50	13.21	13.59	15.08	7.88	8.27	8.98	9.36	10.85
	12H	12.20	12.55	13.32	13.66	15.16	7.94	8.29	9.06	9.40	10.90
8H	4H	11.38	11.77	12.48	12.87	14.36	7.61	8.00	8.71	9.10	10.59
	6H	11.95	12.27	13.07	13.41	14.89	8.13	8.45	9.25	9.59	11.07
	8H	12.17	12.45	13.29	13.57	15.07	8.32	8.60	9.45	9.72	11.23
	12H	12.30	12.55	13.44	13.67	15.21	8.44	8.68	9.57	9.80	11.34
12H	4H	11.33	11.68	12.45	12.79	14.28	7.62	7.97	8.73	9.07	10.57
	6H	11.92	12.20	13.05	13.32	14.83	8.18	8.46	9.31	9.58	11.09
	8H	12.14	12.39	13.27	13.50	15.05	8.39	8.63	9.52	9.75	11.29

END OF REPORT