

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: P902968

Luminaire Tested: DFN2DIP-PN3F0-030D080US830-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P902968  
REPORT IS A COMBINATION OF REPORTS P899581 AND P896399  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-030D080US830-FLLFLL  
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

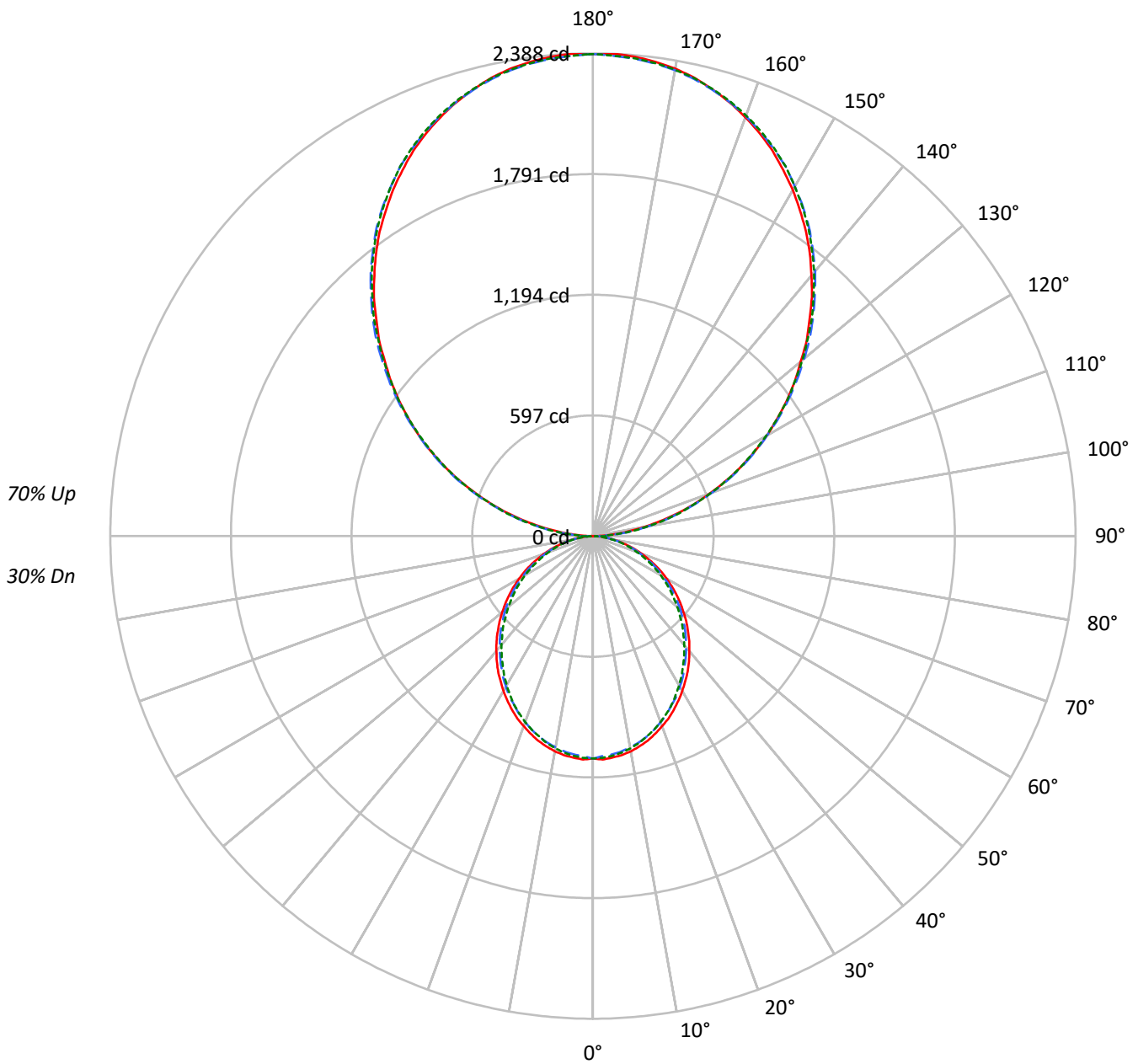
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9472.6 lumens  
Efficiency: N/A  
Efficacy: 111.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 85.3  
Input Voltage (V):  
Input Current (A<sub>in</sub>): 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



— 0°-180°    - - 45°-225°    - - - 90°-270°



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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37	37	37	37	30
1	93	89	85	82	83	80	77	74	63	61	59	47	46	45	33	32	32	32	32	32	25
2	85	78	72	67	76	70	65	61	55	52	49	42	39	37	29	28	27	27	27	27	21
3	77	68	61	56	69	61	55	51	49	44	41	37	34	32	26	24	23	23	23	23	18
4	71	60	53	47	63	54	48	43	43	38	35	33	30	27	23	21	19	19	19	19	15
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	21	19	17	17	17	17	13
6	60	48	40	34	53	43	37	32	35	30	26	26	23	20	19	17	15	15	15	15	12
7	55	43	35	30	49	39	32	28	31	26	23	24	20	18	17	15	13	13	13	13	10
8	51	39	32	26	46	35	29	24	28	24	20	22	18	16	16	13	12	12	12	12	9
9	47	35	28	23	42	32	26	22	26	21	18	20	17	14	14	12	11	11	11	11	8
10	44	32	25	21	40	29	23	19	24	19	16	18	15	13	13	11	10	10	10	10	8

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1286	1286	1286
5°	1287	1267	1276
10°	1276	1249	1258
15°	1257	1228	1231
20°	1231	1198	1203
25°	1205	1163	1170
30°	1172	1131	1129
35°	1141	1092	1085
40°	1104	1053	1044
45°	1066	1014	1002
50°	1025	973	953
55°	982	926	907
60°	932	870	855
65°	879	811	794
70°	811	740	728
75°	717	655	667
80°	602	546	550
85°	426	361	358

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2363 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	103.6	1.1
10°-20°	291.4	3.1
20°-30°	428.2	4.5
30°-40°	497.3	5.3
40°-50°	496.7	5.2
50°-60°	433.1	4.6
60°-70°	320.2	3.4
70°-80°	181.1	1.9
80°-90°	54.6	0.6
90°-100°	147.6	1.6
100°-110°	468.9	4.9
110°-120°	802.4	8.5
120°-130°	1055.3	11.1
130°-140°	1184.5	12.5
140°-150°	1161.5	12.3
150°-160°	974.4	10.3
160°-170°	646.2	6.8
170°-180°	225.9	2.4
0°-30°	823.1	8.7
0°-40°	1320.4	13.9
0°-60°	2250.3	23.8
0°-90°	2806.1	29.6
90°-120°	1418.8	15.0
90°-150°	4820.1	50.9
90°-180°	6666.0	70.4
0°-180°	9472.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1100	1100	1100	1100	1100	
5°	1100	1096	1084	1093	1091	104
15°	1047	1041	1027	1032	1026	295
25°	948	940	922	924	922	436
35°	818	807	790	784	779	511
45°	666	658	642	631	626	514
55°	504	497	485	472	467	450
65°	340	333	323	313	308	336
75°	178	176	170	164	166	190
85°	43	42	41	38	37	48
90°	2	26	70	66	68	9
95°	105	125	129	129	125	117
105°	433	439	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1534	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2286	2286	2300	2290	645
175°	2380	2375	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1100.2	1100.2	1100.2	1100.2	1100.2
2.5°	1106.6	1101.4	1089.7	1100.2	1098.3
5°	1100.2	1096.1	1084.4	1092.9	1090.8
7.5°	1092.9	1086.6	1074.9	1083.5	1081.3
10°	1081.3	1073.8	1061.2	1069.6	1066.5
12.5°	1065.4	1059.0	1046.4	1051.6	1049.5
15°	1047.4	1041.1	1027.3	1031.5	1026.2
17.5°	1025.1	1018.9	1005.0	1010.3	1005.0
20°	1000.8	994.5	979.7	982.8	978.6
22.5°	976.6	967.0	953.2	953.2	951.0
25°	947.9	939.5	921.5	923.6	921.5
27.5°	916.2	908.7	895.0	891.9	886.6
30°	884.5	876.0	860.2	857.0	852.7
32.5°	850.6	844.3	827.4	821.0	816.7
35°	817.8	807.3	790.3	783.9	778.6
37.5°	780.8	771.3	754.3	746.9	741.6
40°	742.7	734.2	717.3	707.8	703.6
42.5°	705.7	697.2	680.3	669.7	663.4
45°	665.5	658.1	642.2	630.6	626.3
47.5°	626.3	619.0	602.0	590.3	584.0
50°	585.0	579.8	565.0	550.2	544.9
52.5°	544.9	537.4	523.8	512.1	504.6
55°	503.7	497.3	484.6	471.9	466.7
57.5°	462.3	457.0	443.3	430.6	426.3
60°	421.0	416.9	402.1	390.4	387.3
62.5°	380.9	373.4	362.9	352.3	348.1
65°	339.7	333.3	322.7	313.2	307.9
67.5°	297.4	292.0	282.5	275.1	270.9
70°	258.2	253.9	244.4	237.0	232.8
72.5°	218.0	213.7	208.4	201.0	197.9
75°	177.7	175.7	170.3	164.0	166.2
77.5°	141.8	137.5	135.3	132.2	129.1
80°	105.8	104.7	102.5	99.4	97.4
82.5°	71.9	71.9	71.0	66.6	66.6
85°	43.4	42.3	41.3	38.1	37.0
87.5°	19.0	17.0	14.8	11.7	10.6
90°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.6	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	614.0	625.5	625.5	625.5	619.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.6	720.4	714.6	710.3
115°	805.2	816.7	813.1	811.0	805.2
117.5°	899.4	915.2	905.1	899.4	893.6
120°	994.3	1010.1	994.3	994.3	987.8
122.5°	1080.5	1100.7	1090.6	1084.9	1080.5
125°	1171.1	1189.1	1183.4	1176.9	1174.8
127.5°	1259.6	1281.9	1273.9	1265.4	1259.6
130°	1342.3	1368.1	1364.5	1360.3	1352.4
132.5°	1435.0	1455.1	1456.6	1446.5	1440.8
135°	1514.8	1537.1	1541.4	1539.3	1533.5
137.5°	1603.9	1621.9	1625.5	1624.1	1615.4
140°	1682.3	1700.3	1710.3	1710.3	1702.4
142.5°	1762.8	1780.8	1786.6	1788.8	1780.8
145°	1839.1	1853.4	1864.9	1867.1	1859.2
147.5°	1907.3	1925.3	1933.9	1937.6	1929.7
150°	1977.8	1990.0	1997.9	2004.4	1997.9
152.5°	2040.3	2052.6	2062.7	2070.6	2062.7
155°	2102.9	2108.7	2115.2	2125.2	2118.7
157.5°	2156.8	2161.2	2164.7	2179.1	2169.1
160°	2205.0	2209.3	2211.5	2223.6	2215.1
162.5°	2249.6	2249.6	2251.7	2265.4	2255.3
165°	2287.6	2285.5	2285.5	2299.9	2289.8
167.5°	2322.1	2315.7	2315.7	2330.1	2320.0
170°	2348.1	2342.3	2340.1	2354.6	2342.3
172.5°	2366.1	2360.3	2358.1	2372.5	2360.3
175°	2380.4	2374.6	2370.3	2384.7	2372.5
177.5°	2388.3	2382.6	2378.2	2390.5	2378.2
180°	2384.7	2384.7	2384.7	2384.7	2384.7



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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	5.84	6.54	6.95	7.65	9.19	5.40	6.10	6.51	7.21	8.75
	3H	7.48	8.11	8.60	9.23	10.78	7.00	7.63	8.12	8.75	10.30
	4H	8.06	8.66	9.19	9.77	11.33	7.57	8.17	8.70	9.29	10.85
	6H	8.44	8.99	9.58	10.12	11.68	7.95	8.51	9.10	9.63	11.20
	8H	8.54	9.07	9.69	10.20	11.76	8.05	8.58	9.20	9.71	11.27
	12H	8.58	9.08	9.73	10.21	11.79	8.09	8.58	9.23	9.71	11.30
4H	2H	6.28	6.87	7.42	7.99	9.55	5.93	6.52	7.07	7.64	9.20
	3H	8.12	8.62	9.27	9.76	11.33	7.72	8.22	8.87	9.36	10.93
	4H	8.82	9.28	9.97	10.42	12.01	8.41	8.87	9.56	10.00	11.59
	6H	9.32	9.72	10.48	10.87	12.45	8.90	9.30	10.06	10.45	12.03
	8H	9.47	9.83	10.62	10.98	12.58	9.04	9.41	10.19	10.56	12.15
	12H	9.53	9.86	10.70	11.02	12.62	9.09	9.43	10.26	10.58	12.19
8H	4H	9.00	9.37	10.16	10.52	12.11	8.63	9.00	9.79	10.15	11.75
	6H	9.62	9.92	10.79	11.11	12.71	9.25	9.55	10.42	10.74	12.33
	8H	9.83	10.10	11.01	11.27	12.88	9.45	9.72	10.63	10.89	12.50
	12H	9.95	10.19	11.14	11.35	13.00	9.56	9.79	10.74	10.95	12.60
12H	4H	8.98	9.31	10.15	10.47	12.07	8.62	8.95	9.79	10.11	11.71
	6H	9.65	9.91	10.83	11.08	12.69	9.28	9.55	10.46	10.72	12.33
	8H	9.88	10.11	11.06	11.27	12.92	9.51	9.74	10.69	10.90	12.55