

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: P906216

Luminaire Tested: DFN2DIP-SQ2F0-030D080US835-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P906216  
REPORT IS A COMBINATION OF REPORTS P899831 AND P896659  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-030D080US835-FLLFLL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

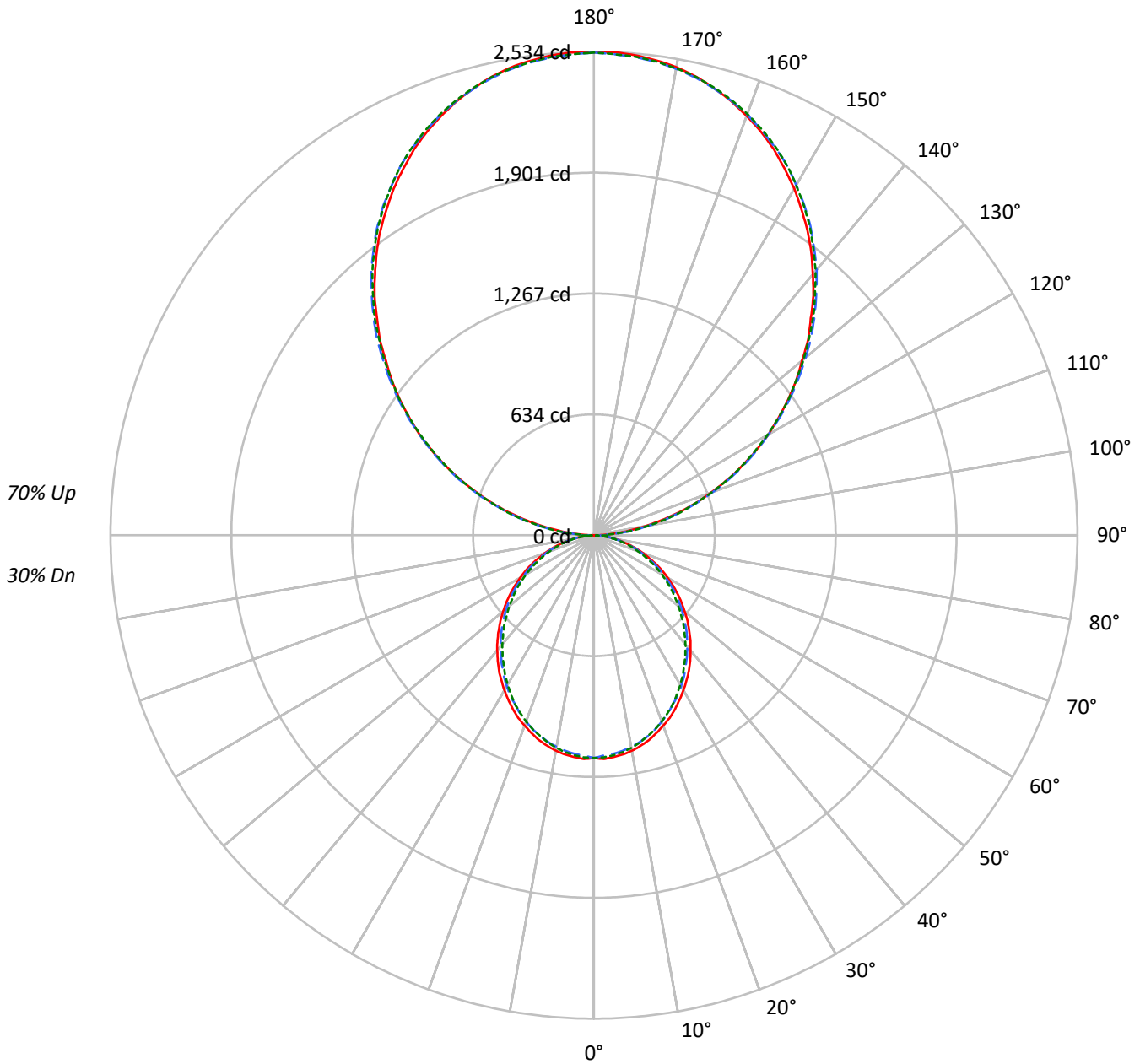
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10050.0 lumens  
Efficiency: N/A  
Efficacy: 114.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 88  
Input Voltage (V):  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.9963  
Total Harmonic Distortion (THDi): 0.065  
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°	2567	2567	2567
5°	2566	2525	2544
10°	2541	2486	2506
15°	2499	2439	2449
20°	2444	2377	2390
25°	2390	2303	2323
30°	2322	2235	2239
35°	2258	2154	2150
40°	2179	2073	2064
45°	2101	1991	1977
50°	2015	1905	1877
55°	1924	1806	1783
60°	1822	1689	1676
65°	1709	1567	1550
70°	1566	1418	1413
75°	1370	1240	1282
80°	1132	1011	1041
85°	765	639	654

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 3527 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	109.9	1.1
10°-20°	309.1	3.1
20°-30°	454.3	4.5
30°-40°	527.6	5.3
40°-50°	527.0	5.2
50°-60°	459.5	4.6
60°-70°	339.7	3.4
70°-80°	192.2	1.9
80°-90°	57.9	0.6
90°-100°	156.6	1.6
100°-110°	497.5	4.9
110°-120°	851.3	8.5
120°-130°	1119.6	11.1
130°-140°	1256.7	12.5
140°-150°	1232.3	12.3
150°-160°	1033.7	10.3
160°-170°	685.6	6.8
170°-180°	239.6	2.4
0°-30°	873.3	8.7
0°-40°	1400.9	13.9
0°-60°	2387.4	23.8
0°-90°	2977.2	29.6
90°-120°	1505.3	15.0
90°-150°	5113.9	50.9
90°-180°	7073.0	70.4
0°-180°	10050.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1167	1167	1167	1167	1167	
5°	1167	1163	1150	1160	1157	111
15°	1111	1105	1090	1094	1089	313
25°	1006	997	978	980	978	463
35°	868	856	838	832	826	542
45°	706	698	681	669	664	545
55°	534	528	514	501	495	478
65°	360	354	342	332	327	356
75°	188	186	181	174	176	201
85°	46	45	44	40	39	51
90°	2	28	75	70	72	10
95°	111	133	136	136	133	124
105°	459	465	470	474	474	485
115°	854	866	863	860	854	845
125°	1242	1262	1256	1249	1246	1110
135°	1607	1631	1635	1633	1627	1242
145°	1951	1966	1979	1981	1972	1219
155°	2231	2237	2244	2255	2248	1027
165°	2427	2425	2425	2440	2429	685
175°	2526	2519	2515	2530	2517	240
180°	2530	2530	2530	2530	2530	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1167.3	1167.3	1167.3	1167.3	1167.3
2.5°	1174.1	1168.5	1156.1	1167.3	1165.2
5°	1167.3	1162.9	1150.5	1159.5	1157.3
7.5°	1159.5	1152.8	1140.4	1149.5	1147.2
10°	1147.2	1139.3	1125.9	1134.8	1131.5
12.5°	1130.3	1123.6	1110.2	1115.7	1113.5
15°	1111.2	1104.6	1089.9	1094.4	1088.8
17.5°	1087.6	1081.0	1066.3	1071.9	1066.3
20°	1061.8	1055.1	1039.4	1042.7	1038.3
22.5°	1036.1	1026.0	1011.3	1011.3	1009.0
25°	1005.7	996.8	977.7	979.9	977.7
27.5°	972.0	964.1	949.6	946.3	940.7
30°	938.4	929.4	912.6	909.2	904.7
32.5°	902.5	895.8	877.8	871.0	866.5
35°	867.7	856.5	838.5	831.7	826.1
37.5°	828.4	818.3	800.3	792.4	786.8
40°	788.0	779.0	761.0	751.0	746.5
42.5°	748.7	739.7	721.8	710.5	703.8
45°	706.1	698.2	681.3	669.0	664.5
47.5°	664.5	656.7	638.7	626.3	619.6
50°	620.7	615.1	599.4	583.7	578.1
52.5°	578.1	570.2	555.7	543.3	535.4
55°	534.4	527.6	514.1	500.7	495.1
57.5°	490.5	484.9	470.3	456.8	452.3
60°	446.7	442.3	426.6	414.2	410.9
62.5°	404.1	396.2	385.0	373.8	369.3
65°	360.4	353.6	342.4	332.3	326.7
67.5°	315.5	309.8	299.7	291.9	287.4
70°	273.9	269.4	259.3	251.4	247.0
72.5°	231.3	226.7	221.1	213.3	210.0
75°	188.5	186.4	180.7	174.0	176.3
77.5°	150.4	145.9	143.6	140.3	137.0
80°	112.3	111.1	108.8	105.5	103.3
82.5°	76.3	76.3	75.3	70.7	70.7
85°	46.0	44.9	43.8	40.4	39.3
87.5°	20.2	18.0	15.7	12.4	11.2
90°	2.3	27.5	74.8	70.2	72.5
92.5°	47.3	64.1	66.4	68.6	68.6
95°	111.4	132.7	136.5	136.5	132.7
97.5°	185.4	205.2	213.6	213.6	213.6
100°	270.8	288.3	294.4	294.4	292.1
102.5°	360.8	373.8	382.1	384.4	382.1
105°	459.2	465.3	469.9	473.7	473.7
107.5°	556.8	566.0	566.0	567.5	556.8
110°	651.4	663.6	663.6	663.6	657.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	753.6	766.6	764.3	758.2	753.6
115°	854.3	866.5	862.7	860.4	854.3
117.5°	954.2	971.0	960.3	954.2	948.1
120°	1054.9	1071.7	1054.9	1054.9	1048.0
122.5°	1146.4	1167.8	1157.1	1151.0	1146.4
125°	1242.5	1261.6	1255.5	1248.6	1246.4
127.5°	1336.4	1360.0	1351.6	1342.5	1336.4
130°	1424.1	1451.5	1447.7	1443.2	1434.8
132.5°	1522.5	1543.8	1545.4	1534.7	1528.6
135°	1607.1	1630.8	1635.4	1633.1	1627.0
137.5°	1701.7	1720.8	1724.6	1723.1	1713.9
140°	1784.9	1803.9	1814.6	1814.6	1806.2
142.5°	1870.3	1889.4	1895.5	1897.8	1889.4
145°	1951.2	1966.4	1978.6	1980.9	1972.5
147.5°	2023.6	2042.7	2051.8	2055.7	2047.3
150°	2098.4	2111.3	2119.7	2126.6	2119.7
152.5°	2164.7	2177.7	2188.4	2196.8	2188.4
155°	2231.1	2237.2	2244.1	2254.7	2247.9
157.5°	2288.3	2292.9	2296.7	2311.9	2301.3
160°	2339.4	2344.0	2346.3	2359.2	2350.1
162.5°	2386.7	2386.7	2389.0	2403.5	2392.8
165°	2427.1	2424.8	2424.8	2440.1	2429.4
167.5°	2463.7	2456.9	2456.9	2472.1	2461.4
170°	2491.2	2485.1	2482.8	2498.1	2485.1
172.5°	2510.3	2504.2	2501.9	2517.1	2504.2
175°	2525.5	2519.4	2514.8	2530.1	2517.1
177.5°	2533.9	2527.8	2523.2	2536.2	2523.2
180°	2530.1	2530.1	2530.1	2530.1	2530.1



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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	8.16	8.87	9.28	9.98	11.51	7.72	8.42	8.83	9.53	11.07
	3H	9.79	10.42	10.91	11.54	13.09	9.30	9.93	10.42	11.05	12.60
	4H	10.36	10.96	11.49	12.08	13.63	9.87	10.46	11.00	11.58	13.14
	6H	10.74	11.29	11.88	12.41	13.98	10.24	10.79	11.38	11.91	13.48
	8H	10.83	11.35	11.97	12.49	14.05	10.33	10.85	11.47	11.99	13.55
	12H	10.86	11.36	12.01	12.49	14.08	10.36	10.85	11.50	11.98	13.57
4H	2H	8.59	9.19	9.73	10.31	11.87	8.24	8.84	9.38	9.95	11.51
	3H	10.42	10.92	11.57	12.07	13.64	10.01	10.51	11.16	11.66	13.23
	4H	11.11	11.57	12.26	12.71	14.30	10.69	11.15	11.84	12.28	13.87
	6H	11.60	12.00	12.76	13.15	14.73	11.17	11.56	12.32	12.72	14.30
	8H	11.74	12.11	12.89	13.25	14.85	11.30	11.67	12.46	12.82	14.41
	12H	11.79	12.13	12.96	13.29	14.89	11.35	11.68	12.52	12.84	14.44
8H	4H	11.29	11.65	12.44	12.80	14.40	10.91	11.28	12.06	12.42	14.02
	6H	11.89	12.19	13.06	13.38	14.97	11.50	11.81	12.68	13.00	14.59
	8H	12.09	12.36	13.27	13.53	15.14	11.70	11.96	12.88	13.13	14.75
	12H	12.20	12.44	13.39	13.60	15.25	11.79	12.03	12.98	13.19	14.84
12H	4H	11.26	11.60	12.43	12.75	14.36	10.89	11.23	12.06	12.38	13.99
	6H	11.91	12.18	13.09	13.34	14.96	11.54	11.80	12.72	12.97	14.58
	8H	12.13	12.36	13.31	13.53	15.17	11.75	11.98	12.93	13.15	14.79