

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: P905114

Luminaire Tested: DFN2DIP-4P4F0-070D070US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905114
REPORT IS A COMBINATION OF REPORTS P899135 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D070US835-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

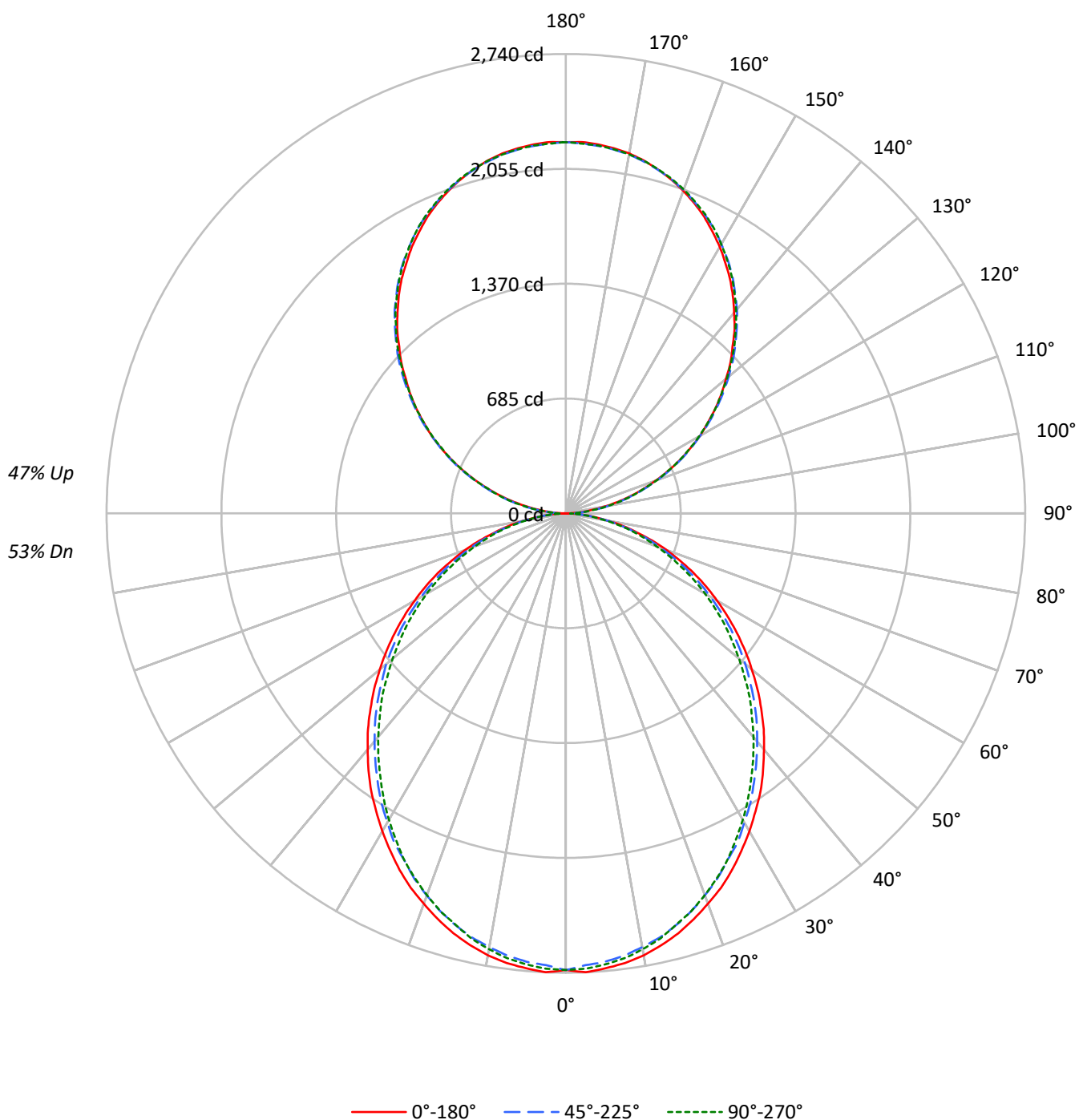
Lumens per Lamp: N/A
Luminaire Lumens: 13125.1 lumens
Efficiency: N/A
Efficacy: 96.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1767	1767	1767
5°	1770	1743	1755
10°	1756	1720	1732
15°	1730	1692	1695
20°	1695	1653	1658
25°	1661	1607	1615
30°	1617	1564	1559
35°	1576	1513	1501
40°	1526	1461	1445
45°	1475	1410	1388
50°	1420	1355	1323
55°	1362	1293	1262
60°	1297	1218	1193
65°	1226	1141	1111
70°	1136	1047	1024
75°	1010	935	944
80°	859	793	790
85°	624	545	533

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1675 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	2.0
10°-20°	721.3	5.5
20°-30°	1060.0	8.1
30°-40°	1231.1	9.4
40°-50°	1229.6	9.4
50°-60°	1072.2	8.2
60°-70°	792.6	6.0
70°-80°	448.4	3.4
80°-90°	124.7	0.9
90°-100°	137.0	1.0
100°-110°	435.3	3.3
110°-120°	744.9	5.7
120°-130°	979.6	7.5
130°-140°	1099.6	8.4
140°-150°	1078.3	8.2
150°-160°	904.5	6.9
160°-170°	599.9	4.6
170°-180°	209.7	1.6
0°-30°	2037.7	15.5
0°-40°	3268.8	24.9
0°-60°	5570.6	42.4
0°-90°	6936.3	52.8
90°-120°	1317.2	10.0
90°-150°	4474.7	34.1
90°-180°	6189.0	47.2
0°-180°	13125.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2724	2724	2724	2724	2724	
5°	2724	2714	2685	2705	2700	259
15°	2593	2577	2543	2554	2541	730
25°	2347	2326	2281	2286	2281	1080
35°	2025	1998	1956	1941	1928	1264
45°	1648	1629	1590	1561	1550	1271
55°	1247	1231	1200	1168	1155	1115
65°	841	825	799	775	762	831
75°	440	435	422	406	411	470
85°	107	105	102	94	92	120
90°	2	24	65	61	63	13
95°	97	116	120	120	116	108
105°	402	407	411	414	414	424
115°	748	758	755	753	748	739
125°	1087	1104	1099	1093	1091	972
135°	1406	1427	1431	1429	1424	1087
145°	1707	1721	1731	1733	1726	1067
155°	1952	1958	1964	1973	1967	899
165°	2124	2122	2122	2135	2126	599
175°	2210	2204	2200	2214	2202	210
180°	2214	2214	2214	2214	2214	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2723.7	2723.7	2723.7	2723.7	2723.7
2.5°	2739.6	2726.5	2697.6	2723.7	2718.7
5°	2723.7	2713.5	2684.6	2705.4	2700.4
7.5°	2705.4	2689.8	2660.9	2682.1	2676.8
10°	2676.8	2658.4	2627.0	2647.9	2640.1
12.5°	2637.3	2621.8	2590.4	2603.4	2598.1
15°	2592.9	2577.3	2543.1	2553.7	2540.6
17.5°	2537.8	2522.3	2488.1	2501.2	2488.1
20°	2477.5	2462.0	2425.3	2433.1	2422.8
22.5°	2417.5	2393.9	2359.7	2359.7	2354.4
25°	2346.7	2325.8	2281.4	2286.4	2281.4
27.5°	2268.0	2249.7	2215.8	2208.0	2194.9
30°	2189.7	2168.5	2129.4	2121.6	2111.0
32.5°	2105.7	2090.2	2048.2	2032.4	2021.8
35°	2024.6	1998.5	1956.5	1940.7	1927.6
37.5°	1932.9	1909.3	1867.3	1849.0	1835.9
40°	1838.7	1817.6	1775.6	1752.3	1741.7
42.5°	1747.0	1725.9	1684.2	1657.8	1642.2
45°	1647.5	1629.2	1589.7	1561.1	1550.5
47.5°	1550.5	1532.2	1490.2	1461.3	1445.8
50°	1448.3	1435.2	1398.5	1361.9	1348.8
52.5°	1348.8	1330.5	1296.6	1267.7	1249.3
55°	1246.8	1231.0	1199.6	1168.2	1155.1
57.5°	1144.6	1131.5	1097.3	1065.9	1055.4
60°	1042.3	1032.0	995.4	966.5	958.7
62.5°	942.8	924.5	898.4	872.3	861.7
65°	840.9	825.0	798.9	775.3	762.2
67.5°	736.1	722.8	699.4	681.1	670.5
70°	639.1	628.6	604.9	586.6	576.3
72.5°	539.6	529.1	516.0	497.7	489.9
75°	439.9	434.9	421.5	406.0	411.3
77.5°	351.0	340.4	335.1	327.3	319.6
80°	262.0	259.3	254.0	246.2	240.9
82.5°	178.1	178.1	175.6	165.1	165.1
85°	107.3	104.8	102.3	94.2	91.7
87.5°	47.2	42.0	36.7	28.9	26.1
90°	2.0	24.0	65.4	61.4	63.4
92.5°	41.4	56.1	58.1	60.1	60.1
95°	97.4	116.1	119.5	119.5	116.1
97.5°	162.2	179.5	186.9	186.9	186.9
100°	236.9	252.3	257.6	257.6	255.6
102.5°	315.7	327.0	334.4	336.4	334.4
105°	401.8	407.1	411.1	414.5	414.5
107.5°	487.2	495.2	495.2	496.6	487.2
110°	570.0	580.7	580.7	580.7	575.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	659.4	670.8	668.8	663.4	659.4
115°	747.5	758.2	754.9	752.9	747.5
117.5°	834.9	849.6	840.3	834.9	829.6
120°	923.0	937.7	923.0	923.0	917.0
122.5°	1003.1	1021.8	1012.5	1007.1	1003.1
125°	1087.2	1103.9	1098.6	1092.6	1090.6
127.5°	1169.3	1190.0	1182.7	1174.7	1169.3
130°	1246.1	1270.1	1266.8	1262.8	1255.4
132.5°	1332.2	1350.9	1352.2	1342.9	1337.5
135°	1406.3	1426.9	1431.0	1428.9	1423.6
137.5°	1489.0	1505.7	1509.0	1507.7	1499.7
140°	1561.8	1578.5	1587.8	1587.8	1580.5
142.5°	1636.5	1653.2	1658.5	1660.5	1653.2
145°	1707.3	1720.6	1731.3	1733.3	1726.0
147.5°	1770.7	1787.4	1795.4	1798.7	1791.4
150°	1836.1	1847.4	1854.8	1860.8	1854.8
152.5°	1894.1	1905.5	1914.8	1922.2	1914.8
155°	1952.2	1957.5	1963.6	1972.9	1966.9
157.5°	2002.3	2006.3	2009.6	2023.0	2013.6
160°	2047.0	2051.0	2053.0	2064.3	2056.3
162.5°	2088.4	2088.4	2090.4	2103.0	2093.7
165°	2123.7	2121.7	2121.7	2135.1	2125.7
167.5°	2155.8	2149.8	2149.8	2163.1	2153.8
170°	2179.8	2174.5	2172.5	2185.8	2174.5
172.5°	2196.5	2191.1	2189.1	2202.5	2191.1
175°	2209.8	2204.5	2200.5	2213.8	2202.5
177.5°	2217.2	2211.8	2207.8	2219.2	2207.8
180°	2213.8	2213.8	2213.8	2213.8	2213.8

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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	9.53	10.41	10.46	11.36	12.59	9.08	9.97	10.01	10.92	12.15
	3H	11.20	11.99	12.14	12.95	14.20	10.70	11.50	11.65	12.46	13.71
	4H	11.79	12.54	12.75	13.50	14.77	11.29	12.05	12.25	13.01	14.27
	6H	12.19	12.89	13.16	13.86	15.13	11.69	12.39	12.66	13.36	14.63
	8H	12.30	12.96	13.28	13.95	15.22	11.80	12.46	12.78	13.45	14.72
	12H	12.35	12.98	13.33	13.96	15.26	11.84	12.47	12.82	13.45	14.75
4H	2H	9.99	10.75	10.96	11.71	12.97	9.64	10.39	10.60	11.35	12.62
	3H	11.87	12.50	12.84	13.49	14.77	11.46	12.09	12.43	13.08	14.36
	4H	12.59	13.16	13.57	14.15	15.45	12.16	12.74	13.15	13.72	15.02
	6H	13.11	13.60	14.10	14.61	15.91	12.68	13.17	13.67	14.18	15.48
	8H	13.26	13.72	14.26	14.73	16.04	12.82	13.29	13.82	14.29	15.60
	12H	13.34	13.76	14.35	14.78	16.10	12.89	13.31	13.90	14.33	15.65
8H	4H	12.79	13.25	13.78	14.25	15.57	12.41	12.87	13.41	13.88	15.19
	6H	13.43	13.81	14.45	14.85	16.16	13.04	13.42	14.06	14.47	15.78
	8H	13.65	13.99	14.68	15.02	16.35	13.26	13.60	14.29	14.63	15.96
	12H	13.79	14.08	14.82	15.11	16.48	13.38	13.67	14.41	14.70	16.07
12H	4H	12.77	13.19	13.79	14.21	15.53	12.41	12.82	13.42	13.84	15.16
	6H	13.46	13.79	14.49	14.83	16.16	13.08	13.42	14.11	14.45	15.78
	8H	13.70	14.00	14.74	15.03	16.40	13.32	13.62	14.36	14.65	16.02