

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: P905784

Luminaire Tested: DFN2DIP-PN3F0-060D090US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905784
REPORT IS A COMBINATION OF REPORTS P899601 AND P896399
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-060D090US835-FLLFLL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

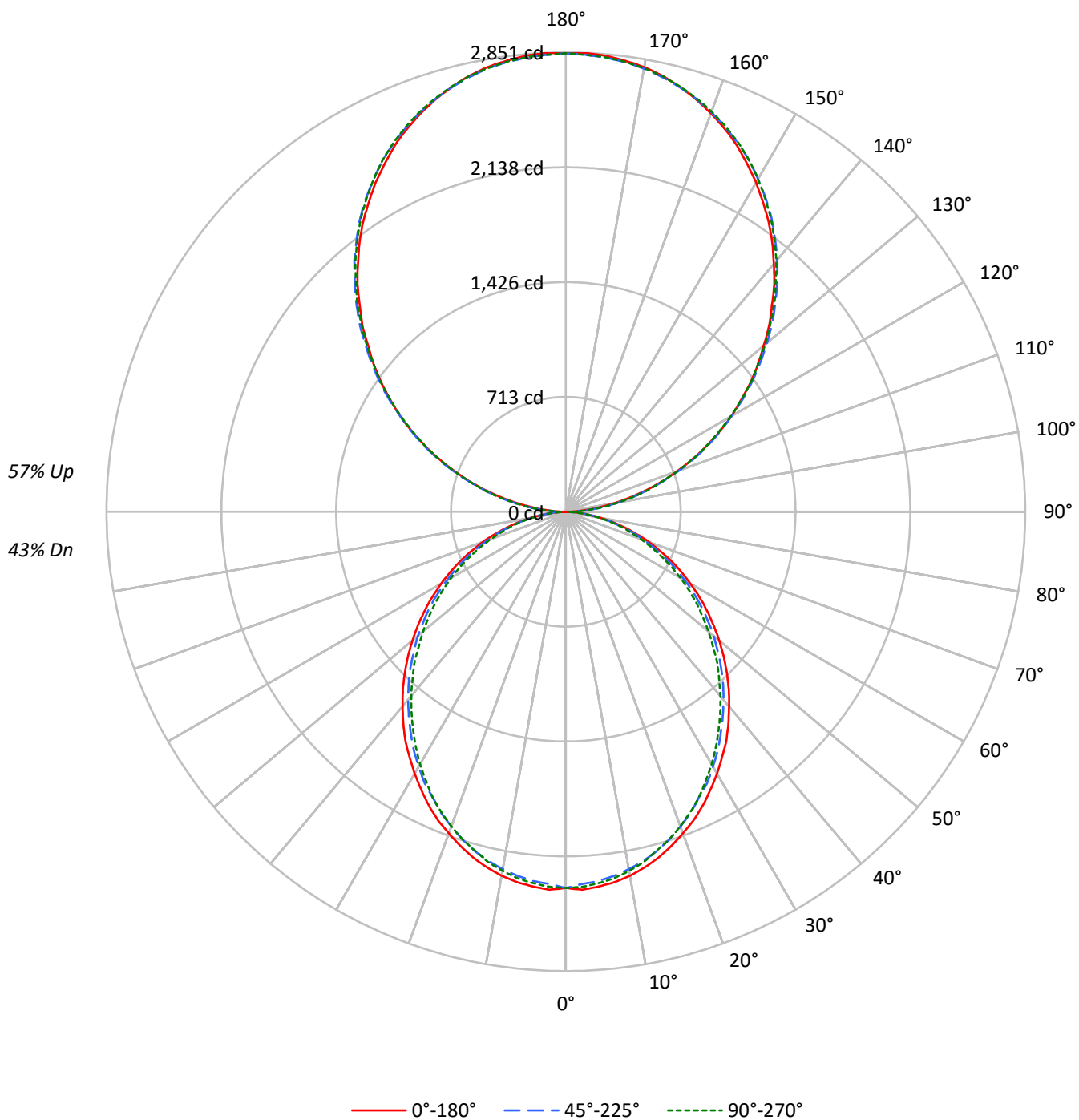
Lumens per Lamp: N/A
Luminaire Lumens: 13905.0 lumens
Efficiency: N/A
Efficacy: 108.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 128.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2729	2729	2729
5°	2732	2689	2708
10°	2708	2651	2670
15°	2667	2605	2612
20°	2611	2543	2552
25°	2556	2468	2483
30°	2487	2399	2396
35°	2422	2318	2303
40°	2342	2235	2215
45°	2262	2152	2125
50°	2174	2065	2021
55°	2082	1965	1925
60°	1979	1846	1815
65°	1865	1722	1685
70°	1720	1571	1545
75°	1520	1390	1414
80°	1279	1159	1167
85°	901	766	760

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2819 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.7	1.6
10°-20°	618.3	4.4
20°-30°	908.6	6.5
30°-40°	1055.3	7.6
40°-50°	1054.0	7.6
50°-60°	919.0	6.6
60°-70°	679.4	4.9
70°-80°	384.4	2.8
80°-90°	109.5	0.8
90°-100°	176.1	1.3
100°-110°	559.6	4.0
110°-120°	957.7	6.9
120°-130°	1259.5	9.1
130°-140°	1413.8	10.2
140°-150°	1386.4	10.0
150°-160°	1163.0	8.4
160°-170°	771.2	5.5
170°-180°	269.6	1.9
0°-30°	1746.6	12.6
0°-40°	2801.8	20.1
0°-60°	4774.8	34.3
0°-90°	5948.1	42.8
90°-120°	1693.5	12.2
90°-150°	5753.1	41.4
90°-180°	7957.0	57.2
0°-180°	13905.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2335	2335	2335	2335	2335	
5°	2335	2326	2301	2319	2315	222
15°	2222	2209	2180	2189	2178	626
25°	2011	1994	1955	1960	1955	926
35°	1735	1713	1677	1663	1652	1084
45°	1412	1396	1363	1338	1329	1090
55°	1069	1055	1028	1001	990	955
65°	721	707	685	664	653	713
75°	377	373	361	348	352	402
85°	92	90	88	81	79	103
90°	3	31	84	79	82	14
95°	125	149	154	154	149	139
105°	517	523	529	533	533	545
115°	961	975	970	968	961	951
125°	1398	1419	1412	1405	1402	1249
135°	1808	1835	1840	1837	1830	1398
145°	2195	2212	2226	2228	2219	1372
155°	2510	2517	2525	2537	2529	1155
165°	2730	2728	2728	2745	2733	770
175°	2841	2834	2829	2846	2832	270
180°	2846	2846	2846	2846	2846	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2334.6	2334.6	2334.6	2334.6	2334.6
2.5°	2348.2	2337.0	2312.2	2334.6	2330.3
5°	2334.6	2325.8	2301.0	2318.9	2314.6
7.5°	2318.9	2305.6	2280.8	2298.9	2294.4
10°	2294.4	2278.7	2251.7	2269.6	2262.9
12.5°	2260.6	2247.2	2220.3	2231.5	2227.0
15°	2222.4	2209.1	2179.8	2188.9	2177.7
17.5°	2175.3	2162.0	2132.7	2143.8	2132.7
20°	2123.6	2110.3	2078.8	2085.5	2076.7
22.5°	2072.2	2051.9	2022.6	2022.6	2018.1
25°	2011.4	1993.6	1955.4	1959.7	1955.4
27.5°	1944.0	1928.3	1899.2	1892.6	1881.4
30°	1876.9	1858.7	1825.2	1818.5	1809.4
32.5°	1804.9	1791.6	1755.6	1742.0	1733.0
35°	1735.4	1713.0	1677.0	1663.4	1652.2
37.5°	1656.8	1636.5	1600.6	1584.8	1573.6
40°	1576.0	1557.9	1522.0	1502.0	1492.9
42.5°	1497.4	1479.3	1443.6	1421.0	1407.6
45°	1412.2	1396.4	1362.6	1338.1	1329.0
47.5°	1329.0	1313.3	1277.4	1252.6	1239.2
50°	1241.4	1230.2	1198.8	1167.3	1156.1
52.5°	1156.1	1140.4	1111.3	1086.6	1070.9
55°	1068.7	1055.1	1028.2	1001.3	990.1
57.5°	981.1	969.9	940.6	913.7	904.6
60°	893.4	884.6	853.2	828.4	821.7
62.5°	808.1	792.4	770.0	747.6	738.6
65°	720.7	707.2	684.8	664.5	653.3
67.5°	630.9	619.5	599.5	583.8	574.7
70°	547.8	538.8	518.5	502.8	494.0
72.5°	462.5	453.5	442.3	426.6	419.9
75°	377.0	372.8	361.3	348.0	352.5
77.5°	300.8	291.8	287.2	280.6	273.9
80°	224.6	222.2	217.7	211.0	206.5
82.5°	152.7	152.7	150.5	141.5	141.5
85°	91.9	89.8	87.6	80.7	78.6
87.5°	40.5	36.0	31.4	24.8	22.4
90°	2.6	30.9	84.1	78.9	81.5
92.5°	53.2	72.1	74.7	77.2	77.2
95°	125.3	149.3	153.6	153.6	149.3
97.5°	208.5	230.8	240.3	240.3	240.3
100°	304.6	324.4	331.2	331.2	328.7
102.5°	405.9	420.5	429.9	432.5	429.9
105°	516.6	523.4	528.6	532.9	532.9
107.5°	626.4	636.7	636.7	638.4	626.4
110°	732.8	746.6	746.6	746.6	739.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	847.8	862.4	859.8	853.0	847.8
115°	961.1	974.8	970.5	968.0	961.1
117.5°	1073.5	1092.4	1080.4	1073.5	1066.6
120°	1186.8	1205.6	1186.8	1186.8	1179.0
122.5°	1289.7	1313.8	1301.8	1294.9	1289.7
125°	1397.9	1419.3	1412.5	1404.7	1402.2
127.5°	1503.4	1530.0	1520.6	1510.3	1503.4
130°	1602.1	1633.0	1628.7	1623.5	1614.1
132.5°	1712.8	1736.8	1738.5	1726.5	1719.7
135°	1808.0	1834.6	1839.8	1837.2	1830.4
137.5°	1914.4	1935.9	1940.2	1938.5	1928.2
140°	2008.0	2029.4	2041.4	2041.4	2032.0
142.5°	2104.1	2125.5	2132.4	2135.0	2125.5
145°	2195.1	2212.2	2225.9	2228.5	2219.1
147.5°	2276.6	2298.0	2308.3	2312.6	2303.2
150°	2360.7	2375.3	2384.7	2392.4	2384.7
152.5°	2435.3	2449.9	2461.9	2471.4	2461.9
155°	2510.0	2516.8	2524.6	2536.6	2528.9
157.5°	2574.3	2579.5	2583.8	2600.9	2588.9
160°	2631.8	2637.0	2639.6	2654.1	2643.8
162.5°	2685.0	2685.0	2687.6	2703.9	2691.9
165°	2730.5	2727.9	2727.9	2745.1	2733.1
167.5°	2771.7	2764.0	2764.0	2781.1	2769.1
170°	2802.6	2795.7	2793.2	2810.3	2795.7
172.5°	2824.0	2817.2	2814.6	2831.8	2817.2
175°	2841.2	2834.3	2829.2	2846.4	2831.8
177.5°	2850.6	2843.8	2838.6	2853.2	2838.6
180°	2846.4	2846.4	2846.4	2846.4	2846.4

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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	10.01	10.81	11.03	11.84	13.21	9.57	10.37	10.59	11.40	12.77
	3H	11.66	12.38	12.69	13.41	14.80	11.18	11.90	12.21	12.93	14.32
	4H	12.24	12.92	13.28	13.96	15.36	11.76	12.44	12.80	13.47	14.87
	6H	12.64	13.26	13.68	14.30	15.71	12.15	12.77	13.19	13.81	15.22
	8H	12.74	13.33	13.79	14.39	15.79	12.25	12.84	13.30	13.90	15.30
	12H	12.78	13.35	13.84	14.40	15.83	12.28	12.85	13.34	13.90	15.33
4H	2H	10.46	11.14	11.51	12.18	13.58	10.11	10.79	11.16	11.83	13.23
	3H	12.32	12.88	13.37	13.95	15.36	11.91	12.48	12.97	13.55	14.96
	4H	13.02	13.54	14.08	14.60	16.03	12.61	13.13	13.67	14.18	15.62
	6H	13.53	13.98	14.60	15.06	16.48	13.11	13.55	14.18	14.63	16.06
	8H	13.67	14.09	14.74	15.16	16.61	13.25	13.66	14.32	14.74	16.18
	12H	13.74	14.12	14.83	15.20	16.65	13.30	13.68	14.39	14.77	16.22
8H	4H	13.21	13.63	14.28	14.70	16.14	12.84	13.26	13.91	14.33	15.77
	6H	13.83	14.18	14.92	15.29	16.73	13.46	13.80	14.55	14.92	16.36
	8H	14.05	14.35	15.15	15.45	16.91	13.66	13.97	14.76	15.06	16.52
	12H	14.17	14.44	15.28	15.53	17.03	13.77	14.04	14.88	15.13	16.63
12H	4H	13.19	13.57	14.28	14.66	16.10	12.83	13.21	13.92	14.29	15.74
	6H	13.86	14.16	14.96	15.26	16.72	13.50	13.80	14.60	14.90	16.36
	8H	14.09	14.36	15.20	15.45	16.95	13.72	13.99	14.83	15.08	16.58