

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: P925144

Luminaire Tested: DFN2DIP-PN4F0-080D120US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925144
REPORT IS A COMBINATION OF REPORTS P899761 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D120US950-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

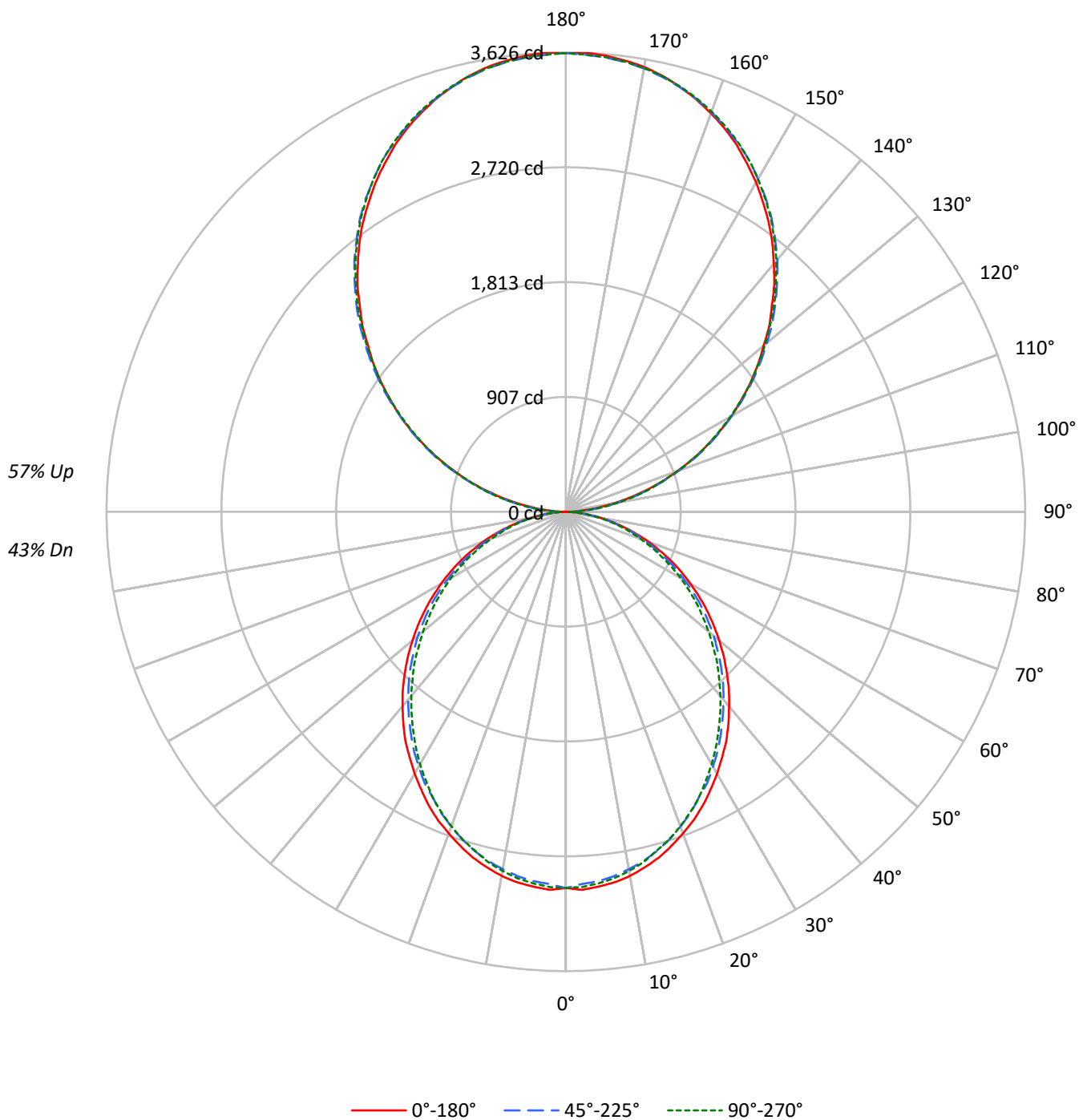
Lumens per Lamp: N/A
Luminaire Lumens: 17687.1 lumens
Efficiency: N/A
Efficacy: 97.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

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	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°	2168	2168	2168
5°	2171	2138	2152
10°	2154	2109	2124
15°	2122	2075	2078
20°	2079	2027	2032
25°	2037	1970	1979
30°	1983	1916	1911
35°	1933	1853	1838
40°	1870	1789	1770
45°	1808	1726	1700
50°	1741	1659	1619
55°	1669	1581	1544
60°	1589	1489	1458
65°	1502	1394	1358
70°	1390	1278	1249
75°	1236	1140	1150
80°	1050	963	959
85°	759	657	642

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2835 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	279.5	1.6
10°-20°	786.4	4.4
20°-30°	1155.7	6.5
30°-40°	1342.3	7.6
40°-50°	1340.6	7.6
50°-60°	1169.0	6.6
60°-70°	864.1	4.9
70°-80°	488.9	2.8
80°-90°	139.3	0.8
90°-100°	224.0	1.3
100°-110°	711.8	4.0
110°-120°	1218.2	6.9
120°-130°	1602.1	9.1
130°-140°	1798.3	10.2
140°-150°	1763.5	10.0
150°-160°	1479.3	8.4
160°-170°	981.0	5.5
170°-180°	342.9	1.9
0°-30°	2221.6	12.6
0°-40°	3563.9	20.1
0°-60°	6073.6	34.3
0°-90°	7566.0	42.8
90°-120°	2154.1	12.2
90°-150°	7318.0	41.4
90°-180°	10121.0	57.2
0°-180°	17687.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2970	2970	2970	2970	2970	
5°	2970	2958	2927	2950	2944	282
15°	2827	2810	2773	2784	2770	796
25°	2558	2536	2487	2493	2487	1177
35°	2207	2179	2133	2116	2102	1378
45°	1796	1776	1733	1702	1691	1386
55°	1359	1342	1308	1274	1259	1215
65°	917	900	871	845	831	906
75°	480	474	460	443	448	512
85°	117	114	112	103	100	130
90°	3	39	107	100	104	17
95°	159	190	195	195	190	177
105°	657	666	672	678	678	693
115°	1222	1240	1234	1231	1222	1209
125°	1778	1805	1797	1787	1784	1589
135°	2300	2334	2340	2337	2328	1778
145°	2792	2814	2831	2835	2823	1745
155°	3193	3201	3211	3226	3217	1470
165°	3473	3470	3470	3492	3476	980
175°	3614	3605	3599	3620	3602	343
180°	3620	3620	3620	3620	3620	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2969.6	2969.6	2969.6	2969.6	2969.6
2.5°	2986.9	2972.7	2941.2	2969.6	2964.2
5°	2969.6	2958.4	2927.0	2949.7	2944.2
7.5°	2949.7	2932.7	2901.2	2924.2	2918.5
10°	2918.5	2898.4	2864.2	2886.9	2878.5
12.5°	2875.5	2858.5	2824.2	2838.4	2832.7
15°	2827.0	2810.0	2772.7	2784.2	2770.0
17.5°	2767.0	2750.0	2712.7	2727.0	2712.7
20°	2701.3	2684.3	2644.3	2652.8	2641.5
22.5°	2635.8	2610.0	2572.7	2572.7	2567.0
25°	2558.5	2535.8	2487.4	2492.8	2487.4
27.5°	2472.8	2452.8	2415.8	2407.3	2393.1
30°	2387.4	2364.3	2321.7	2313.2	2301.6
32.5°	2295.9	2278.9	2233.1	2215.9	2204.4
35°	2207.4	2178.9	2133.1	2115.9	2101.7
37.5°	2107.4	2081.6	2035.9	2015.9	2001.7
40°	2004.7	1981.6	1936.0	1910.5	1898.9
42.5°	1904.8	1881.7	1836.3	1807.4	1790.6
45°	1796.3	1776.3	1733.2	1702.0	1690.6
47.5°	1690.6	1670.5	1624.8	1593.3	1576.3
50°	1579.1	1564.8	1524.8	1484.8	1470.6
52.5°	1470.6	1450.6	1413.6	1382.2	1362.1
55°	1359.4	1342.1	1307.9	1273.7	1259.4
57.5°	1247.9	1233.7	1196.4	1162.2	1150.6
60°	1136.4	1125.2	1085.2	1053.7	1045.2
62.5°	1027.9	1008.0	979.5	951.0	939.5
65°	916.8	899.5	871.0	845.2	831.0
67.5°	802.5	788.0	762.5	742.6	731.1
70°	696.8	685.3	659.6	639.6	628.3
72.5°	588.3	576.9	562.6	542.6	534.1
75°	479.6	474.1	459.6	442.7	448.4
77.5°	382.6	371.1	365.4	356.9	348.4
80°	285.7	282.7	276.9	268.5	262.6
82.5°	194.2	194.2	191.5	179.9	179.9
85°	117.0	114.2	111.5	102.7	100.0
87.5°	51.5	45.8	40.0	31.5	28.5
90°	3.2	39.3	106.9	100.5	103.7
92.5°	67.6	91.7	94.9	98.3	98.3
95°	159.3	189.9	195.4	195.4	189.9
97.5°	265.2	293.6	305.7	305.7	305.7
100°	387.5	412.6	421.3	421.3	418.0
102.5°	516.3	534.8	546.8	550.2	546.8
105°	657.1	665.8	672.4	677.8	677.8
107.5°	796.8	809.9	809.9	812.0	796.8
110°	932.2	949.6	949.6	949.6	940.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1078.4	1097.0	1093.7	1085.0	1078.4
115°	1222.5	1240.0	1234.5	1231.2	1222.5
117.5°	1365.5	1389.5	1374.2	1365.5	1356.8
120°	1509.6	1533.6	1509.6	1509.6	1499.8
122.5°	1640.6	1671.1	1655.9	1647.1	1640.6
125°	1778.1	1805.3	1796.7	1786.8	1783.5
127.5°	1912.4	1946.2	1934.1	1921.1	1912.4
130°	2037.8	2077.1	2071.7	2065.1	2053.1
132.5°	2178.6	2209.3	2211.4	2196.1	2187.4
135°	2299.8	2333.7	2340.3	2336.9	2328.2
137.5°	2435.2	2462.5	2467.9	2465.7	2452.6
140°	2554.1	2581.4	2596.7	2596.7	2584.7
142.5°	2676.4	2703.7	2712.4	2715.7	2703.7
145°	2792.1	2813.9	2831.4	2834.7	2822.7
147.5°	2895.8	2923.1	2936.2	2941.7	2929.6
150°	3002.8	3021.3	3033.3	3043.2	3033.3
152.5°	3097.7	3116.2	3131.6	3143.6	3131.6
155°	3192.7	3201.4	3211.3	3226.5	3216.7
157.5°	3274.6	3281.1	3286.5	3308.4	3293.1
160°	3347.7	3354.3	3357.5	3376.1	3362.9
162.5°	3415.3	3415.3	3418.7	3439.4	3424.1
165°	3473.2	3470.0	3470.0	3491.7	3476.5
167.5°	3525.6	3515.8	3515.8	3537.6	3522.4
170°	3564.9	3556.1	3552.9	3574.7	3556.1
172.5°	3592.2	3583.4	3580.2	3602.0	3583.4
175°	3614.0	3605.3	3598.8	3620.5	3602.0
177.5°	3626.1	3617.3	3610.7	3629.3	3610.7
180°	3620.5	3620.5	3620.5	3620.5	3620.5

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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	9.26	10.06	10.27	11.08	12.45	8.82	9.62	9.83	10.64	12.01
	3H	10.92	11.63	11.94	12.67	14.06	10.43	11.15	11.46	12.18	13.58
	4H	11.50	12.18	12.54	13.22	14.62	11.02	11.70	12.06	12.73	14.13
	6H	11.90	12.53	12.95	13.57	14.98	11.41	12.04	12.46	13.08	14.49
	8H	12.01	12.60	13.06	13.66	15.07	11.51	12.11	12.57	13.17	14.57
	12H	12.05	12.62	13.11	13.67	15.10	11.55	12.12	12.61	13.17	14.60
4H	2H	9.71	10.39	10.76	11.43	12.83	9.36	10.04	10.41	11.08	12.48
	3H	11.58	12.14	12.63	13.21	14.62	11.17	11.74	12.23	12.81	14.22
	4H	12.29	12.81	13.35	13.87	15.30	11.87	12.39	12.93	13.45	14.88
	6H	12.80	13.25	13.87	14.33	15.76	12.38	12.83	13.45	13.91	15.33
	8H	12.95	13.37	14.02	14.44	15.89	12.53	12.94	13.60	14.01	15.46
	12H	13.03	13.40	14.11	14.49	15.94	12.59	12.96	13.67	14.05	15.50
8H	4H	12.48	12.90	13.55	13.97	15.41	12.11	12.53	13.18	13.60	15.04
	6H	13.11	13.46	14.21	14.57	16.01	12.74	13.08	13.83	14.20	15.64
	8H	13.34	13.64	14.44	14.74	16.20	12.95	13.25	14.05	14.35	15.81
	12H	13.47	13.73	14.57	14.83	16.32	13.06	13.33	14.17	14.42	15.92
12H	4H	12.46	12.84	13.55	13.93	15.38	12.10	12.48	13.19	13.57	15.01
	6H	13.14	13.45	14.24	14.54	16.00	12.78	13.08	13.88	14.18	15.64
	8H	13.38	13.65	14.49	14.74	16.24	13.01	13.28	14.12	14.37	15.87