

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: P925269

Luminaire Tested: DFN2DIP-PN4F0-120D070US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925269
REPORT IS A COMBINATION OF REPORTS P901199 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D070US950-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

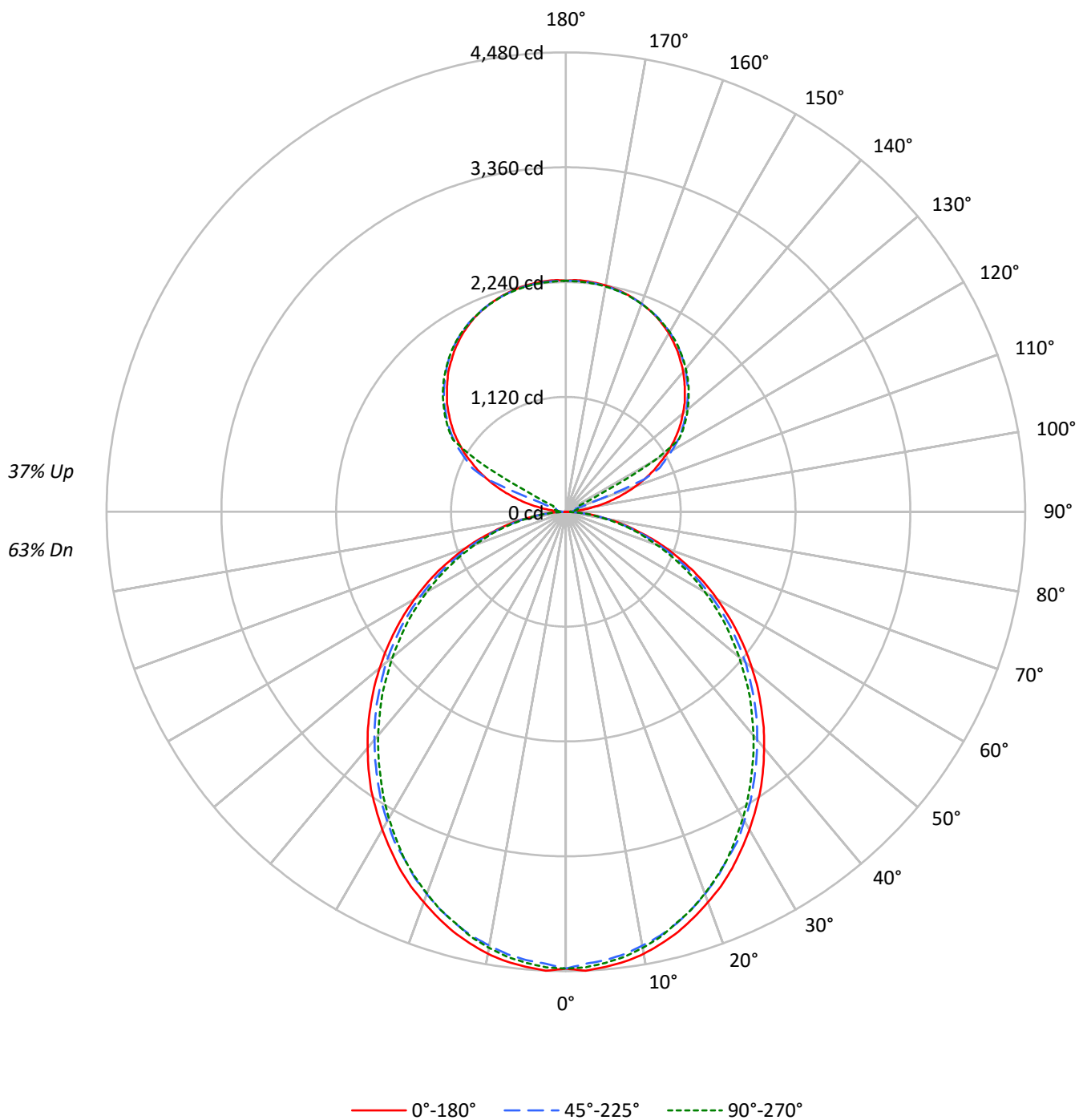
Lumens per Lamp: N/A
Luminaire Lumens: 17944.7 lumens
Efficiency: N/A
Efficacy: 100.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 178.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	96	92	89	94	91	87	84	80	77	75	70	68	66	60	59	58
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	53	51	49
3	84	74	67	61	78	70	63	58	62	56	52	54	50	47	47	44	41
4	77	66	57	51	72	62	55	49	55	49	44	48	44	40	42	39	36
5	70	59	50	44	66	55	48	42	49	43	38	43	39	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	34	39	34	30	34	31	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3252	3252	3252
5°	3257	3207	3228
10°	3230	3164	3185
15°	3183	3112	3118
20°	3119	3040	3048
25°	3055	2954	2968
30°	2975	2874	2866
35°	2899	2780	2758
40°	2806	2684	2655
45°	2713	2588	2550
50°	2611	2488	2428
55°	2504	2372	2316
60°	2384	2234	2188
65°	2253	2091	2037
70°	2085	1917	1874
75°	1853	1709	1725
80°	1574	1444	1438
85°	1139	985	963

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2713 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	419.3	2.3
10°-20°	1179.6	6.6
20°-30°	1733.6	9.7
30°-40°	2013.5	11.2
40°-50°	2011.0	11.2
50°-60°	1753.5	9.8
60°-70°	1296.2	7.2
70°-80°	733.4	4.1
80°-90°	197.5	1.1
90°-100°	74.3	0.4
100°-110°	277.0	1.5
110°-120°	734.8	4.1
120°-130°	1218.6	6.8
130°-140°	1294.5	7.2
140°-150°	1203.1	6.7
150°-160°	967.2	5.4
160°-170°	623.3	3.5
170°-180°	214.5	1.2
0°-30°	3332.5	18.6
0°-40°	5345.9	29.8
0°-60°	9110.4	50.8
0°-90°	11337.5	63.2
90°-120°	1086.1	6.1
90°-150°	4802.2	26.8
90°-180°	6607.0	36.8
0°-180°	17944.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4454	4454	4454	4454	4454	
5°	4454	4438	4390	4424	4416	423
15°	4240	4215	4159	4176	4155	1194
25°	3838	3804	3731	3739	3731	1766
35°	3311	3268	3200	3174	3152	2068
45°	2694	2664	2600	2553	2536	2079
55°	2039	2013	1962	1910	1889	1823
65°	1375	1349	1306	1268	1247	1360
75°	719	711	689	664	673	768
85°	175	171	167	154	150	196
90°	2	20	32	41	44	17
95°	106	52	64	72	70	125
105°	496	545	100	117	124	530
115°	938	965	1006	251	134	923
125°	1326	1347	1378	1390	1394	1182
135°	1641	1667	1681	1698	1694	1267
145°	1903	1902	1929	1941	1932	1190
155°	2096	2081	2100	2110	2097	966
165°	2208	2198	2203	2215	2203	624
175°	2259	2247	2250	2262	2246	215
180°	2254	2254	2254	2254	2254	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4454.5	4454.5	4454.5	4454.5	4454.5
2.5°	4480.4	4459.0	4411.8	4454.5	4446.3
5°	4454.5	4437.6	4390.4	4424.5	4416.3
7.5°	4424.5	4399.0	4351.8	4386.3	4377.7
10°	4377.7	4347.7	4296.3	4330.4	4317.7
12.5°	4313.1	4287.7	4236.3	4257.7	4249.0
15°	4240.4	4215.0	4159.1	4176.3	4155.0
17.5°	4150.5	4125.0	4069.1	4090.5	4069.1
20°	4051.8	4026.4	3966.4	3979.1	3962.3
22.5°	3953.7	3915.0	3859.1	3859.1	3850.5
25°	3837.8	3803.7	3731.0	3739.2	3731.0
27.5°	3709.2	3679.2	3623.8	3611.0	3589.7
30°	3581.0	3546.5	3482.4	3469.7	3452.4
32.5°	3443.7	3418.4	3349.7	3323.8	3306.6
35°	3311.0	3268.4	3199.7	3173.9	3152.5
37.5°	3161.1	3122.5	3053.8	3023.9	3002.5
40°	3007.1	2972.6	2903.9	2865.7	2848.5
42.5°	2857.1	2822.6	2754.4	2711.3	2685.8
45°	2694.4	2664.4	2599.8	2553.1	2535.8
47.5°	2535.8	2505.8	2437.2	2390.0	2364.5
50°	2368.6	2347.2	2287.2	2227.2	2205.8
52.5°	2205.8	2175.9	2120.5	2073.1	2043.2
55°	2039.1	2013.2	1961.8	1910.5	1889.1
57.5°	1871.8	1850.5	1794.6	1743.2	1726.0
60°	1704.6	1687.8	1627.8	1580.6	1567.8
62.5°	1542.0	1511.9	1469.3	1426.5	1409.2
65°	1375.2	1349.2	1306.5	1267.9	1246.6
67.5°	1203.9	1182.0	1143.8	1113.9	1096.6
70°	1045.2	1027.9	989.3	959.3	942.6
72.5°	882.5	865.3	843.9	814.0	801.2
75°	719.4	711.2	689.4	664.0	672.6
77.5°	573.9	556.7	548.1	535.3	522.6
80°	428.5	424.0	415.4	402.7	394.0
82.5°	291.3	291.3	287.2	270.0	270.0
85°	175.4	171.3	167.2	154.1	150.0
87.5°	77.3	68.6	60.0	47.2	42.7
90°	1.5	19.6	32.5	40.8	44.0
92.5°	40.8	34.2	39.1	42.5	44.0
95°	105.9	52.1	63.5	71.8	70.1
97.5°	190.7	57.1	83.1	88.1	89.7
100°	288.8	65.3	92.9	105.9	109.2
102.5°	396.2	393.1	96.3	114.1	119.1
105°	495.8	544.7	99.5	117.3	123.9
107.5°	611.5	652.2	102.8	120.7	127.3
110°	722.6	756.6	285.4	122.4	128.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	826.9	856.1	828.5	125.5	130.5
115°	937.7	965.4	1006.2	251.2	133.8
117.5°	1033.9	1066.5	1094.3	861.0	433.8
120°	1141.6	1166.0	1195.5	1215.0	994.8
122.5°	1232.8	1258.9	1291.7	1301.4	1303.1
125°	1325.8	1347.0	1378.1	1389.5	1394.3
127.5°	1410.6	1433.4	1458.0	1474.3	1475.8
130°	1490.5	1516.7	1534.5	1552.5	1551.0
132.5°	1572.1	1593.4	1611.2	1625.9	1624.4
135°	1640.6	1666.7	1681.3	1697.7	1694.5
137.5°	1712.2	1731.9	1748.3	1764.6	1759.7
140°	1782.4	1795.5	1813.4	1828.1	1819.9
142.5°	1841.2	1852.7	1873.8	1886.7	1878.6
145°	1903.2	1901.5	1929.2	1940.6	1932.5
147.5°	1956.8	1952.1	1979.7	1987.8	1981.5
150°	2009.1	1997.8	2023.9	2033.5	2025.4
152.5°	2053.1	2040.1	2064.6	2074.4	2063.0
155°	2095.6	2081.0	2100.5	2110.2	2097.3
157.5°	2129.8	2116.8	2131.5	2143.0	2129.8
160°	2159.3	2149.4	2159.3	2168.9	2157.5
162.5°	2185.2	2175.5	2183.6	2195.1	2180.4
165°	2208.0	2198.4	2203.2	2214.6	2203.2
167.5°	2226.1	2216.1	2221.2	2232.6	2218.0
170°	2240.8	2230.9	2234.2	2245.6	2230.9
172.5°	2250.5	2240.8	2244.1	2255.4	2240.8
175°	2258.6	2247.1	2250.5	2261.8	2245.6
177.5°	2261.8	2250.5	2252.2	2263.7	2248.9
180°	2253.7	2253.7	2253.7	2253.7	2253.7

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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	12.51	13.50	13.35	14.36	15.43	12.07	13.06	12.90	13.92	14.99
	3H	14.18	15.08	15.03	15.94	17.04	13.70	14.59	14.55	15.46	16.55
	4H	14.78	15.62	15.64	16.50	17.60	14.29	15.13	15.16	16.01	17.12
	6H	15.19	15.97	16.06	16.85	17.97	14.70	15.47	15.57	16.35	17.48
	8H	15.30	16.04	16.18	16.94	18.06	14.80	15.55	15.69	16.44	17.56
	12H	15.35	16.06	16.24	16.95	18.10	14.85	15.56	15.74	16.45	17.60
4H	2H	12.99	13.83	13.86	14.70	15.81	12.64	13.48	13.50	14.35	15.46
	3H	14.87	15.57	15.75	16.48	17.60	14.47	15.17	15.35	16.08	17.20
	4H	15.59	16.23	16.48	17.13	18.28	15.17	15.81	16.07	16.72	17.87
	6H	16.12	16.67	17.02	17.60	18.75	15.69	16.25	16.60	17.17	18.32
	8H	16.27	16.79	17.18	17.71	18.87	15.84	16.36	16.75	17.28	18.44
	12H	16.35	16.82	17.28	17.76	18.93	15.91	16.38	16.84	17.32	18.49
8H	4H	15.80	16.32	16.71	17.24	18.40	15.43	15.95	16.34	16.87	18.03
	6H	16.44	16.87	17.37	17.83	18.99	16.06	16.49	17.00	17.45	18.62
	8H	16.66	17.04	17.61	18.00	19.18	16.28	16.66	17.22	17.61	18.79
	12H	16.80	17.14	17.75	18.08	19.31	16.40	16.73	17.35	17.68	18.91
12H	4H	15.79	16.26	16.72	17.20	18.37	15.43	15.89	16.36	16.83	18.00
	6H	16.47	16.85	17.42	17.80	18.98	16.10	16.49	17.05	17.44	18.62
	8H	16.72	17.05	17.67	18.00	19.23	16.35	16.68	17.30	17.63	18.86