

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: P925273

Luminaire Tested: DFN2DIP-PN4F0-120D080US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925273
REPORT IS A COMBINATION OF REPORTS P901217 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D080US950-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

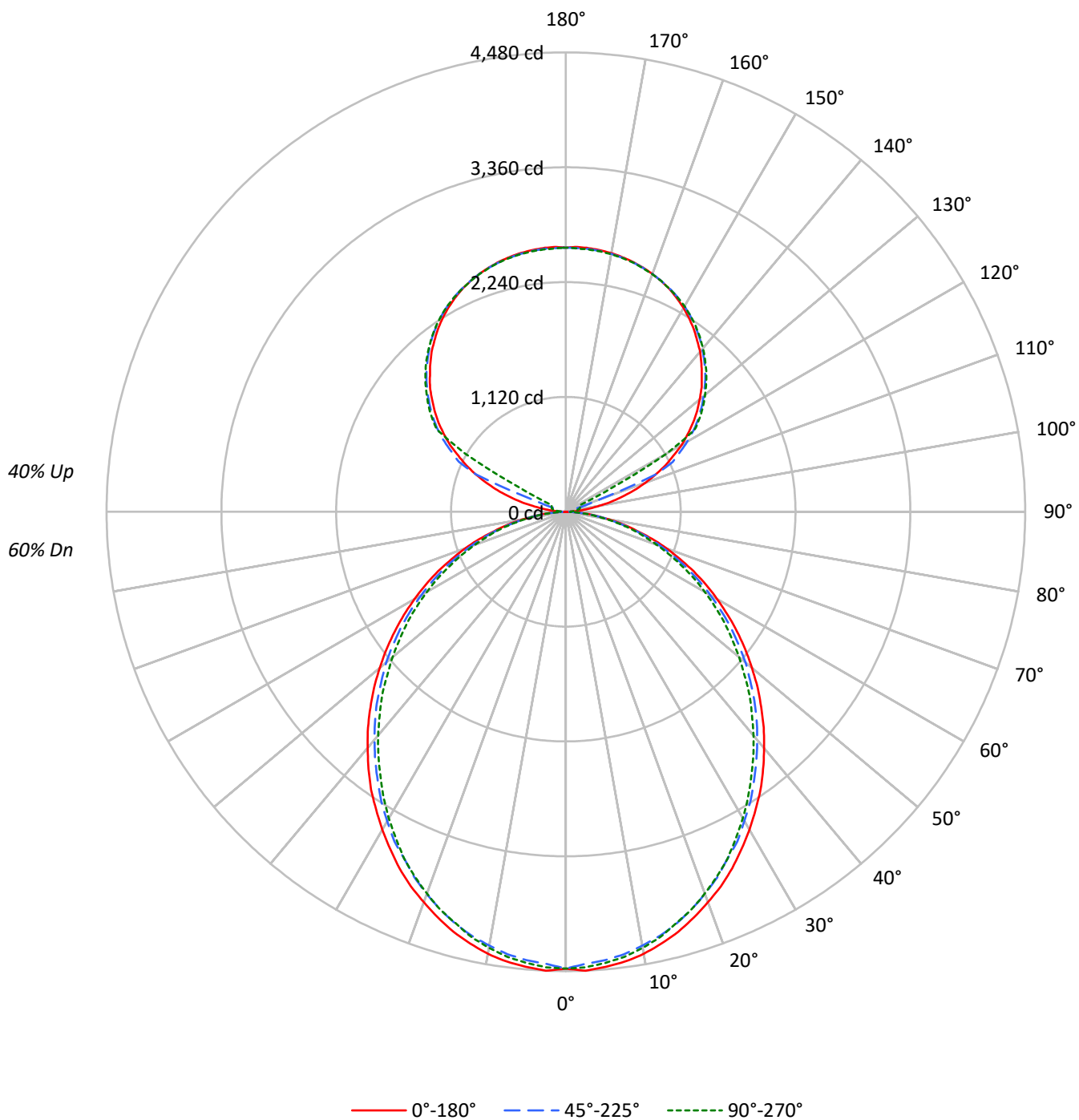
Lumens per Lamp: N/A
Luminaire Lumens: 18889.2 lumens
Efficiency: N/A
Efficacy: 102.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 184.2
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	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

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	2.2
10°-20°	1179.6	6.2
20°-30°	1733.6	9.2
30°-40°	2013.5	10.7
40°-50°	2011.0	10.6
50°-60°	1753.5	9.3
60°-70°	1296.2	6.9
70°-80°	733.4	3.9
80°-90°	198.1	1.0
90°-100°	84.9	0.4
100°-110°	316.6	1.7
110°-120°	839.7	4.4
120°-130°	1392.7	7.4
130°-140°	1479.4	7.8
140°-150°	1374.9	7.3
150°-160°	1105.4	5.9
160°-170°	712.3	3.8
170°-180°	245.2	1.3
0°-30°	3332.5	17.6
0°-40°	5345.9	28.3
0°-60°	9110.4	48.2
0°-90°	11338.1	60.0
90°-120°	1241.3	6.6
90°-150°	5488.3	29.1
90°-180°	7551.0	40.0
0°-180°	18889.2	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	22	37	47	50	17
95°	121	60	73	82	80	143
105°	567	623	114	134	142	605
115°	1072	1103	1150	287	153	1055
125°	1515	1540	1575	1588	1594	1351
135°	1875	1905	1922	1940	1936	1448
145°	2175	2173	2205	2218	2208	1360
155°	2395	2378	2401	2412	2397	1104
165°	2524	2512	2518	2531	2518	713
175°	2581	2568	2572	2585	2566	246
180°	2576	2576	2576	2576	2576	

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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°	1.8	22.3	37.2	46.7	50.3
92.5°	46.7	39.2	44.7	48.5	50.3
95°	121.1	59.5	72.6	82.1	80.1
97.5°	218.0	65.3	94.9	100.7	102.5
100°	330.0	74.6	106.3	121.1	124.8
102.5°	452.9	449.2	110.0	130.3	136.1
105°	566.6	622.6	113.7	134.1	141.7
107.5°	698.9	745.4	117.5	137.9	145.4
110°	825.8	864.7	326.3	139.9	147.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	945.0	978.4	946.8	143.4	149.2
115°	1071.6	1103.3	1150.0	287.1	152.9
117.5°	1181.6	1218.8	1250.7	984.0	495.8
120°	1304.7	1332.5	1366.2	1388.5	1136.9
122.5°	1408.9	1438.8	1476.2	1487.3	1489.3
125°	1515.1	1539.5	1574.9	1587.9	1593.5
127.5°	1612.1	1638.2	1666.4	1684.9	1686.7
130°	1703.5	1733.3	1753.7	1774.3	1772.5
132.5°	1796.7	1821.0	1841.4	1858.2	1856.4
135°	1875.0	1904.9	1921.5	1940.3	1936.5
137.5°	1956.9	1979.3	1998.1	2016.7	2011.1
140°	2037.0	2052.1	2072.5	2089.3	2079.9
142.5°	2104.3	2117.3	2141.4	2156.3	2147.0
145°	2175.1	2173.1	2204.8	2217.9	2208.5
147.5°	2236.5	2230.9	2262.5	2271.9	2264.5
150°	2296.2	2283.1	2313.0	2324.0	2314.8
152.5°	2346.5	2331.6	2359.4	2370.8	2357.7
155°	2394.9	2378.3	2400.6	2411.7	2396.9
157.5°	2434.0	2419.2	2436.0	2449.1	2434.0
160°	2467.7	2456.5	2467.7	2478.8	2465.7
162.5°	2497.4	2486.3	2495.6	2508.6	2491.8
165°	2523.5	2512.5	2518.0	2531.0	2518.0
167.5°	2544.0	2532.8	2538.5	2551.6	2534.8
170°	2560.9	2549.6	2553.4	2566.5	2549.6
172.5°	2572.0	2560.9	2564.6	2577.7	2560.9
175°	2581.2	2568.2	2572.0	2585.0	2566.5
177.5°	2585.0	2572.0	2573.9	2587.0	2570.2
180°	2575.7	2575.7	2575.7	2575.7	2575.7

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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	12.25	13.21	13.12	14.10	15.22	11.81	12.77	12.68	13.66	14.78
	3H	13.92	14.78	14.80	15.68	16.83	13.44	14.30	14.32	15.20	16.34
	4H	14.52	15.33	15.41	16.23	17.39	14.03	14.84	14.92	15.75	16.90
	6H	14.92	15.67	15.83	16.58	17.75	14.43	15.18	15.34	16.09	17.26
	8H	15.03	15.75	15.95	16.68	17.84	14.54	15.26	15.45	16.18	17.35
	12H	15.09	15.77	16.01	16.69	17.88	14.59	15.27	15.51	16.19	17.38
4H	2H	12.73	13.54	13.62	14.44	15.60	12.37	13.19	13.27	14.09	15.25
	3H	14.60	15.28	15.51	16.22	17.39	14.20	14.88	15.11	15.81	16.99
	4H	15.32	15.94	16.25	16.87	18.07	14.91	15.53	15.83	16.46	17.65
	6H	15.85	16.38	16.78	17.34	18.53	15.42	15.96	16.36	16.91	18.11
	8H	16.00	16.50	16.94	17.45	18.66	15.57	16.07	16.51	17.02	18.23
	12H	16.08	16.53	17.04	17.50	18.71	15.64	16.09	16.60	17.06	18.27
8H	4H	15.53	16.03	16.47	16.98	18.19	15.16	15.66	16.10	16.61	17.82
	6H	16.17	16.58	17.13	17.57	18.78	15.79	16.21	16.76	17.19	18.40
	8H	16.39	16.76	17.36	17.74	18.96	16.01	16.37	16.98	17.35	18.58
	12H	16.53	16.85	17.51	17.82	19.10	16.13	16.45	17.10	17.42	18.70
12H	4H	15.52	15.97	16.48	16.94	18.15	15.16	15.61	16.11	16.57	17.79
	6H	16.20	16.57	17.17	17.54	18.77	15.83	16.20	16.81	17.18	18.41
	8H	16.45	16.77	17.42	17.74	19.02	16.08	16.40	17.05	17.37	18.65

END OF REPORT

FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE

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