

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: P919582

Luminaire Tested: DFN2DIP-PN4F0-050D120US935-RLLFLL

Issue Date: 11/21/2024

**Test Information**

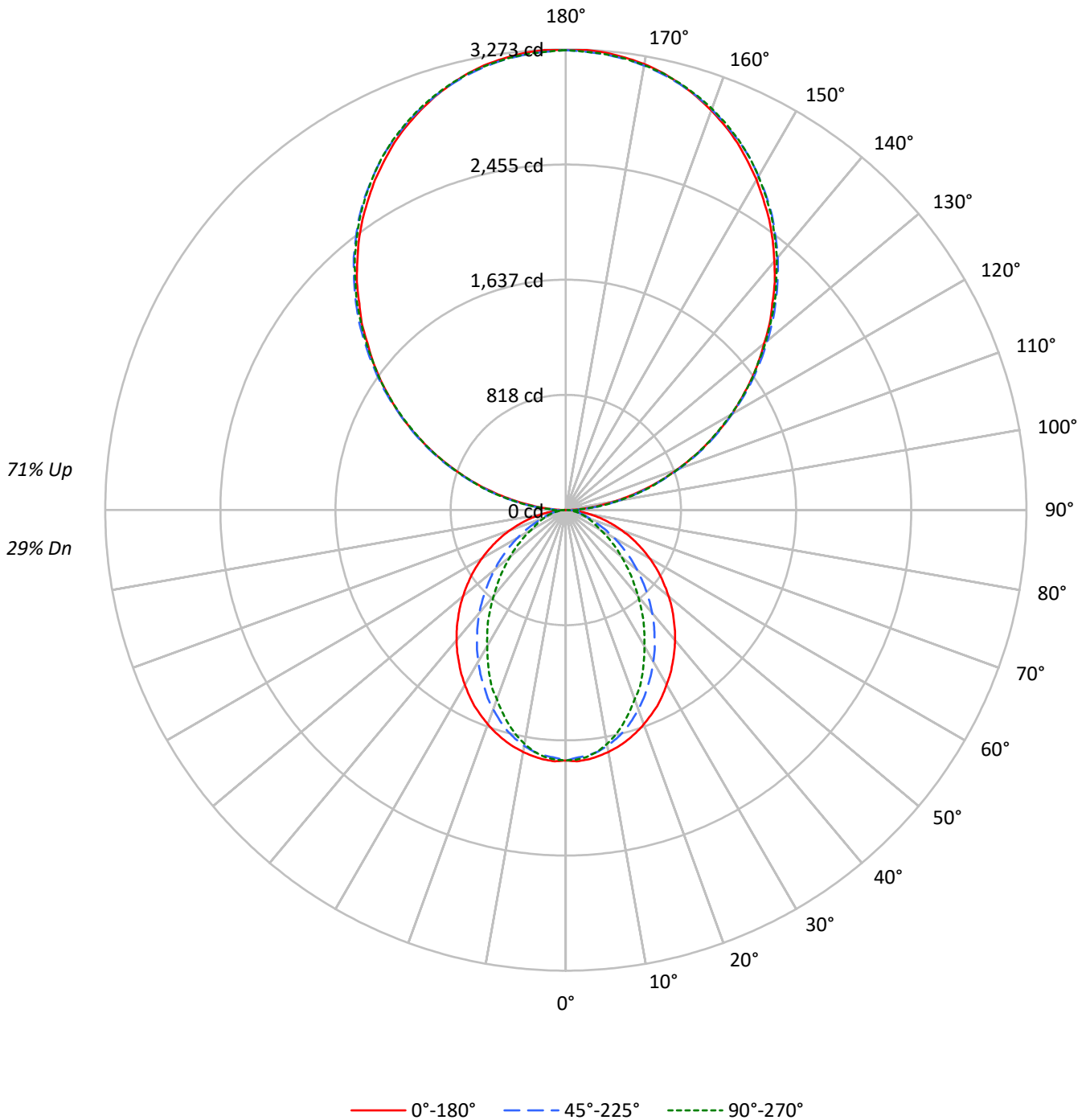
Test Method: LM-79-2019  
Report Number: P919582  
REPORT IS A COMBINATION OF REPORTS P899756 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-050D120US935-RLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12803.0 lumens  
Efficiency: N/A  
Efficacy: 86.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 147.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
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	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	102	102	102	102	91	91	91	91	71	71	71	53	53	53	37	37	37				29
1	93	89	86	82	83	80	77	74	63	61	59	47	46	45	33	32	31				25
2	85	78	72	68	76	70	65	61	55	52	49	42	40	38	29	28	27				21
3	78	69	62	56	69	62	56	51	49	45	42	37	34	32	26	24	23				18
4	71	61	54	48	64	55	49	44	44	39	36	33	30	28	23	22	20				16
5	65	54	47	41	58	49	42	38	39	34	31	30	27	24	21	19	18				14
6	60	49	41	36	54	44	37	33	35	30	27	27	24	21	19	17	16				12
7	56	44	36	31	50	40	33	29	32	27	24	25	21	19	18	16	14				11
8	52	40	32	27	46	36	30	25	29	24	21	22	19	17	16	14	13				10
9	48	36	29	24	43	33	27	22	27	22	19	21	17	15	15	13	11				9
10	45	33	26	22	40	30	24	20	24	20	17	19	16	14	14	12	10				8

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1299	1299	1299
5°	1301	1278	1287
10°	1288	1253	1245
15°	1270	1212	1180
20°	1247	1155	1101
25°	1223	1091	1025
30°	1190	1026	928
35°	1159	955	842
40°	1127	883	744
45°	1089	802	656
50°	1051	720	569
55°	1010	633	486
60°	964	541	400
65°	910	449	360
70°	845	362	326
75°	763	319	298
80°	645	268	259
85°	449	180	196

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2559 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	166.8	1.3
10°-20°	457.8	3.6
20°-30°	642.7	5.0
30°-40°	700.6	5.5
40°-50°	643.9	5.0
50°-60°	505.7	3.9
60°-70°	329.2	2.6
70°-80°	169.5	1.3
80°-90°	52.5	0.4
90°-100°	202.2	1.6
100°-110°	642.4	5.0
110°-120°	1099.4	8.6
120°-130°	1445.9	11.3
130°-140°	1623.0	12.7
140°-150°	1591.6	12.4
150°-160°	1335.1	10.4
160°-170°	885.4	6.9
170°-180°	309.5	2.4
0°-30°	1267.2	9.9
0°-40°	1967.8	15.4
0°-60°	3117.4	24.3
0°-90°	3668.5	28.7
90°-120°	1944.1	15.2
90°-150°	6604.6	51.6
90°-180°	9134.0	71.3
0°-180°	12803.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1779	1779	1779	1779	1779	
5°	1779	1771	1750	1765	1760	169
15°	1692	1675	1620	1589	1573	477
25°	1536	1484	1378	1312	1288	706
35°	1324	1242	1100	998	963	828
45°	1082	974	805	691	652	836
55°	823	697	523	427	396	735
65°	556	425	280	226	221	551
75°	296	184	129	118	116	313
85°	69	35	31	31	31	79
90°	3	36	96	91	94	13
95°	144	171	176	176	171	160
105°	593	601	607	612	612	626
115°	1103	1119	1114	1111	1103	1091
125°	1605	1629	1622	1613	1610	1434
135°	2076	2106	2112	2109	2101	1604
145°	2520	2540	2555	2558	2548	1574
155°	2881	2889	2898	2912	2903	1326
165°	3135	3132	3132	3151	3138	884
175°	3262	3254	3248	3268	3251	310
180°	3268	3268	3268	3268	3268	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1779.3	1779.3	1779.3	1779.3	1779.3
2.5°	1787.3	1779.3	1761.5	1777.7	1774.4
5°	1779.3	1771.2	1750.2	1764.7	1760.0
7.5°	1764.7	1755.1	1732.6	1739.0	1730.9
10°	1745.4	1734.1	1702.0	1697.1	1687.5
12.5°	1721.3	1706.8	1663.3	1653.7	1635.9
15°	1692.3	1674.6	1619.9	1589.3	1573.2
17.5°	1658.5	1632.7	1565.0	1529.6	1503.8
20°	1619.9	1587.6	1507.1	1467.0	1431.4
22.5°	1578.0	1540.9	1447.5	1392.8	1368.7
25°	1536.1	1484.5	1378.3	1312.3	1288.1
27.5°	1486.3	1431.4	1313.9	1238.2	1201.2
30°	1433.1	1371.8	1243.0	1161.0	1117.4
32.5°	1381.6	1307.4	1175.5	1078.8	1038.5
35°	1323.6	1241.5	1099.8	998.3	962.9
37.5°	1267.2	1178.6	1029.0	917.7	877.6
40°	1207.6	1111.1	954.8	840.5	798.7
42.5°	1146.5	1043.4	880.8	761.6	721.4
45°	1082.1	974.1	805.1	690.7	652.0
47.5°	1020.9	906.6	732.7	618.3	582.9
50°	953.3	839.0	661.8	550.6	516.9
52.5°	887.2	766.4	594.2	487.9	457.4
55°	822.8	697.1	523.2	426.7	396.1
57.5°	756.8	628.0	460.5	370.4	344.6
60°	689.1	560.3	394.4	312.5	286.6
62.5°	623.2	494.4	338.1	260.9	248.1
65°	555.5	425.1	280.2	225.5	220.6
67.5°	491.1	360.7	225.5	198.0	193.2
70°	423.5	297.9	186.8	170.6	164.2
72.5°	359.1	239.9	156.2	143.4	140.1
75°	296.3	183.5	128.8	117.5	116.0
77.5°	233.5	130.4	101.5	95.0	91.7
80°	175.5	93.4	77.2	70.9	70.9
82.5°	122.3	62.9	53.1	49.9	49.9
85°	69.2	35.4	30.6	30.6	30.6
87.5°	25.8	12.8	12.8	11.3	11.3
90°	2.9	35.5	96.5	90.7	93.6
92.5°	61.0	82.7	85.7	88.7	88.7
95°	143.8	171.4	176.3	176.3	171.4
97.5°	239.4	265.0	275.9	275.9	275.9
100°	349.7	372.4	380.2	380.2	377.3
102.5°	466.0	482.7	493.5	496.5	493.5
105°	593.1	600.9	606.8	611.7	611.7
107.5°	719.1	731.0	731.0	732.9	719.1
110°	841.3	857.0	857.0	857.0	849.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	973.3	990.1	987.0	979.2	973.3
115°	1103.3	1119.1	1114.1	1111.2	1103.3
117.5°	1232.3	1254.0	1240.3	1232.3	1224.5
120°	1362.4	1384.1	1362.4	1362.4	1353.6
122.5°	1480.7	1508.2	1494.4	1486.5	1480.7
125°	1604.7	1629.4	1621.5	1612.6	1609.6
127.5°	1726.0	1756.4	1745.6	1733.8	1726.0
130°	1839.2	1874.7	1869.7	1863.8	1853.0
132.5°	1966.3	1993.9	1995.8	1982.0	1974.2
135°	2075.6	2106.2	2112.1	2109.1	2101.3
137.5°	2197.8	2222.4	2227.3	2225.3	2213.5
140°	2305.1	2329.8	2343.6	2343.6	2332.7
142.5°	2415.5	2440.2	2448.0	2450.9	2440.2
145°	2519.9	2539.6	2555.4	2558.4	2547.5
147.5°	2613.5	2638.1	2650.0	2654.9	2644.0
150°	2710.1	2726.8	2737.6	2746.5	2737.6
152.5°	2795.7	2812.4	2826.3	2837.2	2826.3
155°	2881.4	2889.3	2898.2	2912.0	2903.1
157.5°	2955.4	2961.2	2966.1	2985.9	2972.1
160°	3021.3	3027.3	3030.2	3047.0	3035.1
162.5°	3082.4	3082.4	3085.4	3104.1	3090.3
165°	3134.6	3131.7	3131.7	3151.3	3137.6
167.5°	3181.9	3173.0	3173.0	3192.8	3179.0
170°	3217.4	3209.5	3206.5	3226.2	3209.5
172.5°	3242.0	3234.1	3231.2	3250.9	3234.1
175°	3261.7	3253.8	3247.9	3267.6	3250.9
177.5°	3272.6	3264.6	3258.7	3275.5	3258.7
180°	3267.6	3267.6	3267.6	3267.6	3267.6



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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	5.64	6.32	6.76	7.44	8.98	1.60	2.29	2.73	3.40	4.95
	3H	7.31	7.92	8.44	9.04	10.61	2.78	3.39	3.92	4.51	6.08
	4H	7.91	8.49	9.05	9.61	11.18	3.23	3.80	4.37	4.93	6.50
	6H	8.33	8.86	9.48	9.99	11.57	3.54	4.07	4.69	5.20	6.78
	8H	8.45	8.96	9.60	10.10	11.67	3.63	4.13	4.78	5.27	6.85
	12H	8.51	8.99	9.67	10.12	11.72	3.67	4.15	4.82	5.28	6.88
4H	2H	5.64	6.22	6.79	7.34	8.91	2.18	2.76	3.33	3.89	5.45
	3H	7.46	7.94	8.61	9.09	10.67	3.52	4.00	4.68	5.15	6.73
	4H	8.15	8.59	9.30	9.73	11.33	4.06	4.51	5.22	5.64	7.25
	6H	8.66	9.03	9.82	10.20	11.79	4.47	4.85	5.64	6.02	7.61
	8H	8.83	9.18	9.99	10.34	11.94	4.60	4.95	5.76	6.11	7.72
	12H	8.92	9.24	10.10	10.40	12.02	4.66	4.98	5.84	6.14	7.76
8H	4H	8.10	8.46	9.27	9.61	11.22	4.33	4.69	5.50	5.84	7.45
	6H	8.67	8.96	9.85	10.15	11.76	4.85	5.14	6.03	6.33	7.94
	8H	8.88	9.14	10.07	10.31	11.94	5.04	5.29	6.23	6.47	8.09
	12H	9.02	9.24	10.21	10.41	12.07	5.15	5.38	6.34	6.55	8.20
12H	4H	8.05	8.37	9.23	9.53	11.15	4.33	4.65	5.51	5.82	7.43
	6H	8.64	8.90	9.83	10.07	11.69	4.90	5.15	6.08	6.32	7.95
	8H	8.86	9.08	10.05	10.25	11.91	5.10	5.33	6.29	6.50	8.15