

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: P920848

Luminaire Tested: DFN2DIP-TR3F0-070D070US935-FLLFLL

Issue Date: 11/21/2024

**Test Information**

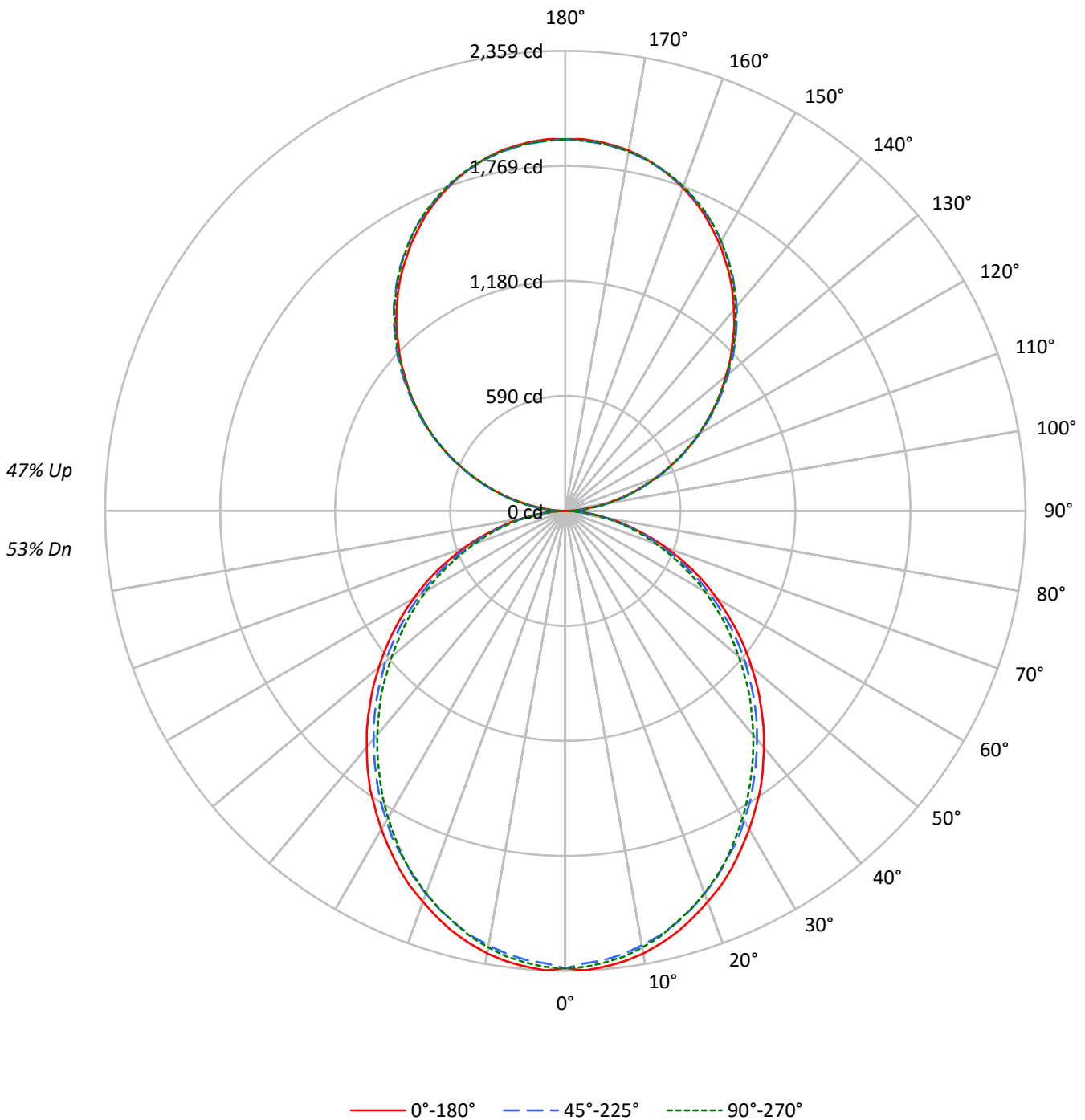
Test Method: LM-79-2019  
Report Number: P920848  
REPORT IS A COMBINATION OF REPORTS P900335 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-070D070US935-FLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11300.6 lumens  
Efficiency: N/A  
Efficacy: 91.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 123.4  
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			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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	59	59	59	53
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50	52	51	50	45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	46	44	42	37
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36	41	38	36	32
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31	36	33	31	27
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	33	29	27	24
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24	30	26	24	21
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21	27	24	21	18
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19	25	21	19	16
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17	23	20	17	15
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	21	18	15	13

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

	0°	45°	90°
0°	2922	2922	2922
5°	2925	2879	2899
10°	2900	2838	2858
15°	2856	2789	2795
20°	2796	2721	2730
25°	2738	2641	2655
30°	2664	2567	2561
35°	2594	2479	2462
40°	2509	2390	2367
45°	2423	2301	2270
50°	2330	2207	2157
55°	2231	2099	2053
60°	2120	1971	1935
65°	1999	1838	1794
70°	1844	1675	1643
75°	1631	1481	1500
80°	1372	1232	1233
85°	970	812	797

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2423 cd/sqm



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CATALOG NUMBER: DFN2DIP-TR3F0-070D070US935-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	220.7	2.0
10°-20°	621.0	5.5
20°-30°	912.7	8.1
30°-40°	1060.0	9.4
40°-50°	1058.7	9.4
50°-60°	923.2	8.2
60°-70°	682.4	6.0
70°-80°	386.1	3.4
80°-90°	107.3	0.9
90°-100°	117.9	1.0
100°-110°	374.8	3.3
110°-120°	641.3	5.7
120°-130°	843.5	7.5
130°-140°	946.7	8.4
140°-150°	928.4	8.2
150°-160°	778.8	6.9
160°-170°	516.5	4.6
170°-180°	180.5	1.6
0°-30°	1754.4	15.5
0°-40°	2814.4	24.9
0°-60°	4796.3	42.4
0°-90°	5972.2	52.8
90°-120°	1134.1	10.0
90°-150°	3852.7	34.1
90°-180°	5328.0	47.1
0°-180°	11300.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2345	2345	2345	2345	2345	
5°	2345	2336	2311	2329	2325	223
15°	2232	2219	2190	2199	2188	629
25°	2020	2002	1964	1969	1964	930
35°	1743	1721	1684	1671	1660	1089
45°	1418	1403	1369	1344	1335	1095
55°	1074	1060	1033	1006	994	960
65°	724	710	688	668	656	716
75°	379	374	363	350	354	404
85°	92	90	88	81	79	103
90°	2	21	56	53	55	11
95°	84	100	103	103	100	93
105°	346	350	354	357	357	365
115°	644	653	650	648	644	637
125°	936	950	946	941	939	837
135°	1211	1229	1232	1230	1226	936
145°	1470	1481	1491	1492	1486	918
155°	1681	1685	1691	1699	1694	774
165°	1828	1827	1827	1838	1830	516
175°	1903	1898	1895	1906	1896	181
180°	1906	1906	1906	1906	1906	



TEST NUMBER: P920848

CATALOG NUMBER: DFN2DIP-TR3F0-070D070US935-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2345.1	2345.1	2345.1	2345.1	2345.1
2.5°	2358.8	2347.5	2322.6	2345.1	2340.8
5°	2345.1	2336.3	2311.4	2329.3	2325.0
7.5°	2329.3	2315.9	2291.0	2309.3	2304.7
10°	2304.7	2288.9	2261.8	2279.8	2273.1
12.5°	2270.7	2257.4	2230.3	2241.5	2237.0
15°	2232.5	2219.0	2189.6	2198.7	2187.5
17.5°	2185.0	2171.7	2142.2	2153.5	2142.2
20°	2133.1	2119.8	2088.2	2094.9	2086.0
22.5°	2081.5	2061.1	2031.7	2031.7	2027.1
25°	2020.5	2002.5	1964.3	1968.6	1964.3
27.5°	1952.7	1937.0	1907.8	1901.1	1889.8
30°	1885.3	1867.1	1833.4	1826.7	1817.6
32.5°	1813.0	1799.7	1763.5	1749.9	1740.8
35°	1743.2	1720.7	1684.5	1670.9	1659.7
37.5°	1664.2	1643.9	1607.7	1592.0	1580.7
40°	1583.1	1564.9	1528.8	1508.7	1499.6
42.5°	1504.2	1486.0	1450.1	1427.4	1413.9
45°	1418.5	1402.7	1368.7	1344.1	1335.0
47.5°	1335.0	1319.2	1283.1	1258.2	1244.8
50°	1247.0	1235.7	1204.1	1172.6	1161.3
52.5°	1161.3	1145.6	1116.4	1091.5	1075.6
55°	1073.5	1059.9	1032.9	1005.8	994.5
57.5°	985.5	974.2	944.8	917.7	908.7
60°	897.4	888.5	857.0	832.2	825.4
62.5°	811.7	796.0	773.5	751.0	741.9
65°	724.0	710.3	687.9	667.5	656.3
67.5°	633.8	622.3	602.2	586.4	577.3
70°	550.3	541.2	520.8	505.1	496.2
72.5°	464.6	455.6	444.3	428.5	421.8
75°	378.8	374.4	362.9	349.6	354.1
77.5°	302.2	293.1	288.5	281.8	275.2
80°	225.6	223.3	218.7	212.0	207.4
82.5°	153.3	153.3	151.2	142.2	142.2
85°	92.4	90.2	88.1	81.1	79.0
87.5°	40.6	36.2	31.6	24.9	22.5
90°	1.7	20.7	56.3	52.9	54.6
92.5°	35.6	48.3	50.0	51.7	51.7
95°	83.9	100.0	102.9	102.9	100.0
97.5°	139.7	154.5	160.9	160.9	160.9
100°	204.0	217.2	221.8	221.8	220.1
102.5°	271.8	281.5	287.9	289.6	287.9
105°	345.9	350.5	354.0	356.9	356.9
107.5°	419.5	426.4	426.4	427.6	419.5
110°	490.8	500.0	500.0	500.0	495.3



TEST NUMBER: P920848

CATALOG NUMBER: DFN2DIP-TR3F0-070D070US935-FLLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	567.7	577.6	575.8	571.2	567.7
115°	643.6	652.8	650.0	648.2	643.6
117.5°	718.8	731.5	723.5	718.8	714.3
120°	794.7	807.4	794.7	794.7	789.5
122.5°	863.7	879.8	871.8	867.1	863.7
125°	936.1	950.5	945.9	940.7	939.0
127.5°	1006.8	1024.6	1018.3	1011.4	1006.8
130°	1072.9	1093.6	1090.7	1087.3	1080.9
132.5°	1147.0	1163.1	1164.2	1156.2	1151.6
135°	1210.8	1228.6	1232.1	1230.3	1225.7
137.5°	1282.0	1296.4	1299.2	1298.1	1291.2
140°	1344.7	1359.1	1367.1	1367.1	1360.8
142.5°	1409.0	1423.4	1428.0	1429.7	1423.4
145°	1470.0	1481.4	1490.6	1492.4	1486.1
147.5°	1524.6	1538.9	1545.8	1548.7	1542.4
150°	1580.9	1590.6	1597.0	1602.1	1597.0
152.5°	1630.8	1640.6	1648.6	1655.0	1648.6
155°	1680.8	1685.4	1690.7	1698.7	1693.5
157.5°	1724.0	1727.4	1730.3	1741.8	1733.7
160°	1762.5	1765.9	1767.6	1777.4	1770.5
162.5°	1798.1	1798.1	1799.8	1810.7	1802.7
165°	1828.5	1826.8	1826.8	1838.3	1830.2
167.5°	1856.1	1851.0	1851.0	1862.4	1854.4
170°	1876.8	1872.2	1870.5	1882.0	1872.2
172.5°	1891.2	1886.5	1884.8	1896.3	1886.5
175°	1902.6	1898.1	1894.6	1906.1	1896.3
177.5°	1909.0	1904.4	1900.9	1910.7	1900.9
180°	1906.1	1906.1	1906.1	1906.1	1906.1



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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	11.20	12.09	12.14	13.04	14.27	10.78	11.66	11.71	12.61	13.84
	3H	12.86	13.65	13.80	14.61	15.87	12.39	13.19	13.33	14.14	15.40
	4H	13.44	14.19	14.40	15.16	16.42	12.97	13.73	13.93	14.69	15.95
	6H	13.83	14.53	14.80	15.50	16.77	13.36	14.06	14.33	15.03	16.30
	8H	13.94	14.60	14.91	15.58	16.86	13.47	14.13	14.44	15.11	16.39
	12H	13.98	14.61	14.96	15.59	16.89	13.51	14.14	14.49	15.12	16.41
4H	2H	11.67	12.42	12.63	13.38	14.64	11.32	12.08	12.29	13.04	14.30
	3H	13.52	14.15	14.50	15.15	16.42	13.13	13.76	14.11	14.76	16.03
	4H	14.23	14.81	15.21	15.79	17.09	13.83	14.40	14.81	15.39	16.69
	6H	14.74	15.23	15.73	16.24	17.54	14.33	14.83	15.33	15.84	17.14
	8H	14.88	15.35	15.88	16.35	17.66	14.48	14.94	15.47	15.94	17.26
	12H	14.95	15.37	15.97	16.39	17.71	14.54	14.96	15.55	15.98	17.30
8H	4H	14.43	14.89	15.42	15.89	17.21	14.07	14.53	15.07	15.54	16.85
	6H	15.05	15.43	16.07	16.48	17.79	14.69	15.07	15.71	16.12	17.43
	8H	15.26	15.60	16.29	16.63	17.96	14.90	15.24	15.93	16.27	17.60
	12H	15.39	15.69	16.42	16.71	18.09	15.01	15.31	16.04	16.33	17.71
12H	4H	14.41	14.83	15.43	15.85	17.17	14.06	14.48	15.08	15.50	16.82
	6H	15.08	15.41	16.11	16.45	17.78	14.73	15.07	15.76	16.10	17.43
	8H	15.31	15.61	16.34	16.64	18.01	14.96	15.26	15.99	16.28	17.66