

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: P923603

Luminaire Tested: DFN2DIP-TR3F0-080D070US940-FLONL

Issue Date: 11/21/2024

**Test Information**

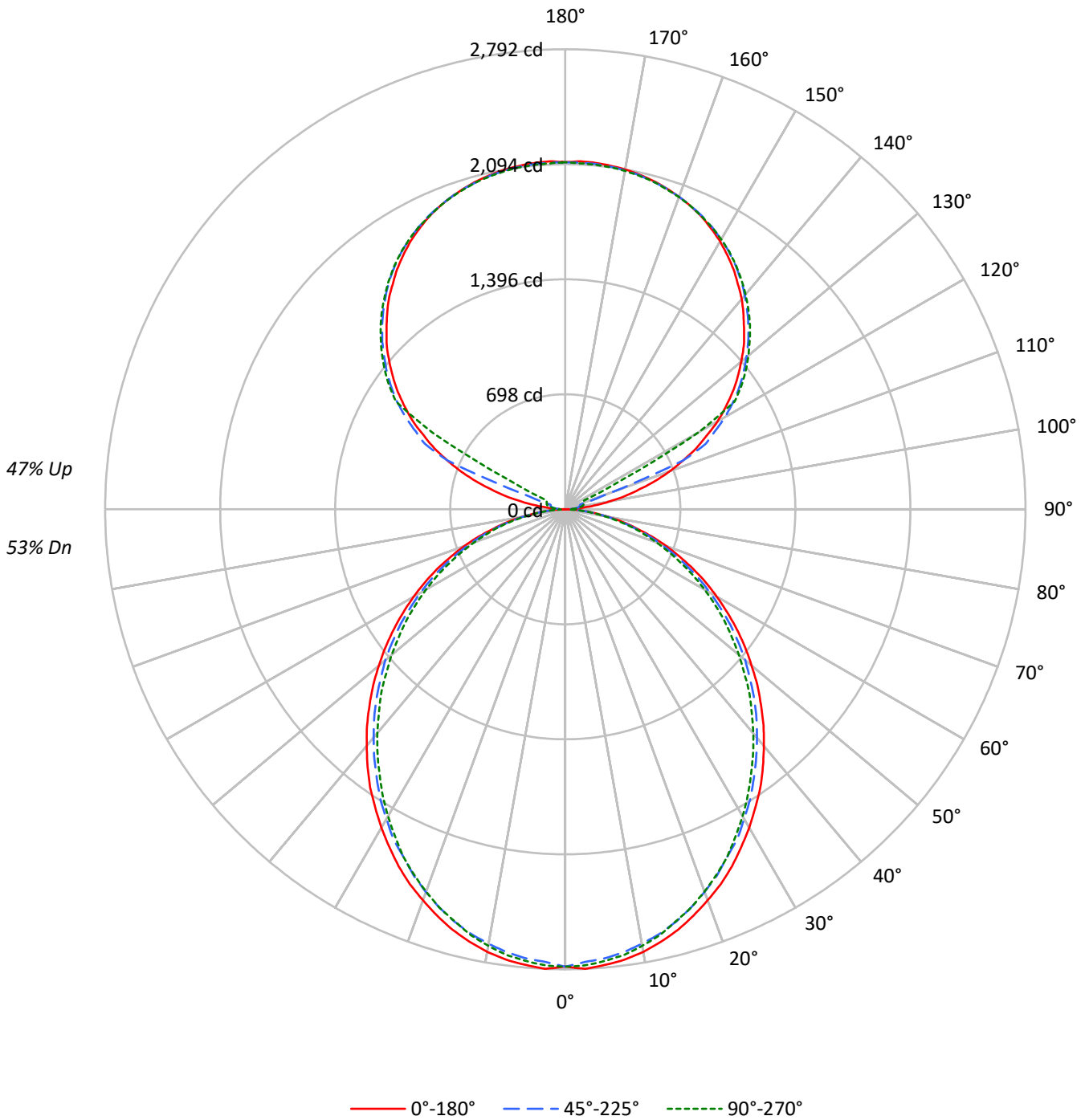
Test Method: LM-79-2019  
Report Number: P923603  
REPORT IS A COMBINATION OF REPORTS P901857 AND P898751  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-080D070US940-FLLONL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13241.9 lumens  
Efficiency: N/A  
Efficacy: 98.7 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): 134.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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	72	72	72	59	59	59	59	59	59	53
1	99	94	90	87	91	87	84	81	75	72	70	63	61	60	52	51	50	50	50	50	45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	42	42	42	38
3	82	72	65	59	76	67	61	56	58	53	49	49	45	42	41	38	36	36	36	36	32
4	75	64	56	50	69	60	53	47	51	46	42	44	40	36	37	33	31	31	31	31	27
5	69	57	49	43	63	53	46	41	46	40	36	39	35	31	33	30	27	27	27	27	24
6	63	51	43	37	59	48	41	35	41	36	31	35	31	28	30	26	24	24	24	24	21
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21	21	21	21	19
8	54	42	34	29	50	39	32	27	34	29	25	30	25	22	25	22	19	19	19	19	17
9	51	38	31	26	47	36	29	25	31	26	22	27	23	20	23	20	17	17	17	17	15
10	47	35	28	23	44	33	26	22	29	24	20	25	21	18	21	18	16	16	16	16	14

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

	0°	45°	90°
0°	3459	3459	3459
5°	3462	3408	3431
10°	3433	3359	3383
15°	3380	3301	3308
20°	3310	3221	3231
25°	3240	3126	3143
30°	3153	3038	3031
35°	3070	2934	2914
40°	2969	2829	2801
45°	2868	2724	2686
50°	2757	2613	2554
55°	2641	2485	2430
60°	2510	2333	2290
65°	2366	2175	2124
70°	2183	1983	1944
75°	1930	1753	1776
80°	1625	1459	1459
85°	1147	960	943

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2868 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	261.3	2.0
10°-20°	735.1	5.6
20°-30°	1080.3	8.2
30°-40°	1254.7	9.5
40°-50°	1253.1	9.5
50°-60°	1092.7	8.3
60°-70°	807.7	6.1
70°-80°	457.0	3.5
80°-90°	124.3	0.9
90°-100°	69.5	0.5
100°-110°	259.0	2.0
110°-120°	686.8	5.2
120°-130°	1139.1	8.6
130°-140°	1209.9	9.1
140°-150°	1124.5	8.5
150°-160°	904.1	6.8
160°-170°	582.6	4.4
170°-180°	200.5	1.5
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0°-30°	2076.6	15.7
0°-40°	3331.3	25.2
0°-60°	5677.0	42.9
0°-90°	7066.1	53.4
90°-120°	1015.2	7.7
90°-150°	4488.7	33.9
90°-180°	6176.0	46.6
0°-180°	13241.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2776	2776	2776	2776	2776	
5°	2776	2765	2736	2757	2752	263
15°	2642	2626	2592	2602	2589	744
25°	2392	2370	2325	2330	2325	1100
35°	2063	2037	1994	1978	1964	1288
45°	1679	1660	1620	1591	1580	1296
55°	1271	1254	1222	1190	1177	1136
65°	857	841	814	790	777	847
75°	448	443	430	414	419	479
85°	109	107	104	96	94	122
90°	1	18	30	38	41	12
95°	99	49	59	67	66	117
105°	463	509	93	110	116	495
115°	876	902	940	235	125	863
125°	1239	1259	1288	1299	1303	1105
135°	1534	1558	1572	1587	1584	1185
145°	1779	1777	1803	1814	1806	1113
155°	1959	1945	1963	1972	1960	903
165°	2064	2055	2059	2070	2059	583
175°	2111	2100	2104	2114	2099	201
180°	2107	2107	2107	2107	2107	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2775.7	2775.7	2775.7	2775.7	2775.7
2.5°	2791.9	2778.6	2749.1	2775.7	2770.6
5°	2775.7	2765.3	2735.9	2757.1	2752.0
7.5°	2757.1	2741.2	2711.8	2733.3	2727.9
10°	2727.9	2709.2	2677.2	2698.4	2690.6
12.5°	2687.7	2671.8	2639.8	2653.1	2647.8
15°	2642.4	2626.5	2591.7	2602.5	2589.2
17.5°	2586.3	2570.4	2535.6	2549.0	2535.6
20°	2524.9	2509.0	2471.6	2479.6	2469.1
22.5°	2463.7	2439.6	2404.8	2404.8	2399.4
25°	2391.5	2370.3	2325.0	2330.0	2325.0
27.5°	2311.3	2292.7	2258.1	2250.1	2236.9
30°	2231.5	2209.9	2170.1	2162.1	2151.3
32.5°	2146.0	2130.1	2087.3	2071.2	2060.5
35°	2063.2	2036.7	1993.9	1977.7	1964.4
37.5°	1969.8	1945.7	1903.0	1884.3	1871.0
40°	1873.8	1852.3	1809.5	1785.7	1774.9
42.5°	1780.4	1758.8	1716.4	1689.4	1673.7
45°	1679.0	1660.3	1620.1	1590.9	1580.2
47.5°	1580.2	1561.5	1518.7	1489.2	1473.4
50°	1476.0	1462.7	1425.2	1387.9	1374.6
52.5°	1374.6	1355.8	1321.3	1291.9	1273.2
55°	1270.6	1254.5	1222.5	1190.5	1177.1
57.5°	1166.4	1153.2	1118.3	1086.3	1075.5
60°	1062.2	1051.8	1014.3	984.9	977.0
62.5°	960.8	942.2	915.5	888.9	878.2
65°	856.9	840.8	814.1	790.1	776.8
67.5°	750.1	736.6	712.7	694.1	683.3
70°	651.3	640.5	616.5	597.8	587.3
72.5°	549.9	539.2	525.8	507.2	499.3
75°	448.3	443.2	429.6	413.8	419.1
77.5°	357.7	346.9	341.5	333.6	325.7
80°	267.1	264.2	258.9	250.9	245.5
82.5°	181.6	181.6	179.0	168.2	168.2
85°	109.3	106.7	104.2	96.0	93.5
87.5°	48.2	42.8	37.4	29.4	26.7
90°	1.4	18.3	30.4	38.2	41.1
92.5°	38.2	32.0	36.6	39.7	41.1
95°	99.0	48.7	59.4	67.1	65.5
97.5°	178.3	53.4	77.7	82.4	83.8
100°	269.9	61.0	86.9	99.0	102.1
102.5°	370.3	367.5	90.0	106.6	111.3
105°	463.4	509.2	93.0	109.7	115.8
107.5°	571.6	609.7	96.1	112.8	119.0
110°	675.4	707.2	266.8	114.4	120.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	772.9	800.2	774.4	117.3	122.0
115°	876.5	902.3	940.5	234.8	125.1
117.5°	966.4	996.8	1022.9	804.8	405.5
120°	1067.0	1089.8	1117.4	1135.7	929.9
122.5°	1152.3	1176.7	1207.4	1216.4	1218.0
125°	1239.2	1259.1	1288.1	1298.8	1303.2
127.5°	1318.5	1339.8	1362.8	1378.0	1379.5
130°	1393.2	1417.6	1434.3	1451.2	1449.7
132.5°	1469.4	1489.3	1506.0	1519.7	1518.3
135°	1533.5	1557.9	1571.6	1586.9	1583.9
137.5°	1600.4	1618.8	1634.1	1649.4	1644.8
140°	1666.0	1678.3	1695.0	1708.7	1701.1
142.5°	1721.0	1731.7	1751.4	1763.5	1756.0
145°	1779.0	1777.4	1803.2	1813.9	1806.3
147.5°	1829.1	1824.6	1850.5	1858.1	1852.1
150°	1877.9	1867.3	1891.8	1900.8	1893.2
152.5°	1919.0	1906.9	1929.8	1938.9	1928.3
155°	1958.7	1945.1	1963.4	1972.5	1960.3
157.5°	1990.7	1978.6	1992.3	2003.0	1990.7
160°	2018.3	2009.0	2018.3	2027.3	2016.6
162.5°	2042.6	2033.5	2041.0	2051.7	2038.0
165°	2063.9	2054.9	2059.3	2070.0	2059.3
167.5°	2080.7	2071.4	2076.2	2086.9	2073.1
170°	2094.4	2085.3	2088.3	2099.0	2085.3
172.5°	2103.5	2094.4	2097.6	2108.2	2094.4
175°	2111.1	2100.4	2103.5	2114.2	2099.0
177.5°	2114.2	2103.5	2105.1	2115.9	2102.0
180°	2106.6	2106.6	2106.6	2106.6	2106.6



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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	11.84	12.73	12.77	13.68	14.90	11.41	12.30	12.34	13.25	14.47
	3H	13.49	14.29	14.43	15.25	16.49	13.02	13.82	13.96	14.78	16.02
	4H	14.07	14.83	15.03	15.79	17.05	13.61	14.36	14.56	15.32	16.58
	6H	14.47	15.17	15.43	16.13	17.40	14.00	14.70	14.96	15.66	16.93
	8H	14.57	15.23	15.54	16.22	17.48	14.10	14.77	15.07	15.75	17.01
	12H	14.62	15.25	15.59	16.22	17.51	14.14	14.77	15.12	15.75	17.04
4H	2H	12.30	13.06	13.26	14.02	15.27	11.96	12.71	12.92	13.67	14.93
	3H	14.16	14.79	15.13	15.78	17.05	13.77	14.40	14.74	15.39	16.66
	4H	14.87	15.44	15.84	16.43	17.72	14.46	15.04	15.44	16.02	17.32
	6H	15.37	15.87	16.36	16.88	18.17	14.97	15.47	15.96	16.47	17.77
	8H	15.52	15.98	16.51	16.98	18.29	15.11	15.58	16.11	16.58	17.88
	12H	15.59	16.01	16.60	17.03	18.34	15.17	15.59	16.19	16.61	17.92
8H	4H	15.06	15.53	16.05	16.53	17.83	14.70	15.17	15.70	16.17	17.47
	6H	15.68	16.07	16.70	17.11	18.41	15.32	15.71	16.34	16.75	18.05
	8H	15.90	16.24	16.92	17.26	18.59	15.53	15.87	16.56	16.90	18.22
	12H	16.02	16.32	17.05	17.35	18.71	15.65	15.94	16.67	16.97	18.33
12H	4H	15.05	15.47	16.06	16.48	17.79	14.70	15.12	15.71	16.13	17.45
	6H	15.71	16.05	16.74	17.08	18.40	15.36	15.70	16.39	16.73	18.05
	8H	15.95	16.25	16.98	17.27	18.64	15.59	15.89	16.62	16.92	18.28