

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: P915626

Luminaire Tested: DFN2DIP-TR4F0-080D110US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915626
REPORT IS A COMBINATION OF REPORTS P900503 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D110US927-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

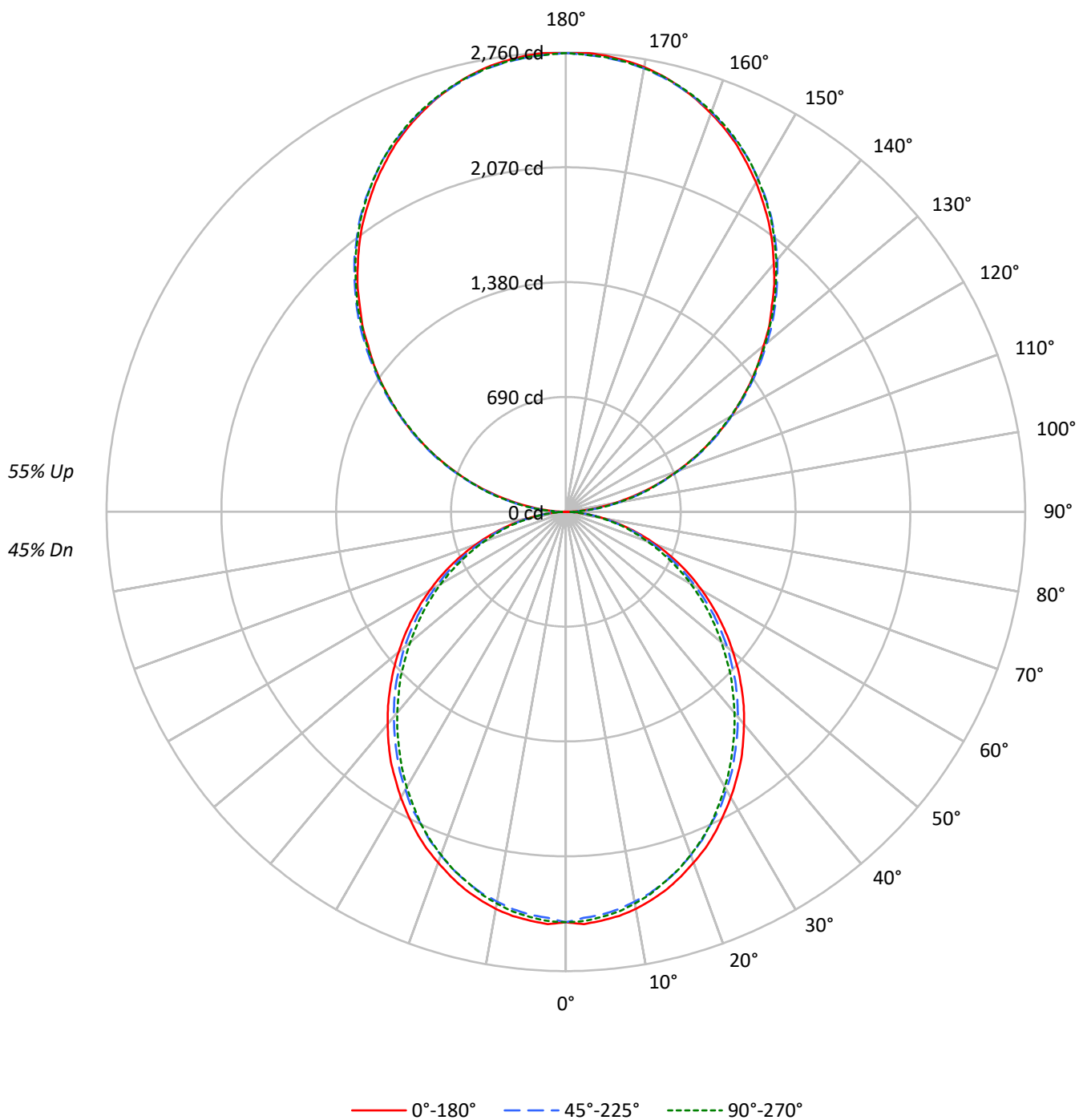
Lumens per Lamp: N/A
Luminaire Lumens: 13986.0 lumens
Efficiency: N/A
Efficacy: 87.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 159.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	106	106	106	106	97	97	97	97	81	81	81	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	71	68	66	57	56	54	45	44	43
2	88	81	75	69	80	74	69	64	62	58	55	50	48	45	40	38	37
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	35	33	31
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	21	25	21	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1959	1959	1959
5°	1962	1932	1945
10°	1946	1906	1918
15°	1918	1874	1877
20°	1879	1831	1835
25°	1841	1779	1786
30°	1792	1730	1724
35°	1747	1673	1659
40°	1691	1615	1596
45°	1634	1557	1532
50°	1573	1496	1458
55°	1509	1426	1391
60°	1436	1342	1313
65°	1357	1256	1221
70°	1257	1150	1122
75°	1117	1024	1030
80°	949	864	856
85°	687	586	567

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2147 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.1	1.7
10°-20°	653.0	4.7
20°-30°	959.7	6.9
30°-40°	1114.6	8.0
40°-50°	1113.2	8.0
50°-60°	970.7	6.9
60°-70°	717.6	5.1
70°-80°	406.0	2.9
80°-90°	115.0	0.8
90°-100°	170.5	1.2
100°-110°	541.8	3.9
110°-120°	927.3	6.6
120°-130°	1219.5	8.7
130°-140°	1368.8	9.8
140°-150°	1342.3	9.6
150°-160°	1126.0	8.1
160°-170°	746.7	5.3
170°-180°	261.0	1.9
0°-30°	1844.8	13.2
0°-40°	2959.4	21.2
0°-60°	5043.4	36.1
0°-90°	6281.9	44.9
90°-120°	1639.7	11.7
90°-150°	5570.3	39.8
90°-180°	7704.0	55.1
0°-180°	13986.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2466	2466	2466	2466	2466	
5°	2466	2457	2430	2449	2445	234
15°	2348	2333	2302	2312	2300	661
25°	2125	2106	2066	2070	2066	978
35°	1833	1809	1771	1757	1745	1145
45°	1492	1475	1439	1413	1404	1151
55°	1129	1114	1086	1058	1046	1009
65°	761	747	723	702	690	753
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	2	30	81	76	79	14
95°	121	145	149	149	145	135
105°	500	507	512	516	516	528
115°	931	944	940	937	931	920
125°	1353	1374	1368	1360	1358	1209
135°	1751	1776	1781	1779	1772	1353
145°	2125	2142	2155	2158	2149	1328
155°	2430	2437	2444	2456	2448	1119
165°	2644	2641	2641	2658	2646	746
175°	2751	2744	2739	2756	2742	261
180°	2756	2756	2756	2756	2756	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2465.9	2465.9	2465.9	2465.9	2465.9
2.5°	2480.2	2468.4	2442.3	2465.9	2461.4
5°	2465.9	2456.6	2430.5	2449.3	2444.8
7.5°	2449.3	2435.2	2409.1	2428.2	2423.4
10°	2423.4	2406.8	2378.4	2397.2	2390.2
12.5°	2387.7	2373.6	2345.2	2357.0	2352.2
15°	2347.5	2333.4	2302.4	2312.0	2300.2
17.5°	2297.6	2283.5	2252.6	2264.4	2252.6
20°	2243.1	2229.0	2195.8	2202.8	2193.5
22.5°	2188.7	2167.3	2136.4	2136.4	2131.6
25°	2124.6	2105.7	2065.5	2070.0	2065.5
27.5°	2053.3	2036.8	2006.0	1999.0	1987.2
30°	1982.4	1963.3	1927.9	1920.8	1911.2
32.5°	1906.5	1892.4	1854.3	1840.0	1830.5
35°	1832.9	1809.3	1771.3	1757.0	1745.2
37.5°	1749.9	1728.5	1690.6	1674.0	1662.2
40°	1664.7	1645.5	1607.6	1586.4	1576.8
42.5°	1581.7	1562.5	1524.8	1500.9	1486.8
45°	1491.6	1475.0	1439.2	1413.3	1403.8
47.5°	1403.8	1387.2	1349.2	1323.0	1308.9
50°	1311.2	1299.4	1266.1	1233.0	1221.1
52.5°	1221.1	1204.5	1173.9	1147.7	1131.1
55°	1128.8	1114.4	1086.1	1057.6	1045.8
57.5°	1036.3	1024.4	993.5	965.0	955.4
60°	943.6	934.4	901.1	875.0	867.9
62.5°	853.6	837.0	813.3	789.7	780.1
65°	761.3	746.9	723.3	701.9	690.1
67.5°	666.4	654.3	633.2	616.6	607.0
70°	578.6	569.0	547.7	531.1	521.7
72.5°	488.5	479.0	467.1	450.6	443.5
75°	398.2	393.7	381.7	367.6	372.3
77.5°	317.7	308.2	303.4	296.4	289.3
80°	237.3	234.7	230.0	222.9	218.1
82.5°	161.3	161.3	159.0	149.4	149.4
85°	97.1	94.8	92.6	85.3	83.0
87.5°	42.8	38.0	33.2	26.1	23.7
90°	2.5	29.9	81.4	76.4	78.9
92.5°	51.5	69.8	72.2	74.8	74.8
95°	121.3	144.6	148.7	148.7	144.6
97.5°	201.9	223.5	232.7	232.7	232.7
100°	294.9	314.0	320.7	320.7	318.2
102.5°	393.0	407.1	416.3	418.7	416.3
105°	500.2	506.8	511.8	515.9	515.9
107.5°	606.5	616.5	616.5	618.1	606.5
110°	709.6	722.9	722.9	722.9	716.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	820.9	835.0	832.5	825.8	820.9
115°	930.6	943.8	939.7	937.2	930.6
117.5°	1039.4	1057.6	1046.0	1039.4	1032.8
120°	1149.1	1167.4	1149.1	1149.1	1141.6
122.5°	1248.8	1272.0	1260.4	1253.7	1248.8
125°	1353.4	1374.2	1367.5	1360.1	1357.6
127.5°	1455.6	1481.4	1472.3	1462.3	1455.6
130°	1551.2	1581.1	1576.9	1571.9	1562.8
132.5°	1658.4	1681.6	1683.3	1671.7	1665.0
135°	1750.6	1776.3	1781.3	1778.8	1772.2
137.5°	1853.6	1874.4	1878.5	1876.8	1866.9
140°	1944.2	1964.9	1976.6	1976.6	1967.5
142.5°	2037.3	2058.0	2064.7	2067.1	2058.0
145°	2125.3	2141.9	2155.2	2157.7	2148.6
147.5°	2204.2	2225.0	2235.0	2239.1	2230.0
150°	2285.7	2299.8	2308.9	2316.4	2308.9
152.5°	2357.9	2372.0	2383.7	2392.9	2383.7
155°	2430.3	2436.8	2444.4	2456.0	2448.5
157.5°	2492.5	2497.5	2501.6	2518.3	2506.6
160°	2548.2	2553.2	2555.7	2569.8	2559.9
162.5°	2599.7	2599.7	2602.2	2618.0	2606.4
165°	2643.7	2641.2	2641.2	2657.8	2646.2
167.5°	2683.6	2676.1	2676.1	2692.8	2681.1
170°	2713.5	2706.9	2704.4	2721.0	2706.9
172.5°	2734.3	2727.6	2725.2	2741.8	2727.6
175°	2750.9	2744.3	2739.3	2755.9	2741.8
177.5°	2760.0	2753.4	2748.4	2762.6	2748.4
180°	2755.9	2755.9	2755.9	2755.9	2755.9

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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	9.11	9.93	10.11	10.94	12.28	8.68	9.50	9.68	10.51	11.85
	3H	10.77	11.50	11.78	12.52	13.88	10.30	11.03	11.31	12.05	13.41
	4H	11.35	12.05	12.38	13.07	14.44	10.88	11.58	11.90	12.60	13.97
	6H	11.75	12.39	12.78	13.42	14.80	11.28	11.92	12.31	12.94	14.33
	8H	11.85	12.46	12.89	13.51	14.89	11.38	11.99	12.42	13.03	14.41
	12H	11.90	12.48	12.95	13.52	14.92	11.42	12.00	12.46	13.04	14.44
4H	2H	9.57	10.26	10.60	11.29	12.66	9.22	9.92	10.25	10.94	12.31
	3H	11.43	12.01	12.47	13.06	14.44	11.04	11.62	12.07	12.67	14.05
	4H	12.14	12.67	13.19	13.72	15.12	11.74	12.27	12.78	13.31	14.72
	6H	12.65	13.11	13.71	14.18	15.58	12.25	12.70	13.30	13.77	15.17
	8H	12.80	13.23	13.86	14.29	15.71	12.39	12.82	13.45	13.88	15.29
	12H	12.87	13.26	13.95	14.33	15.75	12.45	12.84	13.53	13.91	15.33
8H	4H	12.34	12.76	13.39	13.82	15.24	11.98	12.40	13.03	13.46	14.88
	6H	12.96	13.32	14.04	14.42	15.83	12.60	12.96	13.68	14.06	15.47
	8H	13.19	13.50	14.27	14.58	16.01	12.82	13.13	13.90	14.21	15.64
	12H	13.31	13.59	14.40	14.67	16.14	12.93	13.20	14.02	14.28	15.76
12H	4H	12.32	12.70	13.39	13.78	15.20	11.97	12.35	13.04	13.43	14.85
	6H	12.99	13.30	14.08	14.39	15.82	12.64	12.95	13.73	14.04	15.47
	8H	13.23	13.51	14.32	14.59	16.06	12.88	13.15	13.97	14.23	15.70