

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: P926468

Luminaire Tested: DFN2DIP-TR4F0-060D110US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926468
REPORT IS A COMBINATION OF REPORTS P900500 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D110US950-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

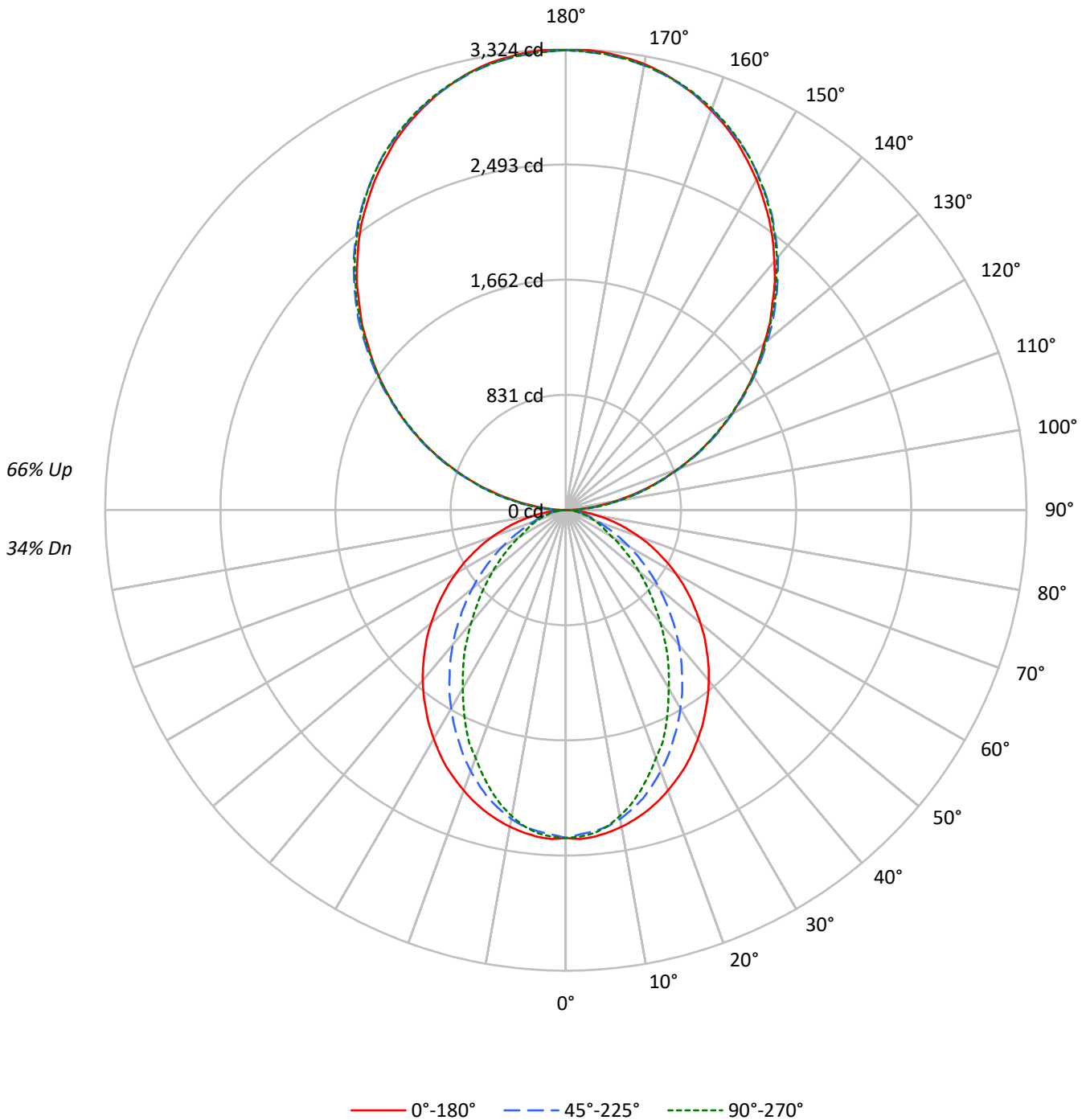
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14152.6 lumens
Efficiency: N/A
Efficacy: 102.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 138.1
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			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	103	103	103	103	93	93	93	93	75	75	75	58	58	58	42	42	42	42	42	42	34
1	95	91	87	84	85	82	79	76	66	64	62	51	50	48	37	37	36	36	36	36	30
2	86	79	74	69	78	72	67	63	58	55	52	45	43	41	33	32	31	31	31	31	25
3	79	70	63	58	71	64	58	53	51	47	44	40	37	35	30	28	27	27	27	27	22
4	72	62	55	49	65	56	50	45	46	41	38	36	33	30	27	25	23	23	23	23	19
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20	20	20	20	17
6	61	50	42	36	55	45	39	34	37	32	28	29	26	23	22	20	18	18	18	18	15
7	57	45	37	32	51	41	34	30	34	29	25	27	23	21	20	18	16	16	16	16	13
8	53	41	33	28	47	37	31	26	31	26	22	25	21	18	19	16	15	15	15	15	12
9	49	37	30	25	44	34	28	23	28	23	20	23	19	17	17	15	13	13	13	13	11
10	46	34	27	23	41	31	25	21	26	21	18	21	17	15	16	14	12	12	12	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1879	1879	1879
5°	1882	1850	1861
10°	1864	1813	1801
15°	1838	1753	1707
20°	1804	1671	1592
25°	1770	1578	1481
30°	1723	1483	1340
35°	1677	1381	1217
40°	1631	1275	1075
45°	1577	1158	946
50°	1521	1040	821
55°	1462	913	700
60°	1395	781	576
65°	1317	647	519
70°	1223	521	469
75°	1105	459	427
80°	933	386	370
85°	651	257	277

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2586 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.7	1.6
10°-20°	608.7	4.3
20°-30°	854.5	6.0
30°-40°	931.5	6.6
40°-50°	856.2	6.0
50°-60°	672.4	4.8
60°-70°	437.7	3.1
70°-80°	225.3	1.6
80°-90°	66.9	0.5
90°-100°	205.4	1.5
100°-110°	652.5	4.6
110°-120°	1116.7	7.9
120°-130°	1468.6	10.4
130°-140°	1648.4	11.6
140°-150°	1616.5	11.4
150°-160°	1356.0	9.6
160°-170°	899.3	6.4
170°-180°	314.3	2.2
0°-30°	1684.9	11.9
0°-40°	2616.4	18.5
0°-60°	4144.9	29.3
0°-90°	4874.8	34.4
90°-120°	1974.6	14.0
90°-150°	6708.2	47.4
90°-180°	9278.0	65.6
0°-180°	14152.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2366	2366	2366	2366	2366	
5°	2366	2355	2327	2346	2340	224
15°	2250	2226	2154	2113	2092	634
25°	2042	1974	1833	1745	1713	939
35°	1760	1651	1462	1327	1280	1102
45°	1439	1295	1071	918	867	1111
55°	1094	927	696	567	527	978
65°	739	565	372	300	293	732
75°	394	244	171	156	154	417
85°	92	47	41	41	41	106
90°	3	36	98	92	95	14
95°	146	174	179	179	174	163
105°	602	610	616	621	621	636
115°	1121	1137	1132	1129	1121	1108
125°	1630	1655	1647	1638	1635	1457
135°	2108	2139	2145	2142	2134	1630
145°	2559	2579	2596	2598	2587	1599
155°	2927	2935	2944	2958	2949	1347
165°	3184	3181	3181	3201	3187	898
175°	3313	3305	3299	3319	3302	315
180°	3319	3319	3319	3319	3319	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2365.7	2365.7	2365.7	2365.7	2365.7
2.5°	2376.4	2365.7	2342.1	2363.6	2359.3
5°	2365.7	2355.0	2327.1	2346.5	2340.1
7.5°	2346.5	2333.7	2303.7	2312.1	2301.4
10°	2320.7	2305.7	2263.1	2256.5	2243.7
12.5°	2288.7	2269.4	2211.5	2198.8	2175.1
15°	2250.1	2226.4	2153.8	2113.1	2091.7
17.5°	2205.2	2170.8	2080.9	2033.8	1999.6
20°	2153.8	2110.8	2003.9	1950.5	1903.2
22.5°	2098.1	2048.8	1924.6	1851.9	1819.9
25°	2042.5	1973.9	1832.6	1745.0	1712.7
27.5°	1976.2	1903.2	1747.0	1646.3	1597.1
30°	1905.5	1824.0	1652.7	1543.7	1485.8
32.5°	1836.9	1738.4	1563.0	1434.4	1380.8
35°	1759.9	1650.7	1462.4	1327.4	1280.2
37.5°	1685.0	1567.0	1368.1	1220.3	1166.8
40°	1605.7	1477.4	1269.5	1117.5	1061.9
42.5°	1524.4	1387.4	1171.1	1012.6	959.2
45°	1438.7	1295.2	1070.6	918.3	867.0
47.5°	1357.4	1205.5	974.2	822.1	775.0
50°	1267.5	1115.5	880.0	732.1	687.4
52.5°	1179.5	1019.0	790.0	648.7	608.1
55°	1094.0	927.0	695.8	567.4	526.7
57.5°	1006.3	834.9	612.4	492.5	458.1
60°	916.3	745.1	524.5	415.5	381.1
62.5°	828.6	657.4	449.5	346.9	329.8
65°	738.7	565.1	372.5	299.8	293.3
67.5°	653.0	479.5	299.8	263.3	256.9
70°	563.1	396.1	248.2	227.0	218.3
72.5°	477.5	318.9	207.6	190.6	186.2
75°	393.9	243.9	171.2	156.3	154.3
77.5°	310.5	173.3	134.9	126.3	122.0
80°	233.3	124.2	102.7	94.3	94.3
82.5°	162.7	83.6	70.6	66.3	66.3
85°	92.0	47.0	40.6	40.6	40.6
87.5°	34.3	17.1	17.1	15.0	15.0
90°	3.0	36.1	98.1	92.1	95.0
92.5°	62.0	84.0	87.0	90.1	90.1
95°	146.1	174.1	179.1	179.1	174.1
97.5°	243.2	269.1	280.2	280.2	280.2
100°	355.2	378.2	386.2	386.2	383.2
102.5°	473.3	490.3	501.3	504.3	501.3
105°	602.4	610.4	616.4	621.3	621.3
107.5°	730.4	742.4	742.4	744.4	730.4
110°	854.5	870.5	870.5	870.5	862.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	988.5	1005.5	1002.6	994.5	988.5
115°	1120.7	1136.6	1131.6	1128.7	1120.7
117.5°	1251.7	1273.7	1259.7	1251.7	1243.7
120°	1383.8	1405.8	1383.8	1383.8	1374.8
122.5°	1503.9	1531.8	1517.8	1509.8	1503.9
125°	1629.9	1654.9	1646.9	1637.9	1634.9
127.5°	1753.0	1784.0	1773.0	1761.0	1753.0
130°	1868.0	1904.1	1899.0	1893.0	1882.1
132.5°	1997.1	2025.2	2027.2	2013.1	2005.1
135°	2108.1	2139.2	2145.2	2142.2	2134.2
137.5°	2232.3	2257.3	2262.2	2260.2	2248.3
140°	2341.3	2366.3	2380.3	2380.3	2369.4
142.5°	2453.4	2478.4	2486.4	2489.4	2478.4
145°	2559.4	2579.4	2595.5	2598.4	2587.4
147.5°	2654.5	2679.5	2691.5	2696.5	2685.5
150°	2752.6	2769.6	2780.5	2789.6	2780.5
152.5°	2839.6	2856.6	2870.6	2881.7	2870.6
155°	2926.7	2934.6	2943.7	2957.7	2948.6
157.5°	3001.7	3007.7	3012.6	3032.7	3018.6
160°	3068.7	3074.7	3077.7	3094.8	3082.8
162.5°	3130.7	3130.7	3133.8	3152.8	3138.8
165°	3183.8	3180.7	3180.7	3200.8	3186.7
167.5°	3231.8	3222.8	3222.8	3242.8	3228.8
170°	3267.8	3259.8	3256.9	3276.8	3259.8
172.5°	3292.8	3284.8	3281.9	3301.9	3284.8
175°	3312.9	3304.8	3298.8	3318.9	3301.9
177.5°	3323.8	3315.8	3309.8	3326.9	3309.8
180°	3318.9	3318.9	3318.9	3318.9	3318.9



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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	7.68	8.39	8.76	9.47	10.95	3.65	4.37	4.74	5.45	6.93
	3H	9.34	9.99	10.44	11.08	12.57	4.83	5.47	5.93	6.56	8.06
	4H	9.95	10.56	11.05	11.65	13.15	5.28	5.89	6.38	6.98	8.48
	6H	10.36	10.92	11.48	12.02	13.53	5.59	6.15	6.71	7.25	8.76
	8H	10.49	11.02	11.60	12.13	13.64	5.68	6.21	6.80	7.32	8.83
	12H	10.54	11.05	11.67	12.15	13.68	5.72	6.23	6.84	7.33	8.86
4H	2H	7.68	8.29	8.79	9.38	10.88	4.23	4.84	5.34	5.93	7.43
	3H	9.50	10.00	10.62	11.12	12.64	5.57	6.08	6.69	7.20	8.71
	4H	10.19	10.65	11.31	11.76	13.29	6.12	6.58	7.24	7.69	9.22
	6H	10.70	11.09	11.82	12.22	13.75	6.53	6.93	7.66	8.06	9.59
	8H	10.87	11.24	12.00	12.36	13.91	6.66	7.03	7.79	8.15	9.70
	12H	10.96	11.29	12.10	12.43	13.98	6.72	7.05	7.86	8.19	9.74
8H	4H	10.15	10.52	11.27	11.64	13.18	6.39	6.76	7.52	7.88	9.43
	6H	10.71	11.01	11.86	12.18	13.72	6.90	7.21	8.05	8.37	9.92
	8H	10.92	11.19	12.08	12.34	13.90	7.09	7.36	8.25	8.51	10.07
	12H	11.06	11.29	12.22	12.43	14.03	7.21	7.44	8.37	8.59	10.18
12H	4H	10.09	10.43	11.24	11.56	13.11	6.39	6.72	7.53	7.86	9.41
	6H	10.68	10.95	11.84	12.10	13.66	6.95	7.22	8.11	8.36	9.93
	8H	10.90	11.13	12.06	12.27	13.87	7.16	7.39	8.32	8.53	10.13