

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: P912818

Luminaire Tested: DFN2DIP-TR4F0-060D090US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912818
REPORT IS A COMBINATION OF REPORTS P900463 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D090US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

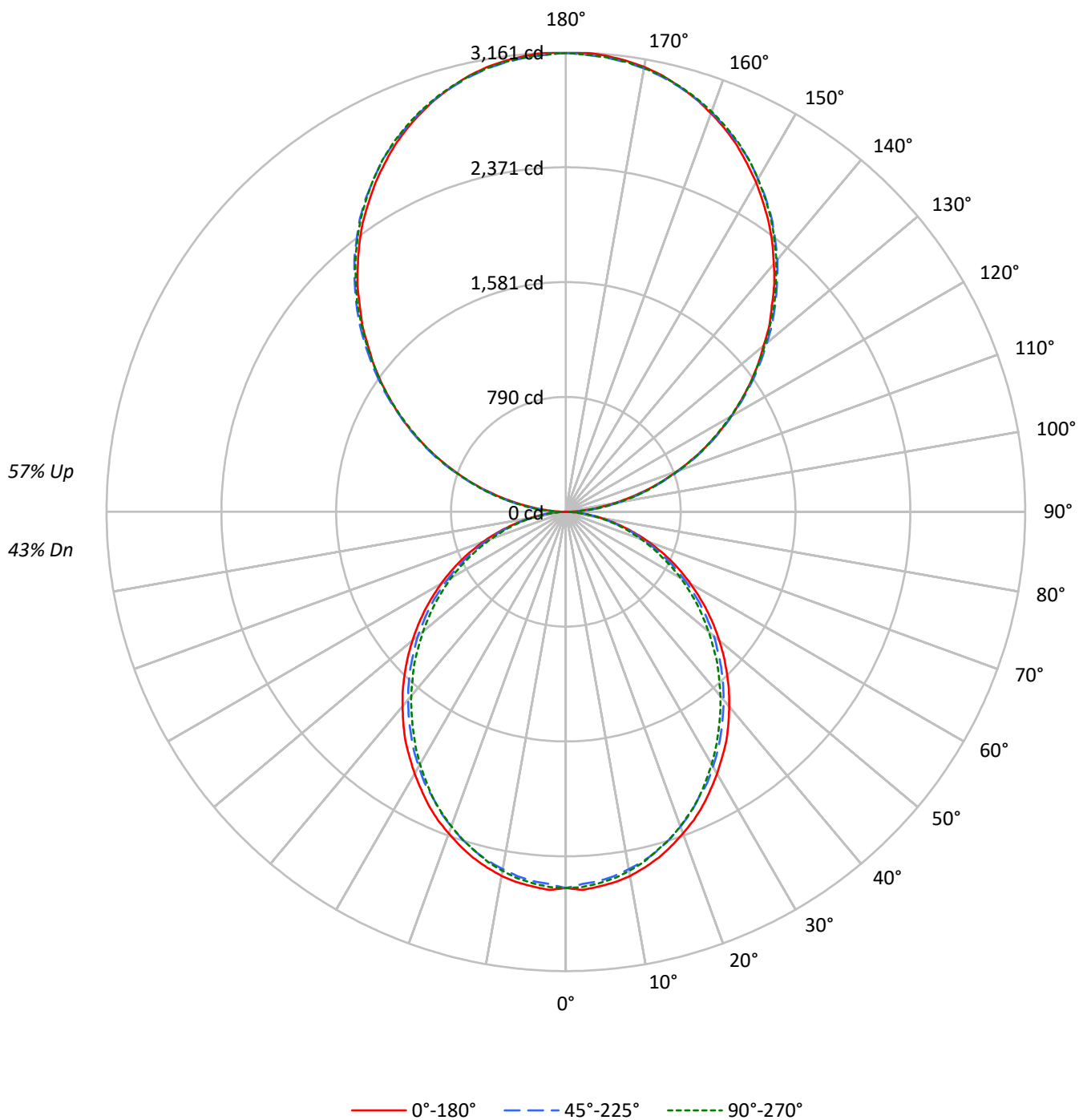
Lumens per Lamp: N/A
Luminaire Lumens: 15420.6 lumens
Efficiency: N/A
Efficacy: 127.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 121
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2057	2057	2057
5°	2060	2028	2042
10°	2044	2001	2014
15°	2013	1968	1971
20°	1973	1922	1927
25°	1932	1867	1875
30°	1882	1816	1810
35°	1834	1756	1741
40°	1775	1696	1676
45°	1716	1635	1609
50°	1652	1571	1531
55°	1584	1497	1460
60°	1508	1409	1378
65°	1425	1319	1282
70°	1319	1208	1178
75°	1173	1075	1082
80°	997	906	899
85°	721	615	596

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2460 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	243.7	1.6
10°-20°	685.6	4.4
20°-30°	1007.6	6.5
30°-40°	1170.3	7.6
40°-50°	1168.8	7.6
50°-60°	1019.2	6.6
60°-70°	753.4	4.9
70°-80°	426.3	2.8
80°-90°	121.5	0.8
90°-100°	195.3	1.3
100°-110°	620.6	4.0
110°-120°	1062.1	6.9
120°-130°	1396.8	9.1
130°-140°	1567.9	10.2
140°-150°	1537.5	10.0
150°-160°	1289.7	8.4
160°-170°	855.3	5.5
170°-180°	299.0	1.9
0°-30°	1937.0	12.6
0°-40°	3107.2	20.1
0°-60°	5295.3	34.3
0°-90°	6596.4	42.8
90°-120°	1878.1	12.2
90°-150°	6380.2	41.4
90°-180°	8824.0	57.2
0°-180°	15420.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2589	2589	2589	2589	2589	
5°	2589	2579	2552	2572	2567	246
15°	2465	2450	2417	2428	2415	694
25°	2231	2211	2168	2173	2168	1026
35°	1925	1900	1860	1845	1832	1202
45°	1566	1549	1511	1484	1474	1209
55°	1185	1170	1140	1110	1098	1060
65°	799	784	759	737	724	790
75°	418	413	401	386	391	446
85°	102	100	97	90	87	114
90°	3	34	93	88	90	15
95°	139	166	170	170	166	155
105°	573	580	586	591	591	605
115°	1066	1081	1076	1074	1066	1054
125°	1550	1574	1566	1558	1555	1385
135°	2005	2035	2040	2038	2030	1550
145°	2434	2453	2468	2471	2461	1521
155°	2784	2791	2800	2813	2805	1281
165°	3028	3025	3025	3044	3031	854
175°	3151	3143	3138	3157	3140	299
180°	3157	3157	3157	3157	3157	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2589.1	2589.1	2589.1	2589.1	2589.1
2.5°	2604.2	2591.7	2564.2	2589.1	2584.3
5°	2589.1	2579.3	2551.8	2571.7	2566.9
7.5°	2571.7	2556.9	2529.4	2549.5	2544.5
10°	2544.5	2527.1	2497.1	2517.0	2509.6
12.5°	2507.0	2492.1	2462.3	2474.7	2469.7
15°	2464.6	2449.9	2417.4	2427.5	2415.1
17.5°	2412.4	2397.7	2365.2	2377.5	2365.2
20°	2355.1	2340.3	2305.4	2312.8	2303.1
22.5°	2298.1	2275.6	2243.1	2243.1	2238.1
25°	2230.6	2210.9	2168.5	2173.3	2168.5
27.5°	2155.9	2138.5	2106.2	2098.9	2086.5
30°	2081.5	2061.3	2024.1	2016.7	2006.6
32.5°	2001.6	1986.9	1947.0	1931.9	1921.9
35°	1924.6	1899.7	1859.8	1844.7	1832.3
37.5°	1837.4	1814.9	1775.1	1757.5	1745.1
40°	1747.8	1727.7	1687.9	1665.7	1655.6
42.5°	1660.6	1640.5	1601.0	1575.9	1561.0
45°	1566.1	1548.6	1511.1	1484.0	1473.9
47.5°	1473.9	1456.4	1416.6	1389.1	1374.3
50°	1376.7	1364.3	1329.5	1294.5	1282.1
52.5°	1282.1	1264.7	1232.4	1205.0	1187.6
55°	1185.2	1170.1	1140.3	1110.4	1098.0
57.5°	1088.0	1075.6	1043.1	1013.3	1003.2
60°	990.8	981.0	946.2	918.7	911.3
62.5°	896.2	878.8	853.9	829.1	819.1
65°	799.3	784.3	759.4	736.9	724.5
67.5°	699.7	687.0	664.8	647.4	637.3
70°	607.5	597.5	575.0	557.6	547.8
72.5°	512.9	502.9	490.5	473.1	465.7
75°	418.1	413.4	400.7	385.9	390.9
77.5°	333.6	323.6	318.5	311.2	303.8
80°	249.1	246.4	241.4	234.0	229.0
82.5°	169.3	169.3	166.9	156.9	156.9
85°	101.9	99.6	97.1	89.5	87.2
87.5°	44.9	39.9	34.8	27.5	24.8
90°	2.9	34.3	93.3	87.5	90.4
92.5°	59.0	80.0	82.8	85.6	85.6
95°	139.0	165.6	170.3	170.3	165.6
97.5°	231.2	256.0	266.5	266.5	266.5
100°	337.8	359.8	367.3	367.3	364.5
102.5°	450.1	466.3	476.8	479.6	476.8
105°	572.9	580.5	586.2	591.0	591.0
107.5°	694.7	706.1	706.1	708.0	694.7
110°	812.7	828.0	828.0	828.0	820.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	940.2	956.4	953.5	946.0	940.2
115°	1065.9	1081.1	1076.3	1073.5	1065.9
117.5°	1190.5	1211.5	1198.2	1190.5	1182.9
120°	1316.2	1337.0	1316.2	1316.2	1307.5
122.5°	1430.3	1457.0	1443.7	1436.0	1430.3
125°	1550.3	1574.0	1566.5	1557.8	1555.0
127.5°	1667.3	1696.8	1686.3	1674.9	1667.3
130°	1776.7	1811.0	1806.2	1800.5	1790.0
132.5°	1899.5	1926.1	1928.0	1914.7	1907.1
135°	2005.1	2034.6	2040.3	2037.5	2029.9
137.5°	2123.1	2146.9	2151.7	2149.8	2138.4
140°	2226.9	2250.6	2263.9	2263.9	2253.5
142.5°	2333.4	2357.2	2364.8	2367.7	2357.2
145°	2434.4	2453.3	2468.5	2471.4	2461.0
147.5°	2524.7	2548.5	2559.9	2564.7	2554.2
150°	2618.0	2634.2	2644.6	2653.2	2644.6
152.5°	2700.7	2716.9	2730.2	2740.8	2730.2
155°	2783.6	2791.1	2799.8	2813.1	2804.6
157.5°	2854.9	2860.7	2865.4	2884.4	2871.1
160°	2918.7	2924.4	2927.3	2943.4	2932.0
162.5°	2977.7	2977.7	2980.5	2998.6	2985.3
165°	3028.1	3025.2	3025.2	3044.3	3031.0
167.5°	3073.8	3065.3	3065.3	3084.2	3070.9
170°	3108.1	3100.4	3097.7	3116.6	3100.4
172.5°	3131.8	3124.3	3121.4	3140.5	3124.3
175°	3150.9	3143.2	3137.6	3156.7	3140.5
177.5°	3161.3	3153.8	3148.0	3164.2	3148.0
180°	3156.7	3156.7	3156.7	3156.7	3156.7

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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	9.06	9.86	10.08	10.89	12.26	8.63	9.43	9.65	10.46	11.83
	3H	10.72	11.44	11.75	12.47	13.86	10.25	10.96	11.27	12.00	13.39
	4H	11.30	11.98	12.34	13.02	14.42	10.83	11.51	11.87	12.55	13.95
	6H	11.70	12.33	12.75	13.37	14.78	11.23	11.85	12.27	12.89	14.30
	8H	11.80	12.40	12.86	13.46	14.86	11.33	11.92	12.38	12.98	14.39
	12H	11.85	12.42	12.91	13.47	14.90	11.37	11.94	12.43	12.99	14.42
4H	2H	9.52	10.20	10.56	11.23	12.63	9.17	9.85	10.22	10.89	12.29
	3H	11.38	11.95	12.43	13.01	14.42	10.99	11.55	12.04	12.62	14.03
	4H	12.09	12.61	13.15	13.67	15.10	11.68	12.20	12.74	13.26	14.69
	6H	12.60	13.05	13.67	14.13	15.56	12.19	12.64	13.26	13.72	15.15
	8H	12.75	13.17	13.82	14.24	15.68	12.34	12.75	13.41	13.83	15.27
	12H	12.82	13.20	13.91	14.28	15.73	12.40	12.78	13.49	13.86	15.31
8H	4H	12.28	12.70	13.35	13.77	15.21	11.92	12.34	12.99	13.41	14.85
	6H	12.91	13.26	14.00	14.37	15.81	12.55	12.89	13.64	14.01	15.45
	8H	13.13	13.43	14.23	14.53	15.99	12.76	13.06	13.86	14.16	15.62
	12H	13.26	13.52	14.36	14.62	16.12	12.87	13.14	13.98	14.23	15.73
12H	4H	12.26	12.64	13.35	13.73	15.18	11.91	12.29	13.00	13.38	14.82
	6H	12.94	13.24	14.04	14.34	15.80	12.59	12.89	13.69	13.99	15.45
	8H	13.18	13.44	14.28	14.54	16.04	12.82	13.09	13.93	14.18	15.68