

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: P922450

Luminaire Tested: DFN2DIP-PN4F0-090D110US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922450
REPORT IS A COMBINATION OF REPORTS P899746 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D110US940-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

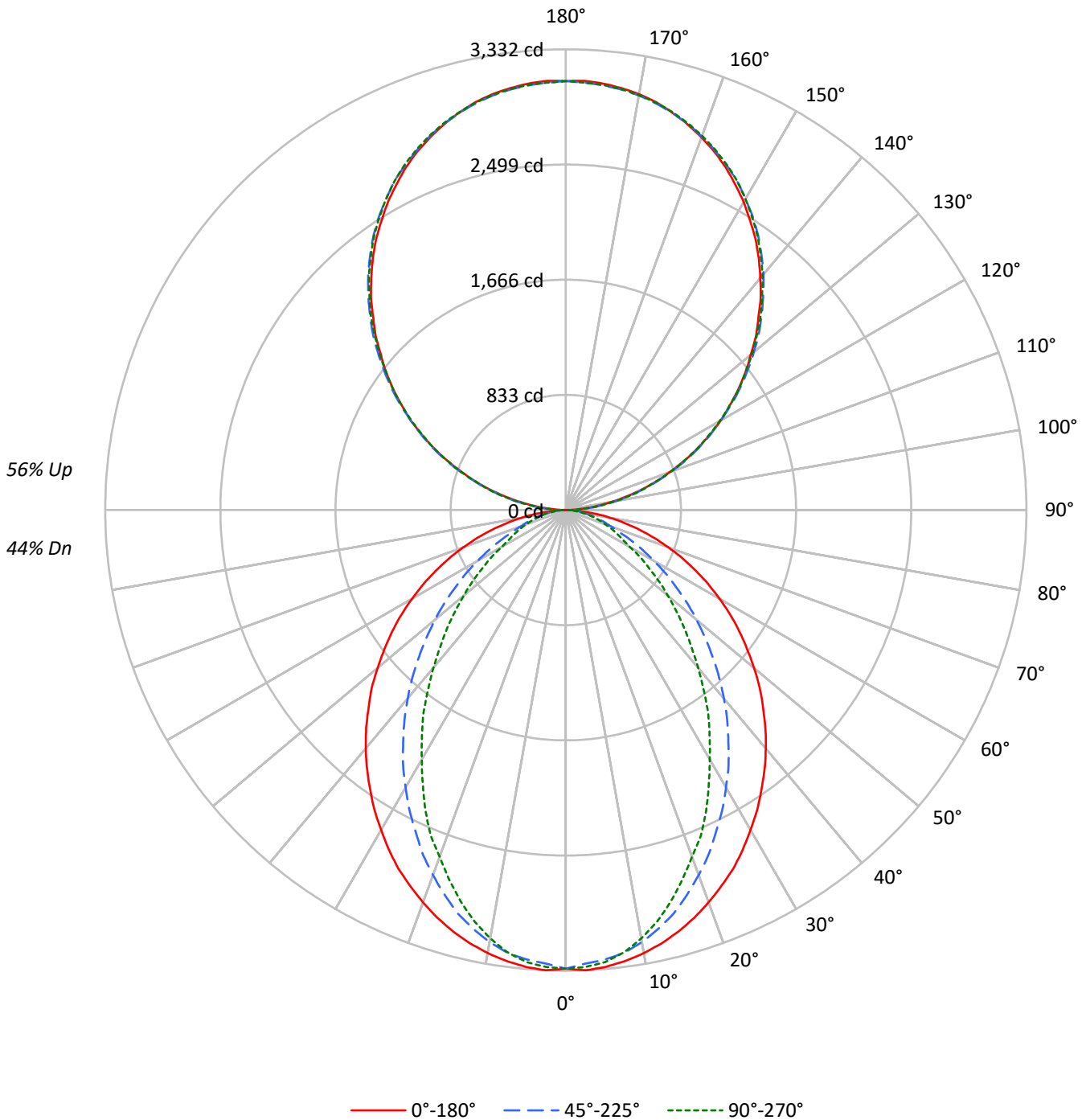
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15502.4 lumens
Efficiency: N/A
Efficacy: 86.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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				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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44	44	44	44
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44	38	38	38	38
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37	32	32	32	32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32	28	28	28	28
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28	24	24	24	24
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25	21	21	21	21
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22	19	19	19	19
7	58	46	39	33	53	43	36	31	37	31	27	30	27	24	25	22	20	17	17	17	17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15	15	15	15
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14	14	14	14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2421	2421	2421
5°	2425	2383	2398
10°	2401	2337	2321
15°	2368	2260	2201
20°	2324	2154	2053
25°	2279	2035	1910
30°	2219	1912	1729
35°	2160	1781	1570
40°	2100	1645	1388
45°	2031	1494	1222
50°	1959	1342	1061
55°	1884	1179	905
60°	1797	1009	746
65°	1696	836	672
70°	1575	675	608
75°	1423	595	554
80°	1202	500	483
85°	837	336	366

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2428 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.9	2.0
10°-20°	853.4	5.5
20°-30°	1198.1	7.7
30°-40°	1306.0	8.4
40°-50°	1200.4	7.7
50°-60°	942.7	6.1
60°-70°	613.6	4.0
70°-80°	315.9	2.0
80°-90°	89.5	0.6
90°-100°	192.0	1.2
100°-110°	609.9	3.9
110°-120°	1043.8	6.7
120°-130°	1372.7	8.9
130°-140°	1540.8	9.9
140°-150°	1511.0	9.7
150°-160°	1267.5	8.2
160°-170°	840.6	5.4
170°-180°	293.8	1.9
0°-30°	2362.4	15.2
0°-40°	3668.4	23.7
0°-60°	5811.5	37.5
0°-90°	6830.4	44.1
90°-120°	1845.7	11.9
90°-150°	6270.1	40.4
90°-180°	8672.0	55.9
0°-180°	15502.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3317	3317	3317	3317	3317	
5°	3317	3302	3263	3290	3281	315
15°	3155	3122	3020	2963	2933	889
25°	2864	2768	2570	2446	2401	1317
35°	2468	2314	2050	1861	1795	1544
45°	2017	1816	1501	1288	1216	1558
55°	1534	1300	975	796	738	1371
65°	1036	792	522	420	411	1027
75°	552	342	240	219	216	584
85°	129	66	57	57	57	148
90°	3	34	92	86	89	15
95°	136	163	167	167	163	152
105°	563	570	576	581	581	594
115°	1048	1062	1058	1055	1048	1036
125°	1524	1547	1539	1531	1528	1361
135°	1970	2000	2005	2002	1995	1523
145°	2392	2411	2426	2429	2418	1495
155°	2736	2743	2752	2765	2756	1259
165°	2976	2973	2973	2992	2979	840
175°	3097	3089	3083	3102	3086	294
180°	3102	3102	3102	3102	3102	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3316.9	3316.9	3316.9	3316.9	3316.9
2.5°	3331.9	3316.9	3283.7	3314.0	3308.0
5°	3316.9	3301.9	3262.8	3289.8	3280.9
7.5°	3289.8	3272.0	3230.0	3241.7	3226.7
10°	3253.9	3232.8	3173.0	3163.7	3145.9
12.5°	3208.9	3181.9	3100.7	3082.8	3049.6
15°	3154.8	3121.7	3019.8	2962.7	2932.8
17.5°	3091.7	3043.7	2917.5	2851.6	2803.5
20°	3019.8	2959.6	2809.5	2734.7	2668.4
22.5°	2941.8	2872.6	2698.4	2596.5	2551.6
25°	2863.7	2767.5	2569.5	2446.5	2401.3
27.5°	2770.7	2668.4	2449.4	2308.3	2239.2
30°	2671.7	2557.3	2317.2	2164.4	2083.1
32.5°	2575.4	2437.2	2191.4	2011.2	1936.0
35°	2467.5	2314.3	2050.3	1861.2	1794.9
37.5°	2362.4	2197.2	1918.2	1710.8	1636.0
40°	2251.3	2071.4	1779.9	1566.9	1488.9
42.5°	2137.3	1945.3	1642.0	1419.8	1344.9
45°	2017.2	1816.0	1500.9	1287.5	1215.6
47.5°	1903.2	1690.1	1365.9	1152.5	1086.6
50°	1777.1	1564.0	1233.8	1026.4	963.7
52.5°	1653.9	1428.7	1107.7	909.5	852.6
55°	1533.7	1299.7	975.4	795.6	738.5
57.5°	1410.9	1170.7	858.6	690.5	642.4
60°	1284.7	1044.5	735.4	582.5	534.4
62.5°	1161.8	921.7	630.3	486.3	462.4
65°	1035.6	792.4	522.3	420.4	411.2
67.5°	915.6	672.3	420.4	369.1	360.2
70°	789.5	555.4	348.1	318.2	306.0
72.5°	669.4	447.1	291.1	267.2	261.2
75°	552.2	342.1	240.1	219.1	216.2
77.5°	435.3	243.0	189.1	177.1	171.0
80°	327.1	174.2	143.9	132.2	132.2
82.5°	228.0	117.2	99.1	93.0	93.0
85°	128.9	65.9	57.0	57.0	57.0
87.5°	48.1	23.9	23.9	21.0	21.0
90°	2.8	33.7	91.7	86.1	88.8
92.5°	58.0	78.6	81.3	84.2	84.2
95°	136.5	162.7	167.4	167.4	162.7
97.5°	227.3	251.6	261.9	261.9	261.9
100°	332.0	353.5	361.0	361.0	358.2
102.5°	442.4	458.2	468.6	471.4	468.6
105°	563.0	570.5	576.1	580.8	580.8
107.5°	682.7	693.9	693.9	695.8	682.7
110°	798.7	813.7	813.7	813.7	806.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	924.0	939.9	937.1	929.6	924.0
115°	1047.5	1062.4	1057.7	1055.0	1047.5
117.5°	1170.0	1190.5	1177.4	1170.0	1162.5
120°	1293.4	1314.0	1293.4	1293.4	1285.0
122.5°	1405.7	1431.8	1418.7	1411.2	1405.7
125°	1523.5	1546.8	1539.4	1531.0	1528.1
127.5°	1638.5	1667.5	1657.2	1646.0	1638.5
130°	1746.1	1779.8	1775.0	1769.4	1759.2
132.5°	1866.7	1892.9	1894.8	1881.7	1874.2
135°	1970.5	1999.5	2005.1	2002.3	1994.8
137.5°	2086.5	2109.9	2114.5	2112.6	2101.5
140°	2188.4	2211.8	2224.9	2224.9	2214.7
142.5°	2293.2	2316.6	2324.1	2326.8	2316.6
145°	2392.3	2411.0	2426.0	2428.8	2418.5
147.5°	2481.2	2504.5	2515.8	2520.4	2510.2
150°	2572.9	2588.7	2599.0	2607.5	2599.0
152.5°	2654.2	2670.0	2683.2	2693.5	2683.2
155°	2735.6	2743.0	2751.5	2764.6	2756.1
157.5°	2805.7	2811.3	2815.9	2834.7	2821.5
160°	2868.4	2874.0	2876.7	2892.7	2881.5
162.5°	2926.3	2926.3	2929.2	2946.9	2933.8
165°	2975.9	2973.1	2973.1	2991.8	2978.7
167.5°	3020.8	3012.4	3012.4	3031.1	3018.0
170°	3054.5	3047.0	3044.2	3062.8	3047.0
172.5°	3077.8	3070.3	3067.6	3086.3	3070.3
175°	3096.6	3089.1	3083.4	3102.2	3086.3
177.5°	3106.8	3099.3	3093.7	3109.7	3093.7
180°	3102.2	3102.2	3102.2	3102.2	3102.2



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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	9.64	10.43	10.66	11.45	12.80	5.61	6.39	6.62	7.41	8.77
	3H	11.32	12.02	12.34	13.05	14.42	6.79	7.50	7.82	8.52	9.90
	4H	11.93	12.59	12.96	13.62	15.01	7.24	7.91	8.28	8.94	10.32
	6H	12.35	12.96	13.40	13.99	15.39	7.56	8.17	8.61	9.21	10.60
	8H	12.48	13.06	13.53	14.11	15.50	7.65	8.23	8.70	9.28	10.67
	12H	12.54	13.09	13.59	14.13	15.55	7.69	8.25	8.75	9.29	10.70
4H	2H	9.66	10.32	10.70	11.35	12.73	6.20	6.86	7.24	7.89	9.28
	3H	11.48	12.04	12.53	13.09	14.49	7.55	8.10	8.60	9.16	10.55
	4H	12.18	12.68	13.23	13.73	15.15	8.09	8.60	9.15	9.65	11.07
	6H	12.69	13.13	13.76	14.20	15.61	8.51	8.94	9.58	10.02	11.43
	8H	12.87	13.27	13.93	14.34	15.77	8.64	9.04	9.71	10.11	11.54
	12H	12.96	13.33	14.05	14.41	15.84	8.70	9.07	9.79	10.15	11.58
8H	4H	12.14	12.55	13.21	13.61	15.04	8.37	8.78	9.44	9.84	11.27
	6H	12.71	13.04	13.80	14.15	15.58	8.89	9.22	9.98	10.33	11.76
	8H	12.93	13.22	14.02	14.31	15.76	9.08	9.37	10.18	10.46	11.91
	12H	13.07	13.32	14.16	14.41	15.89	9.20	9.46	10.30	10.54	12.03
12H	4H	12.09	12.46	13.17	13.54	14.97	8.38	8.74	9.46	9.82	11.25
	6H	12.68	12.98	13.78	14.07	15.51	8.94	9.23	10.04	10.32	11.77
	8H	12.90	13.16	14.00	14.25	15.73	9.15	9.41	10.25	10.49	11.98