

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: P922342

Luminaire Tested: DFN2DIP-PN4F0-060D110US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922342
REPORT IS A COMBINATION OF REPORTS P899740 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D110US940-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

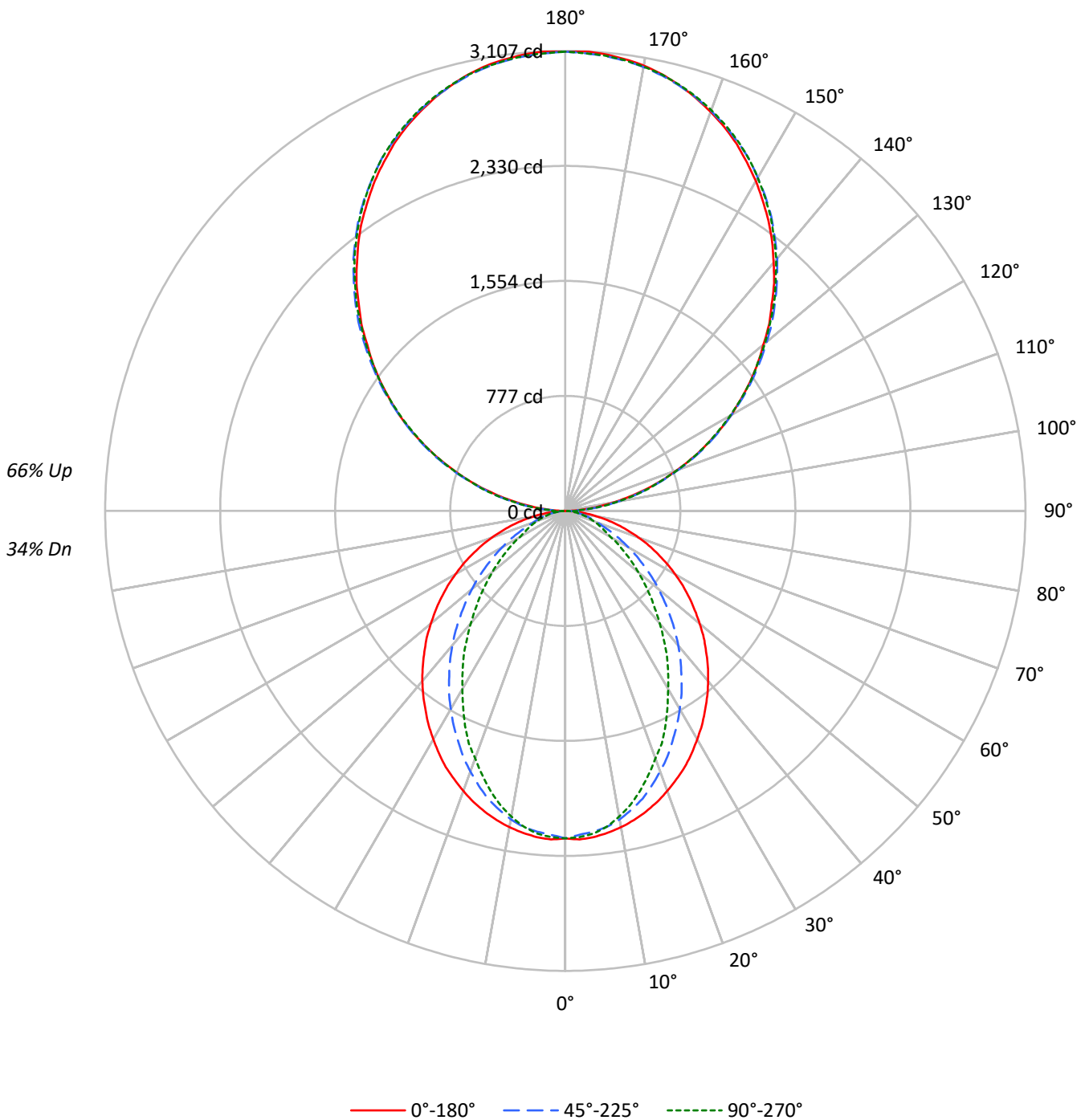
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13228.5 lumens
Efficiency: N/A
Efficacy: 90.5 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: Semi-Indirect

Input Watts (W): 146.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	103	103	103	103	93	93	93	93	75	75	75	58	58	58	42	42	42	34				34
1	95	91	87	84	85	82	79	76	66	64	62	51	50	48	37	37	36	30				30
2	86	79	74	69	78	72	67	63	58	55	52	45	43	41	33	32	31	25				25
3	79	70	63	58	71	64	58	53	51	47	44	40	37	35	30	28	27	22				22
4	72	62	55	49	65	56	50	45	46	41	38	36	33	30	27	25	23	19				19
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20	17				17
6	61	50	42	36	55	45	39	34	37	32	28	29	26	23	22	20	18	15				15
7	57	45	37	32	51	41	34	30	34	29	25	27	23	21	20	18	16	13				13
8	53	41	33	28	47	37	31	26	31	26	22	25	21	18	19	16	15	12				12
9	49	37	30	25	44	34	28	23	28	23	20	23	19	17	17	15	13	11				11
10	46	34	27	23	41	31	25	21	26	21	18	21	17	15	16	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1614	1614	1614
5°	1617	1589	1599
10°	1601	1558	1547
15°	1579	1506	1467
20°	1549	1436	1369
25°	1520	1356	1274
30°	1480	1275	1153
35°	1440	1187	1047
40°	1400	1097	925
45°	1354	996	815
50°	1306	895	707
55°	1256	786	604
60°	1198	673	497
65°	1131	557	448
70°	1050	450	406
75°	949	397	370
80°	801	333	322
85°	558	224	244

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°	207.2	1.6
10°-20°	568.9	4.3
20°-30°	798.7	6.0
30°-40°	870.7	6.6
40°-50°	800.3	6.0
50°-60°	628.5	4.8
60°-70°	409.1	3.1
70°-80°	210.6	1.6
80°-90°	62.6	0.5
90°-100°	192.0	1.5
100°-110°	609.9	4.6
110°-120°	1043.8	7.9
120°-130°	1372.7	10.4
130°-140°	1540.8	11.6
140°-150°	1511.0	11.4
150°-160°	1267.5	9.6
160°-170°	840.6	6.4
170°-180°	293.8	2.2
0°-30°	1574.9	11.9
0°-40°	2445.6	18.5
0°-60°	3874.3	29.3
0°-90°	4556.5	34.4
90°-120°	1845.7	14.0
90°-150°	6270.1	47.4
90°-180°	8672.0	65.6
0°-180°	13228.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2211	2211	2211	2211	2211	
5°	2211	2201	2175	2193	2187	210
15°	2103	2081	2013	1975	1955	593
25°	1909	1845	1713	1631	1601	878
35°	1645	1543	1367	1241	1197	1030
45°	1345	1211	1001	858	810	1039
55°	1022	866	650	530	492	914
65°	690	528	348	280	274	685
75°	368	228	160	146	144	389
85°	86	44	38	38	38	99
90°	3	34	92	86	89	13
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°	2211.3	2211.3	2211.3	2211.3	2211.3
2.5°	2221.3	2211.3	2189.1	2209.3	2205.3
5°	2211.3	2201.3	2175.1	2193.3	2187.3
7.5°	2193.3	2181.3	2153.3	2161.1	2151.2
10°	2169.2	2155.2	2115.3	2109.2	2097.2
12.5°	2139.3	2121.2	2067.1	2055.2	2033.1
15°	2103.2	2081.1	2013.1	1975.1	1955.2
17.5°	2061.2	2029.1	1945.0	1901.0	1869.0
20°	2013.1	1973.0	1873.0	1823.1	1779.0
22.5°	1961.1	1915.0	1798.9	1731.0	1701.0
25°	1909.2	1845.0	1713.0	1631.0	1600.9
27.5°	1847.2	1779.0	1632.9	1538.8	1492.8
30°	1781.1	1704.9	1544.8	1442.9	1388.7
32.5°	1717.0	1624.9	1461.0	1340.8	1290.7
35°	1645.0	1542.9	1366.9	1240.7	1196.6
37.5°	1574.9	1464.7	1278.8	1140.6	1090.7
40°	1500.8	1380.9	1186.6	1044.5	992.6
42.5°	1424.9	1296.8	1094.7	946.5	896.6
45°	1344.8	1210.6	1000.7	858.4	810.4
47.5°	1268.8	1126.8	910.6	768.4	724.4
50°	1184.7	1042.7	822.5	684.3	642.5
52.5°	1102.5	952.4	738.4	606.4	568.4
55°	1022.5	866.5	650.3	530.4	492.3
57.5°	940.6	780.4	572.4	460.3	428.2
60°	856.5	696.4	490.3	388.3	356.2
62.5°	774.5	614.5	420.2	324.2	308.3
65°	690.5	528.2	348.2	280.3	274.1
67.5°	610.4	448.2	280.3	246.1	240.1
70°	526.3	370.2	232.0	212.1	204.0
72.5°	446.3	298.1	194.0	178.2	174.1
75°	368.2	228.0	160.1	146.1	144.2
77.5°	290.3	162.0	126.1	118.1	114.0
80°	218.0	116.1	95.9	88.1	88.1
82.5°	152.0	78.1	66.0	62.0	62.0
85°	86.0	44.0	38.0	38.0	38.0
87.5°	32.1	16.0	16.0	14.0	14.0
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	7.16	7.88	8.24	8.96	10.44	3.12	3.84	4.21	4.92	6.40
	3H	8.83	9.47	9.93	10.56	12.06	4.31	4.95	5.40	6.04	7.53
	4H	9.44	10.04	10.54	11.14	12.64	4.75	5.36	5.86	6.45	7.95
	6H	9.85	10.41	10.97	11.51	13.02	5.07	5.63	6.18	6.72	8.24
	8H	9.98	10.51	11.10	11.62	13.13	5.15	5.69	6.27	6.80	8.30
	12H	10.04	10.54	11.16	11.65	13.18	5.20	5.70	6.32	6.80	8.33
4H	2H	7.16	7.77	8.28	8.86	10.37	3.71	4.32	4.82	5.41	6.91
	3H	8.99	9.49	10.10	10.61	12.12	5.05	5.55	6.17	6.67	8.19
	4H	9.68	10.14	10.80	11.25	12.78	5.59	6.06	6.71	7.16	8.70
	6H	10.19	10.59	11.32	11.72	13.24	6.01	6.40	7.14	7.54	9.06
	8H	10.36	10.73	11.49	11.86	13.40	6.13	6.51	7.26	7.63	9.17
	12H	10.45	10.79	11.60	11.92	13.47	6.19	6.53	7.34	7.67	9.21
8H	4H	9.64	10.01	10.76	11.13	12.67	5.87	6.24	6.99	7.36	8.90
	6H	10.20	10.51	11.35	11.67	13.21	6.38	6.69	7.53	7.85	9.39
	8H	10.42	10.69	11.57	11.83	13.39	6.57	6.84	7.73	7.99	9.55
	12H	10.55	10.79	11.71	11.93	13.53	6.69	6.92	7.85	8.06	9.66
12H	4H	9.58	9.92	10.73	11.05	12.60	5.87	6.20	7.01	7.34	8.89
	6H	10.18	10.44	11.33	11.59	13.15	6.43	6.70	7.59	7.84	9.40
	8H	10.39	10.63	11.55	11.77	13.37	6.64	6.87	7.80	8.01	9.61