

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: P923702

Luminaire Tested: DFN2DIP-TR4F0-050D110US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923702
REPORT IS A COMBINATION OF REPORTS P900497 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D110US940-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

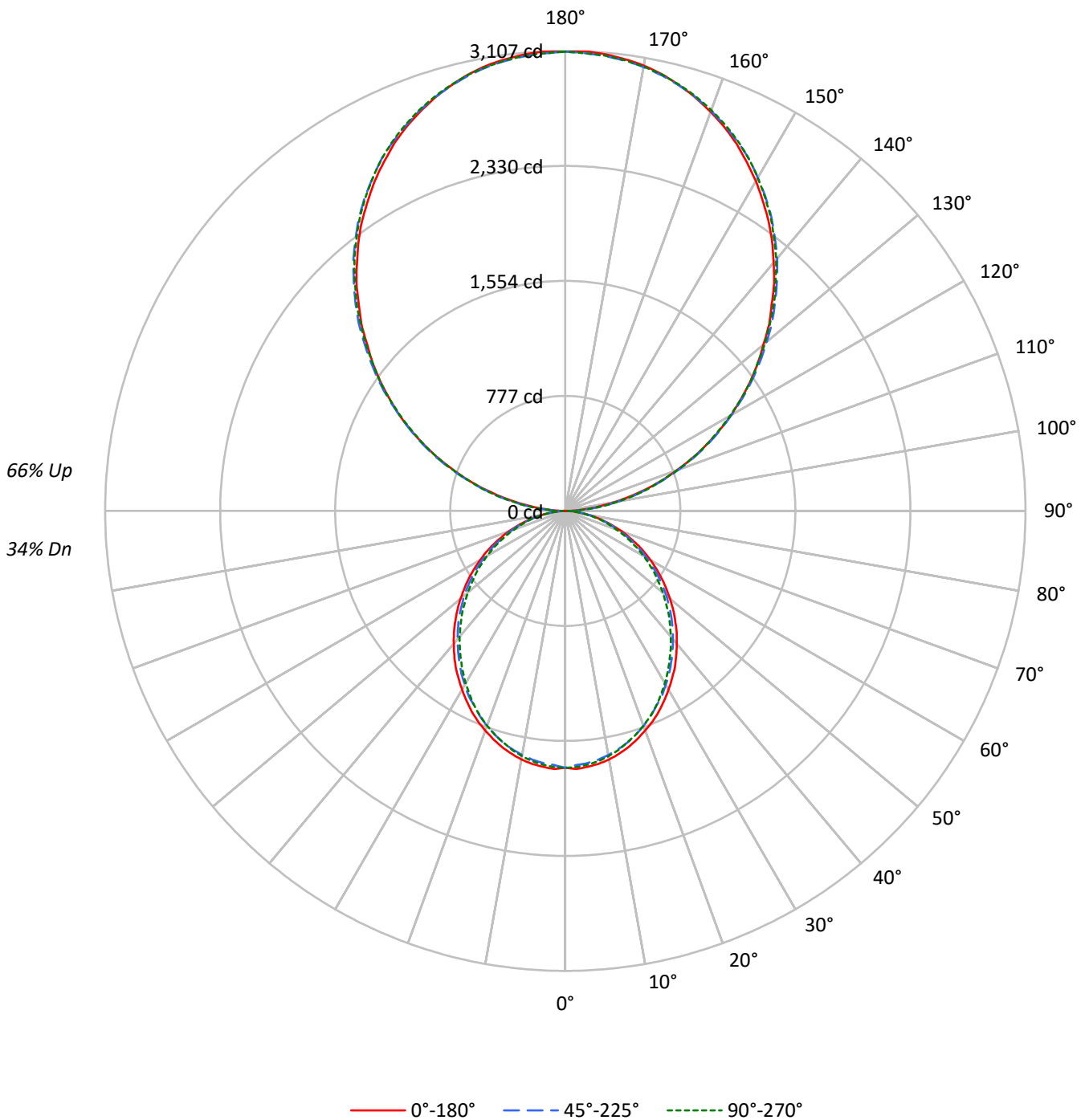
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13094.8 lumens
Efficiency: N/A
Efficacy: 103.4 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: Semi-Indirect

Input Watts (W): 126.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	74	74	74	57	57	57	41	41	41	34				34
1	94	90	86	83	85	81	78	75	65	63	61	50	49	47	36	36	35	28				28
2	86	78	73	67	77	71	66	62	57	53	50	44	42	40	32	31	29	24				24
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25	20				20
4	71	61	53	47	64	55	49	44	45	40	36	35	31	29	25	23	21	17				17
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	19	15				15
6	60	48	41	35	54	44	37	32	36	31	27	28	24	22	21	18	16	13				13
7	56	44	36	31	50	40	33	28	32	27	24	25	22	19	19	16	15	12				12
8	52	40	32	27	46	36	29	25	29	24	21	23	20	17	17	15	13	10				10
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	14	12	9				9
10	45	33	26	21	40	30	24	20	25	20	17	20	16	14	15	12	11	9				9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1378	1378	1378
5°	1380	1359	1368
10°	1369	1341	1350
15°	1349	1319	1321
20°	1322	1288	1291
25°	1295	1251	1257
30°	1261	1217	1213
35°	1229	1177	1167
40°	1189	1136	1123
45°	1150	1095	1078
50°	1107	1053	1026
55°	1062	1003	978
60°	1011	944	923
65°	955	883	859
70°	884	809	789
75°	786	721	725
80°	668	608	603
85°	483	412	399

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2417 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.2
10°-20°	459.4	3.5
20°-30°	675.2	5.2
30°-40°	784.2	6.0
40°-50°	783.2	6.0
50°-60°	682.9	5.2
60°-70°	504.8	3.9
70°-80°	285.6	2.2
80°-90°	84.2	0.6
90°-100°	192.0	1.5
100°-110°	609.9	4.7
110°-120°	1043.8	8.0
120°-130°	1372.7	10.5
130°-140°	1540.8	11.8
140°-150°	1511.0	11.5
150°-160°	1267.5	9.7
160°-170°	840.6	6.4
170°-180°	293.8	2.2
0°-30°	1297.9	9.9
0°-40°	2082.0	15.9
0°-60°	3548.1	27.1
0°-90°	4422.8	33.8
90°-120°	1845.7	14.1
90°-150°	6270.1	47.9
90°-180°	8672.0	66.2
0°-180°	13094.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1728	1710	1723	1720	165
15°	1651	1642	1620	1627	1618	465
25°	1495	1481	1453	1456	1453	688
35°	1290	1273	1246	1236	1228	805
45°	1049	1038	1012	994	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	485	530
75°	280	277	268	259	262	299
85°	68	67	65	60	58	76
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°	1734.8	1734.8	1734.8	1734.8	1734.8
2.5°	1744.9	1736.6	1718.2	1734.8	1731.7
5°	1734.8	1728.3	1709.9	1723.1	1720.0
7.5°	1723.1	1713.2	1694.9	1708.3	1705.0
10°	1705.0	1693.3	1673.3	1686.5	1681.6
12.5°	1679.8	1669.9	1649.9	1658.2	1654.8
15°	1651.4	1641.5	1619.8	1626.6	1618.2
17.5°	1616.4	1606.5	1584.7	1593.0	1584.7
20°	1578.1	1568.2	1544.8	1549.7	1543.2
22.5°	1539.8	1524.7	1503.0	1503.0	1499.6
25°	1494.7	1481.4	1453.0	1456.3	1453.0
27.5°	1444.6	1432.9	1411.3	1406.3	1398.0
30°	1394.6	1381.3	1356.3	1351.3	1344.6
32.5°	1341.2	1331.3	1304.6	1294.5	1287.8
35°	1289.5	1272.9	1246.2	1236.1	1227.8
37.5°	1231.1	1216.1	1189.4	1177.7	1169.4
40°	1171.2	1157.7	1131.0	1116.1	1109.4
42.5°	1112.8	1099.3	1072.7	1055.9	1046.0
45°	1049.4	1037.7	1012.5	994.3	987.6
47.5°	987.6	975.9	949.2	930.8	920.9
50°	922.5	914.2	890.8	867.5	859.1
52.5°	859.1	847.4	825.8	807.4	795.8
55°	794.2	784.1	764.0	744.0	735.8
57.5°	729.0	720.7	698.9	678.9	672.2
60°	663.9	657.4	634.0	615.5	610.6
62.5°	600.6	588.9	572.2	555.5	548.8
65°	535.6	525.5	508.8	493.8	485.4
67.5°	468.9	460.4	445.5	433.8	427.0
70°	407.1	400.4	385.3	373.6	367.1
72.5°	343.8	337.0	328.7	317.0	312.0
75°	280.2	277.0	268.5	258.6	262.0
77.5°	223.6	216.8	213.5	208.5	203.6
80°	166.9	165.1	161.8	156.9	153.5
82.5°	113.4	113.4	111.8	105.1	105.1
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
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	6.66	7.39	7.74	8.47	9.96	6.22	6.96	7.31	8.04	9.53
	3H	8.31	8.96	9.40	10.06	11.56	7.83	8.49	8.93	9.58	11.08
	4H	8.89	9.51	9.99	10.60	12.11	8.41	9.04	9.52	10.13	11.64
	6H	9.28	9.85	10.39	10.95	12.47	8.80	9.38	9.92	10.48	12.00
	8H	9.38	9.93	10.50	11.04	12.55	8.91	9.45	10.02	10.56	12.08
	12H	9.42	9.94	10.55	11.05	12.59	8.94	9.46	10.07	10.57	12.11
4H	2H	7.10	7.72	8.21	8.82	10.33	6.76	7.38	7.87	8.47	9.98
	3H	8.96	9.48	10.07	10.60	12.12	8.56	9.08	9.68	10.20	11.72
	4H	9.66	10.14	10.79	11.25	12.79	9.26	9.74	10.38	10.85	12.39
	6H	10.17	10.58	11.30	11.71	13.25	9.76	10.17	10.89	11.31	12.84
	8H	10.32	10.70	11.45	11.83	13.38	9.91	10.29	11.04	11.41	12.96
	12H	10.38	10.73	11.53	11.87	13.42	9.96	10.31	11.11	11.45	13.00
8H	4H	9.85	10.23	10.98	11.36	12.91	9.49	9.87	10.62	11.00	12.55
	6H	10.48	10.79	11.63	11.96	13.51	10.11	10.43	11.26	11.60	13.14
	8H	10.70	10.97	11.85	12.12	13.69	10.33	10.60	11.48	11.75	13.32
	12H	10.82	11.06	11.98	12.21	13.81	10.44	10.68	11.60	11.82	13.43
12H	4H	9.83	10.18	10.98	11.31	12.87	9.48	9.82	10.62	10.96	12.52
	6H	10.51	10.78	11.66	11.93	13.50	10.15	10.43	11.31	11.58	13.14
	8H	10.74	10.98	11.90	12.13	13.73	10.38	10.63	11.54	11.77	13.37