

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: P903244

Luminaire Tested: DFN2DIP-PN4F0-060D110US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903244
REPORT IS A COMBINATION OF REPORTS P899739 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D110US830-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

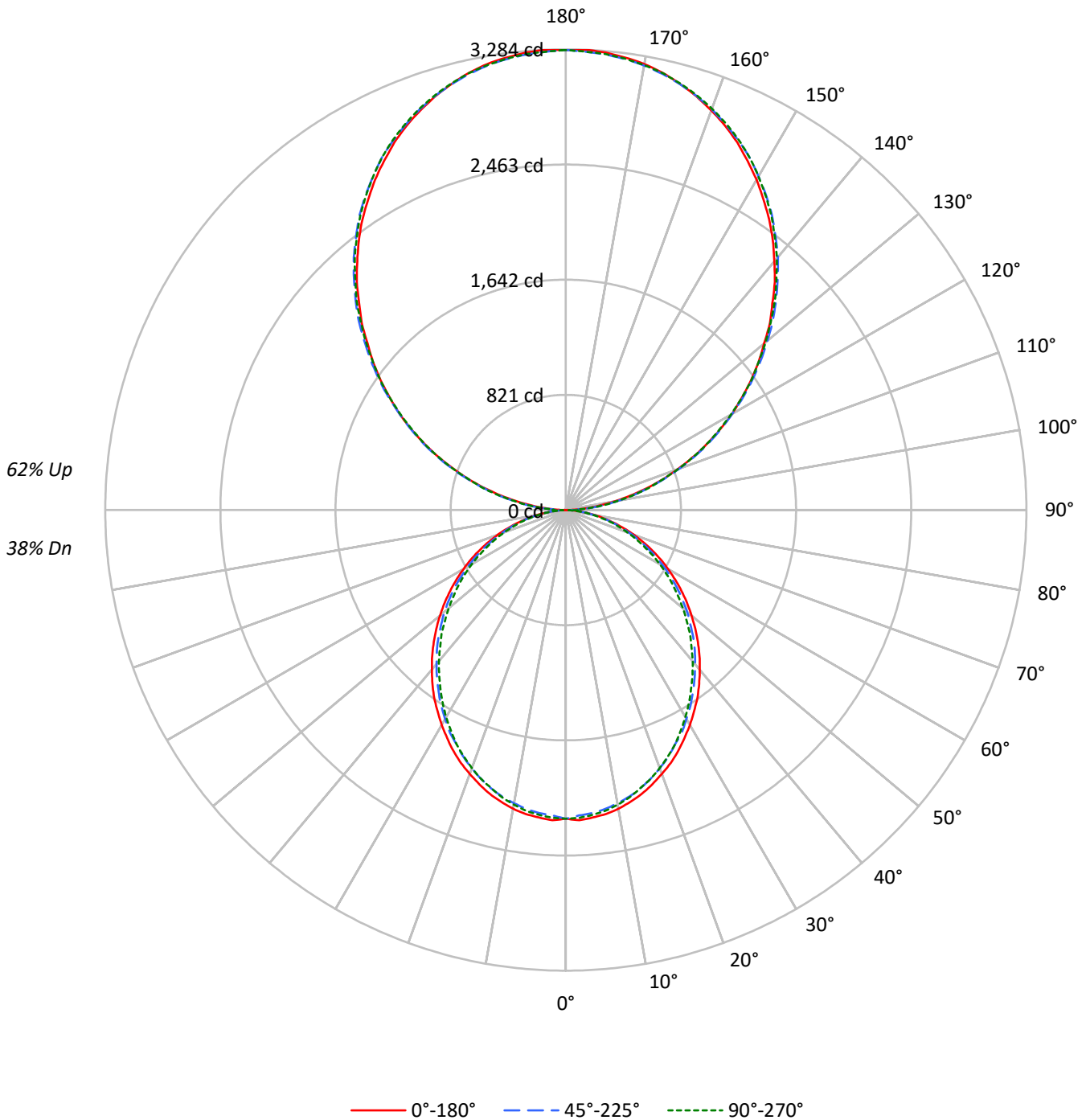
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14774.3 lumens
Efficiency: N/A
Efficacy: 101.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
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	104	104	104	104	95	95	95	95	77	77	77	60	60	60	45	45	45	38				38
1	95	91	87	84	86	83	79	76	67	65	63	53	51	50	40	39	38	32				32
2	87	79	73	68	78	72	67	63	59	55	52	46	44	42	35	33	32	27				27
3	79	70	62	57	71	63	57	52	52	47	44	41	38	35	31	29	27	23				23
4	72	62	54	48	65	56	49	44	46	41	37	37	33	30	28	25	23	19				19
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	22	20	17				17
6	61	49	41	35	55	45	38	33	37	32	28	30	26	23	23	20	18	15				15
7	56	44	36	31	51	41	34	29	33	28	24	27	23	20	21	18	16	13				13
8	52	40	32	27	47	37	30	25	30	25	22	25	21	18	19	16	14	12				12
9	48	37	29	24	44	34	27	23	28	23	19	23	19	16	17	15	13	11				11
10	45	33	26	22	41	31	24	20	26	21	17	21	17	14	16	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1606	1606	1606
5°	1609	1584	1595
10°	1596	1563	1574
15°	1572	1538	1540
20°	1541	1502	1506
25°	1509	1459	1466
30°	1470	1420	1416
35°	1432	1373	1362
40°	1386	1326	1311
45°	1340	1279	1259
50°	1290	1229	1199
55°	1237	1172	1144
60°	1178	1104	1081
65°	1113	1033	1006
70°	1030	947	926
75°	915	844	852
80°	778	714	710
85°	562	487	475

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2567 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	1.4
10°-20°	582.7	3.9
20°-30°	856.4	5.8
30°-40°	994.6	6.7
40°-50°	993.4	6.7
50°-60°	866.2	5.9
60°-70°	640.3	4.3
70°-80°	362.3	2.5
80°-90°	104.9	0.7
90°-100°	202.9	1.4
100°-110°	644.7	4.4
110°-120°	1103.3	7.5
120°-130°	1451.0	9.8
130°-140°	1628.6	11.0
140°-150°	1597.1	10.8
150°-160°	1339.7	9.1
160°-170°	888.5	6.0
170°-180°	310.5	2.1
0°-30°	1646.2	11.1
0°-40°	2640.9	17.9
0°-60°	4500.5	30.5
0°-90°	5608.0	38.0
90°-120°	1950.9	13.2
90°-150°	6627.6	44.9
90°-180°	9166.0	62.0
0°-180°	14774.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2200	2200	2200	2200	2200	
5°	2200	2192	2169	2186	2182	209
15°	2095	2082	2055	2063	2053	590
25°	1896	1879	1843	1847	1843	872
35°	1636	1615	1581	1568	1557	1021
45°	1331	1316	1284	1261	1253	1027
55°	1007	994	969	944	933	901
65°	679	667	646	626	616	672
75°	355	351	340	328	332	379
85°	87	85	83	76	74	97
90°	3	36	97	91	94	14
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2114	2119	2116	2109	1610
145°	2529	2548	2564	2567	2556	1580
155°	2892	2899	2908	2922	2913	1331
165°	3146	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2200.5	2200.5	2200.5	2200.5	2200.5
2.5°	2213.3	2202.7	2179.3	2200.5	2196.4
5°	2200.5	2192.2	2168.8	2185.7	2181.6
7.5°	2185.7	2173.1	2149.8	2166.8	2162.6
10°	2162.6	2147.8	2122.3	2139.2	2132.9
12.5°	2130.7	2118.1	2092.7	2103.3	2099.0
15°	2094.7	2082.2	2054.6	2063.1	2052.6
17.5°	2050.3	2037.8	2010.2	2020.6	2010.2
20°	2001.6	1989.0	1959.4	1965.7	1957.4
22.5°	1953.1	1934.0	1906.4	1906.4	1902.1
25°	1895.8	1879.1	1843.0	1847.1	1843.0
27.5°	1832.3	1817.5	1790.1	1783.9	1773.3
30°	1769.1	1751.9	1720.3	1714.0	1705.4
32.5°	1701.2	1688.7	1654.7	1641.9	1633.4
35°	1635.7	1614.6	1580.6	1567.8	1557.3
37.5°	1561.6	1542.5	1508.6	1493.7	1483.2
40°	1485.4	1468.4	1434.5	1415.7	1407.1
42.5°	1411.4	1394.3	1360.7	1339.4	1326.7
45°	1331.1	1316.2	1284.3	1261.2	1252.6
47.5°	1252.6	1237.8	1204.0	1180.6	1168.0
50°	1170.1	1159.5	1129.9	1100.2	1089.7
52.5°	1089.7	1074.9	1047.4	1024.2	1009.4
55°	1007.3	994.5	969.1	943.8	933.2
57.5°	924.7	914.2	886.6	861.2	852.6
60°	842.1	833.8	804.2	780.8	774.5
62.5°	761.7	746.9	725.8	704.6	696.2
65°	679.3	666.6	645.5	626.3	615.8
67.5°	594.6	583.9	565.1	550.3	541.7
70°	516.3	507.8	488.7	473.9	465.6
72.5°	435.9	427.4	416.9	402.1	395.8
75°	355.3	351.4	340.5	328.0	332.2
77.5°	283.5	275.0	270.7	264.5	258.2
80°	211.7	209.4	205.2	198.9	194.6
82.5°	143.9	143.9	141.9	133.4	133.4
85°	86.6	84.6	82.6	76.1	74.1
87.5°	38.2	33.9	29.6	23.4	21.1
90°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.3	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	609.0	613.9	613.9
107.5°	721.6	733.5	733.5	735.5	721.6
110°	844.2	860.1	860.1	860.1	852.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.7	993.4	990.5	982.6	976.7
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.4	1244.5	1236.7	1228.8
120°	1367.2	1388.9	1367.2	1367.2	1358.3
122.5°	1485.8	1513.4	1499.6	1491.7	1485.8
125°	1610.3	1635.0	1627.1	1618.3	1615.2
127.5°	1731.9	1762.6	1751.7	1739.8	1731.9
130°	1845.6	1881.2	1876.2	1870.3	1859.4
132.5°	1973.1	2000.8	2002.8	1989.0	1981.0
135°	2082.8	2113.5	2119.4	2116.5	2108.6
137.5°	2205.5	2230.1	2235.1	2233.1	2221.3
140°	2313.2	2337.9	2351.7	2351.7	2340.9
142.5°	2423.9	2448.6	2456.5	2459.5	2448.6
145°	2528.7	2548.4	2564.3	2567.2	2556.4
147.5°	2622.6	2647.3	2659.2	2664.1	2653.3
150°	2719.5	2736.3	2747.1	2756.1	2747.1
152.5°	2805.5	2822.3	2836.1	2847.0	2836.1
155°	2891.5	2899.4	2908.3	2922.2	2913.2
157.5°	2965.6	2971.6	2976.5	2996.2	2982.4
160°	3031.9	3037.8	3040.7	3057.6	3045.7
162.5°	3093.1	3093.1	3096.2	3114.9	3101.1
165°	3145.5	3142.5	3142.5	3162.3	3148.5
167.5°	3193.0	3184.1	3184.1	3203.9	3190.0
170°	3228.6	3220.7	3217.7	3237.4	3220.7
172.5°	3253.3	3245.4	3242.4	3262.2	3245.4
175°	3273.1	3265.2	3259.2	3279.0	3262.2
177.5°	3283.9	3276.0	3270.1	3286.9	3270.1
180°	3279.0	3279.0	3279.0	3279.0	3279.0



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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	7.70	8.46	8.75	9.52	10.95	7.26	8.02	8.31	9.08	10.51
	3H	9.35	10.03	10.41	11.10	12.55	8.87	9.55	9.93	10.62	12.07
	4H	9.94	10.58	11.01	11.65	13.11	9.45	10.10	10.52	11.17	12.62
	6H	10.33	10.93	11.42	12.00	13.47	9.84	10.44	10.93	11.51	12.98
	8H	10.44	11.00	11.52	12.09	13.56	9.94	10.51	11.03	11.60	13.06
	12H	10.48	11.02	11.58	12.10	13.59	9.98	10.52	11.08	11.60	13.09
4H	2H	8.15	8.79	9.23	9.86	11.32	7.79	8.44	8.88	9.51	10.97
	3H	10.00	10.55	11.09	11.64	13.11	9.60	10.14	10.69	11.24	12.71
	4H	10.72	11.21	11.81	12.30	13.79	10.30	10.80	11.39	11.88	13.37
	6H	11.23	11.66	12.33	12.76	14.25	10.81	11.23	11.91	12.34	13.83
	8H	11.38	11.78	12.48	12.88	14.38	10.95	11.35	12.05	12.45	13.95
	12H	11.45	11.81	12.57	12.92	14.43	11.01	11.37	12.13	12.48	13.99
8H	4H	10.91	11.30	12.01	12.41	13.91	10.54	10.93	11.64	12.03	13.54
	6H	11.54	11.87	12.66	13.01	14.51	11.16	11.49	12.28	12.63	14.13
	8H	11.76	12.05	12.89	13.17	14.69	11.37	11.66	12.50	12.79	14.30
	12H	11.89	12.14	13.02	13.26	14.82	11.49	11.74	12.62	12.86	14.42
12H	4H	10.89	11.25	12.01	12.36	13.87	10.52	10.89	11.64	12.00	13.51
	6H	11.57	11.85	12.70	12.98	14.50	11.20	11.49	12.33	12.61	14.13
	8H	11.81	12.06	12.94	13.18	14.73	11.43	11.69	12.57	12.81	14.36