

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: P905141

Luminaire Tested: DFN2DIP-4P4F0-080D070US835-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905141
REPORT IS A COMBINATION OF REPORTS P900658 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D070US835-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

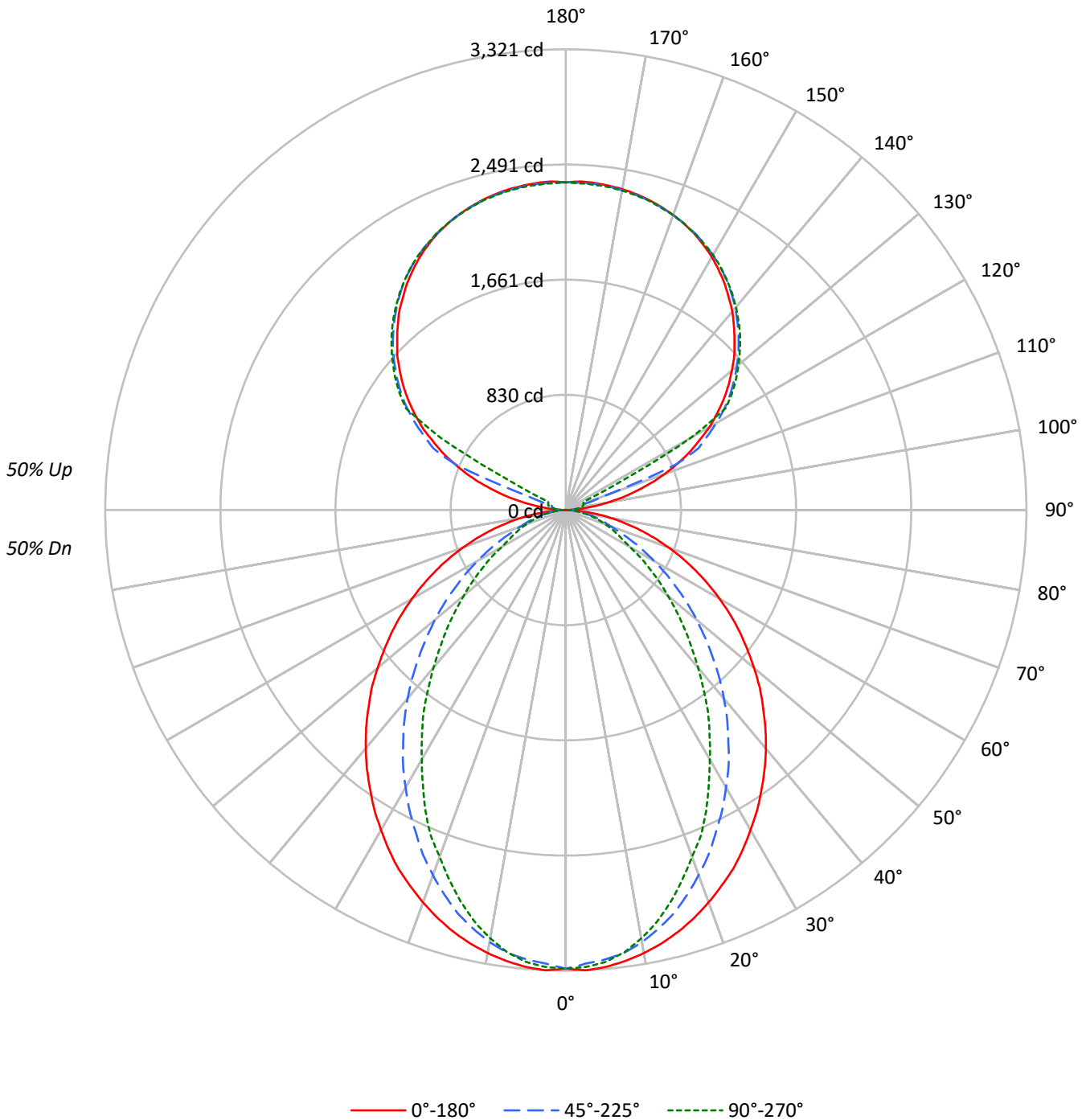
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13730.0 lumens
Efficiency: N/A
Efficacy: 93.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	56	50
1	98	94	90	87	90	87	84	81	74	71	69	61	60	58	50	49	48	50	49	48	43
2	90	83	77	72	83	77	71	67	65	61	58	54	52	49	45	43	41	45	43	41	37
3	82	73	66	60	76	68	62	57	58	53	49	49	45	42	40	38	36	40	38	36	32
4	75	65	57	52	69	60	54	48	52	47	42	44	40	37	36	33	31	36	33	31	27
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	33	30	27	33	30	27	24
6	64	52	44	39	59	49	42	37	42	37	32	36	32	28	30	27	24	30	27	24	21
7	59	47	40	34	55	44	37	32	38	33	29	33	28	25	27	24	22	27	24	22	19
8	55	43	36	30	51	40	34	29	35	30	26	30	26	23	25	22	20	25	22	20	17
9	51	39	32	27	48	37	30	26	32	27	23	28	23	21	23	20	18	23	20	18	16
10	48	36	29	25	45	34	28	23	30	25	21	26	22	19	22	19	16	22	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2145	2145	2145
5°	2149	2112	2125
10°	2127	2071	2057
15°	2098	2003	1951
20°	2060	1909	1820
25°	2020	1804	1694
30°	1967	1696	1534
35°	1915	1580	1393
40°	1862	1460	1231
45°	1801	1327	1085
50°	1737	1192	942
55°	1671	1048	804
60°	1594	897	663
65°	1506	744	598
70°	1398	601	542
75°	1264	531	495
80°	1069	448	432
85°	747	303	330

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1801 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	309.9	2.3
10°-20°	850.7	6.2
20°-30°	1194.3	8.7
30°-40°	1301.9	9.5
40°-50°	1196.6	8.7
50°-60°	939.7	6.8
60°-70°	611.7	4.5
70°-80°	314.9	2.3
80°-90°	84.5	0.6
90°-100°	77.9	0.6
100°-110°	290.4	2.1
110°-120°	770.2	5.6
120°-130°	1277.4	9.3
130°-140°	1356.9	9.9
140°-150°	1261.1	9.2
150°-160°	1013.9	7.4
160°-170°	653.3	4.8
170°-180°	224.9	1.6
0°-30°	2354.9	17.2
0°-40°	3656.8	26.6
0°-60°	5793.1	42.2
0°-90°	6804.2	49.6
90°-120°	1138.5	8.3
90°-150°	5033.8	36.7
90°-180°	6926.0	50.4
0°-180°	13730.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3306	3306	3306	3306	3306	
5°	3306	3292	3252	3279	3270	314
15°	3145	3112	3010	2953	2924	886
25°	2855	2759	2561	2439	2394	1313
35°	2460	2307	2044	1855	1789	1540
45°	2011	1810	1496	1284	1212	1553
55°	1529	1296	972	793	736	1366
65°	1032	790	521	419	410	1024
75°	550	341	239	218	216	582
85°	129	66	57	57	57	148
90°	2	20	34	43	46	13
95°	111	55	67	75	74	131
105°	520	571	104	123	130	555
115°	983	1012	1055	263	140	968
125°	1390	1412	1444	1456	1462	1239
135°	1720	1747	1762	1780	1776	1328
145°	1995	1993	2022	2034	2026	1248
155°	2197	2181	2202	2212	2198	1012
165°	2314	2304	2309	2321	2309	654
175°	2368	2356	2359	2371	2354	225
180°	2362	2362	2362	2362	2362	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3306.4	3306.4	3306.4	3306.4	3306.4
2.5°	3321.3	3306.4	3273.4	3303.5	3297.5
5°	3306.4	3291.5	3252.4	3279.4	3270.5
7.5°	3279.4	3261.6	3219.7	3231.5	3216.5
10°	3243.5	3222.6	3162.9	3153.7	3135.9
12.5°	3198.8	3171.8	3090.8	3073.0	3040.0
15°	3144.8	3111.8	3010.2	2953.4	2923.5
17.5°	3081.9	3034.0	2908.3	2842.6	2794.6
20°	3010.2	2950.2	2800.7	2726.1	2660.0
22.5°	2932.4	2863.5	2689.9	2588.3	2543.5
25°	2854.6	2758.8	2561.3	2438.8	2393.7
27.5°	2761.9	2660.0	2441.6	2301.0	2232.1
30°	2663.2	2549.2	2309.9	2157.5	2076.5
32.5°	2567.3	2429.6	2184.5	2004.8	1929.9
35°	2459.7	2307.0	2043.8	1855.3	1789.2
37.5°	2354.9	2190.2	1912.1	1705.4	1630.8
40°	2244.2	2064.8	1774.3	1561.9	1484.1
42.5°	2130.5	1939.1	1636.8	1415.3	1340.6
45°	2010.8	1810.2	1496.2	1283.5	1211.8
47.5°	1897.2	1684.8	1361.6	1148.9	1083.2
50°	1771.4	1559.1	1229.9	1023.2	960.6
52.5°	1648.6	1424.1	1104.1	906.7	849.9
55°	1528.9	1295.6	972.4	793.0	736.2
57.5°	1406.4	1167.0	855.9	688.3	640.3
60°	1280.6	1041.3	733.0	580.6	532.7
62.5°	1158.1	918.7	628.3	484.8	461.0
65°	1032.4	789.8	520.6	419.1	409.8
67.5°	912.7	670.2	419.1	367.9	359.1
70°	787.0	553.7	347.0	317.1	305.1
72.5°	667.3	445.7	290.2	266.4	260.3
75°	550.5	341.0	239.4	218.4	215.6
77.5°	434.0	242.2	188.6	176.5	170.5
80°	326.0	173.7	143.5	131.7	131.7
82.5°	227.3	116.8	98.7	92.7	92.7
85°	128.6	65.7	56.8	56.8	56.8
87.5°	47.9	23.8	23.8	21.0	21.0
90°	1.6	20.5	34.1	42.8	46.1
92.5°	42.8	35.9	41.0	44.5	46.1
95°	111.0	54.6	66.6	75.3	73.5
97.5°	199.9	59.9	87.1	92.4	94.0
100°	302.7	68.4	97.4	111.0	114.5
102.5°	415.3	412.1	100.9	119.6	124.8
105°	519.7	571.0	104.3	123.0	129.9
107.5°	641.0	683.7	107.8	126.5	133.4
110°	757.4	793.1	299.2	128.3	135.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	866.8	897.4	868.4	131.5	136.8
115°	982.9	1011.9	1054.7	263.3	140.3
117.5°	1083.8	1117.9	1147.1	902.5	454.7
120°	1196.6	1222.2	1253.1	1273.6	1042.8
122.5°	1292.2	1319.6	1354.0	1364.1	1365.9
125°	1389.7	1412.0	1444.5	1456.5	1461.5
127.5°	1478.6	1502.5	1528.3	1545.4	1547.0
130°	1562.4	1589.8	1608.5	1627.4	1625.8
132.5°	1647.9	1670.2	1688.9	1704.3	1702.7
135°	1719.7	1747.1	1762.4	1779.6	1776.2
137.5°	1794.8	1815.4	1832.6	1849.7	1844.6
140°	1868.3	1882.1	1900.8	1916.2	1907.7
142.5°	1930.0	1942.0	1964.1	1977.7	1969.2
145°	1995.0	1993.2	2022.2	2034.2	2025.7
147.5°	2051.2	2046.2	2075.2	2083.7	2077.0
150°	2106.0	2094.1	2121.5	2131.6	2123.1
152.5°	2152.1	2138.5	2164.1	2174.4	2162.5
155°	2196.6	2181.3	2201.8	2212.0	2198.4
157.5°	2232.5	2218.9	2234.3	2246.3	2232.5
160°	2263.4	2253.0	2263.4	2273.5	2261.5
162.5°	2290.6	2280.4	2288.9	2300.9	2285.5
165°	2314.5	2304.4	2309.4	2321.4	2309.4
167.5°	2333.4	2323.0	2328.3	2340.3	2324.9
170°	2348.8	2338.5	2341.9	2353.9	2338.5
172.5°	2359.0	2348.8	2352.3	2364.2	2348.8
175°	2367.5	2355.5	2359.0	2370.9	2353.9
177.5°	2370.9	2359.0	2360.8	2372.8	2357.3
180°	2362.4	2362.4	2362.4	2362.4	2362.4



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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	9.78	10.60	10.74	11.58	12.86	5.74	6.56	6.70	7.54	8.82
	3H	11.46	12.20	12.44	13.18	14.49	6.93	7.67	7.91	8.65	9.95
	4H	12.07	12.77	13.06	13.76	15.07	7.38	8.08	8.37	9.07	10.38
	6H	12.50	13.14	13.50	14.14	15.46	7.70	8.34	8.70	9.34	10.66
	8H	12.63	13.24	13.64	14.25	15.57	7.79	8.40	8.80	9.41	10.73
	12H	12.69	13.27	13.70	14.28	15.62	7.84	8.42	8.85	9.42	10.77
4H	2H	9.79	10.49	10.79	11.48	12.79	6.33	7.03	7.33	8.02	9.33
	3H	11.63	12.21	12.64	13.23	14.55	7.69	8.27	8.69	9.29	10.61
	4H	12.33	12.86	13.34	13.87	15.22	8.24	8.77	9.25	9.78	11.13
	6H	12.85	13.30	13.87	14.34	15.68	8.66	9.11	9.68	10.15	11.49
	8H	13.02	13.45	14.05	14.48	15.84	8.79	9.21	9.81	10.24	11.60
	12H	13.12	13.51	14.17	14.55	15.91	8.85	9.24	9.90	10.28	11.64
8H	4H	12.29	12.72	13.32	13.75	15.11	8.52	8.94	9.55	9.97	11.33
	6H	12.87	13.22	13.92	14.29	15.64	9.04	9.39	10.09	10.46	11.82
	8H	13.09	13.39	14.14	14.45	15.83	9.23	9.54	10.29	10.60	11.97
	12H	13.23	13.50	14.29	14.55	15.97	9.35	9.63	10.41	10.68	12.09
12H	4H	12.25	12.63	13.29	13.67	15.04	8.53	8.91	9.57	9.95	11.32
	6H	12.84	13.15	13.90	14.21	15.58	9.09	9.40	10.15	10.46	11.83
	8H	13.07	13.34	14.13	14.39	15.81	9.30	9.58	10.36	10.63	12.04