

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: P905069

Luminaire Tested: DFN2DIP-4P4F0-050D070US835-RLONL

Issue Date: 11/21/2024

**Test Information**

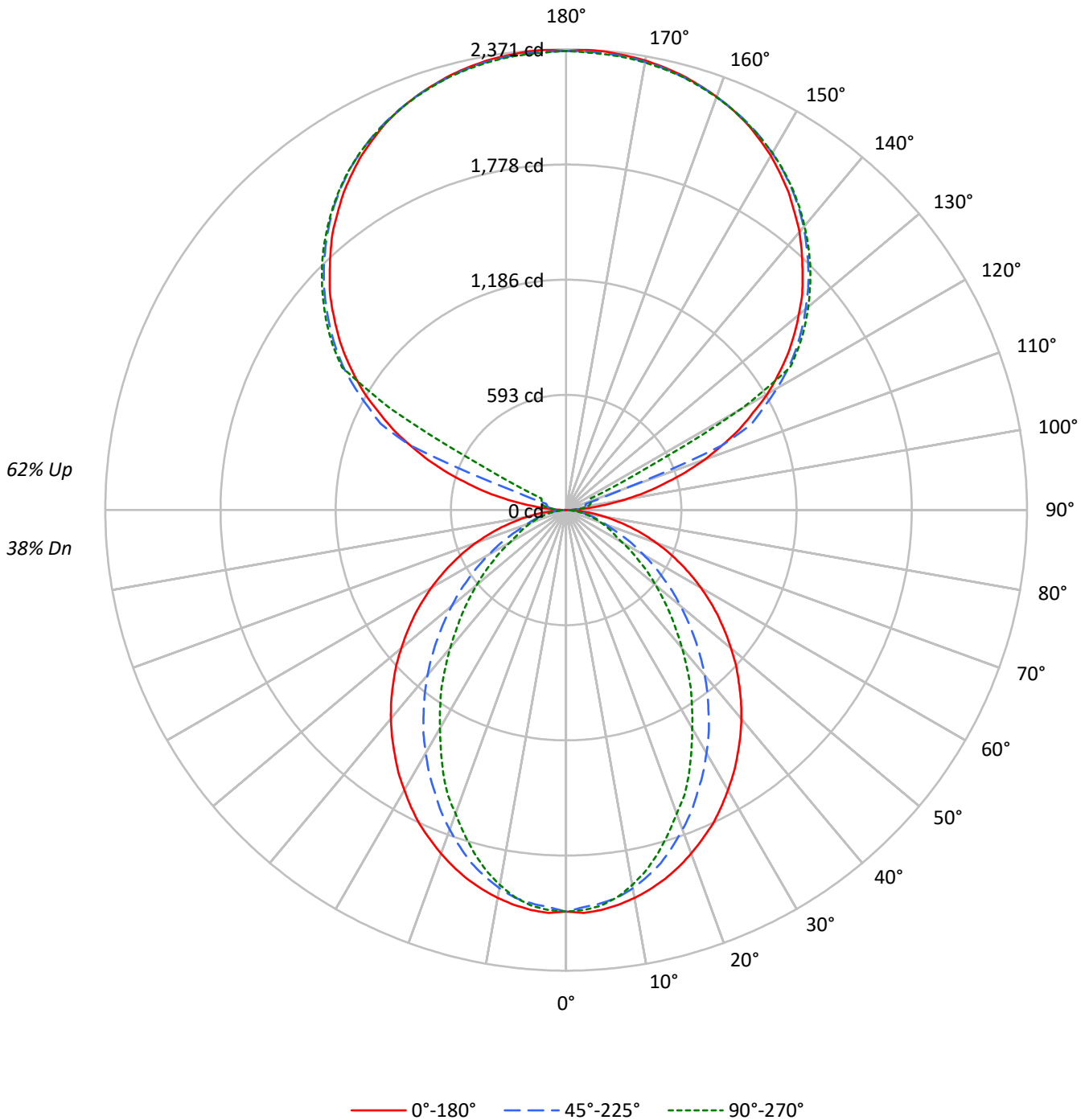
Test Method: LM-79-2019  
Report Number: P905069  
REPORT IS A COMBINATION OF REPORTS P900652 AND P897523  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-050D070US835-RLLONL  
Description: 4 foot, 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: 11180.0 lumens  
Efficiency: N/A  
Efficacy: 100.5 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: Semi-Indirect  
  
Input Watts (W): 111.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
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	88	84	87	83	80	77	68	66	64	54	52	51	40	40	39	33				33
2	87	80	74	69	79	73	68	64	60	56	53	47	45	43	36	35	33	28				28
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	32	30	29	24				24
4	73	63	55	50	66	57	51	46	47	42	39	38	34	32	29	27	25	21				21
5	67	56	48	43	61	51	45	40	42	37	34	34	31	28	26	24	22	19				19
6	62	50	43	37	56	46	39	34	38	33	29	31	27	24	24	22	20	16				16
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	18	15				15
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16	13				13
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14	12				12
10	46	35	28	23	42	32	26	22	27	22	19	22	18	16	17	15	13	11				11

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1341	1341	1341
5°	1343	1320	1328
10°	1330	1294	1286
15°	1311	1252	1219
20°	1287	1193	1138
25°	1263	1128	1059
30°	1229	1060	959
35°	1197	988	871
40°	1164	913	770
45°	1125	829	678
50°	1086	745	589
55°	1044	655	503
60°	996	561	414
65°	941	465	374
70°	874	376	339
75°	790	332	309
80°	668	280	270
85°	467	189	206

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1218 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	193.7	1.7
10°-20°	531.7	4.8
20°-30°	746.5	6.7
30°-40°	813.7	7.3
40°-50°	747.9	6.7
50°-60°	587.3	5.3
60°-70°	382.3	3.4
70°-80°	196.8	1.8
80°-90°	54.4	0.5
90°-100°	77.9	0.7
100°-110°	290.4	2.6
110°-120°	770.2	6.9
120°-130°	1277.4	11.4
130°-140°	1356.9	12.1
140°-150°	1261.1	11.3
150°-160°	1013.9	9.1
160°-170°	653.3	5.8
170°-180°	224.9	2.0
0°-30°	1471.8	13.2
0°-40°	2285.5	20.4
0°-60°	3620.7	32.4
0°-90°	4254.2	38.1
90°-120°	1138.5	10.2
90°-150°	5033.8	45.0
90°-180°	6926.0	61.9
0°-180°	11180.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2066	2066	2066	2066	2066	
5°	2066	2057	2033	2050	2044	196
15°	1966	1945	1881	1846	1827	554
25°	1784	1724	1601	1524	1496	821
35°	1537	1442	1277	1160	1118	962
45°	1257	1131	935	802	757	971
55°	956	810	608	496	460	854
65°	645	494	325	262	256	640
75°	344	213	150	136	135	364
85°	80	41	36	36	36	92
90°	2	20	34	43	46	10
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°	2066.5	2066.5	2066.5	2066.5	2066.5
2.5°	2075.8	2066.5	2045.9	2064.7	2060.9
5°	2066.5	2057.2	2032.8	2049.6	2044.1
7.5°	2049.6	2038.5	2012.3	2019.7	2010.3
10°	2027.2	2014.1	1976.8	1971.1	1959.9
12.5°	1999.2	1982.4	1931.8	1920.7	1900.0
15°	1965.5	1944.9	1881.4	1845.9	1827.2
17.5°	1926.2	1896.3	1817.7	1776.6	1746.6
20°	1881.4	1843.9	1750.4	1703.8	1662.5
22.5°	1832.8	1789.7	1681.2	1617.7	1589.7
25°	1784.1	1724.2	1600.8	1524.2	1496.0
27.5°	1726.2	1662.5	1526.0	1438.1	1395.1
30°	1664.5	1593.3	1443.7	1348.4	1297.8
32.5°	1604.6	1518.5	1365.3	1253.0	1206.2
35°	1537.3	1441.9	1277.4	1159.5	1118.3
37.5°	1471.8	1368.9	1195.1	1065.9	1019.3
40°	1402.6	1290.5	1108.9	976.2	927.6
42.5°	1331.6	1211.9	1023.0	884.5	837.9
45°	1256.8	1131.4	935.1	802.2	757.3
47.5°	1185.7	1053.0	851.0	718.1	677.0
50°	1107.2	974.4	768.7	639.5	600.4
52.5°	1030.4	890.1	690.1	566.7	531.2
55°	955.6	809.7	607.7	495.6	460.1
57.5°	879.0	729.4	534.9	430.2	400.2
60°	800.4	650.8	458.1	362.9	332.9
62.5°	723.8	574.2	392.7	303.0	288.1
65°	645.2	493.7	325.4	261.9	256.2
67.5°	570.4	418.9	261.9	230.0	224.4
70°	491.9	346.0	216.9	198.2	190.7
72.5°	417.1	278.6	181.4	166.5	162.7
75°	344.1	213.1	149.6	136.5	134.7
77.5°	271.2	151.4	117.9	110.3	106.5
80°	203.8	108.5	89.7	82.3	82.3
82.5°	142.1	73.0	61.7	57.9	57.9
85°	80.4	41.1	35.5	35.5	35.5
87.5°	30.0	14.9	14.9	13.1	13.1
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	6.96	7.70	8.02	8.76	10.19	2.92	3.66	3.98	4.72	6.15
	3H	8.63	9.30	9.70	10.36	11.82	4.10	4.76	5.17	5.83	7.28
	4H	9.24	9.87	10.32	10.94	12.40	4.55	5.18	5.63	6.24	7.70
	6H	9.66	10.24	10.75	11.31	12.78	4.87	5.44	5.95	6.52	7.99
	8H	9.79	10.34	10.88	11.43	12.89	4.95	5.50	6.05	6.59	8.06
	12H	9.85	10.37	10.95	11.45	12.94	5.00	5.52	6.09	6.60	8.09
4H	2H	6.96	7.59	8.05	8.66	10.12	3.50	4.13	4.59	5.20	6.66
	3H	8.79	9.31	9.88	10.41	11.88	4.85	5.37	5.94	6.47	7.94
	4H	9.48	9.96	10.58	11.05	12.54	5.39	5.87	6.49	6.96	8.45
	6H	10.00	10.41	11.11	11.52	13.01	5.81	6.22	6.92	7.33	8.82
	8H	10.18	10.56	11.28	11.66	13.16	5.94	6.32	7.04	7.42	8.93
	12H	10.27	10.62	11.39	11.73	13.24	6.00	6.35	7.12	7.46	8.97
8H	4H	9.45	9.83	10.55	10.93	12.43	5.67	6.05	6.78	7.16	8.66
	6H	10.01	10.33	11.14	11.47	12.97	6.19	6.51	7.32	7.65	9.15
	8H	10.23	10.51	11.37	11.64	13.16	6.38	6.66	7.52	7.78	9.30
	12H	10.37	10.62	11.51	11.74	13.29	6.50	6.74	7.64	7.86	9.42
12H	4H	9.39	9.74	10.52	10.85	12.36	5.67	6.02	6.80	7.13	8.64
	6H	9.99	10.27	11.12	11.39	12.91	6.24	6.52	7.37	7.64	9.16
	8H	10.21	10.45	11.35	11.57	13.13	6.45	6.69	7.59	7.81	9.37