

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: P918684

Luminaire Tested: DFN2DIP-4P4F0-040D070US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918684
REPORT IS A COMBINATION OF REPORTS P899130 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D070US935-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

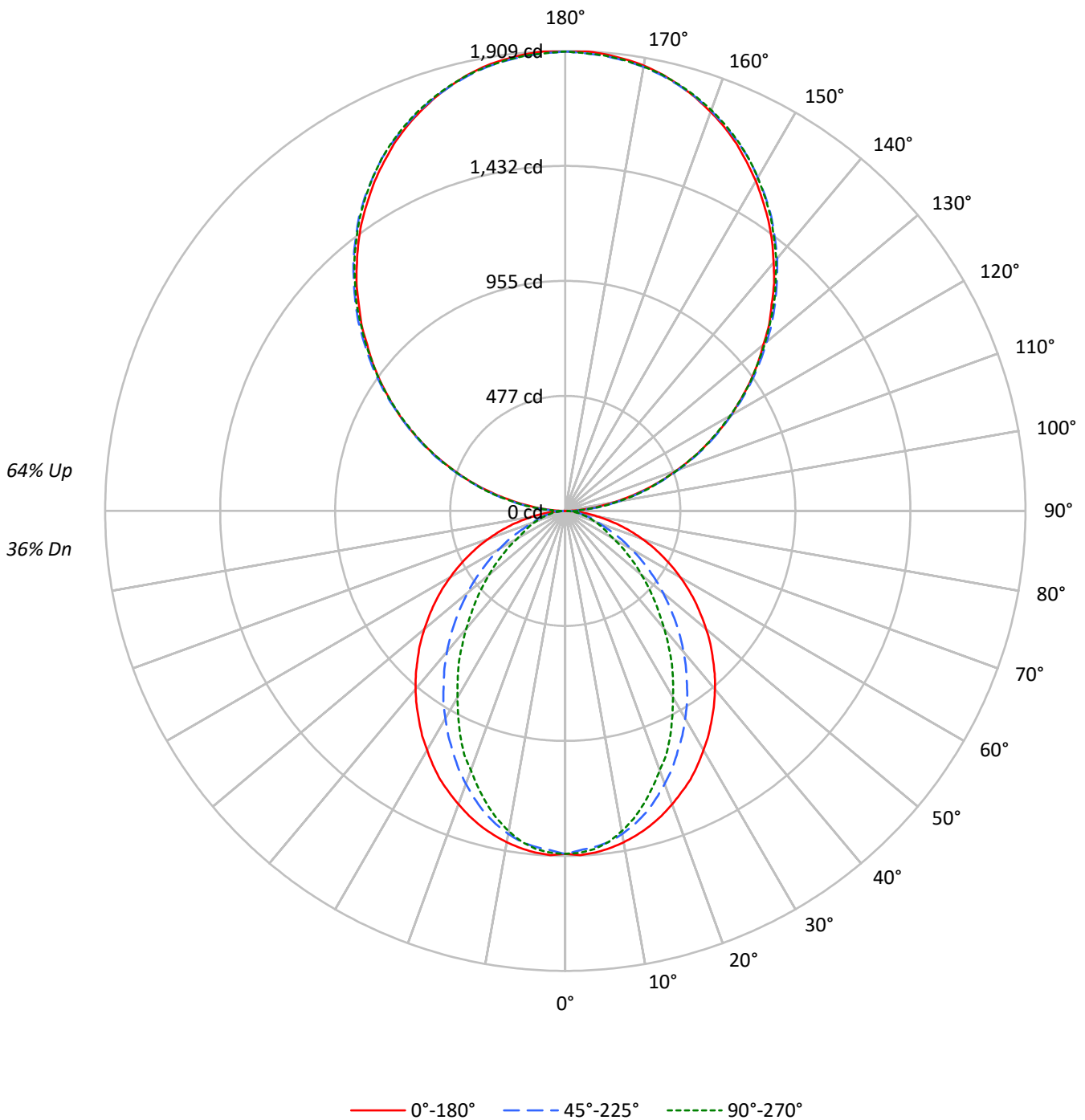
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8261.3 lumens
Efficiency: N/A
Efficacy: 82.7 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): 99.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918684
CATALOG NUMBER: DFN2DIP-4P4F0-040D070US935-RLLFLL

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	94	94	94	94	75	75	75	58	58	58	43	43	43	36				36
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37	31				31
2	87	80	74	69	78	72	67	63	59	55	52	46	44	42	34	33	31	26				26
3	79	70	63	58	71	64	58	53	52	48	44	41	38	36	31	29	27	23				23
4	73	62	55	49	65	57	50	45	46	42	38	37	33	31	27	25	24	20				20
5	67	56	48	42	60	51	44	39	42	37	33	33	29	27	25	23	21	17				17
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18	15				15
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	17	14				14
8	53	41	33	28	48	38	31	26	31	26	23	25	21	19	19	17	15	12				12
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	14	11				11
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	923	923	923
5°	925	909	915
10°	916	891	885
15°	903	862	840
20°	887	822	784
25°	870	777	729
30°	847	730	660
35°	824	680	600
40°	802	629	530
45°	775	571	467
50°	748	513	405
55°	719	451	346
60°	686	386	286
65°	648	320	257
70°	602	259	233
75°	544	229	213
80°	460	193	186
85°	322	131	142

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1443 cd/sqm



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CATALOG NUMBER: DFN2DIP-4P4F0-040D070US935-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	133.4	1.6
10°-20°	366.2	4.4
20°-30°	514.2	6.2
30°-40°	560.5	6.8
40°-50°	515.1	6.2
50°-60°	404.5	4.9
60°-70°	263.3	3.2
70°-80°	135.6	1.6
80°-90°	40.0	0.5
90°-100°	117.9	1.4
100°-110°	374.8	4.5
110°-120°	641.3	7.8
120°-130°	843.5	10.2
130°-140°	946.7	11.5
140°-150°	928.4	11.2
150°-160°	778.8	9.4
160°-170°	516.5	6.3
170°-180°	180.5	2.2
0°-30°	1013.8	12.3
0°-40°	1574.2	19.1
0°-60°	2493.9	30.2
0°-90°	2932.8	35.5
90°-120°	1134.1	13.7
90°-150°	3852.7	46.6
90°-180°	5328.0	64.5
0°-180°	8261.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1423	1423	1423	1423	1423	
5°	1423	1417	1400	1412	1408	135
15°	1354	1340	1296	1271	1259	382
25°	1229	1188	1103	1050	1030	565
35°	1059	993	880	799	770	663
45°	866	779	644	553	522	668
55°	658	558	419	341	317	588
65°	444	340	224	180	176	441
75°	237	147	103	94	93	251
85°	55	28	24	24	24	64
90°	2	21	56	53	55	8
95°	84	100	103	103	100	93
105°	346	350	354	357	357	365
115°	644	653	650	648	644	637
125°	936	950	946	941	939	837
135°	1211	1229	1232	1230	1226	936
145°	1470	1481	1491	1492	1486	918
155°	1681	1685	1691	1699	1694	774
165°	1828	1827	1827	1838	1830	516
175°	1903	1898	1895	1906	1896	181
180°	1906	1906	1906	1906	1906	



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CATALOG NUMBER: DFN2DIP-4P4F0-040D070US935-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1423.4	1423.4	1423.4	1423.4	1423.4
2.5°	1429.9	1423.4	1409.2	1422.2	1419.5
5°	1423.4	1416.9	1400.2	1411.8	1408.0
7.5°	1411.8	1404.1	1386.1	1391.1	1384.7
10°	1396.4	1387.3	1361.6	1357.6	1350.0
12.5°	1377.1	1365.5	1330.6	1322.9	1308.7
15°	1353.8	1339.6	1295.9	1271.4	1258.6
17.5°	1326.8	1306.1	1252.0	1223.7	1203.1
20°	1295.9	1270.1	1205.7	1173.5	1145.1
22.5°	1262.4	1232.8	1158.0	1114.2	1095.0
25°	1228.9	1187.7	1102.6	1049.9	1030.4
27.5°	1189.0	1145.1	1051.1	990.6	960.9
30°	1146.5	1097.4	994.4	928.8	894.0
32.5°	1105.3	1045.9	940.4	863.1	830.8
35°	1058.9	993.2	879.9	798.7	770.2
37.5°	1013.8	942.9	823.1	734.2	702.1
40°	966.1	888.9	763.9	672.4	638.9
42.5°	917.1	834.7	704.6	609.2	577.1
45°	865.6	779.3	644.1	552.6	521.7
47.5°	816.7	725.3	586.2	494.6	466.3
50°	762.6	671.1	529.4	440.5	413.5
52.5°	709.7	613.1	475.4	390.3	365.8
55°	658.2	557.8	418.6	341.4	316.9
57.5°	605.5	502.4	368.4	296.3	275.7
60°	551.3	448.2	315.6	249.9	229.4
62.5°	498.6	395.5	270.4	208.7	198.5
65°	444.4	340.0	224.1	180.4	176.4
67.5°	393.0	288.5	180.4	158.4	154.5
70°	338.8	238.3	149.4	136.6	131.3
72.5°	287.3	191.9	124.9	114.7	112.1
75°	236.9	146.8	103.1	94.0	92.8
77.5°	186.8	104.3	81.2	76.0	73.4
80°	140.3	74.7	61.7	56.7	56.7
82.5°	97.9	50.3	42.5	39.9	39.9
85°	55.4	28.3	24.5	24.5	24.5
87.5°	20.7	10.2	10.2	9.0	9.0
90°	1.7	20.7	56.3	52.9	54.6
92.5°	35.6	48.3	50.0	51.7	51.7
95°	83.9	100.0	102.9	102.9	100.0
97.5°	139.7	154.5	160.9	160.9	160.9
100°	204.0	217.2	221.8	221.8	220.1
102.5°	271.8	281.5	287.9	289.6	287.9
105°	345.9	350.5	354.0	356.9	356.9
107.5°	419.5	426.4	426.4	427.6	419.5
110°	490.8	500.0	500.0	500.0	495.3



TEST NUMBER: P918684

CATALOG NUMBER: DFN2DIP-4P4F0-040D070US935-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	567.7	577.6	575.8	571.2	567.7
115°	643.6	652.8	650.0	648.2	643.6
117.5°	718.8	731.5	723.5	718.8	714.3
120°	794.7	807.4	794.7	794.7	789.5
122.5°	863.7	879.8	871.8	867.1	863.7
125°	936.1	950.5	945.9	940.7	939.0
127.5°	1006.8	1024.6	1018.3	1011.4	1006.8
130°	1072.9	1093.6	1090.7	1087.3	1080.9
132.5°	1147.0	1163.1	1164.2	1156.2	1151.6
135°	1210.8	1228.6	1232.1	1230.3	1225.7
137.5°	1282.0	1296.4	1299.2	1298.1	1291.2
140°	1344.7	1359.1	1367.1	1367.1	1360.8
142.5°	1409.0	1423.4	1428.0	1429.7	1423.4
145°	1470.0	1481.4	1490.6	1492.4	1486.1
147.5°	1524.6	1538.9	1545.8	1548.7	1542.4
150°	1580.9	1590.6	1597.0	1602.1	1597.0
152.5°	1630.8	1640.6	1648.6	1655.0	1648.6
155°	1680.8	1685.4	1690.7	1698.7	1693.5
157.5°	1724.0	1727.4	1730.3	1741.8	1733.7
160°	1762.5	1765.9	1767.6	1777.4	1770.5
162.5°	1798.1	1798.1	1799.8	1810.7	1802.7
165°	1828.5	1826.8	1826.8	1838.3	1830.2
167.5°	1856.1	1851.0	1851.0	1862.4	1854.4
170°	1876.8	1872.2	1870.5	1882.0	1872.2
172.5°	1891.2	1886.5	1884.8	1896.3	1886.5
175°	1902.6	1898.1	1894.6	1906.1	1896.3
177.5°	1909.0	1904.4	1900.9	1910.7	1900.9
180°	1906.1	1906.1	1906.1	1906.1	1906.1



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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	5.36	6.08	6.44	7.16	8.63	1.32	2.05	2.40	3.12	4.59
	3H	7.04	7.68	8.12	8.77	10.25	2.50	3.15	3.59	4.23	5.72
	4H	7.64	8.26	8.74	9.34	10.83	2.95	3.56	4.05	4.65	6.14
	6H	8.06	8.63	9.17	9.72	11.22	3.27	3.83	4.37	4.92	6.42
	8H	8.19	8.73	9.30	9.83	11.33	3.35	3.89	4.46	5.00	6.49
	12H	8.25	8.76	9.36	9.86	11.38	3.40	3.91	4.51	5.00	6.52
4H	2H	5.37	5.98	6.47	7.06	8.55	1.91	2.52	3.01	3.60	5.10
	3H	7.19	7.70	8.30	8.81	10.32	3.25	3.76	4.36	4.87	6.37
	4H	7.88	8.35	9.00	9.45	10.98	3.79	4.26	4.91	5.36	6.89
	6H	8.40	8.80	9.52	9.92	11.44	4.21	4.61	5.33	5.74	7.25
	8H	8.57	8.95	9.70	10.07	11.60	4.34	4.71	5.46	5.83	7.36
	12H	8.67	9.01	9.81	10.14	11.67	4.40	4.74	5.54	5.87	7.40
8H	4H	7.84	8.22	8.97	9.33	10.87	4.07	4.44	5.19	5.56	7.09
	6H	8.41	8.72	9.55	9.88	11.41	4.59	4.90	5.73	6.05	7.58
	8H	8.63	8.90	9.78	10.04	11.59	4.78	5.05	5.93	6.19	7.74
	12H	8.77	9.01	9.92	10.14	11.73	4.90	5.13	6.05	6.27	7.85
12H	4H	7.79	8.13	8.93	9.26	10.80	4.07	4.41	5.21	5.54	7.08
	6H	8.39	8.66	9.54	9.80	11.34	4.64	4.91	5.79	6.05	7.59
	8H	8.61	8.84	9.76	9.98	11.56	4.84	5.08	6.00	6.22	7.80