

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: P921458

Luminaire Tested: DFN2DIP-4P4F0-060D070US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921458
REPORT IS A COMBINATION OF REPORTS P899133 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D070US940-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

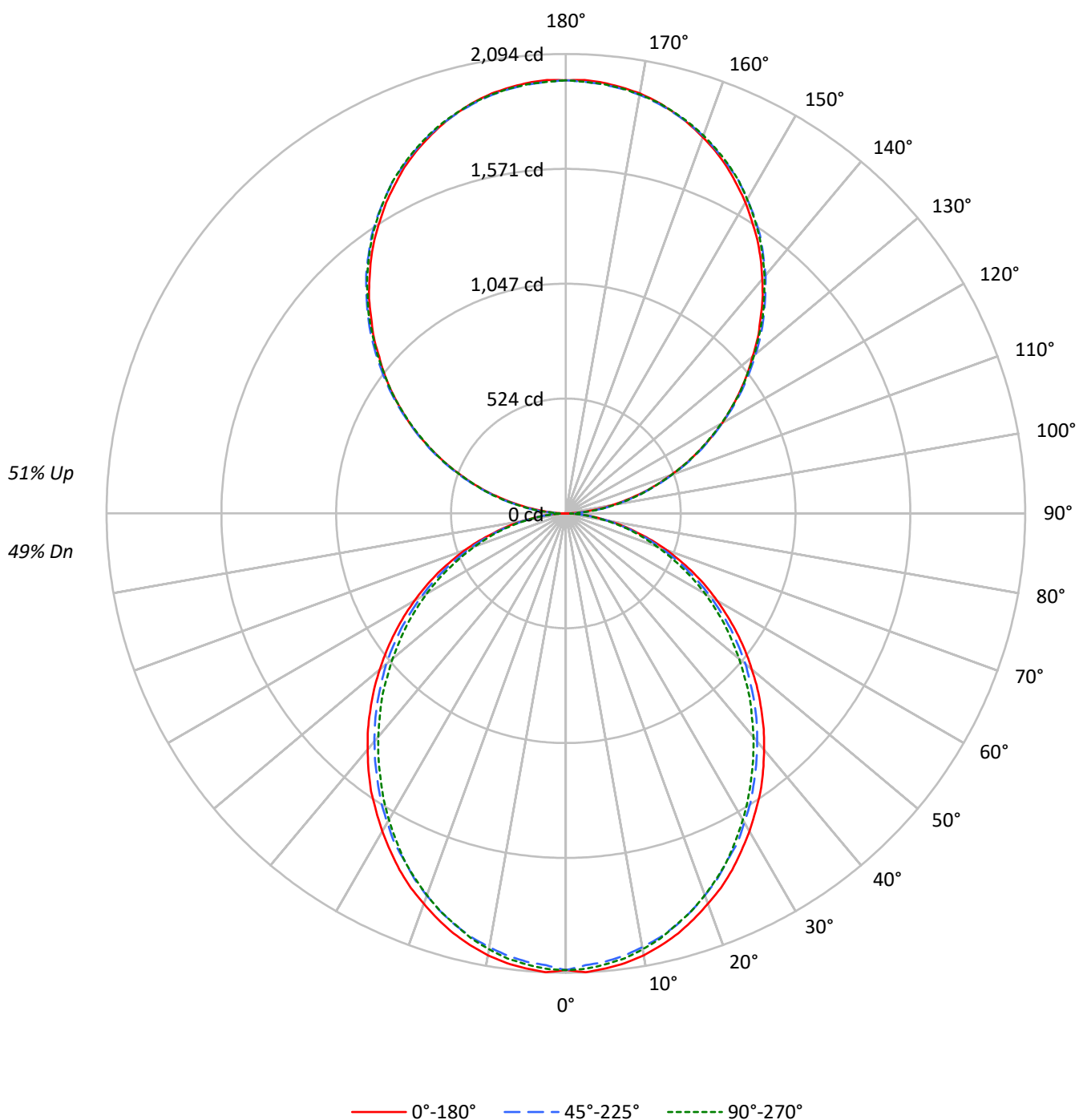
Lumens per Lamp: N/A
Luminaire Lumens: 10821.0 lumens
Efficiency: N/A
Efficacy: 88.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 122.6
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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55
1	98	93	89	86	90	86	83	80	73	70	68	60	59	57	49	48	47
2	89	81	75	70	82	75	70	65	64	60	56	53	50	48	43	41	39
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	33
4	74	63	55	49	68	59	52	46	50	45	40	42	38	34	34	31	29
5	68	56	48	42	62	52	45	40	45	39	35	37	33	30	31	28	25
6	63	51	43	37	58	47	40	35	40	35	30	34	29	26	28	25	22
7	58	46	38	32	53	42	35	30	36	31	27	31	26	23	25	22	20
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	18
9	50	38	30	25	46	35	29	24	30	25	21	26	22	19	22	18	16
10	47	35	28	23	43	32	26	22	28	23	19	24	20	17	20	17	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1351	1351	1351
5°	1353	1332	1341
10°	1342	1315	1324
15°	1322	1293	1296
20°	1296	1264	1267
25°	1269	1228	1234
30°	1236	1195	1192
35°	1205	1156	1147
40°	1166	1117	1105
45°	1128	1077	1061
50°	1085	1036	1011
55°	1041	988	965
60°	992	931	912
65°	937	872	850
70°	868	801	783
75°	772	715	722
80°	657	606	604
85°	476	416	407

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1493 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	1.8
10°-20°	551.3	5.1
20°-30°	810.2	7.5
30°-40°	941.0	8.7
40°-50°	939.8	8.7
50°-60°	819.5	7.6
60°-70°	605.8	5.6
70°-80°	342.7	3.2
80°-90°	96.1	0.9
90°-100°	122.2	1.1
100°-110°	388.1	3.6
110°-120°	664.2	6.1
120°-130°	873.6	8.1
130°-140°	980.5	9.1
140°-150°	961.5	8.9
150°-160°	806.6	7.5
160°-170°	534.9	4.9
170°-180°	187.0	1.7
0°-30°	1557.4	14.4
0°-40°	2498.4	23.1
0°-60°	4257.8	39.3
0°-90°	5302.4	49.0
90°-120°	1174.5	10.9
90°-150°	3990.1	36.9
90°-180°	5519.0	51.0
0°-180°	10821.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	2	21	58	55	56	10
95°	87	104	107	107	104	97
105°	358	363	367	370	370	378
115°	667	676	673	671	667	659
125°	970	984	980	974	972	866
135°	1254	1272	1276	1274	1269	969
145°	1522	1534	1544	1546	1539	951
155°	1741	1746	1751	1759	1754	801
165°	1894	1892	1892	1904	1896	534
175°	1970	1966	1962	1974	1964	187
180°	1974	1974	1974	1974	1974	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	1.8	21.4	58.3	54.8	56.5
92.5°	36.9	50.0	51.8	53.6	53.6
95°	86.9	103.5	106.6	106.6	103.5
97.5°	144.6	160.1	166.7	166.7	166.7
100°	211.2	225.0	229.7	229.7	227.9
102.5°	281.5	291.6	298.2	300.0	298.2
105°	358.3	363.0	366.6	369.6	369.6
107.5°	434.4	441.6	441.6	442.8	434.4
110°	508.3	517.8	517.8	517.8	513.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.0	598.2	596.4	591.6	588.0
115°	666.6	676.1	673.2	671.4	666.6
117.5°	744.5	757.6	749.3	744.5	739.8
120°	823.0	836.2	823.0	823.0	817.7
122.5°	894.5	911.1	902.9	898.0	894.5
125°	969.5	984.4	979.6	974.3	972.5
127.5°	1042.7	1061.1	1054.6	1047.5	1042.7
130°	1111.2	1132.6	1129.6	1126.1	1119.5
132.5°	1187.9	1204.6	1205.8	1197.5	1192.7
135°	1254.0	1272.4	1276.0	1274.2	1269.4
137.5°	1327.8	1342.6	1345.6	1344.4	1337.3
140°	1392.7	1407.6	1415.9	1415.9	1409.3
142.5°	1459.3	1474.2	1478.9	1480.7	1474.2
145°	1522.4	1534.3	1543.8	1545.6	1539.1
147.5°	1579.0	1593.8	1601.0	1603.9	1597.4
150°	1637.3	1647.3	1653.9	1659.3	1653.9
152.5°	1689.0	1699.2	1707.4	1714.0	1707.4
155°	1740.8	1745.5	1751.0	1759.3	1753.9
157.5°	1785.5	1789.0	1792.0	1803.9	1795.5
160°	1825.3	1828.9	1830.7	1840.8	1833.6
162.5°	1862.2	1862.2	1864.0	1875.3	1867.0
165°	1893.7	1891.9	1891.9	1903.9	1895.5
167.5°	1922.3	1917.0	1917.0	1928.9	1920.6
170°	1943.8	1939.0	1937.2	1949.1	1939.0
172.5°	1958.6	1953.8	1952.0	1964.0	1953.8
175°	1970.5	1965.8	1962.2	1974.1	1964.0
177.5°	1977.1	1972.3	1968.7	1978.9	1968.7
180°	1974.1	1974.1	1974.1	1974.1	1974.1

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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	8.24	9.09	9.21	10.07	11.36	7.80	8.65	8.76	9.63	10.91
	3H	9.91	10.67	10.88	11.66	12.97	9.42	10.18	10.39	11.17	12.48
	4H	10.50	11.22	11.49	12.21	13.53	10.00	10.73	10.99	11.72	13.03
	6H	10.90	11.57	11.90	12.57	13.89	10.40	11.07	11.40	12.06	13.39
	8H	11.01	11.64	12.01	12.66	13.98	10.51	11.14	11.51	12.16	13.48
	12H	11.06	11.66	12.07	12.67	14.02	10.55	11.15	11.56	12.16	13.51
4H	2H	8.70	9.43	9.70	10.42	11.73	8.35	9.07	9.34	10.06	11.38
	3H	10.57	11.18	11.58	12.20	13.53	10.17	10.77	11.17	11.79	13.12
	4H	11.29	11.84	12.30	12.86	14.21	10.87	11.42	11.88	12.43	13.79
	6H	11.81	12.29	12.84	13.33	14.67	11.38	11.85	12.40	12.89	14.24
	8H	11.96	12.41	12.99	13.44	14.80	11.53	11.97	12.55	13.00	14.37
	12H	12.04	12.44	13.08	13.49	14.86	11.59	11.99	12.63	13.04	14.41
8H	4H	11.49	11.93	12.51	12.96	14.33	11.11	11.56	12.14	12.59	13.95
	6H	12.13	12.49	13.17	13.57	14.93	11.74	12.11	12.79	13.18	14.54
	8H	12.35	12.67	13.41	13.73	15.11	11.96	12.28	13.01	13.34	14.72
	12H	12.48	12.77	13.55	13.82	15.25	12.07	12.36	13.14	13.41	14.83
12H	4H	11.47	11.88	12.52	12.92	14.29	11.11	11.51	12.15	12.55	13.92
	6H	12.16	12.48	13.21	13.54	14.92	11.78	12.11	12.84	13.17	14.55
	8H	12.40	12.69	13.46	13.74	15.16	12.02	12.31	13.08	13.36	14.78