

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: P922471

Luminaire Tested: DFN2DIP-PN4F0-100D070US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922471
REPORT IS A COMBINATION OF REPORTS P901196 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D070US940-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

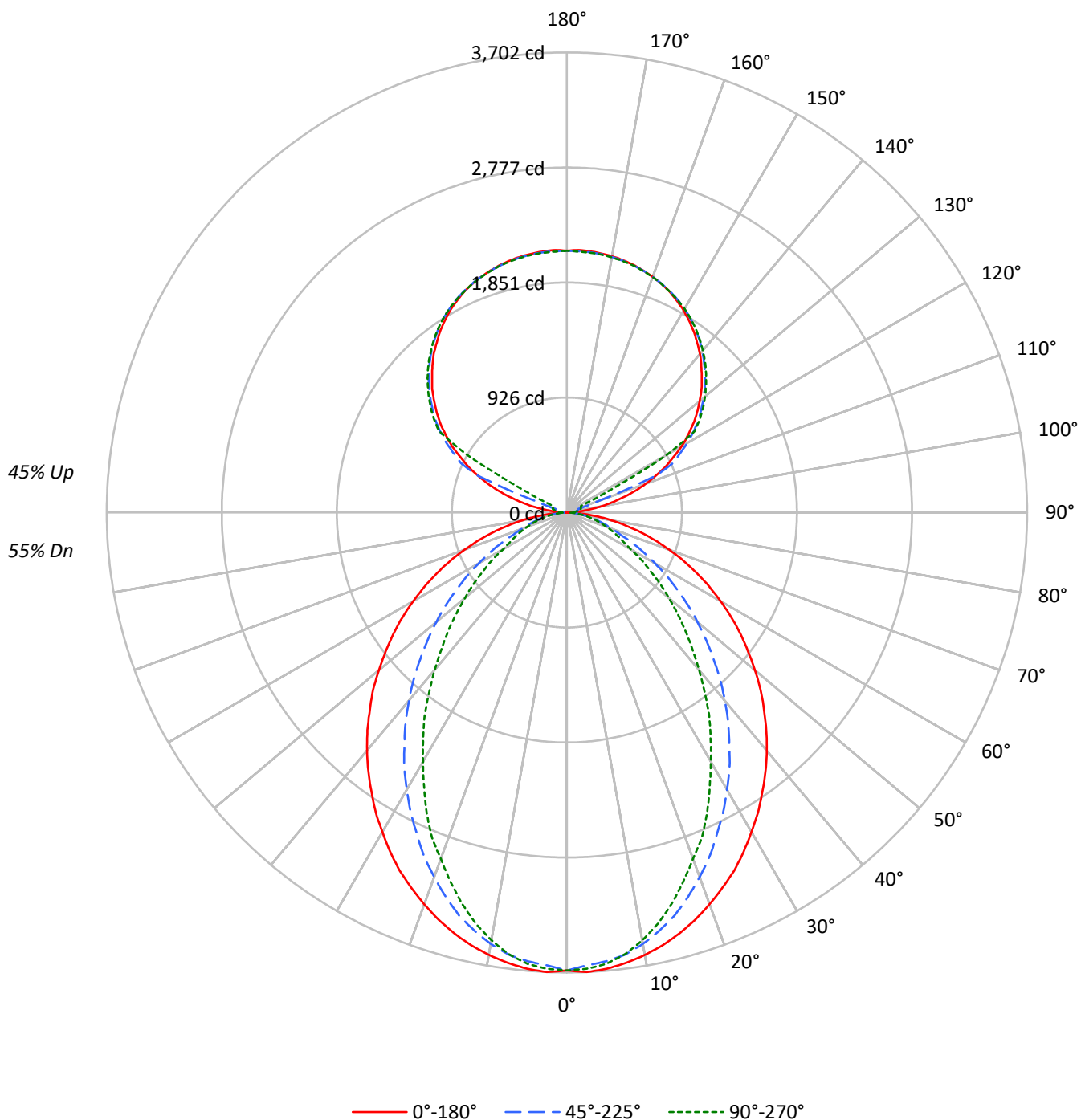
Lumens per Lamp: N/A
Luminaire Lumens: 13759.1 lumens
Efficiency: N/A
Efficacy: 89.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 153.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	108	108	108	108		101	101	101	101		86	86	86		73	73	73		61	61	61
1	99	95	92	88		92	89	86	83		76	74	72		65	63	62		55	53	52
2	91	84	78	73		84	78	73	69		68	64	60		58	55	52		49	47	45
3	83	74	67	61		77	69	63	58		60	55	51		52	48	45		44	41	39
4	77	66	58	52		71	62	55	50		54	48	44		46	42	39		39	36	34
5	70	59	51	45		65	55	48	43		48	43	39		42	38	34		36	33	30
6	65	53	45	40		60	50	43	38		44	38	34		38	34	30		33	29	27
7	60	48	41	35		56	45	38	33		40	34	30		35	30	27		30	27	24
8	56	44	36	31		52	41	35	30		37	31	27		32	28	24		28	24	22
9	52	40	33	28		49	38	31	27		34	28	24		29	25	22		26	22	20
10	49	37	30	25		46	35	29	24		31	26	22		27	23	20		24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2690	2690	2690
5°	2694	2648	2665
10°	2668	2596	2579
15°	2631	2511	2445
20°	2582	2393	2281
25°	2533	2261	2123
30°	2466	2125	1921
35°	2400	1979	1745
40°	2334	1828	1542
45°	2256	1661	1358
50°	2176	1491	1179
55°	2093	1310	1006
60°	1996	1121	829
65°	1885	929	746
70°	1750	749	676
75°	1581	662	616
80°	1335	556	536
85°	930	373	406

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2256 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.4	2.5
10°-20°	948.2	6.9
20°-30°	1331.2	9.7
30°-40°	1451.1	10.5
40°-50°	1333.8	9.7
50°-60°	1047.4	7.6
60°-70°	681.8	5.0
70°-80°	351.0	2.6
80°-90°	93.3	0.7
90°-100°	69.5	0.5
100°-110°	259.0	1.9
110°-120°	686.8	5.0
120°-130°	1139.1	8.3
130°-140°	1209.9	8.8
140°-150°	1124.5	8.2
150°-160°	904.1	6.6
160°-170°	582.6	4.2
170°-180°	200.5	1.5
0°-30°	2624.8	19.1
0°-40°	4076.0	29.6
0°-60°	6457.2	46.9
0°-90°	7583.2	55.1
90°-120°	1015.2	7.4
90°-150°	4488.7	32.6
90°-180°	6176.0	44.9
0°-180°	13759.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3669	3625	3655	3645	349
15°	3505	3468	3355	3292	3259	988
25°	3182	3075	2855	2718	2668	1463
35°	2742	2572	2278	2068	1994	1716
45°	2241	2018	1668	1431	1351	1731
55°	1704	1444	1084	884	821	1523
65°	1151	880	580	467	457	1141
75°	614	380	267	243	240	649
85°	143	73	63	63	63	164
90°	1	18	30	38	41	13
95°	99	49	59	67	66	117
105°	463	509	93	110	116	495
115°	876	902	940	235	125	863
125°	1239	1259	1288	1299	1303	1105
135°	1534	1558	1572	1587	1584	1185
145°	1779	1777	1803	1814	1806	1113
155°	1959	1945	1963	1972	1960	903
165°	2064	2055	2059	2070	2059	583
175°	2111	2100	2104	2114	2099	201
180°	2107	2107	2107	2107	2107	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.4	3685.4	3685.4	3685.4	3685.4
2.5°	3702.0	3685.4	3648.6	3682.2	3675.5
5°	3685.4	3668.8	3625.2	3655.4	3645.4
7.5°	3655.4	3635.5	3588.8	3601.9	3585.3
10°	3615.4	3592.0	3525.5	3515.2	3495.4
12.5°	3565.5	3535.4	3445.1	3425.3	3388.5
15°	3505.3	3468.5	3355.2	3291.9	3258.7
17.5°	3435.2	3381.8	3241.7	3168.4	3115.0
20°	3355.2	3288.4	3121.7	3038.6	2964.9
22.5°	3268.6	3191.8	2998.2	2885.0	2835.1
25°	3181.9	3075.1	2854.9	2718.3	2668.1
27.5°	3078.5	2964.9	2721.5	2564.7	2488.0
30°	2968.5	2841.4	2574.6	2404.9	2314.6
32.5°	2861.7	2708.0	2434.9	2234.6	2151.1
35°	2741.7	2571.5	2278.1	2068.0	1994.3
37.5°	2624.9	2441.2	2131.3	1900.9	1817.8
40°	2501.4	2301.5	1977.7	1741.0	1654.3
42.5°	2374.7	2161.3	1824.5	1577.5	1494.3
45°	2241.3	2017.7	1667.8	1430.7	1350.7
47.5°	2114.7	1877.9	1517.7	1280.6	1207.4
50°	1974.5	1737.8	1370.8	1140.5	1070.8
52.5°	1837.5	1587.4	1230.7	1010.6	947.3
55°	1704.1	1444.1	1083.9	884.0	820.6
57.5°	1567.6	1300.7	954.0	767.1	713.7
60°	1427.4	1160.7	817.1	647.2	593.8
62.5°	1290.8	1024.0	700.3	540.4	513.8
65°	1150.8	880.4	580.3	467.1	456.8
67.5°	1017.4	747.0	467.1	410.1	400.2
70°	877.2	617.2	386.7	353.5	340.1
72.5°	743.8	496.8	323.4	296.9	290.2
75°	613.6	380.0	266.8	243.4	240.2
77.5°	483.8	270.0	210.2	196.7	190.0
80°	363.4	193.6	160.0	146.9	146.9
82.5°	253.3	130.2	110.0	103.3	103.3
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	1.4	18.3	30.4	38.2	41.1
92.5°	38.2	32.0	36.6	39.7	41.1
95°	99.0	48.7	59.4	67.1	65.5
97.5°	178.3	53.4	77.7	82.4	83.8
100°	269.9	61.0	86.9	99.0	102.1
102.5°	370.3	367.5	90.0	106.6	111.3
105°	463.4	509.2	93.0	109.7	115.8
107.5°	571.6	609.7	96.1	112.8	119.0
110°	675.4	707.2	266.8	114.4	120.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	772.9	800.2	774.4	117.3	122.0
115°	876.5	902.3	940.5	234.8	125.1
117.5°	966.4	996.8	1022.9	804.8	405.5
120°	1067.0	1089.8	1117.4	1135.7	929.9
122.5°	1152.3	1176.7	1207.4	1216.4	1218.0
125°	1239.2	1259.1	1288.1	1298.8	1303.2
127.5°	1318.5	1339.8	1362.8	1378.0	1379.5
130°	1393.2	1417.6	1434.3	1451.2	1449.7
132.5°	1469.4	1489.3	1506.0	1519.7	1518.3
135°	1533.5	1557.9	1571.6	1586.9	1583.9
137.5°	1600.4	1618.8	1634.1	1649.4	1644.8
140°	1666.0	1678.3	1695.0	1708.7	1701.1
142.5°	1721.0	1731.7	1751.4	1763.5	1756.0
145°	1779.0	1777.4	1803.2	1813.9	1806.3
147.5°	1829.1	1824.6	1850.5	1858.1	1852.1
150°	1877.9	1867.3	1891.8	1900.8	1893.2
152.5°	1919.0	1906.9	1929.8	1938.9	1928.3
155°	1958.7	1945.1	1963.4	1972.5	1960.3
157.5°	1990.7	1978.6	1992.3	2003.0	1990.7
160°	2018.3	2009.0	2018.3	2027.3	2016.6
162.5°	2042.6	2033.5	2041.0	2051.7	2038.0
165°	2063.9	2054.9	2059.3	2070.0	2059.3
167.5°	2080.7	2071.4	2076.2	2086.9	2073.1
170°	2094.4	2085.3	2088.3	2099.0	2085.3
172.5°	2103.5	2094.4	2097.6	2108.2	2094.4
175°	2111.1	2100.4	2103.5	2114.2	2099.0
177.5°	2114.2	2103.5	2105.1	2115.9	2102.0
180°	2106.6	2106.6	2106.6	2106.6	2106.6

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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	11.06	11.93	11.98	12.86	14.06	7.02	7.90	7.94	8.83	10.03
	3H	12.74	13.52	13.67	14.46	15.69	8.21	9.00	9.15	9.94	11.16
	4H	13.35	14.09	14.30	15.04	16.27	8.67	9.41	9.61	10.35	11.59
	6H	13.78	14.46	14.74	15.41	16.66	8.99	9.67	9.95	10.62	11.87
	8H	13.91	14.56	14.87	15.52	16.77	9.08	9.73	10.05	10.70	11.94
	12H	13.97	14.59	14.94	15.55	16.82	9.13	9.74	10.10	10.71	11.97
4H	2H	11.08	11.82	12.03	12.77	14.00	7.62	8.36	8.58	9.31	10.54
	3H	12.92	13.53	13.88	14.51	15.75	8.98	9.59	9.94	10.57	11.82
	4H	13.61	14.17	14.58	15.14	16.42	9.53	10.09	10.50	11.06	12.33
	6H	14.13	14.61	15.12	15.61	16.88	9.95	10.43	10.94	11.43	12.70
	8H	14.31	14.76	15.30	15.75	17.03	10.08	10.53	11.07	11.52	12.80
	12H	14.41	14.81	15.41	15.82	17.11	10.15	10.56	11.15	11.56	12.85
8H	4H	13.58	14.03	14.57	15.02	16.31	9.82	10.26	10.80	11.25	12.54
	6H	14.16	14.53	15.16	15.56	16.84	10.34	10.71	11.35	11.74	13.02
	8H	14.37	14.70	15.39	15.72	17.02	10.53	10.86	11.55	11.87	13.17
	12H	14.52	14.80	15.54	15.82	17.16	10.65	10.94	11.67	11.95	13.30
12H	4H	13.54	13.94	14.54	14.95	16.24	9.82	10.23	10.82	11.23	12.52
	6H	14.13	14.46	15.15	15.48	16.78	10.39	10.71	11.40	11.73	13.03
	8H	14.36	14.64	15.38	15.65	17.00	10.60	10.89	11.62	11.90	13.25