

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: P923866

Luminaire Tested: DFN2DIP-TR4F0-100D070US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923866
REPORT IS A COMBINATION OF REPORTS P900435 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D070US940-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

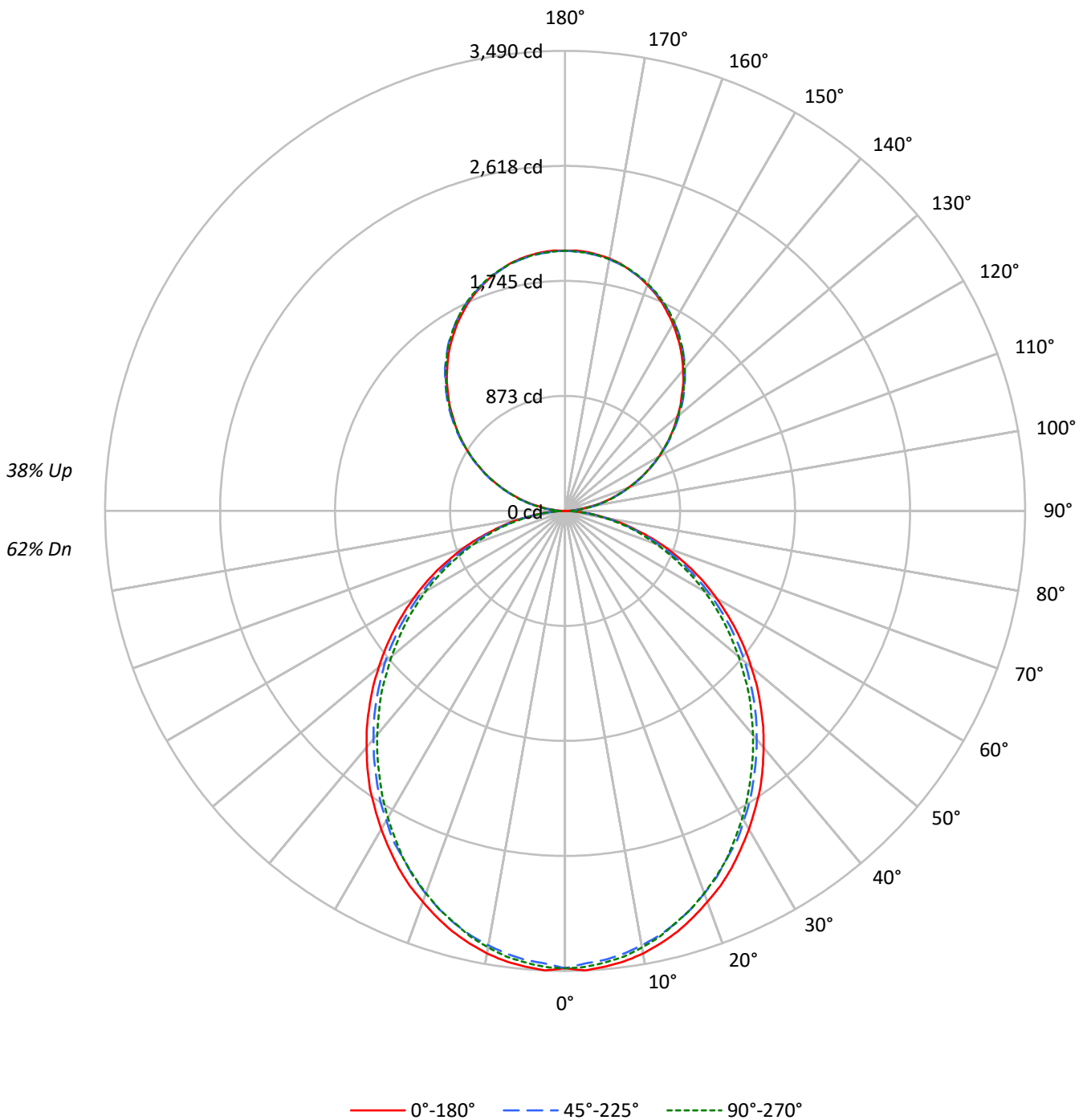
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14352.1 lumens
Efficiency: N/A
Efficacy: 93.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 153.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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			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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67	67	67	67	62
1	100	96	92	88	94	90	87	83	79	76	74	68	67	65	59	58	56	59	58	56	52
2	91	84	78	72	85	79	73	68	69	65	61	60	57	54	52	50	48	52	50	48	43
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40	46	43	40	37
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	38	35	41	38	35	32
5	70	58	50	44	65	55	47	42	49	43	38	43	38	34	37	33	30	37	33	30	27
6	65	52	44	38	60	49	42	36	44	38	33	39	34	30	34	30	27	34	30	27	24
7	60	47	39	34	56	45	37	32	40	34	29	35	30	27	31	27	24	31	27	24	21
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	28	24	21	28	24	21	19
9	52	39	32	27	49	37	30	26	33	28	23	30	25	21	26	22	19	26	22	19	17
10	49	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	18	24	20	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2756	2756	2756
5°	2761	2718	2736
10°	2739	2681	2699
15°	2698	2637	2641
20°	2644	2576	2582
25°	2590	2503	2513
30°	2522	2434	2426
35°	2458	2354	2334
40°	2379	2272	2246
45°	2300	2191	2156
50°	2213	2105	2052
55°	2123	2006	1957
60°	2021	1889	1847
65°	1910	1767	1718
70°	1768	1619	1579
75°	1572	1441	1450
80°	1336	1215	1205
85°	966	825	798

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2300 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	326.6	2.3
10°-20°	918.8	6.4
20°-30°	1350.3	9.4
30°-40°	1568.3	10.9
40°-50°	1566.4	10.9
50°-60°	1365.8	9.5
60°-70°	1009.7	7.0
70°-80°	571.3	4.0
80°-90°	156.4	1.1
90°-100°	122.2	0.9
100°-110°	388.1	2.7
110°-120°	664.2	4.6
120°-130°	873.6	6.1
130°-140°	980.5	6.8
140°-150°	961.5	6.7
150°-160°	806.6	5.6
160°-170°	534.9	3.7
170°-180°	187.0	1.3
0°-30°	2595.7	18.1
0°-40°	4164.0	29.0
0°-60°	7096.2	49.4
0°-90°	8833.5	61.5
90°-120°	1174.5	8.2
90°-150°	3990.1	27.8
90°-180°	5519.0	38.5
0°-180°	14352.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3470	3470	3470	3470	3470	
5°	3470	3457	3420	3446	3440	329
15°	3303	3283	3240	3253	3236	930
25°	2989	2963	2906	2912	2906	1376
35°	2579	2546	2492	2472	2456	1611
45°	2099	2075	2025	1989	1975	1620
55°	1588	1568	1528	1488	1472	1420
65°	1071	1051	1018	988	971	1059
75°	560	554	537	517	524	598
85°	137	134	130	120	117	152
90°	2	21	58	55	56	14
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°	3469.7	3469.7	3469.7	3469.7	3469.7
2.5°	3489.9	3473.2	3436.4	3469.7	3463.3
5°	3469.7	3456.6	3419.8	3446.4	3440.0
7.5°	3446.4	3426.5	3389.7	3416.6	3409.9
10°	3409.9	3386.5	3346.5	3373.1	3363.2
12.5°	3359.6	3339.8	3299.8	3316.4	3309.7
15°	3303.0	3283.2	3239.6	3253.0	3236.5
17.5°	3232.9	3213.1	3169.5	3186.2	3169.5
20°	3156.0	3136.2	3089.5	3099.4	3086.3
22.5°	3079.6	3049.6	3006.0	3006.0	2999.3
25°	2989.4	2962.8	2906.2	2912.5	2906.2
27.5°	2889.1	2865.8	2822.6	2812.7	2796.0
30°	2789.4	2762.4	2712.5	2702.6	2689.1
32.5°	2682.4	2662.6	2609.1	2589.0	2575.5
35°	2579.1	2545.8	2492.3	2472.2	2455.5
37.5°	2462.3	2432.1	2378.7	2355.4	2338.7
40°	2342.3	2315.3	2261.9	2232.2	2218.8
42.5°	2225.4	2198.5	2145.5	2111.8	2092.0
45°	2098.7	2075.4	2025.1	1988.6	1975.2
47.5°	1975.2	1951.9	1898.4	1861.5	1841.7
50°	1844.9	1828.3	1781.5	1734.8	1718.2
52.5°	1718.2	1694.9	1651.6	1614.9	1591.5
55°	1588.3	1568.2	1528.1	1488.1	1471.5
57.5°	1458.0	1441.4	1397.8	1357.9	1344.4
60°	1327.8	1314.6	1267.9	1231.1	1221.2
62.5°	1201.0	1177.7	1144.4	1111.2	1097.7
65°	1071.1	1051.0	1017.7	987.6	971.0
67.5°	937.7	920.7	891.0	867.6	854.2
70°	814.1	800.7	770.6	747.3	734.1
72.5°	687.4	674.0	657.4	634.0	624.0
75°	560.4	554.0	537.0	517.2	523.9
77.5°	447.1	433.6	426.9	417.0	407.1
80°	333.8	330.3	323.5	313.6	306.9
82.5°	226.9	226.9	223.7	210.3	210.3
85°	136.6	133.5	130.3	120.0	116.8
87.5°	60.2	53.4	46.7	36.8	33.3
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	11.79	12.77	12.64	13.64	14.74	11.36	12.33	12.21	13.21	14.30
	3H	13.46	14.34	14.32	15.22	16.34	12.99	13.86	13.85	14.75	15.87
	4H	14.05	14.88	14.93	15.77	16.90	13.58	14.41	14.46	15.30	16.43
	6H	14.46	15.22	15.35	16.12	17.26	13.98	14.75	14.87	15.64	16.79
	8H	14.57	15.29	15.47	16.21	17.35	14.09	14.82	14.99	15.73	16.88
	12H	14.62	15.31	15.52	16.22	17.39	14.14	14.83	15.04	15.74	16.91
4H	2H	12.27	13.09	13.15	13.98	15.12	11.92	12.75	12.81	13.64	14.77
	3H	14.14	14.83	15.04	15.75	16.90	13.75	14.44	14.65	15.36	16.51
	4H	14.86	15.49	15.77	16.41	17.58	14.46	15.09	15.36	16.00	17.18
	6H	15.38	15.93	16.30	16.87	18.04	14.97	15.52	15.90	16.46	17.63
	8H	15.53	16.04	16.46	16.98	18.17	15.12	15.63	16.05	16.57	17.76
	12H	15.61	16.07	16.56	17.03	18.22	15.19	15.65	16.14	16.60	17.80
8H	4H	15.07	15.58	15.99	16.51	17.70	14.71	15.22	15.63	16.15	17.34
	6H	15.70	16.12	16.65	17.10	18.29	15.34	15.76	16.29	16.74	17.93
	8H	15.92	16.30	16.89	17.26	18.47	15.56	15.93	16.52	16.90	18.10
	12H	16.06	16.39	17.03	17.35	18.60	15.68	16.01	16.64	16.97	18.22
12H	4H	15.06	15.52	16.00	16.47	17.66	14.71	15.17	15.65	16.12	17.31
	6H	15.73	16.11	16.69	17.07	18.28	15.38	15.76	16.34	16.72	17.93
	8H	15.98	16.31	16.95	17.27	18.52	15.62	15.95	16.59	16.91	18.17