

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: P923871

Luminaire Tested: DFN2DIP-TR4F0-100D080US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923871
REPORT IS A COMBINATION OF REPORTS P901973 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D080US940-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

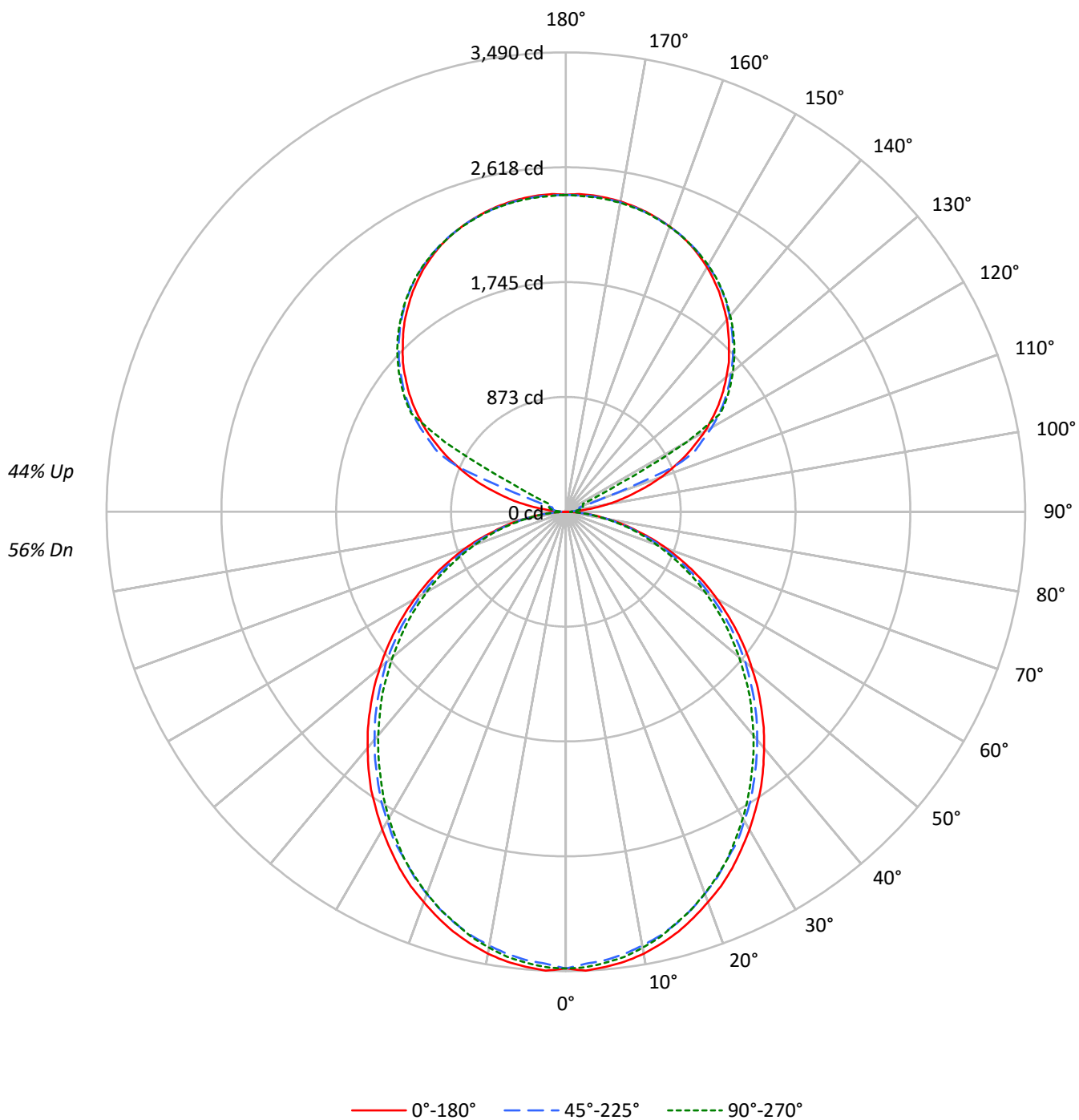
Lumens per Lamp: N/A
Luminaire Lumens: 15890.3 lumens
Efficiency: N/A
Efficacy: 99.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 160.2
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
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	91	87		92	88	85	82		76	73	71		65	63	61		54	53	52
2	90	83	76	71		84	77	72	67		66	62	59		57	54	51		48	46	44
3	82	73	65	59		76	68	61	56		59	54	50		50	46	43		42	39	37
4	75	64	56	50		70	60	53	48		52	47	42		45	40	37		38	35	32
5	69	57	49	43		64	54	46	41		47	41	36		40	36	32		34	31	28
6	64	52	43	37		59	48	41	36		42	36	32		36	32	28		31	27	25
7	59	47	39	33		55	44	36	31		38	32	28		33	28	25		28	25	22
8	55	42	34	29		51	40	33	28		35	29	25		30	26	22		26	22	20
9	51	39	31	26		47	36	29	25		32	26	22		28	23	20		24	20	18
10	48	35	28	23		44	33	27	22		29	24	20		26	21	18		22	19	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	2.1
10°-20°	918.8	5.8
20°-30°	1350.3	8.5
30°-40°	1568.3	9.9
40°-50°	1566.4	9.9
50°-60°	1365.8	8.6
60°-70°	1009.7	6.4
70°-80°	571.3	3.6
80°-90°	155.0	1.0
90°-100°	79.4	0.5
100°-110°	295.9	1.9
110°-120°	784.9	4.9
120°-130°	1301.8	8.2
130°-140°	1382.8	8.7
140°-150°	1285.1	8.1
150°-160°	1033.2	6.5
160°-170°	665.8	4.2
170°-180°	229.2	1.4
0°-30°	2595.7	16.3
0°-40°	4164.0	26.2
0°-60°	7096.2	44.7
0°-90°	8832.2	55.6
90°-120°	1160.2	7.3
90°-150°	5129.9	32.3
90°-180°	7058.0	44.4
0°-180°	15890.3	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	35	44	47	15
95°	113	56	68	77	75	134
105°	530	582	106	125	132	566
115°	1002	1031	1075	268	143	986
125°	1416	1439	1472	1484	1489	1263
135°	1753	1780	1796	1814	1810	1354
145°	2033	2031	2061	2073	2064	1272
155°	2238	2223	2244	2254	2240	1032
165°	2359	2348	2354	2366	2354	666
175°	2413	2400	2404	2416	2399	230
180°	2408	2408	2408	2408	2408	

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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°	1.7	20.9	34.8	43.6	47.0
92.5°	43.6	36.6	41.8	45.3	47.0
95°	113.2	55.6	67.9	76.8	74.9
97.5°	203.8	61.0	88.7	94.2	95.8
100°	308.4	69.7	99.3	113.2	116.6
102.5°	423.3	419.9	102.8	121.8	127.2
105°	529.6	581.9	106.3	125.4	132.4
107.5°	653.3	696.7	109.9	128.9	135.9
110°	771.9	808.2	305.0	130.7	137.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	883.3	914.5	885.0	134.0	139.5
115°	1001.7	1031.3	1074.9	268.3	142.9
117.5°	1104.5	1139.2	1169.0	919.7	463.4
120°	1219.5	1245.5	1277.0	1297.9	1062.7
122.5°	1316.9	1344.9	1379.8	1390.2	1392.0
125°	1416.2	1439.0	1472.0	1484.3	1489.4
127.5°	1506.8	1531.2	1557.6	1574.8	1576.5
130°	1592.2	1620.1	1639.2	1658.5	1656.8
132.5°	1679.4	1702.1	1721.2	1736.9	1735.2
135°	1752.6	1780.5	1796.0	1813.6	1810.1
137.5°	1829.2	1850.0	1867.6	1885.0	1879.8
140°	1904.0	1918.1	1937.2	1952.8	1944.1
142.5°	1966.9	1979.1	2001.6	2015.5	2006.8
145°	2033.1	2031.2	2060.8	2073.0	2064.3
147.5°	2090.4	2085.3	2114.8	2123.5	2116.7
150°	2146.3	2134.0	2162.0	2172.3	2163.6
152.5°	2193.3	2179.3	2205.4	2216.0	2203.8
155°	2238.5	2223.0	2243.9	2254.2	2240.4
157.5°	2275.1	2261.3	2277.0	2289.2	2275.1
160°	2306.6	2296.1	2306.6	2316.9	2304.7
162.5°	2334.3	2324.0	2332.6	2344.8	2329.1
165°	2358.8	2348.4	2353.6	2365.7	2353.6
167.5°	2377.9	2367.4	2372.8	2385.0	2369.3
170°	2393.7	2383.1	2386.7	2398.9	2383.1
172.5°	2404.1	2393.7	2397.2	2409.4	2393.7
175°	2412.7	2400.5	2404.1	2416.2	2398.9
177.5°	2416.2	2404.1	2405.8	2418.1	2402.4
180°	2407.5	2407.5	2407.5	2407.5	2407.5

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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	11.29	12.20	12.20	13.13	14.32	10.86	11.77	11.77	12.70	13.89
	3H	12.95	13.77	13.87	14.71	15.92	12.48	13.30	13.40	14.24	15.45
	4H	13.54	14.32	14.48	15.26	16.48	13.07	13.85	14.01	14.79	16.01
	6H	13.95	14.66	14.89	15.61	16.84	13.47	14.19	14.42	15.13	16.37
	8H	14.05	14.73	15.01	15.70	16.93	13.58	14.26	14.53	15.22	16.46
	12H	14.10	14.75	15.06	15.71	16.97	13.62	14.27	14.58	15.23	16.49
4H	2H	11.76	12.53	12.70	13.47	14.70	11.41	12.19	12.35	13.13	14.35
	3H	13.63	14.28	14.58	15.25	16.48	13.24	13.88	14.19	14.86	16.09
	4H	14.35	14.94	15.31	15.90	17.16	13.94	14.53	14.90	15.50	16.76
	6H	14.86	15.37	15.84	16.36	17.62	14.45	14.96	15.43	15.95	17.21
	8H	15.01	15.49	15.99	16.47	17.75	14.60	15.08	15.58	16.06	17.34
	12H	15.09	15.52	16.08	16.52	17.80	14.67	15.10	15.66	16.10	17.38
8H	4H	14.55	15.02	15.52	16.01	17.28	14.19	14.66	15.16	15.65	16.92
	6H	15.18	15.57	16.18	16.60	17.87	14.82	15.21	15.82	16.24	17.51
	8H	15.40	15.75	16.41	16.76	18.05	15.03	15.38	16.04	16.39	17.68
	12H	15.53	15.84	16.55	16.85	18.18	15.15	15.46	16.16	16.46	17.80
12H	4H	14.53	14.96	15.53	15.96	17.24	14.18	14.61	15.18	15.61	16.89
	6H	15.21	15.56	16.22	16.57	17.86	14.86	15.21	15.87	16.22	17.51
	8H	15.45	15.76	16.47	16.77	18.10	15.10	15.40	16.11	16.41	17.75

END OF REPORT