

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: P922472

Luminaire Tested: DFN2DIP-PN4F0-100D080US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922472
REPORT IS A COMBINATION OF REPORTS P899693 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D080US940-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

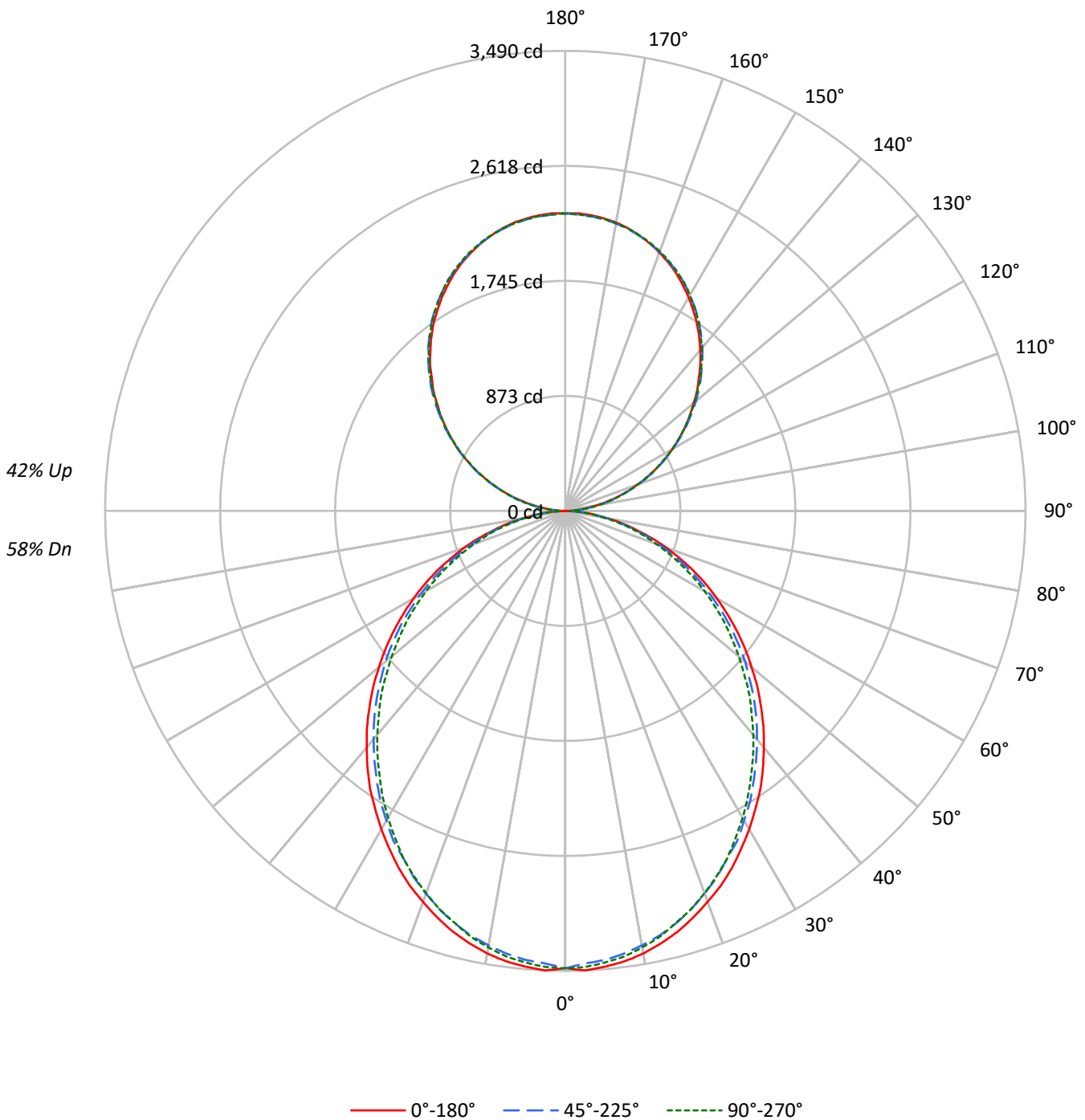
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15141.2 lumens
Efficiency: N/A
Efficacy: 95.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 158.9
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			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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	64	64	64	58			58
1	100	95	91	88	93	89	86	82	77	75	72	66	65	63	56	55	54	49			49
2	91	83	77	72	84	78	72	68	68	64	60	58	55	52	50	47	45	41			41
3	83	73	66	60	77	69	62	57	60	55	50	52	48	44	44	41	39	35			35
4	76	65	57	51	70	61	54	48	53	47	43	46	42	38	39	36	33	30			30
5	70	58	50	43	65	54	47	41	48	42	37	41	37	33	35	32	29	26			26
6	64	52	44	38	60	49	41	36	43	37	32	37	33	29	32	29	26	23			23
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23	20			20
8	55	43	35	29	51	40	33	28	36	30	26	31	26	23	27	23	20	18			18
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18	16			16
10	48	36	28	24	45	34	27	23	30	25	21	27	22	19	23	19	17	15			15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2533	2533	2533
5°	2537	2498	2515
10°	2516	2464	2481
15°	2479	2424	2428
20°	2429	2368	2374
25°	2380	2301	2312
30°	2317	2239	2232
35°	2258	2165	2148
40°	2185	2091	2068
45°	2113	2016	1986
50°	2034	1938	1891
55°	1951	1848	1804
60°	1857	1740	1704
65°	1754	1629	1586
70°	1624	1493	1460
75°	1444	1331	1344
80°	1227	1125	1120
85°	887	768	749

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2113 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	326.6	2.2
10°-20°	918.8	6.1
20°-30°	1350.3	8.9
30°-40°	1568.3	10.4
40°-50°	1566.4	10.3
50°-60°	1365.8	9.0
60°-70°	1009.7	6.7
70°-80°	571.3	3.8
80°-90°	157.2	1.0
90°-100°	139.6	0.9
100°-110°	443.6	2.9
110°-120°	759.1	5.0
120°-130°	998.3	6.6
130°-140°	1120.6	7.4
140°-150°	1098.9	7.3
150°-160°	921.8	6.1
160°-170°	611.3	4.0
170°-180°	213.7	1.4
0°-30°	2595.7	17.1
0°-40°	4164.0	27.5
0°-60°	7096.2	46.9
0°-90°	8834.3	58.3
90°-120°	1342.3	8.9
90°-150°	4560.1	30.1
90°-180°	6307.0	41.7
0°-180°	15141.2	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	24	67	63	65	15
95°	99	118	122	122	118	111
105°	410	415	419	422	422	432
115°	762	773	769	767	762	753
125°	1108	1125	1120	1113	1111	990
135°	1433	1454	1458	1456	1451	1108
145°	1740	1754	1764	1766	1759	1087
155°	1990	1995	2001	2010	2004	916
165°	2164	2162	2162	2176	2166	611
175°	2252	2247	2242	2256	2244	214
180°	2256	2256	2256	2256	2256	



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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°	2.1	24.5	66.7	62.6	64.6
92.5°	42.2	57.2	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.3	183.0	190.5	190.5	190.5
100°	241.5	257.1	262.5	262.5	260.5
102.5°	321.7	333.3	340.7	342.8	340.7
105°	409.5	414.9	419.0	422.4	422.4
107.5°	496.5	504.7	504.7	506.0	496.5
110°	580.9	591.7	591.7	591.7	586.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	672.0	683.6	681.5	676.1	672.0
115°	761.8	772.7	769.3	767.2	761.8
117.5°	850.9	865.9	856.3	850.9	845.4
120°	940.7	955.6	940.7	940.7	934.5
122.5°	1022.3	1041.3	1031.8	1026.4	1022.3
125°	1108.0	1125.0	1119.5	1113.4	1111.4
127.5°	1191.7	1212.7	1205.2	1197.1	1191.7
130°	1269.9	1294.3	1290.9	1286.9	1279.4
132.5°	1357.6	1376.6	1378.0	1368.5	1363.1
135°	1433.1	1454.2	1458.3	1456.3	1450.8
137.5°	1517.4	1534.5	1537.8	1536.5	1528.3
140°	1591.6	1608.6	1618.1	1618.1	1610.6
142.5°	1667.8	1684.8	1690.2	1692.3	1684.8
145°	1739.9	1753.5	1764.3	1766.4	1758.9
147.5°	1804.5	1821.5	1829.6	1833.1	1825.6
150°	1871.2	1882.7	1890.2	1896.3	1890.2
152.5°	1930.3	1941.9	1951.4	1958.9	1951.4
155°	1989.5	1994.9	2001.1	2010.5	2004.5
157.5°	2040.5	2044.6	2048.0	2061.5	2052.1
160°	2086.1	2090.2	2092.2	2103.7	2095.6
162.5°	2128.2	2128.2	2130.3	2143.2	2133.7
165°	2164.3	2162.2	2162.2	2175.9	2166.3
167.5°	2196.9	2190.8	2190.8	2204.4	2194.9
170°	2221.4	2216.0	2213.9	2227.6	2216.0
172.5°	2238.5	2233.0	2231.0	2244.5	2233.0
175°	2252.0	2246.6	2242.5	2256.1	2244.5
177.5°	2259.5	2254.1	2250.0	2261.6	2250.0
180°	2256.1	2256.1	2256.1	2256.1	2256.1



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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	11.24	12.18	12.12	13.09	14.23	10.80	11.74	11.68	12.65	13.79
	3H	12.91	13.76	13.81	14.67	15.84	12.43	13.27	13.32	14.19	15.36
	4H	13.51	14.30	14.42	15.22	16.40	13.02	13.82	13.93	14.74	15.92
	6H	13.91	14.65	14.83	15.57	16.77	13.42	14.16	14.34	15.08	16.28
	8H	14.02	14.72	14.95	15.66	16.86	13.53	14.23	14.46	15.17	16.36
	12H	14.07	14.74	15.01	15.68	16.90	13.57	14.24	14.51	15.18	16.40
4H	2H	11.71	12.51	12.63	13.43	14.61	11.36	12.16	12.28	13.08	14.26
	3H	13.59	14.26	14.52	15.21	16.40	13.19	13.86	14.11	14.80	16.00
	4H	14.31	14.92	15.25	15.86	17.09	13.89	14.50	14.83	15.45	16.67
	6H	14.83	15.36	15.78	16.33	17.55	14.41	14.93	15.36	15.90	17.12
	8H	14.99	15.48	15.94	16.44	17.67	14.56	15.05	15.51	16.01	17.25
	12H	15.06	15.51	16.04	16.49	17.73	14.62	15.07	15.60	16.05	17.29
8H	4H	14.51	15.01	15.47	15.97	17.20	14.14	14.63	15.09	15.60	16.83
	6H	15.15	15.56	16.13	16.56	17.80	14.78	15.18	15.75	16.19	17.42
	8H	15.38	15.73	16.36	16.73	17.98	14.99	15.35	15.98	16.34	17.59
	12H	15.51	15.83	16.50	16.81	18.11	15.11	15.43	16.10	16.41	17.71
12H	4H	14.50	14.95	15.47	15.93	17.17	14.14	14.58	15.11	15.56	16.80
	6H	15.18	15.54	16.17	16.53	17.79	14.82	15.18	15.80	16.17	17.42
	8H	15.43	15.75	16.42	16.73	18.03	15.06	15.37	16.05	16.36	17.66