

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: P910439

Luminaire Tested: DFN2DIP-4P3F0-060D020US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910439
REPORT IS A COMBINATION OF REPORTS P900557 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D020US850-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

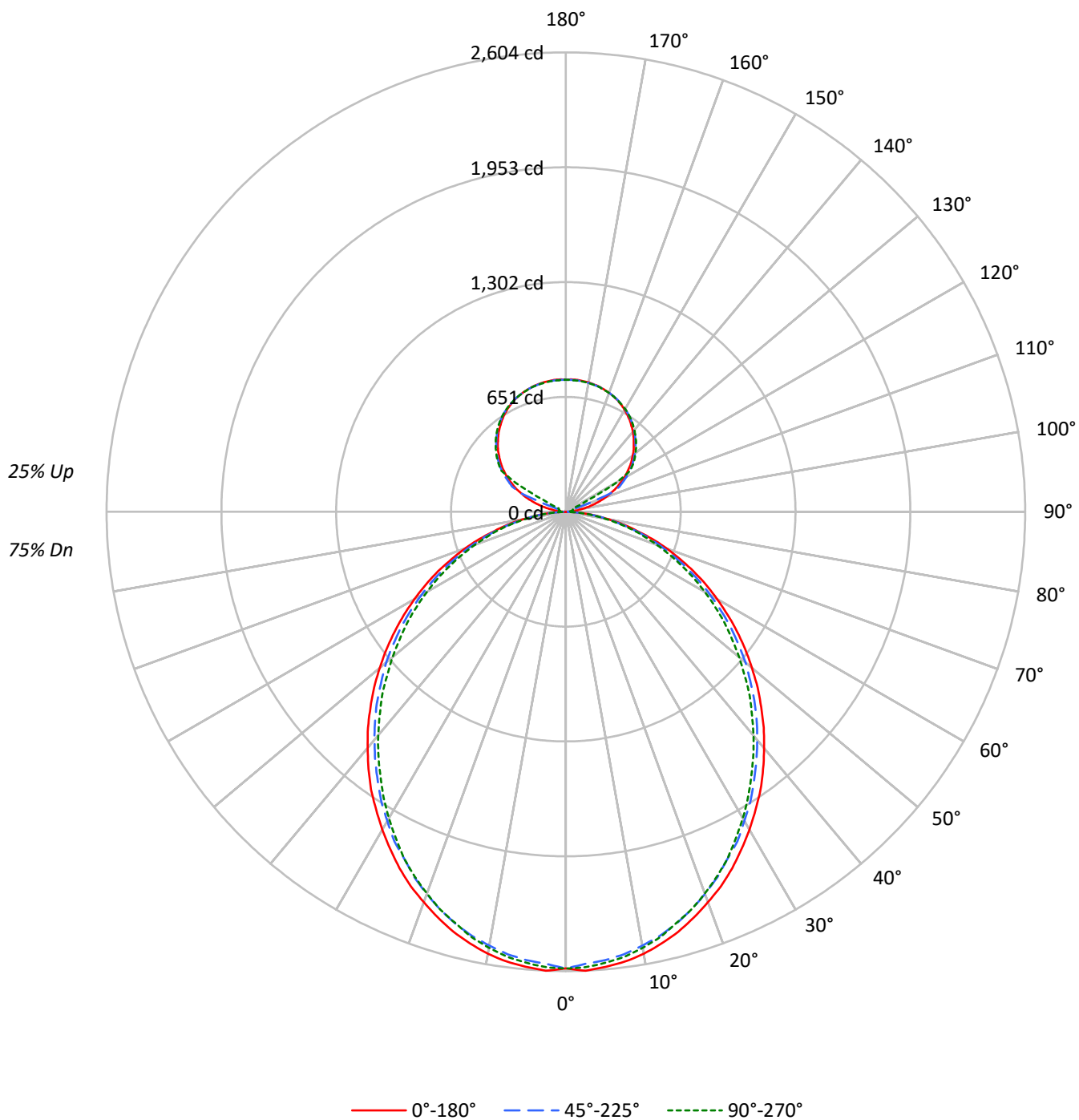
Lumens per Lamp: N/A
Luminaire Lumens: 8783.2 lumens
Efficiency: N/A
Efficacy: 113.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 77.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	113	113	113	113		108	108	108	108		97	97	97		88	88	88		79	79	79
1	103	99	95	91		98	94	91	87		85	83	80		77	75	73		70	68	67
2	94	86	80	75		89	82	77	72		75	70	66		68	64	61		62	59	56
3	86	76	68	62		81	73	66	60		66	61	56		60	56	52		55	51	48
4	79	67	59	53		75	64	57	51		59	53	48		54	49	45		49	45	41
5	72	60	52	46		69	58	50	44		53	46	41		48	43	39		44	40	36
6	67	54	46	40		63	52	44	39		48	41	36		44	38	34		40	35	32
7	62	49	41	35		59	47	39	34		43	37	32		40	34	30		37	32	28
8	58	45	37	31		55	43	36	30		40	33	29		37	31	27		34	29	25
9	54	41	33	28		51	39	32	27		37	30	26		34	28	24		31	26	23
10	50	38	30	25		48	36	29	25		34	28	23		31	26	22		29	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2951	2951	2951
5°	2953	2907	2928
10°	2928	2866	2887
15°	2883	2817	2825
20°	2823	2750	2760
25°	2763	2669	2686
30°	2689	2595	2592
35°	2618	2507	2492
40°	2531	2418	2397
45°	2444	2328	2301
50°	2350	2235	2188
55°	2250	2126	2085
60°	2138	1997	1966
65°	2015	1864	1826
70°	1858	1701	1675
75°	1642	1506	1535
80°	1380	1256	1269
85°	971	832	831

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2444 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	243.7	2.8
10°-20°	685.6	7.8
20°-30°	1007.6	11.5
30°-40°	1170.3	13.3
40°-50°	1168.8	13.3
50°-60°	1019.2	11.6
60°-70°	753.4	8.6
70°-80°	426.3	4.9
80°-90°	113.8	1.3
90°-100°	24.7	0.3
100°-110°	92.0	1.0
110°-120°	244.0	2.8
120°-130°	404.8	4.6
130°-140°	429.9	4.9
140°-150°	399.6	4.5
150°-160°	321.3	3.7
160°-170°	207.0	2.4
170°-180°	71.2	0.8
0°-30°	1937.0	22.1
0°-40°	3107.2	35.4
0°-60°	5295.3	60.3
0°-90°	6588.7	75.0
90°-120°	360.7	4.1
90°-150°	1595.0	18.2
90°-180°	2194.0	25.0
0°-180°	8783.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2589	2589	2589	2589	2589	
5°	2589	2579	2552	2572	2567	246
15°	2465	2450	2417	2428	2415	694
25°	2231	2211	2168	2173	2168	1026
35°	1925	1900	1860	1845	1832	1202
45°	1566	1549	1511	1484	1474	1209
55°	1185	1170	1140	1110	1098	1060
65°	799	784	759	737	724	790
75°	418	413	401	386	391	446
85°	102	100	97	90	87	114
90°	1	6	11	14	15	8
95°	35	17	21	24	23	42
105°	165	181	33	39	41	176
115°	311	321	334	83	44	307
125°	440	447	458	462	463	393
135°	545	554	558	564	563	421
145°	632	632	641	645	642	395
155°	696	691	698	701	697	321
165°	733	730	732	736	732	207
175°	750	746	748	751	746	71
180°	749	749	749	749	749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2589.1	2589.1	2589.1	2589.1	2589.1
2.5°	2604.2	2591.7	2564.2	2589.1	2584.3
5°	2589.1	2579.3	2551.8	2571.7	2566.9
7.5°	2571.7	2556.9	2529.4	2549.5	2544.5
10°	2544.5	2527.1	2497.1	2517.0	2509.6
12.5°	2507.0	2492.1	2462.3	2474.7	2469.7
15°	2464.6	2449.9	2417.4	2427.5	2415.1
17.5°	2412.4	2397.7	2365.2	2377.5	2365.2
20°	2355.1	2340.3	2305.4	2312.8	2303.1
22.5°	2298.1	2275.6	2243.1	2243.1	2238.1
25°	2230.6	2210.9	2168.5	2173.3	2168.5
27.5°	2155.9	2138.5	2106.2	2098.9	2086.5
30°	2081.5	2061.3	2024.1	2016.7	2006.6
32.5°	2001.6	1986.9	1947.0	1931.9	1921.9
35°	1924.6	1899.7	1859.8	1844.7	1832.3
37.5°	1837.4	1814.9	1775.1	1757.5	1745.1
40°	1747.8	1727.7	1687.9	1665.7	1655.6
42.5°	1660.6	1640.5	1601.0	1575.9	1561.0
45°	1566.1	1548.6	1511.1	1484.0	1473.9
47.5°	1473.9	1456.4	1416.6	1389.1	1374.3
50°	1376.7	1364.3	1329.5	1294.5	1282.1
52.5°	1282.1	1264.7	1232.4	1205.0	1187.6
55°	1185.2	1170.1	1140.3	1110.4	1098.0
57.5°	1088.0	1075.6	1043.1	1013.3	1003.2
60°	990.8	981.0	946.2	918.7	911.3
62.5°	896.2	878.8	853.9	829.1	819.1
65°	799.3	784.3	759.4	736.9	724.5
67.5°	699.7	687.0	664.8	647.4	637.3
70°	607.5	597.5	575.0	557.6	547.8
72.5°	512.9	502.9	490.5	473.1	465.7
75°	418.1	413.4	400.7	385.9	390.9
77.5°	333.6	323.6	318.5	311.2	303.8
80°	249.1	246.4	241.4	234.0	229.0
82.5°	169.3	169.3	166.9	156.9	156.9
85°	101.9	99.6	97.1	89.5	87.2
87.5°	44.9	39.9	34.8	27.5	24.8
90°	0.6	6.5	10.8	13.5	14.6
92.5°	13.5	11.4	13.0	14.1	14.6
95°	35.2	17.3	21.1	23.8	23.3
97.5°	63.3	19.0	27.6	29.3	29.8
100°	95.9	21.6	30.8	35.2	36.3
102.5°	131.6	130.5	31.9	37.9	39.6
105°	164.7	180.9	33.0	38.9	41.1
107.5°	203.2	216.6	34.2	40.0	42.3
110°	240.0	251.3	94.8	40.7	42.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	274.6	284.3	275.1	41.7	43.4
115°	311.4	320.6	334.3	83.4	44.5
117.5°	343.3	354.2	363.4	286.0	144.1
120°	379.2	387.3	397.0	403.6	330.4
122.5°	409.4	418.1	429.0	432.2	432.8
125°	440.4	447.4	457.7	461.5	463.1
127.5°	468.6	476.1	484.3	489.6	490.2
130°	495.1	503.7	509.7	515.7	515.1
132.5°	522.1	529.2	535.1	540.0	539.5
135°	545.0	553.6	558.4	563.9	562.8
137.5°	568.7	575.2	580.7	586.1	584.4
140°	592.0	596.4	602.3	607.2	604.5
142.5°	611.5	615.4	622.4	626.7	623.9
145°	632.1	631.6	640.8	644.6	641.9
147.5°	650.0	648.3	657.5	660.2	658.1
150°	667.3	663.5	672.2	675.4	672.7
152.5°	681.9	677.6	685.7	689.0	685.1
155°	696.0	691.1	697.7	700.9	696.6
157.5°	707.4	703.1	708.0	711.8	707.4
160°	717.2	713.9	717.2	720.4	716.6
162.5°	725.7	722.5	725.3	729.1	724.2
165°	733.4	730.2	731.7	735.6	731.7
167.5°	739.4	736.0	737.7	741.6	736.6
170°	744.2	740.9	742.0	745.8	740.9
172.5°	747.5	744.2	745.4	749.1	744.2
175°	750.1	746.4	747.5	751.2	745.8
177.5°	751.2	747.5	748.0	751.8	746.9
180°	748.6	748.6	748.6	748.6	748.6

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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	13.04	14.19	13.75	14.91	15.78	12.60	13.74	13.31	14.47	15.33
	3H	14.72	15.75	15.44	16.49	17.38	14.23	15.26	14.95	16.00	16.89
	4H	15.32	16.29	16.06	17.04	17.94	14.82	15.79	15.56	16.54	17.45
	6H	15.73	16.62	16.48	17.38	18.30	15.23	16.12	15.98	16.88	17.80
	8H	15.84	16.69	16.60	17.47	18.39	15.34	16.19	16.10	16.97	17.89
	12H	15.90	16.71	16.67	17.48	18.43	15.39	16.20	16.16	16.97	17.92
4H	2H	13.54	14.50	14.28	15.25	16.16	13.18	14.15	13.92	14.90	15.80
	3H	15.42	16.23	16.18	17.01	17.94	15.01	15.82	15.77	16.61	17.53
	4H	16.14	16.88	16.91	17.66	18.62	15.72	16.45	16.49	17.24	18.19
	6H	16.67	17.31	17.46	18.12	19.08	16.24	16.87	17.03	17.68	18.64
	8H	16.82	17.42	17.62	18.22	19.20	16.39	16.98	17.18	17.79	18.76
	12H	16.91	17.44	17.72	18.27	19.25	16.46	17.00	17.27	17.82	18.80
8H	4H	16.36	16.95	17.15	17.76	18.73	15.98	16.58	16.77	17.38	18.35
	6H	16.99	17.49	17.82	18.34	19.31	16.61	17.10	17.43	17.95	18.93
	8H	17.21	17.65	18.05	18.50	19.49	16.82	17.26	17.66	18.11	19.10
	12H	17.36	17.74	18.19	18.58	19.63	16.94	17.33	17.78	18.17	19.21
12H	4H	16.36	16.89	17.17	17.72	18.70	15.99	16.52	16.80	17.35	18.33
	6H	17.02	17.46	17.86	18.31	19.30	16.65	17.09	17.49	17.94	18.93
	8H	17.28	17.66	18.11	18.50	19.55	16.90	17.28	17.73	18.12	19.17