

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: P910532

Luminaire Tested: DFN2DIP-4P4F0-060D030US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910532
REPORT IS A COMBINATION OF REPORTS P899086 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D030US850-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

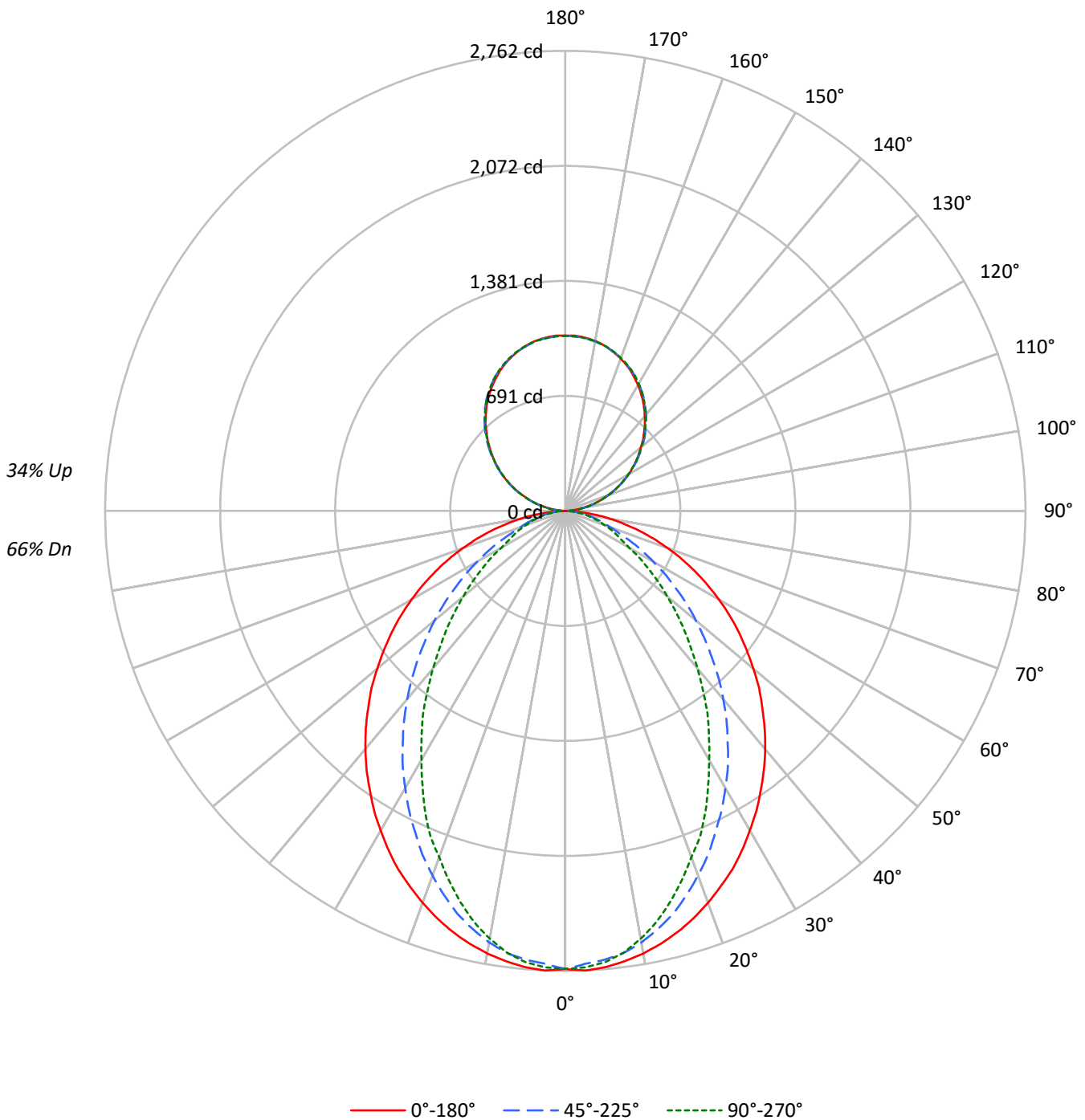
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8600.3 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 84.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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
RCR																				
0	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66		
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61	57		
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52	49		
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45	42		
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40	36		
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35	32		
6	67	55	47	41	63	52	45	40	47	41	37	42	38	34	38	34	31	29		
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28	26		
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25	23		
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23	21		
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21	19		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1784	1784	1784
5°	1787	1756	1768
10°	1770	1722	1711
15°	1745	1666	1622
20°	1713	1588	1514
25°	1680	1501	1409
30°	1636	1411	1276
35°	1593	1314	1159
40°	1549	1214	1024
45°	1498	1103	903
50°	1445	991	783
55°	1390	872	669
60°	1326	746	551
65°	1252	619	497
70°	1163	500	451
75°	1051	442	412
80°	889	372	359
85°	621	252	274

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1498 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	257.7	3.0
10°-20°	707.6	8.2
20°-30°	993.4	11.6
30°-40°	1082.8	12.6
40°-50°	995.2	11.6
50°-60°	781.6	9.1
60°-70°	508.8	5.9
70°-80°	261.9	3.0
80°-90°	69.8	0.8
90°-100°	65.1	0.8
100°-110°	206.9	2.4
110°-120°	354.0	4.1
120°-130°	465.6	5.4
130°-140°	522.6	6.1
140°-150°	512.5	6.0
150°-160°	429.9	5.0
160°-170°	285.1	3.3
170°-180°	99.7	1.2
0°-30°	1958.7	22.8
0°-40°	3041.5	35.4
0°-60°	4818.4	56.0
0°-90°	5658.9	65.8
90°-120°	626.0	7.3
90°-150°	2126.7	24.7
90°-180°	2941.0	34.2
0°-180°	8600.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2750	2750	2750	2750	2750	
5°	2750	2738	2705	2728	2720	261
15°	2616	2588	2504	2456	2432	737
25°	2374	2295	2130	2028	1991	1092
35°	2046	1919	1700	1543	1488	1281
45°	1672	1506	1244	1068	1008	1292
55°	1272	1078	809	660	612	1136
65°	859	657	433	349	341	851
75°	458	284	199	182	179	484
85°	107	55	47	47	47	123
90°	1	11	31	29	30	8
95°	46	55	57	57	55	52
105°	191	194	195	197	197	202
115°	355	360	359	358	355	351
125°	517	525	522	519	518	462
135°	668	678	680	679	677	517
145°	812	818	823	824	820	507
155°	928	930	933	938	935	427
165°	1009	1008	1008	1015	1010	285
175°	1050	1048	1046	1052	1047	100
180°	1052	1052	1052	1052	1052	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.1	2750.1	2750.1	2750.1	2750.1
2.5°	2762.5	2750.1	2722.6	2747.7	2742.7
5°	2750.1	2737.7	2705.2	2727.7	2720.3
7.5°	2727.7	2712.8	2678.0	2687.8	2675.4
10°	2697.8	2680.3	2630.8	2623.1	2608.3
12.5°	2660.6	2638.1	2570.8	2556.0	2528.5
15°	2615.7	2588.2	2503.7	2456.4	2431.6
17.5°	2563.5	2523.5	2419.0	2364.3	2324.5
20°	2503.7	2453.8	2329.5	2267.4	2212.5
22.5°	2439.0	2381.7	2237.3	2152.8	2115.5
25°	2374.4	2294.6	2130.4	2028.5	1991.0
27.5°	2297.3	2212.5	2030.8	1913.8	1856.6
30°	2215.1	2120.3	1921.2	1794.5	1727.2
32.5°	2135.4	2020.8	1817.0	1667.5	1605.2
35°	2045.9	1918.9	1700.0	1543.1	1488.2
37.5°	1958.7	1821.6	1590.4	1418.5	1356.4
40°	1866.6	1717.4	1475.7	1299.1	1234.4
42.5°	1772.1	1612.8	1361.4	1177.1	1115.1
45°	1672.5	1505.6	1244.5	1067.5	1007.9
47.5°	1578.0	1401.3	1132.5	955.6	901.0
50°	1473.4	1296.8	1022.9	851.0	799.0
52.5°	1371.2	1184.5	918.4	754.1	706.9
55°	1271.7	1077.6	808.8	659.6	612.3
57.5°	1169.8	970.6	711.9	572.5	532.5
60°	1065.2	866.1	609.7	483.0	443.0
62.5°	963.3	764.2	522.6	403.2	383.4
65°	858.7	657.0	433.1	348.6	340.9
67.5°	759.1	557.4	348.6	306.1	298.7
70°	654.5	460.5	288.6	263.8	253.7
72.5°	555.1	370.7	241.3	221.6	216.5
75°	457.9	283.6	199.1	181.7	179.3
77.5°	361.0	201.5	156.8	146.8	141.8
80°	271.2	144.4	119.3	109.6	109.6
82.5°	189.1	97.1	82.1	77.1	77.1
85°	106.9	54.7	47.2	47.2	47.2
87.5°	39.9	19.9	19.9	17.4	17.4
90°	1.0	11.4	31.1	29.2	30.2
92.5°	19.6	26.6	27.6	28.5	28.5
95°	46.4	55.2	56.8	56.8	55.2
97.5°	77.1	85.3	88.8	88.8	88.8
100°	112.6	119.9	122.4	122.4	121.5
102.5°	150.0	155.5	158.9	159.9	158.9
105°	191.0	193.5	195.4	197.0	197.0
107.5°	231.6	235.3	235.3	236.0	231.6
110°	270.9	276.0	276.0	276.0	273.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	313.4	318.8	317.8	315.3	313.4
115°	355.3	360.3	358.8	357.9	355.3
117.5°	396.8	403.8	399.4	396.8	394.2
120°	438.7	445.7	438.7	438.7	435.8
122.5°	476.8	485.6	481.2	478.6	476.8
125°	516.8	524.7	522.1	519.2	518.3
127.5°	555.7	565.6	562.2	558.3	555.7
130°	592.2	603.6	602.1	600.2	596.6
132.5°	633.1	642.0	642.7	638.2	635.7
135°	668.4	678.2	680.1	679.2	676.6
137.5°	707.7	715.6	717.2	716.6	712.8
140°	742.3	750.2	754.7	754.7	751.1
142.5°	777.9	785.7	788.3	789.3	785.7
145°	811.5	817.8	822.9	823.8	820.3
147.5°	841.6	849.5	853.3	854.9	851.4
150°	872.7	878.1	881.5	884.4	881.5
152.5°	900.3	905.6	910.0	913.6	910.0
155°	927.9	930.3	933.2	937.7	934.9
157.5°	951.6	953.5	955.2	961.5	957.1
160°	972.9	974.8	975.8	981.1	977.4
162.5°	992.6	992.6	993.6	999.5	995.1
165°	1009.4	1008.4	1008.4	1014.7	1010.3
167.5°	1024.6	1021.7	1021.7	1028.0	1023.6
170°	1036.0	1033.5	1032.6	1038.9	1033.5
172.5°	1043.9	1041.5	1040.5	1046.8	1041.5
175°	1050.3	1047.8	1045.9	1052.2	1046.8
177.5°	1053.8	1051.2	1049.3	1054.8	1049.3
180°	1052.2	1052.2	1052.2	1052.2	1052.2



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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	10.54	11.52	11.35	12.35	13.38	6.50	7.48	7.31	8.31	9.34
	3H	12.23	13.11	13.06	13.95	15.01	7.70	8.58	8.53	9.42	10.48
	4H	12.85	13.68	13.70	14.53	15.60	8.16	8.98	9.00	9.83	10.90
	6H	13.29	14.05	14.14	14.90	15.98	8.49	9.25	9.35	10.11	11.19
	8H	13.42	14.14	14.29	15.02	16.10	8.58	9.31	9.45	10.18	11.26
	12H	13.49	14.18	14.36	15.05	16.15	8.63	9.32	9.50	10.19	11.30
4H	2H	10.57	11.40	11.42	12.25	13.32	7.12	7.94	7.97	8.79	9.86
	3H	12.42	13.11	13.28	13.99	15.07	8.48	9.17	9.34	10.05	11.13
	4H	13.13	13.75	14.00	14.63	15.74	9.04	9.66	9.91	10.54	11.65
	6H	13.65	14.19	14.54	15.09	16.21	9.47	10.00	10.35	10.91	12.02
	8H	13.84	14.34	14.73	15.24	16.36	9.60	10.10	10.49	11.00	12.13
	12H	13.94	14.39	14.85	15.31	16.44	9.67	10.12	10.58	11.04	12.17
8H	4H	13.10	13.61	14.00	14.50	15.63	9.33	9.83	10.22	10.73	11.86
	6H	13.68	14.10	14.60	15.04	16.16	9.86	10.27	10.78	11.21	12.34
	8H	13.90	14.27	14.83	15.20	16.35	10.05	10.42	10.98	11.35	12.49
	12H	14.05	14.38	14.98	15.30	16.50	10.18	10.50	11.11	11.43	12.62
12H	4H	13.06	13.51	13.97	14.43	15.56	9.34	9.79	10.25	10.71	11.84
	6H	13.66	14.03	14.59	14.96	16.10	9.91	10.28	10.84	11.21	12.35
	8H	13.89	14.21	14.82	15.14	16.33	10.13	10.45	11.06	11.38	12.57