

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: P911114

Luminaire Tested: DFN2DIP-PN2F0-060D020US850-RLLFLL

Issue Date: 11/21/2024

**Test Information**

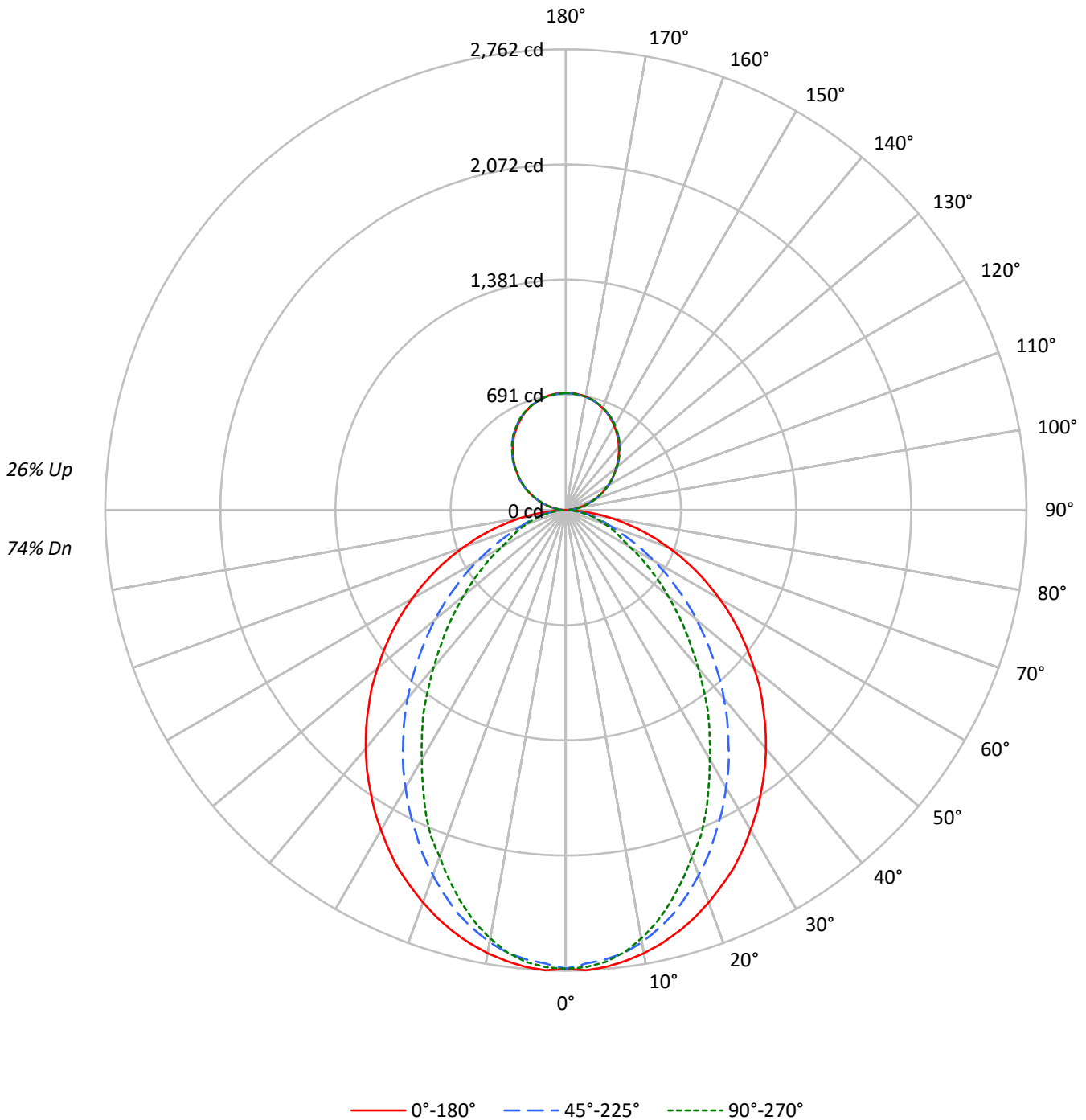
Test Method: LM-79-2019  
Report Number: P911114  
REPORT IS A COMBINATION OF REPORTS P899470 AND P896349  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN2F0-060D020US850-RLLFLL  
Description: 2 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7618.8 lumens  
Efficiency: N/A  
Efficacy: 94.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.17' x L: 2.29' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 80.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
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				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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	78	78	78	74
1	104	100	96	93	99	95	92	89	86	84	81	78	76	74	70	69	68	68	68	68	64
2	95	88	82	77	90	84	79	74	76	72	68	69	66	63	63	60	58	58	58	58	55
3	87	78	71	65	83	75	68	63	68	63	58	62	58	54	56	53	50	50	50	50	47
4	80	70	62	56	76	67	60	54	61	55	51	56	51	47	51	47	44	44	44	44	41
5	74	63	54	48	70	60	53	47	55	49	44	51	45	42	46	42	39	39	39	39	36
6	69	57	48	43	65	54	47	41	50	44	39	46	41	37	42	38	35	35	35	35	32
7	64	51	43	38	61	49	42	37	46	39	35	42	37	33	39	34	31	31	31	31	29
8	59	47	39	34	57	45	38	33	42	36	31	39	34	30	36	31	28	28	28	28	26
9	56	43	36	31	53	42	35	30	39	33	28	36	31	27	33	29	26	26	26	26	24
10	52	40	33	28	50	39	32	27	36	30	26	33	28	25	31	27	23	23	23	23	22

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	5956	5956	5956
5°	5956	5849	5891
10°	5888	5722	5690
15°	5797	5520	5386
20°	5680	5248	5016
25°	5561	4945	4658
30°	5403	4635	4208
35°	5249	4304	3812
40°	5091	3961	3360
45°	4908	3584	2951
50°	4719	3204	2552
55°	4520	2800	2170
60°	4289	2380	1777
65°	4023	1954	1590
70°	3700	1556	1426
75°	3294	1347	1281
80°	2710	1094	1084
85°	1771	680	769

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4908 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	257.7	3.4
10°-20°	707.6	9.3
20°-30°	993.4	13.0
30°-40°	1082.8	14.2
40°-50°	995.2	13.1
50°-60°	781.6	10.3
60°-70°	508.8	6.7
70°-80°	261.9	3.4
80°-90°	68.9	0.9
90°-100°	43.4	0.6
100°-110°	137.9	1.8
110°-120°	236.0	3.1
120°-130°	310.4	4.1
130°-140°	348.4	4.6
140°-150°	341.7	4.5
150°-160°	286.6	3.8
160°-170°	190.1	2.5
170°-180°	66.4	0.9
0°-30°	1958.7	25.7
0°-40°	3041.5	39.9
0°-60°	4818.4	63.2
0°-90°	5657.9	74.3
90°-120°	417.3	5.5
90°-150°	1417.8	18.6
90°-180°	1961.0	25.7
0°-180°	7618.8	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	8	21	19	20	7
95°	31	37	38	38	37	34
105°	127	129	130	131	131	134
115°	237	240	239	238	237	234
125°	344	350	348	346	346	308
135°	446	452	453	453	451	344
145°	541	545	549	549	547	338
155°	619	620	622	625	623	285
165°	673	672	672	676	674	190
175°	700	699	697	701	698	67
180°	701	701	701	701	701	



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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°	0.7	7.7	20.7	19.4	20.1
92.5°	13.1	17.7	18.4	19.1	19.1
95°	30.8	36.8	37.8	37.8	36.8
97.5°	51.3	56.9	59.2	59.2	59.2
100°	75.1	80.0	81.6	81.6	81.0
102.5°	100.0	103.6	105.9	106.6	105.9
105°	127.3	129.0	130.3	131.3	131.3
107.5°	154.4	156.9	156.9	157.4	154.4
110°	180.7	184.0	184.0	184.0	182.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	208.9	212.5	211.9	210.2	208.9
115°	236.9	240.2	239.2	238.5	236.9
117.5°	264.6	269.3	266.3	264.6	262.8
120°	292.4	297.1	292.4	292.4	290.6
122.5°	317.8	323.7	320.8	319.2	317.8
125°	344.5	349.8	348.1	346.2	345.6
127.5°	370.5	377.1	374.7	372.2	370.5
130°	394.8	402.5	401.3	400.1	397.8
132.5°	422.1	428.1	428.4	425.5	423.7
135°	445.6	452.1	453.4	452.8	451.0
137.5°	471.8	477.1	478.2	477.8	475.2
140°	494.8	500.2	503.2	503.2	500.8
142.5°	518.6	523.8	525.6	526.1	523.8
145°	541.0	545.2	548.6	549.2	546.8
147.5°	561.0	566.4	568.9	569.9	567.6
150°	581.8	585.3	587.7	589.5	587.7
152.5°	600.2	603.7	606.7	609.1	606.7
155°	618.6	620.3	622.1	625.1	623.3
157.5°	634.5	635.7	636.8	641.0	638.0
160°	648.7	649.9	650.5	654.1	651.5
162.5°	661.7	661.7	662.3	666.4	663.4
165°	672.9	672.3	672.3	676.5	673.6
167.5°	683.0	681.1	681.1	685.4	682.5
170°	690.7	689.0	688.4	692.6	689.0
172.5°	696.0	694.2	693.7	697.9	694.2
175°	700.2	698.6	697.2	701.4	697.9
177.5°	702.6	700.9	699.6	703.1	699.6
180°	701.4	701.4	701.4	701.4	701.4



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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	15.25	16.33	15.97	17.07	17.95	11.22	12.30	11.94	13.03	13.91
	3H	16.93	17.89	17.66	18.64	19.55	12.41	13.37	13.15	14.12	15.03
	4H	17.53	18.44	18.29	19.20	20.12	12.86	13.77	13.61	14.52	15.45
	6H	17.95	18.79	18.72	19.55	20.49	13.18	14.01	13.95	14.78	15.72
	8H	18.07	18.87	18.85	19.66	20.60	13.27	14.06	14.05	14.85	15.79
	12H	18.13	18.89	18.92	19.67	20.64	13.31	14.07	14.09	14.85	15.81
4H	2H	15.29	16.20	16.05	16.96	17.88	11.83	12.74	12.59	13.50	14.42
	3H	17.12	17.88	17.89	18.67	19.61	13.19	13.94	13.96	14.73	15.67
	4H	17.81	18.49	18.59	19.29	20.26	13.73	14.41	14.51	15.21	16.18
	6H	18.32	18.91	19.12	19.73	20.70	14.14	14.73	14.95	15.55	16.53
	8H	18.48	19.04	19.29	19.85	20.84	14.27	14.82	15.07	15.63	16.62
	12H	18.58	19.07	19.41	19.91	20.90	14.33	14.83	15.16	15.66	16.66
8H	4H	17.79	18.34	18.60	19.16	20.14	14.01	14.57	14.82	15.38	16.37
	6H	18.34	18.80	19.18	19.65	20.64	14.52	14.97	15.35	15.83	16.82
	8H	18.55	18.95	19.39	19.80	20.81	14.70	15.10	15.54	15.96	16.96
	12H	18.68	19.04	19.53	19.88	20.94	14.81	15.17	15.66	16.01	17.08
12H	4H	17.75	18.25	18.58	19.08	20.08	14.03	14.52	14.85	15.36	16.35
	6H	18.32	18.72	19.16	19.58	20.58	14.56	14.97	15.41	15.82	16.83
	8H	18.53	18.89	19.38	19.73	20.80	14.77	15.13	15.62	15.97	17.03