

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: P910364

Luminaire Tested: DFN2DIP-4P3F0-020D030US850-RLLFLL

Issue Date: 11/21/2024

**Test Information**

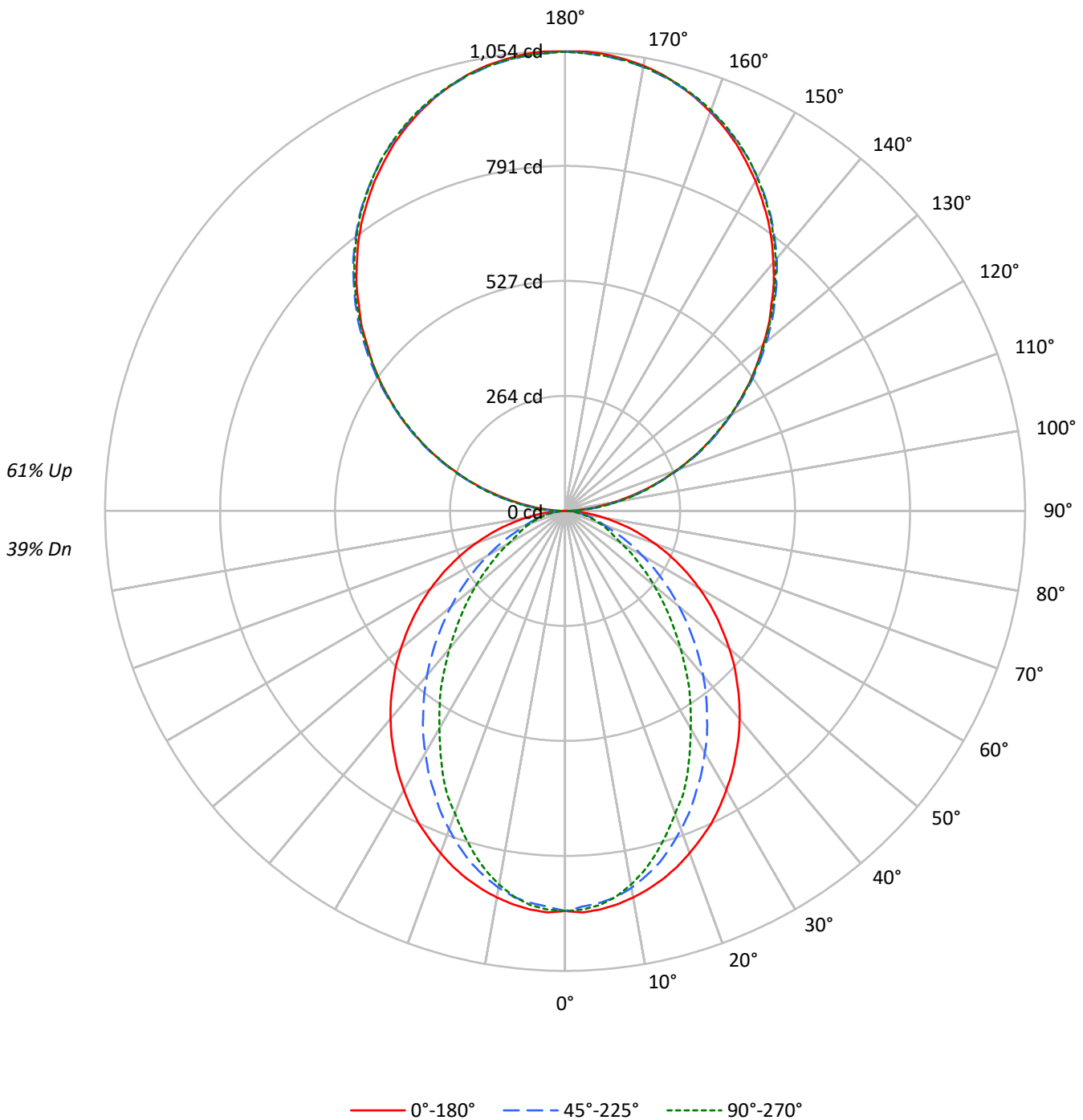
Test Method: LM-79-2019  
Report Number: P910364  
REPORT IS A COMBINATION OF REPORTS P899040 AND P895917  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P3F0-020D030US850-RLLFLL  
Description: 3 foot, 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: 4829.7 lumens  
Efficiency: N/A  
Efficacy: 127.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 37.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46	39			
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40	34			
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34	29			
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29	25			
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26	22			
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22	19			
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20	17			
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18	15			
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16	14			
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15	12			
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11			

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

	0°	45°	90°
0°	1045	1045	1045
5°	1046	1027	1034
10°	1035	1007	1000
15°	1020	973	948
20°	1000	926	884
25°	980	874	822
30°	954	821	744
35°	928	764	675
40°	901	705	596
45°	870	639	524
50°	838	573	455
55°	805	503	388
60°	766	429	319
65°	721	354	287
70°	667	285	259
75°	599	249	235
80°	501	207	202
85°	339	135	150

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1058 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	85.9	1.8
10°-20°	235.8	4.9
20°-30°	331.1	6.9
30°-40°	361.0	7.5
40°-50°	331.8	6.9
50°-60°	260.6	5.4
60°-70°	169.6	3.5
70°-80°	87.3	1.8
80°-90°	25.3	0.5
90°-100°	65.1	1.3
100°-110°	206.9	4.3
110°-120°	354.0	7.3
120°-130°	465.6	9.6
130°-140°	522.6	10.8
140°-150°	512.5	10.6
150°-160°	429.9	8.9
160°-170°	285.1	5.9
170°-180°	99.7	2.1
0°-30°	652.9	13.5
0°-40°	1013.8	21.0
0°-60°	1606.2	33.3
0°-90°	1888.3	39.1
90°-120°	626.0	13.0
90°-150°	2126.7	44.0
90°-180°	2941.0	60.9
0°-180°	4829.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	917	917	917	917	917	
5°	917	913	902	909	907	87
15°	872	863	834	819	811	246
25°	792	765	710	676	664	364
35°	682	640	567	514	496	427
45°	558	502	415	356	336	431
55°	424	359	270	220	204	379
65°	286	219	144	116	114	284
75°	153	94	66	61	60	161
85°	36	18	16	16	16	41
90°	1	11	31	29	30	5
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°	916.7	916.7	916.7	916.7	916.7
2.5°	920.8	916.7	907.5	915.9	914.3
5°	916.7	912.6	901.7	909.3	906.7
7.5°	909.3	904.3	892.6	896.0	891.7
10°	899.3	893.4	876.9	874.3	869.5
12.5°	886.9	879.3	856.9	852.0	842.8
15°	871.9	862.7	834.5	818.8	810.6
17.5°	854.5	841.2	806.4	788.1	774.9
20°	834.5	817.9	776.5	755.8	737.5
22.5°	813.0	793.9	745.8	717.6	705.2
25°	791.5	764.9	710.1	676.2	663.6
27.5°	765.8	737.5	676.9	637.9	618.8
30°	738.4	706.8	640.4	598.2	575.7
32.5°	711.8	673.6	605.6	555.8	535.1
35°	681.9	639.7	566.7	514.4	496.1
37.5°	652.9	607.2	530.1	472.9	452.1
40°	622.1	572.5	492.0	433.1	411.4
42.5°	590.7	537.6	453.8	392.4	371.7
45°	557.5	501.8	414.9	355.9	335.9
47.5°	526.0	467.1	377.5	318.5	300.3
50°	491.2	432.3	341.0	283.7	266.4
52.5°	457.0	394.8	306.1	251.4	235.7
55°	423.9	359.2	269.6	219.9	204.1
57.5°	389.9	323.5	237.3	190.9	177.6
60°	355.1	288.7	203.3	161.0	147.7
62.5°	321.1	254.7	174.2	134.4	127.8
65°	286.2	219.0	144.4	116.2	113.7
67.5°	253.1	185.8	116.2	102.0	99.6
70°	218.1	153.5	96.2	87.9	84.6
72.5°	185.0	123.5	80.4	73.9	72.2
75°	152.6	94.5	66.3	60.6	59.8
77.5°	120.3	67.2	52.2	48.9	47.2
80°	90.4	48.1	39.8	36.5	36.5
82.5°	63.0	32.4	27.4	25.7	25.7
85°	35.6	18.2	15.7	15.7	15.7
87.5°	13.3	6.7	6.7	5.8	5.8
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	6.15	6.90	7.20	7.95	9.37	2.12	2.86	3.17	3.92	5.34
	3H	7.82	8.49	8.88	9.55	10.99	3.29	3.96	4.35	5.02	6.46
	4H	8.42	9.05	9.49	10.12	11.56	3.73	4.37	4.81	5.43	6.88
	6H	8.83	9.42	9.92	10.48	11.94	4.04	4.63	5.13	5.69	7.15
	8H	8.96	9.51	10.04	10.59	12.05	4.13	4.68	5.21	5.77	7.22
	12H	9.01	9.54	10.10	10.62	12.09	4.17	4.69	5.26	5.77	7.24
4H	2H	6.16	6.79	7.24	7.85	9.30	2.70	3.33	3.78	4.40	5.84
	3H	7.97	8.50	9.06	9.59	11.05	4.03	4.56	5.12	5.65	7.11
	4H	8.66	9.14	9.75	10.22	11.70	4.57	5.06	5.66	6.14	7.62
	6H	9.17	9.58	10.27	10.68	12.16	4.98	5.39	6.08	6.50	7.97
	8H	9.34	9.72	10.44	10.82	12.31	5.10	5.49	6.20	6.59	8.08
	12H	9.43	9.78	10.54	10.88	12.38	5.16	5.51	6.28	6.62	8.11
8H	4H	8.62	9.01	9.72	10.10	11.59	4.84	5.23	5.94	6.33	7.82
	6H	9.18	9.50	10.30	10.63	12.12	5.35	5.67	6.47	6.81	8.29
	8H	9.39	9.67	10.52	10.79	12.30	5.54	5.81	6.66	6.93	8.44
	12H	9.52	9.77	10.65	10.88	12.43	5.64	5.89	6.78	7.01	8.55
12H	4H	8.57	8.92	9.68	10.03	11.52	4.84	5.19	5.96	6.30	7.80
	6H	9.15	9.43	10.28	10.55	12.06	5.40	5.68	6.52	6.80	8.30
	8H	9.37	9.61	10.50	10.73	12.27	5.60	5.84	6.73	6.96	8.50