

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: P910609

Luminaire Tested: DFN2DIP-HX2F0-020D030US850-RLLONL

Issue Date: 11/21/2024

**Test Information**

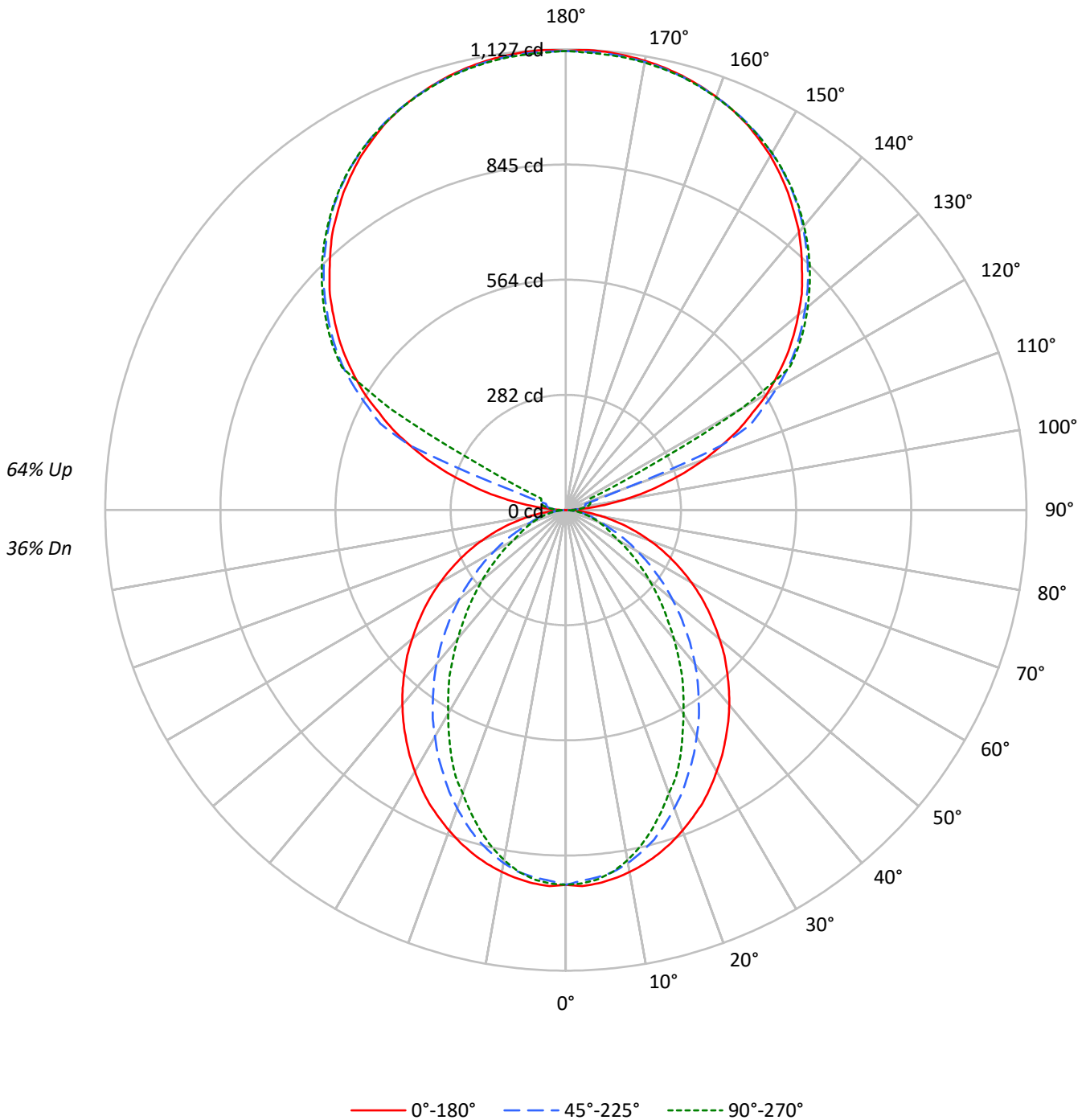
Test Method: LM-79-2019  
Report Number: P910609  
REPORT IS A COMBINATION OF REPORTS P900682 AND P897595  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX2F0-020D030US850-RLLONL  
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5179.0 lumens  
Efficiency: N/A  
Efficacy: 140.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 37  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	36				36
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38	31				31
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32	27				27
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28	23				23
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24	20				20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	18				18
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19	16				16
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17	14				14
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15	13				13
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14	12				12
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13	11				11

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

	0°	45°	90°
0°	2160	2160	2160
5°	2160	2120	2135
10°	2135	2074	2062
15°	2102	2000	1951
20°	2060	1901	1816
25°	2017	1791	1686
30°	1960	1678	1522
35°	1903	1558	1378
40°	1846	1433	1214
45°	1780	1296	1066
50°	1712	1158	921
55°	1639	1012	782
60°	1556	859	640
65°	1459	705	572
70°	1342	561	512
75°	1195	484	458
80°	984	392	385
85°	643	241	270

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1780 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	85.9	1.7
10°-20°	235.8	4.6
20°-30°	331.1	6.4
30°-40°	361.0	7.0
40°-50°	331.8	6.4
50°-60°	260.6	5.0
60°-70°	169.6	3.3
70°-80°	87.3	1.7
80°-90°	24.3	0.5
90°-100°	37.0	0.7
100°-110°	138.0	2.7
110°-120°	366.1	7.1
120°-130°	607.1	11.7
130°-140°	644.9	12.5
140°-150°	599.4	11.6
150°-160°	481.9	9.3
160°-170°	310.5	6.0
170°-180°	106.9	2.1
0°-30°	652.9	12.6
0°-40°	1013.8	19.6
0°-60°	1606.2	31.0
0°-90°	1887.3	36.4
90°-120°	541.1	10.4
90°-150°	2392.5	46.2
90°-180°	3292.0	63.6
0°-180°	5179.0	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	10	16	20	22	5
95°	53	26	32	36	35	63
105°	247	271	50	58	62	264
115°	467	481	501	125	67	460
125°	660	671	687	692	695	589
135°	817	830	838	846	844	631
145°	948	947	961	967	963	593
155°	1044	1037	1046	1051	1045	481
165°	1100	1095	1098	1103	1098	311
175°	1125	1120	1121	1127	1119	107
180°	1123	1123	1123	1123	1123	



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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°	0.8	9.8	16.2	20.4	21.8
92.5°	20.4	17.1	19.5	21.2	21.8
95°	52.8	26.0	31.6	35.8	34.9
97.5°	95.0	28.5	41.4	43.9	44.7
100°	143.8	32.5	46.4	52.8	54.5
102.5°	197.4	195.8	47.9	56.8	59.3
105°	247.0	271.4	49.6	58.4	61.8
107.5°	304.6	324.9	51.2	60.1	63.4
110°	360.0	376.9	142.2	61.0	64.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	412.0	426.5	412.8	62.5	65.0
115°	467.1	481.0	501.3	125.1	66.7
117.5°	515.1	531.3	545.2	429.0	216.1
120°	568.7	580.9	595.5	605.3	495.6
122.5°	614.2	627.3	643.6	648.3	649.2
125°	660.5	671.1	686.6	692.2	694.7
127.5°	702.8	714.1	726.4	734.5	735.3
130°	742.6	755.7	764.5	773.4	772.8
132.5°	783.2	793.8	802.7	810.0	809.2
135°	817.3	830.4	837.6	845.8	844.2
137.5°	853.0	862.8	871.0	879.1	876.7
140°	888.0	894.5	903.4	910.7	906.7
142.5°	917.4	923.0	933.6	940.0	936.0
145°	948.2	947.3	961.2	966.8	962.7
147.5°	974.9	972.5	986.3	990.3	987.1
150°	1001.0	995.3	1008.3	1013.1	1009.1
152.5°	1022.8	1016.4	1028.6	1033.5	1027.8
155°	1044.0	1036.8	1046.5	1051.3	1044.9
157.5°	1061.1	1054.7	1062.0	1067.6	1061.1
160°	1075.7	1070.9	1075.7	1080.6	1074.8
162.5°	1088.7	1083.8	1087.9	1093.6	1086.3
165°	1100.0	1095.2	1097.7	1103.3	1097.7
167.5°	1109.0	1104.1	1106.6	1112.3	1105.0
170°	1116.3	1111.4	1113.1	1118.8	1111.4
172.5°	1121.2	1116.3	1118.0	1123.6	1116.3
175°	1125.2	1119.5	1121.2	1126.9	1118.8
177.5°	1126.9	1121.2	1122.1	1127.7	1120.4
180°	1122.9	1122.9	1122.9	1122.9	1122.9



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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	8.27	9.00	9.34	10.07	11.52	4.26	4.99	5.33	6.05	7.51
	3H	9.91	10.57	11.00	11.65	13.12	5.42	6.07	6.50	7.15	8.62
	4H	10.50	11.12	11.59	12.20	13.68	5.85	6.47	6.94	7.55	9.03
	6H	10.90	11.47	12.00	12.55	14.04	6.15	6.72	7.25	7.81	9.30
	8H	11.01	11.55	12.11	12.65	14.13	6.23	6.77	7.34	7.87	9.36
	12H	11.06	11.57	12.17	12.66	14.17	6.27	6.78	7.37	7.87	9.38
4H	2H	8.27	8.89	9.37	9.97	11.45	4.82	5.44	5.92	6.52	8.00
	3H	10.06	10.58	11.17	11.68	13.18	6.15	6.66	7.25	7.77	9.26
	4H	10.73	11.20	11.84	12.30	13.81	6.68	7.15	7.78	8.24	9.76
	6H	11.22	11.62	12.33	12.74	14.25	7.07	7.47	8.19	8.59	10.10
	8H	11.38	11.75	12.49	12.87	14.39	7.19	7.56	8.30	8.68	10.20
	12H	11.45	11.80	12.59	12.92	14.44	7.24	7.58	8.37	8.70	10.23
8H	4H	10.69	11.07	11.80	12.18	13.70	6.93	7.31	8.05	8.42	9.94
	6H	11.22	11.53	12.36	12.69	14.21	7.42	7.73	8.56	8.89	10.41
	8H	11.42	11.70	12.57	12.83	14.37	7.60	7.87	8.74	9.01	10.54
	12H	11.54	11.78	12.69	12.91	14.48	7.70	7.94	8.85	9.07	10.64
12H	4H	10.63	10.98	11.77	12.10	13.63	6.93	7.27	8.06	8.39	9.92
	6H	11.20	11.47	12.34	12.60	14.14	7.47	7.74	8.61	8.87	10.41
	8H	11.40	11.63	12.54	12.76	14.34	7.66	7.89	8.80	9.02	10.60