

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: P910673

Luminaire Tested: DFN2DIP-HX2F0-050D040US850-RLONL

Issue Date: 11/21/2024

**Test Information**

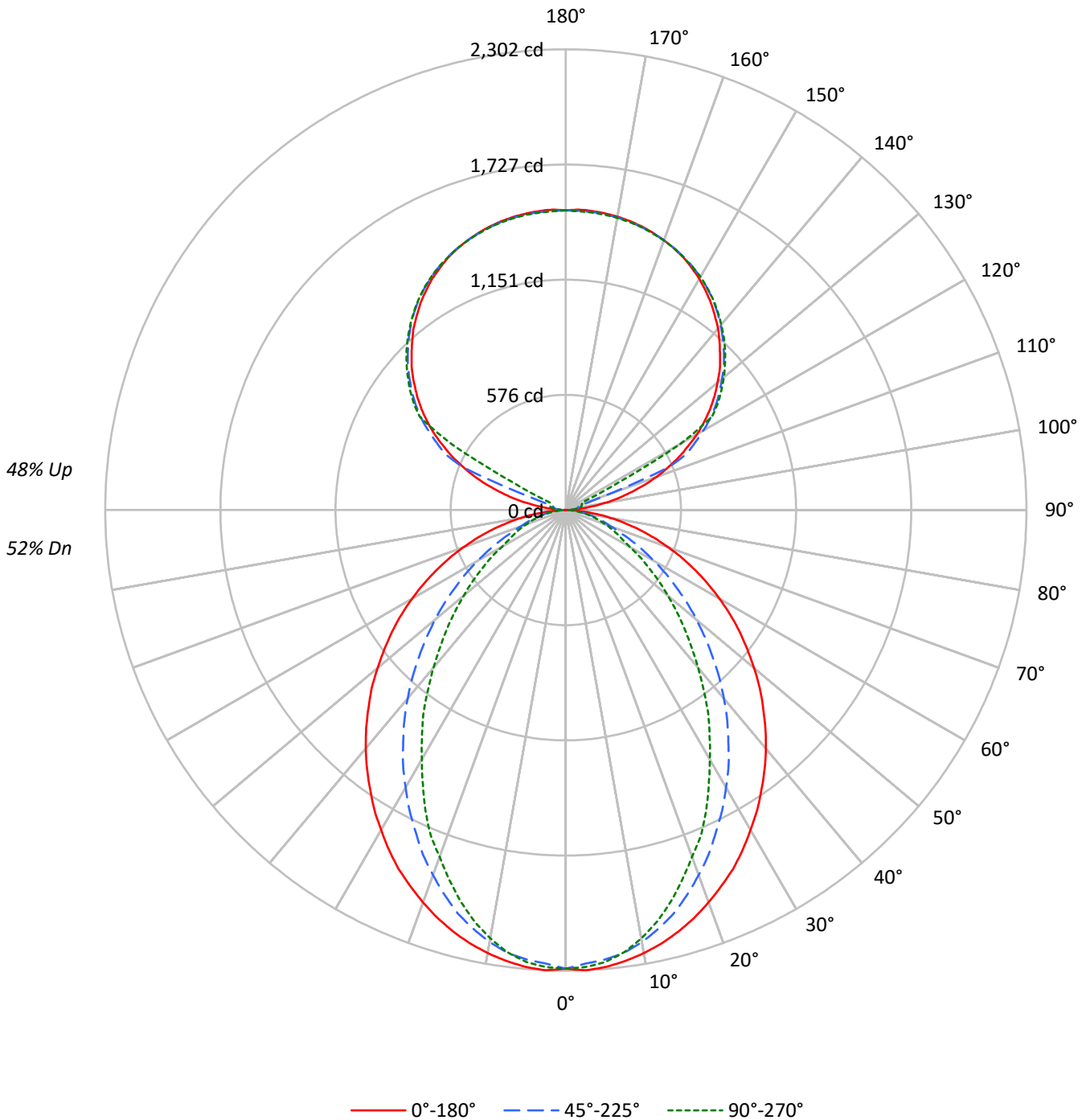
Test Method: LM-79-2019  
Report Number: P910673  
REPORT IS A COMBINATION OF REPORTS P900698 AND P897595  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX2F0-050D040US850-RLLONL  
Description: 2 foot, 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: 9104.9 lumens  
Efficiency: N/A  
Efficacy: 118.4 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: General Diffuse  
  
Input Watts (W): 76.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58	58	58	58	52
1	99	95	91	87	91	88	84	82	75	72	70	63	61	60	52	51	50	50	50	50	45
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	46	44	43	43	43	43	38
3	83	74	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37	37	37	37	33
4	76	65	58	52	70	61	54	49	52	47	43	45	41	38	37	35	32	32	32	32	29
5	70	59	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28	28	28	28	25
6	65	53	45	39	60	49	42	37	43	37	33	37	32	29	31	28	25	25	25	25	22
7	60	48	40	35	55	45	38	33	39	33	29	33	29	26	28	25	23	23	23	23	20
8	56	44	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20	20	20	20	18
9	52	40	32	28	48	37	31	26	33	27	24	28	24	21	24	21	19	19	19	19	16
10	48	37	30	25	45	34	28	24	30	25	21	26	22	19	23	19	17	17	17	17	15

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

	0°	45°	90°
0°	5400	5400	5400
5°	5400	5301	5338
10°	5338	5184	5154
15°	5256	5001	4877
20°	5150	4753	4540
25°	5041	4477	4214
30°	4899	4195	3805
35°	4759	3894	3446
40°	4616	3583	3036
45°	4450	3240	2664
50°	4279	2896	2303
55°	4099	2529	1956
60°	3889	2147	1600
65°	3648	1761	1430
70°	3356	1401	1280
75°	2988	1211	1145
80°	2459	981	964
85°	1610	606	676

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4450 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	214.8	2.4
10°-20°	589.6	6.5
20°-30°	827.8	9.1
30°-40°	902.4	9.9
40°-50°	829.4	9.1
50°-60°	651.3	7.2
60°-70°	424.0	4.7
70°-80°	218.2	2.4
80°-90°	58.4	0.6
90°-100°	49.4	0.5
100°-110°	184.0	2.0
110°-120°	488.1	5.4
120°-130°	809.5	8.9
130°-140°	859.9	9.4
140°-150°	799.2	8.8
150°-160°	642.5	7.1
160°-170°	414.0	4.5
170°-180°	142.5	1.6
0°-30°	1632.2	17.9
0°-40°	2534.6	27.8
0°-60°	4015.3	44.1
0°-90°	4715.9	51.8
90°-120°	721.5	7.9
90°-150°	3190.0	35.0
90°-180°	4389.0	48.2
0°-180°	9104.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2292	2292	2292	2292	2292	
5°	2292	2281	2254	2273	2267	217
15°	2180	2157	2086	2047	2026	614
25°	1979	1912	1775	1690	1659	910
35°	1705	1599	1417	1286	1240	1067
45°	1394	1255	1037	890	840	1076
55°	1060	898	674	550	510	947
65°	716	548	361	290	284	709
75°	382	236	166	151	149	404
85°	89	46	39	39	39	102
90°	1	13	22	27	29	9
95°	70	35	42	48	47	83
105°	329	362	66	78	82	352
115°	623	641	668	167	89	613
125°	881	895	915	923	926	785
135°	1090	1107	1117	1128	1126	842
145°	1264	1263	1281	1289	1284	791
155°	1392	1382	1395	1402	1393	641
165°	1467	1460	1464	1471	1464	414
175°	1500	1493	1495	1502	1492	143
180°	1497	1497	1497	1497	1497	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2291.7	2291.7	2291.7	2291.7	2291.7
2.5°	2302.1	2291.7	2268.9	2289.8	2285.5
5°	2291.7	2281.4	2254.4	2273.0	2266.9
7.5°	2273.0	2260.7	2231.6	2239.8	2229.4
10°	2248.2	2233.6	2192.3	2185.9	2173.5
12.5°	2217.1	2198.5	2142.4	2130.1	2107.1
15°	2179.7	2156.9	2086.5	2047.1	2026.4
17.5°	2136.2	2103.0	2015.8	1970.2	1937.0
20°	2086.5	2044.9	1941.2	1889.5	1843.7
22.5°	2032.6	1984.8	1864.5	1794.0	1763.0
25°	1978.6	1912.1	1775.3	1690.3	1659.1
27.5°	1914.4	1843.7	1692.3	1594.9	1547.2
30°	1845.9	1767.0	1601.1	1495.4	1439.3
32.5°	1779.5	1684.0	1514.1	1389.6	1337.7
35°	1704.9	1599.1	1416.6	1285.9	1240.2
37.5°	1632.2	1518.1	1325.4	1182.1	1130.4
40°	1555.5	1431.2	1229.8	1082.6	1028.7
42.5°	1476.7	1344.0	1134.5	980.9	929.2
45°	1393.8	1254.7	1037.0	889.6	839.8
47.5°	1314.9	1167.8	943.8	796.4	750.8
50°	1227.9	1080.6	852.5	709.2	665.8
52.5°	1142.7	987.1	765.3	628.5	589.1
55°	1059.8	898.0	673.9	549.6	510.3
57.5°	974.8	808.9	593.2	477.1	443.8
60°	887.6	721.7	508.0	402.5	369.2
62.5°	802.7	636.8	435.5	336.0	319.5
65°	715.5	547.5	360.9	290.4	284.1
67.5°	632.6	464.6	290.4	255.1	248.9
70°	545.5	383.7	240.5	219.8	211.5
72.5°	462.6	309.0	201.2	184.6	180.4
75°	381.6	236.3	165.9	151.4	149.4
77.5°	300.8	167.9	130.8	122.3	118.1
80°	226.0	120.3	99.5	91.3	91.3
82.5°	157.6	81.0	68.4	64.2	64.2
85°	89.2	45.6	39.4	39.4	39.4
87.5°	33.3	16.5	16.5	14.5	14.5
90°	1.0	13.0	21.6	27.2	29.2
92.5°	27.2	22.7	26.0	28.2	29.2
95°	70.3	34.6	42.1	47.7	46.6
97.5°	126.8	37.9	55.2	58.6	59.6
100°	191.7	43.4	61.8	70.3	72.5
102.5°	263.2	261.2	63.9	75.7	79.1
105°	329.3	361.9	66.1	78.0	82.3
107.5°	406.2	433.3	68.3	80.2	84.5
110°	480.0	502.6	189.6	81.3	85.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	549.3	568.7	550.3	83.4	86.7
115°	622.8	641.2	668.4	166.8	88.9
117.5°	686.8	708.4	726.9	571.9	288.1
120°	758.3	774.5	794.0	807.1	660.9
122.5°	818.9	836.3	858.0	864.5	865.6
125°	880.7	894.9	915.4	923.0	926.2
127.5°	937.0	952.2	968.5	979.4	980.4
130°	990.1	1007.5	1019.3	1031.3	1030.3
132.5°	1044.2	1058.4	1070.3	1080.1	1079.1
135°	1089.8	1107.2	1116.9	1127.7	1125.6
137.5°	1137.4	1150.4	1161.3	1172.1	1168.9
140°	1184.0	1192.7	1204.6	1214.4	1208.9
142.5°	1223.1	1230.7	1244.7	1253.3	1248.0
145°	1264.3	1263.2	1281.4	1289.1	1283.7
147.5°	1299.9	1296.6	1315.1	1320.5	1316.3
150°	1334.6	1327.0	1344.4	1350.9	1345.4
152.5°	1363.8	1355.2	1371.4	1377.9	1370.4
155°	1392.0	1382.4	1395.3	1401.8	1393.1
157.5°	1414.8	1406.1	1416.0	1423.5	1414.8
160°	1434.3	1427.7	1434.3	1440.7	1433.2
162.5°	1451.6	1445.1	1450.6	1458.1	1448.4
165°	1466.8	1460.3	1463.5	1471.1	1463.5
167.5°	1478.7	1472.1	1475.5	1483.1	1473.3
170°	1488.5	1482.0	1484.1	1491.7	1482.0
172.5°	1494.9	1488.5	1490.7	1498.3	1488.5
175°	1500.3	1492.7	1494.9	1502.5	1491.7
177.5°	1502.5	1494.9	1496.0	1503.7	1493.9
180°	1497.2	1497.2	1497.2	1497.2	1497.2



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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	13.04	13.88	13.98	14.84	16.09	9.02	9.86	9.97	10.82	12.07
	3H	14.69	15.44	15.65	16.41	17.69	10.19	10.95	11.15	11.92	13.19
	4H	15.28	16.00	16.26	16.97	18.25	10.63	11.35	11.61	12.32	13.60
	6H	15.68	16.34	16.67	17.32	18.61	10.94	11.59	11.92	12.57	13.87
	8H	15.80	16.42	16.79	17.42	18.71	11.02	11.65	12.01	12.64	13.93
	12H	15.85	16.45	16.85	17.43	18.75	11.06	11.65	12.05	12.64	13.95
4H	2H	13.05	13.77	14.03	14.74	16.02	9.60	10.32	10.58	11.29	12.57
	3H	14.85	15.45	15.84	16.45	17.74	10.93	11.53	11.92	12.53	13.82
	4H	15.53	16.07	16.52	17.07	18.38	11.47	12.01	12.46	13.01	14.32
	6H	16.02	16.48	17.03	17.50	18.82	11.87	12.33	12.88	13.35	14.67
	8H	16.18	16.62	17.19	17.63	18.96	11.99	12.42	13.00	13.44	14.76
	12H	16.26	16.65	17.29	17.68	19.02	12.04	12.44	13.07	13.46	14.80
8H	4H	15.49	15.93	16.50	16.94	18.27	11.73	12.17	12.74	13.18	14.51
	6H	16.03	16.39	17.07	17.44	18.77	12.23	12.59	13.26	13.64	14.97
	8H	16.23	16.55	17.27	17.59	18.93	12.41	12.72	13.45	13.76	15.11
	12H	16.35	16.63	17.40	17.67	19.06	12.51	12.79	13.56	13.83	15.22
12H	4H	15.44	15.84	16.47	16.86	18.20	11.74	12.13	12.76	13.16	14.49
	6H	16.01	16.32	17.05	17.36	18.71	12.27	12.59	13.31	13.63	14.97
	8H	16.21	16.49	17.25	17.52	18.91	12.47	12.75	13.51	13.78	15.17