

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: P905381

Luminaire Tested: DFN2DIP-HX3F0-080D060US835-RLONL

Issue Date: 11/21/2024

**Test Information**

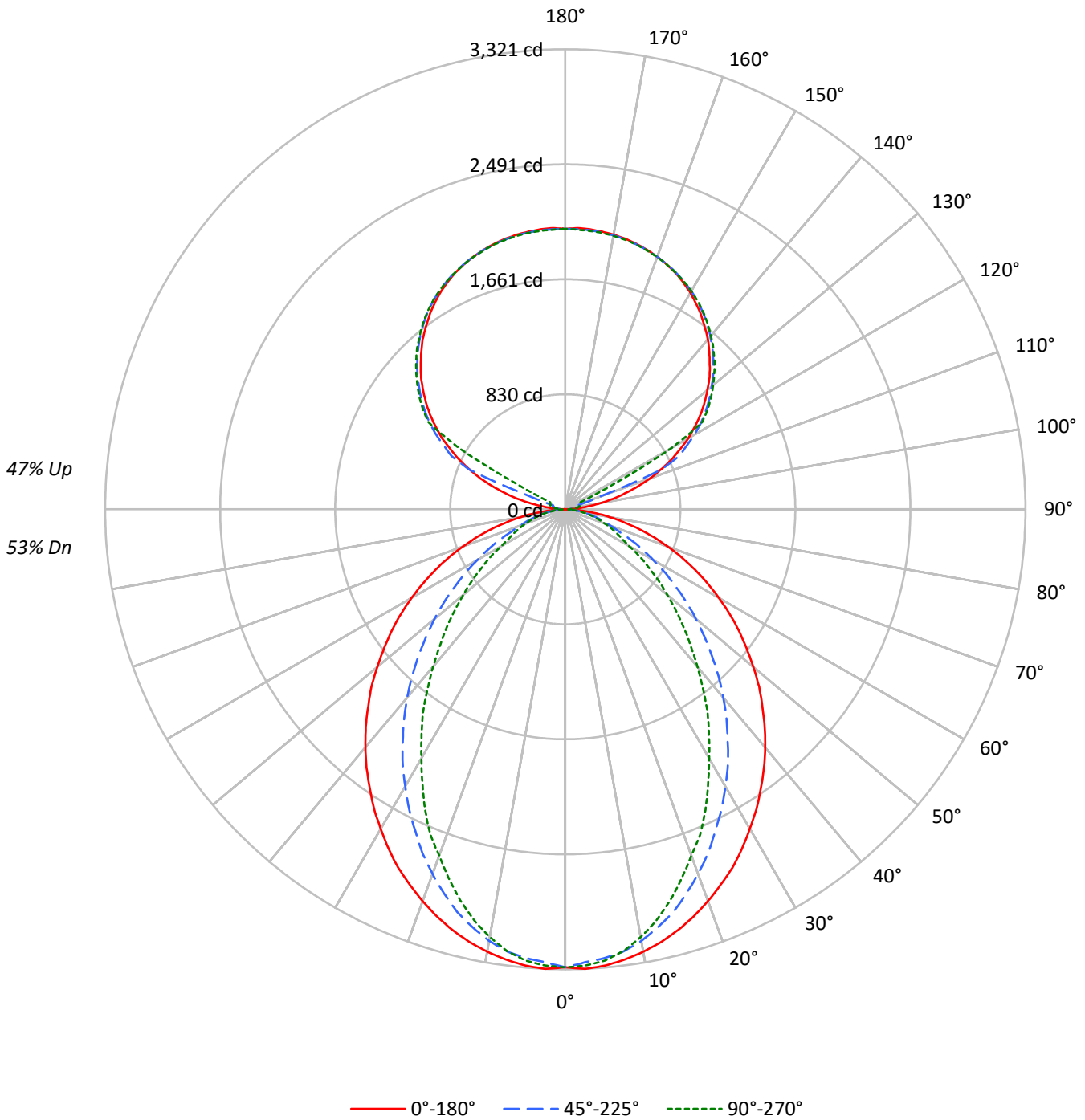
Test Method: LM-79-2019  
Report Number: P905381  
REPORT IS A COMBINATION OF REPORTS P900774 AND P897645  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-080D060US835-RLONL  
Description: 3 foot, 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: 12740.0 lumens  
Efficiency: N/A  
Efficacy: 101.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 125.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
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	100	100	100	100	85	85	85	72	72	72	59	59	59	53	53	53	53
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51	46	46	46	46
2	91	83	78	73	84	78	73	68	67	63	60	57	54	52	47	45	44	39	39	39	39
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	42	40	38	34	34	34	34
4	76	66	58	52	70	61	55	49	53	48	44	45	42	38	38	35	33	30	30	30	30
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29	26	26	26	26
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	28	26	23	23	23	23
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23	21	21	21	21
8	56	44	36	31	52	41	34	29	36	31	27	31	27	24	27	24	21	19	19	19	19
9	52	40	33	28	48	38	31	26	33	28	24	29	25	22	25	22	19	17	17	17	17
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	17	16	16	16	16

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

	0°	45°	90°
0°	3830	3830	3830
5°	3834	3766	3791
10°	3795	3690	3666
15°	3741	3565	3473
20°	3670	3395	3237
25°	3597	3204	3010
30°	3500	3009	2722
35°	3405	2799	2469
40°	3309	2582	2180
45°	3196	2342	1918
50°	3080	2100	1661
55°	2959	1841	1416
60°	2818	1572	1163
65°	2656	1297	1044
70°	2459	1042	942
75°	2212	913	853
80°	1854	757	732
85°	1267	493	538

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3196 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	309.9	2.4
10°-20°	850.7	6.7
20°-30°	1194.3	9.4
30°-40°	1301.9	10.2
40°-50°	1196.6	9.4
50°-60°	939.7	7.4
60°-70°	611.7	4.8
70°-80°	314.9	2.5
80°-90°	83.9	0.7
90°-100°	66.8	0.5
100°-110°	248.9	2.0
110°-120°	660.2	5.2
120°-130°	1094.9	8.6
130°-140°	1163.0	9.1
140°-150°	1080.9	8.5
150°-160°	869.0	6.8
160°-170°	560.0	4.4
170°-180°	192.7	1.5
0°-30°	2354.9	18.5
0°-40°	3656.8	28.7
0°-60°	5793.1	45.5
0°-90°	6803.6	53.4
90°-120°	975.8	7.7
90°-150°	4314.7	33.9
90°-180°	5936.0	46.6
0°-180°	12740.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3306	3306	3306	3306	3306	
5°	3306	3292	3252	3279	3270	314
15°	3145	3112	3010	2953	2924	886
25°	2855	2759	2561	2439	2394	1313
35°	2460	2307	2044	1855	1789	1540
45°	2011	1810	1496	1284	1212	1553
55°	1529	1296	972	793	736	1366
65°	1032	790	521	419	410	1024
75°	550	341	239	218	216	582
85°	129	66	57	57	57	148
90°	1	18	29	37	40	12
95°	95	47	57	65	63	113
105°	445	489	89	105	111	476
115°	842	867	904	226	120	829
125°	1191	1210	1238	1248	1253	1062
135°	1474	1498	1511	1525	1522	1139
145°	1710	1708	1733	1744	1736	1069
155°	1883	1870	1887	1896	1884	868
165°	1984	1975	1980	1990	1980	560
175°	2029	2019	2022	2032	2018	193
180°	2025	2025	2025	2025	2025	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3306.4	3306.4	3306.4	3306.4	3306.4
2.5°	3321.3	3306.4	3273.4	3303.5	3297.5
5°	3306.4	3291.5	3252.4	3279.4	3270.5
7.5°	3279.4	3261.6	3219.7	3231.5	3216.5
10°	3243.5	3222.6	3162.9	3153.7	3135.9
12.5°	3198.8	3171.8	3090.8	3073.0	3040.0
15°	3144.8	3111.8	3010.2	2953.4	2923.5
17.5°	3081.9	3034.0	2908.3	2842.6	2794.6
20°	3010.2	2950.2	2800.7	2726.1	2660.0
22.5°	2932.4	2863.5	2689.9	2588.3	2543.5
25°	2854.6	2758.8	2561.3	2438.8	2393.7
27.5°	2761.9	2660.0	2441.6	2301.0	2232.1
30°	2663.2	2549.2	2309.9	2157.5	2076.5
32.5°	2567.3	2429.6	2184.5	2004.8	1929.9
35°	2459.7	2307.0	2043.8	1855.3	1789.2
37.5°	2354.9	2190.2	1912.1	1705.4	1630.8
40°	2244.2	2064.8	1774.3	1561.9	1484.1
42.5°	2130.5	1939.1	1636.8	1415.3	1340.6
45°	2010.8	1810.2	1496.2	1283.5	1211.8
47.5°	1897.2	1684.8	1361.6	1148.9	1083.2
50°	1771.4	1559.1	1229.9	1023.2	960.6
52.5°	1648.6	1424.1	1104.1	906.7	849.9
55°	1528.9	1295.6	972.4	793.0	736.2
57.5°	1406.4	1167.0	855.9	688.3	640.3
60°	1280.6	1041.3	733.0	580.6	532.7
62.5°	1158.1	918.7	628.3	484.8	461.0
65°	1032.4	789.8	520.6	419.1	409.8
67.5°	912.7	670.2	419.1	367.9	359.1
70°	787.0	553.7	347.0	317.1	305.1
72.5°	667.3	445.7	290.2	266.4	260.3
75°	550.5	341.0	239.4	218.4	215.6
77.5°	434.0	242.2	188.6	176.5	170.5
80°	326.0	173.7	143.5	131.7	131.7
82.5°	227.3	116.8	98.7	92.7	92.7
85°	128.6	65.7	56.8	56.8	56.8
87.5°	47.9	23.8	23.8	21.0	21.0
90°	1.4	17.6	29.2	36.7	39.5
92.5°	36.7	30.8	35.1	38.1	39.5
95°	95.2	46.8	57.1	64.6	63.0
97.5°	171.4	51.3	74.6	79.2	80.6
100°	259.4	58.6	83.5	95.2	98.1
102.5°	356.0	353.2	86.5	102.5	107.0
105°	445.4	489.4	89.4	105.4	111.4
107.5°	549.5	586.0	92.4	108.4	114.3
110°	649.2	679.8	256.5	110.0	115.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	742.9	769.2	744.3	112.7	117.3
115°	842.5	867.4	904.1	225.7	120.2
117.5°	928.9	958.2	983.2	773.6	389.7
120°	1025.7	1047.6	1074.1	1091.6	893.8
122.5°	1107.6	1131.1	1160.5	1169.2	1170.8
125°	1191.2	1210.3	1238.1	1248.4	1252.7
127.5°	1267.4	1287.9	1310.0	1324.6	1326.0
130°	1339.2	1362.7	1378.7	1394.9	1393.5
132.5°	1412.5	1431.6	1447.6	1460.8	1459.4
135°	1474.1	1497.6	1510.6	1525.4	1522.4
137.5°	1538.4	1556.0	1570.8	1585.4	1581.1
140°	1601.4	1613.3	1629.3	1642.5	1635.2
142.5°	1654.3	1664.6	1683.6	1695.2	1687.9
145°	1710.0	1708.4	1733.3	1743.6	1736.3
147.5°	1758.2	1753.8	1778.7	1786.0	1780.3
150°	1805.2	1794.9	1818.4	1827.1	1819.8
152.5°	1844.7	1833.0	1854.9	1863.8	1853.5
155°	1882.8	1869.7	1887.3	1896.0	1884.3
157.5°	1913.6	1901.9	1915.1	1925.4	1913.6
160°	1940.0	1931.1	1940.0	1948.7	1938.5
162.5°	1963.3	1954.6	1961.9	1972.2	1959.0
165°	1983.9	1975.2	1979.5	1989.8	1979.5
167.5°	2000.0	1991.2	1995.7	2006.0	1992.7
170°	2013.3	2004.4	2007.4	2017.6	2004.4
172.5°	2022.0	2013.3	2016.2	2026.5	2013.3
175°	2029.3	2019.0	2022.0	2032.2	2017.6
177.5°	2032.2	2022.0	2023.5	2033.8	2020.6
180°	2024.9	2024.9	2024.9	2024.9	2024.9



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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	12.08	12.94	13.02	13.89	15.11	8.06	8.92	8.99	9.86	11.09
	3H	13.75	14.52	14.70	15.48	16.73	9.24	10.01	10.19	10.97	12.22
	4H	14.36	15.08	15.32	16.04	17.30	9.69	10.42	10.65	11.38	12.64
	6H	14.78	15.44	15.75	16.41	17.68	10.01	10.68	10.98	11.65	12.92
	8H	14.90	15.53	15.88	16.52	17.78	10.10	10.74	11.08	11.72	12.99
	12H	14.96	15.56	15.94	16.54	17.83	10.14	10.75	11.13	11.72	13.02
4H	2H	12.10	12.83	13.07	13.79	15.05	8.65	9.38	9.62	10.34	11.60
	3H	13.93	14.53	14.90	15.52	16.79	10.00	10.60	10.98	11.59	12.86
	4H	14.61	15.16	15.60	16.15	17.44	10.55	11.10	11.53	12.08	13.37
	6H	15.12	15.60	16.12	16.60	17.90	10.96	11.43	11.96	12.44	13.74
	8H	15.29	15.74	16.29	16.74	18.04	11.09	11.53	12.09	12.53	13.84
	12H	15.39	15.78	16.40	16.80	18.11	11.15	11.55	12.17	12.57	13.88
8H	4H	14.58	15.02	15.58	16.02	17.33	10.82	11.26	11.82	12.27	13.57
	6H	15.14	15.50	16.16	16.55	17.85	11.34	11.70	12.36	12.74	14.05
	8H	15.35	15.67	16.38	16.70	18.03	11.52	11.84	12.55	12.87	14.20
	12H	15.49	15.77	16.52	16.79	18.16	11.64	11.92	12.67	12.95	14.32
12H	4H	14.53	14.93	15.55	15.95	17.26	10.83	11.23	11.84	12.24	13.56
	6H	15.12	15.44	16.15	16.47	17.79	11.38	11.70	12.41	12.73	14.06
	8H	15.33	15.61	16.36	16.64	18.01	11.59	11.87	12.62	12.90	14.27