

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: P905259

Luminaire Tested: DFN2DIP-HX3F0-030D060US835-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P905259  
REPORT IS A COMBINATION OF REPORTS P900763 AND P897645  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX3F0-030D060US835-FLLONL  
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

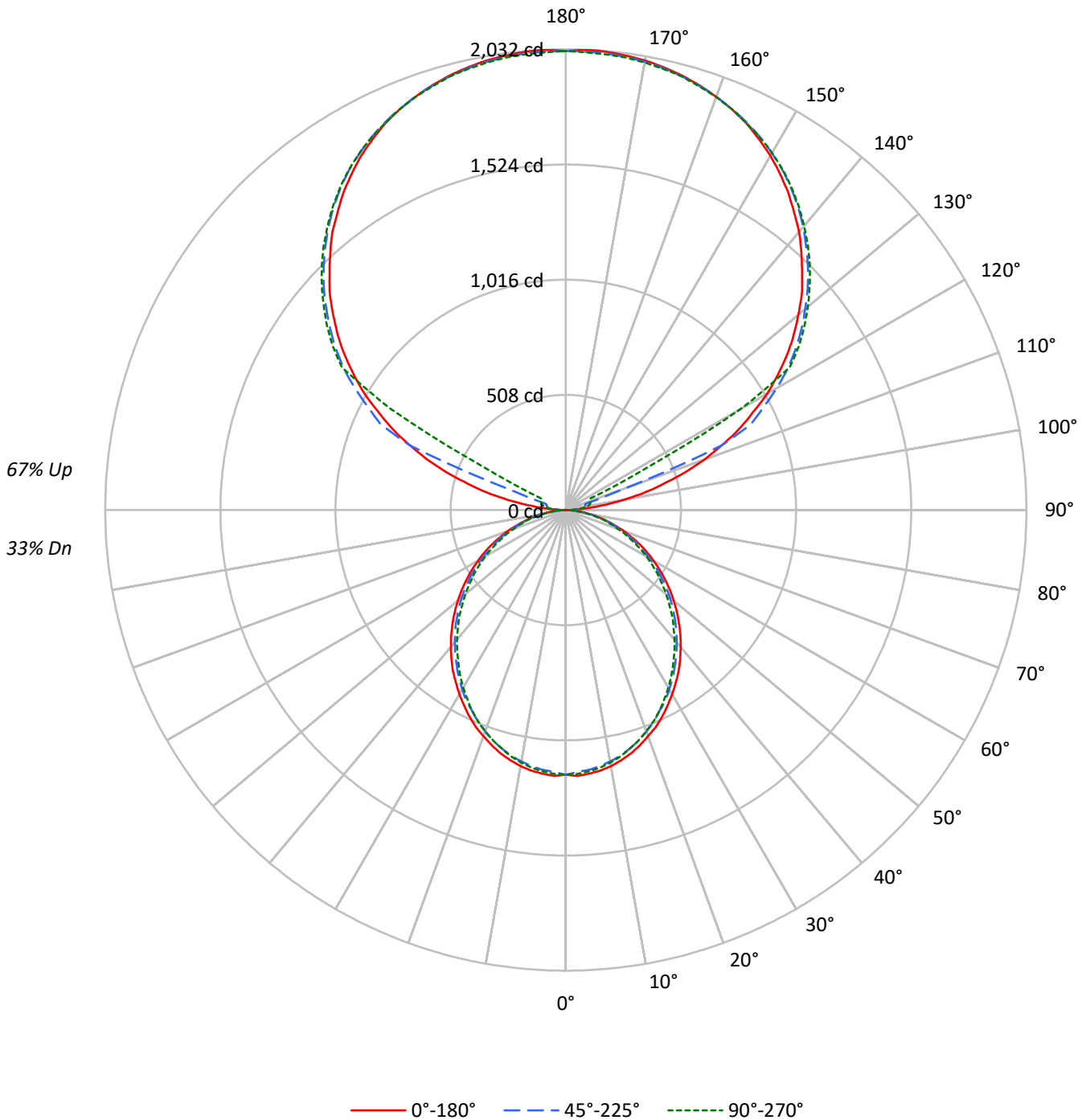
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8910.0 lumens  
Efficiency: N/A  
Efficacy: 129.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 69  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.983  
Total Harmonic Distortion (THDi): 0.073  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P905259  
CATALOG NUMBER: DFN2DIP-HX3F0-030D060US835-FLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P905259

CATALOG NUMBER: DFN2DIP-HX3F0-030D060US835-FLLONL

**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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	33				33
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34	28				28
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29	24				24
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25	20				20
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21	17				17
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18	15				15
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16	13				13
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14	12				12
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13	10				10
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12	9				9
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11	9				9

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

	0°	45°	90°
0°	1352	1352	1352
5°	1354	1332	1342
10°	1342	1314	1323
15°	1322	1291	1293
20°	1294	1260	1264
25°	1267	1223	1229
30°	1233	1189	1186
35°	1201	1148	1140
40°	1162	1107	1096
45°	1122	1066	1051
50°	1079	1023	1000
55°	1034	974	952
60°	983	915	897
65°	927	853	833
70°	856	779	763
75°	757	689	697
80°	639	574	574
85°	453	380	372

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1298 cd/sqm



TEST NUMBER: P905259

CATALOG NUMBER: DFN2DIP-HX3F0-030D060US835-FLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	109.9	1.2
10°-20°	309.1	3.5
20°-30°	454.3	5.1
30°-40°	527.6	5.9
40°-50°	527.0	5.9
50°-60°	459.5	5.2
60°-70°	339.7	3.8
70°-80°	192.2	2.2
80°-90°	54.3	0.6
90°-100°	66.8	0.7
100°-110°	248.9	2.8
110°-120°	660.2	7.4
120°-130°	1094.9	12.3
130°-140°	1163.0	13.1
140°-150°	1080.9	12.1
150°-160°	869.0	9.8
160°-170°	560.0	6.3
170°-180°	192.7	2.2
0°-30°	873.3	9.8
0°-40°	1400.9	15.7
0°-60°	2387.4	26.8
0°-90°	2973.6	33.4
90°-120°	975.8	11.0
90°-150°	4314.7	48.4
90°-180°	5936.0	66.6
0°-180°	8910.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1167	1167	1167	1167	1167	
5°	1167	1163	1150	1160	1157	111
15°	1111	1105	1090	1094	1089	313
25°	1006	997	978	980	978	463
35°	868	856	838	832	826	542
45°	706	698	681	669	664	545
55°	534	528	514	501	495	478
65°	360	354	342	332	327	356
75°	188	186	181	174	176	201
85°	46	45	44	40	39	51
90°	1	18	29	37	40	8
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	



TEST NUMBER: P905259

CATALOG NUMBER: DFN2DIP-HX3F0-030D060US835-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1167.3	1167.3	1167.3	1167.3	1167.3
2.5°	1174.1	1168.5	1156.1	1167.3	1165.2
5°	1167.3	1162.9	1150.5	1159.5	1157.3
7.5°	1159.5	1152.8	1140.4	1149.5	1147.2
10°	1147.2	1139.3	1125.9	1134.8	1131.5
12.5°	1130.3	1123.6	1110.2	1115.7	1113.5
15°	1111.2	1104.6	1089.9	1094.4	1088.8
17.5°	1087.6	1081.0	1066.3	1071.9	1066.3
20°	1061.8	1055.1	1039.4	1042.7	1038.3
22.5°	1036.1	1026.0	1011.3	1011.3	1009.0
25°	1005.7	996.8	977.7	979.9	977.7
27.5°	972.0	964.1	949.6	946.3	940.7
30°	938.4	929.4	912.6	909.2	904.7
32.5°	902.5	895.8	877.8	871.0	866.5
35°	867.7	856.5	838.5	831.7	826.1
37.5°	828.4	818.3	800.3	792.4	786.8
40°	788.0	779.0	761.0	751.0	746.5
42.5°	748.7	739.7	721.8	710.5	703.8
45°	706.1	698.2	681.3	669.0	664.5
47.5°	664.5	656.7	638.7	626.3	619.6
50°	620.7	615.1	599.4	583.7	578.1
52.5°	578.1	570.2	555.7	543.3	535.4
55°	534.4	527.6	514.1	500.7	495.1
57.5°	490.5	484.9	470.3	456.8	452.3
60°	446.7	442.3	426.6	414.2	410.9
62.5°	404.1	396.2	385.0	373.8	369.3
65°	360.4	353.6	342.4	332.3	326.7
67.5°	315.5	309.8	299.7	291.9	287.4
70°	273.9	269.4	259.3	251.4	247.0
72.5°	231.3	226.7	221.1	213.3	210.0
75°	188.5	186.4	180.7	174.0	176.3
77.5°	150.4	145.9	143.6	140.3	137.0
80°	112.3	111.1	108.8	105.5	103.3
82.5°	76.3	76.3	75.3	70.7	70.7
85°	46.0	44.9	43.8	40.4	39.3
87.5°	20.2	18.0	15.7	12.4	11.2
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



TEST NUMBER: P905259

CATALOG NUMBER: DFN2DIP-HX3F0-030D060US835-FLLONL

**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



TEST NUMBER: P905259  
 CATALOG NUMBER: DFN2DIP-HX3F0-030D060US835-FLLONL

**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	6.50	7.23	7.59	8.32	9.81	6.07	6.80	7.16	7.89	9.38
	3H	8.15	8.80	9.24	9.90	11.40	7.68	8.33	8.77	9.43	10.93
	4H	8.72	9.34	9.83	10.44	11.95	8.25	8.87	9.36	9.97	11.48
	6H	9.11	9.68	10.23	10.78	12.31	8.64	9.21	9.76	10.31	11.84
	8H	9.21	9.75	10.33	10.87	12.38	8.74	9.28	9.86	10.40	11.92
	12H	9.25	9.76	10.37	10.87	12.42	8.77	9.29	9.90	10.40	11.94
4H	2H	6.95	7.57	8.06	8.66	10.18	6.60	7.22	7.72	8.32	9.83
	3H	8.79	9.31	9.91	10.43	11.96	8.40	8.92	9.52	10.04	11.57
	4H	9.49	9.97	10.62	11.08	12.63	9.09	9.57	10.22	10.68	12.23
	6H	9.99	10.40	11.13	11.54	13.08	9.59	10.00	10.72	11.13	12.67
	8H	10.14	10.52	11.27	11.64	13.20	9.73	10.11	10.86	11.24	12.79
	12H	10.20	10.54	11.35	11.68	13.24	9.78	10.13	10.93	11.27	12.83
8H	4H	9.68	10.06	10.81	11.18	12.74	9.32	9.70	10.45	10.83	12.38
	6H	10.29	10.61	11.45	11.78	13.33	9.93	10.25	11.09	11.42	12.97
	8H	10.51	10.78	11.67	11.93	13.50	10.14	10.42	11.30	11.57	13.14
	12H	10.63	10.87	11.79	12.01	13.62	10.25	10.49	11.41	11.64	13.24
12H	4H	9.66	10.00	10.80	11.14	12.70	9.31	9.65	10.45	10.79	12.35
	6H	10.32	10.60	11.48	11.74	13.32	9.97	10.25	11.13	11.40	12.97
	8H	10.55	10.79	11.71	11.94	13.54	10.20	10.44	11.36	11.58	13.19