

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: P910847

Luminaire Tested: DFN2DIP-HX3F0-090D030US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910847
REPORT IS A COMBINATION OF REPORTS P900733 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D030US850-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

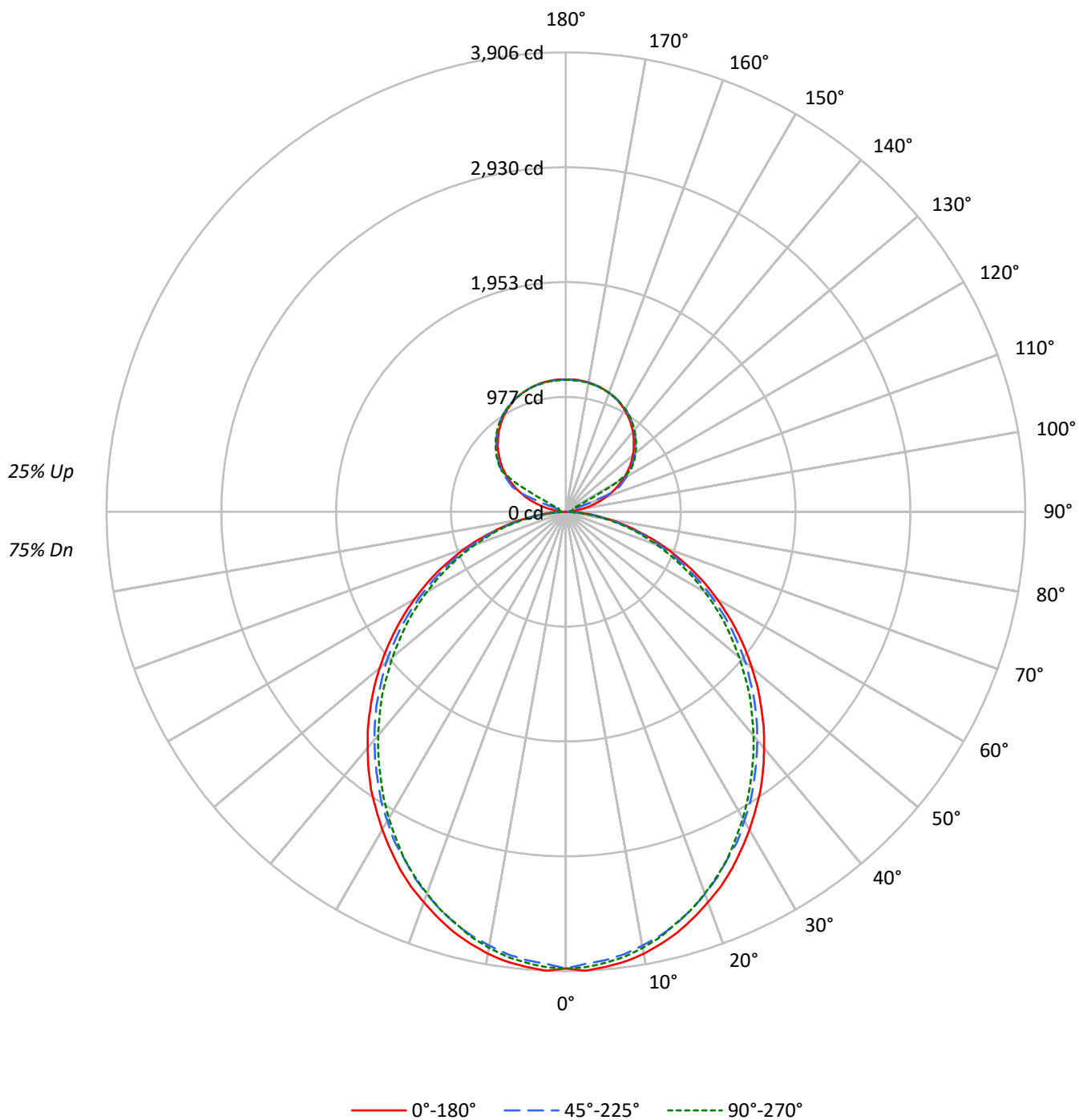
Lumens per Lamp: N/A
Luminaire Lumens: 13174.9 lumens
Efficiency: N/A
Efficacy: 114.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 115.6
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

TEST NUMBER: P910847

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US850-FLLONL

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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	113	113	113	113	108	108	108	108	97	97	97	88	88	88	79	79	79
1	103	99	95	91	98	94	91	87	85	83	80	77	75	73	70	68	67
2	94	86	80	75	89	82	77	72	75	70	66	68	64	61	62	59	56
3	86	76	68	62	81	73	66	60	66	61	56	60	56	52	55	51	48
4	79	67	59	53	75	64	57	51	59	53	48	54	49	45	49	45	41
5	72	60	52	46	69	58	50	44	53	46	41	48	43	39	44	40	36
6	67	54	46	40	63	52	44	39	48	41	36	44	38	34	40	35	32
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	37	32	28
8	58	45	37	31	55	43	36	30	40	33	29	37	31	27	34	29	25
9	54	41	33	28	51	39	32	27	37	30	26	34	28	24	31	26	23
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4499	4499	4499
5°	4504	4433	4463
10°	4465	4370	4400
15°	4398	4295	4303
20°	4307	4192	4204
25°	4216	4069	4090
30°	4104	3955	3946
35°	3997	3820	3793
40°	3865	3684	3647
45°	3734	3548	3498
50°	3591	3405	3326
55°	3440	3239	3167
60°	3270	3043	2985
65°	3084	2839	2769
70°	2848	2590	2537
75°	2520	2292	2319
80°	2124	1911	1910
85°	1506	1265	1239

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3734 cd/sqm

TEST NUMBER: P910847

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US850-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	2.8
10°-20°	1028.5	7.8
20°-30°	1511.4	11.5
30°-40°	1755.4	13.3
40°-50°	1753.3	13.3
50°-60°	1528.8	11.6
60°-70°	1130.1	8.6
70°-80°	639.4	4.9
80°-90°	170.7	1.3
90°-100°	37.0	0.3
100°-110°	138.0	1.0
110°-120°	366.1	2.8
120°-130°	607.1	4.6
130°-140°	644.9	4.9
140°-150°	599.4	4.5
150°-160°	481.9	3.7
160°-170°	310.5	2.4
170°-180°	106.9	0.8
0°-30°	2905.4	22.1
0°-40°	4660.9	35.4
0°-60°	7942.9	60.3
0°-90°	9883.2	75.0
90°-120°	541.1	4.1
90°-150°	2392.5	18.2
90°-180°	3292.0	25.0
0°-180°	13174.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	1	10	16	20	22	12
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	

TEST NUMBER: P910847

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
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

TEST NUMBER: P910847

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US850-FLLONL

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	14.50	15.64	15.21	16.37	17.23	14.07	15.21	14.78	15.94	16.80
	3H	16.17	17.20	16.89	17.94	18.83	15.70	16.73	16.43	17.47	18.36
	4H	16.77	17.74	17.51	18.49	19.39	16.30	17.27	17.04	18.02	18.92
	6H	17.18	18.07	17.93	18.83	19.75	16.71	17.60	17.46	18.36	19.28
	8H	17.29	18.14	18.05	18.92	19.84	16.82	17.67	17.58	18.45	19.37
	12H	17.34	18.15	18.11	18.92	19.88	16.87	17.68	17.64	18.45	19.40
4H	2H	14.99	15.96	15.74	16.71	17.62	14.65	15.62	15.39	16.37	17.27
	3H	16.87	17.68	17.63	18.47	19.39	16.48	17.29	17.24	18.08	19.00
	4H	17.59	18.33	18.36	19.11	20.07	17.19	17.93	17.96	18.71	19.67
	6H	18.12	18.75	18.91	19.56	20.52	17.71	18.35	18.50	19.16	20.12
	8H	18.27	18.87	19.06	19.67	20.64	17.86	18.46	18.66	19.26	20.24
	12H	18.35	18.89	19.17	19.72	20.69	17.94	18.47	18.75	19.30	20.28
8H	4H	17.81	18.41	18.60	19.21	20.18	17.45	18.05	18.25	18.85	19.83
	6H	18.44	18.94	19.27	19.78	20.76	18.08	18.58	18.91	19.43	20.40
	8H	18.66	19.10	19.50	19.95	20.94	18.30	18.74	19.13	19.58	20.57
	12H	18.80	19.19	19.64	20.02	21.07	18.42	18.81	19.26	19.64	20.69
12H	4H	17.81	18.34	18.62	19.17	20.15	17.46	17.99	18.27	18.82	19.80
	6H	18.47	18.91	19.31	19.76	20.75	18.13	18.57	18.96	19.41	20.40
	8H	18.72	19.11	19.56	19.95	20.99	18.37	18.76	19.21	19.59	20.64