

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: P927658

Luminaire Tested: DFN2DIP-HX4F0-070D110US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927658
REPORT IS A COMBINATION OF REPORTS P900952 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D110US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

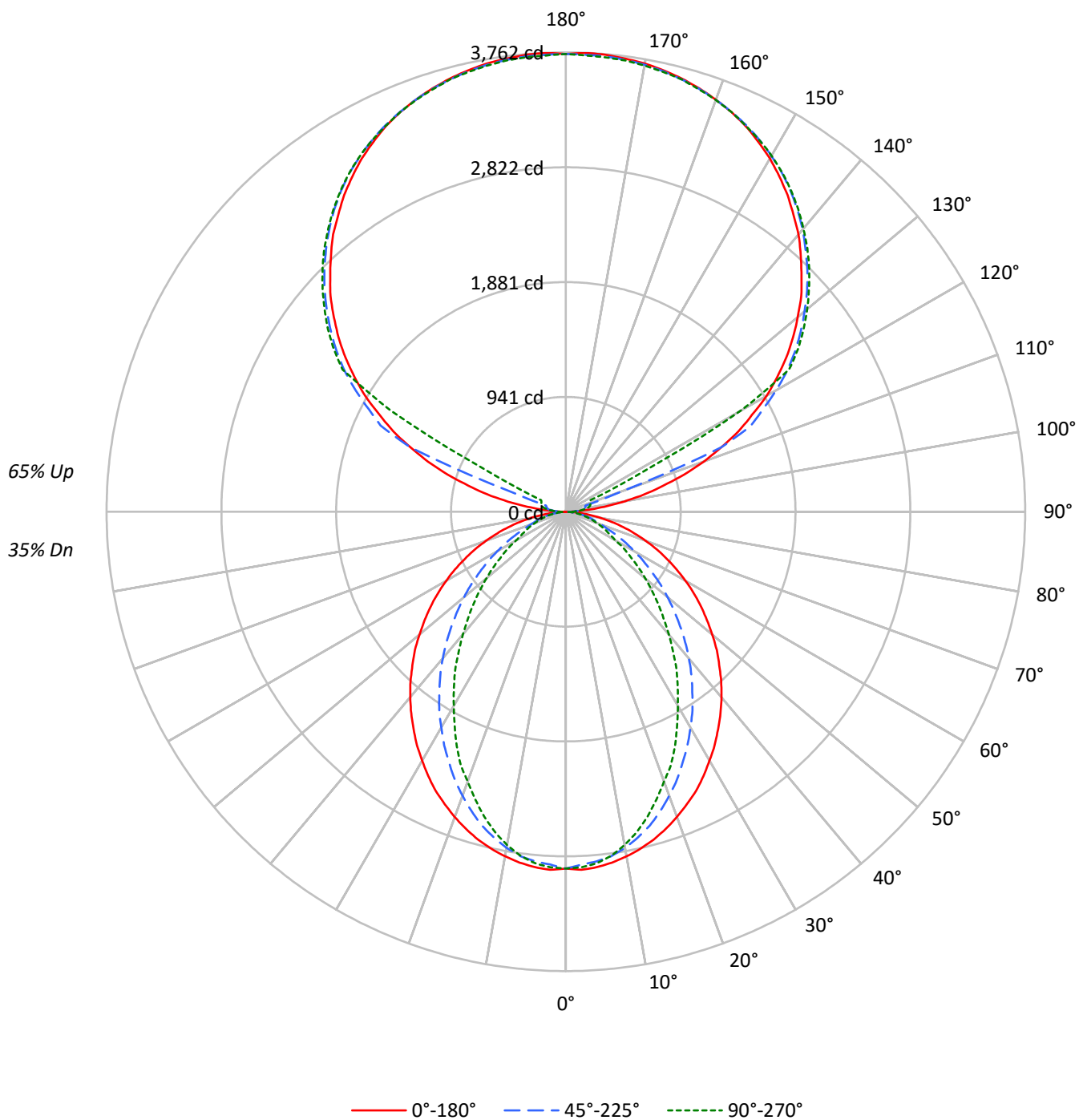
Lumens per Lamp: N/A
Luminaire Lumens: 17004.9 lumens
Efficiency: N/A
Efficacy: 110.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 153.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927658

CATALOG NUMBER: DFN2DIP-HX4F0-070D110US840-RLLONL

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	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37
2	87	80	74	69	78	72	67	63	58	55	52	46	44	41	34	33	31
3	79	70	63	58	71	64	58	53	52	48	44	41	38	35	30	29	27
4	73	62	55	49	65	57	50	45	46	42	38	36	33	31	27	25	24
5	67	56	48	42	60	51	44	39	41	37	33	33	29	27	25	23	21
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	16
8	53	41	33	28	48	37	31	26	31	26	23	25	21	19	19	17	15
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	13
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2172	2172	2172
5°	2176	2138	2152
10°	2155	2096	2082
15°	2125	2027	1974
20°	2086	1932	1841
25°	2046	1825	1713
30°	1992	1715	1550
35°	1940	1598	1407
40°	1886	1476	1243
45°	1824	1340	1095
50°	1759	1204	950
55°	1692	1057	811
60°	1614	905	667
65°	1525	750	601
70°	1416	605	544
75°	1280	533	495
80°	1083	448	430
85°	757	300	324

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1925 cd/sqm

TEST NUMBER: P927658

CATALOG NUMBER: DFN2DIP-HX4F0-070D110US840-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	1.6
10°-20°	751.6	4.4
20°-30°	1055.3	6.2
30°-40°	1150.3	6.8
40°-50°	1057.3	6.2
50°-60°	830.3	4.9
60°-70°	540.5	3.2
70°-80°	278.2	1.6
80°-90°	77.6	0.5
90°-100°	123.6	0.7
100°-110°	460.8	2.7
110°-120°	1222.1	7.2
120°-130°	2027.0	11.9
130°-140°	2153.1	12.7
140°-150°	2001.1	11.8
150°-160°	1608.8	9.5
160°-170°	1036.7	6.1
170°-180°	356.8	2.1
0°-30°	2080.7	12.2
0°-40°	3231.0	19.0
0°-60°	5118.6	30.1
0°-90°	6014.9	35.4
90°-120°	1806.5	10.6
90°-150°	7987.8	47.0
90°-180°	10990.0	64.6
0°-180°	17004.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1599	1322	1134	1071	1372
55°	1351	1145	859	701	650	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	514
85°	114	58	50	50	50	130
90°	3	32	54	68	73	16
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1535
125°	2205	2241	2292	2311	2319	1967
135°	2729	2772	2796	2824	2818	2108
145°	3166	3163	3209	3228	3214	1980
155°	3486	3461	3494	3510	3488	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3743	3762	3735	358
180°	3749	3749	3749	3749	3749	

TEST NUMBER: P927658

CATALOG NUMBER: DFN2DIP-HX4F0-070D110US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.5	2921.5	2921.5	2921.5	2921.5
2.5°	2934.6	2921.5	2892.3	2918.9	2913.6
5°	2921.5	2908.2	2873.8	2897.6	2889.7
7.5°	2897.6	2881.9	2844.9	2855.2	2842.1
10°	2865.9	2847.4	2794.6	2786.5	2770.8
12.5°	2826.3	2802.5	2731.0	2715.3	2686.1
15°	2778.7	2749.5	2659.7	2609.5	2583.2
17.5°	2723.1	2680.8	2569.7	2511.6	2469.3
20°	2659.7	2606.7	2474.6	2408.7	2350.3
22.5°	2591.0	2530.2	2376.7	2286.9	2247.4
25°	2522.3	2437.6	2263.1	2154.8	2115.0
27.5°	2440.4	2350.3	2157.3	2033.1	1972.2
30°	2353.1	2252.5	2040.9	1906.3	1834.8
32.5°	2268.4	2146.7	1930.1	1771.4	1705.1
35°	2173.3	2038.4	1805.9	1639.3	1580.9
37.5°	2080.8	1935.2	1689.5	1506.8	1441.0
40°	1982.8	1824.4	1567.7	1380.1	1311.3
42.5°	1882.5	1713.3	1446.2	1250.4	1184.6
45°	1776.7	1599.4	1322.0	1134.1	1070.7
47.5°	1676.3	1488.6	1203.1	1015.2	957.1
50°	1565.2	1377.6	1086.6	904.1	848.8
52.5°	1456.6	1258.3	975.6	801.1	750.9
55°	1350.9	1144.7	859.1	700.7	650.5
57.5°	1242.7	1031.1	756.2	608.1	565.8
60°	1131.6	920.0	647.7	513.1	470.7
62.5°	1023.2	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.4	592.1	370.3	325.1	317.3
70°	695.3	489.1	306.6	280.2	269.5
72.5°	589.6	393.8	256.4	235.4	230.0
75°	486.4	301.2	211.5	193.0	190.4
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.8	103.2	87.2	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.1
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.8	160.1	189.7	198.1
105°	824.6	906.1	165.6	195.2	206.2
107.5°	1017.3	1084.8	171.1	200.6	211.7
110°	1201.8	1258.5	474.8	203.6	214.2

TEST NUMBER: P927658

CATALOG NUMBER: DFN2DIP-HX4F0-070D110US840-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.4	1424.0	1378.0	208.7	217.1
115°	1559.6	1605.7	1673.7	417.8	222.6
117.5°	1719.8	1773.9	1820.3	1432.1	721.5
120°	1898.8	1939.4	1988.4	2020.9	1654.7
122.5°	2050.6	2094.0	2148.5	2164.6	2167.5
125°	2205.2	2240.6	2292.1	2311.1	2319.2
127.5°	2346.3	2384.2	2425.1	2452.2	2454.8
130°	2479.3	2522.8	2552.4	2582.4	2579.8
132.5°	2614.9	2650.3	2680.0	2704.4	2701.9
135°	2729.0	2772.4	2796.5	2824.0	2818.5
137.5°	2848.1	2880.7	2908.0	2935.1	2927.0
140°	2964.8	2986.6	3016.3	3040.7	3027.2
142.5°	3062.6	3081.6	3116.7	3138.4	3124.8
145°	3165.7	3162.8	3208.8	3227.9	3214.4
147.5°	3255.0	3246.9	3293.0	3306.5	3295.9
150°	3341.9	3322.9	3366.4	3382.5	3369.0
152.5°	3415.0	3393.4	3434.0	3450.5	3431.5
155°	3485.6	3461.4	3493.9	3510.1	3488.5
157.5°	3542.6	3521.0	3545.5	3564.5	3542.6
160°	3591.6	3575.1	3591.6	3607.6	3588.6
162.5°	3634.7	3618.6	3632.1	3651.1	3626.7
165°	3672.7	3656.6	3664.7	3683.6	3664.7
167.5°	3702.6	3686.3	3694.7	3713.6	3689.2
170°	3727.2	3710.7	3716.2	3735.3	3710.7
172.5°	3743.2	3727.2	3732.6	3751.6	3727.2
175°	3756.8	3737.8	3743.2	3762.3	3735.3
177.5°	3762.3	3743.2	3746.2	3765.1	3740.7
180°	3748.8	3748.8	3748.8	3748.8	3748.8

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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	8.30	9.02	9.38	10.10	11.57	4.27	5.00	5.35	6.07	7.54
	3H	9.97	10.62	11.06	11.70	13.19	5.46	6.10	6.54	7.19	8.67
	4H	10.58	11.19	11.67	12.27	13.77	5.90	6.52	7.00	7.60	9.09
	6H	10.99	11.56	12.10	12.64	14.15	6.22	6.78	7.33	7.87	9.38
	8H	11.12	11.65	12.23	12.76	14.25	6.31	6.84	7.42	7.95	9.45
	12H	11.17	11.68	12.29	12.78	14.30	6.35	6.86	7.46	7.96	9.48
4H	2H	8.31	8.92	9.41	10.01	11.50	4.86	5.47	5.96	6.56	8.05
	3H	10.13	10.64	11.24	11.75	13.25	6.20	6.71	7.31	7.82	9.33
	4H	10.82	11.28	11.93	12.39	13.91	6.74	7.21	7.86	8.31	9.84
	6H	11.33	11.73	12.45	12.85	14.37	7.16	7.56	8.28	8.69	10.20
	8H	11.50	11.87	12.62	12.99	14.52	7.29	7.66	8.41	8.78	10.31
	12H	11.59	11.93	12.73	13.06	14.60	7.35	7.69	8.49	8.82	10.36
8H	4H	10.78	11.15	11.90	12.27	13.80	7.02	7.39	8.14	8.51	10.04
	6H	11.34	11.65	12.48	12.81	14.34	7.53	7.84	8.68	9.00	10.53
	8H	11.56	11.83	12.71	12.97	14.52	7.73	8.00	8.88	9.14	10.69
	12H	11.69	11.93	12.84	13.06	14.65	7.84	8.08	9.00	9.21	10.80
12H	4H	10.72	11.06	11.86	12.19	13.73	7.02	7.36	8.16	8.49	10.02
	6H	11.31	11.58	12.46	12.72	14.27	7.58	7.85	8.73	8.99	10.54
	8H	11.53	11.77	12.68	12.90	14.49	7.79	8.03	8.94	9.16	10.75