

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: P927730

Luminaire Tested: DFN2DIP-HX4F0-090D110US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927730
REPORT IS A COMBINATION OF REPORTS P900956 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D110US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

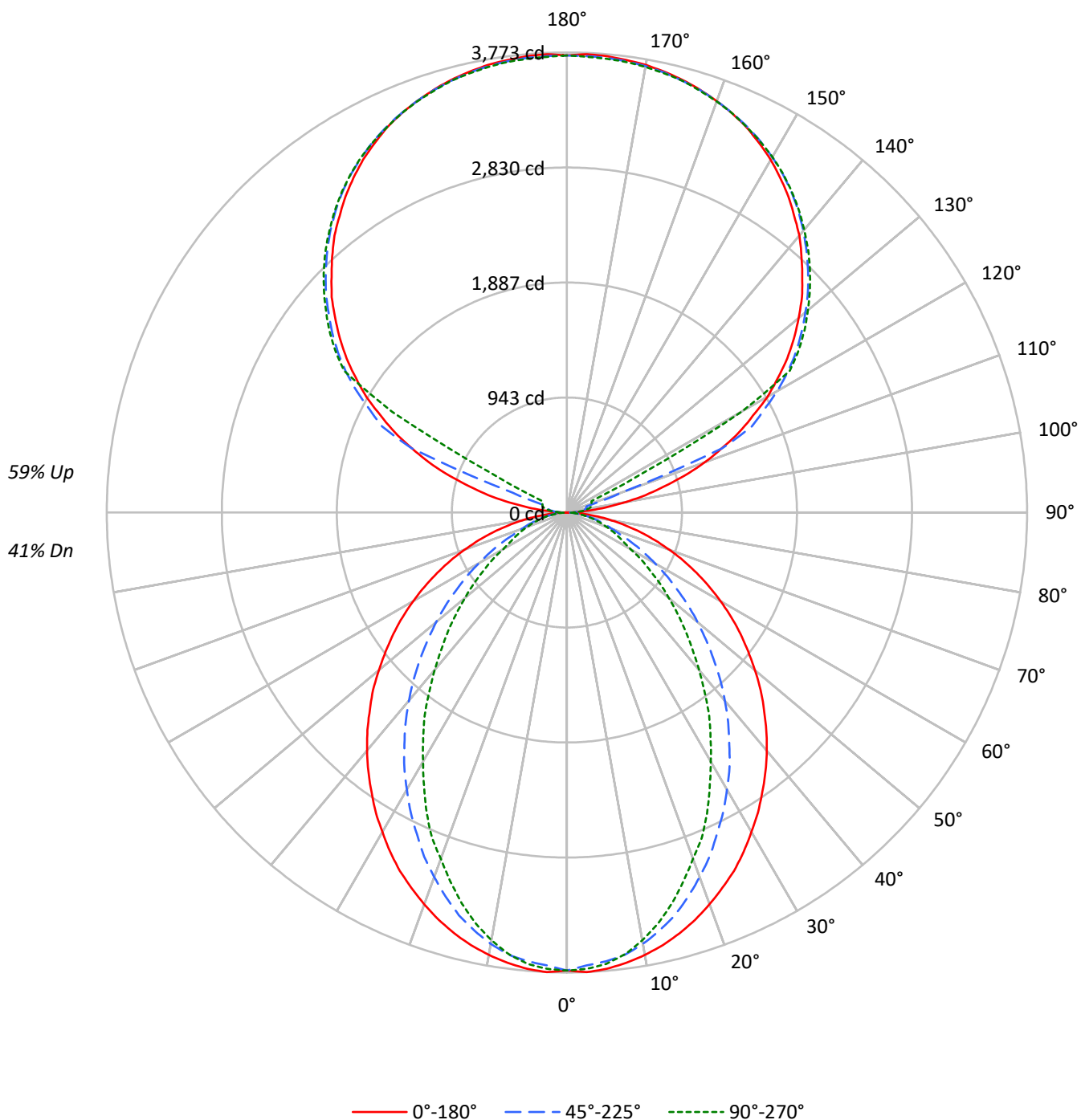
Lumens per Lamp: N/A
Luminaire Lumens: 18721.7 lumens
Efficiency: N/A
Efficacy: 106.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 175.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	43	42	41
2	88	81	75	70	80	74	69	65	61	58	55	49	47	45	38	37	35
3	80	71	64	59	73	65	59	55	54	50	46	44	41	38	34	32	31
4	74	63	56	50	67	58	52	47	48	44	40	39	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	38	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	39	34	30	32	28	26	26	23	21
7	58	46	38	33	53	42	36	31	36	31	27	29	26	23	24	21	19
8	54	42	34	29	49	39	32	27	33	28	24	27	23	20	22	19	17
9	50	38	31	26	46	35	29	25	30	25	21	25	21	18	20	17	15
10	47	35	28	23	43	33	26	22	28	23	19	23	19	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2793	2793	2793
5°	2798	2749	2766
10°	2770	2695	2676
15°	2732	2606	2537
20°	2682	2484	2367
25°	2631	2346	2202
30°	2562	2206	1993
35°	2494	2054	1809
40°	2425	1897	1599
45°	2345	1723	1408
50°	2262	1548	1221
55°	2176	1360	1042
60°	2076	1163	858
65°	1961	964	772
70°	1821	777	699
75°	1646	686	636
80°	1393	576	553
85°	973	386	416

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2345 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.0	1.9
10°-20°	966.4	5.2
20°-30°	1356.8	7.2
30°-40°	1479.0	7.9
40°-50°	1359.4	7.3
50°-60°	1067.6	5.7
60°-70°	694.9	3.7
70°-80°	357.7	1.9
80°-90°	97.9	0.5
90°-100°	123.6	0.7
100°-110°	460.8	2.5
110°-120°	1222.1	6.5
120°-130°	2027.0	10.8
130°-140°	2153.1	11.5
140°-150°	2001.1	10.7
150°-160°	1608.8	8.6
160°-170°	1036.7	5.5
170°-180°	356.8	1.9
0°-30°	2675.2	14.3
0°-40°	4154.2	22.2
0°-60°	6581.1	35.2
0°-90°	7731.6	41.3
90°-120°	1806.5	9.6
90°-150°	7987.8	42.7
90°-180°	10990.0	58.7
0°-180°	18721.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3756	3756	3756	3756	3756	
5°	3756	3739	3695	3726	3715	356
15°	3573	3535	3420	3355	3321	1007
25°	3243	3134	2910	2770	2719	1491
35°	2794	2621	2322	2108	2033	1749
45°	2284	2056	1700	1458	1377	1764
55°	1737	1472	1105	901	836	1552
65°	1173	897	591	476	466	1163
75°	625	387	272	248	245	661
85°	146	75	64	64	64	168
90°	3	32	54	68	73	17
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3756.2	3756.2	3756.2	3756.2	3756.2
2.5°	3773.1	3756.2	3718.6	3752.9	3746.1
5°	3756.2	3739.2	3694.9	3725.5	3715.4
7.5°	3725.5	3705.3	3657.7	3671.0	3654.1
10°	3684.8	3660.9	3593.2	3582.7	3562.5
12.5°	3633.9	3603.3	3511.3	3491.1	3453.5
15°	3572.6	3535.1	3419.7	3355.1	3321.2
17.5°	3501.2	3446.8	3303.9	3229.2	3174.8
20°	3419.7	3351.5	3181.6	3096.9	3021.8
22.5°	3331.3	3253.1	3055.8	2940.3	2889.5
25°	3243.0	3134.0	2909.7	2770.5	2719.3
27.5°	3137.7	3021.8	2773.7	2614.0	2535.7
30°	3025.5	2896.0	2624.1	2451.0	2359.0
32.5°	2916.5	2760.0	2481.6	2277.5	2192.4
35°	2794.3	2620.8	2321.8	2107.7	2032.6
37.5°	2675.3	2488.1	2172.2	1937.4	1852.7
40°	2549.4	2345.7	2015.7	1774.4	1686.1
42.5°	2420.3	2202.9	1859.4	1607.8	1523.0
45°	2284.4	2056.5	1699.7	1458.1	1376.6
47.5°	2155.2	1914.0	1546.8	1305.2	1230.5
50°	2012.4	1771.1	1397.2	1162.4	1091.3
52.5°	1872.9	1617.9	1254.4	1030.0	965.5
55°	1736.9	1471.8	1104.6	900.9	836.3
57.5°	1597.7	1325.8	972.3	781.9	727.5
60°	1454.8	1182.9	832.8	659.6	605.2
62.5°	1315.7	1043.7	713.7	550.7	523.7
65°	1172.8	897.3	591.4	476.0	465.6
67.5°	1036.9	761.3	476.0	418.0	407.9
70°	894.1	629.0	394.2	360.3	346.6
72.5°	758.1	506.3	329.6	302.5	295.8
75°	625.4	387.4	271.9	248.1	244.9
77.5°	493.0	275.2	214.2	200.5	193.7
80°	370.4	197.3	163.0	149.7	149.7
82.5°	258.2	132.7	112.2	105.3	105.3
85°	146.0	74.6	64.5	64.5	64.5
87.5°	54.4	27.1	27.1	23.8	23.8
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



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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	9.85	10.61	10.88	11.65	13.04	5.82	6.58	6.85	7.62	9.01
	3H	11.52	12.20	12.56	13.25	14.66	7.00	7.69	8.05	8.73	10.15
	4H	12.13	12.77	13.18	13.82	15.24	7.45	8.10	8.51	9.15	10.57
	6H	12.54	13.14	13.61	14.19	15.62	7.77	8.37	8.84	9.42	10.85
	8H	12.67	13.24	13.74	14.30	15.73	7.86	8.43	8.93	9.50	10.92
	12H	12.73	13.27	13.80	14.33	15.78	7.90	8.44	8.98	9.50	10.95
4H	2H	9.86	10.50	10.92	11.55	12.97	6.41	7.05	7.47	8.10	9.52
	3H	11.68	12.22	12.75	13.29	14.73	7.75	8.29	8.82	9.37	10.80
	4H	12.37	12.86	13.45	13.93	15.39	8.30	8.79	9.38	9.86	11.31
	6H	12.88	13.31	13.97	14.40	15.84	8.72	9.14	9.80	10.23	11.68
	8H	13.06	13.45	14.14	14.54	16.00	8.85	9.24	9.93	10.32	11.79
	12H	13.15	13.51	14.25	14.60	16.07	8.91	9.27	10.01	10.36	11.83
8H	4H	12.33	12.73	13.42	13.81	15.27	8.58	8.97	9.66	10.05	11.52
	6H	12.90	13.22	14.01	14.35	15.81	9.09	9.42	10.20	10.54	12.00
	8H	13.12	13.40	14.23	14.51	15.99	9.29	9.57	10.40	10.68	12.16
	12H	13.25	13.50	14.37	14.61	16.13	9.40	9.65	10.52	10.76	12.28
12H	4H	12.28	12.64	13.39	13.74	15.20	8.58	8.93	9.68	10.03	11.50
	6H	12.88	13.16	13.99	14.27	15.75	9.14	9.43	10.26	10.54	12.02
	8H	13.09	13.34	14.21	14.45	15.97	9.35	9.60	10.47	10.71	12.22

END OF REPORT