

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: P929386

Luminaire Tested: DFN2DIP-HX4F0-100D110US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929386
REPORT IS A COMBINATION OF REPORTS P900958 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D110US940-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

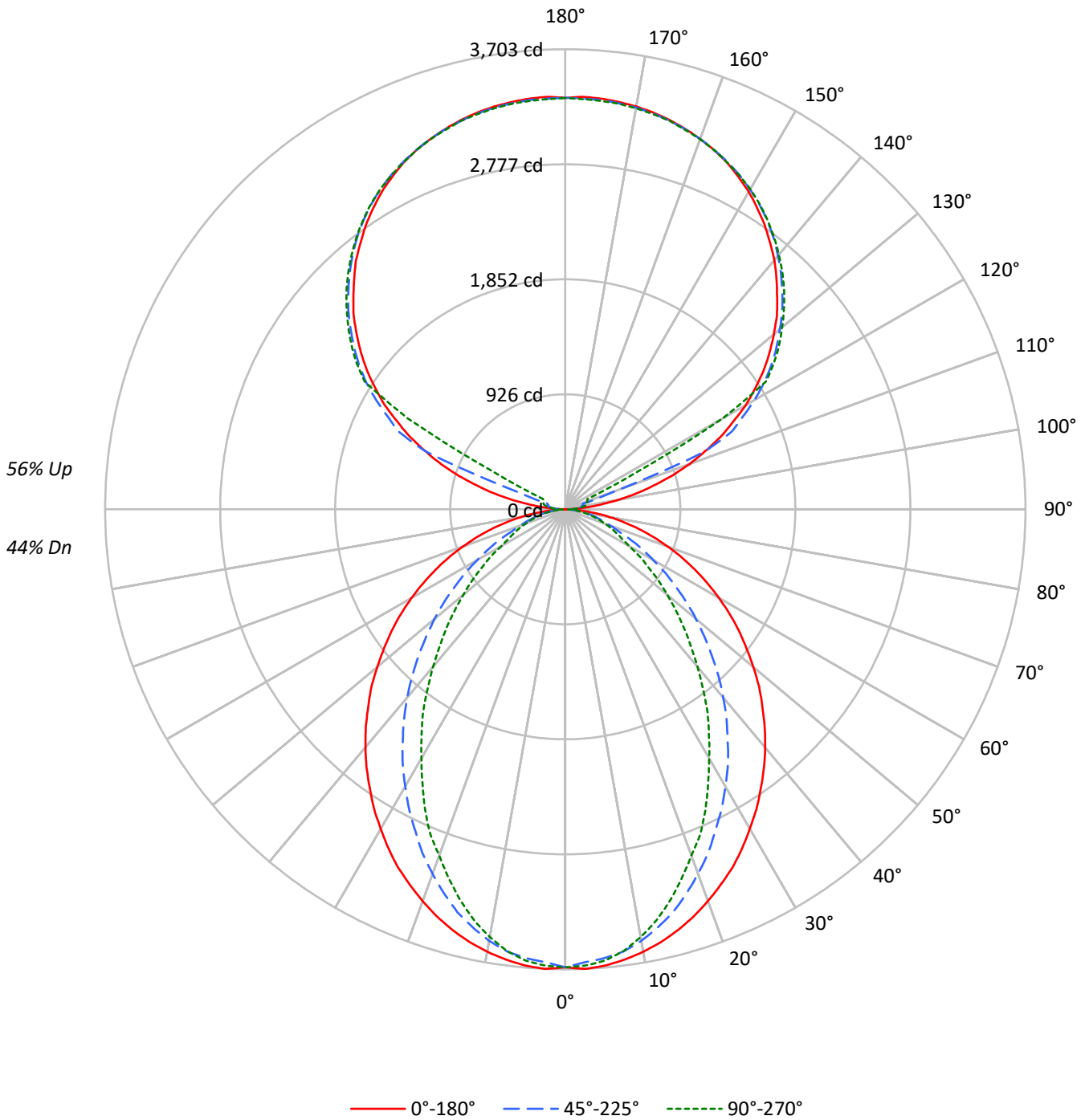
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17295.8 lumens
Efficiency: N/A
Efficacy: 92.7 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): 186.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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				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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	50	50	50	44				44
1	97	93	89	86	89	85	82	79	71	68	66	57	56	55	45	44	43	38				38
2	89	81	76	71	81	75	70	66	62	59	56	51	48	46	40	39	37	32				32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32	28				28
4	74	64	56	51	68	59	52	47	49	45	41	41	37	34	33	30	28	24				24
5	68	57	49	44	62	53	46	41	44	39	35	37	33	30	30	27	25	21				21
6	63	51	44	38	58	47	41	36	40	35	31	33	29	26	27	24	22	19				19
7	58	46	39	33	53	43	36	31	37	31	27	30	26	24	25	22	20	17				17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15				15
9	50	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14				14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13				13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2741	2741	2741
5°	2746	2698	2715
10°	2719	2645	2627
15°	2682	2558	2490
20°	2632	2438	2323
25°	2582	2303	2161
30°	2514	2165	1956
35°	2448	2016	1776
40°	2380	1862	1569
45°	2301	1691	1382
50°	2220	1519	1199
55°	2135	1334	1023
60°	2037	1142	842
65°	1924	946	758
70°	1788	763	686
75°	1616	673	625
80°	1367	566	542
85°	955	379	408

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2301 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.5	2.0
10°-20°	948.5	5.5
20°-30°	1331.7	7.7
30°-40°	1451.6	8.4
40°-50°	1334.2	7.7
50°-60°	1047.8	6.1
60°-70°	682.0	3.9
70°-80°	351.1	2.0
80°-90°	95.4	0.6
90°-100°	109.2	0.6
100°-110°	407.0	2.4
110°-120°	1079.6	6.2
120°-130°	1790.5	10.4
130°-140°	1902.0	11.0
140°-150°	1767.7	10.2
150°-160°	1421.2	8.2
160°-170°	915.7	5.3
170°-180°	315.2	1.8
0°-30°	2625.7	15.2
0°-40°	4077.3	23.6
0°-60°	6459.3	37.3
0°-90°	7587.8	43.9
90°-120°	1595.8	9.2
90°-150°	7055.9	40.8
90°-180°	9708.0	56.1
0°-180°	17295.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3687	3687	3687	3687	3687	
5°	3687	3670	3626	3657	3647	350
15°	3506	3470	3356	3293	3260	988
25°	3183	3076	2856	2719	2669	1464
35°	2742	2572	2279	2069	1995	1717
45°	2242	2018	1668	1431	1351	1731
55°	1705	1445	1084	884	821	1523
65°	1151	881	580	467	457	1141
75°	614	380	267	244	240	649
85°	143	73	63	63	63	165
90°	2	29	48	60	65	16
95°	156	76	93	106	103	184
105°	728	800	146	172	182	778
115°	1378	1418	1478	369	197	1356
125°	1948	1979	2025	2042	2049	1737
135°	2411	2449	2470	2495	2490	1862
145°	2796	2794	2834	2851	2839	1749
155°	3079	3058	3086	3101	3082	1419
165°	3244	3230	3237	3254	3237	917
175°	3318	3302	3307	3323	3300	316
180°	3312	3312	3312	3312	3312	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3686.6	3686.6	3686.6	3686.6	3686.6
2.5°	3703.2	3686.6	3649.8	3683.4	3676.7
5°	3686.6	3670.0	3626.4	3656.6	3646.6
7.5°	3656.6	3636.7	3589.9	3603.1	3586.5
10°	3616.5	3593.2	3526.6	3516.4	3496.6
12.5°	3566.7	3536.5	3446.2	3426.4	3389.6
15°	3506.5	3469.6	3356.3	3293.0	3259.7
17.5°	3436.3	3382.9	3242.8	3169.5	3116.0
20°	3356.3	3289.4	3122.7	3039.6	2965.9
22.5°	3269.6	3192.8	2999.2	2886.0	2836.0
25°	3182.9	3076.1	2855.8	2719.2	2669.0
27.5°	3079.5	2965.9	2722.4	2565.6	2488.8
30°	2969.5	2842.4	2575.5	2405.6	2315.4
32.5°	2862.6	2708.9	2435.7	2235.4	2151.8
35°	2742.5	2572.3	2278.9	2068.6	1995.0
37.5°	2625.8	2442.0	2132.0	1901.6	1818.3
40°	2502.2	2302.3	1978.4	1741.5	1654.8
42.5°	2375.5	2162.0	1825.1	1578.0	1494.8
45°	2242.0	2018.3	1668.3	1431.1	1351.1
47.5°	2115.4	1878.6	1518.2	1281.0	1207.8
50°	1975.2	1738.3	1371.3	1140.9	1071.1
52.5°	1838.1	1587.9	1231.1	1010.9	947.6
55°	1704.7	1444.6	1084.2	884.2	820.8
57.5°	1568.1	1301.2	954.4	767.4	714.0
60°	1427.9	1161.0	817.3	647.4	594.0
62.5°	1291.3	1024.4	700.5	540.6	514.0
65°	1151.1	880.7	580.5	467.2	457.0
67.5°	1017.7	747.2	467.2	410.2	400.3
70°	877.5	617.4	386.9	353.6	340.2
72.5°	744.0	496.9	323.5	296.9	290.3
75°	613.8	380.2	266.9	243.5	240.3
77.5°	483.9	270.1	210.2	196.8	190.1
80°	363.5	193.7	160.0	146.9	146.9
82.5°	253.4	130.2	110.1	103.4	103.4
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	2.3	28.7	47.8	60.0	64.6
92.5°	60.0	50.4	57.4	62.4	64.6
95°	155.7	76.5	93.3	105.5	103.0
97.5°	280.3	83.9	122.0	129.4	131.7
100°	424.2	95.9	136.6	155.7	160.5
102.5°	582.1	577.6	141.4	167.6	175.0
105°	728.4	800.4	146.3	172.4	182.1
107.5°	898.6	958.3	151.1	177.2	187.0
110°	1061.6	1111.7	419.4	179.8	189.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1215.0	1257.9	1217.2	184.4	191.8
115°	1377.7	1418.4	1478.5	369.0	196.6
117.5°	1519.2	1567.0	1607.9	1265.0	637.3
120°	1677.3	1713.2	1756.4	1785.2	1461.6
122.5°	1811.4	1849.7	1897.8	1912.1	1914.7
125°	1947.9	1979.3	2024.8	2041.5	2048.7
127.5°	2072.6	2106.1	2142.2	2166.1	2168.5
130°	2190.0	2228.5	2254.6	2281.1	2278.9
132.5°	2309.8	2341.1	2367.4	2389.0	2386.7
135°	2410.6	2449.0	2470.3	2494.6	2489.7
137.5°	2515.9	2544.6	2568.8	2592.7	2585.6
140°	2618.9	2638.2	2664.4	2686.0	2674.0
142.5°	2705.3	2722.1	2753.2	2772.2	2760.3
145°	2796.4	2793.8	2834.5	2851.4	2839.4
147.5°	2875.3	2868.1	2908.8	2920.8	2911.4
150°	2952.1	2935.3	2973.7	2987.9	2976.0
152.5°	3016.7	2997.6	3033.4	3048.0	3031.2
155°	3079.0	3057.6	3086.3	3100.6	3081.5
157.5°	3129.3	3110.2	3131.9	3148.7	3129.3
160°	3172.6	3158.0	3172.6	3186.8	3170.0
162.5°	3210.7	3196.5	3208.4	3225.2	3203.6
165°	3244.3	3230.0	3237.2	3253.9	3237.2
167.5°	3270.7	3256.2	3263.6	3280.4	3258.8
170°	3292.4	3277.8	3282.6	3299.5	3277.8
172.5°	3306.6	3292.4	3297.2	3314.0	3292.4
175°	3318.5	3301.7	3306.6	3323.4	3299.5
177.5°	3323.4	3306.6	3309.1	3325.9	3304.3
180°	3311.5	3311.5	3311.5	3311.5	3311.5



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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	10.05	10.83	11.07	11.85	13.21	6.02	6.81	7.04	7.83	9.18
	3H	11.73	12.43	12.75	13.45	14.83	7.21	7.91	8.24	8.94	10.32
	4H	12.33	12.99	13.37	14.03	15.41	7.66	8.32	8.70	9.35	10.74
	6H	12.75	13.36	13.80	14.40	15.80	7.98	8.59	9.03	9.62	11.02
	8H	12.88	13.46	13.93	14.51	15.90	8.07	8.65	9.12	9.70	11.10
	12H	12.94	13.49	14.00	14.53	15.95	8.11	8.66	9.17	9.71	11.13
4H	2H	10.06	10.73	11.11	11.76	13.14	6.61	7.28	7.66	8.31	9.69
	3H	11.89	12.44	12.94	13.50	14.90	7.96	8.51	9.01	9.57	10.97
	4H	12.58	13.08	13.64	14.14	15.56	8.51	9.01	9.57	10.06	11.49
	6H	13.09	13.53	14.16	14.60	16.02	8.93	9.36	9.99	10.43	11.85
	8H	13.27	13.67	14.34	14.74	16.17	9.06	9.46	10.12	10.53	11.96
	12H	13.36	13.73	14.45	14.81	16.24	9.12	9.49	10.21	10.57	12.00
8H	4H	12.55	12.95	13.61	14.02	15.45	8.79	9.19	9.85	10.26	11.69
	6H	13.11	13.44	14.20	14.55	15.98	9.31	9.64	10.40	10.75	12.18
	8H	13.33	13.62	14.43	14.71	16.16	9.50	9.79	10.60	10.88	12.33
	12H	13.47	13.72	14.57	14.81	16.30	9.62	9.87	10.72	10.96	12.45
12H	4H	12.50	12.86	13.58	13.94	15.38	8.79	9.15	9.87	10.23	11.67
	6H	13.09	13.38	14.18	14.47	15.92	9.36	9.65	10.45	10.74	12.19
	8H	13.31	13.56	14.41	14.65	16.14	9.57	9.82	10.67	10.91	12.40