

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: P913741

Luminaire Tested: DFN2DIP-HX4F0-110D120US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913741
REPORT IS A COMBINATION OF REPORTS P899458 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D120US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

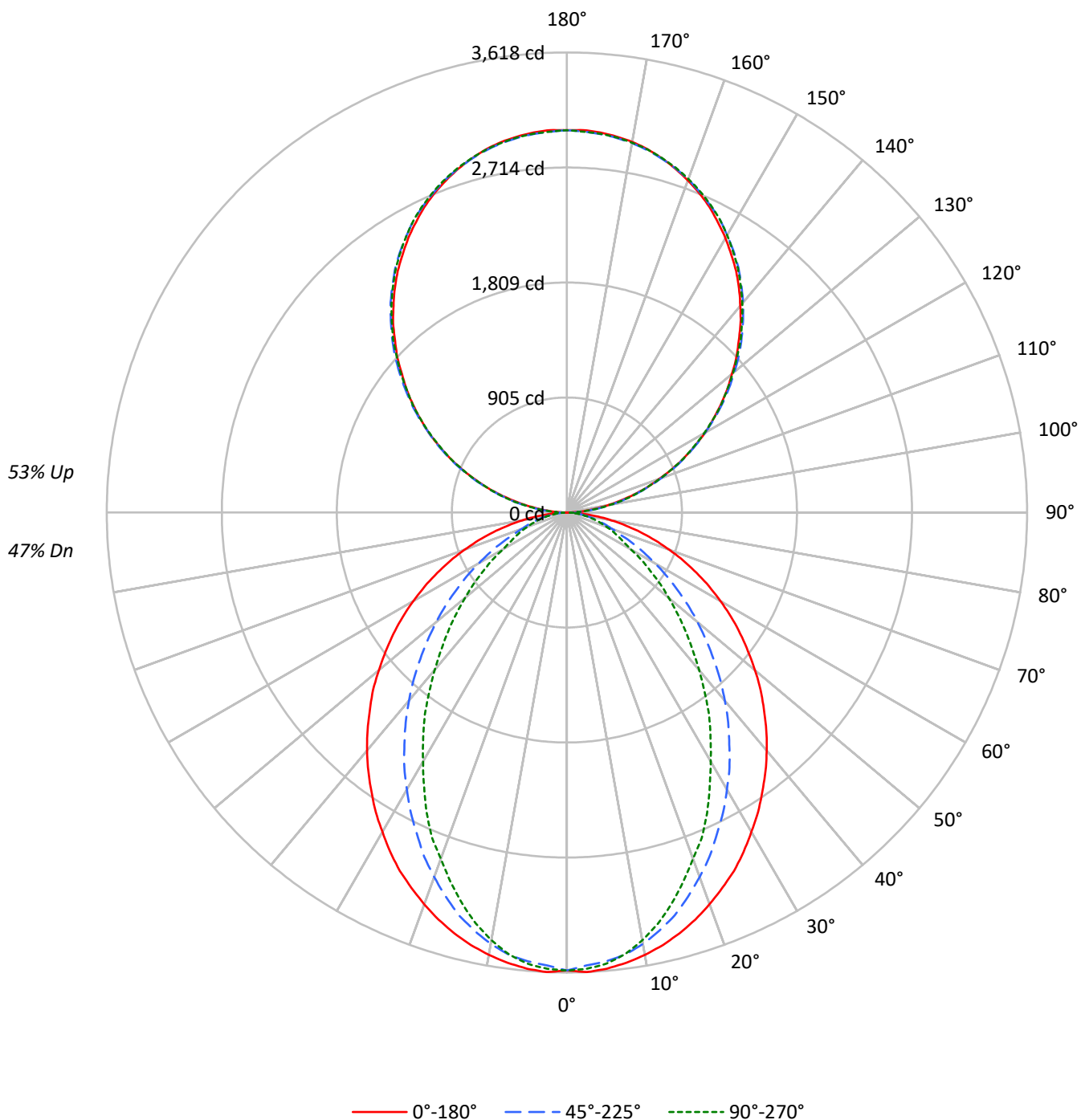
Lumens per Lamp: N/A
Luminaire Lumens: 15819.8 lumens
Efficiency: N/A
Efficacy: 85.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 185.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53
1	98	93	90	86	90	86	83	80	72	70	68	59	58	57	48	47	46
2	89	82	76	71	82	76	71	66	64	60	57	53	50	48	43	41	39
3	82	73	65	60	75	67	61	56	57	52	48	47	44	41	38	36	34
4	75	64	57	51	69	60	53	48	51	46	42	42	39	36	34	32	30
5	69	58	50	44	63	53	47	41	45	40	36	38	34	31	31	28	26
6	64	52	44	38	58	48	41	36	41	36	32	35	31	27	28	26	23
7	59	47	39	34	54	44	37	32	37	32	28	32	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	23	27	23	20	22	19	17
10	48	36	29	24	44	34	27	23	29	24	20	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2678	2678	2678
5°	2682	2636	2652
10°	2656	2584	2566
15°	2620	2499	2433
20°	2572	2382	2269
25°	2522	2250	2111
30°	2456	2115	1911
35°	2391	1969	1735
40°	2325	1819	1533
45°	2248	1652	1350
50°	2169	1484	1171
55°	2086	1304	999
60°	1990	1115	823
65°	1880	924	741
70°	1746	745	670
75°	1579	658	610
80°	1335	553	530
85°	934	370	399

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2267 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	337.5	2.1
10°-20°	926.6	5.9
20°-30°	1300.9	8.2
30°-40°	1418.1	9.0
40°-50°	1303.4	8.2
50°-60°	1023.6	6.5
60°-70°	666.3	4.2
70°-80°	343.0	2.2
80°-90°	96.1	0.6
90°-100°	186.0	1.2
100°-110°	591.1	3.7
110°-120°	1011.6	6.4
120°-130°	1330.4	8.4
130°-140°	1493.3	9.4
140°-150°	1464.3	9.3
150°-160°	1228.4	7.8
160°-170°	814.6	5.1
170°-180°	284.7	1.8
0°-30°	2565.1	16.2
0°-40°	3983.1	25.2
0°-60°	6310.1	39.9
0°-90°	7415.4	46.9
90°-120°	1788.7	11.3
90°-150°	6076.6	38.4
90°-180°	8404.0	53.1
0°-180°	15819.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3602	3602	3602	3602	3602	
5°	3602	3585	3543	3572	3562	341
15°	3426	3390	3279	3217	3184	965
25°	3109	3005	2790	2656	2607	1430
35°	2679	2513	2226	2021	1949	1677
45°	2190	1972	1630	1398	1320	1691
55°	1665	1411	1059	864	802	1488
65°	1124	860	567	456	446	1115
75°	600	371	261	238	235	634
85°	140	72	62	62	62	161
90°	3	33	89	83	86	16
95°	132	158	162	162	158	147
105°	546	553	558	563	563	576
115°	1015	1030	1025	1022	1015	1004
125°	1476	1499	1492	1484	1481	1319
135°	1910	1938	1943	1940	1933	1476
145°	2318	2337	2351	2354	2344	1449
155°	2651	2658	2667	2679	2671	1220
165°	2884	2881	2881	2900	2887	814
175°	3001	2994	2988	3006	2991	285
180°	3006	3006	3006	3006	3006	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3601.5	3601.5	3601.5	3601.5	3601.5
2.5°	3617.7	3601.5	3565.5	3598.4	3591.8
5°	3601.5	3585.3	3542.7	3572.1	3562.4
7.5°	3572.1	3552.7	3507.1	3519.9	3503.6
10°	3533.0	3510.2	3445.2	3435.1	3415.8
12.5°	3484.3	3454.9	3366.7	3347.3	3311.3
15°	3425.5	3389.5	3278.8	3217.0	3184.4
17.5°	3357.0	3304.8	3167.9	3096.2	3044.0
20°	3278.8	3213.5	3050.6	2969.3	2897.4
22.5°	3194.2	3119.1	2930.0	2819.3	2770.5
25°	3109.4	3005.0	2789.9	2656.4	2607.3
27.5°	3008.5	2897.4	2659.5	2506.3	2431.3
30°	2900.9	2776.8	2516.0	2350.0	2261.8
32.5°	2796.5	2646.4	2379.4	2183.7	2102.1
35°	2679.2	2512.9	2226.3	2020.9	1948.9
37.5°	2565.2	2385.7	2082.7	1857.6	1776.4
40°	2444.4	2249.1	1932.7	1701.3	1616.6
42.5°	2320.6	2112.1	1783.0	1541.6	1460.3
45°	2190.3	1971.7	1629.8	1398.0	1319.9
47.5°	2066.5	1835.2	1483.1	1251.4	1179.9
50°	1929.5	1698.2	1339.7	1114.5	1046.4
52.5°	1795.7	1551.2	1202.7	987.6	925.7
55°	1665.3	1411.2	1059.1	863.8	801.9
57.5°	1531.9	1271.1	932.2	749.7	697.4
60°	1395.0	1134.2	798.4	632.5	580.3
62.5°	1261.5	1000.8	684.4	528.1	502.1
65°	1124.5	860.3	567.1	456.5	446.4
67.5°	994.2	730.0	456.5	400.8	391.1
70°	857.2	603.1	377.9	345.5	332.3
72.5°	726.8	485.5	316.1	290.1	283.5
75°	599.6	371.4	260.7	237.9	234.8
77.5°	472.7	263.9	205.4	192.3	185.7
80°	355.1	189.2	156.3	143.5	143.5
82.5°	247.6	127.2	107.6	101.0	101.0
85°	140.1	71.6	61.9	61.9	61.9
87.5°	52.2	25.9	25.9	22.8	22.8
90°	2.7	32.6	88.8	83.4	86.1
92.5°	56.2	76.1	78.8	81.6	81.6
95°	132.3	157.7	162.2	162.2	157.7
97.5°	220.2	243.8	253.8	253.8	253.8
100°	321.8	342.6	349.8	349.8	347.1
102.5°	428.7	444.1	454.1	456.9	454.1
105°	545.7	552.9	558.3	562.8	562.8
107.5°	661.6	672.6	672.6	674.3	661.6
110°	774.0	788.5	788.5	788.5	781.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	895.5	910.9	908.2	900.9	895.5
115°	1015.1	1029.7	1025.1	1022.4	1015.1
117.5°	1133.8	1153.8	1141.1	1133.8	1126.6
120°	1253.5	1273.4	1253.5	1253.5	1245.4
122.5°	1362.3	1387.7	1375.0	1367.7	1362.3
125°	1476.5	1499.1	1491.9	1483.8	1481.0
127.5°	1588.0	1616.0	1606.1	1595.2	1588.0
130°	1692.2	1724.8	1720.3	1714.8	1704.9
132.5°	1809.1	1834.5	1836.3	1823.6	1816.4
135°	1909.7	1937.8	1943.3	1940.5	1933.3
137.5°	2022.1	2044.8	2049.3	2047.5	2036.6
140°	2120.9	2143.6	2156.2	2156.2	2146.3
142.5°	2222.5	2245.1	2252.3	2255.0	2245.1
145°	2318.5	2336.6	2351.1	2353.9	2343.9
147.5°	2404.6	2427.2	2438.2	2442.7	2432.7
150°	2493.5	2508.8	2518.8	2527.0	2518.8
152.5°	2572.3	2587.7	2600.4	2610.4	2600.4
155°	2651.1	2658.4	2666.6	2679.2	2671.1
157.5°	2719.2	2724.5	2729.1	2747.2	2734.5
160°	2779.8	2785.3	2788.0	2803.4	2792.5
162.5°	2836.0	2836.0	2838.8	2856.0	2843.3
165°	2884.1	2881.4	2881.4	2899.5	2886.8
167.5°	2927.6	2919.4	2919.4	2937.6	2924.9
170°	2960.2	2952.9	2950.2	2968.4	2952.9
172.5°	2982.9	2975.6	2972.9	2991.0	2975.6
175°	3001.0	2993.7	2988.3	3006.4	2991.0
177.5°	3011.0	3003.7	2998.2	3013.7	2998.2
180°	3006.4	3006.4	3006.4	3006.4	3006.4

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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	10.27	11.07	11.26	12.07	13.39	6.24	7.05	7.23	8.05	9.36
	3H	11.95	12.67	12.95	13.67	15.01	7.43	8.15	8.43	9.16	10.50
	4H	12.55	13.23	13.57	14.24	15.59	7.88	8.56	8.90	9.57	10.92
	6H	12.97	13.60	14.00	14.62	15.98	8.20	8.83	9.23	9.84	11.20
	8H	13.10	13.70	14.13	14.73	16.08	8.29	8.89	9.32	9.92	11.28
	12H	13.16	13.73	14.20	14.75	16.13	8.34	8.90	9.37	9.93	11.31
4H	2H	10.28	10.97	11.30	11.98	13.32	6.83	7.52	7.86	8.53	9.87
	3H	12.11	12.68	13.14	13.72	15.08	8.18	8.75	9.21	9.79	11.15
	4H	12.80	13.32	13.84	14.35	15.74	8.73	9.25	9.77	10.28	11.67
	6H	13.32	13.76	14.37	14.82	16.20	9.15	9.60	10.20	10.65	12.03
	8H	13.49	13.91	14.54	14.96	16.35	9.28	9.70	10.33	10.74	12.14
	12H	13.59	13.96	14.65	15.03	16.42	9.35	9.72	10.41	10.78	12.18
8H	4H	12.77	13.19	13.82	14.23	15.63	9.01	9.43	10.06	10.47	11.87
	6H	13.34	13.68	14.41	14.77	16.16	9.53	9.87	10.60	10.96	12.35
	8H	13.55	13.86	14.63	14.93	16.34	9.72	10.03	10.80	11.10	12.51
	12H	13.69	13.96	14.77	15.03	16.48	9.84	10.11	10.92	11.18	12.63
12H	4H	12.72	13.10	13.79	14.16	15.56	9.02	9.39	10.08	10.45	11.85
	6H	13.31	13.61	14.39	14.69	16.10	9.58	9.88	10.66	10.96	12.37
	8H	13.53	13.80	14.61	14.87	16.32	9.79	10.06	10.87	11.13	12.58

END OF REPORT