

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: P913723

Luminaire Tested: DFN2DIP-HX4F0-100D120US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913723
REPORT IS A COMBINATION OF REPORTS P899456 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D120US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

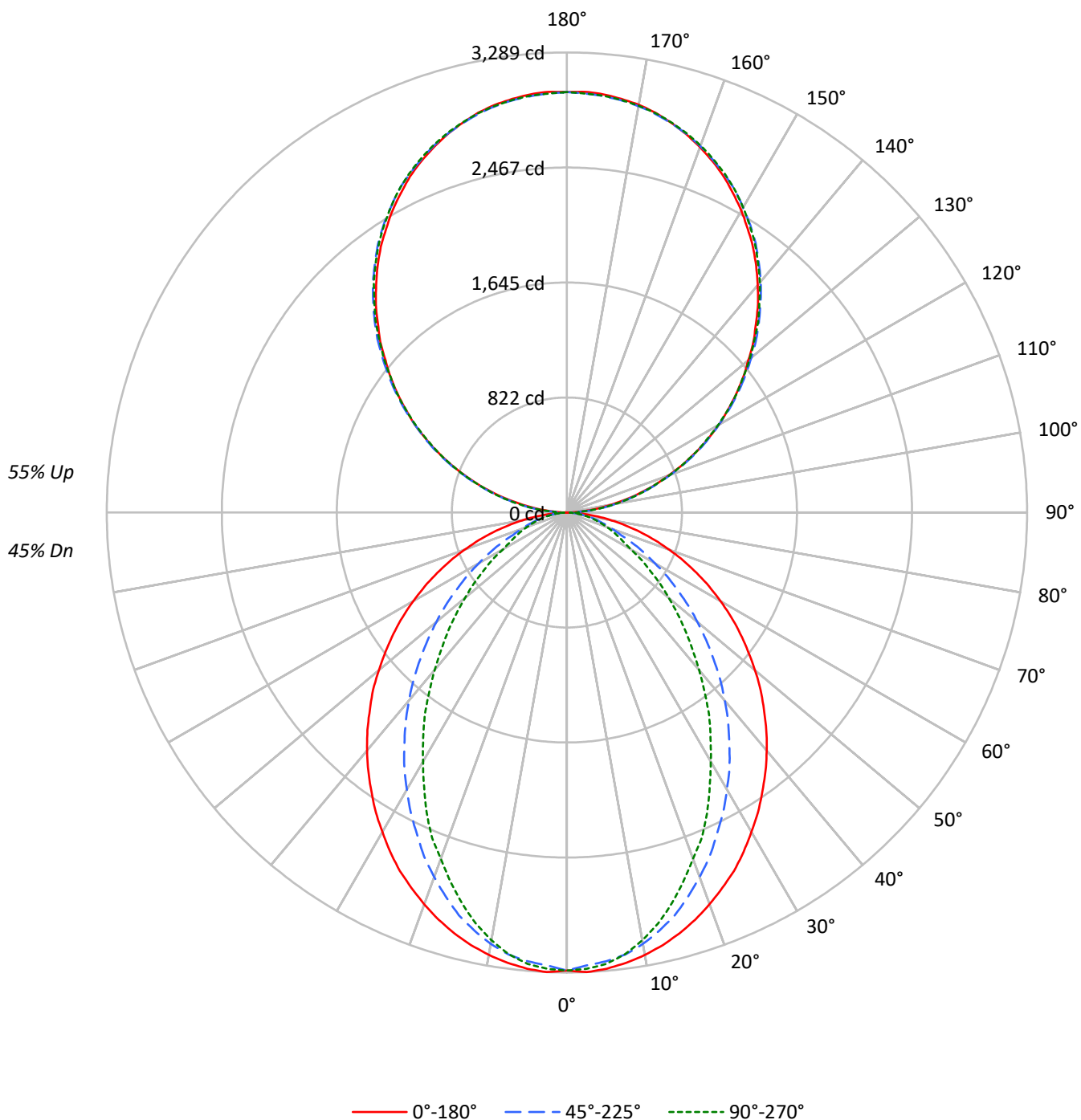
Lumens per Lamp: N/A
Luminaire Lumens: 15146.4 lumens
Efficiency: N/A
Efficacy: 87.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 172.6
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
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	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	46	45	44
2	89	82	76	71	81	75	70	66	63	59	56	51	49	47	41	39	38
3	81	72	65	59	74	66	60	55	56	51	47	46	43	40	37	34	33
4	74	64	56	51	68	59	52	47	50	45	41	41	37	35	33	30	28
5	68	57	49	44	63	53	46	41	45	39	35	37	33	30	30	27	25
6	63	51	44	38	58	48	41	36	40	35	31	34	30	27	27	24	22
7	58	47	39	33	54	43	36	31	37	31	28	31	27	24	25	22	20
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18
9	51	39	31	27	46	36	29	25	31	26	22	26	22	19	21	18	16
10	47	36	29	24	43	33	27	23	28	23	20	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2435	2435	2435
5°	2439	2396	2411
10°	2415	2349	2333
15°	2382	2272	2212
20°	2338	2165	2063
25°	2293	2045	1919
30°	2233	1922	1737
35°	2174	1790	1577
40°	2114	1654	1394
45°	2044	1502	1227
50°	1972	1349	1065
55°	1896	1185	908
60°	1809	1014	748
65°	1709	840	673
70°	1588	678	609
75°	1435	598	555
80°	1214	502	482
85°	849	336	362

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°	306.9	2.0
10°-20°	842.4	5.6
20°-30°	1182.6	7.8
30°-40°	1289.2	8.5
40°-50°	1184.9	7.8
50°-60°	930.5	6.1
60°-70°	605.7	4.0
70°-80°	311.8	2.1
80°-90°	88.1	0.6
90°-100°	186.0	1.2
100°-110°	591.1	3.9
110°-120°	1011.6	6.7
120°-130°	1330.4	8.8
130°-140°	1493.3	9.9
140°-150°	1464.3	9.7
150°-160°	1228.4	8.1
160°-170°	814.6	5.4
170°-180°	284.7	1.9
0°-30°	2331.9	15.4
0°-40°	3621.0	23.9
0°-60°	5736.5	37.9
0°-90°	6742.1	44.5
90°-120°	1788.7	11.8
90°-150°	6076.6	40.1
90°-180°	8404.0	55.5
0°-180°	15146.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3274	3274	3274	3274	3274	
5°	3274	3259	3221	3247	3238	310
15°	3114	3081	2981	2924	2895	878
25°	2827	2732	2536	2415	2370	1300
35°	2436	2284	2024	1837	1772	1524
45°	1991	1792	1482	1271	1200	1538
55°	1514	1283	963	785	729	1353
65°	1022	782	516	415	406	1014
75°	545	338	237	216	213	577
85°	127	65	56	56	56	146
90°	3	33	89	83	86	15
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°	3274.1	3274.1	3274.1	3274.1	3274.1
2.5°	3288.8	3274.1	3241.4	3271.2	3265.3
5°	3274.1	3259.3	3220.6	3247.4	3238.5
7.5°	3247.4	3229.7	3188.2	3199.9	3185.1
10°	3211.8	3191.1	3132.0	3122.9	3105.3
12.5°	3167.5	3140.8	3060.6	3043.0	3010.3
15°	3114.1	3081.3	2980.7	2924.5	2894.9
17.5°	3051.8	3004.3	2879.9	2814.8	2767.3
20°	2980.7	2921.3	2773.3	2699.4	2634.0
22.5°	2903.7	2835.5	2663.6	2563.0	2518.7
25°	2826.7	2731.8	2536.2	2414.9	2370.3
27.5°	2734.9	2634.0	2417.7	2278.5	2210.3
30°	2637.2	2524.3	2287.3	2136.4	2056.3
32.5°	2542.3	2405.8	2163.1	1985.2	1911.0
35°	2435.6	2284.5	2023.9	1837.1	1771.7
37.5°	2331.9	2168.8	1893.4	1688.8	1614.9
40°	2222.2	2044.6	1757.0	1546.7	1469.7
42.5°	2109.7	1920.1	1620.9	1401.4	1327.5
45°	1991.1	1792.5	1481.6	1271.0	1199.9
47.5°	1878.7	1668.3	1348.3	1137.7	1072.6
50°	1754.1	1543.8	1217.8	1013.2	951.3
52.5°	1632.4	1410.2	1093.4	897.8	841.5
55°	1513.9	1282.9	962.9	785.3	729.0
57.5°	1392.7	1155.6	847.6	681.5	634.1
60°	1268.1	1031.1	725.9	575.0	527.5
62.5°	1146.8	909.7	622.1	480.1	456.5
65°	1022.3	782.1	515.6	414.9	405.8
67.5°	903.8	663.6	414.9	364.3	355.5
70°	779.3	548.3	343.6	314.0	302.1
72.5°	660.8	441.3	287.3	263.7	257.8
75°	545.1	337.6	237.0	216.3	213.4
77.5°	429.8	239.9	186.7	174.8	168.8
80°	322.8	172.0	142.1	130.5	130.5
82.5°	225.1	115.7	97.8	91.8	91.8
85°	127.3	65.0	56.2	56.2	56.2
87.5°	47.5	23.6	23.6	20.8	20.8
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	9.70	10.49	10.71	11.50	12.85	5.68	6.46	6.68	7.48	8.83
	3H	11.38	12.08	12.40	13.11	14.48	6.86	7.57	7.88	8.59	9.96
	4H	11.98	12.65	13.02	13.68	15.06	7.31	7.98	8.34	9.00	10.38
	6H	12.40	13.02	13.45	14.05	15.44	7.63	8.25	8.67	9.28	10.67
	8H	12.53	13.11	13.58	14.16	15.55	7.72	8.31	8.77	9.35	10.74
	12H	12.59	13.15	13.64	14.19	15.60	7.77	8.32	8.82	9.36	10.77
4H	2H	9.72	10.38	10.75	11.41	12.79	6.27	6.93	7.30	7.96	9.34
	3H	11.54	12.10	12.59	13.15	14.54	7.61	8.17	8.66	9.22	10.61
	4H	12.23	12.74	13.29	13.79	15.20	8.16	8.67	9.21	9.71	11.13
	6H	12.75	13.18	13.81	14.25	15.66	8.58	9.02	9.64	10.09	11.49
	8H	12.92	13.33	13.99	14.39	15.81	8.71	9.12	9.77	10.18	11.60
	12H	13.02	13.38	14.10	14.46	15.89	8.77	9.14	9.85	10.22	11.65
8H	4H	12.20	12.60	13.26	13.67	15.09	8.44	8.85	9.50	9.91	11.33
	6H	12.76	13.10	13.85	14.20	15.62	8.96	9.29	10.04	10.40	11.82
	8H	12.98	13.28	14.07	14.36	15.80	9.15	9.45	10.24	10.53	11.97
	12H	13.12	13.38	14.21	14.46	15.94	9.27	9.53	10.37	10.61	12.09
12H	4H	12.15	12.52	13.23	13.59	15.02	8.44	8.81	9.52	9.89	11.31
	6H	12.74	13.03	13.83	14.12	15.56	9.01	9.30	10.10	10.39	11.83
	8H	12.96	13.22	14.06	14.30	15.78	9.22	9.48	10.31	10.56	12.04