

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: P927008

Luminaire Tested: DFN2DIP-HX4F0-070D110US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927008
REPORT IS A COMBINATION OF REPORTS P900951 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D110US830-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

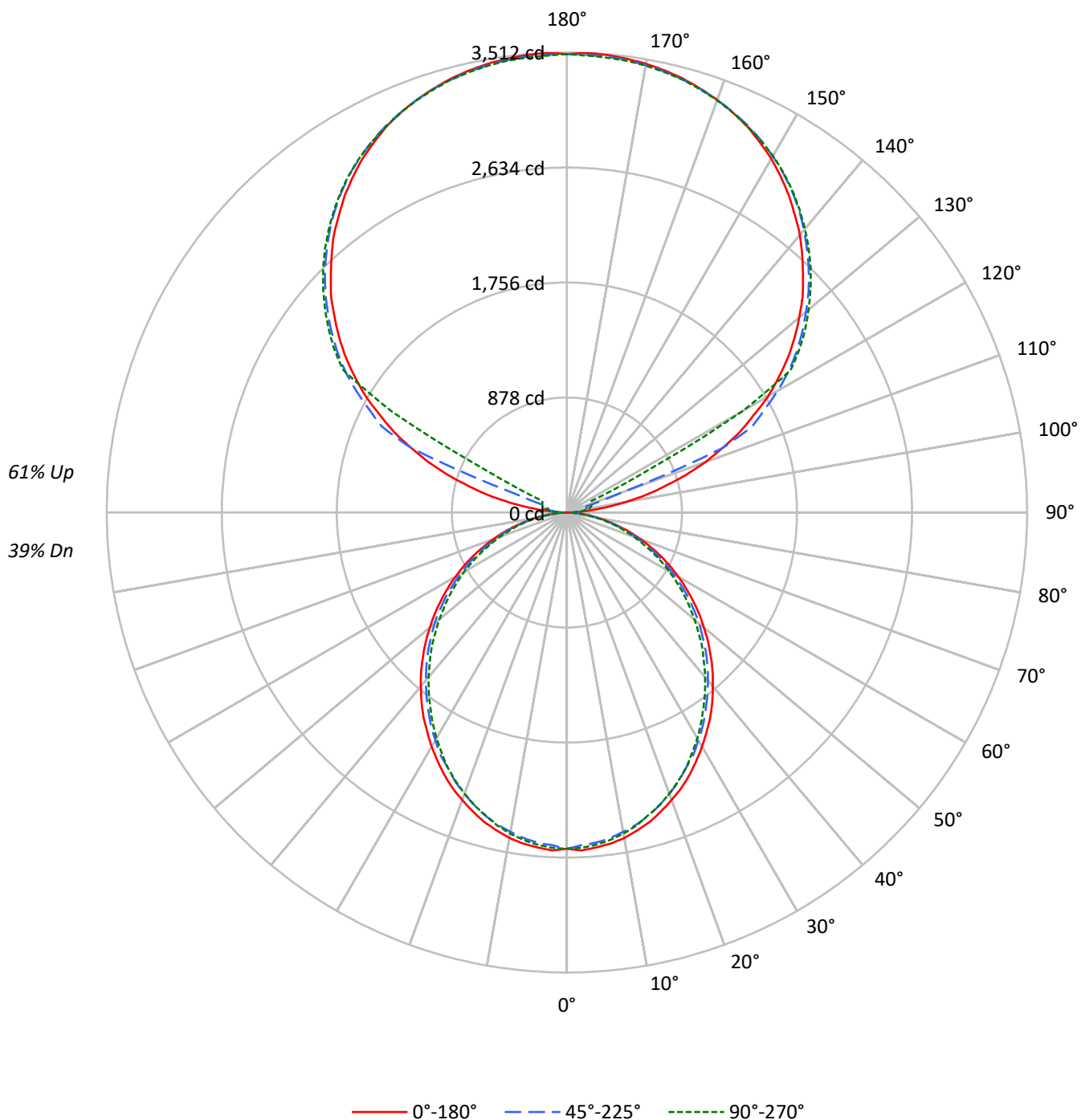
Lumens per Lamp: N/A
Luminaire Lumens: 16795.4 lumens
Efficiency: N/A
Efficacy: 109.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

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

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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	95	95	95	95	77	77	77	61	61	61	46	46	46
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39
2	87	79	73	68	79	72	67	63	59	56	52	47	44	42	36	34	33
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13
10	45	34	26	22	41	31	25	20	26	21	17	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1909	1909	1909
5°	1912	1882	1895
10°	1897	1857	1869
15°	1869	1827	1829
20°	1831	1785	1789
25°	1794	1734	1741
30°	1747	1687	1681
35°	1703	1631	1617
40°	1648	1575	1557
45°	1594	1519	1494
50°	1534	1460	1423
55°	1472	1392	1357
60°	1402	1311	1281
65°	1325	1227	1192
70°	1227	1124	1096
75°	1091	1002	1008
80°	928	846	838
85°	674	577	557

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1796 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.6	1.4
10°-20°	679.8	4.0
20°-30°	999.1	5.9
30°-40°	1160.4	6.9
40°-50°	1158.9	6.9
50°-60°	1010.5	6.0
60°-70°	747.0	4.4
70°-80°	422.7	2.5
80°-90°	117.7	0.7
90°-100°	115.4	0.7
100°-110°	430.1	2.6
110°-120°	1140.7	6.8
120°-130°	1891.9	11.3
130°-140°	2009.6	12.0
140°-150°	1867.7	11.1
150°-160°	1501.6	8.9
160°-170°	967.6	5.8
170°-180°	333.0	2.0
0°-30°	1920.5	11.4
0°-40°	3080.9	18.3
0°-60°	5250.3	31.3
0°-90°	6537.7	38.9
90°-120°	1686.2	10.0
90°-150°	7455.4	44.4
90°-180°	10258.0	61.1
0°-180°	16795.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2567	2567	2567	2567	2567	
5°	2567	2558	2530	2550	2545	244
15°	2444	2429	2397	2407	2394	688
25°	2212	2192	2150	2155	2150	1018
35°	1908	1884	1844	1829	1817	1192
45°	1553	1536	1498	1471	1461	1198
55°	1175	1160	1131	1101	1089	1051
65°	792	778	753	731	718	784
75°	415	410	397	383	388	443
85°	101	99	96	89	86	113
90°	2	30	50	63	68	15
95°	164	81	99	112	109	195
105°	770	846	155	182	192	822
115°	1456	1499	1562	390	208	1433
125°	2058	2091	2139	2157	2165	1836
135°	2547	2588	2610	2636	2631	1968
145°	2955	2952	2995	3013	3000	1848
155°	3253	3231	3261	3276	3256	1499
165°	3428	3413	3420	3438	3420	968
175°	3506	3489	3494	3512	3486	334
180°	3499	3499	3499	3499	3499	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2567.1	2567.1	2567.1	2567.1	2567.1
2.5°	2582.1	2569.7	2542.5	2567.1	2562.4
5°	2567.1	2557.5	2530.2	2549.8	2545.1
7.5°	2549.8	2535.1	2507.9	2527.9	2522.9
10°	2522.9	2505.5	2475.9	2495.6	2488.3
12.5°	2485.7	2471.0	2441.5	2453.7	2448.7
15°	2443.8	2429.1	2396.9	2406.9	2394.5
17.5°	2391.9	2377.3	2345.0	2357.4	2345.0
20°	2335.0	2320.4	2285.8	2293.2	2283.5
22.5°	2278.5	2256.3	2224.0	2224.0	2219.0
25°	2211.8	2192.1	2150.2	2154.9	2150.2
27.5°	2137.6	2120.3	2088.4	2081.0	2068.7
30°	2063.8	2043.8	2007.0	1999.6	1989.6
32.5°	1984.6	1970.0	1930.4	1915.5	1905.5
35°	1908.2	1883.6	1844.0	1829.1	1816.8
37.5°	1821.8	1799.5	1759.9	1742.7	1730.3
40°	1733.0	1713.1	1673.5	1651.5	1641.6
42.5°	1646.5	1626.7	1587.4	1562.5	1547.8
45°	1552.8	1535.5	1498.3	1471.3	1461.3
47.5°	1461.3	1444.1	1404.5	1377.3	1362.7
50°	1365.0	1352.7	1318.1	1283.6	1271.2
52.5°	1271.2	1254.0	1222.0	1194.8	1177.5
55°	1175.1	1160.2	1130.6	1101.0	1088.7
57.5°	1078.8	1066.4	1034.2	1004.6	994.7
60°	982.4	972.7	938.2	910.9	903.6
62.5°	888.6	871.3	846.7	822.1	812.2
65°	792.5	777.6	753.0	730.7	718.4
67.5°	693.8	681.2	659.2	641.9	631.9
70°	602.4	592.5	570.1	552.9	543.2
72.5°	508.6	498.7	486.3	469.1	461.7
75°	414.6	409.9	397.3	382.7	387.7
77.5°	330.8	320.8	315.8	308.5	301.2
80°	246.9	244.4	239.4	232.0	227.0
82.5°	167.9	167.9	165.5	155.6	155.6
85°	101.1	98.8	96.4	88.8	86.4
87.5°	44.5	39.6	34.6	27.2	24.6
90°	2.5	30.3	50.5	63.4	68.2
92.5°	63.4	53.3	60.7	65.9	68.2
95°	164.5	80.9	98.6	111.5	108.9
97.5°	296.1	88.7	128.9	136.8	139.2
100°	448.3	101.3	144.3	164.5	169.6
102.5°	615.1	610.3	149.4	177.1	184.9
105°	769.6	845.7	154.6	182.2	192.5
107.5°	949.5	1012.5	159.7	187.3	197.5
110°	1121.7	1174.6	443.2	190.0	199.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1283.8	1329.1	1286.1	194.8	202.6
115°	1455.7	1498.7	1562.2	389.9	207.7
117.5°	1605.2	1655.7	1699.0	1336.7	673.4
120°	1772.3	1810.2	1855.9	1886.2	1544.4
122.5°	1913.9	1954.5	2005.3	2020.3	2023.1
125°	2058.2	2091.3	2139.4	2157.1	2164.6
127.5°	2189.9	2225.3	2263.5	2288.8	2291.2
130°	2314.0	2354.6	2382.3	2410.3	2407.9
132.5°	2440.6	2473.7	2501.4	2524.2	2521.8
135°	2547.1	2587.6	2610.2	2635.8	2630.6
137.5°	2658.3	2688.7	2714.2	2739.5	2731.9
140°	2767.2	2787.5	2815.2	2838.1	2825.4
142.5°	2858.5	2876.2	2909.0	2929.2	2916.6
145°	2954.7	2952.0	2995.0	3012.8	3000.2
147.5°	3038.1	3030.5	3073.5	3086.1	3076.2
150°	3119.2	3101.5	3142.0	3157.1	3144.5
152.5°	3187.4	3167.3	3205.2	3220.5	3202.8
155°	3253.3	3230.7	3261.0	3276.1	3256.0
157.5°	3306.5	3286.3	3309.2	3326.9	3306.5
160°	3352.2	3336.8	3352.2	3367.2	3349.5
162.5°	3392.4	3377.4	3390.1	3407.8	3385.0
165°	3428.0	3412.9	3420.4	3438.1	3420.4
167.5°	3455.9	3440.6	3448.4	3466.1	3443.3
170°	3478.8	3463.4	3468.5	3486.3	3463.4
172.5°	3493.8	3478.8	3483.9	3501.6	3478.8
175°	3506.4	3488.7	3493.8	3511.6	3486.3
177.5°	3511.6	3493.8	3496.5	3514.2	3491.4
180°	3498.9	3498.9	3498.9	3498.9	3498.9

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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	8.40	9.17	9.45	10.22	11.64	7.97	8.74	9.01	9.79	11.21
	3H	10.05	10.74	11.11	11.80	13.24	9.58	10.27	10.64	11.33	12.77
	4H	10.64	11.29	11.71	12.35	13.80	10.16	10.82	11.23	11.88	13.33
	6H	11.03	11.64	12.11	12.70	14.16	10.56	11.16	11.64	12.23	13.69
	8H	11.14	11.71	12.22	12.79	14.25	10.66	11.23	11.74	12.32	13.77
	12H	11.18	11.73	12.27	12.80	14.28	10.70	11.25	11.79	12.32	13.80
4H	2H	8.85	9.50	9.93	10.57	12.01	8.51	9.16	9.58	10.22	11.67
	3H	10.71	11.26	11.79	12.35	13.80	10.32	10.86	11.40	11.95	13.41
	4H	11.42	11.92	12.51	13.00	14.48	11.02	11.52	12.10	12.60	14.08
	6H	11.93	12.36	13.03	13.47	14.94	11.52	11.95	12.62	13.06	14.53
	8H	12.08	12.48	13.18	13.58	15.07	11.67	12.07	12.76	13.16	14.65
	12H	12.15	12.51	13.26	13.62	15.12	11.73	12.09	12.84	13.20	14.69
8H	4H	11.61	12.01	12.71	13.11	14.60	11.25	11.65	12.35	12.75	14.24
	6H	12.24	12.57	13.36	13.71	15.20	11.88	12.21	12.99	13.35	14.83
	8H	12.46	12.75	13.59	13.87	15.38	12.09	12.38	13.22	13.50	15.01
	12H	12.59	12.84	13.72	13.96	15.50	12.20	12.46	13.33	13.57	15.12
12H	4H	11.59	11.96	12.71	13.06	14.56	11.24	11.60	12.35	12.71	14.21
	6H	12.27	12.56	13.39	13.68	15.19	11.92	12.21	13.04	13.33	14.83
	8H	12.51	12.76	13.64	13.88	15.42	12.15	12.41	13.28	13.52	15.07

END OF REPORT