

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: P926974

Luminaire Tested: DFN2DIP-HX4F0-060D110US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926974
REPORT IS A COMBINATION OF REPORTS P900950 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D110US830-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

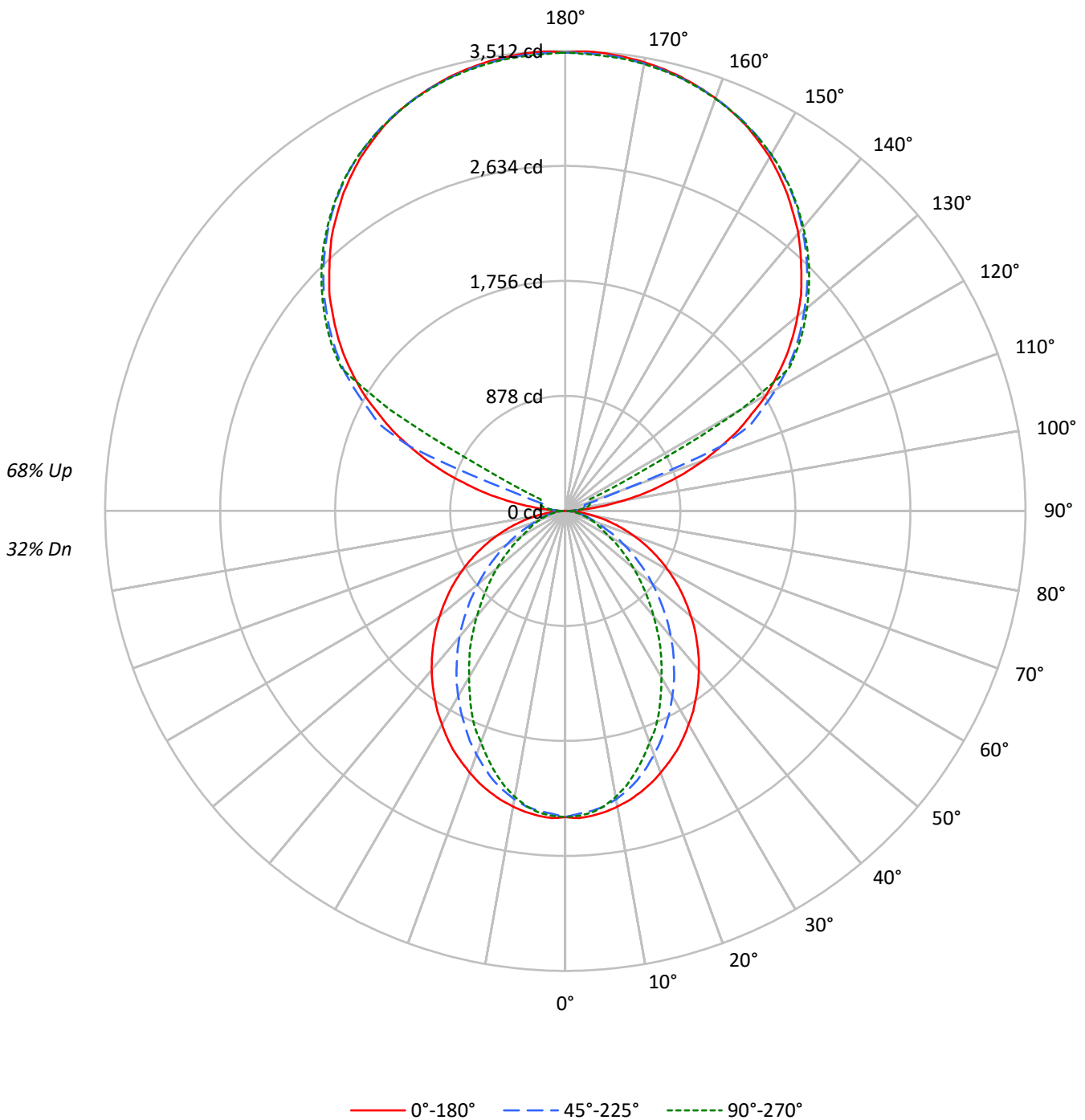
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15070.6 lumens
Efficiency: N/A
Efficacy: 106.6 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: Semi-Indirect

Input Watts (W): 141.4
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P926974
CATALOG NUMBER: DFN2DIP-HX4F0-060D110US830-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P926974

CATALOG NUMBER: DFN2DIP-HX4F0-060D110US830-RLLONL

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	103	103	103	103	93	93	93	93	73	73	73	56	56	56	40	40	40	32				32
1	94	90	86	83	85	81	78	75	65	63	61	49	48	47	35	35	34	27				27
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	31	30	29	24				24
3	78	70	63	57	70	63	57	52	50	46	43	39	36	34	28	26	25	20				20
4	72	62	54	48	64	56	49	44	45	40	37	35	32	29	25	23	22	18				18
5	66	55	47	42	59	50	43	38	40	35	32	31	28	25	23	21	19	16				16
6	61	49	42	36	55	45	38	33	36	31	28	28	25	22	21	19	17	14				14
7	56	44	37	32	51	41	34	29	33	28	24	26	22	20	19	17	15	12				12
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	15	14	11				11
9	48	37	30	25	44	34	27	23	27	23	19	22	18	16	16	14	12	10				10
10	45	34	27	22	41	31	25	21	25	21	17	20	17	14	15	13	11	9				9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1738	1738	1738
5°	1741	1710	1721
10°	1724	1677	1665
15°	1700	1622	1579
20°	1669	1546	1473
25°	1637	1460	1370
30°	1594	1372	1240
35°	1552	1278	1126
40°	1509	1180	995
45°	1459	1072	876
50°	1407	963	760
55°	1354	846	648
60°	1292	724	534
65°	1220	600	481
70°	1133	484	435
75°	1025	427	396
80°	866	358	344
85°	606	241	259

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1796 cd/sqm



TEST NUMBER: P926974

CATALOG NUMBER: DFN2DIP-HX4F0-060D110US830-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.0	1.5
10°-20°	601.3	4.0
20°-30°	844.2	5.6
30°-40°	920.3	6.1
40°-50°	845.8	5.6
50°-60°	664.3	4.4
60°-70°	432.4	2.9
70°-80°	222.6	1.5
80°-90°	63.0	0.4
90°-100°	115.4	0.8
100°-110°	430.1	2.9
110°-120°	1140.7	7.6
120°-130°	1891.9	12.6
130°-140°	2009.6	13.3
140°-150°	1867.7	12.4
150°-160°	1501.6	10.0
160°-170°	967.6	6.4
170°-180°	333.0	2.2
0°-30°	1664.6	11.0
0°-40°	2584.9	17.2
0°-60°	4095.0	27.2
0°-90°	4812.9	31.9
90°-120°	1686.2	11.2
90°-150°	7455.4	49.5
90°-180°	10258.0	68.1
0°-180°	15070.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2337	2337	2337	2337	2337	
5°	2337	2327	2299	2318	2312	222
15°	2223	2200	2128	2088	2066	626
25°	2018	1950	1810	1724	1692	928
35°	1739	1631	1445	1311	1265	1088
45°	1421	1280	1058	907	856	1098
55°	1081	916	687	561	520	966
65°	730	558	368	296	290	724
75°	389	241	169	154	152	412
85°	91	46	40	40	40	104
90°	2	30	50	63	68	14
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	



TEST NUMBER: P926974

CATALOG NUMBER: DFN2DIP-HX4F0-060D110US830-RLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2337.2	2337.2	2337.2	2337.2	2337.2
2.5°	2347.8	2337.2	2313.8	2335.1	2330.9
5°	2337.2	2326.7	2299.0	2318.2	2311.9
7.5°	2318.2	2305.5	2275.9	2284.2	2273.7
10°	2292.7	2277.9	2235.8	2229.3	2216.7
12.5°	2261.2	2242.0	2184.8	2172.3	2148.9
15°	2223.0	2199.6	2127.8	2087.6	2066.5
17.5°	2178.6	2144.7	2055.8	2009.3	1975.5
20°	2127.8	2085.4	1979.7	1926.9	1880.3
22.5°	2072.8	2024.1	1901.4	1829.6	1797.9
25°	2017.9	1950.1	1810.5	1723.9	1692.1
27.5°	1952.4	1880.3	1725.9	1626.5	1577.8
30°	1882.5	1802.0	1632.8	1525.1	1467.8
32.5°	1814.8	1717.4	1544.2	1417.1	1364.2
35°	1738.7	1630.8	1444.8	1311.4	1264.7
37.5°	1664.6	1548.2	1351.6	1205.6	1152.8
40°	1586.3	1459.6	1254.2	1104.0	1049.1
42.5°	1506.0	1370.7	1157.0	1000.4	947.7
45°	1421.4	1279.5	1057.7	907.3	856.5
47.5°	1341.1	1190.9	962.5	812.2	765.7
50°	1252.2	1102.1	869.4	723.3	679.1
52.5°	1165.3	1006.7	780.5	640.9	600.7
55°	1080.8	915.8	687.4	560.6	520.4
57.5°	994.1	824.9	605.0	486.5	452.6
60°	905.3	736.1	518.2	410.5	376.5
62.5°	818.7	649.5	444.1	342.7	325.8
65°	729.8	558.3	368.0	296.2	289.7
67.5°	645.1	473.7	296.2	260.1	253.8
70°	556.3	391.3	245.2	224.2	215.6
72.5°	471.7	315.1	205.1	188.3	184.0
75°	389.2	241.0	169.2	154.4	152.4
77.5°	306.8	171.3	133.3	124.8	120.5
80°	230.4	122.7	101.4	93.1	93.1
82.5°	160.7	82.6	69.7	65.5	65.5
85°	90.9	46.5	40.2	40.2	40.2
87.5°	33.9	16.9	16.9	14.8	14.8
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



TEST NUMBER: P926974

CATALOG NUMBER: DFN2DIP-HX4F0-060D110US830-RLONL

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



TEST NUMBER: P926974
 CATALOG NUMBER: DFN2DIP-HX4F0-060D110US830-RLONL

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	7.10	7.80	8.20	8.89	10.40	3.07	3.77	4.17	4.87	6.38
	3H	8.76	9.39	9.88	10.50	12.02	4.25	4.88	5.36	5.98	7.51
	4H	9.37	9.96	10.49	11.07	12.60	4.69	5.29	5.82	6.40	7.93
	6H	9.78	10.33	10.91	11.44	12.98	5.01	5.56	6.14	6.67	8.21
	8H	9.91	10.43	11.04	11.55	13.09	5.10	5.62	6.23	6.74	8.28
	12H	9.96	10.46	11.10	11.58	13.14	5.14	5.63	6.28	6.75	8.31
4H	2H	7.10	7.69	8.23	8.80	10.33	3.65	4.24	4.78	5.35	6.88
	3H	8.92	9.41	10.05	10.54	12.09	4.99	5.48	6.12	6.62	8.16
	4H	9.60	10.06	10.74	11.18	12.75	5.53	5.99	6.67	7.11	8.67
	6H	10.11	10.50	11.26	11.65	13.20	5.95	6.34	7.09	7.48	9.04
	8H	10.29	10.65	11.43	11.79	13.36	6.07	6.44	7.22	7.57	9.15
	12H	10.38	10.71	11.54	11.85	13.43	6.13	6.46	7.29	7.61	9.19
8H	4H	9.56	9.93	10.71	11.06	12.63	5.80	6.17	6.95	7.30	8.88
	6H	10.13	10.43	11.29	11.60	13.17	6.32	6.62	7.48	7.80	9.37
	8H	10.34	10.60	11.51	11.76	13.35	6.51	6.77	7.68	7.93	9.52
	12H	10.48	10.71	11.65	11.86	13.48	6.63	6.86	7.80	8.01	9.63
12H	4H	9.51	9.84	10.67	10.99	12.56	5.80	6.13	6.96	7.28	8.86
	6H	10.10	10.36	11.27	11.52	13.11	6.37	6.63	7.54	7.79	9.38
	8H	10.32	10.55	11.49	11.70	13.32	6.58	6.81	7.75	7.96	9.58