

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: P927047

Luminaire Tested: DFN2DIP-HX4F0-080D120US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927047
REPORT IS A COMBINATION OF REPORTS P899451 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D120US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

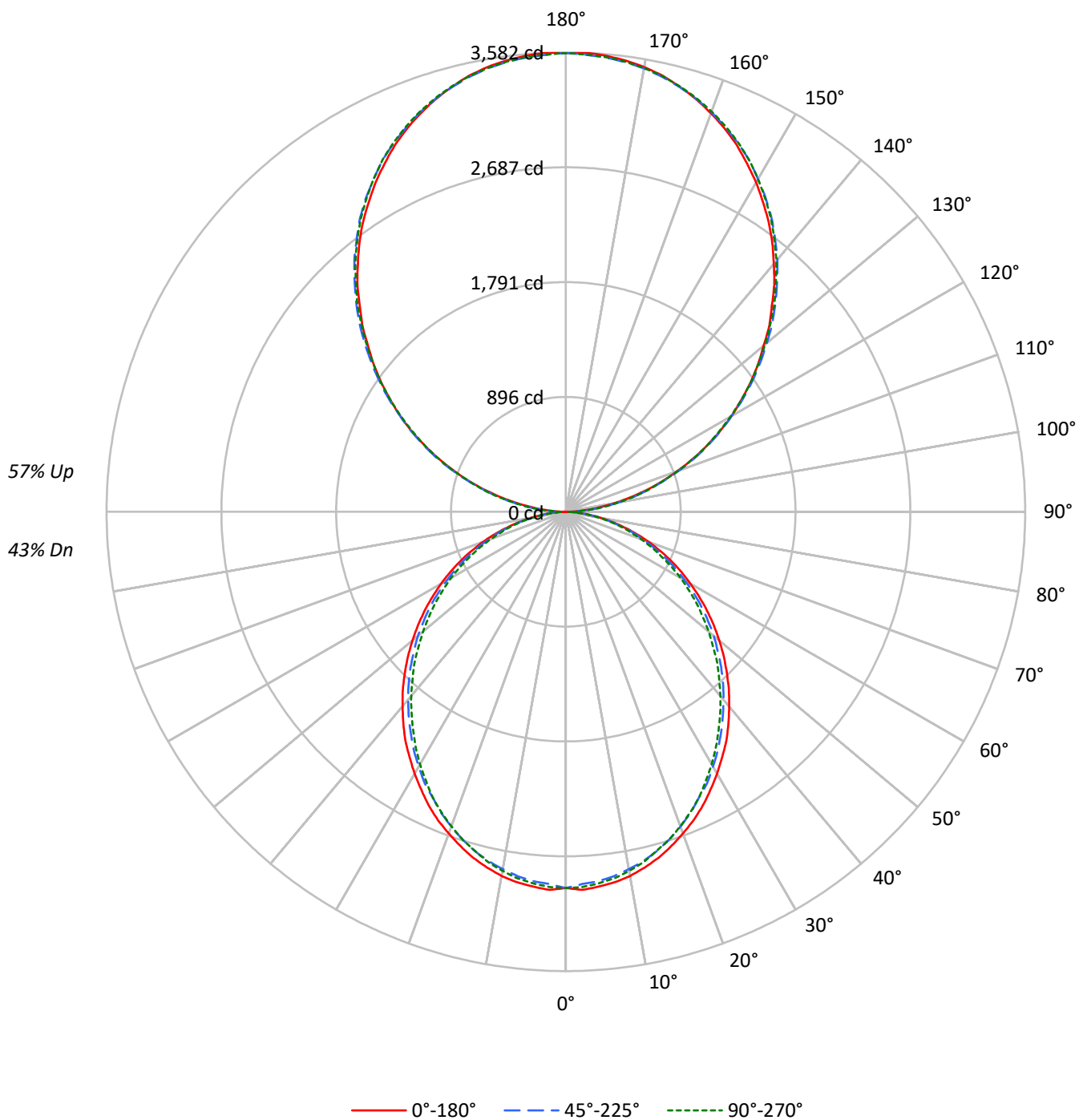
Lumens per Lamp: N/A
Luminaire Lumens: 17474.0 lumens
Efficiency: N/A
Efficacy: 101.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 172.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2181	2181	2181
5°	2185	2151	2166
10°	2168	2123	2137
15°	2136	2088	2091
20°	2093	2039	2044
25°	2050	1982	1990
30°	1997	1928	1921
35°	1946	1864	1848
40°	1884	1800	1779
45°	1822	1736	1708
50°	1753	1668	1626
55°	1682	1591	1550
60°	1602	1498	1464
65°	1514	1402	1362
70°	1402	1285	1252
75°	1247	1145	1151
80°	1062	967	958
85°	771	659	637

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2696 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	1.6
10°-20°	776.9	4.4
20°-30°	1141.8	6.5
30°-40°	1326.1	7.6
40°-50°	1324.5	7.6
50°-60°	1154.9	6.6
60°-70°	853.7	4.9
70°-80°	483.0	2.8
80°-90°	137.7	0.8
90°-100°	221.3	1.3
100°-110°	703.3	4.0
110°-120°	1203.5	6.9
120°-130°	1582.8	9.1
130°-140°	1776.6	10.2
140°-150°	1742.2	10.0
150°-160°	1461.5	8.4
160°-170°	969.2	5.5
170°-180°	338.8	1.9
0°-30°	2194.9	12.6
0°-40°	3521.0	20.1
0°-60°	6000.4	34.3
0°-90°	7474.8	42.8
90°-120°	2128.1	12.2
90°-150°	7229.8	41.4
90°-180°	9999.0	57.2
0°-180°	17474.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	278
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2457	2463	2457	1163
35°	2181	2153	2107	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	895
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	3	39	106	99	102	17
95°	157	188	193	193	188	175
105°	649	658	664	670	670	685
115°	1208	1225	1220	1216	1208	1195
125°	1757	1784	1775	1765	1762	1570
135°	2272	2306	2312	2309	2300	1756
145°	2758	2780	2797	2800	2789	1724
155°	3154	3163	3172	3188	3178	1452
165°	3431	3428	3428	3450	3435	968
175°	3570	3562	3555	3577	3559	339
180°	3577	3577	3577	3577	3577	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2933.8	2933.8	2933.8	2933.8	2933.8
2.5°	2950.9	2936.8	2905.7	2933.8	2928.4
5°	2933.8	2922.8	2891.7	2914.1	2908.7
7.5°	2914.1	2897.3	2866.2	2889.0	2883.3
10°	2883.3	2863.5	2829.7	2852.1	2843.8
12.5°	2840.8	2824.0	2790.2	2804.2	2798.6
15°	2792.9	2776.1	2739.3	2750.7	2736.6
17.5°	2733.6	2716.9	2680.0	2694.1	2680.0
20°	2668.7	2651.9	2612.4	2620.8	2609.7
22.5°	2604.0	2578.6	2541.7	2541.7	2536.1
25°	2527.7	2505.3	2457.4	2462.8	2457.4
27.5°	2443.0	2423.3	2386.7	2378.3	2364.3
30°	2358.6	2335.8	2293.7	2285.3	2273.9
32.5°	2268.2	2251.4	2206.2	2189.1	2177.8
35°	2180.8	2152.7	2107.4	2090.4	2076.3
37.5°	2082.0	2056.5	2011.4	1991.6	1977.6
40°	1980.6	1957.8	1912.6	1887.5	1876.0
42.5°	1881.8	1859.0	1814.1	1785.7	1769.0
45°	1774.6	1754.8	1712.3	1681.5	1670.2
47.5°	1670.2	1650.4	1605.2	1574.1	1557.3
50°	1560.0	1546.0	1506.4	1466.9	1452.9
52.5°	1452.9	1433.1	1396.6	1365.5	1345.7
55°	1343.0	1325.9	1292.2	1258.3	1244.2
57.5°	1232.9	1218.8	1182.0	1148.2	1136.7
60°	1122.7	1111.7	1072.1	1041.0	1032.6
62.5°	1015.5	995.8	967.7	939.6	928.2
65°	905.7	888.7	860.5	835.1	821.0
67.5°	792.8	778.5	753.3	733.6	722.2
70°	688.4	677.0	651.6	631.9	620.7
72.5°	581.2	569.9	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.0	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
90°	3.2	38.8	105.7	99.2	102.4
92.5°	66.8	90.6	93.8	97.1	97.1
95°	157.4	187.7	193.0	193.0	187.7
97.5°	262.0	290.1	302.0	302.0	302.0
100°	382.8	407.6	416.2	416.2	413.0
102.5°	510.1	528.4	540.2	543.5	540.2
105°	649.2	657.8	664.3	669.6	669.6
107.5°	787.2	800.2	800.2	802.3	787.2
110°	920.9	938.2	938.2	938.2	929.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1065.4	1083.8	1080.5	1071.9	1065.4
115°	1207.7	1225.1	1219.6	1216.4	1207.7
117.5°	1349.0	1372.8	1357.7	1349.0	1340.4
120°	1491.4	1515.1	1491.4	1491.4	1481.7
122.5°	1620.8	1651.0	1635.9	1627.2	1620.8
125°	1756.6	1783.6	1775.0	1765.3	1762.0
127.5°	1889.3	1922.7	1910.8	1897.9	1889.3
130°	2013.3	2052.1	2046.7	2040.2	2028.4
132.5°	2152.4	2182.6	2184.7	2169.6	2161.1
135°	2272.1	2305.5	2312.0	2308.7	2300.2
137.5°	2405.8	2432.8	2438.2	2436.0	2423.1
140°	2523.4	2550.3	2565.4	2565.4	2553.5
142.5°	2644.2	2671.1	2679.7	2682.9	2671.1
145°	2758.4	2780.0	2797.2	2800.5	2788.7
147.5°	2860.9	2887.8	2900.8	2906.2	2894.3
150°	2966.6	2984.9	2996.8	3006.5	2996.8
152.5°	3060.4	3078.7	3093.9	3105.7	3093.9
155°	3154.2	3162.8	3172.5	3187.6	3177.9
157.5°	3235.1	3241.5	3246.9	3268.5	3253.4
160°	3307.3	3313.8	3317.0	3335.4	3322.4
162.5°	3374.2	3374.2	3377.4	3397.9	3382.8
165°	3431.4	3428.2	3428.2	3449.6	3434.6
167.5°	3483.1	3473.4	3473.4	3495.0	3479.9
170°	3521.9	3513.3	3510.1	3531.6	3513.3
172.5°	3548.9	3540.2	3537.0	3558.6	3540.2
175°	3570.5	3561.8	3555.4	3576.9	3558.6
177.5°	3582.3	3573.7	3567.2	3585.6	3567.2
180°	3576.9	3576.9	3576.9	3576.9	3576.9

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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	9.27	10.07	10.29	11.10	12.47	8.84	9.64	9.86	10.67	12.04
	3H	10.93	11.65	11.96	12.68	14.07	10.46	11.17	11.48	12.21	13.60
	4H	11.52	12.20	12.56	13.23	14.63	11.04	11.72	12.08	12.76	14.16
	6H	11.91	12.54	12.96	13.58	14.99	11.44	12.06	12.49	13.10	14.52
	8H	12.02	12.61	13.07	13.67	15.08	11.54	12.14	12.60	13.20	14.60
	12H	12.06	12.63	13.12	13.68	15.11	11.58	12.15	12.64	13.20	14.63
4H	2H	9.73	10.41	10.77	11.45	12.84	9.38	10.06	10.43	11.10	12.50
	3H	11.59	12.16	12.64	13.22	14.63	11.20	11.76	12.25	12.83	14.24
	4H	12.30	12.82	13.36	13.88	15.31	11.90	12.42	12.96	13.47	14.91
	6H	12.82	13.26	13.88	14.34	15.77	12.41	12.85	13.48	13.93	15.36
	8H	12.96	13.38	14.03	14.45	15.90	12.55	12.97	13.62	14.04	15.48
	12H	13.03	13.41	14.12	14.50	15.95	12.61	12.99	13.70	14.08	15.52
8H	4H	12.50	12.91	13.57	13.98	15.43	12.13	12.55	13.20	13.62	15.07
	6H	13.13	13.47	14.22	14.58	16.02	12.76	13.11	13.86	14.22	15.66
	8H	13.35	13.65	14.45	14.75	16.21	12.98	13.28	14.08	14.38	15.84
	12H	13.48	13.74	14.58	14.83	16.33	13.09	13.36	14.19	14.45	15.95
12H	4H	12.48	12.86	13.57	13.94	15.39	12.13	12.50	13.21	13.59	15.04
	6H	13.16	13.46	14.25	14.55	16.02	12.80	13.11	13.90	14.20	15.66
	8H	13.40	13.66	14.50	14.75	16.25	13.04	13.30	14.14	14.40	15.90