

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: P927358

Luminaire Tested: DFN2DIP-HX4F0-080D080US835-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927358
REPORT IS A COMBINATION OF REPORTS P900900 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D080US835-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

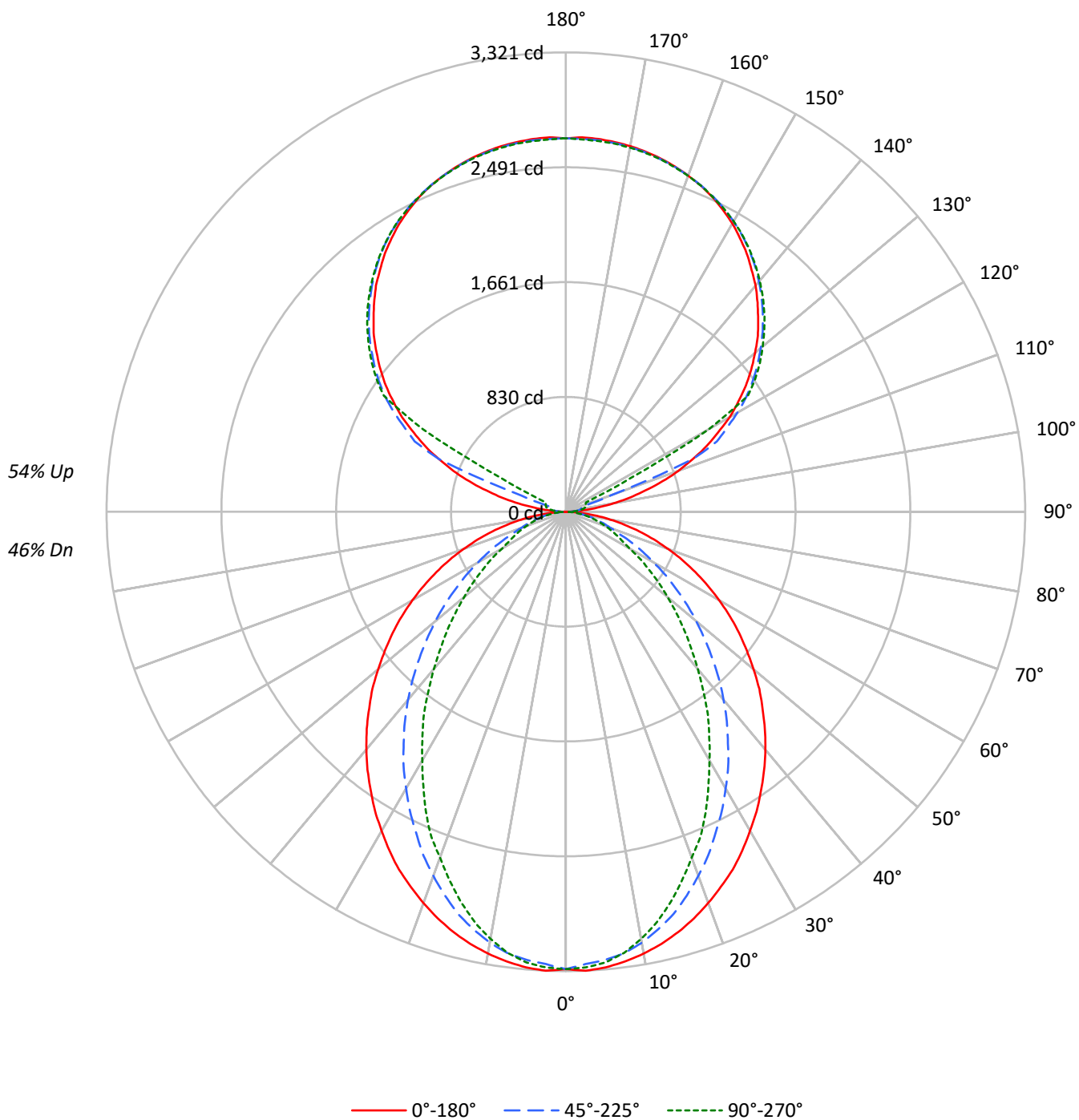
Lumens per Lamp: N/A
Luminaire Lumens: 14720.0 lumens
Efficiency: N/A
Efficacy: 109.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135
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	106	106	106	106		98	98	98	98		81	81	81		66	66	66		53	53	53
1	97	93	90	86		89	86	83	80		72	70	68		59	58	56		47	46	45
2	89	82	76	71		82	76	70	66		63	60	57		52	50	48		42	40	39
3	81	72	65	60		75	67	61	56		56	52	48		47	43	41		38	35	34
4	75	64	57	51		68	60	53	48		50	45	41		42	38	35		34	31	29
5	69	58	50	44		63	53	46	41		45	40	36		38	34	31		31	28	26
6	63	52	44	38		58	48	41	36		41	36	32		34	30	27		28	25	23
7	59	47	39	34		54	44	37	32		37	32	28		31	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	22		27	23	20		22	19	17
10	48	36	29	24		44	33	27	23		29	24	20		25	21	18		20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2459	2459	2459
5°	2463	2420	2435
10°	2438	2373	2356
15°	2405	2294	2234
20°	2361	2186	2083
25°	2316	2065	1938
30°	2255	1941	1754
35°	2195	1808	1593
40°	2135	1670	1407
45°	2064	1517	1239
50°	1991	1362	1075
55°	1915	1197	917
60°	1827	1024	755
65°	1726	848	680
70°	1603	684	616
75°	1449	604	560
80°	1226	507	486
85°	857	340	366

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2064 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	309.9	2.1
10°-20°	850.7	5.8
20°-30°	1194.3	8.1
30°-40°	1301.9	8.8
40°-50°	1196.6	8.1
50°-60°	939.7	6.4
60°-70°	611.7	4.2
70°-80°	314.9	2.1
80°-90°	85.1	0.6
90°-100°	89.0	0.6
100°-110°	331.9	2.3
110°-120°	880.2	6.0
120°-130°	1459.9	9.9
130°-140°	1550.7	10.5
140°-150°	1441.2	9.8
150°-160°	1158.7	7.9
160°-170°	746.6	5.1
170°-180°	257.0	1.7
0°-30°	2354.9	16.0
0°-40°	3656.8	24.8
0°-60°	5793.1	39.4
0°-90°	6804.8	46.2
90°-120°	1301.1	8.8
90°-150°	5752.9	39.1
90°-180°	7915.0	53.8
0°-180°	14720.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3306	3306	3306	3306	3306	
5°	3306	3292	3252	3279	3270	314
15°	3145	3112	3010	2953	2924	886
25°	2855	2759	2561	2439	2394	1313
35°	2460	2307	2044	1855	1789	1540
45°	2011	1810	1496	1284	1212	1553
55°	1529	1296	972	793	736	1366
65°	1032	790	521	419	410	1024
75°	550	341	239	218	216	582
85°	129	66	57	57	57	148
90°	2	23	39	49	53	14
95°	127	62	76	86	84	150
105°	594	653	119	141	148	635
115°	1123	1156	1205	301	160	1106
125°	1588	1614	1651	1664	1670	1416
135°	1965	1997	2014	2034	2030	1518
145°	2280	2278	2311	2325	2315	1426
155°	2510	2493	2516	2528	2512	1157
165°	2645	2634	2639	2653	2639	747
175°	2706	2692	2696	2710	2690	258
180°	2700	2700	2700	2700	2700	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3306.4	3306.4	3306.4	3306.4	3306.4
2.5°	3321.3	3306.4	3273.4	3303.5	3297.5
5°	3306.4	3291.5	3252.4	3279.4	3270.5
7.5°	3279.4	3261.6	3219.7	3231.5	3216.5
10°	3243.5	3222.6	3162.9	3153.7	3135.9
12.5°	3198.8	3171.8	3090.8	3073.0	3040.0
15°	3144.8	3111.8	3010.2	2953.4	2923.5
17.5°	3081.9	3034.0	2908.3	2842.6	2794.6
20°	3010.2	2950.2	2800.7	2726.1	2660.0
22.5°	2932.4	2863.5	2689.9	2588.3	2543.5
25°	2854.6	2758.8	2561.3	2438.8	2393.7
27.5°	2761.9	2660.0	2441.6	2301.0	2232.1
30°	2663.2	2549.2	2309.9	2157.5	2076.5
32.5°	2567.3	2429.6	2184.5	2004.8	1929.9
35°	2459.7	2307.0	2043.8	1855.3	1789.2
37.5°	2354.9	2190.2	1912.1	1705.4	1630.8
40°	2244.2	2064.8	1774.3	1561.9	1484.1
42.5°	2130.5	1939.1	1636.8	1415.3	1340.6
45°	2010.8	1810.2	1496.2	1283.5	1211.8
47.5°	1897.2	1684.8	1361.6	1148.9	1083.2
50°	1771.4	1559.1	1229.9	1023.2	960.6
52.5°	1648.6	1424.1	1104.1	906.7	849.9
55°	1528.9	1295.6	972.4	793.0	736.2
57.5°	1406.4	1167.0	855.9	688.3	640.3
60°	1280.6	1041.3	733.0	580.6	532.7
62.5°	1158.1	918.7	628.3	484.8	461.0
65°	1032.4	789.8	520.6	419.1	409.8
67.5°	912.7	670.2	419.1	367.9	359.1
70°	787.0	553.7	347.0	317.1	305.1
72.5°	667.3	445.7	290.2	266.4	260.3
75°	550.5	341.0	239.4	218.4	215.6
77.5°	434.0	242.2	188.6	176.5	170.5
80°	326.0	173.7	143.5	131.7	131.7
82.5°	227.3	116.8	98.7	92.7	92.7
85°	128.6	65.7	56.8	56.8	56.8
87.5°	47.9	23.8	23.8	21.0	21.0
90°	1.9	23.4	39.0	48.9	52.7
92.5°	48.9	41.1	46.9	50.8	52.7
95°	126.9	62.4	76.1	86.1	84.0
97.5°	228.5	68.4	99.5	105.6	107.4
100°	345.9	78.2	111.4	126.9	130.8
102.5°	474.7	470.9	115.3	136.6	142.7
105°	593.9	652.6	119.2	140.6	148.5
107.5°	732.6	781.3	123.2	144.5	152.4
110°	865.6	906.4	342.0	146.6	154.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	990.6	1025.6	992.5	150.3	156.4
115°	1123.3	1156.5	1205.4	300.9	160.3
117.5°	1238.6	1277.6	1311.0	1031.4	519.7
120°	1367.6	1396.8	1432.1	1455.5	1191.7
122.5°	1476.8	1508.2	1547.4	1559.0	1561.1
125°	1588.2	1613.7	1650.8	1664.5	1670.3
127.5°	1689.8	1717.2	1746.7	1766.1	1768.0
130°	1785.6	1816.9	1838.3	1859.9	1858.0
132.5°	1883.3	1908.8	1930.2	1947.8	1945.9
135°	1965.4	1996.7	2014.1	2033.9	2029.9
137.5°	2051.3	2074.7	2094.4	2113.9	2108.1
140°	2135.2	2151.0	2172.4	2190.0	2180.2
142.5°	2205.8	2219.4	2244.7	2260.3	2250.5
145°	2280.0	2277.9	2311.1	2324.8	2315.0
147.5°	2344.3	2338.5	2371.6	2381.4	2373.7
150°	2406.9	2393.2	2424.5	2436.1	2426.4
152.5°	2459.6	2444.0	2473.2	2485.1	2471.4
155°	2510.4	2493.0	2516.4	2528.0	2512.5
157.5°	2551.4	2535.9	2553.5	2567.2	2551.4
160°	2586.7	2574.9	2586.7	2598.3	2584.6
162.5°	2617.8	2606.2	2615.9	2629.6	2612.0
165°	2645.2	2633.6	2639.4	2653.0	2639.4
167.5°	2666.7	2654.9	2660.9	2674.6	2657.0
170°	2684.4	2672.5	2676.5	2690.2	2672.5
172.5°	2696.0	2684.4	2688.3	2702.0	2684.4
175°	2705.7	2692.0	2696.0	2709.6	2690.2
177.5°	2709.6	2696.0	2698.0	2711.7	2694.1
180°	2699.9	2699.9	2699.9	2699.9	2699.9

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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	9.91	10.71	10.91	11.71	13.04	5.88	6.68	6.88	7.69	9.01
	3H	11.59	12.30	12.59	13.31	14.66	7.07	7.79	8.08	8.80	10.15
	4H	12.19	12.87	13.21	13.89	15.24	7.52	8.20	8.54	9.21	10.57
	6H	12.62	13.24	13.64	14.26	15.62	7.84	8.47	8.87	9.48	10.85
	8H	12.74	13.33	13.78	14.37	15.73	7.93	8.53	8.97	9.56	10.92
	12H	12.80	13.37	13.84	14.39	15.78	7.98	8.54	9.02	9.57	10.96
4H	2H	9.93	10.60	10.95	11.62	12.97	6.48	7.15	7.50	8.17	9.52
	3H	11.75	12.32	12.79	13.36	14.73	7.82	8.39	8.86	9.43	10.80
	4H	12.44	12.96	13.48	13.99	15.39	8.37	8.89	9.41	9.92	11.31
	6H	12.96	13.40	14.01	14.46	15.85	8.79	9.23	9.84	10.29	11.68
	8H	13.13	13.55	14.19	14.60	16.00	8.92	9.33	9.97	10.39	11.79
	12H	13.23	13.60	14.30	14.67	16.07	8.99	9.36	10.06	10.42	11.83
8H	4H	12.41	12.82	13.46	13.87	15.28	8.65	9.06	9.70	10.12	11.52
	6H	12.98	13.32	14.05	14.41	15.81	9.17	9.51	10.25	10.60	12.00
	8H	13.19	13.49	14.28	14.57	15.99	9.36	9.66	10.45	10.74	12.16
	12H	13.33	13.60	14.42	14.67	16.13	9.48	9.75	10.57	10.82	12.28
12H	4H	12.36	12.73	13.43	13.80	15.21	8.66	9.03	9.72	10.09	11.50
	6H	12.95	13.25	14.03	14.33	15.75	9.22	9.52	10.30	10.60	12.02
	8H	13.17	13.44	14.26	14.51	15.97	9.43	9.69	10.52	10.77	12.23