

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: P921867

Luminaire Tested: DFN2DIP-HX4F0-080D100US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921867
REPORT IS A COMBINATION OF REPORTS P899416 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D100US940-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

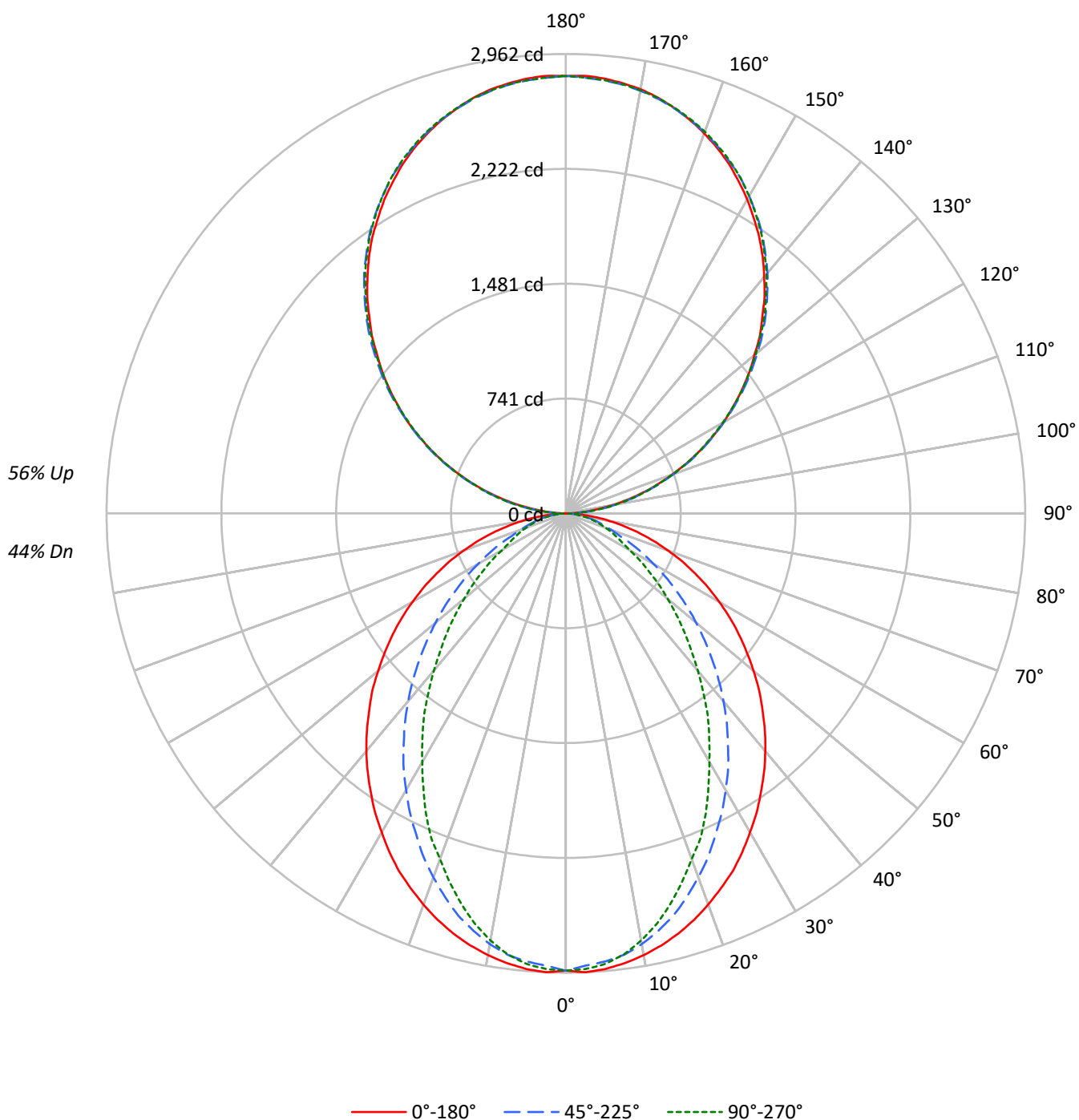
Lumens per Lamp: N/A
Luminaire Lumens: 13955.3 lumens
Efficiency: N/A
Efficacy: 103.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 134.4
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					0
RW	70	50	30	10	70	50	30	10	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	64	64	64	50	50	50	44		
1	97	93	89	86	88	85	82	79	70	68	66	57	56	54	45	44	43	37		
2	88	81	75	71	81	75	70	65	62	59	55	51	48	46	40	38	37	32		
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32	28		
4	74	64	56	50	68	59	52	47	49	44	40	41	37	34	32	30	28	24		
5	68	57	49	43	62	53	46	41	44	39	35	37	33	30	29	27	25	21		
6	63	51	43	38	57	47	41	35	40	35	31	33	29	26	27	24	22	19		
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	25	22	20	17		
8	54	42	35	30	50	39	32	28	33	28	24	28	24	21	23	20	18	15		
9	50	39	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16	14		
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2192	2192	2192
5°	2196	2158	2171
10°	2174	2116	2101
15°	2145	2046	1992
20°	2105	1950	1858
25°	2065	1842	1728
30°	2011	1731	1564
35°	1957	1612	1420
40°	1903	1489	1255
45°	1841	1353	1105
50°	1775	1215	959
55°	1708	1067	818
60°	1629	913	673
65°	1539	756	606
70°	1430	610	549
75°	1292	538	500
80°	1093	452	433
85°	765	303	326

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2127 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.3	2.0
10°-20°	758.6	5.4
20°-30°	1065.0	7.6
30°-40°	1160.9	8.3
40°-50°	1067.0	7.6
50°-60°	838.0	6.0
60°-70°	545.4	3.9
70°-80°	280.8	2.0
80°-90°	79.7	0.6
90°-100°	174.5	1.3
100°-110°	554.5	4.0
110°-120°	948.9	6.8
120°-130°	1247.9	8.9
130°-140°	1400.8	10.0
140°-150°	1373.6	9.8
150°-160°	1152.3	8.3
160°-170°	764.1	5.5
170°-180°	267.1	1.9
0°-30°	2099.9	15.0
0°-40°	3260.8	23.4
0°-60°	5165.8	37.0
0°-90°	6071.7	43.5
90°-120°	1677.9	12.0
90°-150°	5700.1	40.8
90°-180°	7884.0	56.5
0°-180°	13955.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2948	2948	2948	2948	2948	
5°	2948	2935	2900	2924	2916	280
15°	2804	2775	2684	2634	2607	790
25°	2546	2460	2284	2175	2134	1171
35°	2193	2057	1822	1654	1595	1373
45°	1793	1614	1334	1144	1081	1385
55°	1363	1155	867	707	656	1218
65°	921	704	464	374	365	913
75°	491	304	214	195	192	519
85°	115	59	51	51	51	132
90°	3	31	83	78	81	14
95°	124	148	152	152	148	138
105°	512	519	524	528	528	540
115°	952	966	962	959	952	942
125°	1385	1406	1400	1392	1389	1238
135°	1791	1818	1823	1820	1814	1385
145°	2175	2192	2206	2208	2199	1359
155°	2487	2494	2501	2513	2506	1145
165°	2705	2703	2703	2720	2708	763
175°	2815	2808	2803	2820	2806	267
180°	2820	2820	2820	2820	2820	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2948.4	2948.4	2948.4	2948.4	2948.4
2.5°	2961.6	2948.4	2918.9	2945.8	2940.4
5°	2948.4	2935.1	2900.2	2924.3	2916.3
7.5°	2924.3	2908.4	2871.0	2881.6	2868.2
10°	2892.3	2873.6	2820.4	2812.2	2796.3
12.5°	2852.4	2828.3	2756.1	2740.2	2710.8
15°	2804.3	2774.8	2684.2	2633.6	2606.9
17.5°	2748.2	2705.4	2593.4	2534.8	2492.0
20°	2684.2	2630.7	2497.4	2430.9	2371.9
22.5°	2614.9	2553.4	2398.6	2308.0	2268.1
25°	2545.5	2460.1	2283.9	2174.7	2134.5
27.5°	2462.8	2371.9	2177.2	2051.8	1990.4
30°	2374.8	2273.1	2059.8	1923.9	1851.6
32.5°	2289.3	2166.5	1947.9	1787.7	1720.9
35°	2193.3	2057.2	1822.5	1654.4	1595.4
37.5°	2099.9	1953.0	1705.0	1520.7	1454.2
40°	2001.2	1841.2	1582.2	1392.8	1323.4
42.5°	1899.8	1729.1	1459.6	1262.0	1195.4
45°	1793.1	1614.2	1334.2	1144.5	1080.6
47.5°	1691.8	1502.4	1214.2	1024.5	965.9
50°	1579.6	1390.3	1096.7	912.4	856.6
52.5°	1470.1	1269.9	984.5	808.5	757.9
55°	1363.3	1155.3	867.1	707.1	656.5
57.5°	1254.1	1040.6	763.2	613.8	571.0
60°	1141.9	928.5	653.6	517.7	475.0
62.5°	1032.7	819.2	560.3	432.3	411.1
65°	920.6	704.3	464.2	373.7	365.4
67.5°	813.9	597.6	373.7	328.1	320.2
70°	701.8	493.7	309.4	282.8	272.1
72.5°	595.0	397.4	258.8	237.6	232.1
75°	490.9	304.1	213.5	194.7	192.3
77.5°	387.0	216.0	168.2	157.4	152.0
80°	290.7	154.9	128.0	117.4	117.4
82.5°	202.7	104.2	88.0	82.7	82.7
85°	114.7	58.6	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	2.6	30.6	83.3	78.2	80.8
92.5°	52.7	71.4	74.0	76.5	76.5
95°	124.1	147.9	152.2	152.2	147.9
97.5°	206.6	228.7	238.1	238.1	238.1
100°	301.8	321.4	328.1	328.1	325.7
102.5°	402.2	416.6	426.0	428.5	426.0
105°	511.8	518.6	523.7	528.0	528.0
107.5°	620.6	630.9	630.9	632.6	620.6
110°	726.1	739.7	739.7	739.7	732.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	840.0	854.4	851.9	845.1	840.0
115°	952.3	965.8	961.6	959.0	952.3
117.5°	1063.6	1082.4	1070.4	1063.6	1056.8
120°	1175.8	1194.5	1175.8	1175.8	1168.2
122.5°	1277.8	1301.6	1289.8	1283.0	1277.8
125°	1385.0	1406.2	1399.5	1391.8	1389.3
127.5°	1489.6	1515.9	1506.5	1496.4	1489.6
130°	1587.3	1617.9	1613.7	1608.6	1599.3
132.5°	1697.0	1720.8	1722.5	1710.7	1703.8
135°	1791.4	1817.8	1822.8	1820.3	1813.5
137.5°	1896.8	1918.1	1922.3	1920.7	1910.4
140°	1989.5	2010.7	2022.7	2022.7	2013.3
142.5°	2084.7	2106.0	2112.7	2115.3	2106.0
145°	2174.8	2191.8	2205.5	2208.0	2198.6
147.5°	2255.6	2276.9	2287.1	2291.3	2282.0
150°	2339.0	2353.4	2362.8	2370.3	2362.8
152.5°	2412.9	2427.3	2439.3	2448.6	2439.3
155°	2486.9	2493.7	2501.3	2513.2	2505.5
157.5°	2550.6	2555.7	2560.0	2577.0	2565.1
160°	2607.6	2612.7	2615.2	2629.7	2619.5
162.5°	2660.3	2660.3	2662.8	2679.0	2667.1
165°	2705.4	2702.8	2702.8	2719.8	2707.9
167.5°	2746.2	2738.5	2738.5	2755.6	2743.6
170°	2776.8	2770.0	2767.4	2784.5	2770.0
172.5°	2798.0	2791.2	2788.6	2805.7	2791.2
175°	2815.0	2808.3	2803.2	2820.1	2805.7
177.5°	2824.4	2817.6	2812.5	2826.9	2812.5
180°	2820.1	2820.1	2820.1	2820.1	2820.1

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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	9.24	10.02	10.25	11.04	12.40	5.21	5.99	6.23	7.01	8.37
	3H	10.91	11.61	11.94	12.64	14.02	6.40	7.09	7.42	8.12	9.51
	4H	11.52	12.18	12.56	13.21	14.60	6.84	7.50	7.88	8.54	9.93
	6H	11.94	12.54	12.99	13.58	14.98	7.16	7.77	8.21	8.81	10.21
	8H	12.06	12.64	13.12	13.69	15.09	7.25	7.83	8.31	8.89	10.28
	12H	12.12	12.67	13.18	13.72	15.14	7.30	7.85	8.36	8.89	10.32
4H	2H	9.25	9.91	10.29	10.94	12.33	5.80	6.46	6.84	7.49	8.88
	3H	11.07	11.62	12.13	12.68	14.09	7.15	7.69	8.20	8.76	10.16
	4H	11.76	12.27	12.82	13.32	14.75	7.69	8.20	8.75	9.25	10.68
	6H	12.28	12.71	13.35	13.79	15.21	8.11	8.54	9.18	9.62	11.04
	8H	12.45	12.86	13.52	13.92	15.36	8.24	8.64	9.31	9.71	11.15
	12H	12.55	12.91	13.63	13.99	15.43	8.30	8.67	9.39	9.75	11.19
8H	4H	11.73	12.13	12.80	13.20	14.64	7.97	8.37	9.04	9.44	10.88
	6H	12.29	12.63	13.39	13.74	15.17	8.49	8.82	9.58	9.93	11.37
	8H	12.51	12.80	13.61	13.90	15.35	8.68	8.97	9.78	10.07	11.52
	12H	12.65	12.91	13.75	13.99	15.49	8.80	9.06	9.90	10.14	11.64
12H	4H	11.68	12.04	12.77	13.12	14.57	7.97	8.34	9.06	9.42	10.86
	6H	12.27	12.56	13.37	13.65	15.11	8.54	8.83	9.64	9.92	11.38
	8H	12.49	12.75	13.59	13.83	15.33	8.75	9.00	9.85	10.09	11.59