

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: P927688

Luminaire Tested: DFN2DIP-HX4F0-080D100US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927688
REPORT IS A COMBINATION OF REPORTS P900935 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D100US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

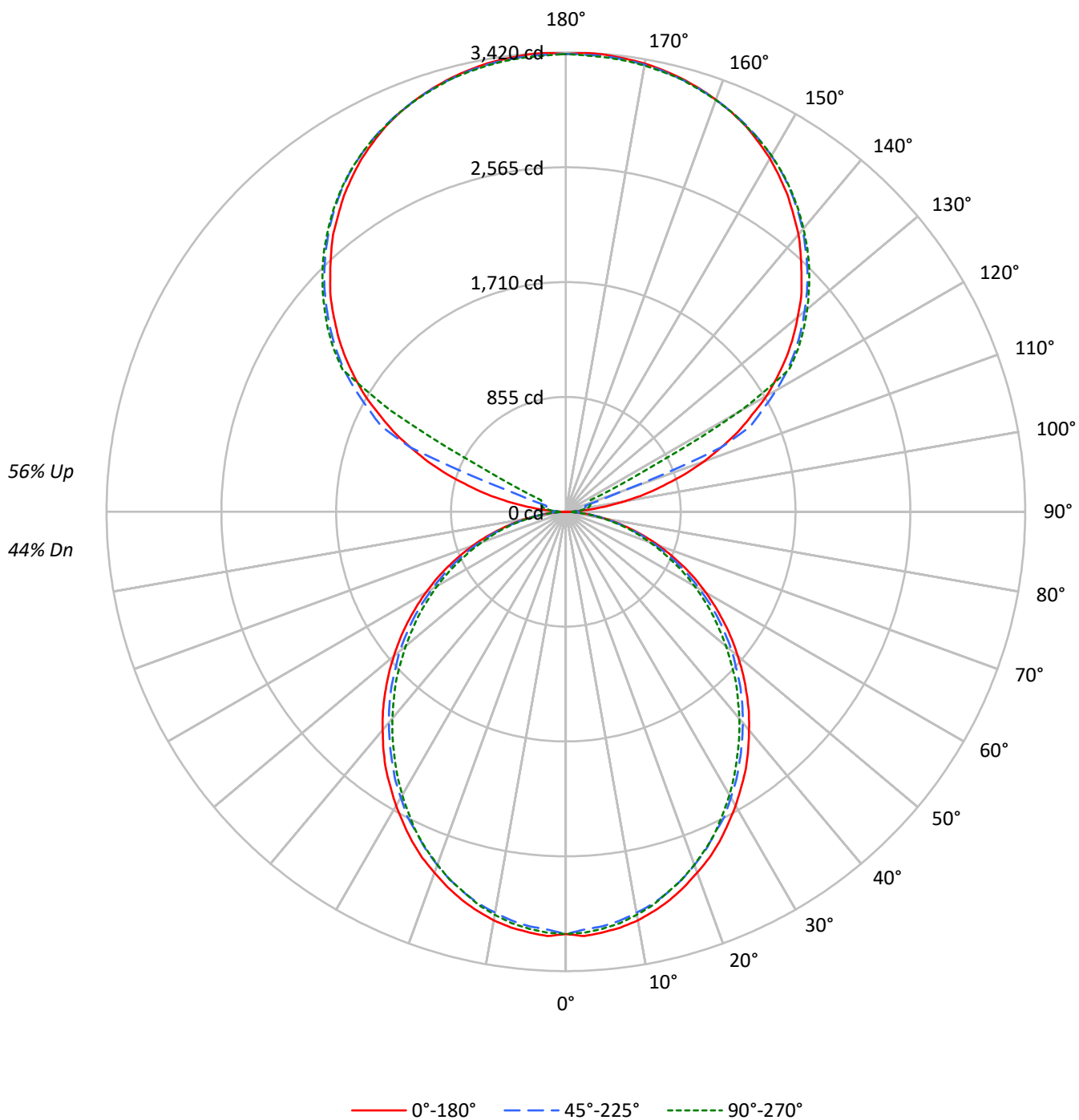
Lumens per Lamp: N/A
Luminaire Lumens: 17994.7 lumens
Efficiency: N/A
Efficacy: 117.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 152.8
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	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	31	29	27
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	20	25	20	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2337	2337	2337
5°	2341	2305	2320
10°	2322	2274	2289
15°	2288	2237	2240
20°	2242	2185	2190
25°	2197	2123	2132
30°	2139	2065	2058
35°	2085	1997	1980
40°	2018	1929	1906
45°	1952	1860	1830
50°	1879	1788	1742
55°	1802	1704	1661
60°	1716	1605	1568
65°	1622	1502	1459
70°	1503	1377	1342
75°	1336	1227	1233
80°	1137	1036	1026
85°	825	706	682

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1952 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.9	1.6
10°-20°	832.4	4.6
20°-30°	1223.3	6.8
30°-40°	1420.8	7.9
40°-50°	1419.1	7.9
50°-60°	1237.4	6.9
60°-70°	914.7	5.1
70°-80°	517.5	2.9
80°-90°	142.6	0.8
90°-100°	112.4	0.6
100°-110°	418.9	2.3
110°-120°	1111.0	6.2
120°-130°	1842.7	10.2
130°-140°	1957.4	10.9
140°-150°	1819.2	10.1
150°-160°	1462.6	8.1
160°-170°	942.4	5.2
170°-180°	324.4	1.8
0°-30°	2351.6	13.1
0°-40°	3772.4	21.0
0°-60°	6428.8	35.7
0°-90°	8003.6	44.5
90°-120°	1642.3	9.1
90°-150°	7261.7	40.4
90°-180°	9991.0	55.5
0°-180°	17994.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3143	3143	3143	3143	3143	
5°	3143	3132	3098	3122	3116	298
15°	2992	2974	2935	2947	2932	843
25°	2708	2684	2633	2639	2633	1246
35°	2336	2306	2258	2240	2225	1459
45°	1901	1880	1835	1802	1790	1467
55°	1439	1421	1384	1348	1333	1286
65°	970	952	922	895	880	959
75°	508	502	486	468	475	542
85°	124	121	118	109	106	138
90°	2	30	49	62	66	17
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2875	2917	2934	2922	1800
155°	3169	3147	3176	3191	3171	1460
165°	3339	3324	3332	3349	3332	943
175°	3415	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3143.3	3143.3	3143.3	3143.3	3143.3
2.5°	3161.6	3146.5	3113.2	3143.3	3137.5
5°	3143.3	3131.5	3098.2	3122.2	3116.4
7.5°	3122.2	3104.2	3070.9	3095.2	3089.2
10°	3089.2	3068.0	3031.7	3055.8	3046.9
12.5°	3043.6	3025.7	2989.4	3004.5	2998.4
15°	2992.3	2974.4	2934.9	2947.1	2932.1
17.5°	2928.8	2910.8	2871.4	2886.5	2871.4
20°	2859.2	2841.3	2799.0	2808.0	2796.0
22.5°	2790.0	2762.7	2723.2	2723.2	2717.2
25°	2708.2	2684.1	2632.9	2638.6	2632.9
27.5°	2617.4	2596.3	2557.1	2548.1	2533.1
30°	2527.0	2502.6	2457.4	2448.5	2436.2
32.5°	2430.2	2412.2	2363.7	2345.5	2333.3
35°	2336.5	2306.4	2257.9	2239.6	2224.6
37.5°	2230.6	2203.4	2155.0	2133.8	2118.8
40°	2122.0	2097.6	2049.2	2022.2	2010.0
42.5°	2016.2	1991.7	1943.7	1913.2	1895.3
45°	1901.4	1880.1	1834.6	1801.6	1789.5
47.5°	1789.5	1768.3	1719.8	1686.5	1668.5
50°	1671.4	1656.4	1614.0	1571.7	1556.6
52.5°	1556.6	1535.4	1496.3	1463.0	1441.8
55°	1438.9	1420.6	1384.4	1348.2	1333.0
57.5°	1320.9	1305.9	1266.4	1230.1	1217.9
60°	1202.9	1191.1	1148.6	1115.3	1106.3
62.5°	1088.1	1067.0	1036.8	1006.7	994.5
65°	970.4	952.1	921.9	894.7	879.6
67.5°	849.4	834.1	807.1	786.0	773.8
70°	737.6	725.3	698.2	677.0	665.1
72.5°	622.7	610.6	595.5	574.4	565.4
75°	507.6	501.9	486.5	468.5	474.6
77.5°	405.0	392.8	386.8	377.8	368.8
80°	302.4	299.2	293.1	284.2	278.0
82.5°	205.6	205.6	202.7	190.4	190.4
85°	123.8	120.9	118.0	108.8	105.8
87.5°	54.5	48.5	42.3	33.3	30.2
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.6	98.7	140.6	160.2	165.2
102.5°	599.1	594.5	145.5	172.5	180.0
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.5	1144.1	431.6	185.1	194.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.3	1294.6	1252.8	189.7	197.4
115°	1417.9	1459.8	1521.6	379.8	202.4
117.5°	1563.4	1612.7	1654.8	1301.9	656.0
120°	1726.3	1763.1	1807.6	1837.2	1504.3
122.5°	1864.2	1903.7	1953.2	1967.8	1970.4
125°	2004.8	2037.0	2083.8	2101.1	2108.4
127.5°	2133.0	2167.5	2204.7	2229.3	2231.7
130°	2253.9	2293.5	2320.4	2347.6	2345.3
132.5°	2377.2	2409.4	2436.3	2458.6	2456.2
135°	2480.9	2520.4	2542.4	2567.2	2562.3
137.5°	2589.2	2618.8	2643.7	2668.3	2660.9
140°	2695.2	2715.2	2742.0	2764.3	2752.0
142.5°	2784.2	2801.5	2833.4	2853.0	2840.8
145°	2877.9	2875.3	2917.2	2934.5	2922.2
147.5°	2959.0	2951.7	2993.6	3005.9	2996.3
150°	3038.1	3020.8	3060.4	3075.0	3062.7
152.5°	3104.5	3084.9	3121.9	3136.7	3119.5
155°	3168.8	3146.7	3176.3	3191.0	3171.4
157.5°	3220.6	3201.0	3223.2	3240.4	3220.6
160°	3265.1	3250.1	3265.1	3279.7	3262.5
162.5°	3304.3	3289.6	3301.9	3319.2	3297.0
165°	3338.8	3324.2	3331.5	3348.8	3331.5
167.5°	3366.1	3351.1	3358.8	3376.1	3353.7
170°	3388.3	3373.4	3378.4	3395.7	3373.4
172.5°	3402.9	3388.3	3393.3	3410.6	3388.3
175°	3415.2	3398.0	3402.9	3420.3	3395.7
177.5°	3420.3	3402.9	3405.7	3422.9	3400.6
180°	3408.0	3408.0	3408.0	3408.0	3408.0

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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	9.69	10.50	10.69	11.52	12.87	9.26	10.07	10.26	11.08	12.43
	3H	11.35	12.08	12.36	13.10	14.47	10.87	11.60	11.89	12.63	13.99
	4H	11.93	12.62	12.96	13.65	15.03	11.46	12.15	12.49	13.18	14.55
	6H	12.33	12.97	13.37	14.00	15.39	11.86	12.49	12.89	13.52	14.91
	8H	12.44	13.04	13.48	14.09	15.47	11.96	12.57	13.00	13.61	15.00
	12H	12.48	13.06	13.53	14.10	15.51	12.00	12.58	13.05	13.62	15.03
4H	2H	10.15	10.84	11.18	11.86	13.24	9.80	10.49	10.83	11.52	12.89
	3H	12.01	12.59	13.05	13.64	15.03	11.62	12.19	12.66	13.25	14.64
	4H	12.72	13.25	13.77	14.30	15.71	12.32	12.84	13.36	13.89	15.30
	6H	13.24	13.69	14.29	14.76	16.17	12.83	13.28	13.88	14.35	15.76
	8H	13.38	13.81	14.44	14.87	16.29	12.97	13.40	14.03	14.46	15.88
	12H	13.46	13.84	14.53	14.91	16.34	13.03	13.42	14.11	14.49	15.92
8H	4H	12.92	13.34	13.97	14.40	15.82	12.55	12.98	13.61	14.04	15.46
	6H	13.55	13.90	14.63	15.00	16.42	13.18	13.53	14.26	14.64	16.06
	8H	13.77	14.08	14.86	15.16	16.60	13.40	13.71	14.49	14.79	16.23
	12H	13.90	14.17	14.99	15.25	16.73	13.51	13.78	14.60	14.87	16.34
12H	4H	12.90	13.28	13.98	14.36	15.79	12.55	12.93	13.62	14.01	15.43
	6H	13.58	13.88	14.66	14.97	16.41	13.22	13.53	14.31	14.62	16.06
	8H	13.82	14.09	14.91	15.17	16.65	13.46	13.73	14.55	14.81	16.29