

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: P908245

Luminaire Tested: DFN2DIP-HX4F0-090D100US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908245
REPORT IS A COMBINATION OF REPORTS P899418 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D100US840-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

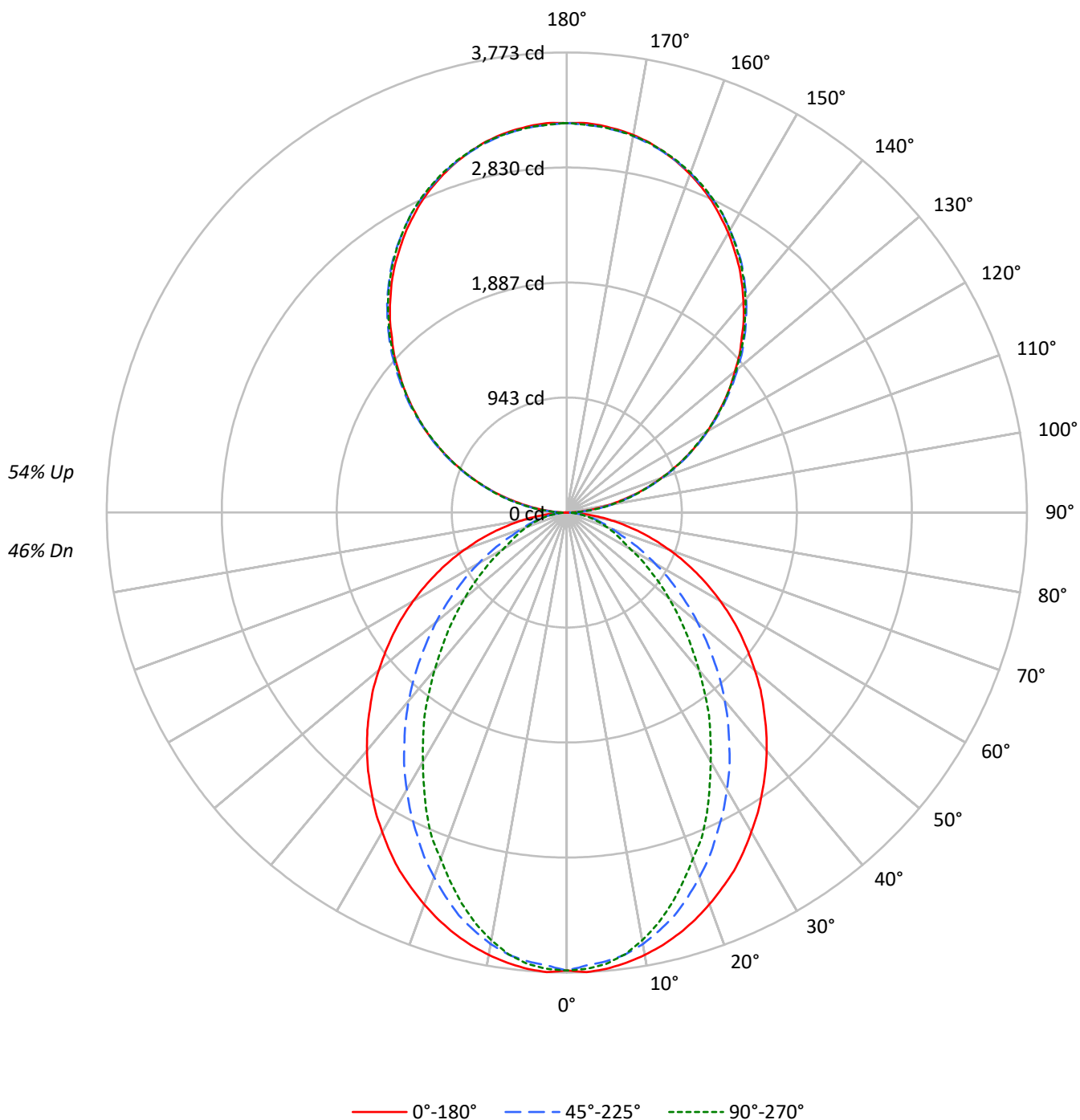
Lumens per Lamp: N/A
Luminaire Lumens: 16662.8 lumens
Efficiency: N/A
Efficacy: 113.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	98	98	98	98	81	81	81	66	66	66	53	53	53	46		
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40		
2	89	82	76	71	82	76	71	66	64	60	57	52	50	48	42	41	39	34		
3	82	72	65	60	75	67	61	56	56	52	48	47	44	41	38	36	34	30		
4	75	64	57	51	69	60	53	48	50	45	41	42	38	35	34	32	29	26		
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23		
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20		
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18		
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16		
9	51	39	32	27	47	36	30	25	31	26	23	27	23	20	22	19	17	15		
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	21	18	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2793	2793	2793
5°	2798	2749	2767
10°	2770	2695	2677
15°	2732	2607	2538
20°	2682	2484	2367
25°	2631	2347	2202
30°	2562	2206	1993
35°	2494	2054	1809
40°	2425	1897	1599
45°	2345	1723	1408
50°	2262	1548	1221
55°	2176	1360	1042
60°	2076	1163	858
65°	1961	964	772
70°	1821	778	699
75°	1646	686	636
80°	1393	576	553
85°	973	386	416

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2409 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.1	2.1
10°-20°	966.5	5.8
20°-30°	1356.9	8.1
30°-40°	1479.1	8.9
40°-50°	1359.4	8.2
50°-60°	1067.6	6.4
60°-70°	694.9	4.2
70°-80°	357.7	2.1
80°-90°	100.4	0.6
90°-100°	197.6	1.2
100°-110°	627.9	3.8
110°-120°	1074.6	6.4
120°-130°	1413.3	8.5
130°-140°	1586.4	9.5
140°-150°	1555.6	9.3
150°-160°	1304.9	7.8
160°-170°	865.4	5.2
170°-180°	302.5	1.8
0°-30°	2675.4	16.1
0°-40°	4154.5	24.9
0°-60°	6581.5	39.5
0°-90°	7734.6	46.4
90°-120°	1900.2	11.4
90°-150°	6455.4	38.7
90°-180°	8928.0	53.6
0°-180°	16662.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3756	3756	3756	3756	3756	
5°	3756	3739	3695	3726	3716	356
15°	3573	3535	3420	3355	3321	1007
25°	3243	3134	2910	2771	2720	1492
35°	2794	2621	2322	2108	2033	1749
45°	2284	2057	1700	1458	1377	1764
55°	1737	1472	1105	901	836	1552
65°	1173	897	592	476	466	1163
75°	625	387	272	248	245	661
85°	146	75	64	64	64	168
90°	3	35	94	89	92	16
95°	141	168	172	172	168	156
105°	580	587	593	598	598	612
115°	1078	1094	1089	1086	1078	1067
125°	1568	1593	1585	1576	1573	1402
135°	2029	2059	2064	2062	2054	1568
145°	2463	2482	2498	2500	2490	1539
155°	2816	2824	2833	2846	2838	1296
165°	3064	3061	3061	3080	3067	864
175°	3188	3180	3175	3194	3177	303
180°	3194	3194	3194	3194	3194	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3756.4	3756.4	3756.4	3756.4	3756.4
2.5°	3773.4	3756.4	3718.8	3753.2	3746.3
5°	3756.4	3739.4	3695.1	3725.7	3715.6
7.5°	3725.7	3705.5	3657.9	3671.3	3654.3
10°	3685.0	3661.2	3593.4	3582.9	3562.7
12.5°	3634.1	3603.5	3511.5	3491.3	3453.7
15°	3572.8	3535.3	3419.9	3355.3	3321.4
17.5°	3501.4	3447.0	3304.1	3229.4	3175.0
20°	3419.9	3351.7	3181.8	3097.1	3022.0
22.5°	3331.5	3253.3	3056.0	2940.5	2889.7
25°	3243.2	3134.2	2909.9	2770.7	2719.5
27.5°	3137.9	3022.0	2773.9	2614.1	2535.9
30°	3025.7	2896.2	2624.2	2451.1	2359.1
32.5°	2916.7	2760.2	2481.7	2277.7	2192.5
35°	2794.5	2621.0	2322.0	2107.8	2032.8
37.5°	2675.4	2488.3	2172.3	1937.5	1852.8
40°	2549.6	2345.8	2015.8	1774.5	1686.2
42.5°	2420.4	2203.0	1859.6	1607.9	1523.1
45°	2284.5	2056.6	1699.8	1458.1	1376.6
47.5°	2155.4	1914.1	1546.9	1305.3	1230.6
50°	2012.6	1771.2	1397.2	1162.5	1091.4
52.5°	1873.0	1618.0	1254.5	1030.1	965.5
55°	1737.0	1471.9	1104.7	901.0	836.4
57.5°	1597.8	1325.9	972.4	781.9	727.5
60°	1454.9	1183.0	832.8	659.6	605.2
62.5°	1315.8	1043.8	713.8	550.8	523.7
65°	1172.9	897.4	591.5	476.1	465.6
67.5°	1036.9	761.3	476.1	418.0	407.9
70°	894.1	629.0	394.3	360.3	346.6
72.5°	758.1	506.3	329.6	302.6	295.8
75°	625.4	387.4	272.0	248.1	244.9
77.5°	493.0	275.2	214.2	200.6	193.7
80°	370.4	197.3	163.0	149.7	149.7
82.5°	258.2	132.7	112.2	105.3	105.3
85°	146.0	74.6	64.5	64.5	64.5
87.5°	54.4	27.1	27.1	23.8	23.8
90°	2.9	34.6	94.3	88.6	91.5
92.5°	59.7	80.9	83.8	86.6	86.6
95°	140.6	167.5	172.4	172.4	167.5
97.5°	234.0	259.0	269.6	269.6	269.6
100°	341.8	364.0	371.6	371.6	368.8
102.5°	455.4	471.8	482.4	485.2	482.4
105°	579.7	587.3	593.1	597.9	597.9
107.5°	702.9	714.5	714.5	716.4	702.9
110°	822.3	837.7	837.7	837.7	830.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	951.3	967.7	964.8	957.0	951.3
115°	1078.4	1093.8	1089.0	1086.1	1078.4
117.5°	1204.6	1225.8	1212.2	1204.6	1196.8
120°	1331.6	1352.8	1331.6	1331.6	1323.0
122.5°	1447.1	1474.1	1460.7	1453.0	1447.1
125°	1568.5	1592.6	1584.9	1576.2	1573.4
127.5°	1687.0	1716.8	1706.2	1694.7	1687.0
130°	1797.7	1832.3	1827.6	1821.7	1811.2
132.5°	1921.9	1948.8	1950.8	1937.3	1929.6
135°	2028.7	2058.6	2064.4	2061.5	2053.8
137.5°	2148.2	2172.2	2177.1	2175.1	2163.5
140°	2253.1	2277.1	2290.7	2290.7	2280.1
142.5°	2361.0	2385.0	2392.7	2395.6	2385.0
145°	2463.0	2482.2	2497.7	2500.5	2489.9
147.5°	2554.5	2578.6	2590.1	2595.0	2584.3
150°	2648.9	2665.2	2675.8	2684.4	2675.8
152.5°	2732.6	2749.0	2762.5	2773.1	2762.5
155°	2816.4	2824.1	2832.8	2846.2	2837.5
157.5°	2888.6	2894.4	2899.2	2918.4	2905.0
160°	2953.1	2958.9	2961.7	2978.1	2966.6
162.5°	3012.8	3012.8	3015.7	3033.9	3020.5
165°	3063.8	3060.9	3060.9	3080.2	3066.8
167.5°	3110.1	3101.4	3101.4	3120.7	3107.2
170°	3144.7	3137.0	3134.1	3153.4	3137.0
172.5°	3168.8	3161.1	3158.2	3177.4	3161.1
175°	3188.0	3180.4	3174.6	3193.8	3177.4
177.5°	3198.6	3191.0	3185.1	3201.5	3185.1
180°	3193.8	3193.8	3193.8	3193.8	3193.8

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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	10.37	11.17	11.36	12.17	13.50	6.34	7.15	7.34	8.15	9.47
	3H	12.05	12.76	13.05	13.77	15.12	7.53	8.25	8.54	9.26	10.60
	4H	12.65	13.33	13.67	14.35	15.70	7.98	8.66	9.00	9.67	11.03
	6H	13.08	13.70	14.10	14.72	16.08	8.30	8.93	9.33	9.95	11.31
	8H	13.20	13.80	14.23	14.83	16.19	8.39	8.99	9.43	10.02	11.38
	12H	13.26	13.83	14.30	14.85	16.24	8.44	9.00	9.47	10.03	11.41
4H	2H	10.39	11.06	11.41	12.08	13.43	6.94	7.61	7.96	8.63	9.98
	3H	12.21	12.78	13.25	13.82	15.19	8.29	8.85	9.32	9.89	11.26
	4H	12.91	13.42	13.94	14.45	15.84	8.83	9.35	9.87	10.38	11.77
	6H	13.42	13.86	14.47	14.92	16.30	9.25	9.70	10.30	10.75	12.14
	8H	13.60	14.01	14.64	15.06	16.46	9.38	9.80	10.43	10.85	12.25
	12H	13.69	14.06	14.76	15.13	16.53	9.45	9.82	10.51	10.89	12.29
8H	4H	12.87	13.28	13.92	14.33	15.73	9.11	9.53	10.16	10.58	11.98
	6H	13.44	13.78	14.51	14.87	16.27	9.63	9.97	10.70	11.06	12.46
	8H	13.65	13.95	14.73	15.03	16.45	9.82	10.12	10.90	11.20	12.62
	12H	13.79	14.06	14.88	15.13	16.58	9.94	10.21	11.03	11.28	12.74
12H	4H	12.82	13.20	13.89	14.26	15.66	9.12	9.49	10.18	10.55	11.96
	6H	13.41	13.71	14.49	14.79	16.21	9.68	9.98	10.76	11.06	12.47
	8H	13.63	13.90	14.72	14.97	16.43	9.89	10.16	10.98	11.23	12.68