

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: P927710

Luminaire Tested: DFN2DIP-HX4F0-090D060US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927710
REPORT IS A COMBINATION OF REPORTS P900866 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D060US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

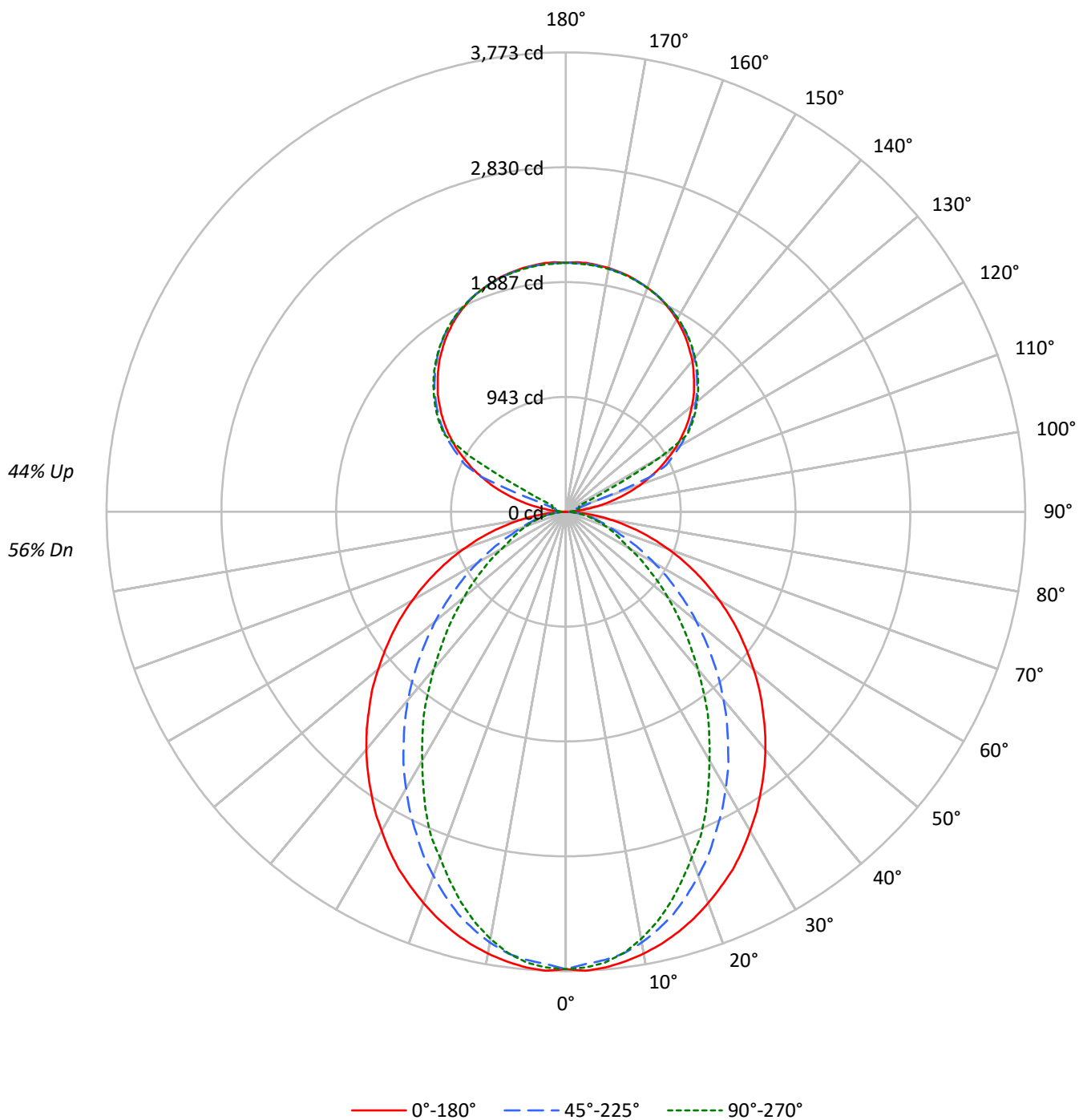
Lumens per Lamp: N/A
Luminaire Lumens: 13723.2 lumens
Efficiency: N/A
Efficacy: 103.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 132.7
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				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	56	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	50	48	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	31
6	65	54	46	40	61	50	43	38	44	39	34	39	34	31	33	30	27
7	61	49	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2793	2793	2793
5°	2798	2749	2766
10°	2770	2695	2676
15°	2732	2606	2537
20°	2682	2484	2367
25°	2631	2346	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	777	699
75°	1646	686	636
80°	1393	576	553
85°	973	386	416

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2345 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.0	2.6
10°-20°	966.4	7.0
20°-30°	1356.8	9.9
30°-40°	1479.0	10.8
40°-50°	1359.4	9.9
50°-60°	1067.6	7.8
60°-70°	694.9	5.1
70°-80°	357.7	2.6
80°-90°	94.9	0.7
90°-100°	67.4	0.5
100°-110°	251.3	1.8
110°-120°	666.6	4.9
120°-130°	1105.6	8.1
130°-140°	1174.4	8.6
140°-150°	1091.5	8.0
150°-160°	877.5	6.4
160°-170°	565.5	4.1
170°-180°	194.6	1.4
0°-30°	2675.2	19.5
0°-40°	4154.2	30.3
0°-60°	6581.1	48.0
0°-90°	7728.6	56.3
90°-120°	985.4	7.2
90°-150°	4357.0	31.7
90°-180°	5995.0	43.7
0°-180°	13723.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3756	3756	3756	3756	3756	
5°	3756	3739	3695	3726	3715	356
15°	3573	3535	3420	3355	3321	1007
25°	3243	3134	2910	2770	2719	1491
35°	2794	2621	2322	2108	2033	1749
45°	2284	2056	1700	1458	1377	1764
55°	1737	1472	1105	901	836	1552
65°	1173	897	591	476	466	1163
75°	625	387	272	248	245	661
85°	146	75	64	64	64	168
90°	1	18	30	37	40	13
95°	96	47	58	65	64	114
105°	450	494	90	106	112	481
115°	851	876	913	228	121	838
125°	1203	1222	1250	1261	1265	1073
135°	1488	1512	1525	1540	1537	1150
145°	1727	1725	1750	1761	1753	1080
155°	1901	1888	1906	1915	1903	876
165°	2003	1995	1999	2009	1999	566
175°	2049	2039	2042	2052	2037	195
180°	2045	2045	2045	2045	2045	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3756.2	3756.2	3756.2	3756.2	3756.2
2.5°	3773.1	3756.2	3718.6	3752.9	3746.1
5°	3756.2	3739.2	3694.9	3725.5	3715.4
7.5°	3725.5	3705.3	3657.7	3671.0	3654.1
10°	3684.8	3660.9	3593.2	3582.7	3562.5
12.5°	3633.9	3603.3	3511.3	3491.1	3453.5
15°	3572.6	3535.1	3419.7	3355.1	3321.2
17.5°	3501.2	3446.8	3303.9	3229.2	3174.8
20°	3419.7	3351.5	3181.6	3096.9	3021.8
22.5°	3331.3	3253.1	3055.8	2940.3	2889.5
25°	3243.0	3134.0	2909.7	2770.5	2719.3
27.5°	3137.7	3021.8	2773.7	2614.0	2535.7
30°	3025.5	2896.0	2624.1	2451.0	2359.0
32.5°	2916.5	2760.0	2481.6	2277.5	2192.4
35°	2794.3	2620.8	2321.8	2107.7	2032.6
37.5°	2675.3	2488.1	2172.2	1937.4	1852.7
40°	2549.4	2345.7	2015.7	1774.4	1686.1
42.5°	2420.3	2202.9	1859.4	1607.8	1523.0
45°	2284.4	2056.5	1699.7	1458.1	1376.6
47.5°	2155.2	1914.0	1546.8	1305.2	1230.5
50°	2012.4	1771.1	1397.2	1162.4	1091.3
52.5°	1872.9	1617.9	1254.4	1030.0	965.5
55°	1736.9	1471.8	1104.6	900.9	836.3
57.5°	1597.7	1325.8	972.3	781.9	727.5
60°	1454.8	1182.9	832.8	659.6	605.2
62.5°	1315.7	1043.7	713.7	550.7	523.7
65°	1172.8	897.3	591.4	476.0	465.6
67.5°	1036.9	761.3	476.0	418.0	407.9
70°	894.1	629.0	394.2	360.3	346.6
72.5°	758.1	506.3	329.6	302.5	295.8
75°	625.4	387.4	271.9	248.1	244.9
77.5°	493.0	275.2	214.2	200.5	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°	1.4	17.8	29.5	37.1	39.9
92.5°	37.1	31.1	35.4	38.5	39.9
95°	96.1	47.3	57.7	65.2	63.6
97.5°	173.1	51.8	75.3	80.0	81.4
100°	261.9	59.2	84.3	96.1	99.1
102.5°	359.5	356.7	87.3	103.5	108.0
105°	449.8	494.2	90.3	106.4	112.5
107.5°	554.9	591.7	93.3	109.5	115.4
110°	655.6	686.5	259.0	111.1	116.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	750.2	776.7	751.6	113.8	118.4
115°	850.8	875.9	913.0	227.9	121.4
117.5°	938.0	967.6	992.8	781.2	393.5
120°	1035.8	1057.9	1084.6	1102.3	902.6
122.5°	1118.5	1142.2	1171.9	1180.7	1182.3
125°	1202.9	1222.2	1250.2	1260.6	1265.0
127.5°	1279.8	1300.5	1322.8	1337.6	1339.0
130°	1352.3	1376.1	1392.2	1408.6	1407.2
132.5°	1426.3	1445.6	1461.8	1475.1	1473.7
135°	1488.5	1512.3	1525.4	1540.3	1537.3
137.5°	1553.5	1571.2	1586.2	1600.9	1596.6
140°	1617.1	1629.1	1645.3	1658.6	1651.2
142.5°	1670.5	1680.9	1700.1	1711.8	1704.4
145°	1726.8	1725.1	1750.3	1760.7	1753.3
147.5°	1775.4	1771.0	1796.1	1803.5	1797.7
150°	1822.9	1812.5	1836.2	1845.0	1837.6
152.5°	1862.8	1851.0	1873.1	1882.1	1871.7
155°	1901.3	1888.0	1905.8	1914.6	1902.8
157.5°	1932.4	1920.5	1933.9	1944.3	1932.4
160°	1959.0	1950.0	1959.0	1967.8	1957.5
162.5°	1982.5	1973.8	1981.1	1991.5	1978.2
165°	2003.3	1994.6	1998.9	2009.3	1998.9
167.5°	2019.6	2010.7	2015.3	2025.7	2012.2
170°	2033.0	2024.0	2027.1	2037.4	2024.0
172.5°	2041.8	2033.0	2036.0	2046.4	2033.0
175°	2049.2	2038.8	2041.8	2052.1	2037.4
177.5°	2052.1	2041.8	2043.3	2053.7	2040.4
180°	2044.7	2044.7	2044.7	2044.7	2044.7

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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	11.29	12.17	12.20	13.09	14.28	7.26	8.15	8.17	9.07	10.25
	3H	12.97	13.76	13.89	14.69	15.90	8.45	9.25	9.38	10.18	11.38
	4H	13.58	14.33	14.52	15.27	16.48	8.91	9.66	9.84	10.59	11.81
	6H	14.01	14.69	14.95	15.64	16.86	9.23	9.92	10.18	10.87	12.09
	8H	14.14	14.79	15.09	15.75	16.97	9.33	9.98	10.28	10.94	12.17
	12H	14.20	14.82	15.16	15.77	17.02	9.37	10.00	10.33	10.95	12.20
4H	2H	11.31	12.06	12.25	13.00	14.21	7.86	8.61	8.80	9.55	10.76
	3H	13.15	13.77	14.10	14.74	15.96	9.22	9.84	10.17	10.81	12.04
	4H	13.84	14.41	14.80	15.37	16.62	9.77	10.34	10.73	11.30	12.55
	6H	14.36	14.85	15.33	15.83	17.09	10.20	10.68	11.17	11.67	12.92
	8H	14.54	14.99	15.51	15.97	17.24	10.33	10.78	11.30	11.76	13.03
	12H	14.64	15.05	15.63	16.04	17.31	10.40	10.80	11.39	11.80	13.07
8H	4H	13.82	14.27	14.79	15.25	16.52	10.06	10.51	11.03	11.49	12.76
	6H	14.38	14.76	15.38	15.78	17.05	10.58	10.95	11.58	11.97	13.24
	8H	14.60	14.93	15.61	15.94	17.23	10.77	11.10	11.78	12.11	13.40
	12H	14.74	15.04	15.75	16.04	17.37	10.89	11.19	11.91	12.19	13.52
12H	4H	13.77	14.18	14.76	15.17	16.45	10.06	10.47	11.06	11.47	12.74
	6H	14.36	14.69	15.37	15.70	16.98	10.63	10.96	11.64	11.97	13.25
	8H	14.58	14.88	15.59	15.88	17.21	10.84	11.13	11.85	12.14	13.47