

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: P927612

Luminaire Tested: DFN2DIP-HX4F0-060D090US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927612
REPORT IS A COMBINATION OF REPORTS P900913 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D090US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

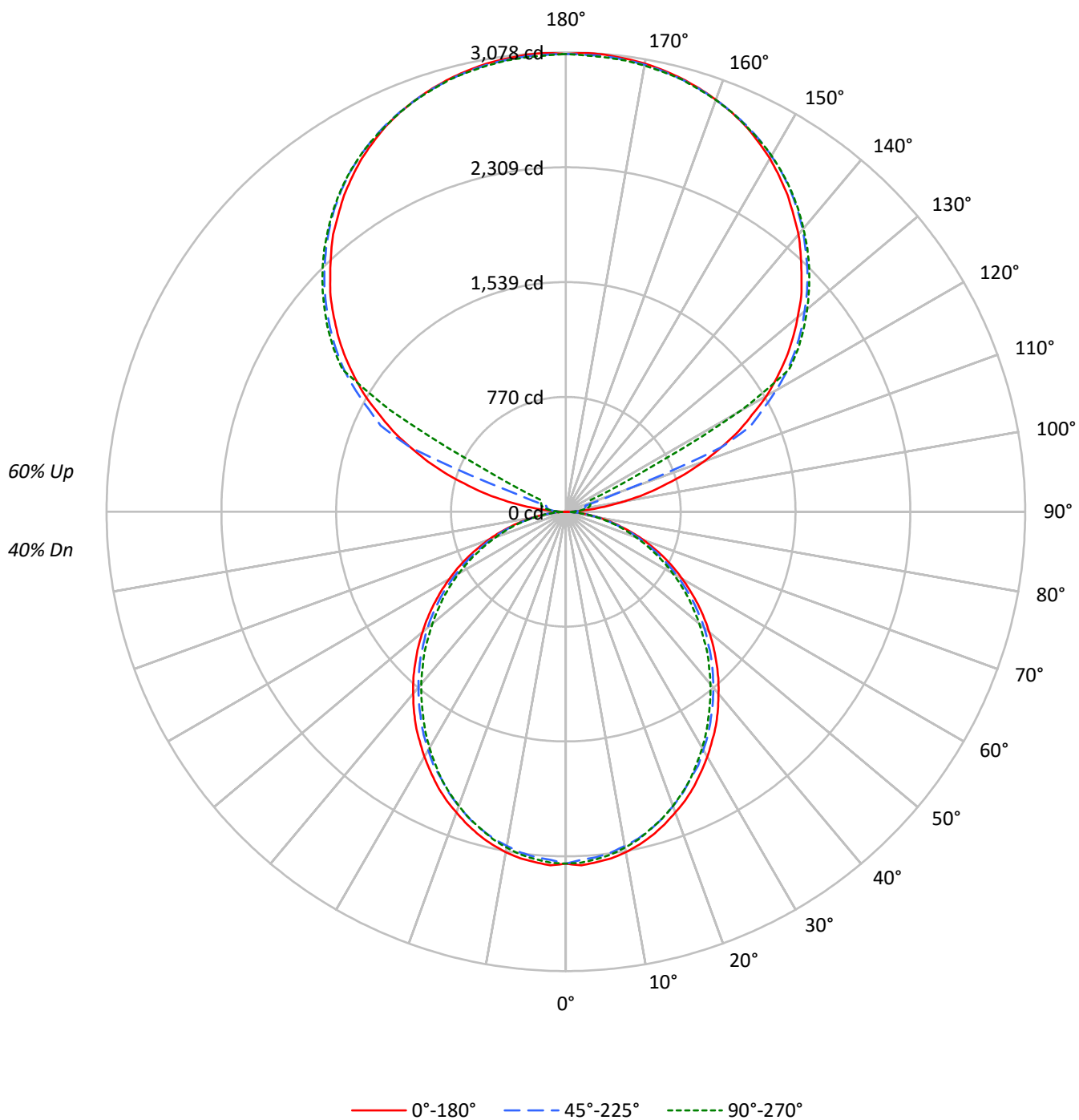
Lumens per Lamp: N/A
Luminaire Lumens: 14995.5 lumens
Efficiency: N/A
Efficacy: 122.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 122.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1753	1753	1753
5°	1756	1729	1740
10°	1742	1706	1717
15°	1716	1678	1680
20°	1682	1639	1643
25°	1648	1592	1599
30°	1605	1549	1544
35°	1564	1498	1485
40°	1514	1447	1429
45°	1464	1395	1372
50°	1409	1341	1306
55°	1352	1278	1246
60°	1287	1204	1176
65°	1217	1127	1094
70°	1127	1033	1006
75°	1002	920	925
80°	853	777	770
85°	619	529	512

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1574 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	1.5
10°-20°	624.3	4.2
20°-30°	917.5	6.1
30°-40°	1065.6	7.1
40°-50°	1064.3	7.1
50°-60°	928.0	6.2
60°-70°	686.0	4.6
70°-80°	388.1	2.6
80°-90°	107.8	0.7
90°-100°	101.1	0.7
100°-110°	377.0	2.5
110°-120°	999.9	6.7
120°-130°	1658.4	11.1
130°-140°	1761.7	11.7
140°-150°	1637.3	10.9
150°-160°	1316.3	8.8
160°-170°	848.2	5.7
170°-180°	291.9	1.9
0°-30°	1763.7	11.8
0°-40°	2829.3	18.9
0°-60°	4821.6	32.2
0°-90°	6003.6	40.0
90°-120°	1478.1	9.9
90°-150°	6535.5	43.6
90°-180°	8992.0	60.0
0°-180°	14995.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1693	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1065	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	2	27	44	56	60	14
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1369	342	182	1256
125°	1804	1833	1875	1891	1898	1609
135°	2233	2268	2288	2310	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2998	3014	2998	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.5	2357.5	2357.5	2357.5	2357.5
2.5°	2371.2	2359.9	2334.9	2357.5	2353.1
5°	2357.5	2348.6	2323.5	2341.6	2337.3
7.5°	2341.6	2328.2	2303.2	2321.4	2316.9
10°	2316.9	2301.0	2273.8	2291.8	2285.1
12.5°	2282.8	2269.2	2242.1	2253.4	2248.8
15°	2244.2	2230.7	2201.2	2210.4	2199.0
17.5°	2196.6	2183.2	2153.6	2164.8	2153.6
20°	2144.4	2131.0	2099.2	2105.9	2097.1
22.5°	2092.5	2072.0	2042.4	2042.4	2037.9
25°	2031.1	2013.1	1974.6	1978.9	1974.6
27.5°	1963.1	1947.2	1917.8	1911.1	1899.8
30°	1895.3	1876.9	1843.1	1836.3	1827.1
32.5°	1822.6	1809.2	1772.8	1759.1	1750.0
35°	1752.4	1729.8	1693.4	1679.7	1668.4
37.5°	1673.0	1652.5	1616.3	1600.3	1589.0
40°	1591.4	1573.2	1536.9	1516.7	1507.5
42.5°	1512.1	1493.8	1457.7	1434.9	1421.4
45°	1426.0	1410.1	1376.0	1351.2	1342.0
47.5°	1342.0	1326.2	1289.9	1264.9	1251.3
50°	1253.6	1242.3	1210.5	1178.7	1167.4
52.5°	1167.4	1151.6	1122.2	1097.2	1081.4
55°	1079.2	1065.4	1038.3	1011.1	999.8
57.5°	990.7	979.4	949.8	922.7	913.5
60°	902.2	893.3	861.6	836.5	829.8
62.5°	816.0	800.2	777.5	754.9	745.8
65°	727.8	714.1	691.5	671.0	659.7
67.5°	637.1	625.6	605.4	589.5	580.3
70°	553.2	544.1	523.6	507.7	498.8
72.5°	467.0	457.9	446.6	430.8	424.0
75°	380.7	376.5	364.8	351.4	356.0
77.5°	303.7	294.7	290.0	283.3	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.7	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.6
102.5°	539.2	535.0	131.0	155.2	162.1
105°	674.6	741.4	135.4	159.8	168.6
107.5°	832.3	887.6	140.0	164.2	173.2
110°	983.2	1029.7	388.5	166.5	175.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.3	1165.1	1127.4	170.8	177.6
115°	1276.1	1313.7	1369.4	341.8	182.1
117.5°	1407.1	1451.4	1489.3	1171.8	590.3
120°	1553.6	1586.8	1626.9	1653.4	1353.8
122.5°	1677.8	1713.3	1757.9	1771.0	1773.4
125°	1804.2	1833.2	1875.4	1891.0	1897.5
127.5°	1919.6	1950.7	1984.3	2006.4	2008.5
130°	2028.5	2064.1	2088.4	2112.8	2110.8
132.5°	2139.5	2168.4	2192.7	2212.8	2210.7
135°	2232.8	2268.3	2288.1	2310.5	2306.1
137.5°	2330.3	2356.9	2379.3	2401.4	2394.8
140°	2425.6	2443.6	2467.9	2487.8	2476.8
142.5°	2505.8	2521.4	2550.0	2567.7	2556.7
145°	2590.1	2587.7	2625.5	2641.0	2629.9
147.5°	2663.1	2656.6	2694.2	2705.4	2696.6
150°	2734.3	2718.8	2754.3	2767.5	2756.5
152.5°	2794.1	2776.4	2809.7	2823.1	2807.5
155°	2851.9	2832.1	2858.6	2871.9	2854.2
157.5°	2898.5	2880.9	2900.9	2916.4	2898.5
160°	2938.5	2925.1	2938.5	2951.7	2936.2
162.5°	2973.9	2960.6	2971.7	2987.3	2967.3
165°	3005.0	2991.7	2998.4	3014.0	2998.4
167.5°	3029.5	3016.1	3022.8	3038.4	3018.4
170°	3049.5	3036.1	3040.5	3056.1	3036.1
172.5°	3062.7	3049.5	3053.9	3069.5	3049.5
175°	3073.7	3058.2	3062.7	3078.2	3056.1
177.5°	3078.2	3062.7	3065.0	3080.6	3060.6
180°	3067.2	3067.2	3067.2	3067.2	3067.2

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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	8.23	9.00	9.26	10.05	11.46	7.79	8.57	8.83	9.62	11.02
	3H	9.88	10.58	10.93	11.63	13.06	9.41	10.11	10.46	11.16	12.58
	4H	10.47	11.13	11.53	12.18	13.61	9.99	10.65	11.05	11.71	13.14
	6H	10.86	11.47	11.93	12.53	13.97	10.39	10.99	11.46	12.05	13.50
	8H	10.96	11.54	12.04	12.62	14.06	10.49	11.07	11.56	12.14	13.58
	12H	11.01	11.56	12.09	12.63	14.09	10.53	11.08	11.61	12.15	13.61
4H	2H	8.68	9.34	9.74	10.39	11.83	8.33	8.99	9.40	10.05	11.48
	3H	10.54	11.09	11.61	12.17	13.62	10.14	10.70	11.22	11.78	13.23
	4H	11.25	11.76	12.33	12.83	14.30	10.84	11.35	11.92	12.42	13.89
	6H	11.76	12.20	12.85	13.29	14.75	11.35	11.79	12.44	12.88	14.34
	8H	11.91	12.31	13.00	13.40	14.88	11.50	11.90	12.59	12.99	14.47
	12H	11.98	12.35	13.08	13.45	14.93	11.56	11.92	12.66	13.03	14.51
8H	4H	11.44	11.85	12.53	12.93	14.41	11.08	11.49	12.17	12.57	14.05
	6H	12.07	12.40	13.18	13.54	15.01	11.71	12.04	12.82	13.17	14.65
	8H	12.29	12.58	13.41	13.70	15.19	11.92	12.21	13.04	13.33	14.82
	12H	12.42	12.68	13.54	13.79	15.32	12.03	12.29	13.15	13.40	14.93
12H	4H	11.42	11.79	12.53	12.89	14.37	11.07	11.44	12.18	12.54	14.02
	6H	12.10	12.39	13.22	13.51	15.00	11.75	12.04	12.86	13.15	14.65
	8H	12.34	12.60	13.46	13.71	15.24	11.98	12.24	13.10	13.35	14.88

END OF REPORT