

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: P927292

Luminaire Tested: DFN2DIP-HX4F0-060D100US835-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927292
REPORT IS A COMBINATION OF REPORTS P900931 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D100US835-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

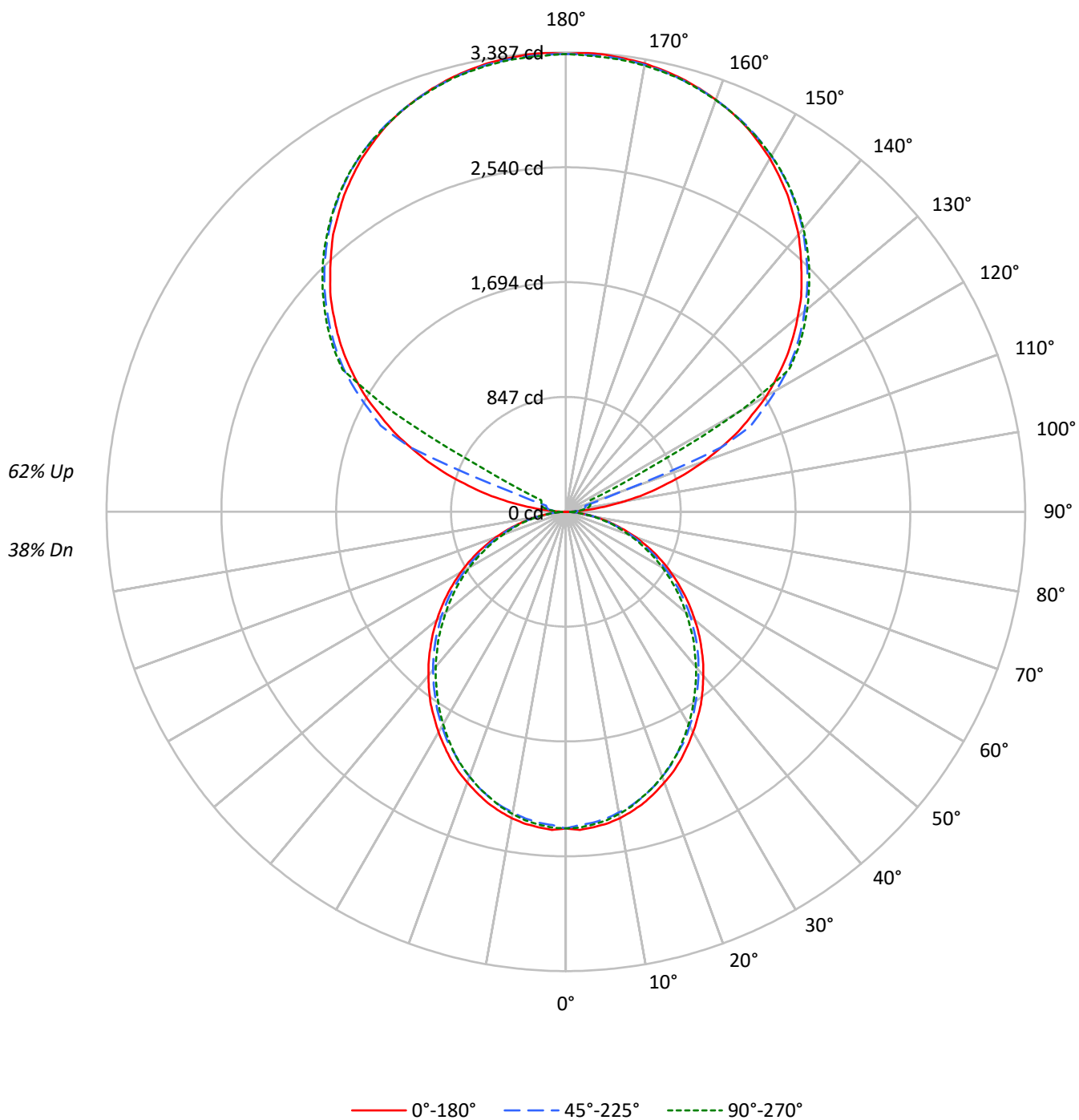
Lumens per Lamp: N/A
Luminaire Lumens: 15840.0 lumens
Efficiency: N/A
Efficacy: 121.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 130.3
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	104	104	104	104	94	94	94	94	76	76	76	60	60	60	45	45	45
1	95	91	87	83	86	82	79	76	67	65	63	53	51	50	39	39	38
2	86	79	73	68	78	72	67	63	59	55	52	46	44	42	35	33	32
3	79	70	62	57	71	63	57	52	52	47	44	41	38	35	31	29	27
4	72	62	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	22	20
6	61	49	41	35	55	45	38	33	37	32	28	29	26	23	22	20	18
7	56	44	36	31	51	40	34	29	33	28	24	27	23	20	20	18	16
8	52	40	32	27	47	37	30	25	30	25	22	24	21	18	19	16	14
9	48	36	29	24	44	33	27	23	28	23	19	22	19	16	17	15	13
10	45	33	26	22	41	31	24	20	26	21	17	21	17	14	16	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1736	1736	1736
5°	1739	1712	1723
10°	1725	1689	1700
15°	1700	1661	1664
20°	1666	1623	1627
25°	1632	1577	1583
30°	1589	1534	1529
35°	1549	1484	1471
40°	1499	1433	1416
45°	1450	1381	1359
50°	1395	1328	1294
55°	1339	1266	1234
60°	1275	1192	1165
65°	1205	1116	1084
70°	1116	1023	997
75°	992	911	916
80°	845	770	762
85°	613	524	507

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1732 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.7	1.4
10°-20°	618.3	3.9
20°-30°	908.6	5.7
30°-40°	1055.3	6.7
40°-50°	1054.0	6.7
50°-60°	919.0	5.8
60°-70°	679.4	4.3
70°-80°	384.4	2.4
80°-90°	107.4	0.7
90°-100°	111.3	0.7
100°-110°	414.9	2.6
110°-120°	1100.3	6.9
120°-130°	1824.9	11.5
130°-140°	1938.4	12.2
140°-150°	1801.5	11.4
150°-160°	1448.4	9.1
160°-170°	933.3	5.9
170°-180°	321.2	2.0
0°-30°	1746.6	11.0
0°-40°	2801.8	17.7
0°-60°	4774.8	30.1
0°-90°	5945.9	37.5
90°-120°	1626.4	10.3
90°-150°	7191.2	45.4
90°-180°	9894.0	62.5
0°-180°	15840.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2335	2335	2335	2335	2335	
5°	2335	2326	2301	2319	2315	222
15°	2222	2209	2180	2189	2178	626
25°	2011	1994	1955	1960	1955	926
35°	1735	1713	1677	1663	1652	1084
45°	1412	1396	1363	1338	1329	1090
55°	1069	1055	1028	1001	990	955
65°	721	707	685	664	653	713
75°	377	373	361	348	352	402
85°	92	90	88	81	79	103
90°	2	29	49	61	66	15
95°	159	78	95	108	105	188
105°	742	816	149	176	186	793
115°	1404	1446	1507	376	200	1382
125°	1985	2017	2064	2081	2088	1771
135°	2457	2496	2518	2542	2537	1898
145°	2850	2847	2889	2906	2894	1782
155°	3138	3116	3146	3160	3141	1446
165°	3306	3292	3299	3316	3299	934
175°	3382	3365	3370	3387	3363	322
180°	3375	3375	3375	3375	3375	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2334.6	2334.6	2334.6	2334.6	2334.6
2.5°	2348.2	2337.0	2312.2	2334.6	2330.3
5°	2334.6	2325.8	2301.0	2318.9	2314.6
7.5°	2318.9	2305.6	2280.8	2298.9	2294.4
10°	2294.4	2278.7	2251.7	2269.6	2262.9
12.5°	2260.6	2247.2	2220.3	2231.5	2227.0
15°	2222.4	2209.1	2179.8	2188.9	2177.7
17.5°	2175.3	2162.0	2132.7	2143.8	2132.7
20°	2123.6	2110.3	2078.8	2085.5	2076.7
22.5°	2072.2	2051.9	2022.6	2022.6	2018.1
25°	2011.4	1993.6	1955.4	1959.7	1955.4
27.5°	1944.0	1928.3	1899.2	1892.6	1881.4
30°	1876.9	1858.7	1825.2	1818.5	1809.4
32.5°	1804.9	1791.6	1755.6	1742.0	1733.0
35°	1735.4	1713.0	1677.0	1663.4	1652.2
37.5°	1656.8	1636.5	1600.6	1584.8	1573.6
40°	1576.0	1557.9	1522.0	1502.0	1492.9
42.5°	1497.4	1479.3	1443.6	1421.0	1407.6
45°	1412.2	1396.4	1362.6	1338.1	1329.0
47.5°	1329.0	1313.3	1277.4	1252.6	1239.2
50°	1241.4	1230.2	1198.8	1167.3	1156.1
52.5°	1156.1	1140.4	1111.3	1086.6	1070.9
55°	1068.7	1055.1	1028.2	1001.3	990.1
57.5°	981.1	969.9	940.6	913.7	904.6
60°	893.4	884.6	853.2	828.4	821.7
62.5°	808.1	792.4	770.0	747.6	738.6
65°	720.7	707.2	684.8	664.5	653.3
67.5°	630.9	619.5	599.5	583.8	574.7
70°	547.8	538.8	518.5	502.8	494.0
72.5°	462.5	453.5	442.3	426.6	419.9
75°	377.0	372.8	361.3	348.0	352.5
77.5°	300.8	291.8	287.2	280.6	273.9
80°	224.6	222.2	217.7	211.0	206.5
82.5°	152.7	152.7	150.5	141.5	141.5
85°	91.9	89.8	87.6	80.7	78.6
87.5°	40.5	36.0	31.4	24.8	22.4
90°	2.3	29.3	48.7	61.2	65.8
92.5°	61.2	51.3	58.6	63.5	65.8
95°	158.6	78.0	95.1	107.6	105.0
97.5°	285.6	85.5	124.4	131.9	134.3
100°	432.4	97.7	139.2	158.6	163.6
102.5°	593.3	588.7	144.1	170.8	178.3
105°	742.4	815.7	149.1	175.7	185.6
107.5°	915.8	976.7	154.0	180.7	190.5
110°	1081.9	1133.0	427.4	183.3	192.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1238.2	1282.0	1240.6	187.9	195.5
115°	1404.1	1445.6	1506.8	376.1	200.4
117.5°	1548.2	1597.0	1638.7	1289.3	649.6
120°	1709.5	1746.0	1790.1	1819.4	1489.7
122.5°	1846.1	1885.2	1934.2	1948.7	1951.3
125°	1985.3	2017.2	2063.6	2080.7	2087.9
127.5°	2112.3	2146.5	2183.3	2207.7	2210.0
130°	2232.0	2271.2	2297.9	2324.8	2322.5
132.5°	2354.1	2386.0	2412.7	2434.7	2432.4
135°	2456.8	2495.9	2517.7	2542.3	2537.4
137.5°	2564.1	2593.4	2618.0	2642.4	2635.1
140°	2669.0	2688.8	2715.4	2737.5	2725.3
142.5°	2757.2	2774.3	2805.9	2825.3	2813.2
145°	2850.0	2847.4	2888.9	2906.0	2893.8
147.5°	2930.3	2923.1	2964.5	2976.7	2967.2
150°	3008.6	2991.5	3030.7	3045.2	3033.0
152.5°	3074.4	3055.0	3091.6	3106.3	3089.2
155°	3138.0	3116.2	3145.5	3160.0	3140.6
157.5°	3189.3	3169.9	3191.9	3209.0	3189.3
160°	3233.4	3218.6	3233.4	3247.9	3230.8
162.5°	3272.2	3257.7	3269.9	3287.0	3265.0
165°	3306.4	3291.9	3299.2	3316.3	3299.2
167.5°	3333.4	3318.6	3326.2	3343.3	3321.2
170°	3355.4	3340.7	3345.6	3362.7	3340.7
172.5°	3369.9	3355.4	3360.4	3377.5	3355.4
175°	3382.1	3365.0	3369.9	3387.1	3362.7
177.5°	3387.1	3369.9	3372.6	3389.7	3367.6
180°	3374.9	3374.9	3374.9	3374.9	3374.9

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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	7.91	8.67	8.97	9.73	11.17	7.48	8.24	8.54	9.30	10.74
	3H	9.57	10.25	10.63	11.32	12.77	9.09	9.77	10.16	10.84	12.30
	4H	10.15	10.80	11.23	11.87	13.33	9.68	10.32	10.76	11.39	12.86
	6H	10.55	11.14	11.63	12.21	13.69	10.07	10.66	11.16	11.74	13.21
	8H	10.65	11.21	11.74	12.30	13.77	10.17	10.74	11.26	11.83	13.30
	12H	10.69	11.23	11.79	12.31	13.81	10.21	10.75	11.31	11.83	13.33
4H	2H	8.36	9.01	9.45	10.08	11.54	8.02	8.66	9.10	9.74	11.20
	3H	10.22	10.76	11.31	11.86	13.33	9.83	10.37	10.92	11.47	12.94
	4H	10.93	11.43	12.03	12.52	14.01	10.53	11.02	11.62	12.11	13.61
	6H	11.44	11.87	12.55	12.98	14.47	11.03	11.46	12.14	12.57	14.06
	8H	11.59	11.99	12.70	13.09	14.60	11.18	11.57	12.28	12.68	14.18
	12H	11.66	12.02	12.78	13.13	14.65	11.24	11.60	12.36	12.71	14.22
8H	4H	11.12	11.52	12.23	12.62	14.13	10.76	11.16	11.87	12.26	13.77
	6H	11.75	12.08	12.88	13.22	14.73	11.39	11.71	12.51	12.86	14.36
	8H	11.97	12.26	13.10	13.38	14.91	11.60	11.89	12.73	13.01	14.54
	12H	12.10	12.35	13.23	13.47	15.03	11.71	11.96	12.85	13.09	14.65
12H	4H	11.10	11.46	12.22	12.58	14.09	10.75	11.11	11.87	12.23	13.74
	6H	11.78	12.07	12.91	13.19	14.72	11.43	11.71	12.56	12.84	14.36
	8H	12.02	12.27	13.15	13.39	14.95	11.66	11.91	12.80	13.03	14.59