

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: P913684

Luminaire Tested: DFN2DIP-HX4F0-080D110US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913684
REPORT IS A COMBINATION OF REPORTS P899433 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US927-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

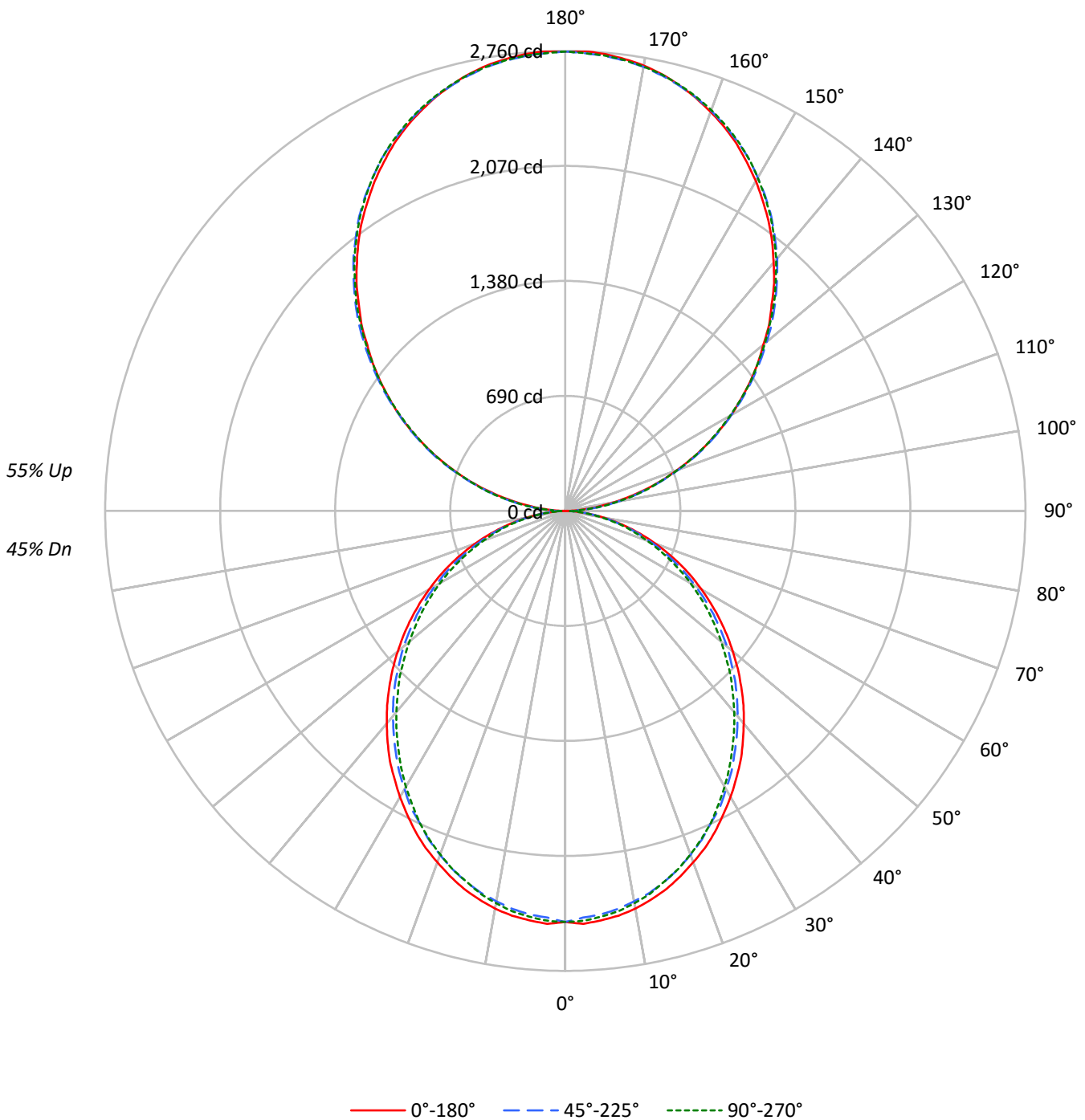
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13986.0 lumens
Efficiency: N/A
Efficacy: 98.6 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: General Diffuse

Input Watts (W): 141.9
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

TEST NUMBER: P913684
CATALOG NUMBER: DFN2DIP-HX4F0-080D110US927-FLLFLL

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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	97	97	97	97	81	81	81	65	65	65	51	51	51	45	45	45	45
1	97	92	88	85	88	85	81	78	71	68	66	57	56	54	45	44	43	38	38	38	38
2	88	81	75	69	80	74	69	64	62	58	55	50	48	45	40	38	37	32	32	32	32
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	35	33	31	27	27	27	27
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23	23	23	23
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23	20	20	20	20
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21	18	18	18	18
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16	16	16	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14	14	14	14
9	49	37	30	25	45	35	28	23	29	24	21	25	21	18	20	17	15	13	13	13	13
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11	11	11	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1834	1834	1834
5°	1837	1808	1820
10°	1822	1784	1796
15°	1795	1755	1757
20°	1759	1714	1718
25°	1723	1666	1673
30°	1678	1620	1615
35°	1636	1567	1553
40°	1583	1513	1495
45°	1531	1459	1436
50°	1474	1402	1367
55°	1414	1337	1303
60°	1346	1259	1230
65°	1273	1178	1145
70°	1179	1080	1053
75°	1048	963	968
80°	892	813	805
85°	647	554	535

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2077 cd/sqm



TEST NUMBER: P913684

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US927-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.1	1.7
10°-20°	653.0	4.7
20°-30°	959.7	6.9
30°-40°	1114.6	8.0
40°-50°	1113.2	8.0
50°-60°	970.7	6.9
60°-70°	717.6	5.1
70°-80°	406.0	2.9
80°-90°	115.0	0.8
90°-100°	170.5	1.2
100°-110°	541.8	3.9
110°-120°	927.3	6.6
120°-130°	1219.5	8.7
130°-140°	1368.8	9.8
140°-150°	1342.3	9.6
150°-160°	1126.0	8.1
160°-170°	746.7	5.3
170°-180°	261.0	1.9
0°-30°	1844.8	13.2
0°-40°	2959.4	21.2
0°-60°	5043.4	36.1
0°-90°	6281.9	44.9
90°-120°	1639.7	11.7
90°-150°	5570.3	39.8
90°-180°	7704.0	55.1
0°-180°	13986.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2466	2466	2466	2466	2466	
5°	2466	2457	2430	2449	2445	234
15°	2348	2333	2302	2312	2300	661
25°	2125	2106	2066	2070	2066	978
35°	1833	1809	1771	1757	1745	1145
45°	1492	1475	1439	1413	1404	1151
55°	1129	1114	1086	1058	1046	1009
65°	761	747	723	702	690	753
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	2	30	81	76	79	14
95°	121	145	149	149	145	135
105°	500	507	512	516	516	528
115°	931	944	940	937	931	920
125°	1353	1374	1368	1360	1358	1209
135°	1751	1776	1781	1779	1772	1353
145°	2125	2142	2155	2158	2149	1328
155°	2430	2437	2444	2456	2448	1119
165°	2644	2641	2641	2658	2646	746
175°	2751	2744	2739	2756	2742	261
180°	2756	2756	2756	2756	2756	



TEST NUMBER: P913684

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US927-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2465.9	2465.9	2465.9	2465.9	2465.9
2.5°	2480.2	2468.4	2442.3	2465.9	2461.4
5°	2465.9	2456.6	2430.5	2449.3	2444.8
7.5°	2449.3	2435.2	2409.1	2428.2	2423.4
10°	2423.4	2406.8	2378.4	2397.2	2390.2
12.5°	2387.7	2373.6	2345.2	2357.0	2352.2
15°	2347.5	2333.4	2302.4	2312.0	2300.2
17.5°	2297.6	2283.5	2252.6	2264.4	2252.6
20°	2243.1	2229.0	2195.8	2202.8	2193.5
22.5°	2188.7	2167.3	2136.4	2136.4	2131.6
25°	2124.6	2105.7	2065.5	2070.0	2065.5
27.5°	2053.3	2036.8	2006.0	1999.0	1987.2
30°	1982.4	1963.3	1927.9	1920.8	1911.2
32.5°	1906.5	1892.4	1854.3	1840.0	1830.5
35°	1832.9	1809.3	1771.3	1757.0	1745.2
37.5°	1749.9	1728.5	1690.6	1674.0	1662.2
40°	1664.7	1645.5	1607.6	1586.4	1576.8
42.5°	1581.7	1562.5	1524.8	1500.9	1486.8
45°	1491.6	1475.0	1439.2	1413.3	1403.8
47.5°	1403.8	1387.2	1349.2	1323.0	1308.9
50°	1311.2	1299.4	1266.1	1233.0	1221.1
52.5°	1221.1	1204.5	1173.9	1147.7	1131.1
55°	1128.8	1114.4	1086.1	1057.6	1045.8
57.5°	1036.3	1024.4	993.5	965.0	955.4
60°	943.6	934.4	901.1	875.0	867.9
62.5°	853.6	837.0	813.3	789.7	780.1
65°	761.3	746.9	723.3	701.9	690.1
67.5°	666.4	654.3	633.2	616.6	607.0
70°	578.6	569.0	547.7	531.1	521.7
72.5°	488.5	479.0	467.1	450.6	443.5
75°	398.2	393.7	381.7	367.6	372.3
77.5°	317.7	308.2	303.4	296.4	289.3
80°	237.3	234.7	230.0	222.9	218.1
82.5°	161.3	161.3	159.0	149.4	149.4
85°	97.1	94.8	92.6	85.3	83.0
87.5°	42.8	38.0	33.2	26.1	23.7
90°	2.5	29.9	81.4	76.4	78.9
92.5°	51.5	69.8	72.2	74.8	74.8
95°	121.3	144.6	148.7	148.7	144.6
97.5°	201.9	223.5	232.7	232.7	232.7
100°	294.9	314.0	320.7	320.7	318.2
102.5°	393.0	407.1	416.3	418.7	416.3
105°	500.2	506.8	511.8	515.9	515.9
107.5°	606.5	616.5	616.5	618.1	606.5
110°	709.6	722.9	722.9	722.9	716.2



TEST NUMBER: P913684

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US927-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	820.9	835.0	832.5	825.8	820.9
115°	930.6	943.8	939.7	937.2	930.6
117.5°	1039.4	1057.6	1046.0	1039.4	1032.8
120°	1149.1	1167.4	1149.1	1149.1	1141.6
122.5°	1248.8	1272.0	1260.4	1253.7	1248.8
125°	1353.4	1374.2	1367.5	1360.1	1357.6
127.5°	1455.6	1481.4	1472.3	1462.3	1455.6
130°	1551.2	1581.1	1576.9	1571.9	1562.8
132.5°	1658.4	1681.6	1683.3	1671.7	1665.0
135°	1750.6	1776.3	1781.3	1778.8	1772.2
137.5°	1853.6	1874.4	1878.5	1876.8	1866.9
140°	1944.2	1964.9	1976.6	1976.6	1967.5
142.5°	2037.3	2058.0	2064.7	2067.1	2058.0
145°	2125.3	2141.9	2155.2	2157.7	2148.6
147.5°	2204.2	2225.0	2235.0	2239.1	2230.0
150°	2285.7	2299.8	2308.9	2316.4	2308.9
152.5°	2357.9	2372.0	2383.7	2392.9	2383.7
155°	2430.3	2436.8	2444.4	2456.0	2448.5
157.5°	2492.5	2497.5	2501.6	2518.3	2506.6
160°	2548.2	2553.2	2555.7	2569.8	2559.9
162.5°	2599.7	2599.7	2602.2	2618.0	2606.4
165°	2643.7	2641.2	2641.2	2657.8	2646.2
167.5°	2683.6	2676.1	2676.1	2692.8	2681.1
170°	2713.5	2706.9	2704.4	2721.0	2706.9
172.5°	2734.3	2727.6	2725.2	2741.8	2727.6
175°	2750.9	2744.3	2739.3	2755.9	2741.8
177.5°	2760.0	2753.4	2748.4	2762.6	2748.4
180°	2755.9	2755.9	2755.9	2755.9	2755.9



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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	8.89	9.71	9.89	10.72	12.06	8.46	9.27	9.46	10.28	11.63
	3H	10.55	11.28	11.56	12.30	13.66	10.07	10.81	11.08	11.83	13.19
	4H	11.13	11.83	12.15	12.85	14.22	10.66	11.35	11.68	12.38	13.75
	6H	11.53	12.17	12.56	13.20	14.58	11.05	11.69	12.09	12.72	14.10
	8H	11.63	12.24	12.67	13.29	14.67	11.16	11.77	12.20	12.81	14.19
	12H	11.68	12.26	12.73	13.30	14.70	11.20	11.78	12.24	12.82	14.22
4H	2H	9.35	10.04	10.37	11.06	12.43	9.00	9.69	10.03	10.72	12.09
	3H	11.21	11.79	12.25	12.84	14.22	10.82	11.39	11.85	12.45	13.83
	4H	11.92	12.45	12.97	13.49	14.90	11.52	12.05	12.56	13.09	14.49
	6H	12.43	12.89	13.49	13.96	15.36	12.03	12.48	13.08	13.55	14.95
	8H	12.58	13.01	13.64	14.07	15.49	12.17	12.60	13.23	13.66	15.07
	12H	12.66	13.04	13.73	14.11	15.54	12.23	12.62	13.31	13.69	15.11
8H	4H	12.12	12.54	13.17	13.60	15.02	11.75	12.18	12.81	13.24	14.66
	6H	12.75	13.10	13.82	14.20	15.61	12.38	12.74	13.46	13.84	15.25
	8H	12.97	13.28	14.05	14.36	15.79	12.60	12.91	13.68	13.99	15.42
	12H	13.10	13.37	14.19	14.45	15.92	12.71	12.98	13.80	14.06	15.54
12H	4H	12.10	12.48	13.17	13.56	14.98	11.75	12.13	12.82	13.20	14.63
	6H	12.78	13.09	13.86	14.17	15.60	12.42	12.73	13.51	13.82	15.25
	8H	13.02	13.29	14.11	14.37	15.84	12.66	12.93	13.75	14.01	15.48