

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: P928340

Luminaire Tested: DFN2DIP-HX4F0-080D110US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928340
REPORT IS A COMBINATION OF REPORTS P900953 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

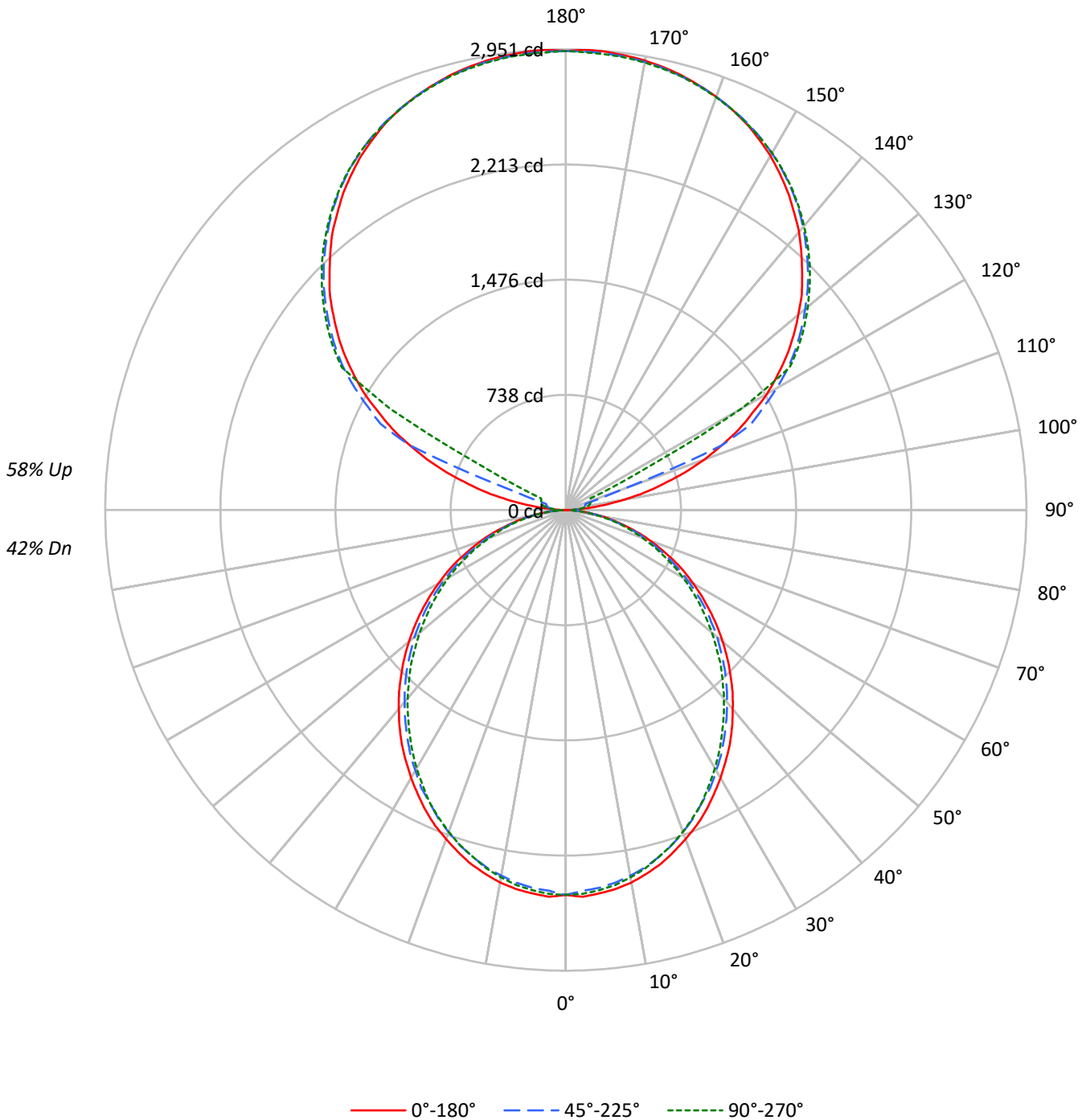
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14897.5 lumens
Efficiency: N/A
Efficacy: 90.9 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): 163.9
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

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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49	49	49	49	42
1	96	92	88	84	88	84	81	78	69	67	65	56	54	53	43	42	41	41	41	41	35
2	87	80	74	69	80	73	68	64	61	57	54	49	46	44	38	36	35	35	35	35	30
3	80	70	63	57	72	65	58	53	53	49	45	43	40	37	34	31	30	30	30	30	25
4	73	62	54	49	66	57	50	45	47	42	38	38	35	32	30	28	25	25	25	25	22
5	67	55	47	41	61	51	44	39	42	37	33	35	31	28	27	24	22	22	22	22	19
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20	20	20	20	17
7	57	45	37	31	52	41	34	29	35	29	25	28	24	21	22	20	17	17	17	17	15
8	53	41	33	28	48	37	31	26	32	26	22	26	22	19	21	18	16	16	16	16	13
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14	14	14	14	12
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13	13	13	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1833	1833	1833
5°	1836	1808	1820
10°	1822	1784	1795
15°	1795	1754	1757
20°	1759	1714	1718
25°	1723	1665	1672
30°	1678	1620	1614
35°	1635	1567	1553
40°	1583	1513	1495
45°	1531	1459	1435
50°	1473	1402	1366
55°	1414	1336	1303
60°	1346	1259	1230
65°	1272	1178	1145
70°	1178	1080	1052
75°	1048	962	967
80°	892	813	805
85°	647	554	535

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1531 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.0	1.6
10°-20°	652.9	4.4
20°-30°	959.5	6.4
30°-40°	1114.4	7.5
40°-50°	1113.0	7.5
50°-60°	970.5	6.5
60°-70°	717.4	4.8
70°-80°	405.9	2.7
80°-90°	112.3	0.8
90°-100°	96.9	0.7
100°-110°	361.4	2.4
110°-120°	958.5	6.4
120°-130°	1589.8	10.7
130°-140°	1688.7	11.3
140°-150°	1569.5	10.5
150°-160°	1261.8	8.5
160°-170°	813.1	5.5
170°-180°	279.9	1.9
0°-30°	1844.4	12.4
0°-40°	2958.8	19.9
0°-60°	5042.2	33.8
0°-90°	6277.8	42.1
90°-120°	1416.9	9.5
90°-150°	6264.9	42.1
90°-180°	8620.0	57.9
0°-180°	14897.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2465	2465	2465	2465	2465	
5°	2465	2456	2430	2449	2444	234
15°	2347	2333	2302	2312	2300	661
25°	2124	2105	2065	2070	2065	977
35°	1832	1809	1771	1757	1745	1144
45°	1491	1475	1439	1413	1404	1151
55°	1128	1114	1086	1057	1046	1009
65°	761	747	723	702	690	752
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	2	26	42	53	57	14
95°	138	68	83	94	92	164
105°	647	711	130	153	162	691
115°	1223	1259	1313	328	175	1204
125°	1730	1757	1798	1813	1819	1543
135°	2140	2174	2193	2215	2211	1653
145°	2483	2481	2517	2532	2521	1553
155°	2734	2715	2740	2753	2736	1260
165°	2881	2868	2874	2889	2874	814
175°	2946	2932	2936	2951	2930	280
180°	2940	2940	2940	2940	2940	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2465.3	2465.3	2465.3	2465.3	2465.3
2.5°	2479.7	2467.9	2441.7	2465.3	2460.8
5°	2465.3	2456.1	2429.9	2448.8	2444.3
7.5°	2448.8	2434.7	2408.6	2427.6	2422.9
10°	2422.9	2406.3	2377.8	2396.7	2389.7
12.5°	2387.2	2373.1	2344.6	2356.4	2351.7
15°	2346.9	2332.8	2301.9	2311.5	2299.7
17.5°	2297.1	2283.0	2252.1	2263.9	2252.1
20°	2242.5	2228.5	2195.3	2202.3	2193.0
22.5°	2188.2	2166.8	2135.9	2135.9	2131.1
25°	2124.1	2105.2	2065.0	2069.5	2065.0
27.5°	2052.9	2036.3	2005.6	1998.5	1986.7
30°	1982.0	1962.8	1927.4	1920.4	1910.8
32.5°	1906.0	1891.9	1853.9	1839.6	1830.1
35°	1832.5	1808.9	1770.9	1756.6	1744.8
37.5°	1749.5	1728.1	1690.2	1673.6	1661.8
40°	1664.3	1645.1	1607.2	1586.1	1576.5
42.5°	1581.3	1562.1	1524.4	1500.5	1486.5
45°	1491.3	1474.6	1438.9	1413.0	1403.5
47.5°	1403.5	1386.9	1348.9	1322.7	1308.6
50°	1310.9	1299.1	1265.9	1232.7	1220.9
52.5°	1220.9	1204.2	1173.6	1147.4	1130.8
55°	1128.5	1114.2	1085.8	1057.4	1045.5
57.5°	1036.0	1024.2	993.2	964.8	955.2
60°	943.4	934.2	900.9	874.8	867.7
62.5°	853.4	836.8	813.1	789.5	780.0
65°	761.1	746.8	723.1	701.7	689.9
67.5°	666.2	654.2	633.0	616.5	606.9
70°	578.5	568.9	547.6	531.0	521.6
72.5°	488.4	478.9	467.0	450.5	443.4
75°	398.1	393.6	381.6	367.5	372.2
77.5°	317.7	308.1	303.3	296.3	289.2
80°	237.2	234.7	229.9	222.9	218.0
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°	2.1	25.5	42.5	53.3	57.3
92.5°	53.3	44.7	51.0	55.4	57.3
95°	138.2	68.0	82.8	93.7	91.5
97.5°	248.8	74.5	108.3	114.9	117.0
100°	376.7	85.1	121.3	138.2	142.5
102.5°	516.9	512.8	125.5	148.8	155.4
105°	646.7	710.7	129.9	153.1	161.7
107.5°	797.9	850.8	134.2	157.4	166.0
110°	942.6	987.1	372.4	159.7	168.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1078.8	1116.9	1080.8	163.7	170.3
115°	1223.2	1259.4	1312.7	327.7	174.6
117.5°	1348.9	1391.3	1427.7	1123.2	565.9
120°	1489.3	1521.1	1559.5	1585.0	1297.8
122.5°	1608.3	1642.4	1685.1	1697.7	1700.0
125°	1729.6	1757.4	1797.8	1812.7	1819.0
127.5°	1840.2	1870.0	1902.1	1923.3	1925.4
130°	1944.5	1978.7	2001.9	2025.4	2023.4
132.5°	2050.9	2078.7	2102.0	2121.1	2119.2
135°	2140.4	2174.4	2193.4	2214.9	2210.6
137.5°	2233.8	2259.3	2280.8	2302.0	2295.7
140°	2325.3	2342.4	2365.7	2384.9	2374.3
142.5°	2402.1	2416.9	2444.5	2461.5	2450.8
145°	2482.9	2480.6	2516.7	2531.7	2521.1
147.5°	2552.9	2546.6	2582.7	2593.3	2585.0
150°	2621.1	2606.2	2640.3	2653.0	2642.3
152.5°	2678.5	2661.5	2693.4	2706.3	2691.4
155°	2733.8	2714.8	2740.3	2753.0	2736.0
157.5°	2778.5	2761.5	2780.8	2795.7	2778.5
160°	2816.9	2804.0	2816.9	2829.5	2814.6
162.5°	2850.7	2838.1	2848.7	2863.6	2844.5
165°	2880.6	2867.9	2874.2	2889.1	2874.2
167.5°	2904.0	2891.2	2897.8	2912.7	2893.5
170°	2923.3	2910.4	2914.6	2929.6	2910.4
172.5°	2935.9	2923.3	2927.5	2942.4	2923.3
175°	2946.5	2931.6	2935.9	2950.8	2929.6
177.5°	2950.8	2935.9	2938.2	2953.1	2933.9
180°	2940.2	2940.2	2940.2	2940.2	2940.2



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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	8.61	9.40	9.63	10.43	11.81	8.17	8.97	9.20	10.00	11.38
	3H	10.26	10.97	11.29	12.01	13.41	9.79	10.50	10.82	11.54	12.94
	4H	10.85	11.52	11.89	12.56	13.97	10.37	11.05	11.42	12.09	13.50
	6H	11.24	11.87	12.30	12.91	14.33	10.77	11.39	11.82	12.44	13.85
	8H	11.35	11.94	12.41	13.00	14.41	10.87	11.46	11.93	12.53	13.94
	12H	11.39	11.96	12.46	13.01	14.45	10.91	11.47	11.98	12.53	13.97
4H	2H	9.06	9.74	10.11	10.78	12.18	8.71	9.39	9.77	10.43	11.84
	3H	10.92	11.48	11.98	12.55	13.97	10.53	11.09	11.59	12.16	13.58
	4H	11.63	12.15	12.70	13.21	14.65	11.23	11.74	12.29	12.80	14.25
	6H	12.15	12.59	13.22	13.67	15.11	11.74	12.18	12.81	13.26	14.70
	8H	12.29	12.71	13.37	13.78	15.24	11.88	12.30	12.96	13.37	14.82
	12H	12.36	12.74	13.46	13.83	15.29	11.94	12.32	13.03	13.41	14.86
8H	4H	11.82	12.24	12.90	13.32	14.77	11.46	11.88	12.54	12.96	14.41
	6H	12.45	12.80	13.55	13.92	15.36	12.09	12.43	13.19	13.55	15.00
	8H	12.68	12.98	13.78	14.08	15.55	12.31	12.61	13.41	13.71	15.18
	12H	12.81	13.07	13.91	14.17	15.67	12.42	12.68	13.53	13.78	15.29
12H	4H	11.81	12.18	12.90	13.27	14.73	11.46	11.83	12.55	12.92	14.38
	6H	12.48	12.79	13.59	13.89	15.35	12.13	12.43	13.24	13.53	15.00
	8H	12.72	12.99	13.83	14.09	15.59	12.37	12.63	13.47	13.73	15.23