

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: P924587

Luminaire Tested: DFN2DIP-HX4F0-080D060US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924587
REPORT IS A COMBINATION OF REPORTS P899344 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D060US950-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

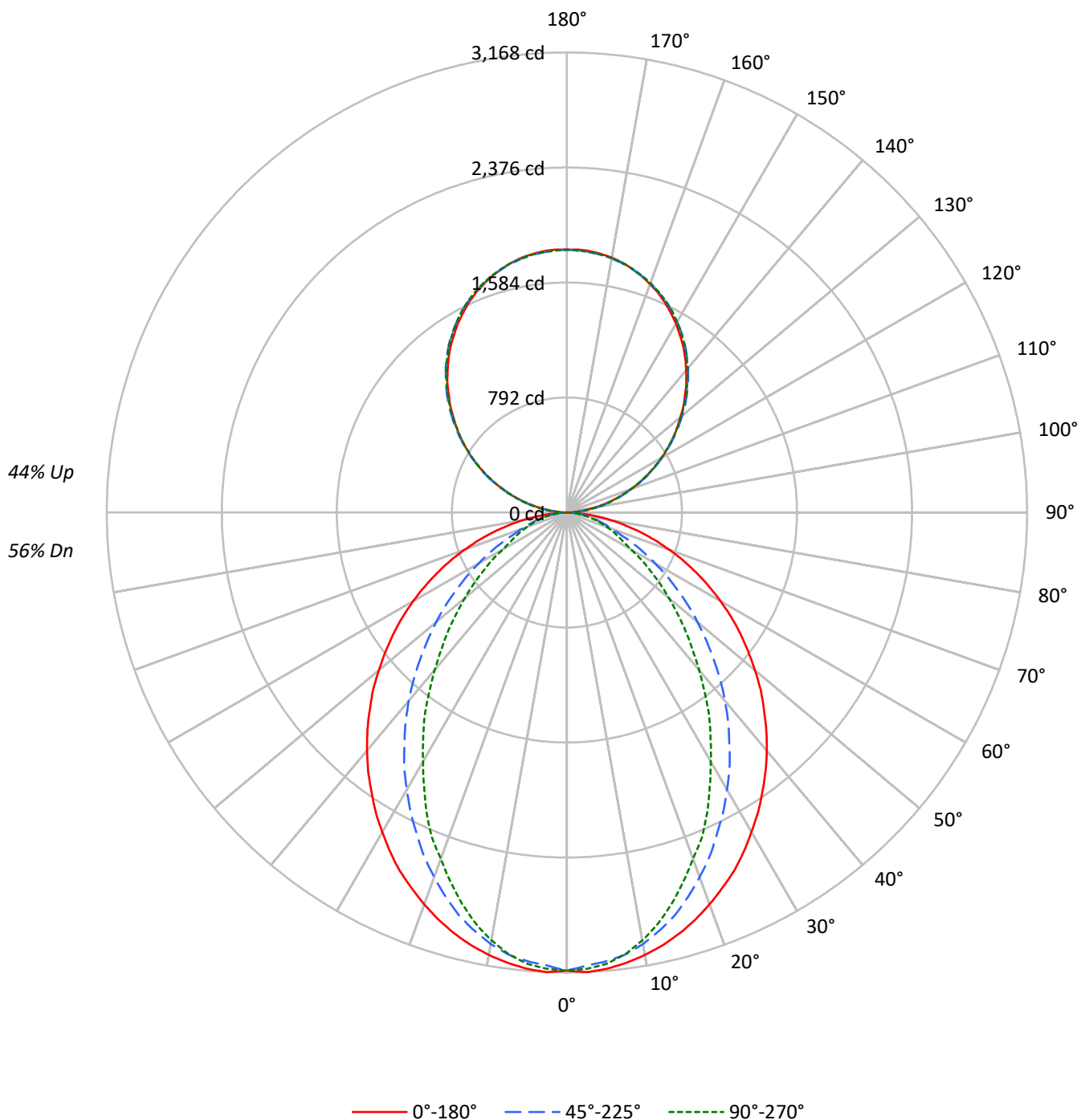
Lumens per Lamp: N/A
Luminaire Lumens: 11553.0 lumens
Efficiency: N/A
Efficacy: 104.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 110.7
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
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	55	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	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	30
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27
7	61	48	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°	2345	2345	2345
5°	2349	2308	2323
10°	2326	2263	2248
15°	2294	2189	2131
20°	2252	2086	1988
25°	2209	1970	1849
30°	2151	1852	1674
35°	2094	1725	1519
40°	2036	1593	1342
45°	1969	1447	1182
50°	1899	1300	1026
55°	1827	1142	875
60°	1743	977	721
65°	1646	809	648
70°	1529	653	587
75°	1383	576	535
80°	1169	484	464
85°	818	324	350

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1969 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.6	2.6
10°-20°	811.5	7.0
20°-30°	1139.4	9.9
30°-40°	1242.0	10.8
40°-50°	1141.5	9.9
50°-60°	896.5	7.8
60°-70°	583.5	5.1
70°-80°	300.4	2.6
80°-90°	81.8	0.7
90°-100°	112.0	1.0
100°-110°	355.9	3.1
110°-120°	609.1	5.3
120°-130°	801.1	6.9
130°-140°	899.2	7.8
140°-150°	881.7	7.6
150°-160°	739.6	6.4
160°-170°	490.5	4.2
170°-180°	171.4	1.5
0°-30°	2246.6	19.4
0°-40°	3488.6	30.2
0°-60°	5526.6	47.8
0°-90°	6492.4	56.2
90°-120°	1077.0	9.3
90°-150°	3659.0	31.7
90°-180°	5061.0	43.8
0°-180°	11553.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3154	3154	3154	3154	3154	
5°	3154	3140	3103	3128	3120	299
15°	3000	2969	2872	2818	2789	845
25°	2723	2632	2444	2327	2284	1252
35°	2347	2201	1950	1770	1707	1469
45°	1918	1727	1427	1224	1156	1481
55°	1459	1236	928	756	702	1303
65°	985	754	497	400	391	976
75°	525	325	228	208	206	555
85°	123	63	54	54	54	141
90°	2	20	54	50	52	11
95°	80	95	98	98	95	89
105°	329	333	336	339	339	347
115°	611	620	617	616	611	605
125°	889	903	898	893	892	794
135°	1150	1167	1170	1168	1164	889
145°	1396	1407	1416	1417	1411	872
155°	1596	1601	1606	1613	1608	735
165°	1737	1735	1735	1746	1738	490
175°	1807	1803	1799	1810	1801	172
180°	1810	1810	1810	1810	1810	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3154.3	3154.3	3154.3	3154.3	3154.3
2.5°	3168.5	3154.3	3122.8	3151.5	3145.8
5°	3154.3	3140.1	3102.8	3128.5	3120.1
7.5°	3128.5	3111.6	3071.6	3082.9	3068.5
10°	3094.3	3074.4	3017.4	3008.6	2991.6
12.5°	3051.7	3025.9	2948.6	2931.6	2900.2
15°	3000.1	2968.7	2871.7	2817.5	2789.0
17.5°	2940.1	2894.4	2774.5	2711.8	2666.0
20°	2871.7	2814.5	2671.9	2600.7	2537.6
22.5°	2797.5	2731.8	2566.2	2469.2	2426.5
25°	2723.3	2631.9	2443.5	2326.6	2283.6
27.5°	2634.9	2537.6	2329.3	2195.2	2129.4
30°	2540.7	2431.9	2203.6	2058.3	1981.0
32.5°	2449.2	2317.8	2084.0	1912.6	1841.1
35°	2346.6	2200.9	1949.8	1770.0	1706.9
37.5°	2246.6	2089.5	1824.1	1627.0	1555.8
40°	2141.0	1969.8	1692.7	1490.1	1415.8
42.5°	2032.5	1849.9	1561.5	1350.2	1278.9
45°	1918.3	1726.9	1427.4	1224.5	1156.1
47.5°	1809.9	1607.3	1299.0	1096.1	1033.4
50°	1689.9	1487.4	1173.3	976.1	916.4
52.5°	1572.8	1358.6	1053.3	865.0	810.8
55°	1458.6	1236.0	927.7	756.5	702.3
57.5°	1341.7	1113.3	816.5	656.6	610.8
60°	1221.7	993.4	699.3	553.9	508.2
62.5°	1104.8	876.4	599.4	462.5	439.8
65°	984.9	753.5	496.7	399.8	390.9
67.5°	870.7	639.4	399.8	351.0	342.6
70°	750.8	528.2	331.0	302.5	291.1
72.5°	636.6	425.2	276.9	254.1	248.3
75°	525.2	325.3	228.4	208.4	205.7
77.5°	414.0	231.1	179.9	168.4	162.7
80°	311.0	165.7	136.9	125.6	125.6
82.5°	216.8	111.4	94.2	88.4	88.4
85°	122.7	62.7	54.2	54.2	54.2
87.5°	45.7	22.7	22.7	20.0	20.0
90°	1.6	19.7	53.5	50.2	51.8
92.5°	33.9	45.9	47.5	49.1	49.1
95°	79.7	94.9	97.7	97.7	94.9
97.5°	132.6	146.8	152.8	152.8	152.8
100°	193.8	206.3	210.6	210.6	209.0
102.5°	258.2	267.4	273.4	275.0	273.4
105°	328.6	332.9	336.2	339.0	339.0
107.5°	398.4	405.0	405.0	406.0	398.4
110°	466.1	474.8	474.8	474.8	470.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	539.2	548.5	546.8	542.4	539.2
115°	611.2	620.0	617.2	615.6	611.2
117.5°	682.8	694.8	687.1	682.8	678.4
120°	754.8	766.8	754.8	754.8	749.8
122.5°	820.2	835.5	827.9	823.6	820.2
125°	889.0	902.7	898.3	893.4	891.8
127.5°	956.2	973.1	967.1	960.6	956.2
130°	1019.0	1038.6	1035.9	1032.6	1026.6
132.5°	1089.4	1104.6	1105.7	1098.1	1093.7
135°	1150.0	1166.8	1170.1	1168.5	1164.1
137.5°	1217.6	1231.2	1234.0	1232.9	1226.4
140°	1277.1	1290.8	1298.4	1298.4	1292.4
142.5°	1338.2	1351.8	1356.2	1357.8	1351.8
145°	1396.1	1407.0	1415.7	1417.4	1411.3
147.5°	1447.9	1461.5	1468.1	1470.8	1464.8
150°	1501.4	1510.7	1516.7	1521.5	1516.7
152.5°	1548.8	1558.2	1565.8	1571.8	1565.8
155°	1596.3	1600.7	1605.6	1613.3	1608.3
157.5°	1637.3	1640.6	1643.3	1654.2	1646.6
160°	1673.9	1677.1	1678.8	1688.0	1681.5
162.5°	1707.7	1707.7	1709.3	1719.7	1712.0
165°	1736.6	1734.9	1734.9	1745.9	1738.3
167.5°	1762.8	1757.9	1757.9	1768.8	1761.2
170°	1782.5	1778.1	1776.4	1787.3	1778.1
172.5°	1796.1	1791.7	1790.1	1801.0	1791.7
175°	1807.0	1802.7	1799.3	1810.3	1801.0
177.5°	1813.0	1808.7	1805.3	1814.6	1805.3
180°	1810.3	1810.3	1810.3	1810.3	1810.3

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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	10.67	11.55	11.58	12.48	13.66	6.64	7.53	7.55	8.45	9.63
	3H	12.35	13.14	13.27	14.07	15.28	7.84	8.63	8.76	9.56	10.77
	4H	12.96	13.71	13.90	14.65	15.86	8.29	9.04	9.23	9.97	11.19
	6H	13.39	14.07	14.34	15.02	16.25	8.62	9.30	9.56	10.25	11.48
	8H	13.52	14.17	14.47	15.13	16.36	8.71	9.36	9.66	10.32	11.55
	12H	13.58	14.20	14.54	15.16	16.41	8.75	9.38	9.71	10.33	11.58
4H	2H	10.69	11.44	11.64	12.38	13.59	7.24	7.99	8.19	8.93	10.14
	3H	12.53	13.15	13.48	14.12	15.35	8.60	9.22	9.55	10.19	11.42
	4H	13.22	13.79	14.18	14.75	16.01	9.15	9.72	10.11	10.68	11.94
	6H	13.74	14.23	14.72	15.22	16.47	9.58	10.06	10.55	11.05	12.30
	8H	13.92	14.37	14.90	15.35	16.62	9.71	10.16	10.68	11.14	12.41
	12H	14.02	14.43	15.01	15.42	16.70	9.78	10.19	10.77	11.18	12.46
8H	4H	13.20	13.65	14.17	14.63	15.90	9.44	9.89	10.41	10.87	12.14
	6H	13.77	14.14	14.77	15.16	16.43	9.96	10.33	10.96	11.36	12.62
	8H	13.98	14.31	14.99	15.32	16.61	10.15	10.48	11.16	11.49	12.78
	12H	14.12	14.42	15.14	15.42	16.75	10.28	10.57	11.29	11.57	12.90
12H	4H	13.15	13.56	14.14	14.56	15.83	9.45	9.85	10.44	10.85	12.12
	6H	13.74	14.07	14.75	15.08	16.37	10.01	10.34	11.02	11.35	12.64
	8H	13.96	14.26	14.98	15.26	16.59	10.22	10.52	11.24	11.52	12.85

END OF REPORT

FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE

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