

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: P919130

Luminaire Tested: DFN2DIP-HX4F0-080D060US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919130
REPORT IS A COMBINATION OF REPORTS P899343 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D060US935-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

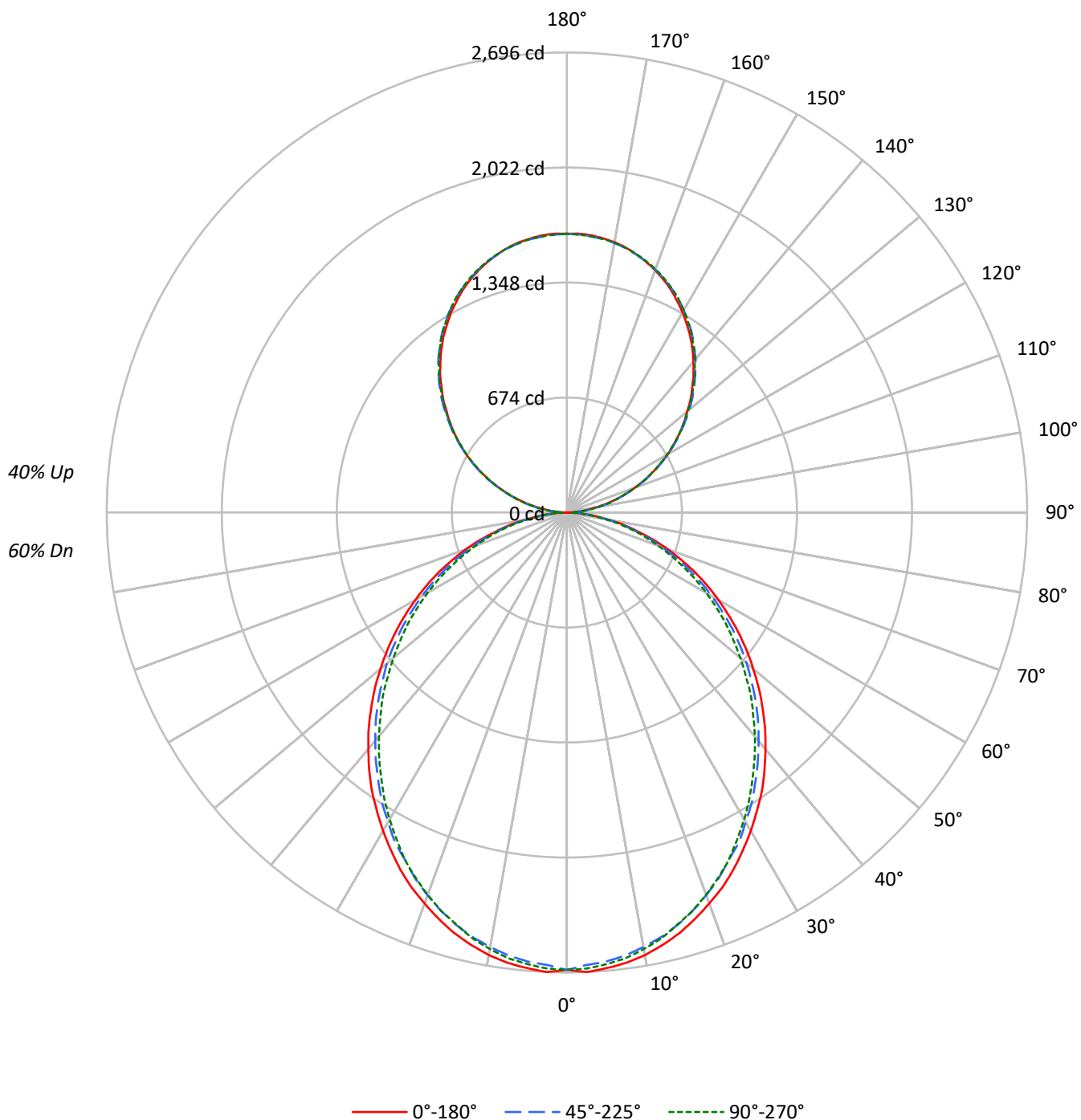
Lumens per Lamp: N/A
Luminaire Lumens: 11391.0 lumens
Efficiency: N/A
Efficacy: 102.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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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CATALOG NUMBER: DFN2DIP-HX4F0-080D060US935-FLLFL

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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	89	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	43	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	29	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1993	1993	1993
5°	1996	1965	1978
10°	1980	1939	1952
15°	1951	1907	1910
20°	1912	1863	1867
25°	1873	1810	1818
30°	1824	1761	1755
35°	1778	1703	1688
40°	1721	1645	1625
45°	1664	1586	1560
50°	1602	1524	1485
55°	1537	1453	1416
60°	1463	1368	1337
65°	1383	1281	1244
70°	1281	1174	1144
75°	1139	1046	1052
80°	970	883	875
85°	704	602	582

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1664 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.3	2.2
10°-20°	709.8	6.2
20°-30°	1043.1	9.2
30°-40°	1211.4	10.6
40°-50°	1209.9	10.6
50°-60°	1055.0	9.3
60°-70°	779.9	6.8
70°-80°	441.2	3.9
80°-90°	121.1	1.1
90°-100°	101.1	0.9
100°-110°	321.2	2.8
110°-120°	549.7	4.8
120°-130°	723.0	6.3
130°-140°	811.5	7.1
140°-150°	795.8	7.0
150°-160°	667.5	5.9
160°-170°	442.7	3.9
170°-180°	154.7	1.4
0°-30°	2005.1	17.6
0°-40°	3216.5	28.2
0°-60°	5481.5	48.1
0°-90°	6823.7	59.9
90°-120°	972.0	8.5
90°-150°	3302.3	29.0
90°-180°	4567.0	40.1
0°-180°	11391.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2680	2680	2680	2680	2680	
5°	2680	2670	2642	2662	2657	254
15°	2551	2536	2502	2513	2500	719
25°	2309	2289	2245	2250	2245	1063
35°	1992	1966	1925	1910	1897	1244
45°	1621	1603	1564	1536	1526	1251
55°	1227	1211	1180	1150	1137	1097
65°	827	812	786	763	750	818
75°	433	428	415	400	405	462
85°	106	103	101	93	90	118
90°	2	18	48	45	47	11
95°	72	86	88	88	86	80
105°	296	300	303	306	306	313
115°	552	560	557	556	552	546
125°	802	815	811	806	805	717
135°	1038	1053	1056	1055	1051	802
145°	1260	1270	1278	1279	1274	787
155°	1441	1445	1449	1456	1452	663
165°	1567	1566	1566	1576	1569	442
175°	1631	1627	1624	1634	1625	155
180°	1634	1634	1634	1634	1634	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2680.1	2680.1	2680.1	2680.1	2680.1
2.5°	2695.7	2682.9	2654.5	2680.1	2675.2
5°	2680.1	2670.0	2641.6	2662.1	2657.2
7.5°	2662.1	2646.8	2618.4	2639.1	2634.0
10°	2634.0	2615.9	2585.0	2605.5	2597.9
12.5°	2595.1	2579.8	2548.9	2561.7	2556.6
15°	2551.4	2536.1	2502.4	2512.8	2500.0
17.5°	2497.2	2481.9	2448.2	2461.2	2448.2
20°	2437.9	2422.6	2386.5	2394.2	2384.0
22.5°	2378.9	2355.6	2321.9	2321.9	2316.8
25°	2309.1	2288.6	2244.9	2249.8	2244.9
27.5°	2231.7	2213.7	2180.3	2172.6	2159.8
30°	2154.6	2133.8	2095.3	2087.7	2077.2
32.5°	2072.1	2056.8	2015.4	1999.8	1989.5
35°	1992.2	1966.5	1925.2	1909.6	1896.8
37.5°	1901.9	1878.7	1837.5	1819.4	1806.5
40°	1809.3	1788.5	1747.2	1724.2	1713.8
42.5°	1719.1	1698.2	1657.2	1631.2	1616.0
45°	1621.2	1603.1	1564.3	1536.1	1525.8
47.5°	1525.8	1507.7	1466.4	1438.0	1422.6
50°	1425.1	1412.3	1376.1	1340.1	1327.2
52.5°	1327.2	1309.1	1275.8	1247.4	1229.3
55°	1226.8	1211.3	1180.4	1149.5	1136.6
57.5°	1126.3	1113.4	1079.8	1048.9	1038.4
60°	1025.6	1015.5	979.4	951.0	943.3
62.5°	927.7	909.7	884.0	858.3	847.9
65°	827.4	811.8	786.1	762.8	750.0
67.5°	724.3	711.2	688.2	670.2	659.8
70°	628.9	618.5	595.3	577.2	567.1
72.5°	531.0	520.6	507.7	489.7	482.1
75°	432.8	427.9	414.8	399.5	404.7
77.5°	345.3	334.9	329.8	322.1	314.4
80°	257.9	255.1	249.9	242.3	237.0
82.5°	175.3	175.3	172.8	162.4	162.4
85°	105.6	103.1	100.7	92.7	90.2
87.5°	46.5	41.3	36.1	28.4	25.7
90°	1.5	17.7	48.3	45.3	46.8
92.5°	30.6	41.4	42.9	44.3	44.3
95°	71.9	85.7	88.2	88.2	85.7
97.5°	119.7	132.5	137.9	137.9	137.9
100°	174.9	186.1	190.1	190.1	188.6
102.5°	233.0	241.3	246.8	248.2	246.8
105°	296.5	300.5	303.4	305.9	305.9
107.5°	359.6	365.5	365.5	366.4	359.6
110°	420.7	428.5	428.5	428.5	424.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	486.6	495.0	493.5	489.6	486.6
115°	551.6	559.6	557.1	555.6	551.6
117.5°	616.2	627.1	620.1	616.2	612.3
120°	681.2	692.1	681.2	681.2	676.7
122.5°	740.3	754.1	747.2	743.3	740.3
125°	802.4	814.7	810.7	806.3	804.9
127.5°	863.0	878.2	872.8	866.9	863.0
130°	919.6	937.4	934.9	931.9	926.5
132.5°	983.2	996.9	997.9	991.0	987.0
135°	1037.8	1053.1	1056.0	1054.6	1050.6
137.5°	1098.9	1111.2	1113.7	1112.7	1106.8
140°	1152.6	1164.9	1171.8	1171.8	1166.4
142.5°	1207.7	1220.0	1224.0	1225.5	1220.0
145°	1260.0	1269.8	1277.7	1279.2	1273.8
147.5°	1306.7	1319.0	1325.0	1327.4	1322.0
150°	1355.0	1363.4	1368.8	1373.2	1368.8
152.5°	1397.8	1406.3	1413.2	1418.6	1413.2
155°	1440.7	1444.7	1449.1	1456.0	1451.6
157.5°	1477.6	1480.7	1483.1	1493.0	1486.1
160°	1510.7	1513.6	1515.1	1523.4	1517.6
162.5°	1541.2	1541.2	1542.6	1552.0	1545.1
165°	1567.3	1565.8	1565.8	1575.7	1568.8
167.5°	1591.0	1586.6	1586.6	1596.4	1589.5
170°	1608.7	1604.7	1603.3	1613.1	1604.7
172.5°	1621.0	1617.0	1615.6	1625.4	1617.0
175°	1630.8	1626.9	1623.9	1633.8	1625.4
177.5°	1636.2	1632.4	1629.4	1637.7	1629.4
180°	1633.8	1633.8	1633.8	1633.8	1633.8

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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	10.53	11.49	11.40	12.38	13.50	10.10	11.06	10.97	11.95	13.07
	3H	12.20	13.06	13.08	13.96	15.11	11.73	12.59	12.61	13.49	14.64
	4H	12.80	13.61	13.69	14.51	15.67	12.32	13.13	13.22	14.04	15.20
	6H	13.20	13.95	14.11	14.86	16.03	12.73	13.47	13.63	14.39	15.56
	8H	13.31	14.02	14.22	14.95	16.12	12.83	13.55	13.75	14.48	15.65
	12H	13.36	14.04	14.28	14.96	16.16	12.88	13.56	13.80	14.48	15.68
4H	2H	11.01	11.82	11.91	12.73	13.88	10.66	11.48	11.56	12.38	13.54
	3H	12.88	13.56	13.80	14.50	15.67	12.49	13.17	13.40	14.11	15.28
	4H	13.60	14.22	14.53	15.15	16.35	13.20	13.82	14.12	14.75	15.95
	6H	14.12	14.66	15.06	15.61	16.81	13.72	14.25	14.65	15.20	16.40
	8H	14.28	14.78	15.22	15.73	16.94	13.86	14.36	14.80	15.31	16.53
	12H	14.36	14.81	15.31	15.77	16.99	13.93	14.38	14.89	15.35	16.57
8H	4H	13.81	14.31	14.75	15.26	16.47	13.45	13.95	14.39	14.90	16.11
	6H	14.44	14.86	15.41	15.85	17.06	14.08	14.50	15.05	15.49	16.70
	8H	14.67	15.03	15.64	16.01	17.24	14.30	14.66	15.27	15.64	16.87
	12H	14.80	15.13	15.78	16.10	17.38	14.42	14.74	15.40	15.71	16.99
12H	4H	13.80	14.25	14.76	15.22	16.43	13.45	13.90	14.40	14.86	16.08
	6H	14.48	14.84	15.45	15.82	17.05	14.12	14.49	15.10	15.47	16.70
	8H	14.72	15.05	15.70	16.02	17.30	14.37	14.69	15.34	15.66	16.94