

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: P919078

Luminaire Tested: DFN2DIP-HX4F0-050D070US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919078
REPORT IS A COMBINATION OF REPORTS P899355 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D070US935-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

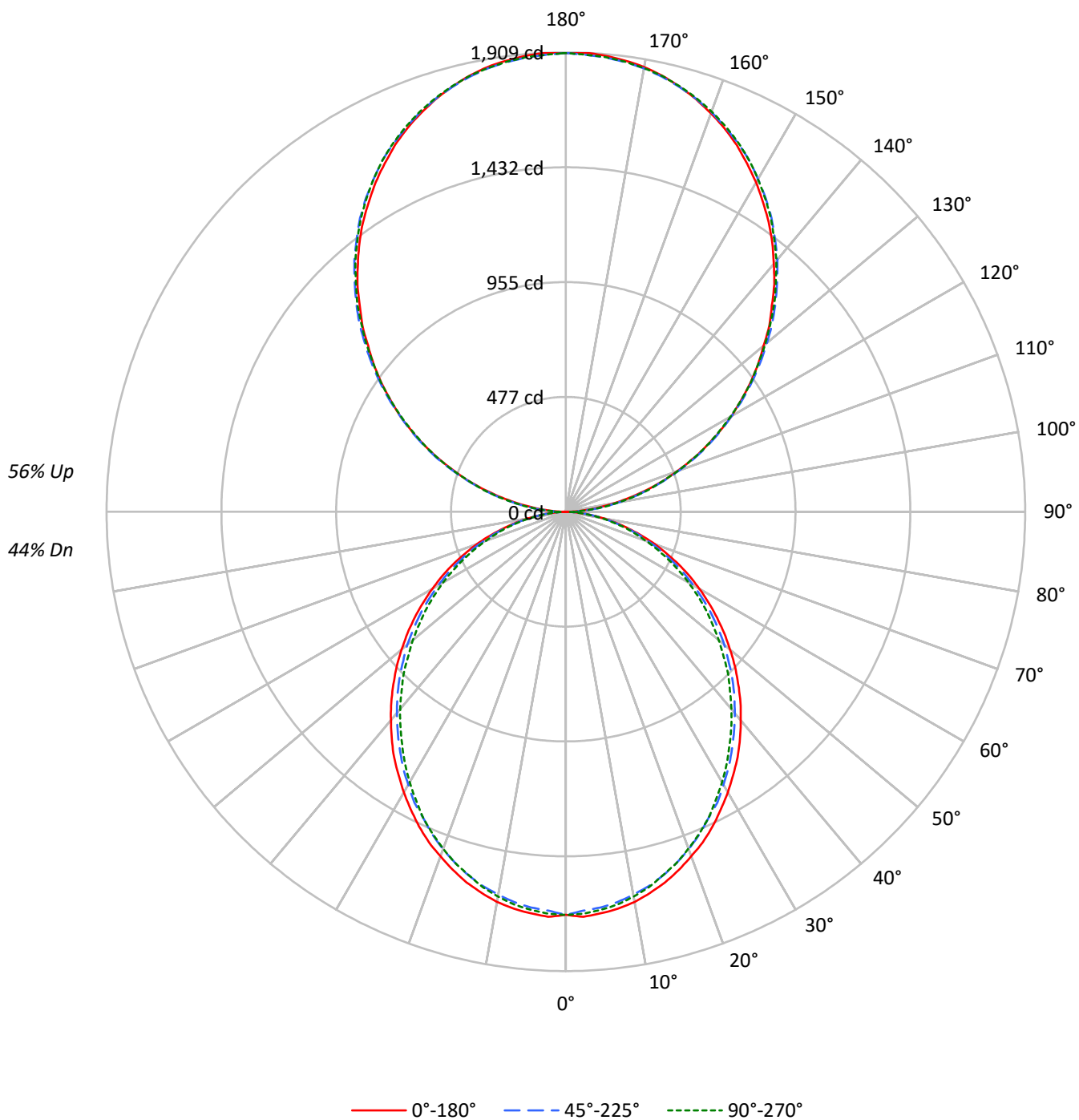
Lumens per Lamp: N/A
Luminaire Lumens: 9595.9 lumens
Efficiency: N/A
Efficacy: 115.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 83.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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-HX4F0-050D070US935-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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	31	29	27
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	20	24	20	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1246	1246	1246
5°	1248	1228	1237
10°	1238	1212	1220
15°	1220	1192	1194
20°	1195	1164	1167
25°	1171	1131	1136
30°	1140	1101	1097
35°	1111	1064	1055
40°	1076	1028	1016
45°	1040	991	975
50°	1001	953	928
55°	960	908	885
60°	915	855	836
65°	864	800	778
70°	801	734	715
75°	712	654	658
80°	606	552	547
85°	440	376	364

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1438 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.7	1.6
10°-20°	443.6	4.6
20°-30°	651.9	6.8
30°-40°	757.2	7.9
40°-50°	756.2	7.9
50°-60°	659.4	6.9
60°-70°	487.4	5.1
70°-80°	275.8	2.9
80°-90°	78.2	0.8
90°-100°	117.9	1.2
100°-110°	374.8	3.9
110°-120°	641.3	6.7
120°-130°	843.5	8.8
130°-140°	946.7	9.9
140°-150°	928.4	9.7
150°-160°	778.8	8.1
160°-170°	516.5	5.4
170°-180°	180.5	1.9
0°-30°	1253.2	13.1
0°-40°	2010.3	20.9
0°-60°	3425.9	35.7
0°-90°	4267.4	44.5
90°-120°	1134.1	11.8
90°-150°	3852.7	40.1
90°-180°	5328.0	55.5
0°-180°	9595.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1675	1675	1675	1675	1675	
5°	1675	1669	1651	1664	1661	159
15°	1595	1585	1564	1570	1562	449
25°	1443	1430	1403	1406	1403	664
35°	1245	1229	1203	1194	1186	778
45°	1013	1002	978	960	954	782
55°	767	757	738	718	710	686
65°	517	507	491	477	469	511
75°	270	267	259	250	253	289
85°	66	64	63	58	56	74
90°	2	21	56	53	55	9
95°	84	100	103	103	100	93
105°	346	350	354	357	357	365
115°	644	653	650	648	644	637
125°	936	950	946	941	939	837
135°	1211	1229	1232	1230	1226	936
145°	1470	1481	1491	1492	1486	918
155°	1681	1685	1691	1699	1694	774
165°	1828	1827	1827	1838	1830	516
175°	1903	1898	1895	1906	1896	181
180°	1906	1906	1906	1906	1906	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1675.1	1675.1	1675.1	1675.1	1675.1
2.5°	1684.8	1676.8	1659.1	1675.1	1672.1
5°	1675.1	1668.8	1651.0	1663.8	1660.8
7.5°	1663.8	1654.2	1636.5	1649.5	1646.2
10°	1646.2	1634.9	1615.7	1628.4	1623.7
12.5°	1621.9	1612.4	1593.1	1601.1	1597.8
15°	1594.6	1585.0	1564.0	1570.5	1562.5
17.5°	1560.7	1551.2	1530.2	1538.2	1530.2
20°	1523.7	1514.2	1491.6	1496.3	1490.0
22.5°	1486.8	1472.2	1451.2	1451.2	1447.9
25°	1443.2	1430.4	1403.0	1406.1	1403.0
27.5°	1394.8	1383.5	1362.7	1357.9	1349.9
30°	1346.6	1333.7	1309.6	1304.8	1298.3
32.5°	1295.0	1285.5	1259.6	1249.9	1243.5
35°	1245.1	1229.1	1203.2	1193.5	1185.5
37.5°	1188.7	1174.2	1148.4	1137.1	1129.1
40°	1130.8	1117.8	1092.0	1077.6	1071.2
42.5°	1074.4	1061.4	1035.8	1019.5	1010.0
45°	1013.2	1001.9	977.7	960.1	953.6
47.5°	953.6	942.3	916.5	898.7	889.2
50°	890.7	882.7	860.1	837.6	829.5
52.5°	829.5	818.2	797.4	779.6	768.4
55°	766.8	757.1	737.7	718.4	710.4
57.5°	703.9	695.9	674.9	655.6	649.0
60°	641.0	634.7	612.2	594.3	589.6
62.5°	579.9	568.6	552.5	536.4	529.9
65°	517.1	507.4	491.3	476.8	468.7
67.5°	452.7	444.5	430.2	418.9	412.3
70°	393.0	386.6	372.0	360.8	354.5
72.5°	331.9	325.4	317.4	306.1	301.3
75°	270.5	267.4	259.2	249.7	253.0
77.5°	215.9	209.3	206.1	201.3	196.6
80°	161.2	159.5	156.2	151.4	148.2
82.5°	109.5	109.5	108.0	101.5	101.5
85°	66.0	64.4	62.9	57.9	56.4
87.5°	29.0	25.8	22.6	17.7	16.1
90°	1.7	20.7	56.3	52.9	54.6
92.5°	35.6	48.3	50.0	51.7	51.7
95°	83.9	100.0	102.9	102.9	100.0
97.5°	139.7	154.5	160.9	160.9	160.9
100°	204.0	217.2	221.8	221.8	220.1
102.5°	271.8	281.5	287.9	289.6	287.9
105°	345.9	350.5	354.0	356.9	356.9
107.5°	419.5	426.4	426.4	427.6	419.5
110°	490.8	500.0	500.0	500.0	495.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	567.7	577.6	575.8	571.2	567.7
115°	643.6	652.8	650.0	648.2	643.6
117.5°	718.8	731.5	723.5	718.8	714.3
120°	794.7	807.4	794.7	794.7	789.5
122.5°	863.7	879.8	871.8	867.1	863.7
125°	936.1	950.5	945.9	940.7	939.0
127.5°	1006.8	1024.6	1018.3	1011.4	1006.8
130°	1072.9	1093.6	1090.7	1087.3	1080.9
132.5°	1147.0	1163.1	1164.2	1156.2	1151.6
135°	1210.8	1228.6	1232.1	1230.3	1225.7
137.5°	1282.0	1296.4	1299.2	1298.1	1291.2
140°	1344.7	1359.1	1367.1	1367.1	1360.8
142.5°	1409.0	1423.4	1428.0	1429.7	1423.4
145°	1470.0	1481.4	1490.6	1492.4	1486.1
147.5°	1524.6	1538.9	1545.8	1548.7	1542.4
150°	1580.9	1590.6	1597.0	1602.1	1597.0
152.5°	1630.8	1640.6	1648.6	1655.0	1648.6
155°	1680.8	1685.4	1690.7	1698.7	1693.5
157.5°	1724.0	1727.4	1730.3	1741.8	1733.7
160°	1762.5	1765.9	1767.6	1777.4	1770.5
162.5°	1798.1	1798.1	1799.8	1810.7	1802.7
165°	1828.5	1826.8	1826.8	1838.3	1830.2
167.5°	1856.1	1851.0	1851.0	1862.4	1854.4
170°	1876.8	1872.2	1870.5	1882.0	1872.2
172.5°	1891.2	1886.5	1884.8	1896.3	1886.5
175°	1902.6	1898.1	1894.6	1906.1	1896.3
177.5°	1909.0	1904.4	1900.9	1910.7	1900.9
180°	1906.1	1906.1	1906.1	1906.1	1906.1

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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	7.50	8.31	8.50	9.33	10.68	7.07	7.88	8.07	8.90	10.24
	3H	9.16	9.89	10.17	10.91	12.28	8.68	9.41	9.70	10.44	11.81
	4H	9.74	10.43	10.77	11.46	12.84	9.27	9.96	10.30	10.99	12.36
	6H	10.14	10.78	11.18	11.81	13.20	9.67	10.30	10.70	11.33	12.72
	8H	10.25	10.85	11.29	11.90	13.28	9.77	10.38	10.81	11.42	12.81
	12H	10.29	10.87	11.34	11.91	13.32	9.81	10.39	10.86	11.43	12.84
4H	2H	7.96	8.65	8.99	9.67	11.05	7.61	8.30	8.64	9.33	10.70
	3H	9.82	10.40	10.86	11.45	12.84	9.43	10.00	10.47	11.06	12.45
	4H	10.53	11.06	11.58	12.11	13.52	10.13	10.66	11.17	11.70	13.11
	6H	11.05	11.50	12.10	12.57	13.98	10.64	11.09	11.69	12.16	13.57
	8H	11.20	11.62	12.25	12.68	14.10	10.78	11.21	11.84	12.27	13.69
	12H	11.27	11.65	12.34	12.73	14.15	10.84	11.23	11.92	12.30	13.73
8H	4H	10.73	11.15	11.78	12.21	13.63	10.37	10.79	11.42	11.85	13.27
	6H	11.36	11.71	12.44	12.81	14.23	10.99	11.34	12.08	12.45	13.87
	8H	11.58	11.89	12.67	12.97	14.41	11.21	11.52	12.30	12.60	14.04
	12H	11.71	11.98	12.80	13.06	14.54	11.32	11.59	12.42	12.68	14.16
12H	4H	10.71	11.09	11.79	12.17	13.60	10.36	10.74	11.43	11.82	13.24
	6H	11.39	11.70	12.48	12.78	14.22	11.03	11.34	12.12	12.43	13.87
	8H	11.63	11.90	12.72	12.98	14.46	11.27	11.54	12.36	12.62	14.10