

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: P916388

Luminaire Tested: DFN2DIP-HX4F0-070D080US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916388
REPORT IS A COMBINATION OF REPORTS P899377 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D080US930-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

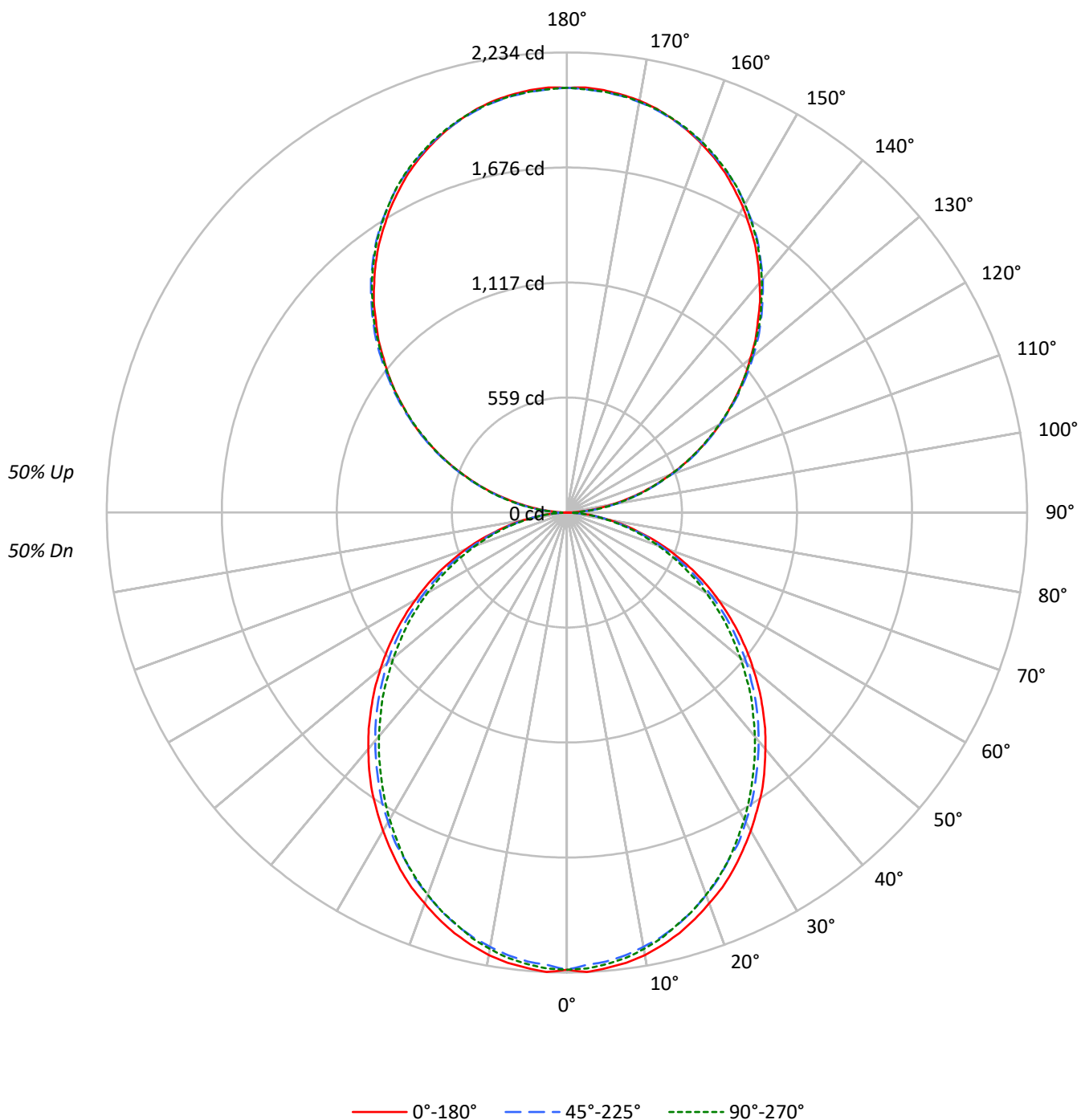
Lumens per Lamp: N/A
Luminaire Lumens: 11422.4 lumens
Efficiency: N/A
Efficacy: 102.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 111.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	89	86	90	86	83	80	73	70	68	61	59	57	49	48	47
2	89	82	75	70	82	75	70	66	64	60	56	53	50	48	43	41	40
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	34
4	74	63	56	49	68	59	52	46	50	45	40	42	38	35	34	31	29
5	68	57	48	42	63	52	45	40	45	39	35	38	33	30	31	28	25
6	63	51	43	37	58	47	40	35	40	35	30	34	30	26	28	25	22
7	58	46	38	32	53	43	35	30	37	31	27	31	27	23	26	22	20
8	54	42	34	28	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	18	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1651	1651	1651
5°	1654	1628	1639
10°	1641	1607	1617
15°	1617	1580	1582
20°	1584	1544	1547
25°	1552	1500	1506
30°	1512	1459	1454
35°	1473	1411	1399
40°	1426	1363	1346
45°	1379	1314	1293
50°	1327	1263	1231
55°	1273	1204	1174
60°	1212	1134	1108
65°	1146	1061	1031
70°	1062	973	948
75°	944	867	871
80°	803	732	725
85°	583	499	482

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1556 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.0	1.8
10°-20°	588.1	5.1
20°-30°	864.2	7.6
30°-40°	1003.7	8.8
40°-50°	1002.5	8.8
50°-60°	874.2	7.7
60°-70°	646.2	5.7
70°-80°	365.6	3.2
80°-90°	102.4	0.9
90°-100°	127.6	1.1
100°-110°	405.6	3.6
110°-120°	694.1	6.1
120°-130°	912.8	8.0
130°-140°	1024.6	9.0
140°-150°	1004.7	8.8
150°-160°	842.8	7.4
160°-170°	558.9	4.9
170°-180°	195.4	1.7
0°-30°	1661.3	14.5
0°-40°	2665.1	23.3
0°-60°	4541.7	39.8
0°-90°	5655.9	49.5
90°-120°	1227.3	10.7
90°-150°	4169.4	36.5
90°-180°	5766.0	50.5
0°-180°	11422.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2221	2221	2221	2221	2221	
5°	2221	2212	2189	2206	2202	211
15°	2114	2101	2073	2082	2071	595
25°	1913	1896	1860	1864	1860	880
35°	1651	1629	1595	1582	1572	1031
45°	1343	1328	1296	1273	1264	1037
55°	1016	1004	978	952	942	909
65°	686	673	651	632	621	678
75°	359	355	344	331	335	383
85°	88	85	83	77	75	98
90°	2	22	61	57	59	11
95°	91	108	111	111	108	101
105°	374	379	383	386	386	395
115°	696	706	703	702	696	689
125°	1013	1029	1024	1018	1016	905
135°	1310	1330	1333	1332	1326	1013
145°	1591	1603	1613	1615	1608	994
155°	1819	1824	1830	1838	1833	837
165°	1979	1977	1977	1989	1981	558
175°	2059	2054	2050	2063	2052	196
180°	2063	2063	2063	2063	2063	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2220.6	2220.6	2220.6	2220.6	2220.6
2.5°	2233.6	2222.9	2199.3	2220.6	2216.6
5°	2220.6	2212.3	2188.7	2205.7	2201.6
7.5°	2205.7	2193.0	2169.4	2186.7	2182.4
10°	2182.4	2167.4	2141.8	2158.8	2152.5
12.5°	2150.2	2137.5	2111.9	2122.5	2118.2
15°	2114.0	2101.3	2073.4	2082.0	2071.3
17.5°	2069.1	2056.4	2028.5	2039.2	2028.5
20°	2019.9	2007.3	1977.3	1983.7	1975.3
22.5°	1971.0	1951.7	1923.9	1923.9	1919.5
25°	1913.3	1896.2	1860.0	1864.1	1860.0
27.5°	1849.1	1834.2	1806.5	1800.2	1789.5
30°	1785.3	1768.0	1736.1	1729.7	1721.1
32.5°	1716.8	1704.1	1669.9	1657.0	1648.4
35°	1650.7	1629.4	1595.1	1582.2	1571.6
37.5°	1575.9	1556.6	1522.4	1507.5	1496.8
40°	1499.1	1481.9	1447.6	1428.6	1420.0
42.5°	1424.3	1407.1	1373.1	1351.6	1338.9
45°	1343.2	1328.3	1296.1	1272.8	1264.1
47.5°	1264.1	1249.2	1215.0	1191.4	1178.8
50°	1180.8	1170.1	1140.2	1110.4	1099.7
52.5°	1099.7	1084.8	1057.1	1033.6	1018.6
55°	1016.5	1003.6	978.0	952.4	941.8
57.5°	933.2	922.5	894.6	869.0	860.5
60°	849.8	841.4	811.5	788.0	781.6
62.5°	768.7	753.7	732.5	711.2	702.5
65°	685.6	672.6	651.3	632.1	621.4
67.5°	600.1	589.3	570.2	555.3	546.7
70°	521.1	512.5	493.2	478.3	469.9
72.5°	439.9	431.4	420.7	405.8	399.4
75°	358.6	354.6	343.6	331.0	335.3
77.5°	286.2	277.5	273.2	266.8	260.6
80°	213.6	211.4	207.1	200.7	196.4
82.5°	145.2	145.2	143.2	134.6	134.6
85°	87.5	85.4	83.4	76.8	74.8
87.5°	38.5	34.2	29.9	23.6	21.3
90°	1.9	22.4	61.0	57.2	59.1
92.5°	38.6	52.3	54.1	55.9	55.9
95°	90.8	108.2	111.3	111.3	108.2
97.5°	151.2	167.3	174.1	174.1	174.1
100°	220.8	235.1	240.0	240.0	238.1
102.5°	294.2	304.8	311.5	313.4	311.5
105°	374.4	379.4	383.1	386.2	386.2
107.5°	454.0	461.5	461.5	462.7	454.0
110°	531.1	541.0	541.0	541.0	536.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	614.4	625.0	623.1	618.2	614.4
115°	696.5	706.5	703.4	701.5	696.5
117.5°	778.0	791.7	782.9	778.0	773.0
120°	860.1	873.8	860.1	860.1	854.4
122.5°	934.7	952.1	943.4	938.4	934.7
125°	1013.0	1028.6	1023.6	1018.0	1016.2
127.5°	1089.6	1108.8	1102.0	1094.5	1089.6
130°	1161.1	1183.4	1180.3	1176.6	1169.8
132.5°	1241.3	1258.7	1260.0	1251.2	1246.3
135°	1310.3	1329.6	1333.3	1331.5	1326.5
137.5°	1387.4	1403.0	1406.1	1404.8	1397.3
140°	1455.2	1470.7	1479.4	1479.4	1472.6
142.5°	1524.9	1540.4	1545.4	1547.3	1540.4
145°	1590.8	1603.2	1613.1	1615.0	1608.2
147.5°	1649.8	1665.4	1672.8	1676.0	1669.2
150°	1710.8	1721.3	1728.2	1733.8	1728.2
152.5°	1764.9	1775.5	1784.2	1791.0	1784.2
155°	1819.0	1824.0	1829.6	1838.3	1832.7
157.5°	1865.6	1869.4	1872.5	1884.9	1876.2
160°	1907.3	1911.1	1912.9	1923.5	1916.0
162.5°	1945.9	1945.9	1947.7	1959.6	1950.8
165°	1978.8	1976.9	1976.9	1989.4	1980.7
167.5°	2008.7	2003.1	2003.1	2015.5	2006.8
170°	2031.1	2026.1	2024.2	2036.7	2026.1
172.5°	2046.6	2041.7	2039.8	2052.2	2041.7
175°	2059.0	2054.1	2050.3	2062.8	2052.2
177.5°	2065.9	2060.9	2057.2	2067.8	2057.2
180°	2062.8	2062.8	2062.8	2062.8	2062.8

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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	8.97	9.83	9.93	10.80	12.08	8.54	9.39	9.50	10.37	11.65
	3H	10.63	11.40	11.60	12.38	13.68	10.16	10.93	11.13	11.91	13.21
	4H	11.22	11.95	12.20	12.93	14.24	10.74	11.47	11.73	12.46	13.77
	6H	11.62	12.29	12.61	13.28	14.60	11.14	11.81	12.14	12.81	14.13
	8H	11.72	12.36	12.73	13.37	14.69	11.25	11.89	12.25	12.90	14.22
	12H	11.77	12.38	12.78	13.38	14.73	11.29	11.90	12.30	12.90	14.25
4H	2H	9.43	10.16	10.42	11.15	12.46	9.09	9.81	10.08	10.80	12.11
	3H	11.30	11.90	12.30	12.92	14.25	10.90	11.51	11.91	12.53	13.85
	4H	12.01	12.57	13.02	13.58	14.92	11.61	12.16	12.62	13.17	14.52
	6H	12.53	13.01	13.55	14.04	15.38	12.12	12.60	13.14	13.63	14.97
	8H	12.68	13.13	13.70	14.15	15.51	12.27	12.71	13.29	13.74	15.10
	12H	12.75	13.16	13.79	14.20	15.56	12.33	12.73	13.37	13.78	15.14
8H	4H	12.21	12.66	13.23	13.68	15.04	11.85	12.30	12.87	13.32	14.68
	6H	12.84	13.21	13.89	14.28	15.64	12.48	12.85	13.52	13.92	15.27
	8H	13.06	13.39	14.12	14.44	15.82	12.69	13.02	13.75	14.07	15.45
	12H	13.20	13.48	14.25	14.53	15.95	12.81	13.10	13.87	14.15	15.56
12H	4H	12.19	12.60	13.23	13.64	15.00	11.84	12.25	12.88	13.29	14.65
	6H	12.87	13.20	13.93	14.25	15.63	12.52	12.85	13.57	13.90	15.27
	8H	13.11	13.40	14.17	14.45	15.87	12.76	13.04	13.81	14.09	15.51