

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: P916396

Luminaire Tested: DFN2DIP-HX4F0-070D120US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916396
REPORT IS A COMBINATION OF REPORTS P899449 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D120US930-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

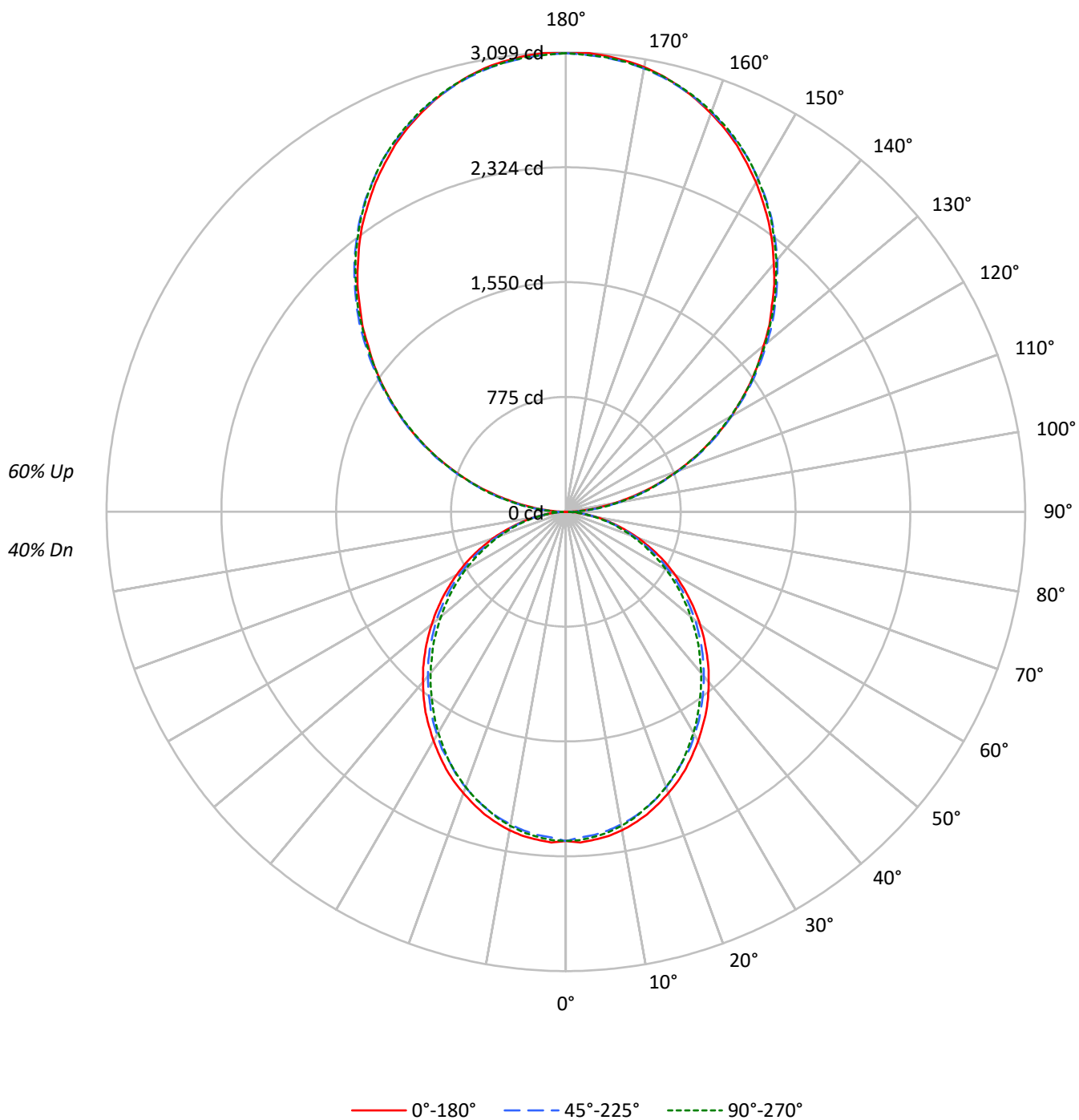
Lumens per Lamp: N/A
Luminaire Lumens: 14308.5 lumens
Efficiency: N/A
Efficacy: 102.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 139.5
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	105	105	105	105	95	95	95	95	78	78	78	61	61	61	47	47	47
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39
2	87	80	74	68	79	73	67	63	59	56	53	47	45	43	36	35	33
3	79	70	63	57	72	64	58	53	52	48	44	42	39	36	32	30	28
4	72	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	66	55	47	41	60	50	43	38	42	36	32	33	30	27	26	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	21	19
7	56	44	37	31	51	41	34	29	34	29	25	27	24	21	21	19	16
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	16	18	15	13
10	45	34	27	22	41	31	25	20	26	21	18	21	17	15	17	14	12

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: 2333 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.0	1.5
10°-20°	588.1	4.1
20°-30°	864.2	6.0
30°-40°	1003.7	7.0
40°-50°	1002.5	7.0
50°-60°	874.2	6.1
60°-70°	646.2	4.5
70°-80°	365.6	2.6
80°-90°	105.3	0.7
90°-100°	191.5	1.3
100°-110°	608.3	4.3
110°-120°	1041.1	7.3
120°-130°	1369.2	9.6
130°-140°	1536.9	10.7
140°-150°	1507.1	10.5
150°-160°	1264.2	8.8
160°-170°	838.4	5.9
170°-180°	293.0	2.0
0°-30°	1661.3	11.6
0°-40°	2665.1	18.6
0°-60°	4541.7	31.7
0°-90°	5658.8	39.5
90°-120°	1840.9	12.9
90°-150°	6254.0	43.7
90°-180°	8650.0	60.5
0°-180°	14308.5	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°	3	34	91	86	89	14
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	

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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°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1

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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	7.96	8.74	9.00	9.78	11.20	7.53	8.31	8.57	9.35	10.77
	3H	9.62	10.31	10.67	11.37	12.80	9.14	9.84	10.20	10.89	12.33
	4H	10.20	10.86	11.26	11.92	13.36	9.73	10.39	10.79	11.44	12.88
	6H	10.60	11.20	11.67	12.27	13.72	10.12	10.73	11.19	11.79	13.24
	8H	10.70	11.28	11.78	12.36	13.80	10.22	10.80	11.30	11.88	13.33
	12H	10.75	11.29	11.83	12.37	13.84	10.26	10.81	11.35	11.88	13.35
4H	2H	8.41	9.07	9.48	10.13	11.57	8.07	8.73	9.14	9.79	11.22
	3H	10.27	10.82	11.35	11.91	13.36	9.88	10.43	10.96	11.52	12.97
	4H	10.98	11.49	12.07	12.57	14.04	10.58	11.08	11.66	12.16	13.63
	6H	11.50	11.93	12.59	13.03	14.50	11.09	11.52	12.18	12.62	14.09
	8H	11.64	12.05	12.74	13.14	14.62	11.23	11.64	12.32	12.73	14.21
	12H	11.71	12.08	12.82	13.18	14.67	11.29	11.66	12.40	12.76	14.25
8H	4H	11.17	11.58	12.27	12.67	14.15	10.81	11.22	11.91	12.31	13.79
	6H	11.80	12.14	12.92	13.27	14.75	11.44	11.77	12.55	12.91	14.39
	8H	12.02	12.32	13.15	13.43	14.93	11.66	11.95	12.78	13.06	14.56
	12H	12.15	12.41	13.28	13.52	15.06	11.77	12.03	12.89	13.14	14.67
12H	4H	11.16	11.52	12.27	12.63	14.12	10.80	11.17	11.91	12.28	13.76
	6H	11.83	12.13	12.95	13.24	14.74	11.48	11.77	12.60	12.89	14.39
	8H	12.07	12.33	13.20	13.44	14.98	11.71	11.97	12.84	13.08	14.62

END OF REPORT