

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: P916375

Luminaire Tested: DFN2DIP-HX4F0-060D100US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916375
REPORT IS A COMBINATION OF REPORTS P899412 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D100US930-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

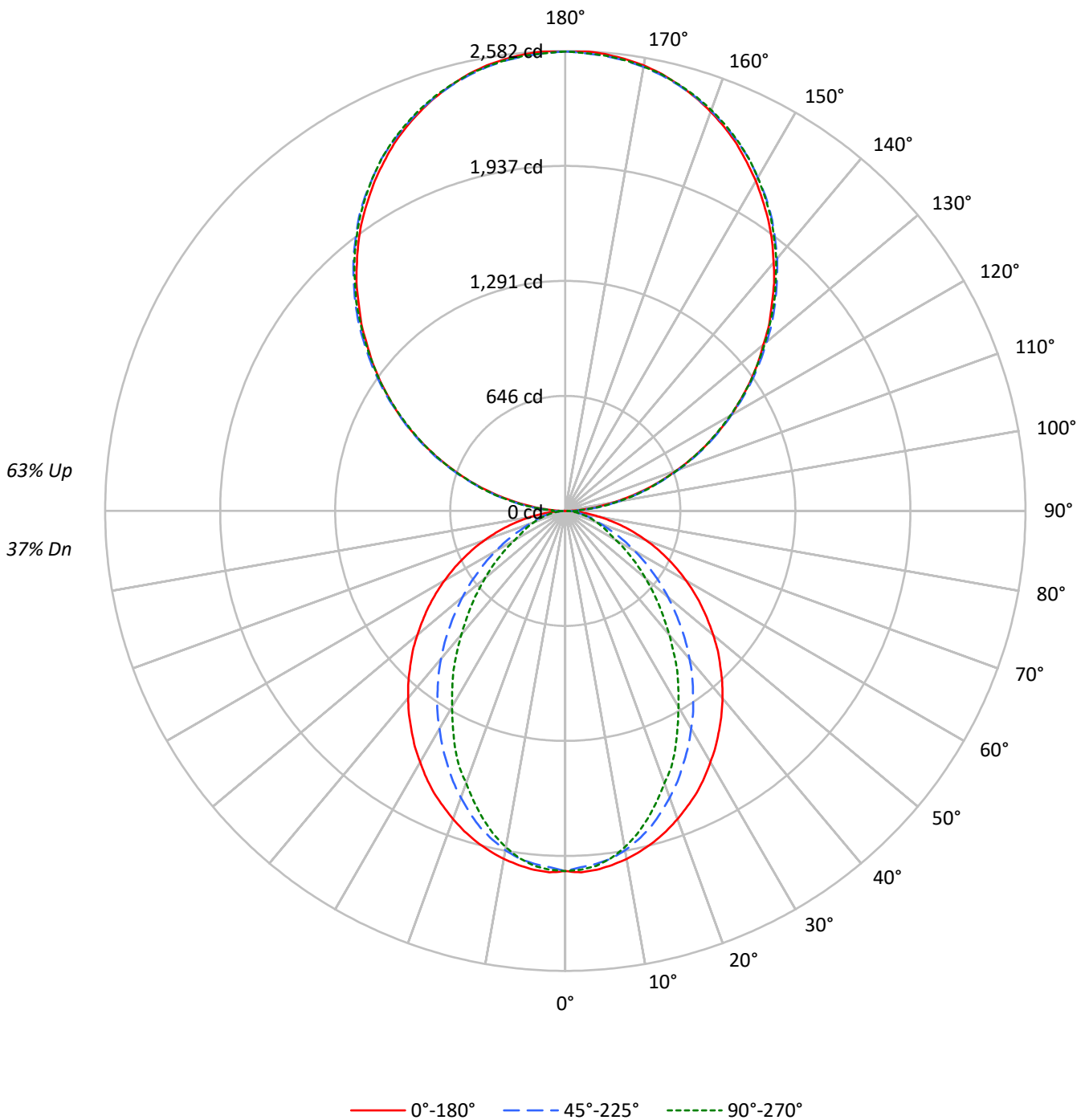
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11373.4 lumens
Efficiency: N/A
Efficacy: 101.6 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: Semi-Indirect

Input Watts (W): 111.9
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	44	44	44	37
1	95	91	87	84	86	83	80	77	67	65	63	53	51	50	39	38	38	38	38	38	32
2	87	80	74	69	79	73	68	63	59	56	53	47	44	42	35	34	32	32	32	32	27
3	79	70	64	58	72	64	58	53	52	48	45	41	39	36	31	29	28	28	28	28	23
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24	24	24	24	20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	26	23	21	21	21	21	18
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19	19	19	19	16
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17	17	17	17	14
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15	15	15	15	13
9	49	38	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14	14	14	14	12
10	46	34	27	23	42	32	25	21	26	22	18	22	18	16	17	14	13	13	13	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1503	1503	1503
5°	1506	1480	1489
10°	1491	1451	1441
15°	1471	1403	1366
20°	1444	1337	1274
25°	1416	1263	1185
30°	1379	1187	1073
35°	1342	1106	974
40°	1305	1021	860
45°	1262	928	758
50°	1218	833	657
55°	1171	732	561
60°	1117	626	462
65°	1055	519	416
70°	980	418	376
75°	886	369	343
80°	749	310	297
85°	524	208	224

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1946 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.5	1.7
10°-20°	520.2	4.6
20°-30°	730.3	6.4
30°-40°	796.1	7.0
40°-50°	731.7	6.4
50°-60°	574.6	5.1
60°-70°	374.0	3.3
70°-80°	192.5	1.7
80°-90°	56.5	0.5
90°-100°	159.6	1.4
100°-110°	507.0	4.5
110°-120°	867.6	7.6
120°-130°	1141.0	10.0
130°-140°	1280.7	11.3
140°-150°	1255.9	11.0
150°-160°	1053.5	9.3
160°-170°	698.7	6.1
170°-180°	244.2	2.1
0°-30°	1439.9	12.7
0°-40°	2236.0	19.7
0°-60°	3542.3	31.1
0°-90°	4165.3	36.6
90°-120°	1534.1	13.5
90°-150°	5211.7	45.8
90°-180°	7208.0	63.4
0°-180°	11373.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2022	2022	2022	2022	2022	
5°	2022	2013	1989	2005	2000	192
15°	1923	1903	1841	1806	1788	542
25°	1746	1687	1566	1491	1464	803
35°	1504	1411	1250	1134	1094	941
45°	1230	1107	915	785	741	950
55°	935	792	595	485	450	835
65°	631	483	318	256	251	626
75°	337	208	146	134	132	356
85°	79	40	35	35	35	90
90°	2	28	76	72	74	11
95°	114	135	139	139	135	126
105°	468	474	479	483	483	494
115°	871	883	879	877	871	861
125°	1266	1286	1280	1272	1270	1132
135°	1638	1662	1667	1664	1658	1266
145°	1988	2004	2016	2019	2010	1242
155°	2274	2280	2287	2298	2291	1047
165°	2474	2471	2471	2487	2476	698
175°	2574	2568	2563	2578	2565	245
180°	2578	2578	2578	2578	2578	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2021.8	2021.8	2021.8	2021.8	2021.8
2.5°	2030.9	2021.8	2001.6	2020.0	2016.3
5°	2021.8	2012.6	1988.8	2005.3	1999.8
7.5°	2005.3	1994.4	1968.8	1976.0	1966.8
10°	1983.3	1970.5	1934.1	1928.4	1917.5
12.5°	1956.0	1939.4	1889.9	1879.1	1858.9
15°	1923.0	1902.7	1840.6	1805.9	1787.6
17.5°	1884.6	1855.2	1778.3	1738.1	1708.9
20°	1840.6	1803.9	1712.5	1666.9	1626.5
22.5°	1793.1	1750.9	1644.8	1582.7	1555.3
25°	1745.6	1686.9	1566.2	1491.3	1463.7
27.5°	1688.9	1626.5	1493.0	1407.0	1364.9
30°	1628.5	1558.8	1412.4	1319.2	1269.7
32.5°	1569.9	1485.6	1335.8	1225.9	1180.1
35°	1504.1	1410.7	1249.8	1134.4	1094.0
37.5°	1440.0	1339.2	1169.2	1042.8	997.2
40°	1372.2	1262.6	1084.9	955.0	907.5
42.5°	1302.8	1185.7	1000.9	865.4	819.8
45°	1229.6	1106.8	914.9	784.8	740.9
47.5°	1160.1	1030.2	832.6	702.5	662.3
50°	1083.2	953.3	752.0	625.7	587.4
52.5°	1008.0	870.8	675.1	554.4	519.7
55°	934.9	792.2	594.6	484.9	450.1
57.5°	860.0	713.5	523.3	420.9	391.5
60°	783.1	636.7	448.3	355.1	325.7
62.5°	708.2	561.8	384.2	296.4	281.8
65°	631.3	483.0	318.4	256.2	250.6
67.5°	558.1	409.8	256.2	225.0	219.6
70°	481.2	338.5	212.1	194.0	186.5
72.5°	408.1	272.6	177.4	162.9	159.1
75°	336.6	208.5	146.3	133.5	131.8
77.5°	265.4	148.1	115.3	107.9	104.3
80°	199.3	106.2	87.7	80.6	80.6
82.5°	139.0	71.4	60.3	56.7	56.7
85°	78.6	40.2	34.7	34.7	34.7
87.5°	29.4	14.6	14.6	12.8	12.8
90°	2.4	28.0	76.1	71.5	73.9
92.5°	48.2	65.3	67.7	70.0	70.0
95°	113.5	135.3	139.2	139.2	135.3
97.5°	188.9	209.1	217.7	217.7	217.7
100°	276.0	293.8	300.0	300.0	297.7
102.5°	367.7	380.9	389.5	391.8	389.5
105°	468.0	474.2	478.8	482.7	482.7
107.5°	567.4	576.8	576.8	578.4	567.4
110°	663.9	676.3	676.3	676.3	670.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	768.0	781.2	778.9	772.7	768.0
115°	870.7	883.0	879.2	876.9	870.7
117.5°	972.5	989.6	978.7	972.5	966.2
120°	1075.1	1092.2	1075.1	1075.1	1068.1
122.5°	1168.3	1190.1	1179.2	1173.1	1168.3
125°	1266.3	1285.7	1279.5	1272.5	1270.2
127.5°	1362.0	1386.0	1377.4	1368.2	1362.0
130°	1451.3	1479.3	1475.4	1470.7	1462.2
132.5°	1551.6	1573.4	1574.9	1564.1	1557.8
135°	1637.9	1662.0	1666.6	1664.3	1658.1
137.5°	1734.3	1753.7	1757.6	1756.1	1746.7
140°	1819.0	1838.4	1849.3	1849.3	1840.8
142.5°	1906.1	1925.5	1931.7	1934.1	1925.5
145°	1988.4	2004.0	2016.5	2018.8	2010.2
147.5°	2062.3	2081.8	2091.1	2095.0	2086.4
150°	2138.5	2151.7	2160.3	2167.2	2160.3
152.5°	2206.1	2219.3	2230.2	2238.8	2230.2
155°	2273.8	2280.0	2287.0	2297.8	2290.8
157.5°	2332.1	2336.7	2340.6	2356.1	2345.3
160°	2384.2	2388.8	2391.1	2404.3	2395.0
162.5°	2432.4	2432.4	2434.6	2449.4	2438.6
165°	2473.5	2471.2	2471.2	2486.7	2475.9
167.5°	2510.9	2503.9	2503.9	2519.4	2508.5
170°	2538.8	2532.6	2530.3	2545.9	2532.6
172.5°	2558.2	2552.0	2549.7	2565.3	2552.0
175°	2573.8	2567.6	2563.0	2578.5	2565.3
177.5°	2582.4	2576.2	2571.5	2584.7	2571.5
180°	2578.5	2578.5	2578.5	2578.5	2578.5



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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	7.17	7.90	8.24	8.97	10.42	3.14	3.87	4.21	4.94	6.39
	3H	8.84	9.49	9.92	10.57	12.04	4.32	4.98	5.40	6.06	7.53
	4H	9.44	10.06	10.53	11.14	12.62	4.77	5.39	5.86	6.47	7.95
	6H	9.86	10.43	10.96	11.51	13.00	5.09	5.66	6.19	6.74	8.23
	8H	9.98	10.53	11.09	11.62	13.11	5.18	5.72	6.28	6.82	8.30
	12H	10.04	10.56	11.15	11.65	13.16	5.22	5.73	6.33	6.82	8.33
4H	2H	7.17	7.79	8.27	8.87	10.35	3.73	4.35	4.82	5.42	6.90
	3H	9.00	9.51	10.10	10.62	12.11	5.07	5.58	6.17	6.69	8.18
	4H	9.68	10.16	10.79	11.25	12.76	5.61	6.09	6.72	7.18	8.69
	6H	10.20	10.60	11.31	11.72	13.22	6.03	6.44	7.15	7.55	9.06
	8H	10.37	10.75	11.48	11.86	13.38	6.16	6.54	7.27	7.65	9.17
	12H	10.46	10.80	11.59	11.93	13.45	6.22	6.56	7.35	7.68	9.21
8H	4H	9.65	10.02	10.76	11.13	12.65	5.89	6.27	7.00	7.38	8.89
	6H	10.21	10.52	11.35	11.67	13.19	6.40	6.72	7.54	7.87	9.38
	8H	10.43	10.70	11.57	11.83	13.37	6.60	6.87	7.74	8.00	9.54
	12H	10.56	10.80	11.71	11.93	13.50	6.71	6.95	7.86	8.08	9.65
12H	4H	9.59	9.94	10.72	11.06	12.58	5.89	6.23	7.02	7.35	8.88
	6H	10.18	10.46	11.33	11.59	13.13	6.45	6.73	7.60	7.86	9.40
	8H	10.40	10.64	11.55	11.77	13.34	6.66	6.90	7.81	8.03	9.60