

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: P927638

Luminaire Tested: DFN2DIP-HX4F0-070D060US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927638
REPORT IS A COMBINATION OF REPORTS P900862 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D060US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

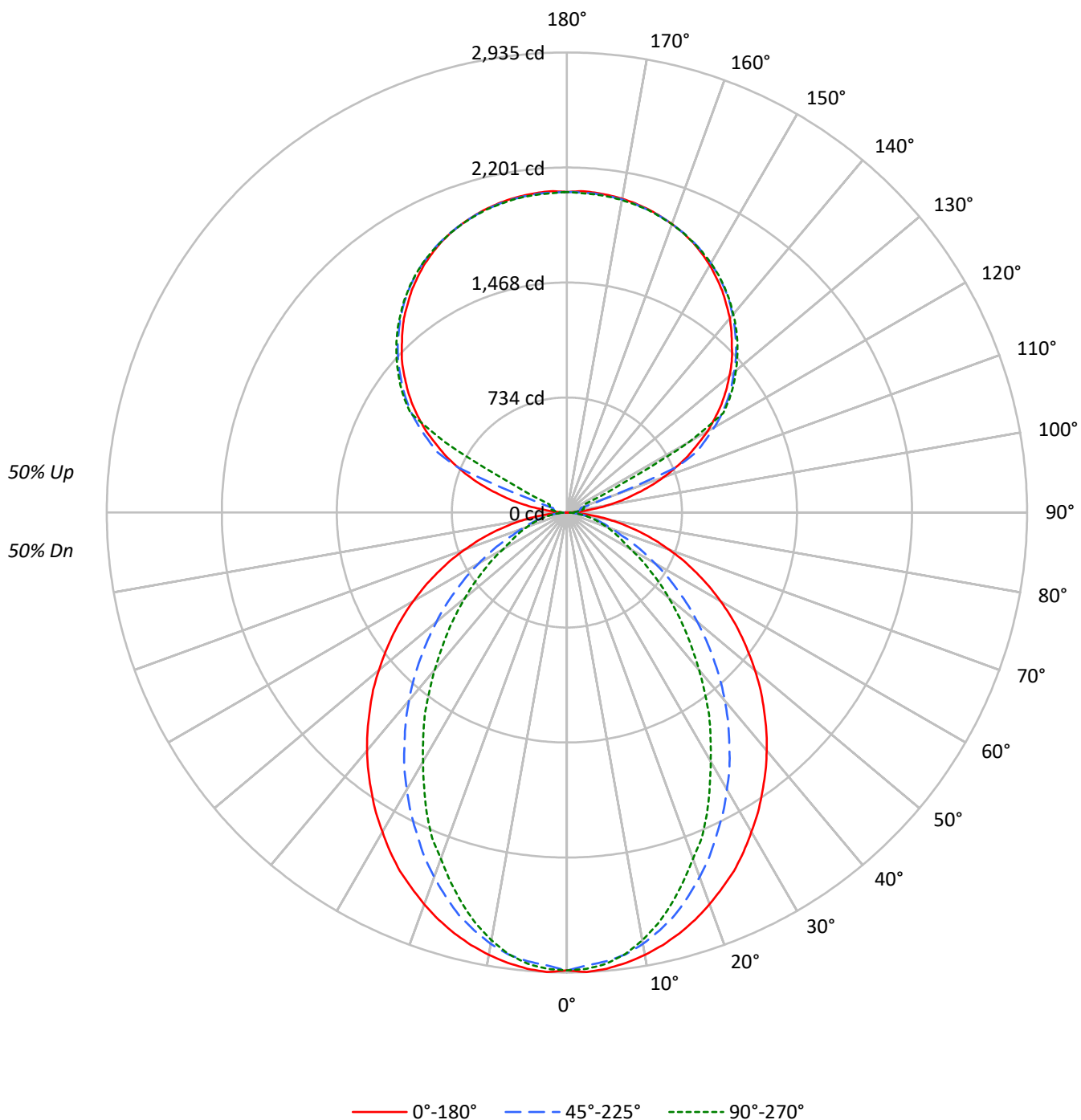
Lumens per Lamp: N/A
Luminaire Lumens: 12006.5 lumens
Efficiency: N/A
Efficacy: 108.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 110.3
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	94	90	87	91	87	84	81	74	72	69	62	60	59	50	49	48
2	90	83	77	72	83	77	72	67	65	62	58	55	52	50	45	43	41
3	82	73	66	60	76	68	62	57	58	53	50	49	45	43	40	38	36
4	76	65	57	52	70	60	54	49	52	47	43	44	40	37	36	34	31
5	70	58	50	45	64	54	47	42	47	41	37	40	35	32	33	30	28
6	64	52	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25
7	59	47	40	34	55	44	37	32	38	33	29	33	29	25	28	24	22
8	55	43	36	30	51	40	34	29	35	30	26	30	26	23	25	22	20
9	52	40	32	27	48	37	30	26	32	27	23	28	24	21	24	20	18
10	48	36	29	25	45	34	28	23	30	25	21	26	22	19	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2172	2172	2172
5°	2176	2138	2152
10°	2155	2096	2082
15°	2125	2027	1974
20°	2086	1932	1841
25°	2046	1825	1713
30°	1992	1715	1550
35°	1940	1598	1407
40°	1886	1476	1243
45°	1824	1340	1095
50°	1759	1204	950
55°	1692	1057	811
60°	1614	905	667
65°	1525	750	601
70°	1416	605	544
75°	1280	533	495
80°	1083	448	430
85°	757	300	324

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1824 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	2.3
10°-20°	751.6	6.3
20°-30°	1055.3	8.8
30°-40°	1150.3	9.6
40°-50°	1057.3	8.8
50°-60°	830.3	6.9
60°-70°	540.5	4.5
70°-80°	278.2	2.3
80°-90°	74.6	0.6
90°-100°	67.4	0.6
100°-110°	251.3	2.1
110°-120°	666.6	5.6
120°-130°	1105.6	9.2
130°-140°	1174.4	9.8
140°-150°	1091.5	9.1
150°-160°	877.5	7.3
160°-170°	565.5	4.7
170°-180°	194.6	1.6
0°-30°	2080.7	17.3
0°-40°	3231.0	26.9
0°-60°	5118.6	42.6
0°-90°	6011.9	50.1
90°-120°	985.4	8.2
90°-150°	4357.0	36.3
90°-180°	5995.0	49.9
0°-180°	12006.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1599	1322	1134	1071	1372
55°	1351	1145	859	701	650	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	514
85°	114	58	50	50	50	130
90°	1	18	30	37	40	11
95°	96	47	58	65	64	114
105°	450	494	90	106	112	481
115°	851	876	913	228	121	838
125°	1203	1222	1250	1261	1265	1073
135°	1488	1512	1525	1540	1537	1150
145°	1727	1725	1750	1761	1753	1080
155°	1901	1888	1906	1915	1903	876
165°	2003	1995	1999	2009	1999	566
175°	2049	2039	2042	2052	2037	195
180°	2045	2045	2045	2045	2045	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.5	2921.5	2921.5	2921.5	2921.5
2.5°	2934.6	2921.5	2892.3	2918.9	2913.6
5°	2921.5	2908.2	2873.8	2897.6	2889.7
7.5°	2897.6	2881.9	2844.9	2855.2	2842.1
10°	2865.9	2847.4	2794.6	2786.5	2770.8
12.5°	2826.3	2802.5	2731.0	2715.3	2686.1
15°	2778.7	2749.5	2659.7	2609.5	2583.2
17.5°	2723.1	2680.8	2569.7	2511.6	2469.3
20°	2659.7	2606.7	2474.6	2408.7	2350.3
22.5°	2591.0	2530.2	2376.7	2286.9	2247.4
25°	2522.3	2437.6	2263.1	2154.8	2115.0
27.5°	2440.4	2350.3	2157.3	2033.1	1972.2
30°	2353.1	2252.5	2040.9	1906.3	1834.8
32.5°	2268.4	2146.7	1930.1	1771.4	1705.1
35°	2173.3	2038.4	1805.9	1639.3	1580.9
37.5°	2080.8	1935.2	1689.5	1506.8	1441.0
40°	1982.8	1824.4	1567.7	1380.1	1311.3
42.5°	1882.5	1713.3	1446.2	1250.4	1184.6
45°	1776.7	1599.4	1322.0	1134.1	1070.7
47.5°	1676.3	1488.6	1203.1	1015.2	957.1
50°	1565.2	1377.6	1086.6	904.1	848.8
52.5°	1456.6	1258.3	975.6	801.1	750.9
55°	1350.9	1144.7	859.1	700.7	650.5
57.5°	1242.7	1031.1	756.2	608.1	565.8
60°	1131.6	920.0	647.7	513.1	470.7
62.5°	1023.2	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.4	592.1	370.3	325.1	317.3
70°	695.3	489.1	306.6	280.2	269.5
72.5°	589.6	393.8	256.4	235.4	230.0
75°	486.4	301.2	211.5	193.0	190.4
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.8	103.2	87.2	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	1.4	17.8	29.5	37.1	39.9
92.5°	37.1	31.1	35.4	38.5	39.9
95°	96.1	47.3	57.7	65.2	63.6
97.5°	173.1	51.8	75.3	80.0	81.4
100°	261.9	59.2	84.3	96.1	99.1
102.5°	359.5	356.7	87.3	103.5	108.0
105°	449.8	494.2	90.3	106.4	112.5
107.5°	554.9	591.7	93.3	109.5	115.4
110°	655.6	686.5	259.0	111.1	116.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	750.2	776.7	751.6	113.8	118.4
115°	850.8	875.9	913.0	227.9	121.4
117.5°	938.0	967.6	992.8	781.2	393.5
120°	1035.8	1057.9	1084.6	1102.3	902.6
122.5°	1118.5	1142.2	1171.9	1180.7	1182.3
125°	1202.9	1222.2	1250.2	1260.6	1265.0
127.5°	1279.8	1300.5	1322.8	1337.6	1339.0
130°	1352.3	1376.1	1392.2	1408.6	1407.2
132.5°	1426.3	1445.6	1461.8	1475.1	1473.7
135°	1488.5	1512.3	1525.4	1540.3	1537.3
137.5°	1553.5	1571.2	1586.2	1600.9	1596.6
140°	1617.1	1629.1	1645.3	1658.6	1651.2
142.5°	1670.5	1680.9	1700.1	1711.8	1704.4
145°	1726.8	1725.1	1750.3	1760.7	1753.3
147.5°	1775.4	1771.0	1796.1	1803.5	1797.7
150°	1822.9	1812.5	1836.2	1845.0	1837.6
152.5°	1862.8	1851.0	1873.1	1882.1	1871.7
155°	1901.3	1888.0	1905.8	1914.6	1902.8
157.5°	1932.4	1920.5	1933.9	1944.3	1932.4
160°	1959.0	1950.0	1959.0	1967.8	1957.5
162.5°	1982.5	1973.8	1981.1	1991.5	1978.2
165°	2003.3	1994.6	1998.9	2009.3	1998.9
167.5°	2019.6	2010.7	2015.3	2025.7	2012.2
170°	2033.0	2024.0	2027.1	2037.4	2024.0
172.5°	2041.8	2033.0	2036.0	2046.4	2033.0
175°	2049.2	2038.8	2041.8	2052.1	2037.4
177.5°	2052.1	2041.8	2043.3	2053.7	2040.4
180°	2044.7	2044.7	2044.7	2044.7	2044.7

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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	9.85	10.68	10.81	11.65	12.93	5.82	6.65	6.79	7.63	8.90
	3H	11.53	12.27	12.50	13.25	14.55	7.01	7.76	7.99	8.74	10.03
	4H	12.14	12.84	13.13	13.83	15.13	7.47	8.17	8.45	9.15	10.46
	6H	12.56	13.21	13.56	14.20	15.51	7.79	8.43	8.79	9.43	10.74
	8H	12.69	13.30	13.69	14.31	15.62	7.88	8.49	8.88	9.50	10.81
	12H	12.75	13.33	13.76	14.33	15.67	7.92	8.51	8.93	9.51	10.85
4H	2H	9.87	10.57	10.86	11.56	12.86	6.42	7.12	7.41	8.11	9.41
	3H	11.70	12.28	12.70	13.30	14.62	7.77	8.36	8.77	9.37	10.69
	4H	12.39	12.93	13.40	13.93	15.27	8.32	8.85	9.33	9.86	11.20
	6H	12.91	13.37	13.93	14.40	15.74	8.74	9.20	9.76	10.23	11.57
	8H	13.08	13.51	14.11	14.54	15.89	8.87	9.30	9.90	10.32	11.68
	12H	13.18	13.57	14.22	14.61	15.96	8.94	9.32	9.98	10.36	11.72
8H	4H	12.36	12.79	13.38	13.81	15.16	8.60	9.03	9.62	10.05	11.41
	6H	12.93	13.28	13.97	14.35	15.70	9.12	9.48	10.17	10.54	11.89
	8H	13.14	13.46	14.20	14.51	15.88	9.31	9.63	10.37	10.68	12.05
	12H	13.28	13.56	14.34	14.60	16.02	9.44	9.71	10.49	10.76	12.17
12H	4H	12.31	12.70	13.35	13.74	15.10	8.61	8.99	9.65	10.03	11.39
	6H	12.90	13.21	13.96	14.27	15.64	9.17	9.48	10.23	10.53	11.90
	8H	13.12	13.40	14.18	14.44	15.86	9.38	9.66	10.44	10.70	12.12

END OF REPORT