

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: P929442

Luminaire Tested: DFN2DIP-HX4F0-120D070US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929442
REPORT IS A COMBINATION OF REPORTS P900890 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D070US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

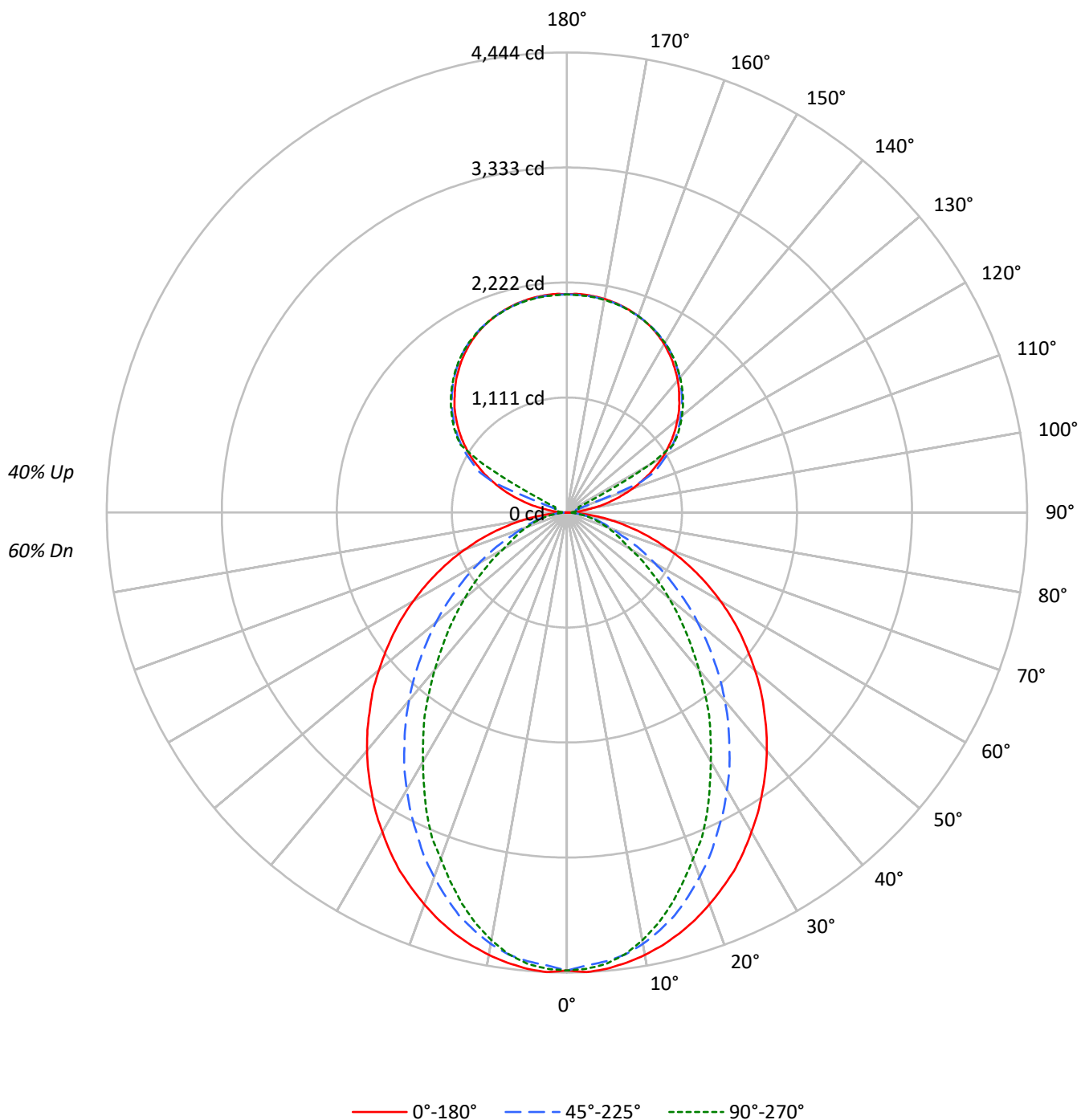
Lumens per Lamp: N/A
Luminaire Lumens: 15280.0 lumens
Efficiency: N/A
Efficacy: 85.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 178.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	109	109	109	109	102	102	102	102	89	89	89	76	76	76	65	65	65
1	101	96	93	89	94	90	87	84	79	76	74	68	66	65	58	57	56
2	92	85	79	74	86	80	74	70	70	66	62	60	58	55	52	50	48
3	84	75	68	62	79	71	64	59	62	57	53	54	50	47	47	44	42
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	67	56	49	44	50	44	40	44	39	36	38	35	32
6	66	54	46	40	62	51	44	39	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	26
8	57	45	37	32	53	42	35	31	38	32	28	34	29	26	30	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3290	3290	3290
5°	3295	3238	3258
10°	3263	3174	3152
15°	3218	3070	2989
20°	3159	2926	2788
25°	3098	2764	2593
30°	3017	2598	2347
35°	2937	2419	2131
40°	2856	2235	1883
45°	2762	2029	1658
50°	2664	1823	1439
55°	2562	1601	1227
60°	2445	1370	1011
65°	2309	1135	910
70°	2145	916	824
75°	1939	808	750
80°	1641	679	651
85°	1147	455	490

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2762 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.6	2.7
10°-20°	1138.2	7.4
20°-30°	1598.0	10.5
30°-40°	1741.9	11.4
40°-50°	1601.0	10.5
50°-60°	1257.3	8.2
60°-70°	818.4	5.4
70°-80°	421.3	2.8
80°-90°	111.3	0.7
90°-100°	69.5	0.5
100°-110°	259.0	1.7
110°-120°	687.0	4.5
120°-130°	1139.4	7.5
130°-140°	1210.3	7.9
140°-150°	1124.9	7.4
150°-160°	904.4	5.9
160°-170°	582.7	3.8
170°-180°	200.6	1.3
0°-30°	3150.8	20.6
0°-40°	4892.8	32.0
0°-60°	7751.1	50.7
0°-90°	9102.1	59.6
90°-120°	1015.5	6.6
90°-150°	4490.2	29.4
90°-180°	6178.0	40.4
0°-180°	15280.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4424	4424	4424	4424	4424	
5°	4424	4404	4352	4388	4376	419
15°	4208	4164	4028	3952	3912	1186
25°	3820	3691	3427	3263	3203	1757
35°	3291	3087	2735	2482	2394	2060
45°	2690	2422	2002	1717	1621	2078
55°	2046	1734	1301	1061	985	1828
65°	1381	1057	697	561	548	1369
75°	736	456	320	292	288	779
85°	172	88	76	76	76	198
90°	1	18	30	38	41	14
95°	99	49	59	67	66	117
105°	464	509	93	110	116	495
115°	877	903	941	235	125	863
125°	1240	1260	1288	1299	1304	1106
135°	1534	1558	1572	1587	1584	1185
145°	1780	1778	1804	1814	1807	1113
155°	1959	1946	1964	1973	1961	903
165°	2064	2056	2060	2071	2060	583
175°	2112	2101	2104	2115	2100	201
180°	2107	2107	2107	2107	2107	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4424.0	4424.0	4424.0	4424.0	4424.0
2.5°	4443.9	4424.0	4379.8	4420.1	4412.0
5°	4424.0	4404.0	4351.7	4387.8	4376.0
7.5°	4387.8	4364.0	4308.0	4323.7	4303.7
10°	4339.8	4311.8	4231.9	4219.6	4195.9
12.5°	4279.9	4243.9	4135.5	4111.8	4067.6
15°	4207.7	4163.6	4027.6	3951.6	3911.7
17.5°	4123.6	4059.5	3891.3	3803.4	3739.3
20°	4027.6	3947.4	3747.3	3647.5	3559.1
22.5°	3923.6	3831.4	3599.0	3463.1	3403.2
25°	3819.5	3691.2	3427.0	3263.0	3202.7
27.5°	3695.5	3559.1	3266.9	3078.7	2986.5
30°	3563.4	3410.9	3090.6	2886.7	2778.4
32.5°	3435.1	3250.7	2922.8	2682.4	2582.2
35°	3291.1	3086.8	2734.6	2482.3	2393.9
37.5°	3150.9	2930.5	2558.3	2281.8	2182.0
40°	3002.7	2762.7	2374.1	2089.9	1985.8
42.5°	2850.6	2594.5	2190.1	1893.6	1793.8
45°	2690.5	2422.0	2001.9	1717.4	1621.3
47.5°	2538.4	2254.3	1821.8	1537.3	1449.3
50°	2370.2	2086.0	1645.6	1369.0	1285.4
52.5°	2205.8	1905.5	1477.3	1213.1	1137.1
55°	2045.7	1733.5	1301.1	1061.0	985.0
57.5°	1881.7	1561.4	1145.1	920.9	856.8
60°	1713.5	1393.2	980.8	776.9	712.8
62.5°	1549.6	1229.3	840.6	648.7	616.7
65°	1381.4	1056.8	696.7	560.7	548.4
67.5°	1221.2	896.6	560.7	492.3	480.4
70°	1053.0	740.8	464.3	424.3	408.2
72.5°	892.9	596.4	388.2	356.4	348.3
75°	736.5	456.2	320.3	292.2	288.4
77.5°	580.7	324.1	252.3	236.2	228.1
80°	436.3	232.4	192.0	176.3	176.3
82.5°	304.2	156.3	132.1	124.0	124.0
85°	172.1	88.0	76.0	76.0	76.0
87.5°	64.1	31.8	31.8	28.0	28.0
90°	1.4	18.3	30.4	38.2	41.1
92.5°	38.2	32.0	36.6	39.7	41.1
95°	99.0	48.7	59.4	67.2	65.6
97.5°	178.3	53.4	77.7	82.4	83.8
100°	270.0	61.0	86.9	99.0	102.1
102.5°	370.4	367.6	90.0	106.7	111.3
105°	463.6	509.3	93.0	109.7	115.9
107.5°	571.8	609.9	96.2	112.8	119.0
110°	675.6	707.4	266.9	114.4	120.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	773.2	800.5	774.6	117.3	122.0
115°	876.7	902.6	940.8	234.9	125.1
117.5°	966.7	997.2	1023.2	805.0	405.6
120°	1067.4	1090.2	1117.8	1136.1	930.2
122.5°	1152.6	1177.1	1207.8	1216.8	1218.4
125°	1239.6	1259.5	1288.5	1299.2	1303.7
127.5°	1318.9	1340.2	1363.2	1378.5	1379.9
130°	1393.7	1418.1	1434.8	1451.6	1450.2
132.5°	1469.9	1489.8	1506.5	1520.2	1518.8
135°	1534.0	1558.4	1572.1	1587.4	1584.4
137.5°	1601.0	1619.3	1634.7	1649.9	1645.4
140°	1666.5	1678.8	1695.5	1709.3	1701.7
142.5°	1721.6	1732.3	1752.0	1764.1	1756.5
145°	1779.5	1777.9	1803.8	1814.5	1806.9
147.5°	1829.7	1825.2	1851.1	1858.7	1852.7
150°	1878.6	1867.9	1892.4	1901.4	1893.8
152.5°	1919.7	1907.5	1930.4	1939.6	1929.0
155°	1959.4	1945.7	1964.0	1973.1	1961.0
157.5°	1991.4	1979.3	1993.0	2003.7	1991.4
160°	2019.0	2009.7	2019.0	2028.0	2017.3
162.5°	2043.2	2034.1	2041.7	2052.4	2038.7
165°	2064.5	2055.5	2060.0	2070.7	2060.0
167.5°	2081.4	2072.1	2076.8	2087.5	2073.8
170°	2095.1	2085.9	2089.0	2099.7	2085.9
172.5°	2104.2	2095.1	2098.3	2108.9	2095.1
175°	2111.8	2101.1	2104.2	2114.8	2099.7
177.5°	2114.8	2104.2	2105.8	2116.5	2102.7
180°	2107.3	2107.3	2107.3	2107.3	2107.3

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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	12.13	13.05	13.01	13.94	15.07	8.11	9.02	8.99	9.92	11.05
	3H	13.82	14.64	14.71	15.54	16.70	9.30	10.12	10.19	11.03	12.18
	4H	14.43	15.20	15.34	16.11	17.28	9.76	10.53	10.67	11.44	12.61
	6H	14.86	15.57	15.78	16.49	17.66	10.09	10.80	11.00	11.71	12.89
	8H	14.99	15.66	15.91	16.60	17.77	10.18	10.86	11.11	11.79	12.97
	12H	15.05	15.70	15.98	16.62	17.83	10.23	10.87	11.16	11.80	13.00
4H	2H	12.16	12.94	13.07	13.84	15.01	8.71	9.49	9.62	10.39	11.56
	3H	14.00	14.64	14.92	15.58	16.76	10.07	10.72	10.99	11.66	12.84
	4H	14.70	15.28	15.63	16.22	17.42	10.63	11.21	11.56	12.15	13.35
	6H	15.22	15.72	16.16	16.68	17.89	11.05	11.56	12.00	12.51	13.72
	8H	15.40	15.87	16.34	16.82	18.04	11.18	11.65	12.13	12.61	13.83
	12H	15.50	15.92	16.46	16.89	18.11	11.25	11.68	12.22	12.65	13.87
8H	4H	14.67	15.14	15.62	16.09	17.31	10.91	11.38	11.86	12.34	13.56
	6H	15.24	15.63	16.22	16.63	17.84	11.44	11.82	12.41	12.82	14.04
	8H	15.46	15.80	16.44	16.79	18.02	11.63	11.97	12.61	12.96	14.19
	12H	15.60	15.91	16.59	16.88	18.17	11.75	12.06	12.74	13.03	14.32
12H	4H	14.63	15.05	15.59	16.02	17.25	10.92	11.35	11.89	12.32	13.54
	6H	15.22	15.56	16.20	16.55	17.78	11.49	11.83	12.47	12.81	14.05
	8H	15.44	15.75	16.43	16.72	18.01	11.70	12.00	12.69	12.98	14.27