

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: P928138

Luminaire Tested: DFN2DIP-HX4F0-120D050US850-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928138
REPORT IS A COMBINATION OF REPORTS P900854 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D050US850-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

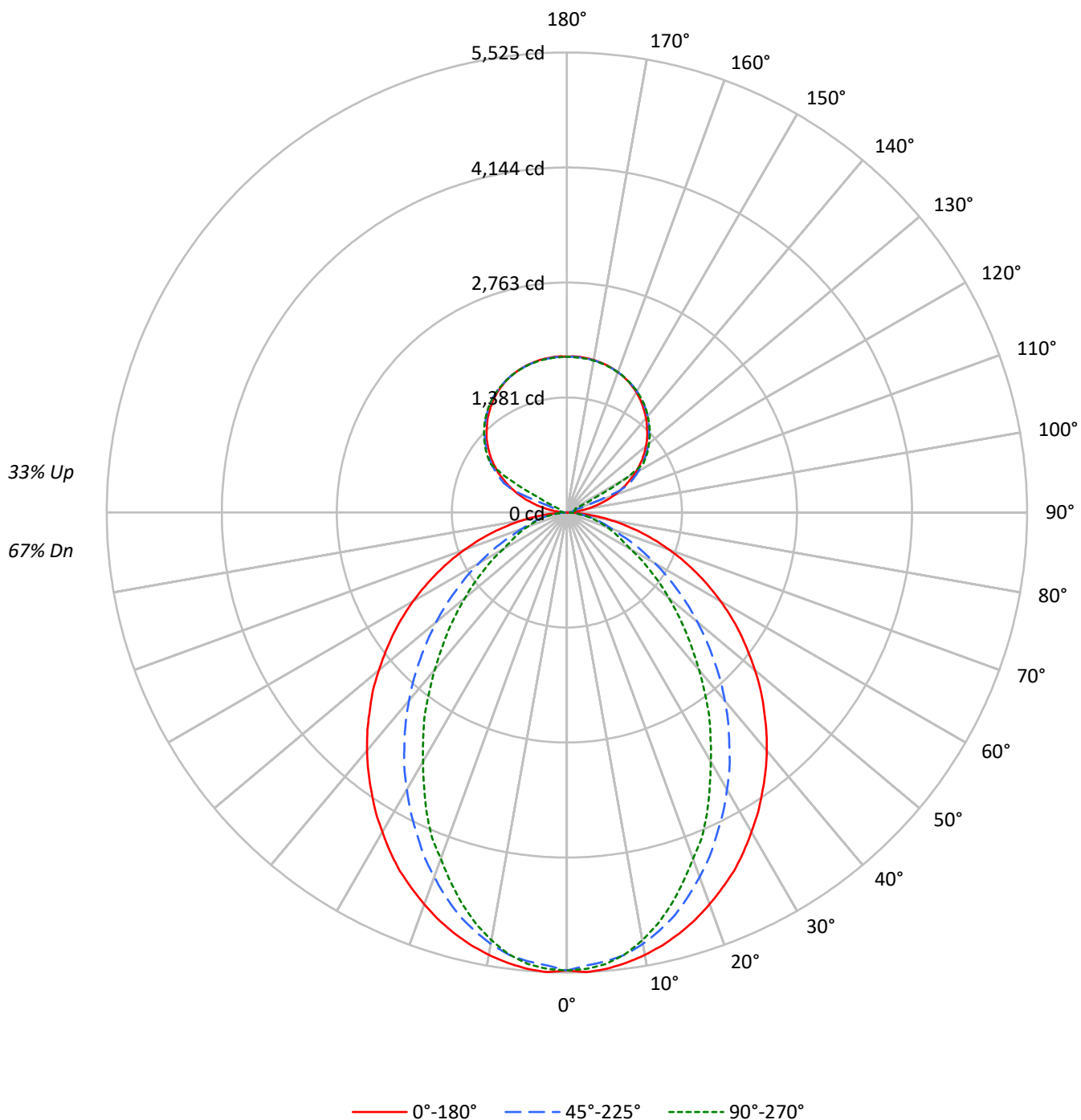
Lumens per Lamp: N/A
Luminaire Lumens: 16801.4 lumens
Efficiency: N/A
Efficacy: 102.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.8
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72
1	102	98	94	91	96	93	89	86	83	80	78	73	71	70	65	63	62
2	94	86	80	75	88	82	77	72	73	69	66	65	62	59	58	55	53
3	86	77	69	64	81	73	66	61	65	60	56	58	54	51	52	49	46
4	79	68	61	55	74	65	58	52	58	53	48	52	48	44	47	43	40
5	73	61	53	47	69	58	51	46	53	47	42	47	43	39	42	39	36
6	67	55	47	42	63	53	45	40	48	42	37	43	38	34	39	35	32
7	63	50	42	37	59	48	41	36	44	38	33	39	35	31	36	32	28
8	58	46	38	33	55	44	37	32	40	34	30	36	31	28	33	29	26
9	54	42	35	30	51	40	33	29	37	31	27	34	29	25	30	26	23
10	51	39	32	27	48	37	31	26	34	28	25	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4090	4090	4090
5°	4097	4025	4051
10°	4056	3947	3919
15°	4001	3817	3716
20°	3927	3637	3466
25°	3852	3436	3224
30°	3751	3230	2918
35°	3652	3008	2649
40°	3551	2778	2341
45°	3433	2523	2061
50°	3312	2266	1788
55°	3186	1991	1526
60°	3039	1703	1256
65°	2871	1411	1131
70°	2667	1138	1024
75°	2411	1004	932
80°	2040	844	809
85°	1426	565	609

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3433 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	515.5	3.1
10°-20°	1415.1	8.4
20°-30°	1986.8	11.8
30°-40°	2165.7	12.9
40°-50°	1990.5	11.8
50°-60°	1563.2	9.3
60°-70°	1017.5	6.1
70°-80°	523.8	3.1
80°-90°	137.0	0.8
90°-100°	61.7	0.4
100°-110°	230.0	1.4
110°-120°	610.1	3.6
120°-130°	1011.9	6.0
130°-140°	1074.8	6.4
140°-150°	999.0	5.9
150°-160°	803.1	4.8
160°-170°	517.5	3.1
170°-180°	178.1	1.1
0°-30°	3917.3	23.3
0°-40°	6083.0	36.2
0°-60°	9636.8	57.4
0°-90°	11315.1	67.3
90°-120°	901.9	5.4
90°-150°	3987.5	23.7
90°-180°	5486.0	32.7
0°-180°	16801.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5500	5500	5500	5500	5500	
5°	5500	5475	5410	5455	5440	522
15°	5231	5176	5008	4913	4863	1474
25°	4749	4589	4261	4057	3982	2184
35°	4092	3838	3400	3086	2976	2561
45°	3345	3011	2489	2135	2016	2583
55°	2543	2155	1618	1319	1225	2273
65°	1717	1314	866	697	682	1703
75°	916	567	398	363	358	969
85°	214	109	94	94	94	246
90°	1	16	27	34	36	16
95°	88	43	53	60	58	104
105°	412	452	83	98	103	440
115°	779	802	836	209	111	767
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1611	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1833	1825	1829	1839	1829	518
175°	1875	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5500.2	5500.2	5500.2	5500.2	5500.2
2.5°	5525.0	5500.2	5445.3	5495.4	5485.3
5°	5500.2	5475.4	5410.4	5455.3	5440.5
7.5°	5455.3	5425.7	5356.0	5375.5	5350.7
10°	5395.6	5360.8	5261.4	5246.1	5216.6
12.5°	5321.1	5276.3	5141.5	5112.0	5057.2
15°	5231.4	5176.5	5007.5	4912.9	4863.3
17.5°	5126.8	5047.1	4837.9	4728.7	4648.9
20°	5007.5	4907.7	4658.9	4534.8	4424.9
22.5°	4878.0	4763.5	4474.6	4305.6	4231.2
25°	4748.7	4589.2	4260.7	4056.8	3981.9
27.5°	4594.5	4424.9	4061.6	3827.7	3713.0
30°	4430.2	4240.7	3842.5	3588.9	3454.3
32.5°	4270.8	4041.5	3633.9	3335.0	3210.3
35°	4091.8	3837.7	3399.9	3086.2	2976.3
37.5°	3917.4	3643.4	3180.7	2836.9	2712.8
40°	3733.1	3434.8	2951.6	2598.3	2468.9
42.5°	3544.0	3225.6	2722.9	2354.3	2230.2
45°	3345.0	3011.3	2488.9	2135.2	2015.7
47.5°	3155.9	2802.7	2265.0	1911.3	1801.9
50°	2946.8	2593.5	2045.9	1702.1	1598.1
52.5°	2742.4	2369.0	1836.7	1508.2	1413.8
55°	2543.4	2155.2	1617.6	1319.2	1224.7
57.5°	2339.4	1941.3	1423.7	1144.9	1065.2
60°	2130.4	1732.1	1219.3	965.9	886.2
62.5°	1926.6	1528.3	1045.1	806.5	766.8
65°	1717.4	1313.9	866.1	697.1	681.8
67.5°	1518.3	1114.8	697.1	612.1	597.3
70°	1309.2	921.0	577.2	527.6	507.5
72.5°	1110.1	741.5	482.6	443.0	433.1
75°	915.7	567.1	398.2	363.3	358.5
77.5°	722.0	402.9	313.7	293.7	283.6
80°	542.4	288.9	238.7	219.1	219.1
82.5°	378.2	194.3	164.2	154.2	154.2
85°	213.9	109.3	94.5	94.5	94.5
87.5°	79.7	39.6	39.6	34.8	34.8
90°	1.3	16.2	27.1	33.9	36.5
92.5°	33.9	28.5	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.4
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.4	80.0	94.7	98.9
105°	411.7	452.4	82.6	97.5	102.9
107.5°	507.8	541.5	85.4	100.1	105.7
110°	600.0	628.2	237.0	101.6	106.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.6	710.9	687.9	104.2	108.3
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.5	885.5	908.7	714.9	360.2
120°	947.9	968.2	992.6	1008.9	826.0
122.5°	1023.6	1045.3	1072.5	1080.6	1082.1
125°	1100.8	1118.5	1144.3	1153.7	1157.8
127.5°	1171.2	1190.2	1210.7	1224.1	1225.4
130°	1237.6	1259.4	1274.1	1289.1	1287.9
132.5°	1305.4	1323.0	1337.8	1350.1	1348.8
135°	1362.3	1384.0	1396.0	1409.8	1407.0
137.5°	1421.7	1438.0	1451.7	1465.2	1461.2
140°	1480.0	1490.9	1505.7	1517.9	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1559.9
145°	1580.3	1578.9	1601.8	1611.4	1604.6
147.5°	1624.9	1620.8	1643.9	1650.6	1645.3
150°	1668.3	1658.8	1680.5	1688.6	1681.8
152.5°	1704.8	1694.0	1714.3	1722.5	1713.0
155°	1740.0	1727.9	1744.1	1752.2	1741.5
157.5°	1768.4	1757.7	1769.9	1779.4	1768.4
160°	1792.9	1784.7	1792.9	1800.9	1791.5
162.5°	1814.4	1806.5	1813.1	1822.6	1810.4
165°	1833.4	1825.4	1829.4	1838.8	1829.4
167.5°	1848.4	1840.2	1844.4	1853.8	1841.6
170°	1860.6	1852.4	1855.1	1864.6	1852.4
172.5°	1868.7	1860.6	1863.3	1872.8	1860.6
175°	1875.4	1865.9	1868.7	1878.1	1864.6
177.5°	1878.1	1868.7	1870.1	1879.5	1867.3
180°	1871.3	1871.3	1871.3	1871.3	1871.3

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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	13.53	14.52	14.33	15.34	16.34	9.50	10.49	10.30	11.31	12.31
	3H	15.22	16.11	16.03	16.93	17.97	10.70	11.59	11.52	12.42	13.45
	4H	15.83	16.67	16.66	17.51	18.55	11.16	12.00	11.99	12.83	13.88
	6H	16.26	17.04	17.11	17.88	18.94	11.49	12.26	12.33	13.11	14.16
	8H	16.40	17.13	17.25	17.99	19.05	11.59	12.32	12.44	13.18	14.24
	12H	16.46	17.16	17.32	18.02	19.10	11.64	12.34	12.49	13.19	14.27
4H	2H	13.56	14.40	14.40	15.24	16.28	10.11	10.95	10.95	11.79	12.83
	3H	15.41	16.11	16.26	16.97	18.03	11.48	12.18	12.33	13.05	14.11
	4H	16.11	16.74	16.97	17.61	18.69	12.04	12.67	12.90	13.54	14.62
	6H	16.63	17.18	17.51	18.07	19.16	12.47	13.01	13.34	13.90	14.99
	8H	16.81	17.32	17.69	18.21	19.31	12.60	13.11	13.48	14.00	15.10
	12H	16.92	17.37	17.81	18.28	19.39	12.67	13.13	13.57	14.04	15.14
8H	4H	16.09	16.60	16.97	17.48	18.59	12.33	12.84	13.21	13.72	14.83
	6H	16.66	17.08	17.57	18.01	19.11	12.86	13.28	13.76	14.20	15.31
	8H	16.88	17.25	17.80	18.17	19.29	13.05	13.42	13.97	14.34	15.46
	12H	17.03	17.36	17.94	18.27	19.44	13.18	13.51	14.09	14.42	15.59
12H	4H	16.05	16.51	16.95	17.41	18.52	12.34	12.80	13.24	13.71	14.81
	6H	16.64	17.01	17.55	17.93	19.05	12.91	13.28	13.82	14.20	15.32
	8H	16.87	17.20	17.78	18.11	19.28	13.13	13.46	14.04	14.37	15.54