

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: P913021

Luminaire Tested: DFN2DIP-TR4F0-120D050US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913021
REPORT IS A COMBINATION OF REPORTS P901924 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D050US850-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

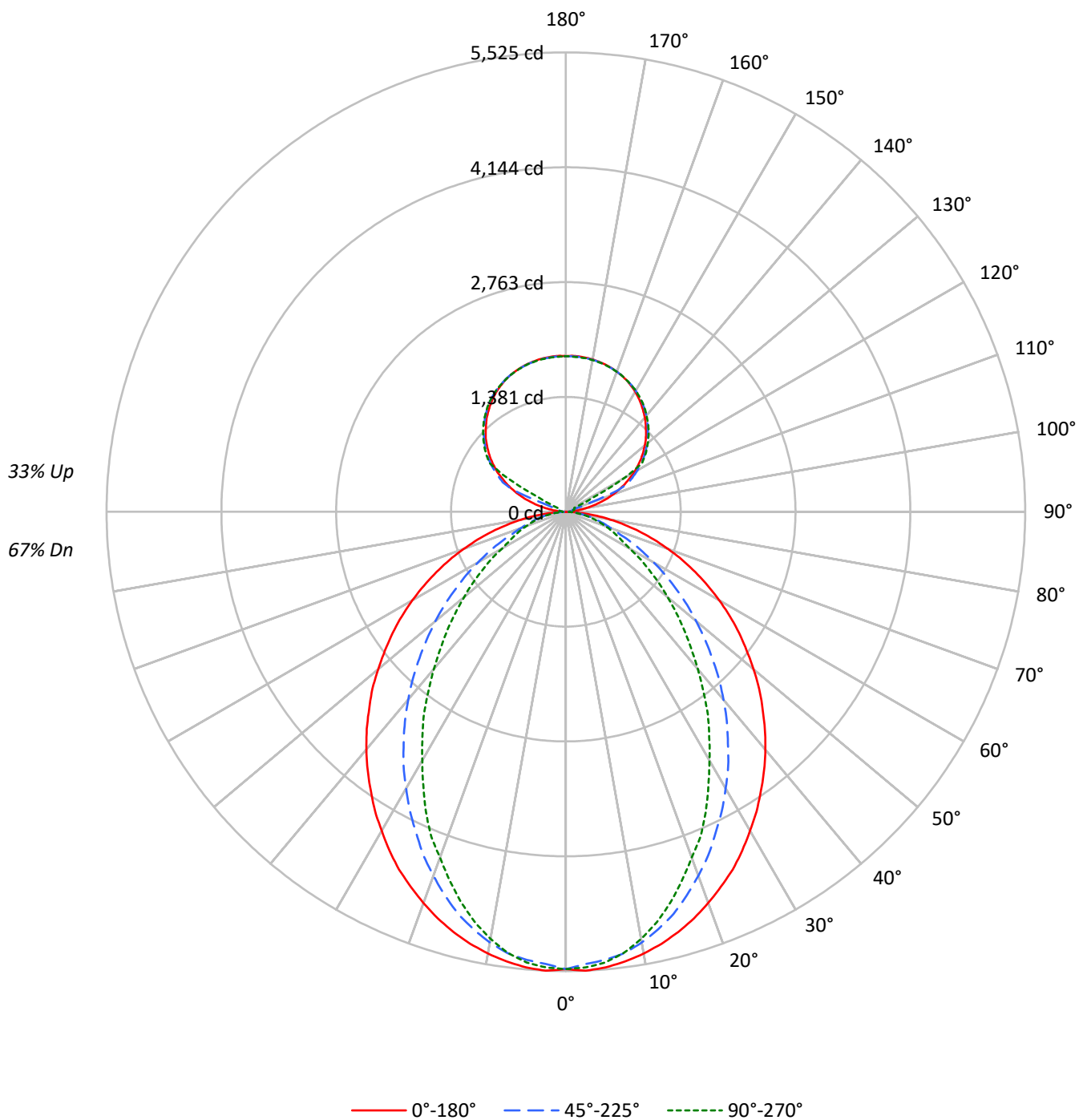
Lumens per Lamp: N/A
Luminaire Lumens: 16801.4 lumens
Efficiency: N/A
Efficacy: 102.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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°	4370	4370	4370
5°	4377	4300	4328
10°	4333	4216	4187
15°	4274	4076	3969
20°	4195	3884	3702
25°	4114	3669	3444
30°	4005	3448	3116
35°	3899	3211	2829
40°	3791	2965	2499
45°	3665	2693	2200
50°	3535	2418	1909
55°	3400	2124	1628
60°	3243	1816	1340
65°	3062	1504	1206
70°	2843	1212	1091
75°	2568	1069	992
80°	2170	896	860
85°	1513	598	646

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3665 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	13.75	14.74	14.55	15.56	16.56	9.72	10.72	10.52	11.54	12.54
	3H	15.44	16.33	16.25	17.16	18.19	10.93	11.82	11.74	12.64	13.67
	4H	16.06	16.89	16.89	17.73	18.77	11.38	12.22	12.21	13.06	14.10
	6H	16.49	17.26	17.33	18.10	19.16	11.71	12.49	12.56	13.33	14.39
	8H	16.62	17.35	17.47	18.21	19.27	11.81	12.54	12.66	13.41	14.46
	12H	16.68	17.38	17.54	18.24	19.32	11.86	12.56	12.72	13.41	14.50
4H	2H	13.79	14.63	14.62	15.46	16.51	10.34	11.18	11.17	12.01	13.06
	3H	15.63	16.33	16.48	17.20	18.26	11.70	12.40	12.55	13.27	14.33
	4H	16.33	16.96	17.19	17.83	18.92	12.26	12.89	13.12	13.76	14.84
	6H	16.85	17.40	17.73	18.29	19.38	12.69	13.23	13.56	14.12	15.21
	8H	17.03	17.54	17.91	18.43	19.53	12.82	13.33	13.70	14.22	15.32
	12H	17.14	17.59	18.03	18.50	19.60	12.89	13.35	13.79	14.26	15.36
8H	4H	16.31	16.82	17.19	17.70	18.81	12.55	13.06	13.43	13.95	15.05
	6H	16.88	17.30	17.79	18.23	19.33	13.08	13.50	13.98	14.42	15.53
	8H	17.10	17.47	18.01	18.39	19.51	13.27	13.64	14.18	14.56	15.68
	12H	17.25	17.57	18.16	18.49	19.66	13.40	13.73	14.31	14.64	15.81
12H	4H	16.27	16.73	17.17	17.63	18.74	12.56	13.02	13.46	13.93	15.03
	6H	16.86	17.23	17.77	18.15	19.27	13.13	13.50	14.04	14.42	15.54
	8H	17.09	17.42	18.00	18.33	19.50	13.35	13.67	14.26	14.59	15.76

END OF REPORT