

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: P910222

Luminaire Tested: DFN2DIP-TR4F0-100D060US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910222
REPORT IS A COMBINATION OF REPORTS P900417 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D060US840-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

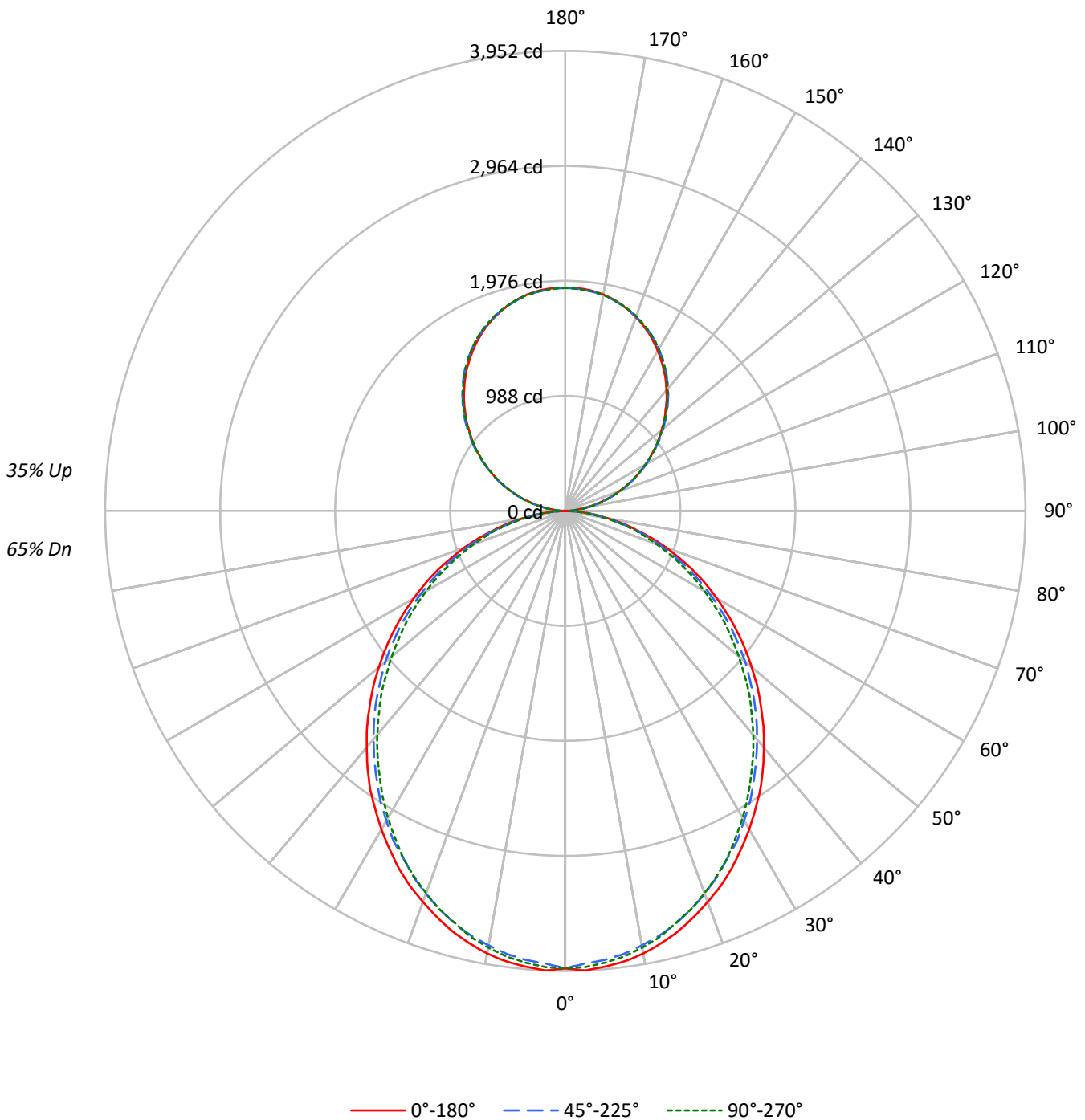
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15360.1 lumens
Efficiency: N/A
Efficacy: 105.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 145.8
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			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	111	111	111	111	104	104	104	104	92	92	92	80	80	80	70	70	70	70	70	70	65
1	101	97	93	89	95	91	88	84	81	78	75	71	69	67	62	60	59	62	60	59	55
2	92	85	78	73	86	80	74	69	71	66	63	62	59	56	55	52	50	55	52	50	46
3	84	74	67	61	79	70	63	58	62	57	53	55	51	47	48	45	42	48	45	42	39
4	77	66	58	52	72	62	55	49	55	50	45	49	44	41	43	40	37	43	40	37	33
5	71	59	50	44	66	56	48	42	50	44	39	44	39	35	39	35	32	39	35	32	29
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	35	31	28	35	31	28	26
7	60	48	40	34	57	45	38	33	41	35	30	36	31	28	32	28	25	32	28	25	23
8	56	44	36	30	53	41	34	29	37	31	27	33	28	25	30	26	22	30	26	22	20
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	27	23	20	27	23	20	18
10	49	37	29	24	46	35	28	23	32	26	22	28	24	20	25	21	19	25	21	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3122	3122	3122
5°	3127	3078	3099
10°	3101	3037	3057
15°	3056	2987	2991
20°	2994	2917	2924
25°	2933	2834	2846
30°	2856	2757	2747
35°	2783	2666	2643
40°	2694	2573	2544
45°	2604	2481	2442
50°	2507	2384	2324
55°	2405	2272	2216
60°	2289	2139	2092
65°	2163	2001	1945
70°	2002	1833	1788
75°	1780	1632	1642
80°	1512	1376	1364
85°	1094	933	904

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2604 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	2.4
10°-20°	1040.6	6.8
20°-30°	1529.3	10.0
30°-40°	1776.1	11.6
40°-50°	1773.9	11.5
50°-60°	1546.8	10.1
60°-70°	1143.4	7.4
70°-80°	646.9	4.2
80°-90°	176.2	1.1
90°-100°	118.6	0.8
100°-110°	376.8	2.5
110°-120°	644.8	4.2
120°-130°	848.0	5.5
130°-140°	951.8	6.2
140°-150°	933.4	6.1
150°-160°	783.0	5.1
160°-170°	519.2	3.4
170°-180°	181.5	1.2
0°-30°	2939.7	19.1
0°-40°	4715.8	30.7
0°-60°	8036.5	52.3
0°-90°	10003.1	65.1
90°-120°	1140.1	7.4
90°-150°	3873.3	25.2
90°-180°	5357.0	34.9
0°-180°	15360.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	2	21	57	53	55	15
95°	84	100	103	103	100	94
105°	348	352	356	359	359	367
115°	647	656	653	652	647	640
125°	941	956	951	946	944	841
135°	1217	1235	1239	1237	1232	941
145°	1478	1489	1499	1500	1494	923
155°	1690	1694	1700	1708	1702	778
165°	1838	1836	1836	1848	1840	519
175°	1913	1908	1905	1916	1906	182
180°	1916	1916	1916	1916	1916	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.1	366.4	355.2	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
90°	1.7	20.8	56.7	53.1	54.8
92.5°	35.9	48.6	50.3	52.0	52.0
95°	84.3	100.5	103.4	103.4	100.5
97.5°	140.4	155.4	161.8	161.8	161.8
100°	205.1	218.3	223.0	223.0	221.3
102.5°	273.3	283.1	289.4	291.1	289.4
105°	347.8	352.4	355.9	358.8	358.8
107.5°	421.7	428.7	428.7	429.8	421.7
110°	493.4	502.6	502.6	502.6	498.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	570.8	580.6	578.9	574.2	570.8
115°	647.0	656.3	653.4	651.7	647.0
117.5°	722.8	735.5	727.3	722.8	718.1
120°	799.0	811.7	799.0	799.0	793.8
122.5°	868.3	884.4	876.4	871.8	868.3
125°	941.1	955.5	950.9	945.7	944.0
127.5°	1012.2	1030.1	1023.7	1016.8	1012.2
130°	1078.6	1099.4	1096.5	1093.1	1086.7
132.5°	1153.2	1169.3	1170.4	1162.4	1157.7
135°	1217.3	1235.2	1238.6	1236.9	1232.2
137.5°	1288.9	1303.3	1306.3	1305.0	1298.2
140°	1351.9	1366.3	1374.4	1374.4	1368.1
142.5°	1416.5	1431.0	1435.6	1437.3	1431.0
145°	1477.8	1489.3	1498.6	1500.4	1494.0
147.5°	1532.7	1547.1	1554.1	1556.9	1550.5
150°	1589.3	1599.1	1605.5	1610.6	1605.5
152.5°	1639.5	1649.4	1657.5	1663.9	1657.5
155°	1689.8	1694.5	1699.6	1707.8	1702.5
157.5°	1733.1	1736.7	1739.5	1751.1	1743.0
160°	1771.9	1775.3	1777.1	1786.9	1780.0
162.5°	1807.7	1807.7	1809.4	1820.4	1812.3
165°	1838.3	1836.5	1836.5	1848.2	1840.1
167.5°	1866.0	1860.9	1860.9	1872.4	1864.3
170°	1886.8	1882.2	1880.5	1892.0	1882.2
172.5°	1901.3	1896.6	1894.9	1906.4	1896.6
175°	1912.8	1908.2	1904.7	1916.3	1906.4
177.5°	1919.1	1914.6	1911.1	1920.9	1911.1
180°	1916.3	1916.3	1916.3	1916.3	1916.3



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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	12.51	13.53	13.33	14.36	15.40	12.08	13.10	12.89	13.93	14.97
	3H	14.18	15.09	15.01	15.94	17.01	13.71	14.62	14.54	15.47	16.54
	4H	14.78	15.64	15.62	16.49	17.57	14.30	15.17	15.15	16.02	17.10
	6H	15.18	15.98	16.04	16.84	17.93	14.71	15.50	15.57	16.37	17.46
	8H	15.29	16.05	16.16	16.93	18.02	14.82	15.58	15.68	16.46	17.55
	12H	15.35	16.07	16.22	16.94	18.06	14.87	15.59	15.74	16.46	17.58
4H	2H	12.99	13.85	13.84	14.71	15.78	12.65	13.51	13.50	14.36	15.44
	3H	14.87	15.59	15.73	16.48	17.57	14.48	15.20	15.34	16.09	17.18
	4H	15.59	16.25	16.46	17.13	18.25	15.19	15.84	16.06	16.73	17.84
	6H	16.11	16.68	17.00	17.59	18.71	15.71	16.27	16.59	17.18	18.30
	8H	16.27	16.80	17.16	17.70	18.84	15.86	16.39	16.75	17.29	18.42
	12H	16.35	16.83	17.26	17.75	18.89	15.93	16.40	16.84	17.33	18.47
8H	4H	15.80	16.33	16.69	17.23	18.37	15.44	15.97	16.33	16.87	18.01
	6H	16.44	16.88	17.36	17.82	18.96	16.08	16.51	16.99	17.46	18.59
	8H	16.66	17.05	17.59	17.99	19.14	16.29	16.68	17.22	17.62	18.77
	12H	16.80	17.14	17.73	18.07	19.27	16.41	16.76	17.35	17.69	18.89
12H	4H	15.79	16.27	16.71	17.19	18.33	15.44	15.92	16.35	16.84	17.98
	6H	16.47	16.86	17.40	17.80	18.95	16.12	16.51	17.05	17.44	18.60
	8H	16.72	17.06	17.65	17.99	19.19	16.36	16.70	17.29	17.63	18.84