

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: P921176

Luminaire Tested: DFN2DIP-TR4F0-110D070US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921176
REPORT IS A COMBINATION OF REPORTS P900438 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D070US935-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

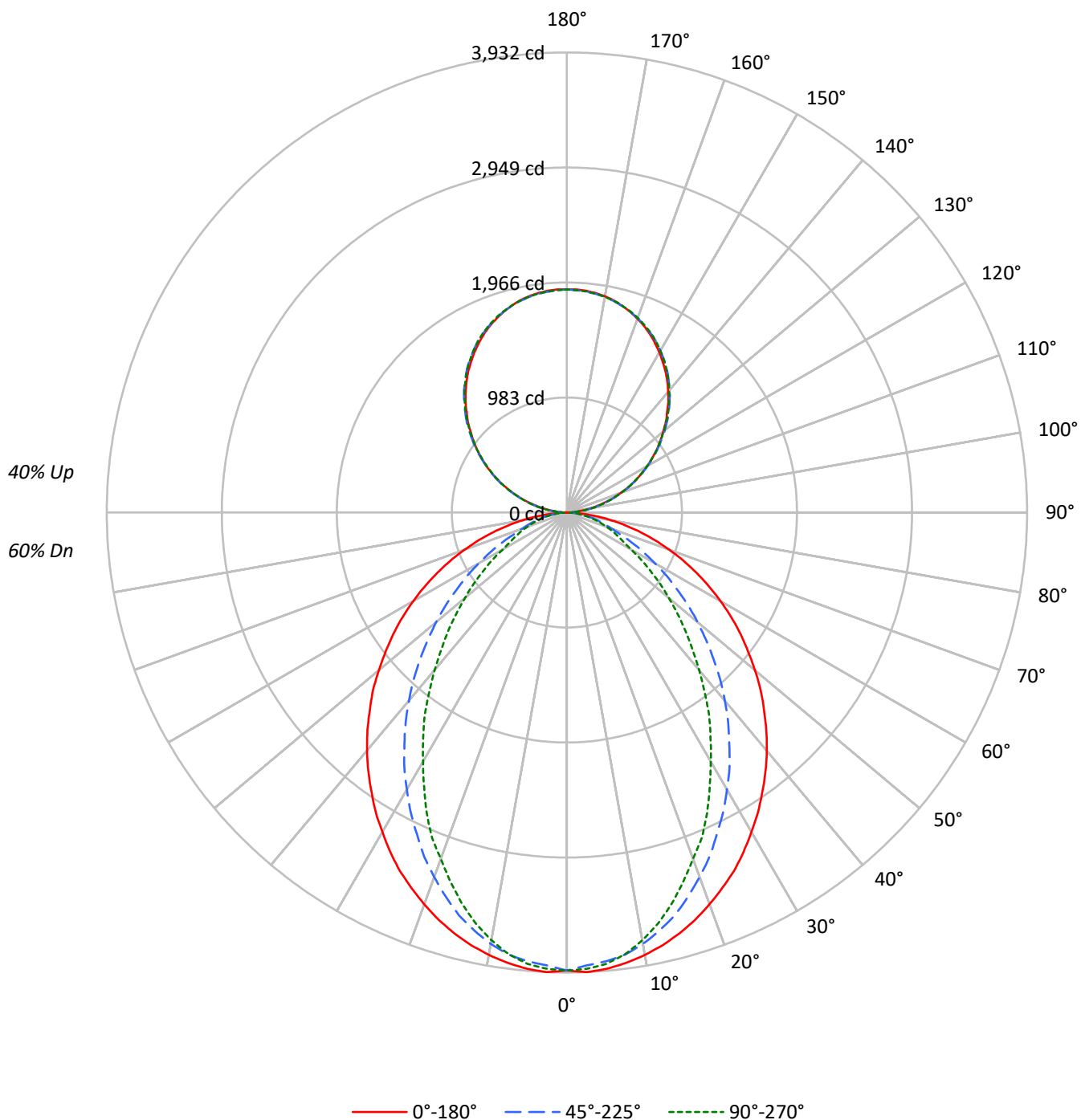
Lumens per Lamp: N/A
Luminaire Lumens: 13384.3 lumens
Efficiency: N/A
Efficacy: 81.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 164.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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
RCR																	
0	110	110	110	110	102	102	102	102	89	89	89		77	77	77		65
1	101	96	93	89	94	90	87	84	79	77	74		68	67	65		59
2	92	85	79	74	86	80	74	70	70	66	63		61	58	55		52
3	84	75	68	62	79	71	64	59	62	57	53		54	51	47		47
4	78	67	59	53	72	63	56	51	56	50	46		49	45	41		42
5	71	60	52	46	67	57	49	44	50	44	40		44	40	36		38
6	66	54	46	40	62	51	44	39	45	40	35		40	36	32		35
7	61	49	41	36	57	46	39	34	41	36	31		37	32	29		32
8	57	45	37	32	53	42	36	31	38	32	28		34	29	26		30
9	53	41	34	29	50	39	32	28	35	29	25		31	27	23		28
10	50	38	31	26	47	36	29	25	32	27	23		29	24	21		26

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3110	3110	3110
5°	3115	3060	3080
10°	3084	3000	2979
15°	3041	2901	2824
20°	2985	2764	2634
25°	2928	2611	2451
30°	2851	2454	2218
35°	2775	2285	2013
40°	2698	2110	1779
45°	2609	1916	1566
50°	2516	1721	1358
55°	2420	1511	1159
60°	2308	1293	954
65°	2179	1070	858
70°	2024	863	777
75°	1828	761	706
80°	1544	638	612
85°	1076	425	459

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2609 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	2.7
10°-20°	1007.1	7.5
20°-30°	1413.9	10.6
30°-40°	1541.3	11.5
40°-50°	1416.6	10.6
50°-60°	1112.5	8.3
60°-70°	724.2	5.4
70°-80°	372.8	2.8
80°-90°	100.6	0.8
90°-100°	117.9	0.9
100°-110°	374.8	2.8
110°-120°	641.3	4.8
120°-130°	843.5	6.3
130°-140°	946.7	7.1
140°-150°	928.4	6.9
150°-160°	778.8	5.8
160°-170°	516.5	3.9
170°-180°	180.5	1.3
0°-30°	2787.9	20.8
0°-40°	4329.1	32.3
0°-60°	6858.3	51.2
0°-90°	8055.8	60.2
90°-120°	1134.1	8.5
90°-150°	3852.7	28.8
90°-180°	5328.0	39.8
0°-180°	13384.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3914	3914	3914	3914	3914	
5°	3914	3897	3850	3882	3872	371
15°	3723	3684	3564	3496	3461	1049
25°	3380	3266	3032	2887	2834	1554
35°	2912	2731	2420	2196	2118	1823
45°	2381	2143	1771	1520	1435	1838
55°	1810	1534	1151	939	872	1617
65°	1222	935	616	496	485	1212
75°	652	404	283	259	255	689
85°	152	78	67	67	67	175
90°	2	21	56	53	55	13
95°	84	100	103	103	100	93
105°	346	350	354	357	357	365
115°	644	653	650	648	644	637
125°	936	950	946	941	939	837
135°	1211	1229	1232	1230	1226	936
145°	1470	1481	1491	1492	1486	918
155°	1681	1685	1691	1699	1694	774
165°	1828	1827	1827	1838	1830	516
175°	1903	1898	1895	1906	1896	181
180°	1906	1906	1906	1906	1906	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3914.4	3914.4	3914.4	3914.4	3914.4
2.5°	3932.0	3914.4	3875.3	3911.0	3903.9
5°	3914.4	3896.7	3850.5	3882.4	3871.9
7.5°	3882.4	3861.3	3811.7	3825.7	3807.9
10°	3840.0	3815.1	3744.5	3733.5	3712.5
12.5°	3786.9	3755.0	3659.2	3638.1	3599.0
15°	3723.0	3684.0	3563.7	3496.4	3461.0
17.5°	3648.7	3591.9	3443.0	3365.2	3308.5
20°	3563.7	3492.6	3315.6	3227.3	3149.1
22.5°	3471.6	3390.0	3184.5	3064.2	3011.2
25°	3379.5	3266.0	3032.3	2887.2	2833.8
27.5°	3269.8	3149.1	2890.5	2724.0	2642.5
30°	3152.9	3018.0	2734.6	2554.2	2458.3
32.5°	3039.4	2876.2	2586.1	2373.4	2284.7
35°	2912.0	2731.2	2419.7	2196.4	2118.2
37.5°	2788.0	2592.9	2263.6	2019.0	1930.7
40°	2656.8	2444.5	2100.6	1849.1	1757.0
42.5°	2522.2	2295.6	1937.8	1675.5	1587.2
45°	2380.6	2143.0	1771.3	1519.5	1434.6
47.5°	2246.0	1994.6	1612.0	1360.1	1282.4
50°	2097.1	1845.7	1456.0	1211.3	1137.3
52.5°	1951.7	1686.0	1307.2	1073.4	1006.1
55°	1810.0	1533.8	1151.2	938.8	871.6
57.5°	1665.0	1381.6	1013.2	814.8	758.0
60°	1516.1	1232.8	867.8	687.4	630.7
62.5°	1371.1	1087.7	743.8	573.9	545.7
65°	1222.2	935.0	616.4	496.1	485.2
67.5°	1080.6	793.4	496.1	435.6	425.1
70°	931.7	655.5	410.8	375.5	361.2
72.5°	790.0	527.7	343.5	315.3	308.2
75°	651.7	403.6	283.4	258.6	255.2
77.5°	513.8	286.8	223.3	209.0	201.8
80°	386.0	205.6	169.9	156.0	156.0
82.5°	269.1	138.3	116.9	109.8	109.8
85°	152.2	77.8	67.2	67.2	67.2
87.5°	56.7	28.2	28.2	24.8	24.8
90°	1.7	20.7	56.3	52.9	54.6
92.5°	35.6	48.3	50.0	51.7	51.7
95°	83.9	100.0	102.9	102.9	100.0
97.5°	139.7	154.5	160.9	160.9	160.9
100°	204.0	217.2	221.8	221.8	220.1
102.5°	271.8	281.5	287.9	289.6	287.9
105°	345.9	350.5	354.0	356.9	356.9
107.5°	419.5	426.4	426.4	427.6	419.5
110°	490.8	500.0	500.0	500.0	495.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	567.7	577.6	575.8	571.2	567.7
115°	643.6	652.8	650.0	648.2	643.6
117.5°	718.8	731.5	723.5	718.8	714.3
120°	794.7	807.4	794.7	794.7	789.5
122.5°	863.7	879.8	871.8	867.1	863.7
125°	936.1	950.5	945.9	940.7	939.0
127.5°	1006.8	1024.6	1018.3	1011.4	1006.8
130°	1072.9	1093.6	1090.7	1087.3	1080.9
132.5°	1147.0	1163.1	1164.2	1156.2	1151.6
135°	1210.8	1228.6	1232.1	1230.3	1225.7
137.5°	1282.0	1296.4	1299.2	1298.1	1291.2
140°	1344.7	1359.1	1367.1	1367.1	1360.8
142.5°	1409.0	1423.4	1428.0	1429.7	1423.4
145°	1470.0	1481.4	1490.6	1492.4	1486.1
147.5°	1524.6	1538.9	1545.8	1548.7	1542.4
150°	1580.9	1590.6	1597.0	1602.1	1597.0
152.5°	1630.8	1640.6	1648.6	1655.0	1648.6
155°	1680.8	1685.4	1690.7	1698.7	1693.5
157.5°	1724.0	1727.4	1730.3	1741.8	1733.7
160°	1762.5	1765.9	1767.6	1777.4	1770.5
162.5°	1798.1	1798.1	1799.8	1810.7	1802.7
165°	1828.5	1826.8	1826.8	1838.3	1830.2
167.5°	1856.1	1851.0	1851.0	1862.4	1854.4
170°	1876.8	1872.2	1870.5	1882.0	1872.2
172.5°	1891.2	1886.5	1884.8	1896.3	1886.5
175°	1902.6	1898.1	1894.6	1906.1	1896.3
177.5°	1909.0	1904.4	1900.9	1910.7	1900.9
180°	1906.1	1906.1	1906.1	1906.1	1906.1

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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	11.98	12.91	12.86	13.79	14.91	7.96	8.88	8.83	9.77	10.89
	3H	13.67	14.49	14.55	15.39	16.54	9.15	9.98	10.04	10.87	12.02
	4H	14.28	15.06	15.18	15.96	17.12	9.61	10.39	10.51	11.29	12.45
	6H	14.71	15.42	15.62	16.33	17.50	9.94	10.65	10.85	11.56	12.73
	8H	14.84	15.52	15.76	16.44	17.61	10.03	10.71	10.95	11.64	12.81
	12H	14.90	15.55	15.82	16.47	17.66	10.08	10.72	11.00	11.64	12.84
4H	2H	12.01	12.79	12.92	13.69	14.85	8.56	9.34	9.47	10.24	11.40
	3H	13.85	14.50	14.77	15.43	16.60	9.92	10.57	10.84	11.50	12.68
	4H	14.55	15.13	15.47	16.06	17.26	10.48	11.06	11.40	11.99	13.19
	6H	15.07	15.57	16.01	16.53	17.72	10.90	11.41	11.84	12.36	13.56
	8H	15.24	15.72	16.19	16.66	17.88	11.03	11.51	11.97	12.45	13.66
	12H	15.34	15.77	16.30	16.73	17.95	11.10	11.53	12.06	12.49	13.71
8H	4H	14.52	14.99	15.46	15.94	17.15	10.76	11.24	11.70	12.18	13.39
	6H	15.09	15.48	16.06	16.47	17.68	11.29	11.68	12.25	12.67	13.88
	8H	15.31	15.65	16.28	16.63	17.86	11.48	11.82	12.45	12.80	14.03
	12H	15.45	15.75	16.43	16.73	18.00	11.60	11.91	12.58	12.88	14.15
12H	4H	14.48	14.90	15.44	15.87	17.08	10.77	11.20	11.73	12.16	13.38
	6H	15.07	15.41	16.04	16.39	17.62	11.33	11.68	12.31	12.66	13.89
	8H	15.29	15.59	16.27	16.57	17.84	11.55	11.85	12.53	12.83	14.10