

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: P921172

Luminaire Tested: DFN2DIP-TR4F0-110D060US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921172
REPORT IS A COMBINATION OF REPORTS P900420 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D060US935-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

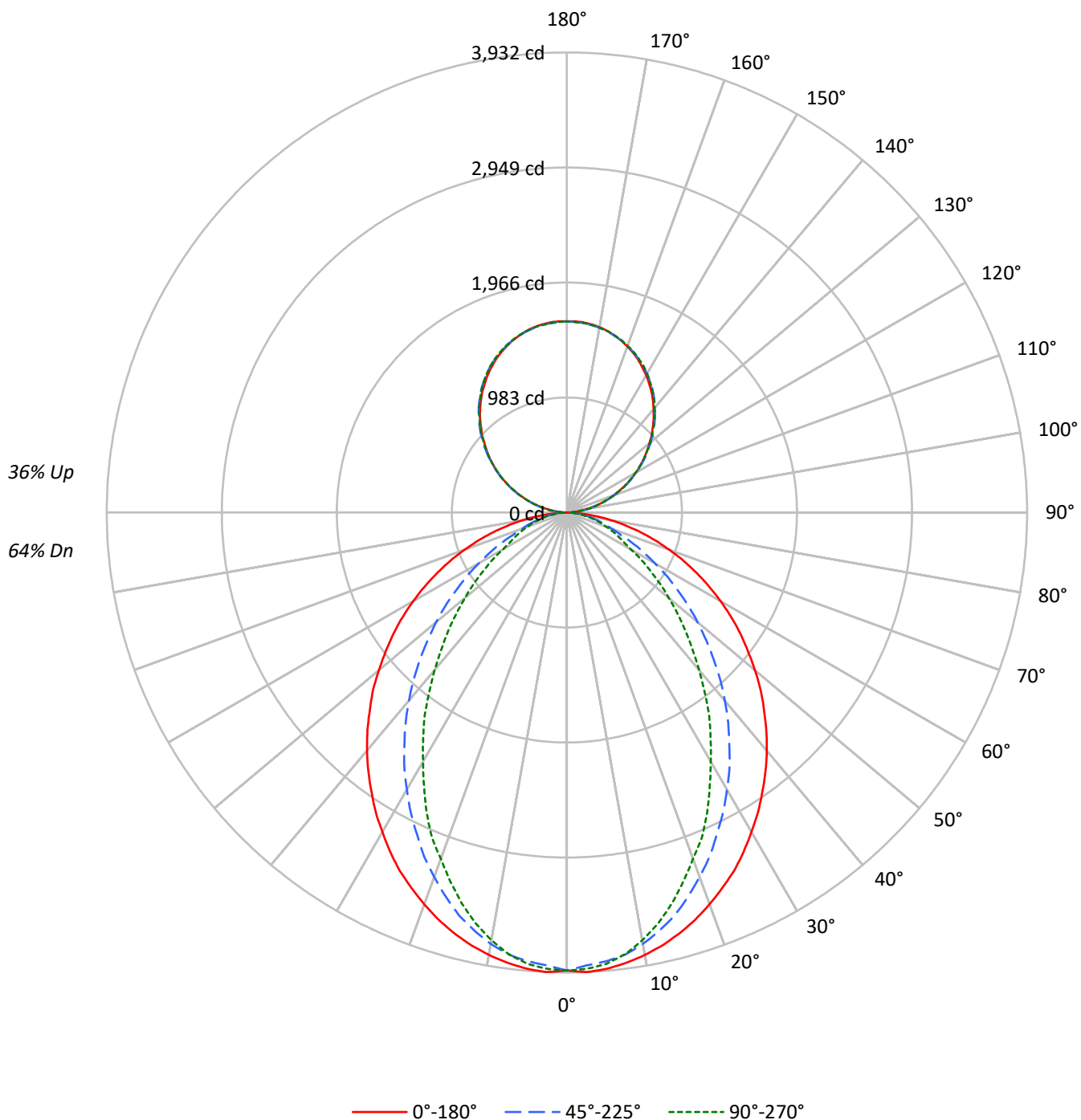
Lumens per Lamp: N/A
Luminaire Lumens: 12622.2 lumens
Efficiency: N/A
Efficacy: 80.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 157.4
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	30	10
RCR																	
0	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69
1	101	97	94	90	95	92	88	85	81	78	76	71	69	67	62	61	59
2	93	86	80	75	87	81	76	71	72	68	64	63	60	57	55	53	51
3	85	76	69	63	80	72	65	60	64	59	55	56	52	49	49	47	44
4	78	68	60	54	73	64	57	52	57	52	47	51	46	43	45	41	39
5	72	61	53	47	68	58	50	45	51	46	41	46	41	38	40	37	34
6	67	55	47	41	63	52	45	39	47	41	36	42	37	33	37	33	30
7	62	50	42	36	58	47	40	35	43	37	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	25
9	54	42	34	29	51	40	33	28	36	30	26	32	28	24	29	25	22
10	50	38	31	26	48	37	30	26	33	28	24	30	25	22	27	23	20

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	2.9
10°-20°	1007.1	8.0
20°-30°	1413.9	11.2
30°-40°	1541.3	12.2
40°-50°	1416.6	11.2
50°-60°	1112.5	8.8
60°-70°	724.2	5.7
70°-80°	372.8	3.0
80°-90°	99.8	0.8
90°-100°	101.1	0.8
100°-110°	321.2	2.5
110°-120°	549.7	4.4
120°-130°	723.0	5.7
130°-140°	811.5	6.4
140°-150°	795.8	6.3
150°-160°	667.5	5.3
160°-170°	442.7	3.5
170°-180°	154.7	1.2
0°-30°	2787.9	22.1
0°-40°	4329.1	34.3
0°-60°	6858.3	54.3
0°-90°	8055.0	63.8
90°-120°	972.0	7.7
90°-150°	3302.3	26.2
90°-180°	4567.0	36.2
0°-180°	12622.2	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	18	48	45	47	12
95°	72	86	88	88	86	80
105°	296	300	303	306	306	313
115°	552	560	557	556	552	546
125°	802	815	811	806	805	717
135°	1038	1053	1056	1055	1051	802
145°	1260	1270	1278	1279	1274	787
155°	1441	1445	1449	1456	1452	663
165°	1567	1566	1566	1576	1569	442
175°	1631	1627	1624	1634	1625	155
180°	1634	1634	1634	1634	1634	

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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°	1.5	17.7	48.3	45.3	46.8
92.5°	30.6	41.4	42.9	44.3	44.3
95°	71.9	85.7	88.2	88.2	85.7
97.5°	119.7	132.5	137.9	137.9	137.9
100°	174.9	186.1	190.1	190.1	188.6
102.5°	233.0	241.3	246.8	248.2	246.8
105°	296.5	300.5	303.4	305.9	305.9
107.5°	359.6	365.5	365.5	366.4	359.6
110°	420.7	428.5	428.5	428.5	424.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	486.6	495.0	493.5	489.6	486.6
115°	551.6	559.6	557.1	555.6	551.6
117.5°	616.2	627.1	620.1	616.2	612.3
120°	681.2	692.1	681.2	681.2	676.7
122.5°	740.3	754.1	747.2	743.3	740.3
125°	802.4	814.7	810.7	806.3	804.9
127.5°	863.0	878.2	872.8	866.9	863.0
130°	919.6	937.4	934.9	931.9	926.5
132.5°	983.2	996.9	997.9	991.0	987.0
135°	1037.8	1053.1	1056.0	1054.6	1050.6
137.5°	1098.9	1111.2	1113.7	1112.7	1106.8
140°	1152.6	1164.9	1171.8	1171.8	1166.4
142.5°	1207.7	1220.0	1224.0	1225.5	1220.0
145°	1260.0	1269.8	1277.7	1279.2	1273.8
147.5°	1306.7	1319.0	1325.0	1327.4	1322.0
150°	1355.0	1363.4	1368.8	1373.2	1368.8
152.5°	1397.8	1406.3	1413.2	1418.6	1413.2
155°	1440.7	1444.7	1449.1	1456.0	1451.6
157.5°	1477.6	1480.7	1483.1	1493.0	1486.1
160°	1510.7	1513.6	1515.1	1523.4	1517.6
162.5°	1541.2	1541.2	1542.6	1552.0	1545.1
165°	1567.3	1565.8	1565.8	1575.7	1568.8
167.5°	1591.0	1586.6	1586.6	1596.4	1589.5
170°	1608.7	1604.7	1603.3	1613.1	1604.7
172.5°	1621.0	1617.0	1615.6	1625.4	1617.0
175°	1630.8	1626.9	1623.9	1633.8	1625.4
177.5°	1636.2	1632.4	1629.4	1637.7	1629.4
180°	1633.8	1633.8	1633.8	1633.8	1633.8

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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	12.28	13.24	13.12	14.09	15.16	8.26	9.21	9.09	10.07	11.13
	3H	13.97	14.83	14.82	15.69	16.78	9.46	10.31	10.31	11.18	12.27
	4H	14.58	15.39	15.45	16.26	17.36	9.91	10.72	10.78	11.59	12.69
	6H	15.01	15.76	15.89	16.63	17.75	10.24	10.99	11.12	11.86	12.98
	8H	15.14	15.85	16.03	16.74	17.86	10.34	11.04	11.22	11.94	13.05
	12H	15.21	15.88	16.10	16.77	17.91	10.38	11.06	11.28	11.95	13.08
4H	2H	12.32	13.13	13.19	13.99	15.10	8.87	9.68	9.74	10.55	11.65
	3H	14.16	14.83	15.04	15.73	16.85	10.23	10.90	11.11	11.80	12.92
	4H	14.86	15.47	15.75	16.36	17.51	10.78	11.39	11.68	12.29	13.44
	6H	15.38	15.90	16.28	16.83	17.97	11.21	11.74	12.12	12.66	13.80
	8H	15.55	16.05	16.46	16.96	18.12	11.34	11.83	12.25	12.75	13.91
	12H	15.66	16.10	16.58	17.03	18.19	11.41	11.86	12.34	12.79	13.95
8H	4H	14.83	15.32	15.74	16.24	17.40	11.07	11.56	11.98	12.48	13.64
	6H	15.40	15.81	16.34	16.77	17.92	11.60	12.00	12.53	12.96	14.12
	8H	15.62	15.98	16.57	16.93	18.10	11.79	12.15	12.74	13.10	14.27
	12H	15.76	16.08	16.71	17.02	18.25	11.92	12.23	12.86	13.17	14.40
12H	4H	14.79	15.23	15.72	16.17	17.33	11.08	11.53	12.01	12.46	13.62
	6H	15.38	15.74	16.33	16.69	17.86	11.65	12.01	12.59	12.96	14.13
	8H	15.61	15.92	16.55	16.86	18.09	11.86	12.18	12.81	13.12	14.35