

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: P919774

Luminaire Tested: DFN2DIP-PN4F0-110D060US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919774
REPORT IS A COMBINATION OF REPORTS P899660 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D060US935-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

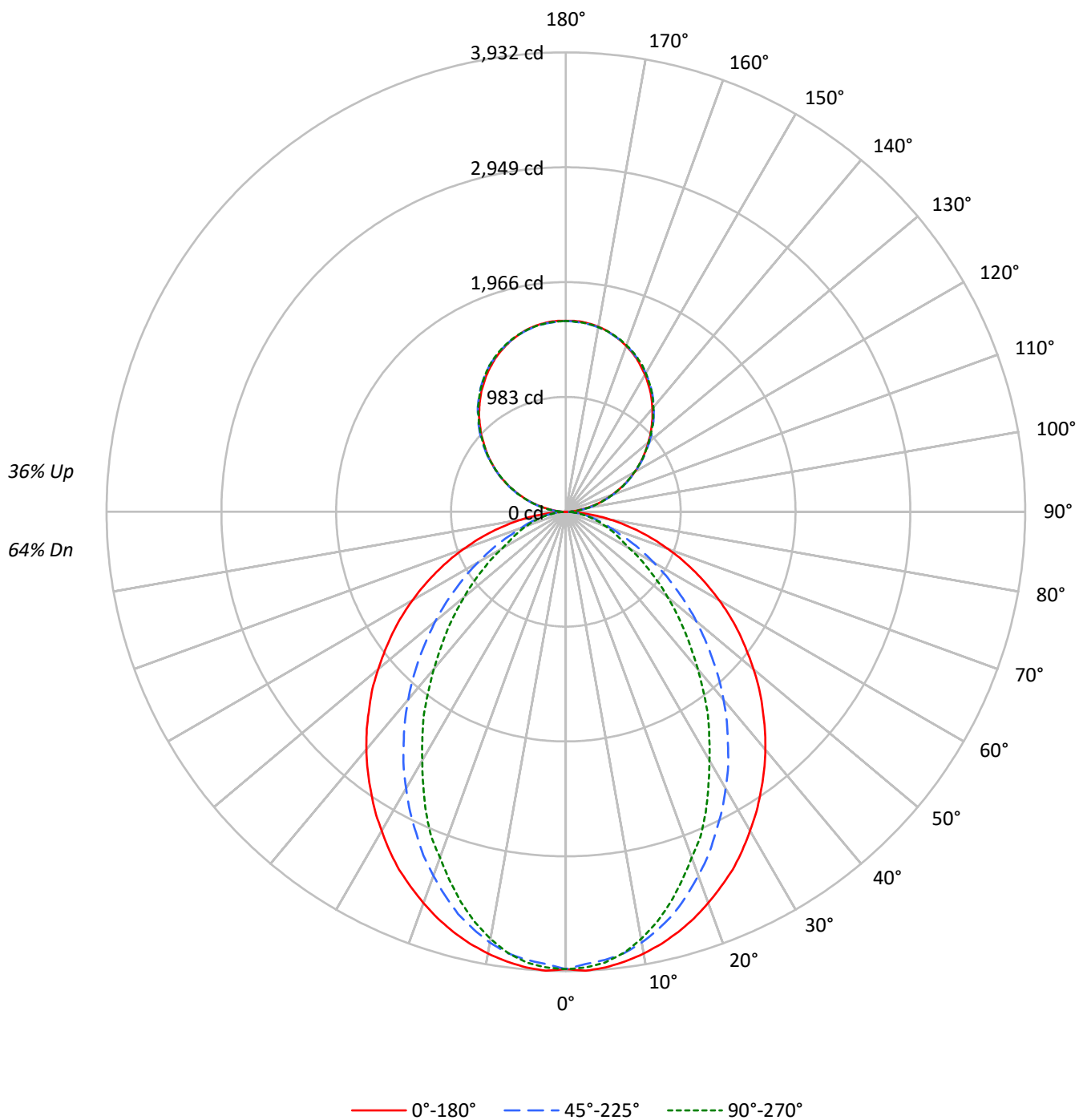
Lumens per Lamp: N/A
Luminaire Lumens: 12622.2 lumens
Efficiency: N/A
Efficacy: 79.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 159.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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°	2857	2857	2857
5°	2862	2812	2831
10°	2834	2758	2739
15°	2794	2667	2597
20°	2743	2541	2423
25°	2690	2401	2254
30°	2619	2257	2041
35°	2550	2102	1853
40°	2479	1942	1638
45°	2397	1764	1442
50°	2312	1584	1252
55°	2223	1392	1068
60°	2120	1191	880
65°	2002	987	793
70°	1859	796	718
75°	1679	703	655
80°	1418	591	570
85°	988	396	431

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2397 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	12.00	12.96	12.84	13.81	14.87	7.97	8.92	8.80	9.78	10.84
	3H	13.69	14.55	14.54	15.41	16.50	9.17	10.02	10.01	10.88	11.97
	4H	14.31	15.12	15.17	15.99	17.09	9.62	10.43	10.49	11.30	12.40
	6H	14.74	15.48	15.62	16.36	17.47	9.95	10.69	10.83	11.57	12.68
	8H	14.87	15.58	15.76	16.47	17.59	10.05	10.75	10.93	11.65	12.76
	12H	14.94	15.61	15.83	16.50	17.64	10.09	10.77	10.98	11.65	12.79
4H	2H	12.04	12.84	12.91	13.71	14.81	8.58	9.39	9.45	10.26	11.36
	3H	13.88	14.55	14.76	15.45	16.57	9.94	10.61	10.82	11.51	12.63
	4H	14.58	15.19	15.47	16.09	17.23	10.50	11.11	11.39	12.00	13.15
	6H	15.10	15.63	16.01	16.55	17.70	10.92	11.45	11.83	12.37	13.52
	8H	15.28	15.77	16.19	16.69	17.85	11.05	11.55	11.97	12.46	13.62
	12H	15.39	15.83	16.31	16.76	17.92	11.13	11.57	12.06	12.50	13.67
8H	4H	14.56	15.05	15.47	15.96	17.12	10.79	11.28	11.70	12.19	13.35
	6H	15.13	15.54	16.07	16.49	17.65	11.31	11.72	12.25	12.68	13.83
	8H	15.35	15.71	16.30	16.66	17.83	11.50	11.86	12.45	12.81	13.99
	12H	15.50	15.81	16.44	16.75	17.98	11.63	11.95	12.58	12.89	14.11
12H	4H	14.51	14.96	15.44	15.89	17.05	10.80	11.24	11.73	12.18	13.34
	6H	15.11	15.47	16.05	16.42	17.59	11.36	11.72	12.31	12.67	13.85
	8H	15.33	15.65	16.28	16.59	17.82	11.58	11.90	12.53	12.84	14.06