

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: P920486

Luminaire Tested: DFN2DIP-SQ4F0-110D060US935-RLLFLL

Issue Date: 11/21/2024

**Test Information**

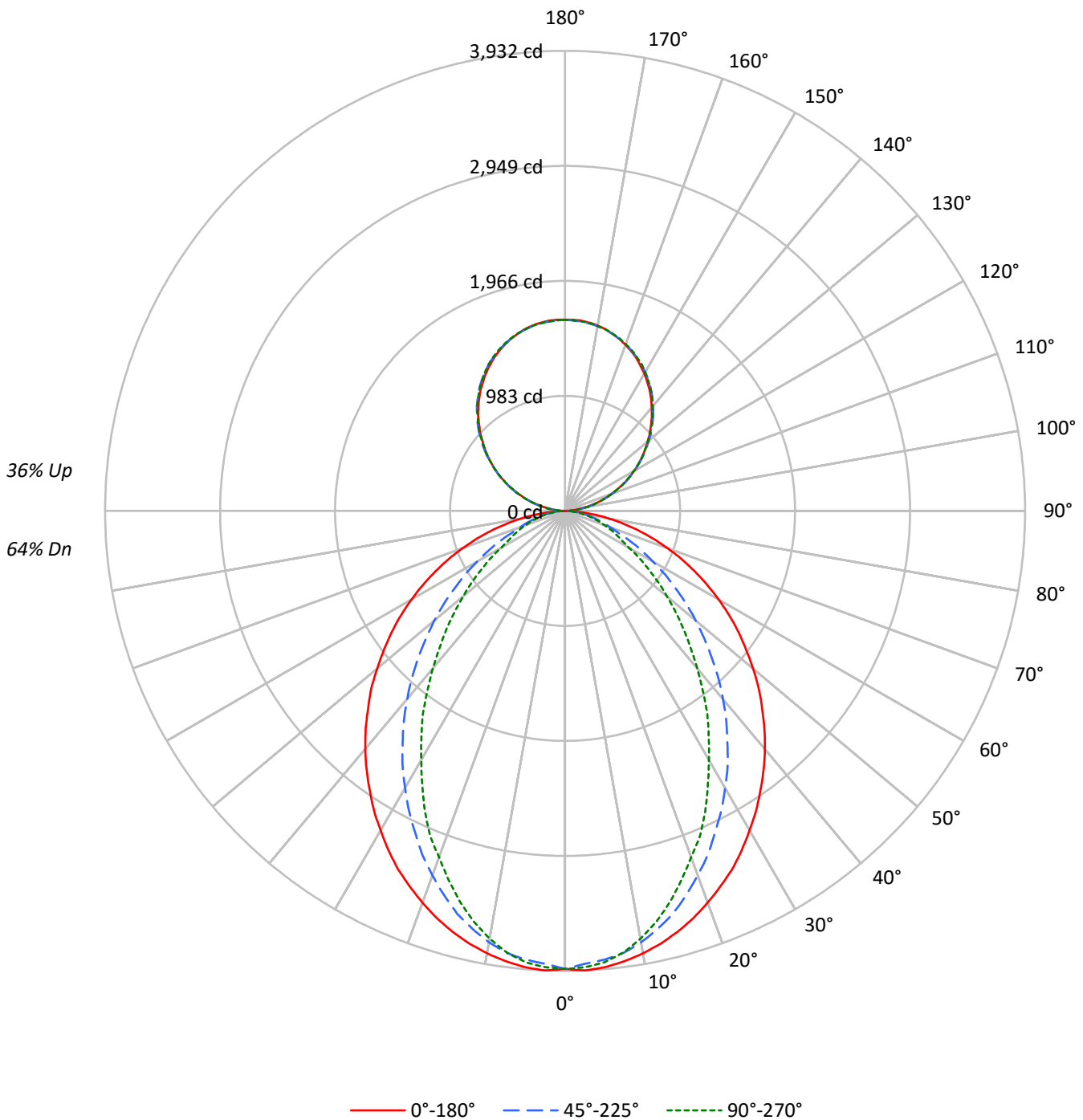
Test Method: LM-79-2019  
Report Number: P920486  
REPORT IS A COMBINATION OF REPORTS P900070 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-110D060US935-RLLFLL  
Description: 4 foot, Square 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: 84.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 150.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
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	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69	69	69	69	64
1	101	97	94	90	95	92	88	85	81	78	76	71	69	67	62	61	59	62	61	59	55
2	93	86	80	75	87	81	76	71	72	68	64	63	60	57	55	53	51	55	53	51	47
3	85	76	69	63	80	72	65	60	64	59	55	56	52	49	49	47	44	49	47	44	41
4	78	68	60	54	73	64	57	52	57	52	47	51	46	43	45	41	39	45	41	39	35
5	72	61	53	47	68	58	50	45	51	46	41	46	41	38	40	37	34	40	37	34	31
6	67	55	47	41	63	52	45	39	47	41	36	42	37	33	37	33	30	37	33	30	28
7	62	50	42	36	58	47	40	35	43	37	32	38	33	30	34	30	27	34	30	27	25
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	25	31	27	25	22
9	54	42	34	29	51	40	33	28	36	30	26	32	28	24	29	25	22	29	25	22	20
10	50	38	31	26	48	37	30	26	33	28	24	30	25	22	27	23	20	27	23	20	19

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2747	2747	2747
5°	2751	2704	2721
10°	2724	2651	2633
15°	2686	2564	2497
20°	2637	2444	2330
25°	2586	2309	2168
30°	2517	2170	1963
35°	2451	2022	1783
40°	2383	1868	1576
45°	2304	1696	1388
50°	2222	1524	1205
55°	2136	1339	1029
60°	2038	1146	848
65°	1924	950	764
70°	1786	767	692
75°	1613	677	632
80°	1362	570	551
85°	949	383	419

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2304 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	11.87	12.83	12.71	13.68	14.74	7.83	8.79	8.67	9.64	10.70
	3H	13.56	14.42	14.41	15.28	16.37	9.03	9.89	9.88	10.75	11.84
	4H	14.18	14.99	15.04	15.86	16.96	9.49	10.29	10.35	11.16	12.26
	6H	14.61	15.35	15.49	16.23	17.34	9.81	10.56	10.69	11.43	12.55
	8H	14.74	15.45	15.63	16.35	17.46	9.91	10.62	10.79	11.51	12.62
	12H	14.81	15.48	15.70	16.37	17.51	9.96	10.63	10.85	11.52	12.66
4H	2H	11.90	12.71	12.77	13.58	14.68	8.44	9.25	9.31	10.12	11.22
	3H	13.75	14.42	14.63	15.32	16.44	9.81	10.48	10.69	11.38	12.49
	4H	14.45	15.06	15.34	15.96	17.10	10.36	10.97	11.25	11.87	13.01
	6H	14.98	15.50	15.88	16.42	17.57	10.79	11.31	11.70	12.24	13.38
	8H	15.16	15.65	16.07	16.56	17.72	10.92	11.41	11.83	12.33	13.48
	12H	15.26	15.70	16.19	16.64	17.80	10.99	11.43	11.92	12.37	13.53
8H	4H	14.43	14.92	15.34	15.83	16.99	10.65	11.14	11.56	12.06	13.22
	6H	15.00	15.41	15.94	16.37	17.52	11.18	11.58	12.11	12.54	13.70
	8H	15.22	15.58	16.17	16.53	17.71	11.37	11.73	12.32	12.68	13.85
	12H	15.37	15.69	16.32	16.63	17.85	11.49	11.81	12.44	12.75	13.98
12H	4H	14.38	14.83	15.31	15.76	16.92	10.66	11.11	11.59	12.04	13.20
	6H	14.98	15.34	15.92	16.29	17.46	11.23	11.59	12.17	12.54	13.71
	8H	15.21	15.52	16.16	16.47	17.69	11.45	11.76	12.39	12.70	13.93