

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: P920211

Luminaire Tested: DFN2DIP-SQ3F0-100D070US935-RLONL

Issue Date: 11/21/2024

**Test Information**

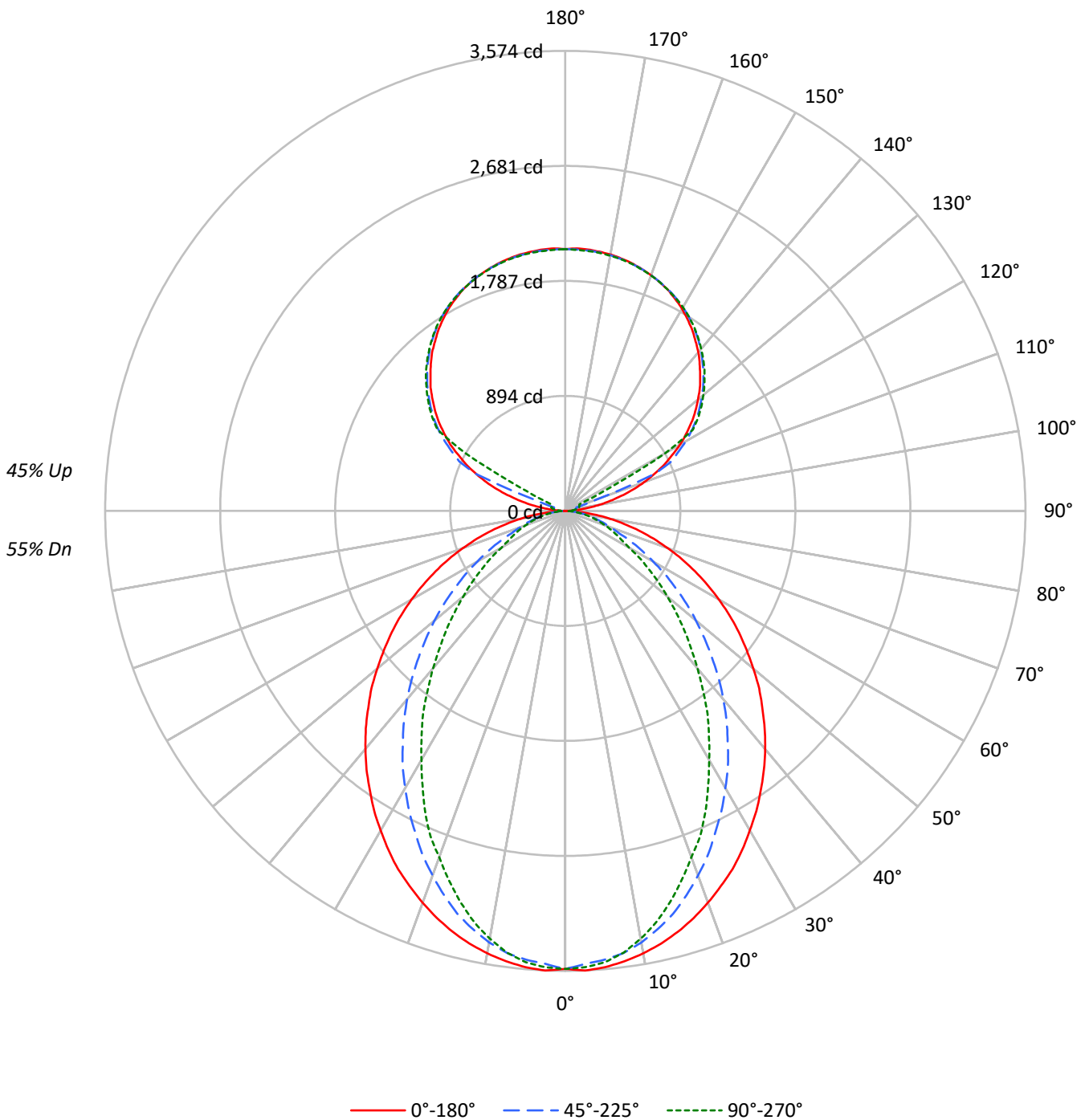
Test Method: LM-79-2019  
Report Number: P920211  
REPORT IS A COMBINATION OF REPORTS P901448 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-100D070US935-RLLONL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13285.2 lumens  
Efficiency: N/A  
Efficacy: 88.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 151  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55	55	55	55
1	99	95	92	88	92	89	86	83	76	74	72	65	63	62	55	53	52	47	47	47	47
2	91	84	78	73	84	78	73	69	68	64	60	58	55	52	49	47	45	41	41	41	41
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	41	39	35	35	35	35
4	77	66	58	52	71	62	55	50	54	48	44	46	42	39	39	36	34	31	31	31	31
5	70	59	51	45	65	55	48	43	48	43	39	42	38	34	36	33	30	27	27	27	27
6	65	53	45	40	60	50	43	38	44	38	34	38	34	30	33	29	27	24	24	24	24
7	60	48	41	35	56	45	38	33	40	34	30	35	30	27	30	27	24	21	21	21	21
8	56	44	36	31	52	41	35	30	37	31	27	32	28	24	28	24	22	19	19	19	19
9	52	40	33	28	49	38	31	27	34	28	24	29	25	22	26	22	20	18	18	18	18
10	49	37	30	25	46	35	29	24	31	26	22	27	23	20	24	20	18	16	16	16	16

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

	0°	45°	90°
0°	4077	4077	4077
5°	4081	4010	4037
10°	4038	3929	3904
15°	3980	3796	3700
20°	3904	3615	3450
25°	3826	3412	3208
30°	3722	3204	2902
35°	3620	2981	2633
40°	3516	2750	2325
45°	3396	2494	2047
50°	3271	2236	1774
55°	3141	1961	1512
60°	2990	1674	1244
65°	2815	1382	1118
70°	2604	1110	1010
75°	2338	973	916
80°	1954	808	790
85°	1325	526	585

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3396 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	333.5	2.5
10°-20°	915.5	6.9
20°-30°	1285.4	9.7
30°-40°	1401.2	10.5
40°-50°	1287.8	9.7
50°-60°	1011.4	7.6
60°-70°	658.3	5.0
70°-80°	338.9	2.6
80°-90°	90.1	0.7
90°-100°	67.1	0.5
100°-110°	250.0	1.9
110°-120°	663.1	5.0
120°-130°	1099.8	8.3
130°-140°	1168.3	8.8
140°-150°	1085.8	8.2
150°-160°	872.9	6.6
160°-170°	562.5	4.2
170°-180°	193.6	1.5
0°-30°	2534.4	19.1
0°-40°	3935.6	29.6
0°-60°	6234.8	46.9
0°-90°	7322.1	55.1
90°-120°	980.2	7.4
90°-150°	4334.1	32.6
90°-180°	5963.0	44.9
0°-180°	13285.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3558	3558	3558	3558	3558	
5°	3558	3542	3500	3530	3520	337
15°	3385	3349	3240	3178	3146	954
25°	3072	2969	2757	2625	2576	1413
35°	2647	2483	2200	1997	1926	1657
45°	2164	1948	1610	1381	1304	1671
55°	1646	1394	1046	854	792	1470
65°	1111	850	560	451	441	1102
75°	592	367	258	235	232	627
85°	138	71	61	61	61	159
90°	1	18	29	37	40	13
95°	96	47	57	65	63	113
105°	448	492	90	106	112	478
115°	846	871	908	227	121	833
125°	1196	1216	1244	1254	1258	1067
135°	1481	1504	1517	1532	1529	1144
145°	1718	1716	1741	1751	1744	1074
155°	1891	1878	1896	1904	1893	872
165°	1993	1984	1988	1999	1988	563
175°	2038	2028	2031	2041	2027	194
180°	2034	2034	2034	2034	2034	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3558.5	3558.5	3558.5	3558.5	3558.5
2.5°	3574.5	3558.5	3522.9	3555.4	3548.9
5°	3558.5	3542.4	3500.4	3529.5	3519.8
7.5°	3529.5	3510.3	3465.2	3477.8	3461.8
10°	3490.8	3468.3	3404.0	3394.1	3375.0
12.5°	3442.7	3413.6	3326.5	3307.4	3271.8
15°	3384.6	3349.0	3239.7	3178.5	3146.4
17.5°	3316.9	3265.3	3130.1	3059.3	3007.7
20°	3239.7	3175.1	3014.2	2933.9	2862.8
22.5°	3156.0	3081.9	2894.9	2785.7	2737.5
25°	3072.3	2969.2	2756.6	2624.7	2576.2
27.5°	2972.5	2862.8	2627.8	2476.4	2402.3
30°	2866.3	2743.6	2486.0	2322.0	2234.9
32.5°	2763.1	2614.8	2351.0	2157.7	2077.0
35°	2647.2	2482.9	2199.7	1996.7	1925.6
37.5°	2534.5	2357.2	2057.9	1835.5	1755.1
40°	2415.3	2222.2	1909.6	1681.0	1597.3
42.5°	2292.9	2086.9	1761.7	1523.2	1442.9
45°	2164.1	1948.2	1610.3	1381.4	1304.2
47.5°	2041.9	1813.3	1465.4	1236.5	1165.8
50°	1906.5	1677.9	1323.6	1101.2	1033.9
52.5°	1774.3	1532.7	1188.3	975.8	914.6
55°	1645.5	1394.4	1046.5	853.5	792.3
57.5°	1513.6	1255.9	921.2	740.7	689.1
60°	1378.3	1120.7	788.9	624.9	573.3
62.5°	1246.4	988.8	676.1	521.8	496.1
65°	1111.1	850.1	560.3	451.0	441.1
67.5°	982.3	721.3	451.0	396.0	386.4
70°	847.0	595.9	373.4	341.3	328.4
72.5°	718.2	479.7	312.3	286.6	280.2
75°	592.5	367.0	257.6	235.1	232.0
77.5°	467.1	260.7	202.9	189.9	183.5
80°	350.9	186.9	154.5	141.8	141.8
82.5°	244.6	125.7	106.2	99.8	99.8
85°	138.4	70.7	61.1	61.1	61.1
87.5°	51.6	25.7	25.7	22.6	22.6
90°	1.4	17.7	29.4	36.9	39.7
92.5°	36.9	30.9	35.3	38.3	39.7
95°	95.6	47.0	57.3	64.8	63.3
97.5°	172.1	51.6	75.0	79.6	80.9
100°	260.6	58.9	83.9	95.6	98.6
102.5°	357.6	354.8	86.9	103.0	107.5
105°	447.5	491.6	89.8	105.9	111.8
107.5°	551.9	588.7	92.8	108.9	114.9
110°	652.1	682.9	257.6	110.5	116.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	746.3	772.7	747.7	113.2	117.8
115°	846.3	871.2	908.1	226.7	120.8
117.5°	933.1	962.5	987.7	777.1	391.5
120°	1030.3	1052.3	1078.9	1096.6	897.8
122.5°	1112.6	1136.2	1165.8	1174.5	1176.0
125°	1196.5	1215.7	1243.7	1254.0	1258.3
127.5°	1273.1	1293.6	1315.9	1330.6	1332.0
130°	1345.2	1368.8	1384.9	1401.2	1399.8
132.5°	1418.8	1438.0	1454.1	1467.4	1466.0
135°	1480.7	1504.2	1517.4	1532.2	1529.3
137.5°	1545.3	1563.1	1577.9	1592.6	1588.2
140°	1608.6	1620.5	1636.6	1649.8	1642.5
142.5°	1661.7	1672.1	1691.1	1702.8	1695.5
145°	1717.7	1716.1	1741.1	1751.4	1744.1
147.5°	1766.1	1761.8	1786.7	1794.1	1788.3
150°	1813.3	1803.0	1826.6	1835.3	1828.0
152.5°	1853.0	1841.2	1863.3	1872.2	1861.9
155°	1891.3	1878.1	1895.7	1904.5	1892.8
157.5°	1922.2	1910.5	1923.7	1934.1	1922.2
160°	1948.8	1939.8	1948.8	1957.5	1947.1
162.5°	1972.2	1963.4	1970.7	1981.1	1967.8
165°	1992.8	1984.1	1988.4	1998.7	1988.4
167.5°	2009.1	2000.1	2004.7	2015.0	2001.7
170°	2022.3	2013.4	2016.4	2026.7	2013.4
172.5°	2031.1	2022.3	2025.3	2035.6	2022.3
175°	2038.4	2028.1	2031.1	2041.3	2026.7
177.5°	2041.3	2031.1	2032.6	2043.0	2029.6
180°	2034.0	2034.0	2034.0	2034.0	2034.0



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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	12.46	13.33	13.38	14.27	15.47	8.42	9.30	9.34	10.23	11.43
	3H	14.14	14.92	15.07	15.86	17.08	9.61	10.39	10.54	11.33	12.55
	4H	14.75	15.48	15.69	16.43	17.66	10.06	10.79	11.00	11.74	12.97
	6H	15.17	15.84	16.12	16.80	18.04	10.37	11.05	11.33	12.00	13.25
	8H	15.29	15.94	16.25	16.91	18.15	10.46	11.11	11.43	12.08	13.32
	12H	15.35	15.97	16.32	16.93	18.20	10.50	11.12	11.47	12.08	13.35
4H	2H	12.48	13.22	13.43	14.17	15.40	9.02	9.76	9.97	10.70	11.94
	3H	14.31	14.92	15.27	15.90	17.15	10.37	10.98	11.33	11.96	13.20
	4H	15.00	15.56	15.97	16.53	17.80	10.91	11.47	11.88	12.44	13.71
	6H	15.51	15.99	16.50	16.99	18.26	11.33	11.81	12.31	12.80	14.07
	8H	15.69	16.14	16.67	17.12	18.41	11.45	11.90	12.44	12.89	14.17
	12H	15.78	16.19	16.78	17.19	18.48	11.52	11.92	12.52	12.92	14.21
8H	4H	14.97	15.42	15.95	16.41	17.69	11.19	11.64	12.18	12.63	13.91
	6H	15.53	15.90	16.54	16.93	18.22	11.70	12.07	12.71	13.10	14.39
	8H	15.75	16.07	16.76	17.09	18.39	11.89	12.22	12.91	13.23	14.53
	12H	15.88	16.17	16.90	17.18	18.53	12.00	12.29	13.03	13.30	14.65
12H	4H	14.92	15.33	15.93	16.33	17.62	11.20	11.60	12.20	12.61	13.90
	6H	15.51	15.83	16.53	16.85	18.15	11.75	12.08	12.77	13.10	14.40
	8H	15.73	16.01	16.75	17.03	18.37	11.96	12.25	12.98	13.26	14.60