

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: P908964

Luminaire Tested: DFN2DIP-SQ2F0-040D070US840-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P908964  
REPORT IS A COMBINATION OF REPORTS P899821 AND P896659  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-040D070US840-FLLFL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

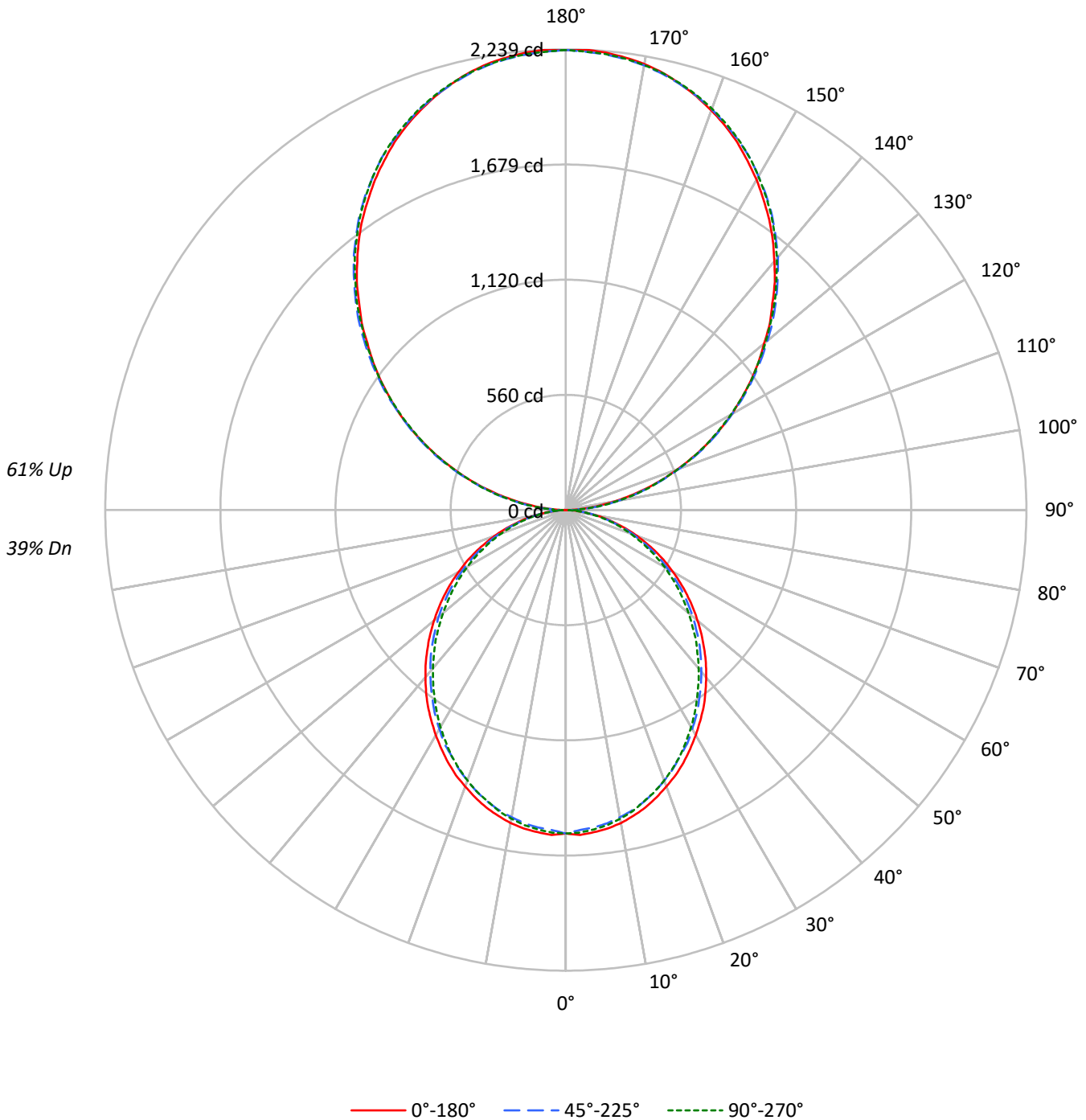
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10255.2 lumens  
Efficiency: N/A  
Efficacy: 116.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: Semi-Indirect

Input Watts (W): 88.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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				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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46	39				39
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39	33				33
2	87	79	73	68	79	72	67	63	59	56	52	47	45	42	36	34	33	28				28
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28	23				23
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24	20				20
5	66	55	47	41	60	50	43	38	41	36	32	33	29	27	26	23	21	17				17
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18	15				15
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16	14				14
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15	12				12
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13	11				11
10	45	34	26	22	41	31	25	20	26	21	18	21	17	15	17	14	12	10				10

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

	0°	45°	90°
0°	3456	3456	3456
5°	3456	3400	3426
10°	3422	3347	3375
15°	3365	3284	3298
20°	3291	3201	3219
25°	3218	3102	3128
30°	3127	3009	3014
35°	3040	2901	2894
40°	2935	2791	2780
45°	2829	2681	2662
50°	2713	2566	2526
55°	2591	2432	2401
60°	2453	2274	2256
65°	2301	2109	2087
70°	2109	1909	1902
75°	1846	1669	1725
80°	1524	1362	1402
85°	1030	860	880

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 3114 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	147.9	1.4
10°-20°	416.2	4.1
20°-30°	611.7	6.0
30°-40°	710.5	6.9
40°-50°	709.6	6.9
50°-60°	618.7	6.0
60°-70°	457.4	4.5
70°-80°	258.8	2.5
80°-90°	74.6	0.7
90°-100°	138.3	1.3
100°-110°	439.6	4.3
110°-120°	752.2	7.3
120°-130°	989.3	9.6
130°-140°	1110.5	10.8
140°-150°	1088.9	10.6
150°-160°	913.5	8.9
160°-170°	605.8	5.9
170°-180°	211.7	2.1
0°-30°	1175.9	11.5
0°-40°	1886.3	18.4
0°-60°	3214.6	31.3
0°-90°	4005.4	39.1
90°-120°	1330.1	13.0
90°-150°	4518.8	44.1
90°-180°	6250.0	60.9
0°-180°	10255.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1468	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	2	24	66	62	64	10
95°	98	117	121	121	117	109
105°	406	411	415	419	419	428
115°	755	766	762	760	755	747
125°	1098	1115	1109	1103	1101	981
135°	1420	1441	1445	1443	1438	1098
145°	1724	1738	1748	1750	1743	1077
155°	1972	1977	1983	1992	1986	907
165°	2145	2143	2143	2156	2147	605
175°	2232	2226	2222	2236	2224	212
180°	2236	2236	2236	2236	2236	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1571.8	1571.8	1571.8	1571.8	1571.8
2.5°	1580.9	1573.4	1556.7	1571.8	1568.9
5°	1571.8	1565.8	1549.1	1561.2	1558.3
7.5°	1561.2	1552.2	1535.5	1547.7	1544.7
10°	1544.7	1534.1	1516.0	1528.0	1523.5
12.5°	1521.9	1512.9	1494.8	1502.4	1499.2
15°	1496.2	1487.2	1467.5	1473.6	1466.1
17.5°	1464.5	1455.5	1435.8	1443.3	1435.8
20°	1429.7	1420.7	1399.6	1404.0	1398.2
22.5°	1395.0	1381.4	1361.7	1361.7	1358.7
25°	1354.1	1342.1	1316.5	1319.4	1316.5
27.5°	1308.8	1298.2	1278.7	1274.1	1266.7
30°	1263.5	1251.4	1228.8	1224.3	1218.2
32.5°	1215.2	1206.2	1181.9	1172.9	1166.7
35°	1168.3	1153.3	1129.0	1119.9	1112.4
37.5°	1115.4	1101.8	1077.5	1067.0	1059.4
40°	1061.1	1048.8	1024.6	1011.2	1005.1
42.5°	1008.1	995.9	971.9	956.6	947.7
45°	950.7	940.2	917.4	900.9	894.7
47.5°	894.7	884.1	860.0	843.3	834.4
50°	835.8	828.2	807.1	785.9	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.3	674.1	666.6
57.5°	660.5	653.0	633.2	615.1	609.0
60°	601.5	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.5	503.3	497.3
65°	485.2	476.1	461.0	447.4	439.9
67.5°	424.7	417.1	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.7
75°	253.9	251.0	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.1
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	2.0	24.2	66.0	62.0	64.0
92.5°	41.8	56.7	58.7	60.7	60.7
95°	98.4	117.2	120.7	120.7	117.2
97.5°	163.8	181.3	188.7	188.7	188.7
100°	239.2	254.8	260.1	260.1	258.1
102.5°	318.8	330.2	337.7	339.7	337.7
105°	405.8	411.1	415.2	418.6	418.6
107.5°	492.0	500.1	500.1	501.5	492.0
110°	575.6	586.4	586.4	586.4	581.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	665.9	677.4	675.4	669.9	665.9
115°	754.9	765.7	762.3	760.3	754.9
117.5°	843.1	858.0	848.6	843.1	837.8
120°	932.1	947.0	932.1	932.1	926.0
122.5°	1013.0	1031.9	1022.5	1017.0	1013.0
125°	1097.9	1114.8	1109.4	1103.4	1101.4
127.5°	1180.8	1201.7	1194.4	1186.3	1180.8
130°	1258.4	1282.6	1279.3	1275.3	1267.8
132.5°	1345.3	1364.2	1365.5	1356.1	1350.7
135°	1420.2	1441.0	1445.1	1443.0	1437.6
137.5°	1503.7	1520.6	1523.9	1522.6	1514.5
140°	1577.2	1594.1	1603.5	1603.5	1596.1
142.5°	1652.6	1669.5	1674.9	1676.9	1669.5
145°	1724.1	1737.6	1748.4	1750.4	1743.0
147.5°	1788.2	1805.0	1813.1	1816.4	1809.1
150°	1854.2	1865.6	1873.1	1879.2	1873.1
152.5°	1912.8	1924.3	1933.7	1941.2	1933.7
155°	1971.5	1976.8	1983.0	1992.4	1986.3
157.5°	2022.1	2026.1	2029.4	2043.0	2033.5
160°	2067.2	2071.2	2073.3	2084.7	2076.6
162.5°	2109.0	2109.0	2111.0	2123.7	2114.4
165°	2144.7	2142.6	2142.6	2156.2	2146.7
167.5°	2177.1	2171.0	2171.0	2184.4	2175.0
170°	2201.3	2196.0	2193.9	2207.4	2196.0
172.5°	2218.2	2212.7	2210.7	2224.2	2212.7
175°	2231.6	2226.2	2222.2	2235.6	2224.2
177.5°	2239.1	2233.6	2229.6	2241.1	2229.6
180°	2235.6	2235.6	2235.6	2235.6	2235.6



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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	10.36	11.13	11.40	12.18	13.60	9.91	10.69	10.96	11.74	13.16
	3H	11.99	12.68	13.05	13.74	15.18	11.50	12.19	12.56	13.25	14.69
	4H	12.56	13.22	13.63	14.28	15.73	12.07	12.72	13.14	13.79	15.23
	6H	12.94	13.55	14.02	14.61	16.07	12.44	13.05	13.52	14.11	15.57
	8H	13.04	13.61	14.12	14.69	16.15	12.54	13.11	13.62	14.19	15.64
	12H	13.08	13.62	14.16	14.70	16.17	12.57	13.11	13.65	14.19	15.66
4H	2H	10.80	11.45	11.87	12.52	13.96	10.44	11.10	11.52	12.16	13.60
	3H	12.63	13.18	13.71	14.27	15.73	12.22	12.77	13.31	13.86	15.32
	4H	13.33	13.83	14.41	14.91	16.39	12.90	13.40	13.99	14.48	15.96
	6H	13.82	14.25	14.91	15.35	16.83	13.39	13.82	14.48	14.92	16.39
	8H	13.96	14.36	15.05	15.45	16.94	13.52	13.92	14.61	15.02	16.51
	12H	14.02	14.38	15.13	15.49	16.98	13.57	13.93	14.68	15.04	16.53
8H	4H	13.51	13.91	14.60	15.00	16.49	13.13	13.53	14.22	14.62	16.11
	6H	14.11	14.44	15.23	15.58	17.06	13.72	14.06	14.84	15.19	16.68
	8H	14.32	14.61	15.44	15.72	17.23	13.92	14.21	15.05	15.33	16.84
	12H	14.43	14.69	15.56	15.80	17.34	14.02	14.28	15.15	15.39	16.93
12H	4H	13.48	13.85	14.60	14.96	16.45	13.11	13.48	14.23	14.59	16.08
	6H	14.13	14.42	15.26	15.54	17.05	13.76	14.05	14.88	15.17	16.67
	8H	14.36	14.61	15.48	15.73	17.27	13.97	14.23	15.10	15.34	16.89