

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: P922702

Luminaire Tested: DFN2DIP-SQ2F0-080D070US940-RLLFLL

Issue Date: 11/21/2024

**Test Information**

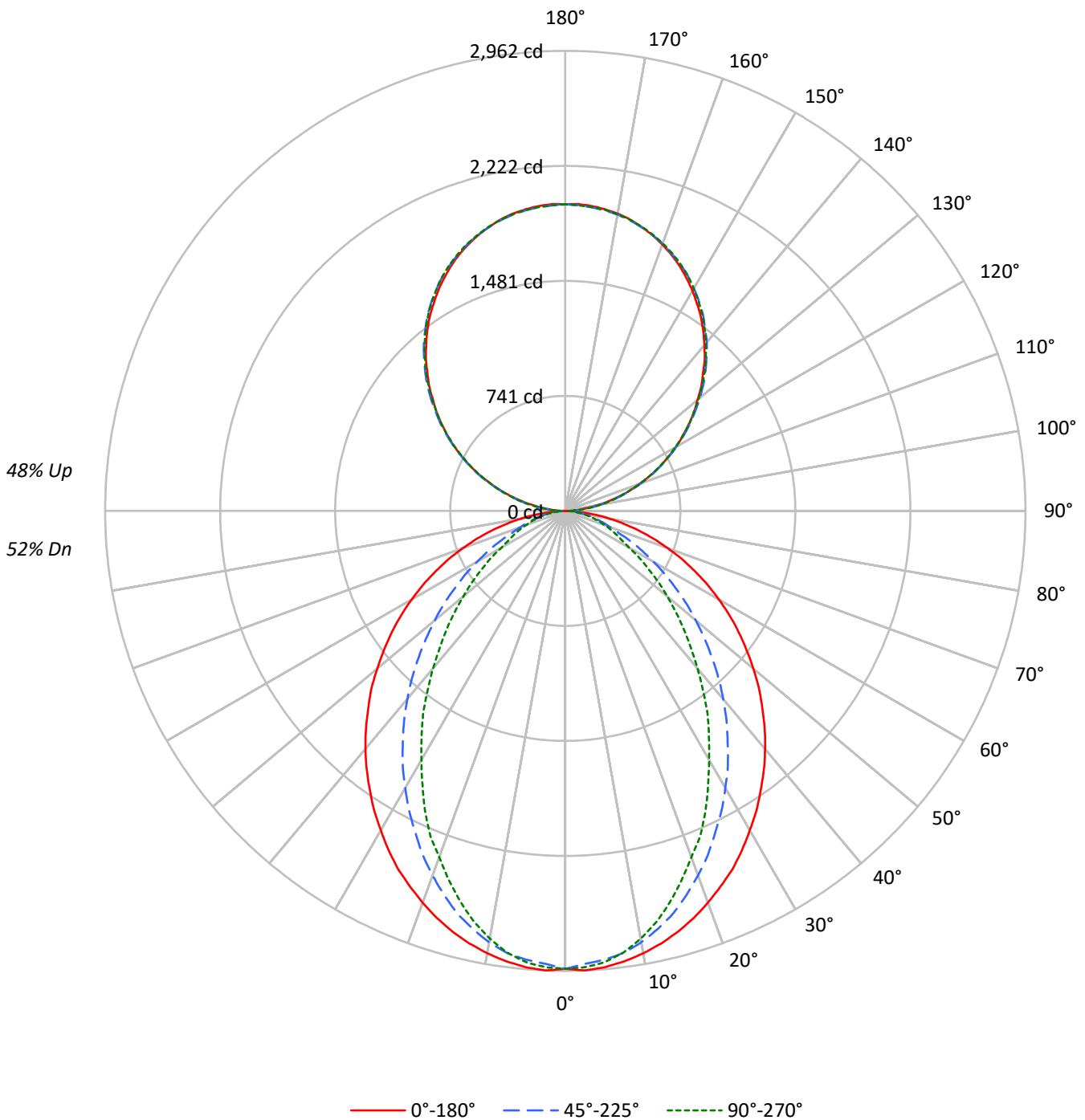
Test Method: LM-79-2019  
Report Number: P922702  
REPORT IS A COMBINATION OF REPORTS P899830 AND P896659  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-080D070US940-RLLFLL  
Description: 2 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11587.8 lumens  
Efficiency: N/A  
Efficacy: 86.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 133.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9957  
Total Harmonic Distortion (THDi): 0.049  
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	100	100	100	100	85	85	85	71	71	71	58	58	58	52	52	52	52
1	99	95	91	88	91	88	85	82	75	73	71	63	62	60	52	51	50	45	45	45	45
2	90	83	77	72	83	77	72	68	66	63	59	56	53	51	47	45	43	39	39	39	39
3	83	74	67	61	76	69	62	57	59	54	50	50	47	44	42	39	37	33	33	33	33
4	76	66	58	52	70	61	54	49	53	48	43	45	41	38	38	35	33	29	29	29	29
5	70	59	51	45	65	55	48	43	47	42	38	41	36	33	34	31	29	26	26	26	26
6	65	53	45	39	60	49	42	37	43	37	33	37	33	29	31	28	25	23	23	23	23
7	60	48	40	35	55	45	38	33	39	34	30	34	29	26	29	25	23	20	20	20	20
8	56	44	36	31	52	41	34	29	36	30	26	31	27	23	26	23	21	18	18	18	18
9	52	40	33	28	48	38	31	26	33	28	24	29	24	21	24	21	19	17	17	17	17
10	49	37	30	25	45	35	28	24	30	25	22	26	22	19	23	20	17	15	15	15	15

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

	0°	45°	90°
0°	6483	6483	6483
5°	6482	6366	6412
10°	6407	6227	6194
15°	6307	6008	5863
20°	6179	5711	5460
25°	6048	5381	5072
30°	5876	5044	4582
35°	5707	4683	4151
40°	5534	4310	3660
45°	5335	3900	3215
50°	5127	3486	2781
55°	4910	3046	2364
60°	4657	2588	1937
65°	4367	2124	1733
70°	4014	1692	1556
75°	3569	1465	1398
80°	2930	1190	1183
85°	1908	738	842

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 5335 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	276.3	2.4
10°-20°	758.6	6.5
20°-30°	1065.0	9.2
30°-40°	1160.9	10.0
40°-50°	1067.0	9.2
50°-60°	838.0	7.2
60°-70°	545.4	4.7
70°-80°	280.8	2.4
80°-90°	77.3	0.7
90°-100°	122.2	1.1
100°-110°	388.1	3.3
110°-120°	664.2	5.7
120°-130°	873.6	7.5
130°-140°	980.5	8.5
140°-150°	961.5	8.3
150°-160°	806.6	7.0
160°-170°	534.9	4.6
170°-180°	187.0	1.6
0°-30°	2099.9	18.1
0°-40°	3260.8	28.1
0°-60°	5165.8	44.6
0°-90°	6069.3	52.4
90°-120°	1174.5	10.1
90°-150°	3990.1	34.4
90°-180°	5519.0	47.6
0°-180°	11587.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2948	2948	2948	2948	2948	
5°	2948	2935	2900	2924	2916	280
15°	2804	2775	2684	2634	2607	790
25°	2546	2460	2284	2175	2134	1171
35°	2193	2057	1822	1654	1595	1373
45°	1793	1614	1334	1144	1081	1385
55°	1363	1155	867	707	656	1218
65°	921	704	464	374	365	913
75°	491	304	214	195	192	519
85°	115	59	51	51	51	132
90°	2	21	58	55	56	11
95°	87	104	107	107	104	97
105°	358	363	367	370	370	378
115°	667	676	673	671	667	659
125°	970	984	980	974	972	866
135°	1254	1272	1276	1274	1269	969
145°	1522	1534	1544	1546	1539	951
155°	1741	1746	1751	1759	1754	801
165°	1894	1892	1892	1904	1896	534
175°	1970	1966	1962	1974	1964	187
180°	1974	1974	1974	1974	1974	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2948.4	2948.4	2948.4	2948.4	2948.4
2.5°	2961.6	2948.4	2918.9	2945.8	2940.4
5°	2948.4	2935.1	2900.2	2924.3	2916.3
7.5°	2924.3	2908.4	2871.0	2881.6	2868.2
10°	2892.3	2873.6	2820.4	2812.2	2796.3
12.5°	2852.4	2828.3	2756.1	2740.2	2710.8
15°	2804.3	2774.8	2684.2	2633.6	2606.9
17.5°	2748.2	2705.4	2593.4	2534.8	2492.0
20°	2684.2	2630.7	2497.4	2430.9	2371.9
22.5°	2614.9	2553.4	2398.6	2308.0	2268.1
25°	2545.5	2460.1	2283.9	2174.7	2134.5
27.5°	2462.8	2371.9	2177.2	2051.8	1990.4
30°	2374.8	2273.1	2059.8	1923.9	1851.6
32.5°	2289.3	2166.5	1947.9	1787.7	1720.9
35°	2193.3	2057.2	1822.5	1654.4	1595.4
37.5°	2099.9	1953.0	1705.0	1520.7	1454.2
40°	2001.2	1841.2	1582.2	1392.8	1323.4
42.5°	1899.8	1729.1	1459.6	1262.0	1195.4
45°	1793.1	1614.2	1334.2	1144.5	1080.6
47.5°	1691.8	1502.4	1214.2	1024.5	965.9
50°	1579.6	1390.3	1096.7	912.4	856.6
52.5°	1470.1	1269.9	984.5	808.5	757.9
55°	1363.3	1155.3	867.1	707.1	656.5
57.5°	1254.1	1040.6	763.2	613.8	571.0
60°	1141.9	928.5	653.6	517.7	475.0
62.5°	1032.7	819.2	560.3	432.3	411.1
65°	920.6	704.3	464.2	373.7	365.4
67.5°	813.9	597.6	373.7	328.1	320.2
70°	701.8	493.7	309.4	282.8	272.1
72.5°	595.0	397.4	258.8	237.6	232.1
75°	490.9	304.1	213.5	194.7	192.3
77.5°	387.0	216.0	168.2	157.4	152.0
80°	290.7	154.9	128.0	117.4	117.4
82.5°	202.7	104.2	88.0	82.7	82.7
85°	114.7	58.6	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	1.8	21.4	58.3	54.8	56.5
92.5°	36.9	50.0	51.8	53.6	53.6
95°	86.9	103.5	106.6	106.6	103.5
97.5°	144.6	160.1	166.7	166.7	166.7
100°	211.2	225.0	229.7	229.7	227.9
102.5°	281.5	291.6	298.2	300.0	298.2
105°	358.3	363.0	366.6	369.6	369.6
107.5°	434.4	441.6	441.6	442.8	434.4
110°	508.3	517.8	517.8	517.8	513.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	588.0	598.2	596.4	591.6	588.0
115°	666.6	676.1	673.2	671.4	666.6
117.5°	744.5	757.6	749.3	744.5	739.8
120°	823.0	836.2	823.0	823.0	817.7
122.5°	894.5	911.1	902.9	898.0	894.5
125°	969.5	984.4	979.6	974.3	972.5
127.5°	1042.7	1061.1	1054.6	1047.5	1042.7
130°	1111.2	1132.6	1129.6	1126.1	1119.5
132.5°	1187.9	1204.6	1205.8	1197.5	1192.7
135°	1254.0	1272.4	1276.0	1274.2	1269.4
137.5°	1327.8	1342.6	1345.6	1344.4	1337.3
140°	1392.7	1407.6	1415.9	1415.9	1409.3
142.5°	1459.3	1474.2	1478.9	1480.7	1474.2
145°	1522.4	1534.3	1543.8	1545.6	1539.1
147.5°	1579.0	1593.8	1601.0	1603.9	1597.4
150°	1637.3	1647.3	1653.9	1659.3	1653.9
152.5°	1689.0	1699.2	1707.4	1714.0	1707.4
155°	1740.8	1745.5	1751.0	1759.3	1753.9
157.5°	1785.5	1789.0	1792.0	1803.9	1795.5
160°	1825.3	1828.9	1830.7	1840.8	1833.6
162.5°	1862.2	1862.2	1864.0	1875.3	1867.0
165°	1893.7	1891.9	1891.9	1903.9	1895.5
167.5°	1922.3	1917.0	1917.0	1928.9	1920.6
170°	1943.8	1939.0	1937.2	1949.1	1939.0
172.5°	1958.6	1953.8	1952.0	1964.0	1953.8
175°	1970.5	1965.8	1962.2	1974.1	1964.0
177.5°	1977.1	1972.3	1968.7	1978.9	1968.7
180°	1974.1	1974.1	1974.1	1974.1	1974.1



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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	13.74	14.59	14.69	15.55	16.79	9.71	10.56	10.65	11.51	12.75
	3H	15.40	16.16	16.36	17.13	18.39	10.88	11.64	11.83	12.60	13.87
	4H	16.00	16.72	16.97	17.69	18.96	11.32	12.03	12.29	13.00	14.27
	6H	16.41	17.07	17.39	18.04	19.33	11.62	12.28	12.60	13.26	14.54
	8H	16.53	17.15	17.51	18.15	19.43	11.70	12.33	12.69	13.32	14.60
	12H	16.58	17.18	17.57	18.16	19.47	11.74	12.34	12.73	13.32	14.63
4H	2H	13.76	14.48	14.74	15.45	16.72	10.29	11.01	11.27	11.98	13.25
	3H	15.57	16.17	16.55	17.16	18.45	11.62	12.22	12.61	13.22	14.50
	4H	16.25	16.79	17.24	17.78	19.09	12.16	12.70	13.15	13.69	15.00
	6H	16.74	17.21	17.75	18.23	19.54	12.56	13.03	13.56	14.04	15.35
	8H	16.91	17.35	17.91	18.35	19.68	12.68	13.11	13.68	14.12	15.44
	12H	16.99	17.39	18.02	18.41	19.74	12.73	13.13	13.75	14.15	15.48
8H	4H	16.21	16.65	17.22	17.66	18.98	12.43	12.86	13.43	13.87	15.19
	6H	16.76	17.12	17.79	18.17	19.49	12.92	13.28	13.95	14.33	15.65
	8H	16.96	17.28	18.00	18.31	19.65	13.10	13.42	14.14	14.45	15.79
	12H	17.09	17.37	18.13	18.40	19.78	13.20	13.48	14.24	14.51	15.90
12H	4H	16.16	16.56	17.19	17.58	18.91	12.43	12.82	13.45	13.85	15.17
	6H	16.73	17.05	17.77	18.09	19.42	12.96	13.28	14.00	14.32	15.66
	8H	16.94	17.22	17.98	18.25	19.63	13.16	13.44	14.20	14.47	15.85