

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: P909466

Luminaire Tested: DFN2DIP-SQ4F0-080D060US840-RLLFLL

Issue Date: 11/21/2024

**Test Information**

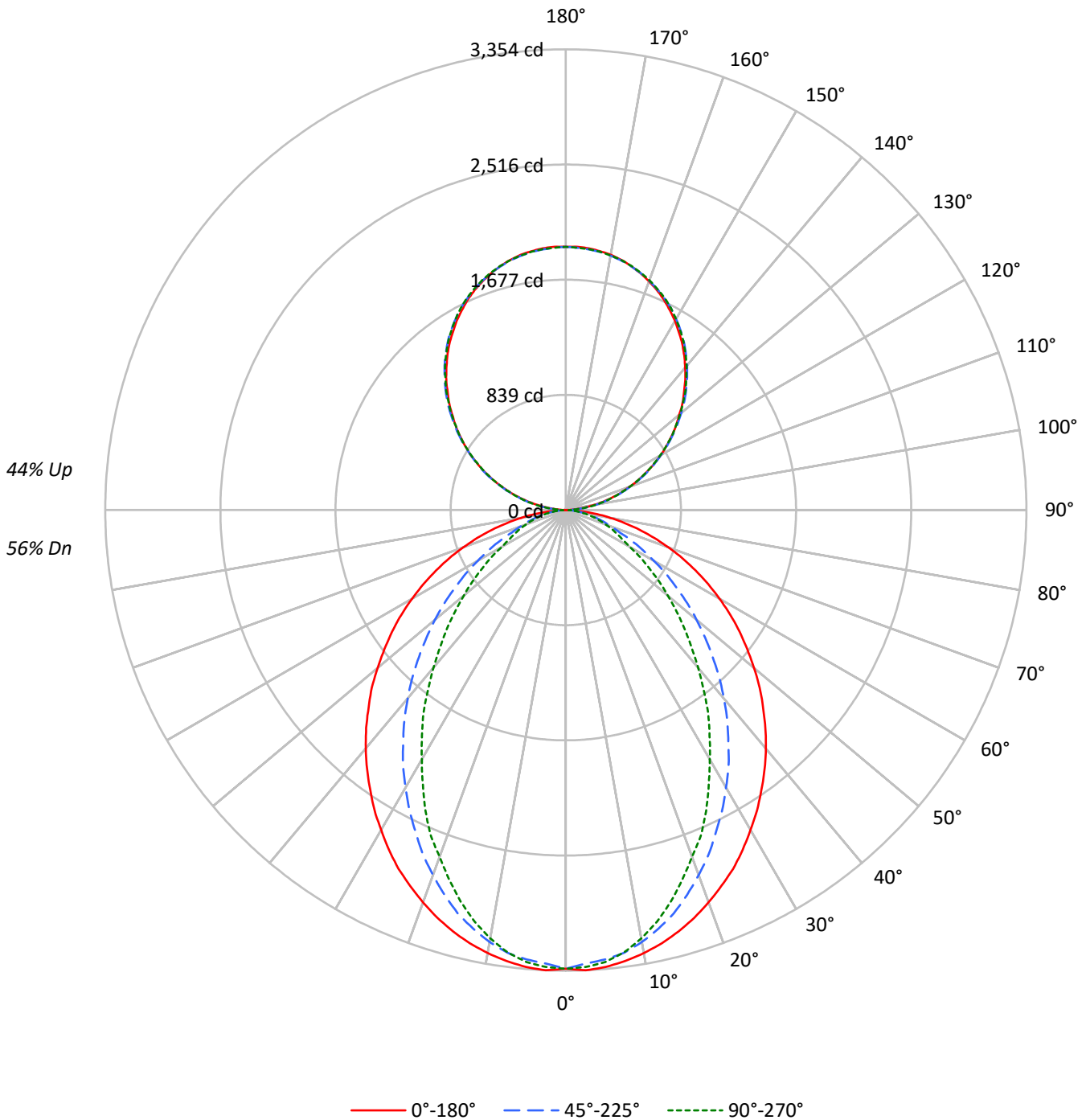
Test Method: LM-79-2019  
Report Number: P909466  
REPORT IS A COMBINATION OF REPORTS P900064 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-080D060US840-RLLFLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12229.5 lumens  
Efficiency: N/A  
Efficacy: 104.9 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: General Diffuse  
  
Input Watts (W): 116.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9954  
Total Harmonic Distortion (THDi): 0.076  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P909466  
CATALOG NUMBER: DFN2DIP-SQ4F0-080D060US840-RLFL

### 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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56	56	56	56
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	55	54	53	48	48	48	48
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	46	41	41	41	41
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40	36	36	36	36
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35	31	31	31	31
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	30	27	27	27	27
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27	24	24	24	24
7	61	48	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24	22	22	22	22
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22	20	20	20	20
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20	18	18	18	18
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18	16	16	16	16

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

	0°	45°	90°
0°	2343	2343	2343
5°	2347	2306	2321
10°	2323	2261	2246
15°	2291	2187	2130
20°	2249	2085	1987
25°	2206	1969	1849
30°	2147	1851	1674
35°	2090	1724	1521
40°	2032	1593	1344
45°	1965	1447	1184
50°	1895	1300	1028
55°	1822	1142	878
60°	1738	978	723
65°	1641	810	651
70°	1524	654	591
75°	1376	578	539
80°	1162	486	469
85°	810	327	358

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1965 cd/sqm



TEST NUMBER: P909466

CATALOG NUMBER: DFN2DIP-SQ4F0-080D060US840-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	312.9	2.6
10°-20°	859.1	7.0
20°-30°	1206.1	9.9
30°-40°	1314.7	10.8
40°-50°	1208.4	9.9
50°-60°	949.0	7.8
60°-70°	617.7	5.1
70°-80°	318.0	2.6
80°-90°	86.6	0.7
90°-100°	118.6	1.0
100°-110°	376.8	3.1
110°-120°	644.8	5.3
120°-130°	848.0	6.9
130°-140°	951.8	7.8
140°-150°	933.4	7.6
150°-160°	783.0	6.4
160°-170°	519.2	4.2
170°-180°	181.5	1.5
0°-30°	2378.1	19.4
0°-40°	3692.9	30.2
0°-60°	5850.2	47.8
0°-90°	6872.5	56.2
90°-120°	1140.1	9.3
90°-150°	3873.3	31.7
90°-180°	5357.0	43.8
0°-180°	12229.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3339	3339	3339	3339	3339	
5°	3339	3324	3284	3312	3303	317
15°	3176	3142	3040	2982	2952	895
25°	2883	2786	2587	2463	2417	1326
35°	2484	2330	2064	1874	1807	1555
45°	2031	1828	1511	1296	1224	1568
55°	1544	1308	982	801	744	1380
65°	1043	798	526	423	414	1034
75°	556	344	242	221	218	588
85°	130	66	57	57	57	149
90°	2	21	57	53	55	12
95°	84	100	103	103	100	94
105°	348	352	356	359	359	367
115°	647	656	653	652	647	640
125°	941	956	951	946	944	841
135°	1217	1235	1239	1237	1232	941
145°	1478	1489	1499	1500	1494	923
155°	1690	1694	1700	1708	1702	778
165°	1838	1836	1836	1848	1840	519
175°	1913	1908	1905	1916	1906	182
180°	1916	1916	1916	1916	1916	



TEST NUMBER: P909466

CATALOG NUMBER: DFN2DIP-SQ4F0-080D060US840-RLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3339.0	3339.0	3339.0	3339.0	3339.0
2.5°	3354.1	3339.0	3305.7	3336.1	3330.0
5°	3339.0	3324.0	3284.5	3311.8	3302.8
7.5°	3311.8	3293.8	3251.5	3263.4	3248.2
10°	3275.5	3254.4	3194.1	3184.8	3166.8
12.5°	3230.4	3203.1	3121.3	3103.3	3070.0
15°	3175.8	3142.5	3039.9	2982.5	2952.3
17.5°	3112.3	3063.9	2937.0	2870.6	2822.2
20°	3039.9	2979.3	2828.3	2753.0	2686.2
22.5°	2961.3	2891.7	2716.4	2613.8	2568.6
25°	2882.8	2786.0	2586.6	2462.9	2417.3
27.5°	2789.1	2686.2	2465.7	2323.7	2254.1
30°	2689.5	2574.3	2332.7	2178.8	2097.0
32.5°	2592.6	2453.6	2206.1	2024.6	1948.9
35°	2484.0	2329.8	2064.0	1873.6	1806.9
37.5°	2378.1	2211.8	1931.0	1722.2	1646.9
40°	2266.3	2085.2	1791.8	1577.3	1498.7
42.5°	2151.5	1958.2	1652.9	1429.3	1353.8
45°	2030.6	1828.1	1511.0	1296.2	1223.8
47.5°	1915.9	1701.4	1375.0	1160.2	1093.9
50°	1788.9	1574.5	1242.0	1033.3	970.1
52.5°	1664.9	1438.1	1115.0	915.6	858.3
55°	1544.0	1308.4	982.0	800.8	743.5
57.5°	1420.3	1178.5	864.3	695.1	646.6
60°	1293.2	1051.6	740.2	586.3	538.0
62.5°	1169.5	927.8	634.5	489.6	465.5
65°	1042.6	797.6	525.7	423.2	413.8
67.5°	921.7	676.8	423.2	371.5	362.6
70°	794.8	559.2	350.4	320.2	308.1
72.5°	673.9	450.1	293.1	269.0	262.9
75°	555.9	344.4	241.8	220.6	217.7
77.5°	438.3	244.6	190.5	178.2	172.2
80°	329.2	175.4	144.9	133.0	133.0
82.5°	229.5	118.0	99.7	93.6	93.6
85°	129.9	66.3	57.4	57.4	57.4
87.5°	48.4	24.0	24.0	21.2	21.2
90°	1.7	20.8	56.7	53.1	54.8
92.5°	35.9	48.6	50.3	52.0	52.0
95°	84.3	100.5	103.4	103.4	100.5
97.5°	140.4	155.4	161.8	161.8	161.8
100°	205.1	218.3	223.0	223.0	221.3
102.5°	273.3	283.1	289.4	291.1	289.4
105°	347.8	352.4	355.9	358.8	358.8
107.5°	421.7	428.7	428.7	429.8	421.7
110°	493.4	502.6	502.6	502.6	498.0



TEST NUMBER: P909466

CATALOG NUMBER: DFN2DIP-SQ4F0-080D060US840-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	570.8	580.6	578.9	574.2	570.8
115°	647.0	656.3	653.4	651.7	647.0
117.5°	722.8	735.5	727.3	722.8	718.1
120°	799.0	811.7	799.0	799.0	793.8
122.5°	868.3	884.4	876.4	871.8	868.3
125°	941.1	955.5	950.9	945.7	944.0
127.5°	1012.2	1030.1	1023.7	1016.8	1012.2
130°	1078.6	1099.4	1096.5	1093.1	1086.7
132.5°	1153.2	1169.3	1170.4	1162.4	1157.7
135°	1217.3	1235.2	1238.6	1236.9	1232.2
137.5°	1288.9	1303.3	1306.3	1305.0	1298.2
140°	1351.9	1366.3	1374.4	1374.4	1368.1
142.5°	1416.5	1431.0	1435.6	1437.3	1431.0
145°	1477.8	1489.3	1498.6	1500.4	1494.0
147.5°	1532.7	1547.1	1554.1	1556.9	1550.5
150°	1589.3	1599.1	1605.5	1610.6	1605.5
152.5°	1639.5	1649.4	1657.5	1663.9	1657.5
155°	1689.8	1694.5	1699.6	1707.8	1702.5
157.5°	1733.1	1736.7	1739.5	1751.1	1743.0
160°	1771.9	1775.3	1777.1	1786.9	1780.0
162.5°	1807.7	1807.7	1809.4	1820.4	1812.3
165°	1838.3	1836.5	1836.5	1848.2	1840.1
167.5°	1866.0	1860.9	1860.9	1872.4	1864.3
170°	1886.8	1882.2	1880.5	1892.0	1882.2
172.5°	1901.3	1896.6	1894.9	1906.4	1896.6
175°	1912.8	1908.2	1904.7	1916.3	1906.4
177.5°	1919.1	1914.6	1911.1	1920.9	1911.1
180°	1916.3	1916.3	1916.3	1916.3	1916.3



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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	10.68	11.56	11.59	12.48	13.67	6.64	7.52	7.55	8.44	9.63
	3H	12.36	13.15	13.28	14.09	15.29	7.83	8.62	8.75	9.55	10.76
	4H	12.98	13.72	13.91	14.66	15.88	8.28	9.03	9.22	9.97	11.18
	6H	13.40	14.09	14.35	15.04	16.26	8.61	9.29	9.56	10.24	11.47
	8H	13.53	14.19	14.49	15.15	16.38	8.70	9.35	9.65	10.31	11.54
	12H	13.60	14.22	14.56	15.18	16.43	8.75	9.37	9.71	10.32	11.57
4H	2H	10.70	11.45	11.64	12.39	13.60	7.24	7.99	8.18	8.93	10.14
	3H	12.54	13.16	13.49	14.13	15.36	8.60	9.22	9.55	10.19	11.42
	4H	13.24	13.80	14.20	14.77	16.02	9.15	9.71	10.11	10.68	11.93
	6H	13.76	14.25	14.73	15.23	16.49	9.57	10.06	10.54	11.04	12.30
	8H	13.94	14.39	14.91	15.37	16.64	9.70	10.16	10.68	11.14	12.40
	12H	14.04	14.45	15.03	15.44	16.72	9.77	10.18	10.76	11.18	12.45
8H	4H	13.21	13.66	14.19	14.64	15.91	9.43	9.89	10.41	10.87	12.14
	6H	13.78	14.16	14.78	15.18	16.45	9.96	10.33	10.96	11.35	12.62
	8H	14.00	14.33	15.01	15.34	16.63	10.15	10.48	11.16	11.49	12.77
	12H	14.15	14.44	15.16	15.44	16.77	10.27	10.56	11.28	11.56	12.90
12H	4H	13.16	13.57	14.16	14.57	15.84	9.44	9.85	10.44	10.85	12.12
	6H	13.76	14.09	14.77	15.10	16.38	10.01	10.34	11.02	11.35	12.63
	8H	13.98	14.28	15.00	15.28	16.61	10.22	10.51	11.23	11.52	12.85