

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: P909150

Luminaire Tested: DFN2DIP-SQ3F0-060D060US840-RLLFLL

Issue Date: 11/21/2024

**Test Information**

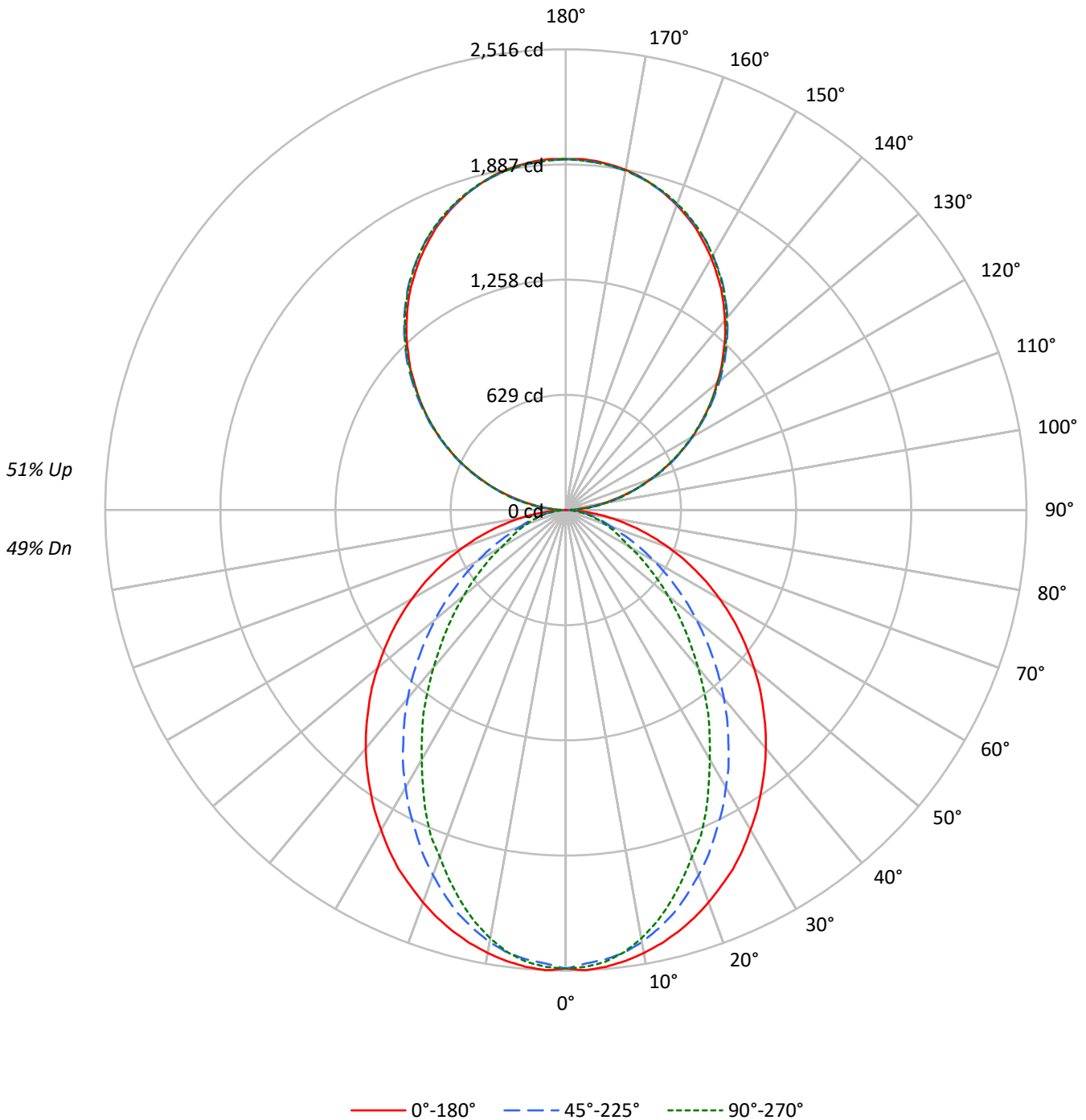
Test Method: LM-79-2019  
Report Number: P909150  
REPORT IS A COMBINATION OF REPORTS P899902 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-060D060US840-RLLFLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10512.7 lumens  
Efficiency: N/A  
Efficacy: 106.7 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): 98.5  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P909150  
CATALOG NUMBER: DFN2DIP-SQ3F0-060D060US840-RLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P909150  
 CATALOG NUMBER: DFN2DIP-SQ3F0-060D060US840-RLLFLL

**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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55	49			49
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48	42			42
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41	36			36
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35	31			31
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31	27			27
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27	24			24
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24	21			21
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22	19			19
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20	17			17
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18	16			16
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16	14			14

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

	0°	45°	90°
0°	2869	2869	2869
5°	2872	2822	2841
10°	2842	2765	2748
15°	2801	2671	2604
20°	2747	2544	2428
25°	2692	2401	2258
30°	2619	2255	2042
35°	2548	2098	1853
40°	2475	1935	1637
45°	2390	1755	1440
50°	2302	1574	1248
55°	2210	1380	1064
60°	2104	1178	875
65°	1981	973	787
70°	1832	781	711
75°	1646	685	644
80°	1375	568	556
85°	933	370	412

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2390 cd/sqm



TEST NUMBER: P909150

CATALOG NUMBER: DFN2DIP-SQ3F0-060D060US840-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	234.7	2.2
10°-20°	644.3	6.1
20°-30°	904.6	8.6
30°-40°	986.1	9.4
40°-50°	906.3	8.6
50°-60°	711.7	6.8
60°-70°	463.3	4.4
70°-80°	238.5	2.3
80°-90°	66.3	0.6
90°-100°	118.6	1.1
100°-110°	376.8	3.6
110°-120°	644.8	6.1
120°-130°	848.0	8.1
130°-140°	951.8	9.1
140°-150°	933.4	8.9
150°-160°	783.0	7.4
160°-170°	519.2	4.9
170°-180°	181.5	1.7
0°-30°	1783.6	17.0
0°-40°	2769.6	26.3
0°-60°	4387.7	41.7
0°-90°	5155.8	49.0
90°-120°	1140.1	10.8
90°-150°	3873.3	36.8
90°-180°	5357.0	51.0
0°-180°	10512.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2090	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	2	21	57	53	55	10
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: P909150

CATALOG NUMBER: DFN2DIP-SQ3F0-060D060US840-RLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2504.3	2504.3	2504.3	2504.3	2504.3
2.5°	2515.6	2504.3	2479.2	2502.0	2497.5
5°	2504.3	2493.0	2463.4	2483.9	2477.1
7.5°	2483.9	2470.3	2438.6	2447.5	2436.2
10°	2456.6	2440.7	2395.6	2388.6	2375.1
12.5°	2422.8	2402.3	2341.0	2327.5	2302.5
15°	2381.9	2356.8	2279.9	2236.9	2214.2
17.5°	2334.3	2297.9	2202.7	2152.9	2116.7
20°	2279.9	2234.4	2121.2	2064.7	2014.7
22.5°	2221.0	2168.8	2037.3	1960.4	1926.4
25°	2162.1	2089.5	1940.0	1847.1	1813.0
27.5°	2091.9	2014.7	1849.3	1742.7	1690.6
30°	2017.1	1930.8	1749.5	1634.1	1572.8
32.5°	1944.5	1840.2	1654.6	1518.4	1461.7
35°	1863.0	1747.4	1548.0	1405.1	1355.1
37.5°	1783.6	1658.8	1448.2	1291.7	1235.2
40°	1699.7	1563.9	1343.8	1183.0	1124.1
42.5°	1613.7	1468.6	1239.7	1071.9	1015.4
45°	1523.0	1371.0	1133.3	972.1	917.8
47.5°	1436.9	1276.1	1031.3	870.2	820.4
50°	1341.7	1180.8	931.5	775.0	727.6
52.5°	1248.6	1078.6	836.3	686.7	643.7
55°	1158.0	981.3	736.5	600.7	557.5
57.5°	1065.2	883.8	648.2	521.3	484.9
60°	970.0	788.7	555.2	439.8	403.4
62.5°	877.2	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.4	317.4	310.4
67.5°	691.3	507.6	317.4	278.7	272.0
70°	596.0	419.3	262.8	240.2	231.1
72.5°	505.4	337.6	219.7	201.8	197.1
75°	417.0	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.4	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
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: P909150

CATALOG NUMBER: DFN2DIP-SQ3F0-060D060US840-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



TEST NUMBER: P909150  
 CATALOG NUMBER: DFN2DIP-SQ3F0-060D060US840-RLLFLL

**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	11.51	11.65	12.49	13.77	6.64	7.47	7.62	8.45	9.74
	3H	12.36	13.09	13.34	14.08	15.39	7.83	8.56	8.81	9.55	10.86
	4H	12.96	13.66	13.96	14.65	15.97	8.27	8.97	9.27	9.96	11.28
	6H	13.38	14.02	14.39	15.02	16.35	8.59	9.23	9.59	10.23	11.56
	8H	13.50	14.11	14.52	15.13	16.45	8.67	9.28	9.69	10.30	11.62
	12H	13.56	14.14	14.58	15.15	16.50	8.71	9.29	9.73	10.30	11.65
4H	2H	10.70	11.39	11.70	12.39	13.71	7.24	7.93	8.24	8.93	10.24
	3H	12.52	13.10	13.53	14.12	15.45	8.58	9.16	9.59	10.18	11.51
	4H	13.21	13.74	14.23	14.75	16.11	9.12	9.65	10.14	10.66	12.02
	6H	13.72	14.17	14.75	15.21	16.56	9.53	9.99	10.56	11.03	12.38
	8H	13.89	14.32	14.92	15.35	16.71	9.66	10.08	10.69	11.11	12.48
	12H	13.98	14.37	15.03	15.41	16.78	9.72	10.10	10.77	11.15	12.52
8H	4H	13.18	13.60	14.21	14.63	16.00	9.40	9.82	10.43	10.85	12.22
	6H	13.74	14.09	14.79	15.16	16.52	9.91	10.26	10.96	11.33	12.69
	8H	13.95	14.26	15.01	15.32	16.70	10.09	10.40	11.16	11.46	12.84
	12H	14.08	14.35	15.15	15.41	16.83	10.21	10.48	11.27	11.53	12.96
12H	4H	13.13	13.51	14.18	14.56	15.93	9.40	9.78	10.45	10.83	12.20
	6H	13.71	14.02	14.77	15.08	16.46	9.95	10.26	11.02	11.32	12.70
	8H	13.93	14.20	14.99	15.25	16.68	10.16	10.43	11.22	11.48	12.91