

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: P909536

Luminaire Tested: DFN2DIP-SQ4F0-100D060US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909536
REPORT IS A COMBINATION OF REPORTS P900067 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D060US840-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

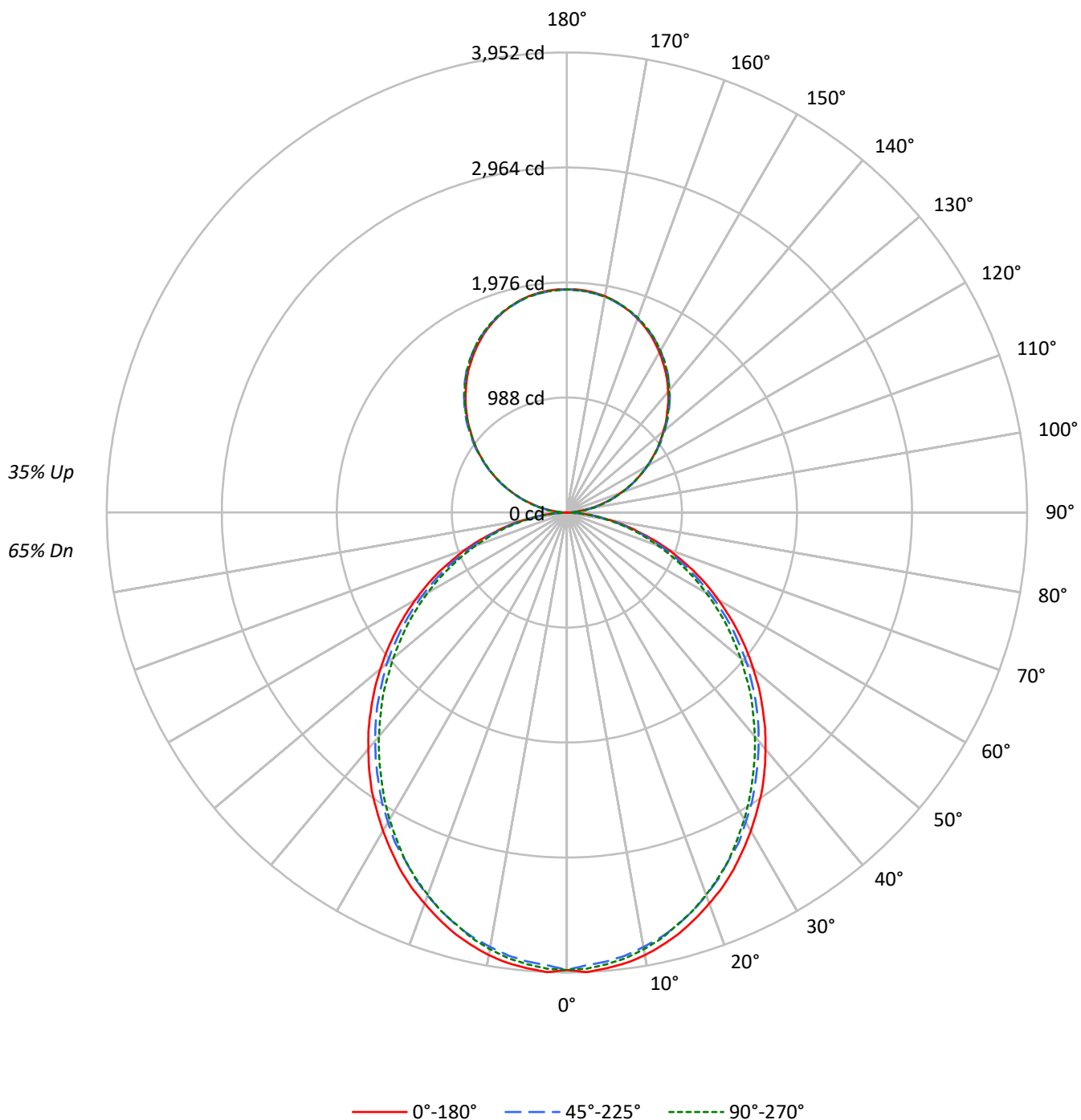
Lumens per Lamp: N/A
Luminaire Lumens: 15360.1 lumens
Efficiency: N/A
Efficacy: 111.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 137.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P909536

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P909536

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US840-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	111	111	111	111	104	104	104	104	92	92	92	80	80	80	70	70	70
1	101	97	93	89	95	91	88	84	81	78	75	71	69	67	62	60	59
2	92	85	78	73	86	80	74	69	71	66	63	62	59	56	55	52	50
3	84	74	67	61	79	70	63	58	62	57	53	55	51	47	48	45	42
4	77	66	58	52	72	62	55	49	55	50	45	49	44	41	43	40	37
5	71	59	50	44	66	56	48	42	50	44	39	44	39	35	39	35	32
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	35	31	28
7	60	48	40	34	57	45	38	33	41	35	30	36	31	28	32	28	25
8	56	44	36	30	53	41	34	29	37	31	27	33	28	25	30	26	22
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	27	23	20
10	49	37	29	24	46	35	28	23	32	26	22	28	24	20	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2757	2757	2757
5°	2762	2719	2738
10°	2739	2683	2702
15°	2699	2640	2644
20°	2644	2579	2586
25°	2590	2506	2518
30°	2522	2438	2432
35°	2458	2358	2340
40°	2379	2277	2253
45°	2300	2196	2165
50°	2213	2112	2061
55°	2123	2013	1967
60°	2021	1896	1859
65°	1910	1776	1731
70°	1768	1629	1594
75°	1571	1453	1469
80°	1334	1229	1227
85°	964	841	825

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2300 cd/sqm

TEST NUMBER: P909536

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	2.4
10°-20°	1040.6	6.8
20°-30°	1529.3	10.0
30°-40°	1776.1	11.6
40°-50°	1773.9	11.5
50°-60°	1546.8	10.1
60°-70°	1143.4	7.4
70°-80°	646.9	4.2
80°-90°	176.2	1.1
90°-100°	118.6	0.8
100°-110°	376.8	2.5
110°-120°	644.8	4.2
120°-130°	848.0	5.5
130°-140°	951.8	6.2
140°-150°	933.4	6.1
150°-160°	783.0	5.1
160°-170°	519.2	3.4
170°-180°	181.5	1.2
0°-30°	2939.7	19.1
0°-40°	4715.8	30.7
0°-60°	8036.5	52.3
0°-90°	10003.1	65.1
90°-120°	1140.1	7.4
90°-150°	3873.3	25.2
90°-180°	5357.0	34.9
0°-180°	15360.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	2	21	57	53	55	15
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: P909536

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US840-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.1	366.4	355.2	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
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: P909536

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US840-FLLFLL

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: P909536

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US840-FLLFLL

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	12.10	13.11	12.91	13.95	14.99	11.65	12.67	12.47	13.51	14.54
	3H	13.77	14.69	14.60	15.53	16.60	13.28	14.20	14.11	15.04	16.11
	4H	14.37	15.23	15.22	16.09	17.16	13.88	14.74	14.72	15.59	16.67
	6H	14.78	15.58	15.64	16.44	17.53	14.28	15.08	15.14	15.94	17.03
	8H	14.89	15.65	15.76	16.53	17.62	14.39	15.15	15.26	16.03	17.12
	12H	14.95	15.67	15.82	16.54	17.66	14.44	15.16	15.31	16.03	17.15
4H	2H	12.58	13.44	13.43	14.29	15.37	12.22	13.08	13.07	13.94	15.02
	3H	14.46	15.18	15.32	16.07	17.16	14.05	14.77	14.92	15.66	16.75
	4H	15.19	15.84	16.06	16.73	17.84	14.76	15.42	15.64	16.30	17.42
	6H	15.71	16.28	16.60	17.19	18.31	15.28	15.85	16.17	16.76	17.88
	8H	15.87	16.40	16.76	17.30	18.44	15.43	15.96	16.32	16.87	18.00
	12H	15.95	16.43	16.86	17.35	18.49	15.50	15.98	16.41	16.90	18.04
8H	4H	15.39	15.92	16.29	16.83	17.96	15.02	15.55	15.91	16.45	17.59
	6H	16.04	16.48	16.96	17.42	18.56	15.65	16.09	16.57	17.04	18.17
	8H	16.26	16.65	17.19	17.59	18.74	15.87	16.26	16.80	17.20	18.35
	12H	16.40	16.75	17.34	17.68	18.88	15.99	16.34	16.93	17.27	18.47
12H	4H	15.39	15.87	16.30	16.79	17.93	15.02	15.50	15.93	16.42	17.56
	6H	16.07	16.46	17.00	17.40	18.55	15.70	16.09	16.63	17.02	18.18
	8H	16.32	16.66	17.25	17.59	18.80	15.94	16.28	16.87	17.21	18.42