

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: P922601

Luminaire Tested: DFN2DIP-SQ2F0-040D060US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922601
REPORT IS A COMBINATION OF REPORTS P901329 AND P898215
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-040D060US940-FLLONL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

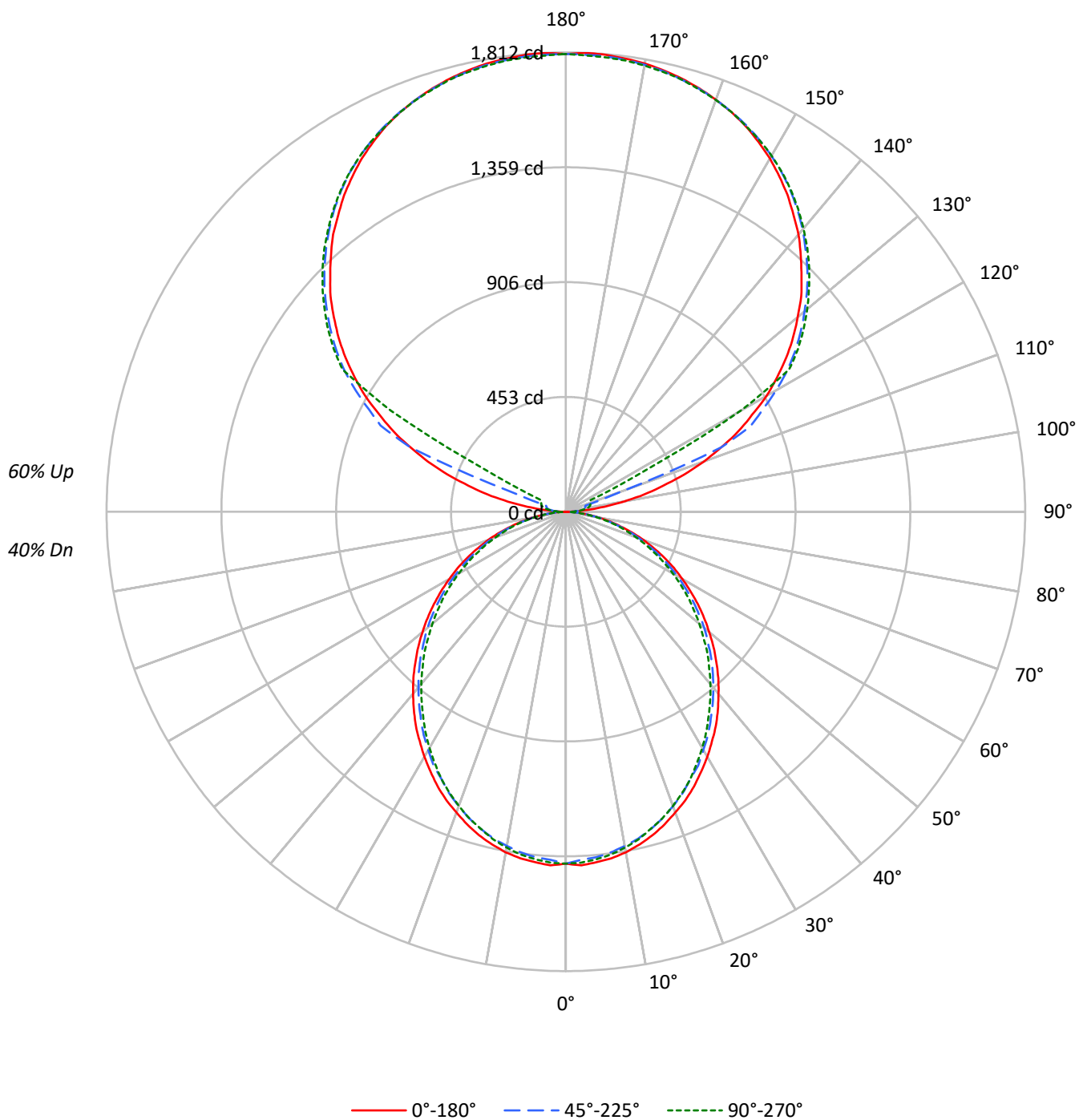
Lumens per Lamp: N/A
Luminaire Lumens: 8827.9 lumens
Efficiency: N/A
Efficacy: 110.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 79.6
Input Voltage (V): 120
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
RC	80				70					50					30					10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40	40	40	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33	33	33	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28	28	28	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24	24	24	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21	21	21	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19	19	19	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17	17	17	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15	15	15	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13	13	13	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3052	3052	3052
5°	3051	3003	3025
10°	3021	2956	2980
15°	2972	2900	2912
20°	2906	2826	2842
25°	2841	2739	2762
30°	2761	2657	2662
35°	2684	2561	2556
40°	2591	2465	2454
45°	2498	2368	2351
50°	2396	2265	2231
55°	2288	2147	2120
60°	2166	2008	1992
65°	2032	1863	1842
70°	1863	1686	1679
75°	1630	1473	1524
80°	1346	1203	1238
85°	910	760	777

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2498 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	1.5
10°-20°	367.5	4.2
20°-30°	540.1	6.1
30°-40°	627.3	7.1
40°-50°	626.6	7.1
50°-60°	546.3	6.2
60°-70°	403.9	4.6
70°-80°	228.5	2.6
80°-90°	63.5	0.7
90°-100°	59.5	0.7
100°-110°	222.0	2.5
110°-120°	588.7	6.7
120°-130°	976.3	11.1
130°-140°	1037.1	11.7
140°-150°	963.9	10.9
150°-160°	774.9	8.8
160°-170°	499.3	5.7
170°-180°	171.9	1.9
0°-30°	1038.3	11.8
0°-40°	1665.6	18.9
0°-60°	2838.5	32.2
0°-90°	3534.4	40.0
90°-120°	870.2	9.9
90°-150°	3847.4	43.6
90°-180°	5294.0	60.0
0°-180°	8827.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1378	1376	132
15°	1321	1313	1296	1301	1295	372
25°	1196	1185	1162	1165	1162	550
35°	1032	1018	997	989	982	644
45°	840	830	810	796	790	648
55°	635	627	611	595	589	568
65°	428	420	407	395	388	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	1	16	26	33	35	8
95°	85	42	51	58	56	101
105°	397	436	80	94	99	424
115°	751	774	806	201	107	740
125°	1062	1079	1104	1113	1117	947
135°	1314	1335	1347	1360	1358	1015
145°	1525	1523	1546	1555	1548	954
155°	1679	1667	1683	1691	1680	774
165°	1769	1761	1765	1774	1765	500
175°	1810	1800	1803	1812	1799	172
180°	1806	1806	1806	1806	1806	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1387.9	1387.9	1387.9	1387.9	1387.9
2.5°	1396.0	1389.3	1374.6	1387.9	1385.4
5°	1387.9	1382.6	1367.9	1378.5	1376.0
7.5°	1378.5	1370.6	1355.8	1366.6	1364.0
10°	1364.0	1354.6	1338.6	1349.2	1345.2
12.5°	1343.8	1335.9	1319.9	1326.6	1323.8
15°	1321.2	1313.2	1295.8	1301.2	1294.6
17.5°	1293.2	1285.2	1267.8	1274.4	1267.8
20°	1262.4	1254.5	1235.8	1239.7	1234.6
22.5°	1231.8	1219.8	1202.4	1202.4	1199.7
25°	1195.7	1185.1	1162.4	1165.0	1162.4
27.5°	1155.7	1146.3	1129.1	1125.1	1118.5
30°	1115.7	1105.0	1085.0	1081.0	1075.7
32.5°	1073.0	1065.1	1043.7	1035.6	1030.2
35°	1031.6	1018.3	996.9	988.9	982.2
37.5°	984.9	972.9	951.5	942.2	935.5
40°	936.9	926.1	904.7	892.9	887.5
42.5°	890.2	879.4	858.2	844.7	836.8
45°	839.5	830.2	810.0	795.5	790.1
47.5°	790.1	780.7	759.4	744.7	736.7
50°	738.0	731.3	712.7	693.9	687.2
52.5°	687.2	678.0	660.7	646.0	636.6
55°	635.3	627.2	611.3	595.2	588.6
57.5°	583.2	576.6	559.1	543.1	537.8
60°	531.1	525.8	507.2	492.5	488.5
62.5°	480.5	471.1	457.8	444.4	439.1
65°	428.5	420.4	407.1	395.0	388.4
67.5°	375.1	368.3	356.4	347.1	341.7
70°	325.7	320.3	308.3	298.9	293.6
72.5°	275.0	269.6	263.0	253.6	249.6
75°	224.2	221.6	214.8	206.9	209.6
77.5°	178.8	173.4	170.8	166.7	162.8
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.5	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	1.2	15.7	26.0	32.7	35.2
92.5°	32.7	27.5	31.3	34.0	35.2
95°	84.9	41.7	50.9	57.6	56.2
97.5°	152.8	45.7	66.5	70.6	71.9
100°	231.3	52.3	74.5	84.9	87.5
102.5°	317.4	315.0	77.1	91.4	95.4
105°	397.2	436.4	79.7	94.0	99.3
107.5°	490.0	522.5	82.4	96.7	101.9
110°	578.9	606.2	228.7	98.1	103.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	662.5	685.9	663.7	100.5	104.6
115°	751.3	773.5	806.2	201.3	107.2
117.5°	828.3	854.4	876.7	689.8	347.5
120°	914.6	934.2	957.8	973.4	797.0
122.5°	987.7	1008.6	1034.8	1042.6	1044.0
125°	1062.2	1079.2	1104.0	1113.2	1117.0
127.5°	1130.2	1148.4	1168.1	1181.2	1182.4
130°	1194.2	1215.1	1229.4	1243.8	1242.6
132.5°	1259.5	1276.6	1290.8	1302.6	1301.4
135°	1314.5	1335.4	1347.0	1360.2	1357.5
137.5°	1371.8	1387.5	1400.7	1413.7	1409.9
140°	1428.0	1438.6	1452.9	1464.6	1458.1
142.5°	1475.2	1484.3	1501.3	1511.6	1505.1
145°	1524.8	1523.4	1545.6	1554.8	1548.3
147.5°	1567.8	1563.9	1586.1	1592.6	1587.5
150°	1609.7	1600.5	1621.5	1629.2	1622.7
152.5°	1644.9	1634.5	1654.0	1662.0	1652.8
155°	1678.9	1667.2	1682.9	1690.7	1680.2
157.5°	1706.4	1695.9	1707.7	1716.9	1706.4
160°	1729.9	1722.0	1729.9	1737.7	1728.6
162.5°	1750.7	1742.9	1749.4	1758.6	1746.9
165°	1769.1	1761.3	1765.1	1774.3	1765.1
167.5°	1783.4	1775.6	1779.6	1788.8	1776.9
170°	1795.3	1787.3	1790.0	1799.1	1787.3
172.5°	1803.0	1795.3	1797.9	1807.1	1795.3
175°	1809.5	1800.4	1803.0	1812.1	1799.1
177.5°	1812.1	1803.0	1804.4	1813.6	1801.8
180°	1805.6	1805.6	1805.6	1805.6	1805.6

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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	10.04	10.81	11.07	11.86	13.27	9.59	10.37	10.63	11.41	12.82
	3H	11.67	12.37	12.72	13.42	14.85	11.18	11.88	12.23	12.93	14.36
	4H	12.24	12.90	13.30	13.96	15.39	11.75	12.41	12.81	13.46	14.90
	6H	12.62	13.23	13.69	14.29	15.74	12.12	12.73	13.19	13.79	15.24
	8H	12.72	13.30	13.79	14.37	15.81	12.22	12.80	13.29	13.87	15.31
	12H	12.76	13.31	13.83	14.38	15.84	12.25	12.80	13.33	13.87	15.33
4H	2H	10.48	11.14	11.54	12.19	13.63	10.12	10.78	11.19	11.84	13.27
	3H	12.31	12.86	13.39	13.95	15.39	11.90	12.46	12.98	13.54	14.98
	4H	13.01	13.51	14.09	14.59	16.05	12.58	13.09	13.66	14.16	15.63
	6H	13.50	13.93	14.59	15.03	16.49	13.07	13.50	14.16	14.60	16.06
	8H	13.64	14.04	14.73	15.13	16.61	13.20	13.61	14.29	14.70	16.17
	12H	13.70	14.06	14.80	15.17	16.65	13.25	13.62	14.36	14.72	16.20
8H	4H	13.19	13.59	14.27	14.68	16.16	12.81	13.21	13.90	14.30	15.78
	6H	13.79	14.12	14.90	15.26	16.73	13.40	13.74	14.52	14.87	16.34
	8H	14.00	14.29	15.11	15.40	16.90	13.60	13.90	14.72	15.01	16.50
	12H	14.11	14.37	15.23	15.48	17.01	13.70	13.96	14.82	15.07	16.60
12H	4H	13.16	13.53	14.27	14.63	16.12	12.79	13.16	13.90	14.26	15.75
	6H	13.81	14.11	14.93	15.22	16.71	13.44	13.73	14.56	14.85	16.34
	8H	14.04	14.29	15.16	15.40	16.94	13.65	13.91	14.78	15.02	16.55