

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: P910691

Luminaire Tested: DFN2DIP-HX2F0-060D040US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910691
REPORT IS A COMBINATION OF REPORTS P900699 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-060D040US850-FLLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

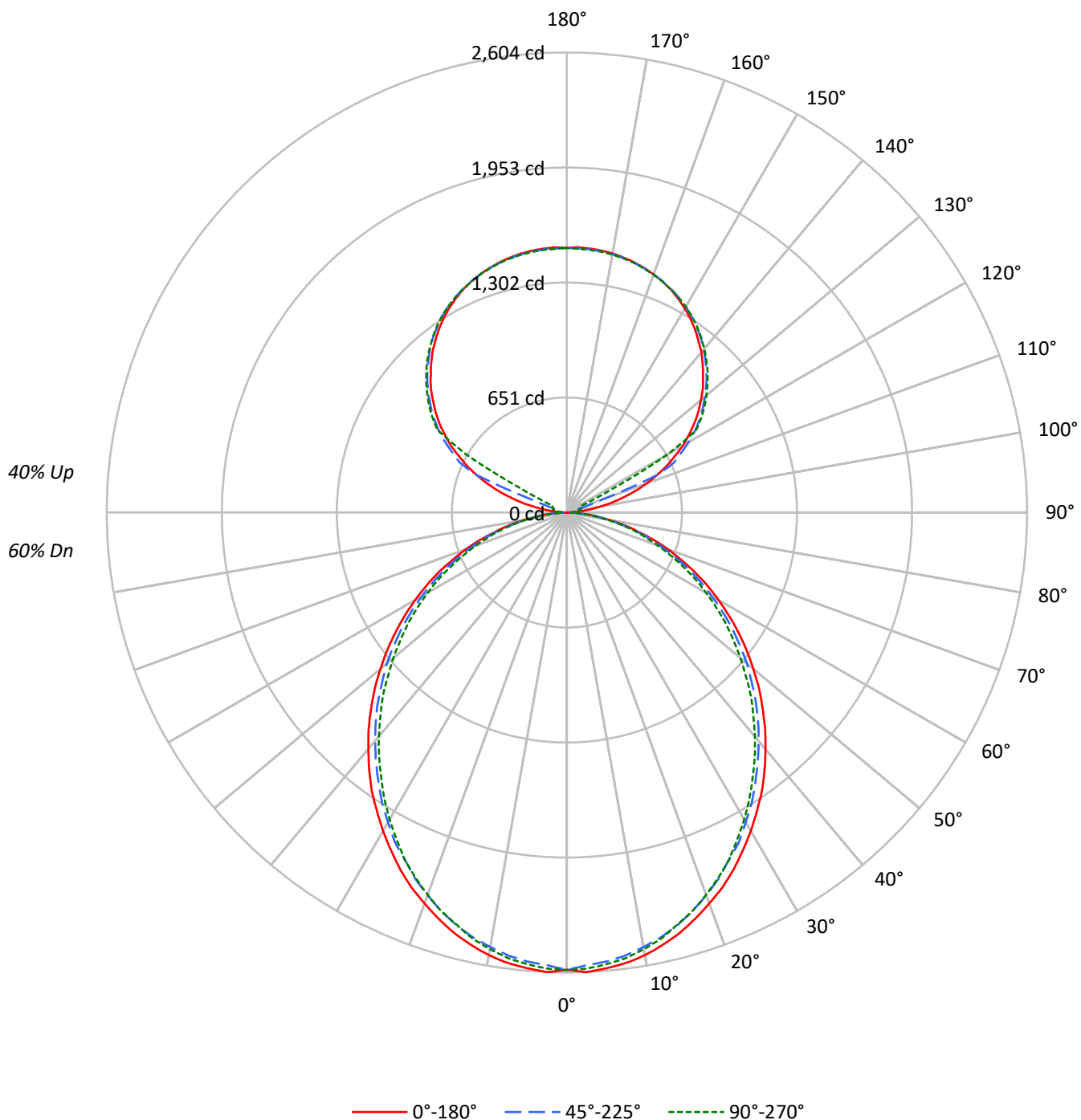
Lumens per Lamp: N/A
Luminaire Lumens: 10979.0 lumens
Efficiency: N/A
Efficacy: 123.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 88.8
Input Voltage (V): 120
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: P910691

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US850-FLLONL

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
RCR																	
0	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	6100	6100	6100
5°	6100	6001	6044
10°	6041	5905	5951
15°	5942	5794	5813
20°	5813	5644	5671
25°	5684	5468	5508
30°	5524	5304	5305
35°	5372	5112	5091
40°	5186	4918	4886
45°	5001	4722	4676
50°	4797	4516	4434
55°	4584	4279	4208
60°	4342	3999	3950
65°	4076	3706	3646
70°	3738	3350	3316
75°	3274	2924	2996
80°	2711	2380	2418
85°	1839	1493	1497

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 5001 cd/sqm

TEST NUMBER: P910691

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US850-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	243.7	2.2
10°-20°	685.6	6.2
20°-30°	1007.6	9.2
30°-40°	1170.3	10.7
40°-50°	1168.8	10.6
50°-60°	1019.2	9.3
60°-70°	753.4	6.9
70°-80°	426.3	3.9
80°-90°	115.1	1.0
90°-100°	49.4	0.4
100°-110°	184.0	1.7
110°-120°	488.1	4.4
120°-130°	809.5	7.4
130°-140°	859.9	7.8
140°-150°	799.2	7.3
150°-160°	642.5	5.9
160°-170°	414.0	3.8
170°-180°	142.5	1.3
0°-30°	1937.0	17.6
0°-40°	3107.2	28.3
0°-60°	5295.3	48.2
0°-90°	6590.0	60.0
90°-120°	721.5	6.6
90°-150°	3190.0	29.1
90°-180°	4389.0	40.0
0°-180°	10979.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2589	2589	2589	2589	2589	
5°	2589	2579	2552	2572	2567	246
15°	2465	2450	2417	2428	2415	694
25°	2231	2211	2168	2173	2168	1026
35°	1925	1900	1860	1845	1832	1202
45°	1566	1549	1511	1484	1474	1209
55°	1185	1170	1140	1110	1098	1060
65°	799	784	759	737	724	790
75°	418	413	401	386	391	446
85°	102	100	97	90	87	114
90°	1	13	22	27	29	10
95°	70	35	42	48	47	83
105°	329	362	66	78	82	352
115°	623	641	668	167	89	613
125°	881	895	915	923	926	785
135°	1090	1107	1117	1128	1126	842
145°	1264	1263	1281	1289	1284	791
155°	1392	1382	1395	1402	1393	641
165°	1467	1460	1464	1471	1464	414
175°	1500	1493	1495	1502	1492	143
180°	1497	1497	1497	1497	1497	

TEST NUMBER: P910691

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2589.1	2589.1	2589.1	2589.1	2589.1
2.5°	2604.2	2591.7	2564.2	2589.1	2584.3
5°	2589.1	2579.3	2551.8	2571.7	2566.9
7.5°	2571.7	2556.9	2529.4	2549.5	2544.5
10°	2544.5	2527.1	2497.1	2517.0	2509.6
12.5°	2507.0	2492.1	2462.3	2474.7	2469.7
15°	2464.6	2449.9	2417.4	2427.5	2415.1
17.5°	2412.4	2397.7	2365.2	2377.5	2365.2
20°	2355.1	2340.3	2305.4	2312.8	2303.1
22.5°	2298.1	2275.6	2243.1	2243.1	2238.1
25°	2230.6	2210.9	2168.5	2173.3	2168.5
27.5°	2155.9	2138.5	2106.2	2098.9	2086.5
30°	2081.5	2061.3	2024.1	2016.7	2006.6
32.5°	2001.6	1986.9	1947.0	1931.9	1921.9
35°	1924.6	1899.7	1859.8	1844.7	1832.3
37.5°	1837.4	1814.9	1775.1	1757.5	1745.1
40°	1747.8	1727.7	1687.9	1665.7	1655.6
42.5°	1660.6	1640.5	1601.0	1575.9	1561.0
45°	1566.1	1548.6	1511.1	1484.0	1473.9
47.5°	1473.9	1456.4	1416.6	1389.1	1374.3
50°	1376.7	1364.3	1329.5	1294.5	1282.1
52.5°	1282.1	1264.7	1232.4	1205.0	1187.6
55°	1185.2	1170.1	1140.3	1110.4	1098.0
57.5°	1088.0	1075.6	1043.1	1013.3	1003.2
60°	990.8	981.0	946.2	918.7	911.3
62.5°	896.2	878.8	853.9	829.1	819.1
65°	799.3	784.3	759.4	736.9	724.5
67.5°	699.7	687.0	664.8	647.4	637.3
70°	607.5	597.5	575.0	557.6	547.8
72.5°	512.9	502.9	490.5	473.1	465.7
75°	418.1	413.4	400.7	385.9	390.9
77.5°	333.6	323.6	318.5	311.2	303.8
80°	249.1	246.4	241.4	234.0	229.0
82.5°	169.3	169.3	166.9	156.9	156.9
85°	101.9	99.6	97.1	89.5	87.2
87.5°	44.9	39.9	34.8	27.5	24.8
90°	1.0	13.0	21.6	27.2	29.2
92.5°	27.2	22.7	26.0	28.2	29.2
95°	70.3	34.6	42.1	47.7	46.6
97.5°	126.8	37.9	55.2	58.6	59.6
100°	191.7	43.4	61.8	70.3	72.5
102.5°	263.2	261.2	63.9	75.7	79.1
105°	329.3	361.9	66.1	78.0	82.3
107.5°	406.2	433.3	68.3	80.2	84.5
110°	480.0	502.6	189.6	81.3	85.5

TEST NUMBER: P910691

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	549.3	568.7	550.3	83.4	86.7
115°	622.8	641.2	668.4	166.8	88.9
117.5°	686.8	708.4	726.9	571.9	288.1
120°	758.3	774.5	794.0	807.1	660.9
122.5°	818.9	836.3	858.0	864.5	865.6
125°	880.7	894.9	915.4	923.0	926.2
127.5°	937.0	952.2	968.5	979.4	980.4
130°	990.1	1007.5	1019.3	1031.3	1030.3
132.5°	1044.2	1058.4	1070.3	1080.1	1079.1
135°	1089.8	1107.2	1116.9	1127.7	1125.6
137.5°	1137.4	1150.4	1161.3	1172.1	1168.9
140°	1184.0	1192.7	1204.6	1214.4	1208.9
142.5°	1223.1	1230.7	1244.7	1253.3	1248.0
145°	1264.3	1263.2	1281.4	1289.1	1283.7
147.5°	1299.9	1296.6	1315.1	1320.5	1316.3
150°	1334.6	1327.0	1344.4	1350.9	1345.4
152.5°	1363.8	1355.2	1371.4	1377.9	1370.4
155°	1392.0	1382.4	1395.3	1401.8	1393.1
157.5°	1414.8	1406.1	1416.0	1423.5	1414.8
160°	1434.3	1427.7	1434.3	1440.7	1433.2
162.5°	1451.6	1445.1	1450.6	1458.1	1448.4
165°	1466.8	1460.3	1463.5	1471.1	1463.5
167.5°	1478.7	1472.1	1475.5	1483.1	1473.3
170°	1488.5	1482.0	1484.1	1491.7	1482.0
172.5°	1494.9	1488.5	1490.7	1498.3	1488.5
175°	1500.3	1492.7	1494.9	1502.5	1491.7
177.5°	1502.5	1494.9	1496.0	1503.7	1493.9
180°	1497.2	1497.2	1497.2	1497.2	1497.2

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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	14.29	15.25	15.16	16.14	17.26	13.87	14.83	14.74	15.72	16.84
	3H	15.94	16.80	16.82	17.70	18.84	15.48	16.34	16.36	17.23	18.38
	4H	16.51	17.33	17.41	18.23	19.39	16.05	16.87	16.95	17.77	18.93
	6H	16.90	17.65	17.80	18.56	19.73	16.44	17.19	17.34	18.10	19.27
	8H	17.00	17.71	17.91	18.64	19.81	16.54	17.25	17.45	18.18	19.35
	12H	17.04	17.72	17.96	18.64	19.83	16.58	17.26	17.50	18.18	19.37
4H	2H	14.76	15.57	15.66	16.48	17.63	14.42	15.23	15.32	16.14	17.29
	3H	16.60	17.28	17.51	18.22	19.39	16.22	16.90	17.13	17.83	19.01
	4H	17.30	17.92	18.22	18.85	20.05	16.91	17.53	17.83	18.46	19.65
	6H	17.80	18.33	18.73	19.29	20.49	17.40	17.94	18.34	18.89	20.09
	8H	17.94	18.44	18.88	19.39	20.60	17.54	18.04	18.48	18.99	20.20
	12H	18.01	18.46	18.96	19.42	20.64	17.60	18.05	18.56	19.02	20.23
8H	4H	17.50	18.00	18.43	18.94	20.15	17.14	17.64	18.08	18.59	19.80
	6H	18.10	18.52	19.07	19.50	20.72	17.75	18.16	18.71	19.15	20.36
	8H	18.31	18.67	19.28	19.65	20.88	17.95	18.32	18.92	19.30	20.52
	12H	18.43	18.75	19.40	19.72	21.00	18.06	18.38	19.03	19.35	20.63
12H	4H	17.48	17.93	18.44	18.90	20.12	17.14	17.59	18.10	18.56	19.77
	6H	18.13	18.49	19.10	19.47	20.70	17.79	18.15	18.76	19.13	20.36
	8H	18.36	18.68	19.33	19.65	20.93	18.01	18.33	18.99	19.30	20.58