

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: P908051

Luminaire Tested: DFN2DIP-HX3F0-060D040US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908051
REPORT IS A COMBINATION OF REPORTS P900741 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-060D040US840-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

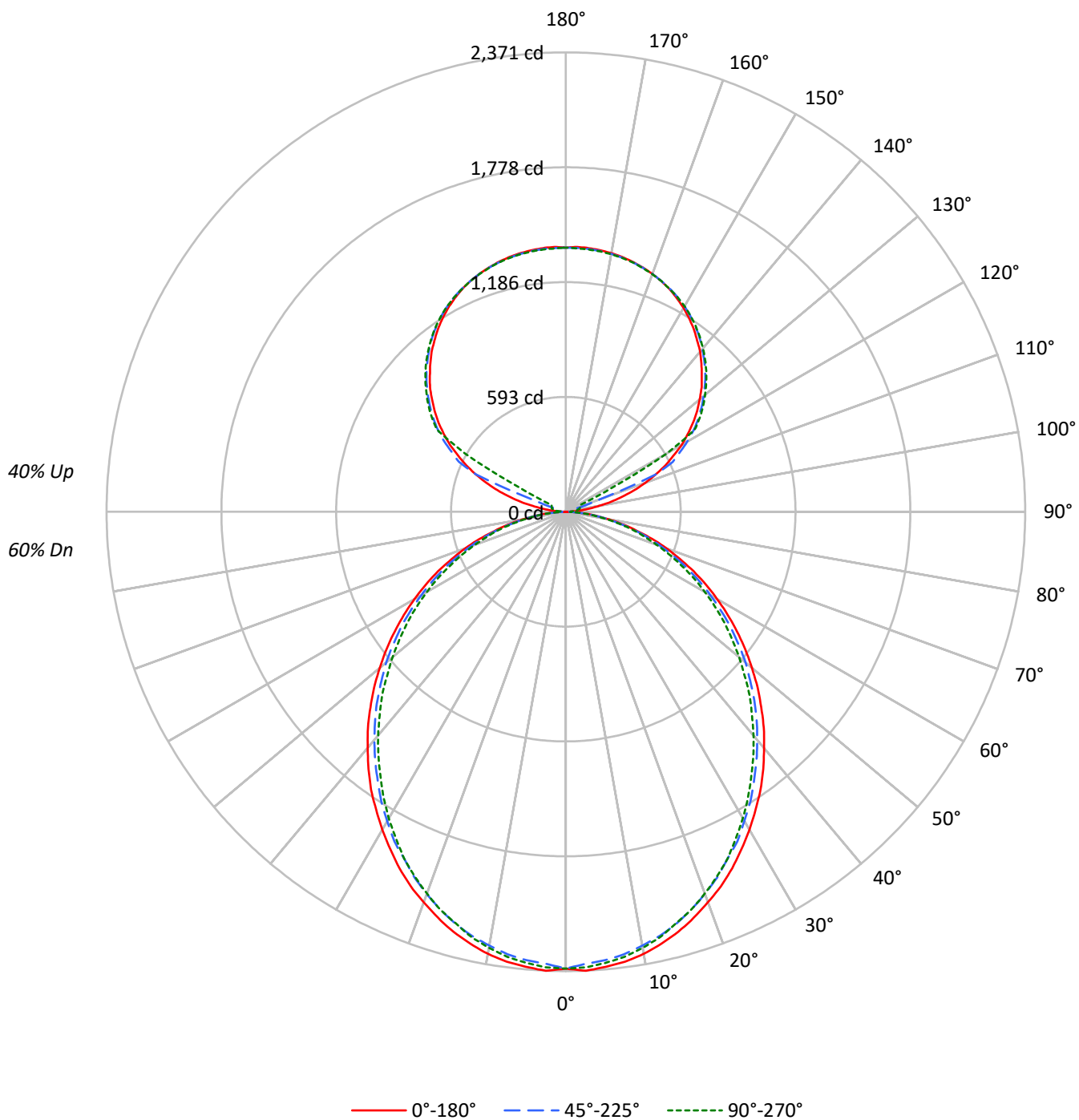
Lumens per Lamp: N/A
Luminaire Lumens: 9997.6 lumens
Efficiency: N/A
Efficacy: 115.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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
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°	2731	2731	2731
5°	2734	2691	2710
10°	2711	2653	2671
15°	2670	2607	2613
20°	2615	2545	2552
25°	2560	2470	2483
30°	2491	2401	2395
35°	2426	2319	2303
40°	2346	2237	2214
45°	2267	2154	2124
50°	2180	2067	2019
55°	2088	1966	1923
60°	1985	1847	1812
65°	1872	1724	1681
70°	1729	1572	1540
75°	1530	1392	1408
80°	1290	1160	1159
85°	914	768	752

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2267 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	2.2
10°-20°	624.4	6.2
20°-30°	917.5	9.2
30°-40°	1065.7	10.7
40°-50°	1064.4	10.6
50°-60°	928.1	9.3
60°-70°	686.1	6.9
70°-80°	388.2	3.9
80°-90°	104.8	1.0
90°-100°	44.9	0.4
100°-110°	167.6	1.7
110°-120°	444.4	4.4
120°-130°	737.1	7.4
130°-140°	783.0	7.8
140°-150°	727.7	7.3
150°-160°	585.1	5.9
160°-170°	377.0	3.8
170°-180°	129.8	1.3
0°-30°	1763.8	17.6
0°-40°	2829.5	28.3
0°-60°	4821.9	48.2
0°-90°	6001.0	60.0
90°-120°	656.9	6.6
90°-150°	2904.8	29.1
90°-180°	3997.0	40.0
0°-180°	9997.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1694	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1066	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	12	20	25	27	9
95°	64	32	38	43	42	76
105°	300	330	60	71	75	320
115°	567	584	609	152	81	558
125°	802	815	834	840	843	715
135°	992	1008	1017	1027	1025	767
145°	1151	1150	1167	1174	1169	720
155°	1268	1259	1271	1276	1269	584
165°	1336	1330	1333	1340	1333	377
175°	1366	1359	1361	1368	1358	130
180°	1363	1363	1363	1363	1363	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.6	2357.6	2357.6	2357.6	2357.6
2.5°	2371.4	2360.1	2335.0	2357.6	2353.3
5°	2357.6	2348.7	2323.7	2341.8	2337.4
7.5°	2341.8	2328.3	2303.3	2321.6	2317.0
10°	2317.0	2301.2	2273.9	2292.0	2285.2
12.5°	2282.9	2269.4	2242.2	2253.5	2249.0
15°	2244.3	2230.9	2201.3	2210.5	2199.2
17.5°	2196.8	2183.3	2153.7	2164.9	2153.7
20°	2144.6	2131.1	2099.3	2106.1	2097.2
22.5°	2092.6	2072.1	2042.6	2042.6	2038.0
25°	2031.2	2013.3	1974.7	1979.0	1974.7
27.5°	1963.2	1947.3	1917.9	1911.3	1900.0
30°	1895.4	1877.0	1843.2	1836.4	1827.3
32.5°	1822.7	1809.3	1772.9	1759.2	1750.1
35°	1752.5	1729.9	1693.5	1679.8	1668.5
37.5°	1673.1	1652.6	1616.4	1600.4	1589.1
40°	1591.5	1573.3	1537.0	1516.8	1507.6
42.5°	1512.2	1493.9	1457.8	1435.0	1421.5
45°	1426.1	1410.2	1376.0	1351.3	1342.1
47.5°	1342.1	1326.3	1290.0	1265.0	1251.4
50°	1253.6	1242.3	1210.6	1178.8	1167.5
52.5°	1167.5	1151.7	1122.3	1097.3	1081.5
55°	1079.2	1065.5	1038.3	1011.2	999.9
57.5°	990.8	979.5	949.9	922.7	913.5
60°	902.2	893.3	861.6	836.6	829.8
62.5°	816.1	800.2	777.6	755.0	745.9
65°	727.8	714.2	691.6	671.1	659.7
67.5°	637.1	625.6	605.4	589.6	580.4
70°	553.2	544.1	523.6	507.8	498.9
72.5°	467.1	458.0	446.7	430.8	424.0
75°	380.7	376.5	364.9	351.4	356.0
77.5°	303.8	294.7	290.0	283.4	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	0.9	11.8	19.7	24.7	26.6
92.5°	24.7	20.7	23.6	25.7	26.6
95°	64.0	31.5	38.4	43.4	42.4
97.5°	115.4	34.5	50.3	53.3	54.2
100°	174.6	39.5	56.2	64.0	66.0
102.5°	239.6	237.8	58.2	69.0	72.0
105°	299.8	329.5	60.2	71.0	74.9
107.5°	369.9	394.6	62.2	73.0	77.0
110°	437.1	457.7	172.7	74.0	77.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	500.2	517.9	501.1	75.9	79.0
115°	567.1	583.9	608.6	151.9	81.0
117.5°	625.4	645.1	662.0	520.8	262.4
120°	690.5	705.3	723.1	735.0	601.8
122.5°	745.7	761.5	781.3	787.2	788.2
125°	801.9	814.9	833.5	840.5	843.4
127.5°	853.2	867.1	881.9	891.8	892.7
130°	901.6	917.5	928.2	939.1	938.2
132.5°	950.9	963.8	974.6	983.5	982.6
135°	992.4	1008.2	1017.0	1026.9	1025.0
137.5°	1035.7	1047.5	1057.5	1067.3	1064.4
140°	1078.1	1086.1	1096.9	1105.8	1100.9
142.5°	1113.8	1120.6	1133.5	1141.2	1136.4
145°	1151.2	1150.2	1166.9	1173.9	1168.9
147.5°	1183.7	1180.7	1197.5	1202.4	1198.6
150°	1215.3	1208.4	1224.3	1230.1	1225.2
152.5°	1241.9	1234.1	1248.8	1254.8	1247.9
155°	1267.6	1258.8	1270.6	1276.5	1268.6
157.5°	1288.3	1280.4	1289.4	1296.3	1288.3
160°	1306.1	1300.1	1306.1	1311.9	1305.0
162.5°	1321.8	1316.0	1320.9	1327.8	1318.9
165°	1335.6	1329.8	1332.7	1339.6	1332.7
167.5°	1346.6	1340.5	1343.6	1350.5	1341.6
170°	1355.4	1349.5	1351.4	1358.4	1349.5
172.5°	1361.3	1355.4	1357.5	1364.3	1355.4
175°	1366.1	1359.3	1361.3	1368.2	1358.4
177.5°	1368.2	1361.3	1362.3	1369.3	1360.4
180°	1363.3	1363.3	1363.3	1363.3	1363.3

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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	11.60	12.56	12.46	13.44	14.56	11.17	12.13	12.03	13.01	14.13
	3H	13.26	14.12	14.13	15.01	16.16	12.79	13.65	13.67	14.54	15.69
	4H	13.84	14.66	14.74	15.56	16.72	13.37	14.19	14.27	15.09	16.25
	6H	14.24	14.99	15.15	15.90	17.07	13.77	14.52	14.68	15.43	16.60
	8H	14.35	15.06	15.26	15.99	17.16	13.88	14.59	14.79	15.52	16.69
	12H	14.39	15.08	15.31	16.00	17.19	13.92	14.60	14.84	15.52	16.72
4H	2H	12.07	12.88	12.97	13.78	14.94	11.72	12.54	12.62	13.44	14.60
	3H	13.93	14.61	14.84	15.55	16.72	13.54	14.22	14.45	15.16	16.33
	4H	14.64	15.26	15.57	16.19	17.39	14.24	14.86	15.16	15.79	16.99
	6H	15.16	15.69	16.09	16.65	17.84	14.75	15.29	15.69	16.24	17.44
	8H	15.31	15.81	16.24	16.75	17.97	14.90	15.40	15.84	16.35	17.56
	12H	15.38	15.83	16.34	16.80	18.01	14.96	15.42	15.92	16.38	17.60
8H	4H	14.85	15.35	15.78	16.29	17.51	14.49	14.99	15.43	15.94	17.15
	6H	15.47	15.89	16.44	16.88	18.09	15.11	15.53	16.08	16.52	17.73
	8H	15.69	16.05	16.66	17.03	18.26	15.32	15.69	16.30	16.67	17.90
	12H	15.82	16.14	16.80	17.11	18.39	15.44	15.76	16.42	16.73	18.01
12H	4H	14.84	15.29	15.79	16.25	17.47	14.49	14.94	15.44	15.90	17.12
	6H	15.50	15.87	16.47	16.85	18.08	15.15	15.52	16.13	16.50	17.73
	8H	15.74	16.06	16.72	17.04	18.31	15.39	15.71	16.37	16.68	17.96