

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: P910781

Luminaire Tested: DFN2DIP-HX3F0-060D040US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910781
REPORT IS A COMBINATION OF REPORTS P900742 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-060D040US850-RLLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

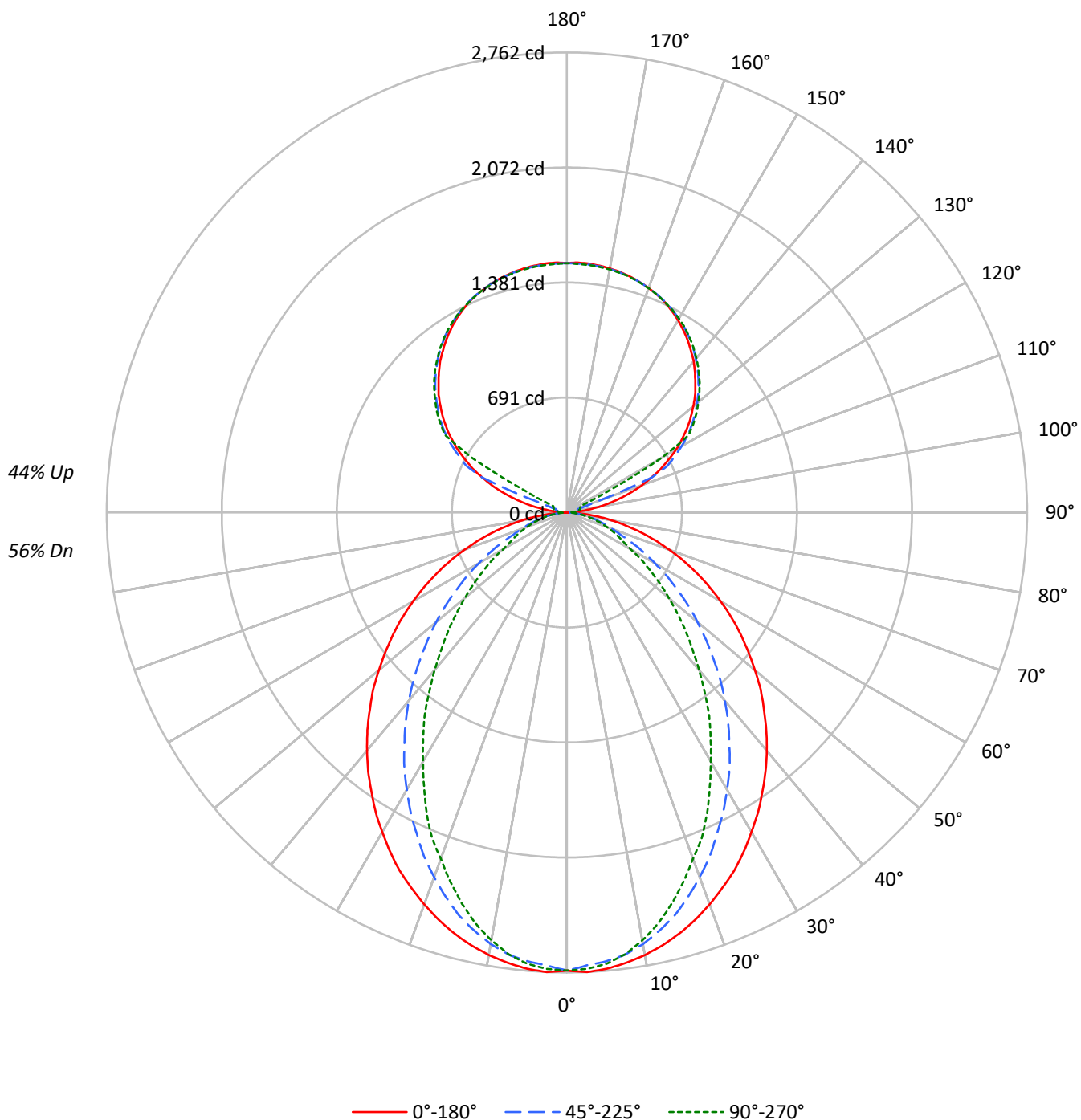
Lumens per Lamp: N/A
Luminaire Lumens: 10047.6 lumens
Efficiency: N/A
Efficacy: 116.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	56	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	50	48	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	31
6	65	54	46	40	61	50	43	38	44	39	34	39	34	31	33	30	27
7	61	49	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3186	3186	3186
5°	3189	3133	3153
10°	3156	3069	3049
15°	3111	2966	2889
20°	3052	2824	2693
25°	2992	2665	2504
30°	2911	2502	2264
35°	2833	2328	2054
40°	2752	2148	1813
45°	2659	1948	1595
50°	2562	1747	1382
55°	2461	1532	1177
60°	2344	1307	967
65°	2209	1079	869
70°	2045	867	783
75°	1840	759	709
80°	1542	630	609
85°	1053	410	447

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2659 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	257.7	2.6
10°-20°	707.6	7.0
20°-30°	993.4	9.9
30°-40°	1082.8	10.8
40°-50°	995.2	9.9
50°-60°	781.6	7.8
60°-70°	508.8	5.1
70°-80°	261.9	2.6
80°-90°	69.5	0.7
90°-100°	49.4	0.5
100°-110°	184.0	1.8
110°-120°	488.1	4.9
120°-130°	809.5	8.1
130°-140°	859.9	8.6
140°-150°	799.2	8.0
150°-160°	642.5	6.4
160°-170°	414.0	4.1
170°-180°	142.5	1.4
0°-30°	1958.7	19.5
0°-40°	3041.5	30.3
0°-60°	4818.4	48.0
0°-90°	5658.6	56.3
90°-120°	721.5	7.2
90°-150°	3190.0	31.7
90°-180°	4389.0	43.7
0°-180°	10047.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2750	2750	2750	2750	2750	
5°	2750	2738	2705	2728	2720	261
15°	2616	2588	2504	2456	2432	737
25°	2374	2295	2130	2028	1991	1092
35°	2046	1919	1700	1543	1488	1281
45°	1672	1506	1244	1068	1008	1292
55°	1272	1078	809	660	612	1136
65°	859	657	433	349	341	851
75°	458	284	199	182	179	484
85°	107	55	47	47	47	123
90°	1	13	22	27	29	9
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.1	2750.1	2750.1	2750.1	2750.1
2.5°	2762.5	2750.1	2722.6	2747.7	2742.7
5°	2750.1	2737.7	2705.2	2727.7	2720.3
7.5°	2727.7	2712.8	2678.0	2687.8	2675.4
10°	2697.8	2680.3	2630.8	2623.1	2608.3
12.5°	2660.6	2638.1	2570.8	2556.0	2528.5
15°	2615.7	2588.2	2503.7	2456.4	2431.6
17.5°	2563.5	2523.5	2419.0	2364.3	2324.5
20°	2503.7	2453.8	2329.5	2267.4	2212.5
22.5°	2439.0	2381.7	2237.3	2152.8	2115.5
25°	2374.4	2294.6	2130.4	2028.5	1991.0
27.5°	2297.3	2212.5	2030.8	1913.8	1856.6
30°	2215.1	2120.3	1921.2	1794.5	1727.2
32.5°	2135.4	2020.8	1817.0	1667.5	1605.2
35°	2045.9	1918.9	1700.0	1543.1	1488.2
37.5°	1958.7	1821.6	1590.4	1418.5	1356.4
40°	1866.6	1717.4	1475.7	1299.1	1234.4
42.5°	1772.1	1612.8	1361.4	1177.1	1115.1
45°	1672.5	1505.6	1244.5	1067.5	1007.9
47.5°	1578.0	1401.3	1132.5	955.6	901.0
50°	1473.4	1296.8	1022.9	851.0	799.0
52.5°	1371.2	1184.5	918.4	754.1	706.9
55°	1271.7	1077.6	808.8	659.6	612.3
57.5°	1169.8	970.6	711.9	572.5	532.5
60°	1065.2	866.1	609.7	483.0	443.0
62.5°	963.3	764.2	522.6	403.2	383.4
65°	858.7	657.0	433.1	348.6	340.9
67.5°	759.1	557.4	348.6	306.1	298.7
70°	654.5	460.5	288.6	263.8	253.7
72.5°	555.1	370.7	241.3	221.6	216.5
75°	457.9	283.6	199.1	181.7	179.3
77.5°	361.0	201.5	156.8	146.8	141.8
80°	271.2	144.4	119.3	109.6	109.6
82.5°	189.1	97.1	82.1	77.1	77.1
85°	106.9	54.7	47.2	47.2	47.2
87.5°	39.9	19.9	19.9	17.4	17.4
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

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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	11.70	12.58	12.61	13.51	14.69	7.68	8.56	8.58	9.48	10.66
	3H	13.37	14.16	14.29	15.10	16.30	8.86	9.66	9.78	10.59	11.79
	4H	13.98	14.73	14.91	15.66	16.88	9.31	10.06	10.25	11.00	12.21
	6H	14.40	15.09	15.34	16.03	17.26	9.63	10.32	10.58	11.26	12.49
	8H	14.52	15.18	15.48	16.14	17.36	9.72	10.38	10.68	11.34	12.56
	12H	14.58	15.20	15.54	16.16	17.41	9.77	10.39	10.73	11.34	12.59
4H	2H	11.72	12.47	12.66	13.41	14.62	8.27	9.02	9.21	9.96	11.17
	3H	13.55	14.17	14.50	15.14	16.37	9.62	10.24	10.57	11.21	12.44
	4H	14.24	14.80	15.20	15.76	17.02	10.17	10.74	11.13	11.70	12.95
	6H	14.75	15.23	15.72	16.22	17.47	10.59	11.07	11.56	12.06	13.31
	8H	14.92	15.37	15.89	16.35	17.62	10.72	11.17	11.69	12.15	13.42
	12H	15.01	15.42	16.01	16.42	17.69	10.78	11.19	11.77	12.18	13.46
8H	4H	14.21	14.66	15.18	15.64	16.91	10.45	10.90	11.42	11.88	13.15
	6H	14.77	15.14	15.77	16.16	17.43	10.96	11.34	11.96	12.36	13.62
	8H	14.98	15.31	15.99	16.32	17.60	11.15	11.48	12.16	12.49	13.77
	12H	15.11	15.41	16.13	16.41	17.74	11.27	11.56	12.28	12.56	13.89
12H	4H	14.16	14.57	15.15	15.57	16.84	10.46	10.87	11.45	11.86	13.13
	6H	14.74	15.07	15.75	16.08	17.37	11.01	11.34	12.02	12.35	13.63
	8H	14.96	15.25	15.97	16.25	17.58	11.22	11.51	12.23	12.51	13.84