

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: P910881

Luminaire Tested: DFN2DIP-HX4F0-040D090US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910881
REPORT IS A COMBINATION OF REPORTS P899390 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D090US850-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

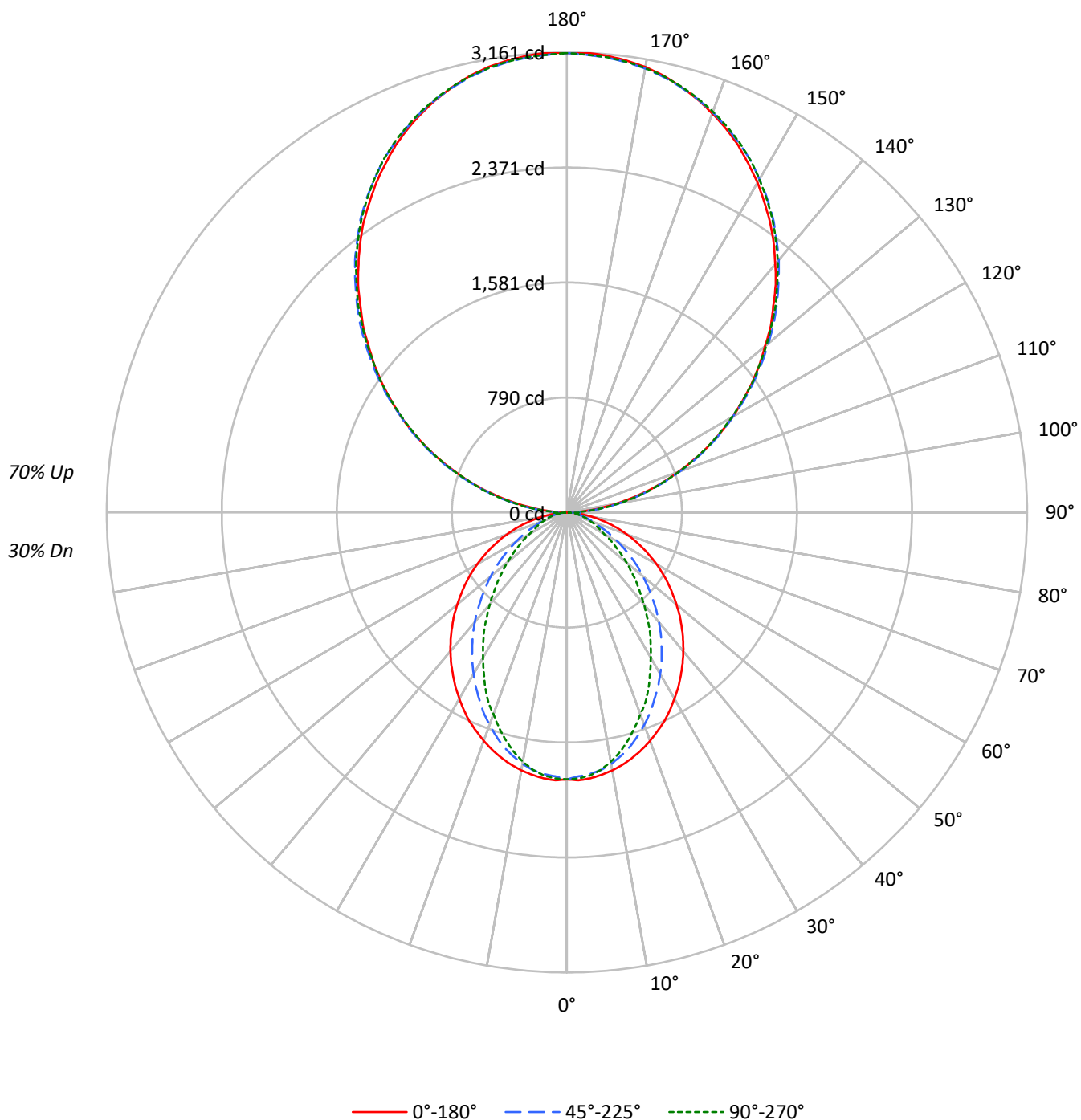
Lumens per Lamp: N/A
Luminaire Lumens: 12603.8 lumens
Efficiency: N/A
Efficacy: 149.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 84.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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: P910881

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US850-RLFL

Luminous Intensity Polar Plot



TEST NUMBER: P910881

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US850-RLLFLL

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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38
1	94	89	86	83	84	80	77	75	64	62	60	48	47	46	34	33	32
2	85	78	73	68	76	71	66	62	56	53	50	43	40	38	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	33	29	32	27	24	25	22	19	18	16	14
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13
9	48	36	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12
10	45	33	27	22	40	30	24	20	25	20	17	19	16	14	14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1363	1363	1363
5°	1366	1342	1350
10°	1352	1316	1306
15°	1334	1272	1239
20°	1309	1212	1155
25°	1284	1145	1075
30°	1250	1077	973
35°	1217	1003	883
40°	1184	926	780
45°	1144	841	687
50°	1104	755	596
55°	1062	664	509
60°	1013	568	419
65°	957	470	377
70°	889	379	341
75°	803	335	311
80°	680	281	270
85°	475	188	203

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2380 cd/sqm

TEST NUMBER: P910881

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US850-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	1.4
10°-20°	471.7	3.7
20°-30°	662.3	5.3
30°-40°	721.9	5.7
40°-50°	663.5	5.3
50°-60°	521.1	4.1
60°-70°	339.2	2.7
70°-80°	174.6	1.4
80°-90°	53.5	0.4
90°-100°	195.3	1.5
100°-110°	620.6	4.9
110°-120°	1062.1	8.4
120°-130°	1396.8	11.1
130°-140°	1567.9	12.4
140°-150°	1537.5	12.2
150°-160°	1289.7	10.2
160°-170°	855.3	6.8
170°-180°	299.0	2.4
0°-30°	1305.8	10.4
0°-40°	2027.7	16.1
0°-60°	3212.2	25.5
0°-90°	3779.5	30.0
90°-120°	1878.1	14.9
90°-150°	6380.2	50.6
90°-180°	8824.0	70.0
0°-180°	12603.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1833	1833	1833	1833	1833	
5°	1833	1825	1804	1818	1814	174
15°	1744	1726	1669	1638	1621	491
25°	1583	1530	1420	1352	1327	728
35°	1364	1279	1133	1029	992	854
45°	1115	1004	830	712	672	861
55°	848	718	539	440	408	758
65°	572	438	289	232	227	568
75°	305	189	133	121	120	323
85°	71	36	32	32	32	82
90°	3	34	93	88	90	13
95°	139	166	170	170	166	155
105°	573	580	586	591	591	605
115°	1066	1081	1076	1074	1066	1054
125°	1550	1574	1566	1558	1555	1385
135°	2005	2035	2040	2038	2030	1550
145°	2434	2453	2468	2471	2461	1521
155°	2784	2791	2800	2813	2805	1281
165°	3028	3025	3025	3044	3031	854
175°	3151	3143	3138	3157	3140	299
180°	3157	3157	3157	3157	3157	

TEST NUMBER: P910881

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US850-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.4	1833.4	1833.4	1833.4	1833.4
2.5°	1841.7	1833.4	1815.1	1831.8	1828.4
5°	1833.4	1825.1	1803.5	1818.4	1813.5
7.5°	1818.4	1808.6	1785.4	1791.8	1783.6
10°	1798.6	1786.9	1753.8	1748.7	1738.9
12.5°	1773.7	1758.8	1713.8	1704.0	1685.7
15°	1743.8	1725.5	1669.2	1637.7	1621.1
17.5°	1709.0	1682.4	1612.6	1576.2	1549.6
20°	1669.2	1635.9	1552.9	1511.6	1475.0
22.5°	1626.0	1587.9	1491.5	1435.2	1410.4
25°	1582.9	1529.8	1420.2	1352.3	1327.3
27.5°	1531.5	1475.0	1353.9	1275.9	1237.6
30°	1476.7	1413.5	1280.8	1196.3	1151.5
32.5°	1423.6	1347.2	1211.2	1111.7	1070.1
35°	1364.0	1279.2	1133.3	1028.7	992.1
37.5°	1305.8	1214.5	1060.2	945.6	904.3
40°	1244.4	1144.9	983.9	866.1	823.0
42.5°	1181.3	1075.2	907.6	784.7	743.4
45°	1115.0	1003.8	829.6	711.8	671.9
47.5°	1052.0	934.2	755.0	637.1	600.6
50°	982.2	864.5	681.9	567.4	532.7
52.5°	914.1	789.7	612.3	502.7	471.2
55°	847.8	718.4	539.2	439.7	408.2
57.5°	779.8	647.1	474.5	381.6	355.1
60°	710.1	577.3	406.4	321.9	295.4
62.5°	642.2	509.5	348.3	268.8	255.6
65°	572.5	437.9	288.7	232.3	227.2
67.5°	506.1	371.6	232.3	204.1	199.1
70°	436.4	307.0	192.4	175.9	169.1
72.5°	370.1	247.2	160.9	147.7	144.4
75°	305.2	189.1	132.7	121.1	119.6
77.5°	240.7	134.3	104.6	97.9	94.5
80°	180.8	96.3	79.5	73.1	73.1
82.5°	126.1	64.8	54.8	51.3	51.3
85°	71.3	36.5	31.5	31.5	31.5
87.5°	26.6	13.2	13.2	11.6	11.6
90°	2.9	34.3	93.3	87.5	90.4
92.5°	59.0	80.0	82.8	85.6	85.6
95°	139.0	165.6	170.3	170.3	165.6
97.5°	231.2	256.0	266.5	266.5	266.5
100°	337.8	359.8	367.3	367.3	364.5
102.5°	450.1	466.3	476.8	479.6	476.8
105°	572.9	580.5	586.2	591.0	591.0
107.5°	694.7	706.1	706.1	708.0	694.7
110°	812.7	828.0	828.0	828.0	820.3

TEST NUMBER: P910881

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US850-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	940.2	956.4	953.5	946.0	940.2
115°	1065.9	1081.1	1076.3	1073.5	1065.9
117.5°	1190.5	1211.5	1198.2	1190.5	1182.9
120°	1316.2	1337.0	1316.2	1316.2	1307.5
122.5°	1430.3	1457.0	1443.7	1436.0	1430.3
125°	1550.3	1574.0	1566.5	1557.8	1555.0
127.5°	1667.3	1696.8	1686.3	1674.9	1667.3
130°	1776.7	1811.0	1806.2	1800.5	1790.0
132.5°	1899.5	1926.1	1928.0	1914.7	1907.1
135°	2005.1	2034.6	2040.3	2037.5	2029.9
137.5°	2123.1	2146.9	2151.7	2149.8	2138.4
140°	2226.9	2250.6	2263.9	2263.9	2253.5
142.5°	2333.4	2357.2	2364.8	2367.7	2357.2
145°	2434.4	2453.3	2468.5	2471.4	2461.0
147.5°	2524.7	2548.5	2559.9	2564.7	2554.2
150°	2618.0	2634.2	2644.6	2653.2	2644.6
152.5°	2700.7	2716.9	2730.2	2740.8	2730.2
155°	2783.6	2791.1	2799.8	2813.1	2804.6
157.5°	2854.9	2860.7	2865.4	2884.4	2871.1
160°	2918.7	2924.4	2927.3	2943.4	2932.0
162.5°	2977.7	2977.7	2980.5	2998.6	2985.3
165°	3028.1	3025.2	3025.2	3044.3	3031.0
167.5°	3073.8	3065.3	3065.3	3084.2	3070.9
170°	3108.1	3100.4	3097.7	3116.6	3100.4
172.5°	3131.8	3124.3	3121.4	3140.5	3124.3
175°	3150.9	3143.2	3137.6	3156.7	3140.5
177.5°	3161.3	3153.8	3148.0	3164.2	3148.0
180°	3156.7	3156.7	3156.7	3156.7	3156.7

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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	5.99	6.68	7.10	7.78	9.32	1.96	2.65	3.08	3.76	5.29
	3H	7.66	8.27	8.78	9.39	10.94	3.14	3.76	4.26	4.87	6.42
	4H	8.26	8.84	9.39	9.96	11.51	3.59	4.17	4.72	5.29	6.84
	6H	8.67	9.21	9.82	10.33	11.90	3.90	4.44	5.04	5.56	7.12
	8H	8.80	9.31	9.94	10.44	12.00	3.99	4.50	5.13	5.63	7.19
	12H	8.85	9.34	10.00	10.47	12.05	4.03	4.51	5.18	5.64	7.22
4H	2H	5.99	6.57	7.13	7.69	9.25	2.54	3.12	3.68	4.24	5.80
	3H	7.81	8.29	8.95	9.44	11.00	3.88	4.37	5.03	5.51	7.07
	4H	8.49	8.94	9.64	10.07	11.66	4.42	4.87	5.57	6.00	7.59
	6H	9.00	9.39	10.16	10.54	12.12	4.84	5.22	5.99	6.37	7.95
	8H	9.18	9.53	10.33	10.68	12.27	4.96	5.32	6.12	6.47	8.06
	12H	9.26	9.59	10.44	10.75	12.34	5.02	5.35	6.19	6.50	8.10
8H	4H	8.45	8.81	9.61	9.95	11.55	4.69	5.05	5.85	6.20	7.79
	6H	9.01	9.31	10.19	10.50	12.09	5.21	5.50	6.38	6.69	8.28
	8H	9.23	9.49	10.41	10.65	12.27	5.40	5.66	6.58	6.82	8.43
	12H	9.36	9.59	10.55	10.75	12.40	5.51	5.74	6.70	6.90	8.55
12H	4H	8.40	8.72	9.57	9.88	11.48	4.69	5.02	5.86	6.17	7.77
	6H	8.99	9.25	10.17	10.41	12.02	5.26	5.51	6.44	6.68	8.29
	8H	9.20	9.43	10.39	10.59	12.24	5.46	5.69	6.65	6.85	8.50

END OF REPORT