

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: P910885

Luminaire Tested: DFN2DIP-HX4F0-040D110US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910885
REPORT IS A COMBINATION OF REPORTS P899426 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D110US850-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

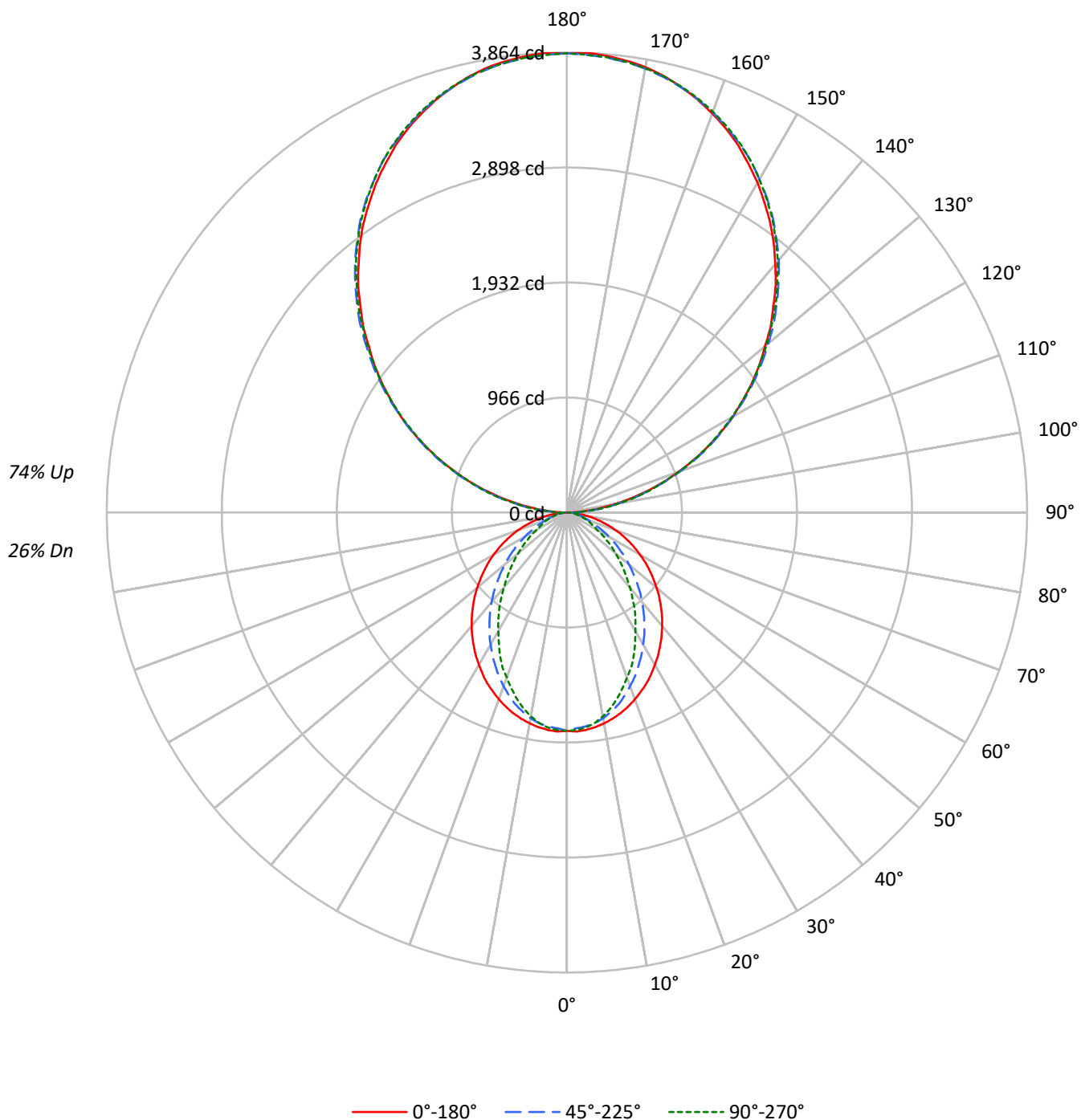
Lumens per Lamp: N/A
Luminaire Lumens: 14566.7 lumens
Efficiency: N/A
Efficacy: 147.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 98.5
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

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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	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34
1	93	89	85	82	82	79	76	73	62	60	58	45	44	43	30	30	29
2	85	78	72	67	75	69	65	61	54	51	48	40	38	36	27	26	25
3	77	68	61	56	69	61	55	51	48	44	41	36	33	31	24	23	21
4	71	61	53	47	63	54	48	43	43	38	35	32	29	27	22	20	19
5	65	54	46	41	58	48	42	37	38	34	30	29	26	23	20	18	16
6	60	48	41	35	53	43	37	32	34	30	26	26	23	20	18	16	15
7	55	43	36	31	49	39	33	28	31	26	23	24	20	18	16	14	13
8	51	39	32	27	46	36	29	25	28	24	20	21	18	16	15	13	12
9	47	36	29	24	42	32	26	22	26	21	18	20	17	14	14	12	11
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10

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: 2909 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	1.2
10°-20°	471.7	3.2
20°-30°	662.3	4.5
30°-40°	721.9	5.0
40°-50°	663.5	4.6
50°-60°	521.1	3.6
60°-70°	339.2	2.3
70°-80°	174.6	1.2
80°-90°	55.5	0.4
90°-100°	238.7	1.6
100°-110°	758.6	5.2
110°-120°	1298.1	8.9
120°-130°	1707.2	11.7
130°-140°	1916.3	13.2
140°-150°	1879.1	12.9
150°-160°	1576.3	10.8
160°-170°	1045.4	7.2
170°-180°	365.4	2.5
0°-30°	1305.8	9.0
0°-40°	2027.7	13.9
0°-60°	3212.2	22.1
0°-90°	3781.5	26.0
90°-120°	2295.4	15.8
90°-150°	7798.0	53.5
90°-180°	10785.0	74.0
0°-180°	14566.7	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	42	114	107	110	14
95°	170	202	208	208	202	189
105°	700	710	716	722	722	739
115°	1303	1321	1316	1312	1303	1288
125°	1895	1924	1914	1904	1900	1693
135°	2451	2487	2494	2490	2481	1894
145°	2975	2998	3017	3021	3008	1859
155°	3402	3411	3422	3438	3428	1566
165°	3701	3698	3698	3721	3704	1044
175°	3851	3842	3835	3858	3838	366
180°	3858	3858	3858	3858	3858	

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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°	3.4	41.9	114.0	107.0	110.5
92.5°	72.1	97.7	101.1	104.7	104.7
95°	169.8	202.4	208.2	208.2	202.4
97.5°	282.7	312.8	325.7	325.7	325.7
100°	412.9	439.6	448.9	448.9	445.5
102.5°	550.2	569.9	582.8	586.2	582.8
105°	700.2	709.5	716.5	722.3	722.3
107.5°	849.1	863.0	863.0	865.4	849.1
110°	993.3	1012.0	1012.0	1012.0	1002.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1149.1	1168.9	1165.4	1156.1	1149.1
115°	1302.7	1321.3	1315.5	1312.1	1302.7
117.5°	1455.1	1480.6	1464.3	1455.1	1445.8
120°	1608.6	1634.2	1608.6	1608.6	1598.2
122.5°	1748.2	1780.7	1764.4	1755.1	1748.2
125°	1894.7	1923.8	1914.5	1904.0	1900.5
127.5°	2037.8	2073.8	2061.1	2047.1	2037.8
130°	2171.5	2213.5	2207.6	2200.6	2187.8
132.5°	2321.6	2354.2	2356.5	2340.2	2330.9
135°	2450.7	2486.7	2493.7	2490.3	2480.9
137.5°	2594.9	2624.0	2629.8	2627.4	2613.6
140°	2721.7	2750.8	2767.1	2767.1	2754.3
142.5°	2852.0	2881.1	2890.4	2893.8	2881.1
145°	2975.2	2998.5	3017.1	3020.6	3007.8
147.5°	3085.8	3114.8	3128.8	3134.6	3121.8
150°	3199.8	3219.5	3232.3	3242.8	3232.3
152.5°	3300.9	3320.7	3337.0	3349.8	3337.0
155°	3402.2	3411.4	3421.9	3438.2	3427.7
157.5°	3489.4	3496.3	3502.1	3525.4	3509.1
160°	3567.3	3574.3	3577.7	3597.6	3583.6
162.5°	3639.4	3639.4	3643.0	3665.0	3648.7
165°	3701.1	3697.5	3697.5	3720.8	3704.5
167.5°	3756.8	3746.4	3746.4	3769.7	3753.4
170°	3798.8	3789.5	3786.0	3809.2	3789.5
172.5°	3827.8	3818.5	3815.1	3838.4	3818.5
175°	3851.1	3841.8	3834.8	3858.1	3838.4
177.5°	3863.9	3854.6	3847.6	3867.4	3847.6
180°	3858.1	3858.1	3858.1	3858.1	3858.1

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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	5.40	6.07	6.54	7.20	8.78	1.37	2.04	2.52	3.17	4.75
	3H	7.07	7.66	8.22	8.80	10.39	2.55	3.15	3.70	4.28	5.88
	4H	7.67	8.23	8.83	9.37	10.97	2.99	3.56	4.15	4.70	6.30
	6H	8.08	8.60	9.25	9.74	11.35	3.31	3.83	4.48	4.97	6.58
	8H	8.20	8.70	9.37	9.85	11.46	3.40	3.89	4.57	5.05	6.65
	12H	8.26	8.73	9.43	9.88	11.50	3.43	3.90	4.61	5.05	6.68
4H	2H	5.40	5.96	6.57	7.10	8.70	1.95	2.51	3.12	3.65	5.25
	3H	7.21	7.68	8.39	8.85	10.46	3.29	3.76	4.46	4.92	6.53
	4H	7.90	8.33	9.07	9.49	11.12	3.83	4.26	5.00	5.41	7.05
	6H	8.41	8.78	9.59	9.95	11.57	4.24	4.61	5.42	5.79	7.41
	8H	8.58	8.93	9.76	10.09	11.73	4.37	4.71	5.54	5.88	7.52
	12H	8.67	8.98	9.86	10.16	11.80	4.43	4.74	5.62	5.92	7.56
8H	4H	7.86	8.20	9.03	9.37	11.01	4.10	4.44	5.27	5.61	7.25
	6H	8.42	8.70	9.61	9.91	11.54	4.61	4.90	5.81	6.11	7.74
	8H	8.63	8.88	9.84	10.07	11.72	4.80	5.05	6.01	6.24	7.89
	12H	8.77	8.98	9.97	10.17	11.85	4.92	5.13	6.12	6.32	8.00
12H	4H	7.80	8.11	8.99	9.29	10.93	4.09	4.41	5.29	5.59	7.23
	6H	8.39	8.64	9.59	9.83	11.48	4.66	4.91	5.86	6.10	7.75
	8H	8.61	8.82	9.81	10.01	11.69	4.87	5.08	6.07	6.27	7.95

END OF REPORT