

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: P928744

Luminaire Tested: DFN2DIP-HX4F0-110D040US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928744
REPORT IS A COMBINATION OF REPORTS P900833 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D040US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

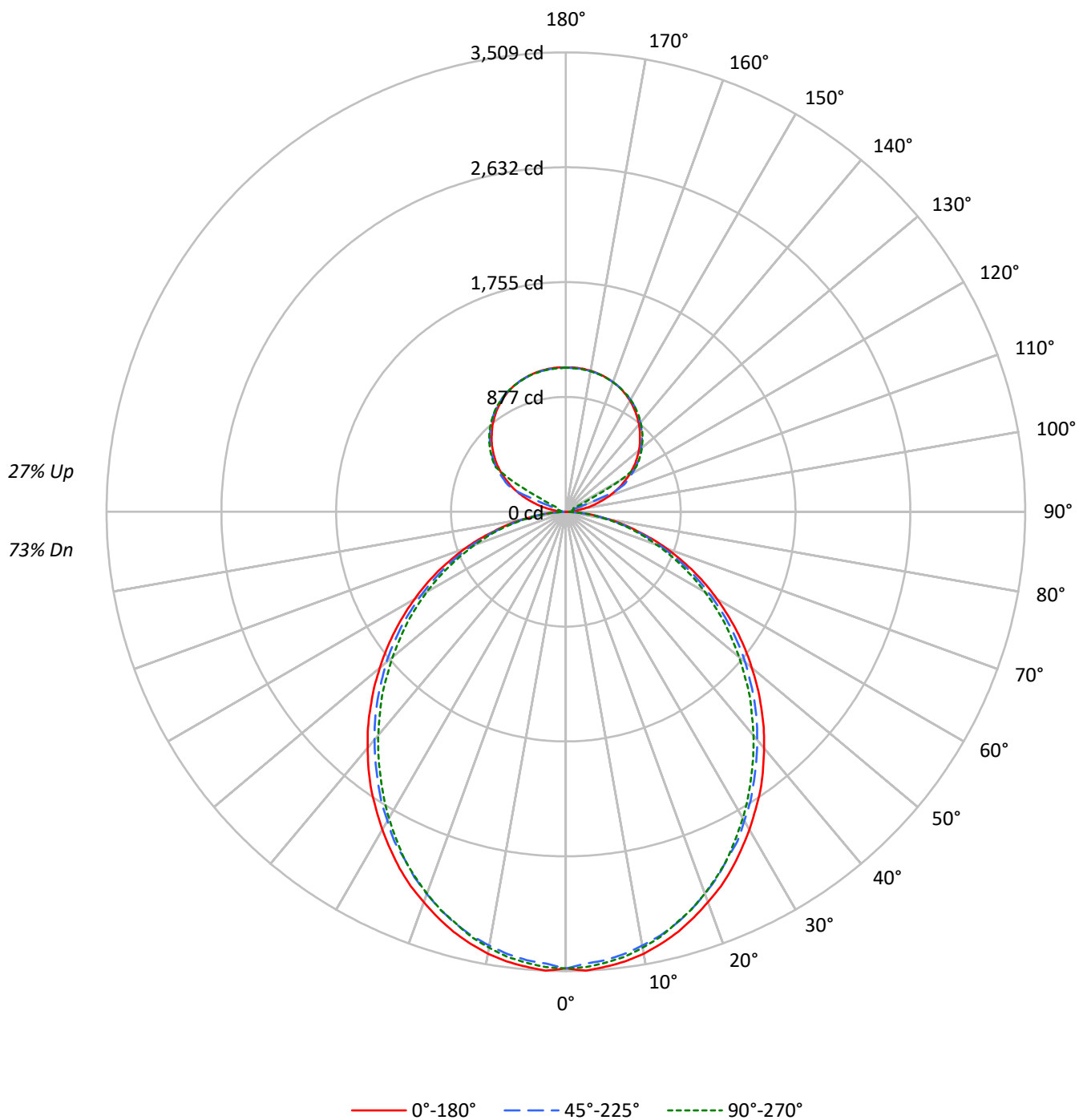
Lumens per Lamp: N/A
Luminaire Lumens: 12102.7 lumens
Efficiency: N/A
Efficacy: 85.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 142.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	113	113	113	113	107	107	107	107	96	96	96	87	87	87	78	78	78
1	103	99	95	91	98	94	90	87	85	82	79	76	74	72	69	67	66
2	94	86	80	74	89	82	76	71	74	70	66	67	64	60	60	58	55
3	86	76	68	62	81	72	65	60	66	60	55	59	55	51	54	50	47
4	78	67	59	53	74	64	57	51	58	52	47	53	48	44	48	44	41
5	72	60	52	45	68	57	50	44	52	46	41	48	42	38	43	39	35
6	67	54	46	39	63	52	44	38	47	41	36	43	38	34	39	35	31
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	36	31	28
8	57	45	37	31	54	43	35	30	39	33	28	36	31	27	33	28	25
9	54	41	33	28	51	39	32	27	36	30	26	33	28	24	30	26	23
10	50	38	30	25	48	36	29	24	33	27	23	31	26	22	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2594	2594	2594
5°	2598	2558	2575
10°	2577	2524	2540
15°	2540	2482	2486
20°	2489	2425	2430
25°	2438	2356	2366
30°	2374	2292	2284
35°	2314	2217	2197
40°	2240	2140	2115
45°	2166	2064	2031
50°	2085	1984	1933
55°	2000	1891	1843
60°	1904	1781	1741
65°	1800	1667	1619
70°	1667	1528	1489
75°	1483	1362	1369
80°	1262	1150	1139
85°	916	784	757

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2166 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.3	2.7
10°-20°	923.8	7.6
20°-30°	1357.6	11.2
30°-40°	1576.7	13.0
40°-50°	1574.8	13.0
50°-60°	1373.2	11.3
60°-70°	1015.1	8.4
70°-80°	574.3	4.7
80°-90°	153.5	1.3
90°-100°	36.3	0.3
100°-110°	135.2	1.1
110°-120°	358.7	3.0
120°-130°	594.9	4.9
130°-140°	631.9	5.2
140°-150°	587.3	4.9
150°-160°	472.2	3.9
160°-170°	304.3	2.5
170°-180°	104.7	0.9
0°-30°	2609.7	21.6
0°-40°	4186.4	34.6
0°-60°	7134.4	58.9
0°-90°	8877.3	73.3
90°-120°	530.2	4.4
90°-150°	2344.3	19.4
90°-180°	3225.0	26.6
0°-180°	12102.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3488	3488	3488	3488	3488	
5°	3488	3475	3438	3465	3458	331
15°	3321	3301	3257	3270	3254	935
25°	3005	2979	2922	2928	2922	1383
35°	2593	2560	2506	2485	2469	1619
45°	2110	2086	2036	1999	1986	1628
55°	1597	1576	1536	1496	1479	1428
65°	1077	1057	1023	993	976	1065
75°	563	557	540	520	527	601
85°	137	134	131	121	117	153
90°	1	10	16	20	21	11
95°	52	25	31	35	34	61
105°	242	266	49	57	60	259
115°	458	471	491	123	65	451
125°	647	658	673	678	681	577
135°	801	814	821	829	827	619
145°	929	928	942	947	943	581
155°	1023	1016	1025	1030	1024	471
165°	1078	1073	1076	1081	1076	305
175°	1102	1097	1099	1104	1096	105
180°	1100	1100	1100	1100	1100	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3488.4	3488.4	3488.4	3488.4	3488.4
2.5°	3508.6	3491.9	3454.9	3488.4	3481.9
5°	3488.4	3475.2	3438.2	3464.8	3458.5
7.5°	3464.8	3444.9	3407.9	3435.0	3428.2
10°	3428.2	3404.7	3364.5	3391.1	3381.2
12.5°	3377.7	3357.7	3317.5	3334.2	3327.5
15°	3320.7	3300.8	3257.0	3270.5	3253.8
17.5°	3250.2	3230.3	3186.6	3203.3	3186.6
20°	3173.0	3153.1	3106.1	3116.1	3102.9
22.5°	3096.2	3065.9	3022.1	3022.1	3015.3
25°	3005.4	2978.7	2921.8	2928.2	2921.8
27.5°	2904.7	2881.2	2837.7	2827.8	2811.1
30°	2804.3	2777.3	2727.1	2717.1	2703.6
32.5°	2696.8	2676.9	2623.2	2602.9	2589.3
35°	2592.9	2559.5	2505.7	2485.4	2468.7
37.5°	2475.5	2445.2	2391.5	2368.0	2351.3
40°	2354.9	2327.8	2274.1	2244.2	2230.7
42.5°	2237.4	2210.4	2157.0	2123.2	2103.3
45°	2110.0	2086.5	2036.0	1999.4	1985.8
47.5°	1985.8	1962.4	1908.6	1871.6	1851.6
50°	1854.9	1838.2	1791.1	1744.2	1727.5
52.5°	1727.5	1703.9	1660.6	1623.5	1600.0
55°	1596.8	1576.5	1536.4	1496.1	1479.4
57.5°	1465.9	1449.2	1405.4	1365.1	1351.6
60°	1334.9	1321.8	1274.7	1237.7	1227.8
62.5°	1207.5	1184.0	1150.5	1117.1	1103.6
65°	1076.9	1056.6	1023.2	992.9	976.2
67.5°	942.7	925.7	895.8	872.3	858.8
70°	818.5	805.0	774.7	751.3	738.1
72.5°	691.1	677.6	660.9	637.4	627.4
75°	563.3	557.0	539.9	520.0	526.7
77.5°	449.5	435.9	429.2	419.2	409.3
80°	335.6	332.0	325.3	315.3	308.6
82.5°	228.1	228.1	224.9	211.4	211.4
85°	137.4	134.1	131.0	120.6	117.4
87.5°	60.5	53.7	46.9	37.0	33.4
90°	0.7	9.5	15.9	20.0	21.4
92.5°	20.0	16.7	19.1	20.7	21.4
95°	51.7	25.4	31.0	35.0	34.2
97.5°	93.2	27.9	40.6	43.0	43.8
100°	140.9	31.9	45.4	51.7	53.3
102.5°	193.4	191.9	46.9	55.7	58.1
105°	242.0	265.9	48.6	57.3	60.5
107.5°	298.5	318.4	50.2	58.9	62.1
110°	352.7	369.4	139.4	59.7	62.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	403.7	417.9	404.4	61.3	63.7
115°	457.7	471.2	491.2	122.6	65.4
117.5°	504.7	520.6	534.2	420.3	211.7
120°	557.3	569.2	583.5	593.2	485.7
122.5°	601.8	614.6	630.6	635.3	636.1
125°	647.2	657.6	672.7	678.3	680.7
127.5°	688.6	699.8	711.7	719.7	720.5
130°	727.6	740.4	749.1	757.9	757.1
132.5°	767.4	777.8	786.6	793.7	793.0
135°	800.9	813.7	820.8	828.8	827.2
137.5°	835.9	845.4	853.5	861.4	859.0
140°	870.1	876.5	885.3	892.4	888.4
142.5°	898.9	904.4	914.8	921.0	917.1
145°	929.1	928.3	941.7	947.4	943.4
147.5°	955.3	952.9	966.4	970.4	967.3
150°	980.8	975.2	988.0	992.8	988.8
152.5°	1002.3	995.9	1007.8	1012.6	1007.1
155°	1023.0	1015.9	1025.4	1030.2	1023.8
157.5°	1039.7	1033.3	1040.6	1046.1	1039.7
160°	1054.0	1049.2	1054.0	1058.8	1053.2
162.5°	1066.8	1062.0	1066.0	1071.6	1064.4
165°	1077.9	1073.2	1075.6	1081.1	1075.6
167.5°	1086.7	1081.8	1084.4	1089.9	1082.7
170°	1093.9	1089.1	1090.6	1096.3	1089.1
172.5°	1098.6	1093.9	1095.5	1101.1	1093.9
175°	1102.5	1097.0	1098.6	1104.2	1096.3
177.5°	1104.2	1098.6	1099.4	1105.1	1097.9
180°	1100.2	1100.2	1100.2	1100.2	1100.2



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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	12.51	13.63	13.23	14.37	15.27	12.08	13.19	12.80	13.94	14.84
	3H	14.19	15.19	14.93	15.95	16.88	13.71	14.72	14.45	15.48	16.40
	4H	14.79	15.74	15.55	16.50	17.44	14.31	15.26	15.07	16.03	16.97
	6H	15.20	16.08	15.97	16.85	17.80	14.72	15.60	15.50	16.38	17.33
	8H	15.31	16.15	16.09	16.94	17.90	14.84	15.67	15.62	16.47	17.42
	12H	15.37	16.17	16.16	16.96	17.94	14.89	15.69	15.68	16.48	17.46
4H	2H	13.00	13.95	13.76	14.72	15.65	12.65	13.60	13.42	14.37	15.31
	3H	14.89	15.68	15.66	16.49	17.44	14.50	15.29	15.27	16.09	17.05
	4H	15.62	16.34	16.41	17.14	18.12	15.21	15.93	16.00	16.73	17.72
	6H	16.15	16.77	16.95	17.60	18.59	15.74	16.36	16.54	17.19	18.18
	8H	16.30	16.89	17.11	17.71	18.71	15.89	16.47	16.70	17.30	18.30
	12H	16.39	16.91	17.22	17.76	18.77	15.97	16.49	16.80	17.34	18.34
8H	4H	15.83	16.42	16.64	17.24	18.24	15.47	16.06	16.28	16.88	17.88
	6H	16.48	16.96	17.32	17.83	18.83	16.11	16.60	16.95	17.46	18.46
	8H	16.70	17.13	17.55	17.99	19.01	16.33	16.76	17.18	17.62	18.64
	12H	16.84	17.22	17.70	18.08	19.15	16.46	16.84	17.31	17.69	18.77
12H	4H	15.83	16.36	16.66	17.20	18.21	15.48	16.00	16.31	16.85	17.86
	6H	16.51	16.94	17.36	17.80	18.82	16.16	16.59	17.01	17.45	18.47
	8H	16.76	17.14	17.62	18.00	19.07	16.41	16.79	17.26	17.64	18.71

END OF REPORT