

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: P928780

Luminaire Tested: DFN2DIP-HX4F0-120D040US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928780
REPORT IS A COMBINATION OF REPORTS P900835 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D040US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

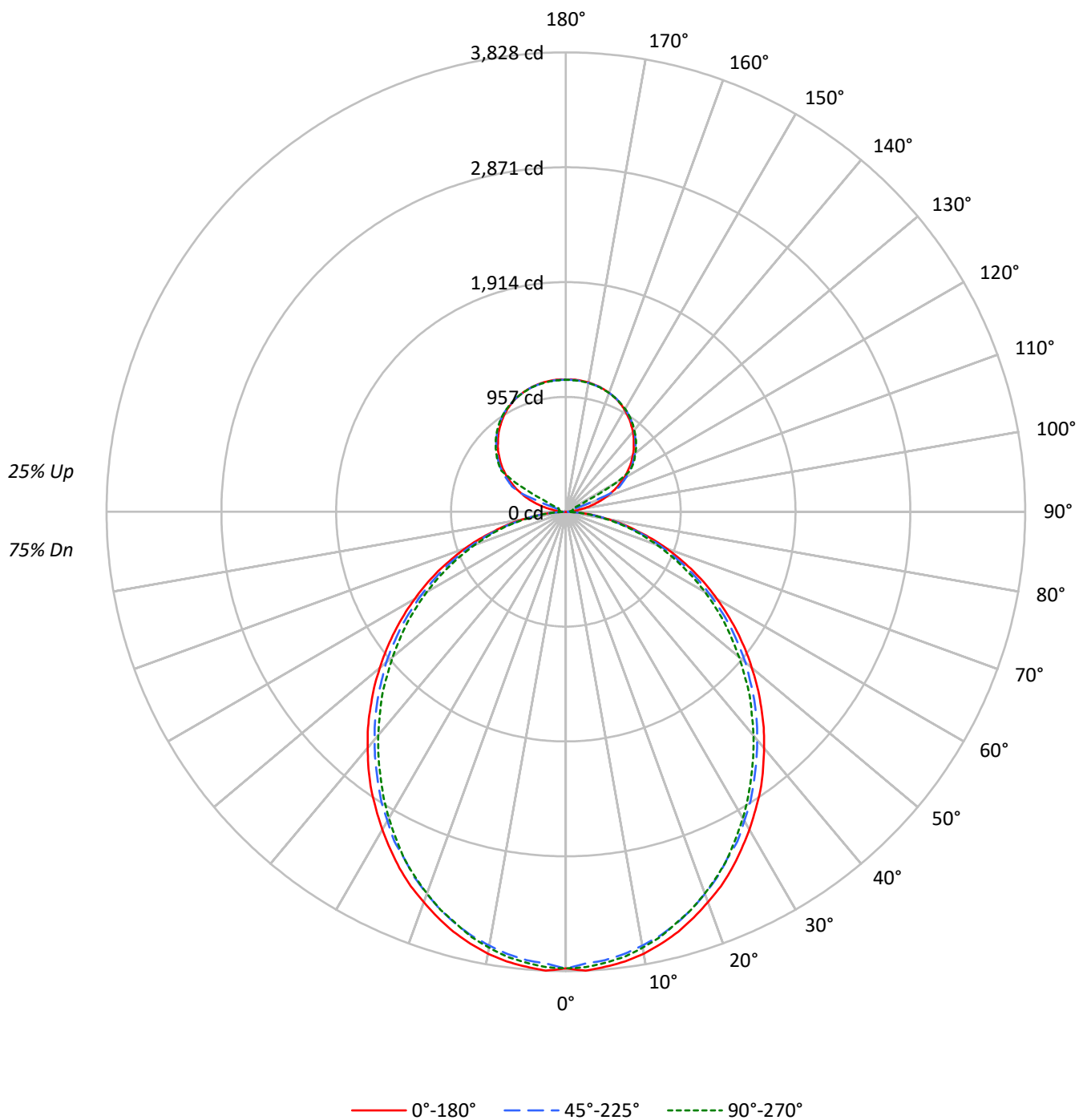
Lumens per Lamp: N/A
Luminaire Lumens: 12909.6 lumens
Efficiency: N/A
Efficacy: 82.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 156.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	108	108	108	108	97	97	97	88	88	88	79	79	79
1	103	99	95	91	98	94	91	87	85	83	80	77	75	73	70	68	67
2	94	86	80	75	89	82	77	72	75	70	66	68	64	61	62	59	56
3	86	76	68	62	81	73	66	60	66	61	56	60	56	52	55	51	48
4	79	67	59	53	75	64	57	51	59	53	48	54	49	45	49	45	41
5	72	60	52	46	69	58	50	44	53	46	41	48	43	39	44	40	36
6	67	54	46	40	63	52	44	39	48	41	36	44	38	34	40	35	32
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	37	32	28
8	58	45	37	31	55	43	36	30	40	33	29	37	31	27	34	29	25
9	54	41	33	28	51	39	32	27	37	30	26	34	28	24	31	26	23
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2830	2830	2830
5°	2834	2790	2809
10°	2812	2753	2771
15°	2770	2708	2712
20°	2715	2645	2651
25°	2660	2570	2581
30°	2590	2501	2492
35°	2524	2418	2397
40°	2443	2335	2307
45°	2363	2252	2216
50°	2274	2164	2109
55°	2182	2063	2011
60°	2078	1943	1899
65°	1964	1818	1767
70°	1819	1667	1624
75°	1618	1485	1493
80°	1377	1255	1242
85°	999	855	826

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2363 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	358.2	2.8
10°-20°	1007.7	7.8
20°-30°	1481.0	11.5
30°-40°	1720.1	13.3
40°-50°	1718.0	13.3
50°-60°	1498.0	11.6
60°-70°	1107.4	8.6
70°-80°	626.5	4.9
80°-90°	167.3	1.3
90°-100°	36.3	0.3
100°-110°	135.2	1.0
110°-120°	358.7	2.8
120°-130°	594.9	4.6
130°-140°	631.9	4.9
140°-150°	587.3	4.5
150°-160°	472.2	3.7
160°-170°	304.3	2.4
170°-180°	104.7	0.8
0°-30°	2846.9	22.1
0°-40°	4567.0	35.4
0°-60°	7783.0	60.3
0°-90°	9684.1	75.0
90°-120°	530.2	4.1
90°-150°	2344.3	18.2
90°-180°	3225.0	25.0
0°-180°	12909.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3806	3806	3806	3806	3806	
5°	3806	3791	3751	3780	3773	361
15°	3623	3601	3553	3568	3550	1020
25°	3279	3250	3187	3194	3187	1509
35°	2829	2792	2734	2711	2693	1766
45°	2302	2276	2221	2181	2166	1776
55°	1742	1720	1676	1632	1614	1557
65°	1175	1153	1116	1083	1065	1162
75°	615	608	589	567	575	656
85°	150	146	143	132	128	167
90°	1	10	16	20	21	12
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°	3805.5	3805.5	3805.5	3805.5	3805.5
2.5°	3827.6	3809.3	3769.0	3805.5	3798.5
5°	3805.5	3791.1	3750.7	3779.8	3772.8
7.5°	3779.8	3758.0	3717.7	3747.2	3739.9
10°	3739.9	3714.2	3670.4	3699.4	3688.6
12.5°	3684.7	3662.9	3619.1	3637.3	3629.9
15°	3622.6	3600.8	3553.1	3567.8	3549.6
17.5°	3545.7	3524.0	3476.2	3494.5	3476.2
20°	3461.5	3439.7	3388.5	3399.4	3385.0
22.5°	3377.6	3344.6	3296.8	3296.8	3289.5
25°	3278.6	3249.5	3187.4	3194.4	3187.4
27.5°	3168.7	3143.1	3095.8	3084.9	3066.7
30°	3059.3	3029.8	2975.0	2964.2	2949.4
32.5°	2942.0	2920.3	2861.6	2839.5	2824.8
35°	2828.6	2792.2	2733.5	2711.4	2693.2
37.5°	2700.5	2667.6	2608.9	2583.3	2565.0
40°	2569.0	2539.5	2480.8	2448.2	2433.4
42.5°	2440.8	2411.3	2353.1	2316.2	2294.5
45°	2301.8	2276.2	2221.0	2181.1	2166.4
47.5°	2166.4	2140.7	2082.1	2041.7	2020.0
50°	2023.5	2005.2	1954.0	1902.7	1884.4
52.5°	1884.4	1858.9	1811.5	1771.1	1745.5
55°	1742.0	1719.9	1676.0	1632.1	1613.9
57.5°	1599.1	1580.9	1533.1	1489.2	1474.5
60°	1456.2	1441.9	1390.6	1350.3	1339.4
62.5°	1317.3	1291.6	1255.2	1218.7	1203.9
65°	1174.8	1152.7	1116.1	1083.1	1065.0
67.5°	1028.4	1009.8	977.2	951.6	936.8
70°	892.9	878.2	845.2	819.6	805.2
72.5°	754.0	739.2	720.9	695.4	684.4
75°	614.6	607.6	588.9	567.2	574.6
77.5°	490.3	475.6	468.2	457.3	446.5
80°	366.1	362.2	354.9	344.0	336.6
82.5°	248.8	248.8	245.4	230.6	230.6
85°	149.9	146.4	142.9	131.6	128.1
87.5°	66.0	58.6	51.3	40.3	36.5
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	12.93	14.08	13.64	14.80	15.67	12.50	13.64	13.21	14.37	15.23
	3H	14.62	15.64	15.34	16.38	17.28	14.14	15.17	14.86	15.91	16.80
	4H	15.22	16.18	15.96	16.93	17.84	14.74	15.71	15.48	16.46	17.37
	6H	15.63	16.53	16.38	17.28	18.20	15.16	16.05	15.91	16.81	17.73
	8H	15.74	16.60	16.51	17.37	18.30	15.27	16.12	16.03	16.90	17.82
	12H	15.80	16.62	16.57	17.39	18.34	15.32	16.13	16.09	16.90	17.86
4H	2H	13.43	14.40	14.17	15.15	16.05	13.08	14.05	13.83	14.80	15.71
	3H	15.32	16.13	16.08	16.91	17.84	14.93	15.74	15.68	16.52	17.45
	4H	16.05	16.78	16.82	17.57	18.52	15.64	16.38	16.41	17.16	18.12
	6H	16.58	17.22	17.37	18.03	18.99	16.17	16.81	16.96	17.62	18.58
	8H	16.74	17.33	17.53	18.14	19.11	16.32	16.92	17.12	17.72	18.70
	12H	16.82	17.36	17.64	18.19	19.16	16.40	16.94	17.21	17.76	18.74
8H	4H	16.27	16.86	17.06	17.67	18.64	15.91	16.50	16.70	17.31	18.28
	6H	16.91	17.41	17.73	18.25	19.23	16.55	17.04	17.37	17.89	18.86
	8H	17.14	17.58	17.97	18.42	19.41	16.77	17.21	17.60	18.05	19.04
	12H	17.28	17.67	18.12	18.50	19.55	16.90	17.28	17.73	18.12	19.17
12H	4H	16.27	16.80	17.08	17.63	18.61	15.91	16.45	16.73	17.28	18.26
	6H	16.94	17.38	17.78	18.23	19.22	16.59	17.03	17.43	17.88	18.87
	8H	17.20	17.59	18.04	18.42	19.47	16.84	17.23	17.68	18.07	19.11

END OF REPORT