

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: P927802

Luminaire Tested: DFN2DIP-HX4F0-110D110US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927802
REPORT IS A COMBINATION OF REPORTS P900960 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D110US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

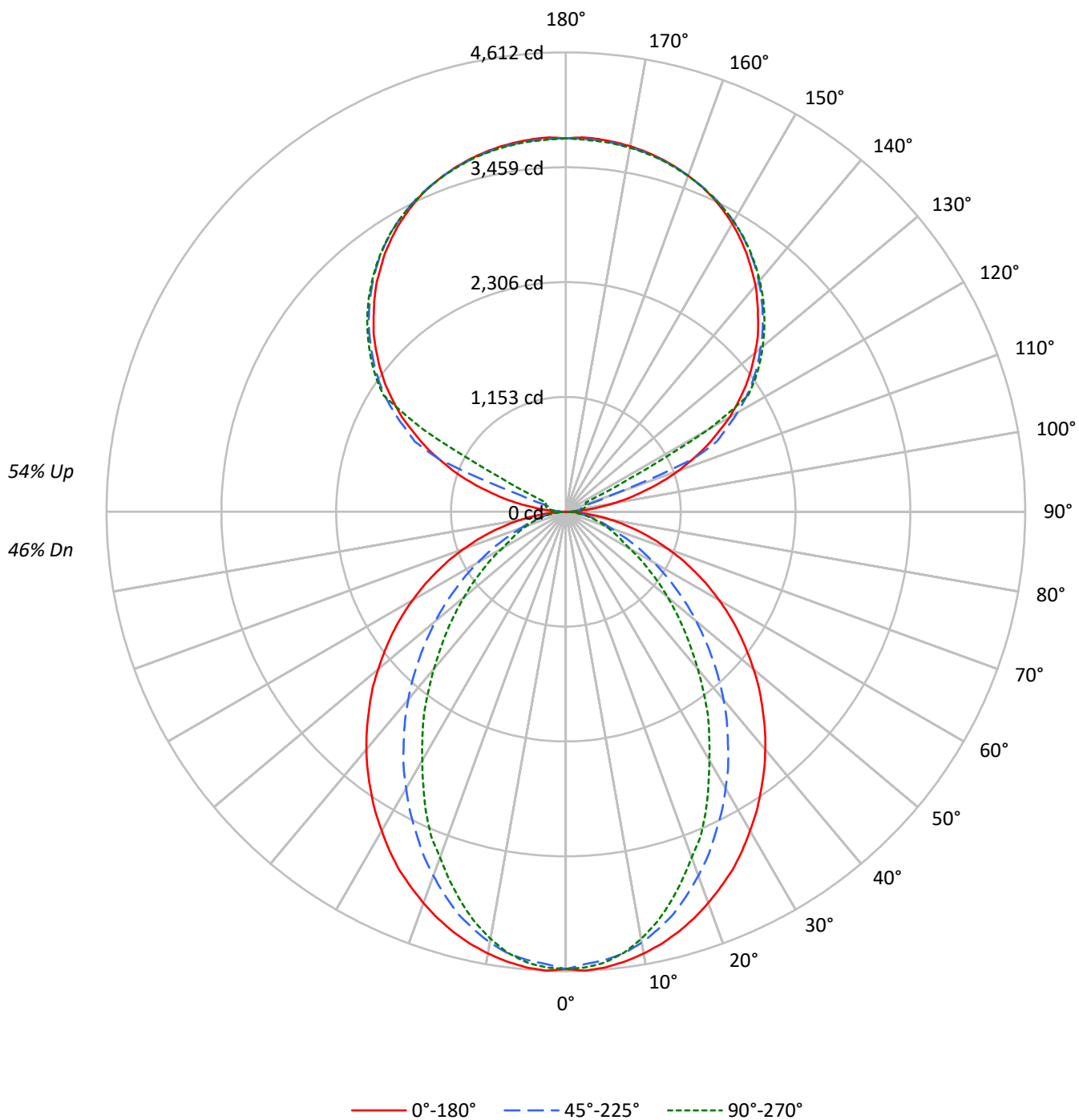
Lumens per Lamp: N/A
Luminaire Lumens: 20438.3 lumens
Efficiency: N/A
Efficacy: 102.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 199.5
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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3414	3414	3414
5°	3419	3360	3381
10°	3386	3294	3271
15°	3339	3186	3101
20°	3278	3036	2893
25°	3215	2868	2691
30°	3131	2696	2436
35°	3048	2510	2211
40°	2964	2319	1954
45°	2866	2106	1721
50°	2765	1891	1493
55°	2659	1662	1274
60°	2537	1422	1049
65°	2396	1178	944
70°	2226	950	855
75°	2012	838	778
80°	1702	704	675
85°	1190	472	509

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2866 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	2.1
10°-20°	1181.1	5.8
20°-30°	1658.3	8.1
30°-40°	1807.6	8.8
40°-50°	1661.4	8.1
50°-60°	1304.8	6.4
60°-70°	849.3	4.2
70°-80°	437.2	2.1
80°-90°	118.2	0.6
90°-100°	123.6	0.6
100°-110°	460.8	2.3
110°-120°	1222.1	6.0
120°-130°	2027.0	9.9
130°-140°	2153.1	10.5
140°-150°	2001.1	9.8
150°-160°	1608.8	7.9
160°-170°	1036.7	5.1
170°-180°	356.8	1.7
0°-30°	3269.7	16.0
0°-40°	5077.3	24.8
0°-60°	8043.5	39.4
0°-90°	9448.2	46.2
90°-120°	1806.5	8.8
90°-150°	7987.8	39.1
90°-180°	10990.0	53.8
0°-180°	20438.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4591	4591	4591	4591	4591	
5°	4591	4570	4516	4553	4541	435
15°	4366	4321	4180	4101	4059	1230
25°	3964	3830	3556	3386	3324	1823
35°	3415	3203	2838	2576	2484	2138
45°	2792	2513	2078	1782	1682	2156
55°	2123	1799	1350	1101	1022	1897
65°	1433	1097	723	582	569	1421
75°	764	473	332	303	299	808
85°	178	91	79	79	79	205
90°	3	32	54	68	73	19
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1535
125°	2205	2241	2292	2311	2319	1967
135°	2729	2772	2796	2824	2818	2108
145°	3166	3163	3209	3228	3214	1980
155°	3486	3461	3494	3510	3488	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3743	3762	3735	358
180°	3749	3749	3749	3749	3749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4590.9	4590.9	4590.9	4590.9	4590.9
2.5°	4611.6	4590.9	4545.0	4586.9	4578.5
5°	4590.9	4570.2	4515.9	4553.4	4541.1
7.5°	4553.4	4528.7	4470.5	4486.8	4466.0
10°	4503.6	4474.4	4391.6	4378.8	4354.2
12.5°	4441.4	4403.9	4291.5	4266.8	4221.0
15°	4366.5	4320.6	4179.6	4100.7	4059.2
17.5°	4279.2	4212.7	4038.1	3946.8	3880.3
20°	4179.6	4096.3	3888.6	3785.0	3693.3
22.5°	4071.6	3975.9	3734.8	3593.8	3531.6
25°	3963.6	3830.5	3556.3	3386.2	3323.6
27.5°	3834.9	3693.3	3390.1	3194.8	3099.2
30°	3697.8	3539.6	3207.2	2995.6	2883.2
32.5°	3564.7	3373.3	3033.0	2783.6	2679.6
35°	3415.2	3203.2	2837.8	2576.0	2484.3
37.5°	3269.8	3041.0	2654.9	2367.9	2264.4
40°	3115.9	2866.9	2463.6	2168.6	2060.7
42.5°	2958.1	2692.3	2272.8	1965.1	1861.5
45°	2792.0	2513.4	2077.5	1782.1	1682.5
47.5°	2634.2	2339.3	1890.5	1595.2	1504.0
50°	2459.6	2164.7	1707.7	1420.7	1333.8
52.5°	2289.0	1977.4	1533.1	1258.9	1180.0
55°	2122.8	1798.9	1350.1	1101.1	1022.2
57.5°	1952.8	1620.3	1188.3	955.7	889.0
60°	1778.2	1445.8	1017.8	806.2	739.7
62.5°	1608.0	1275.7	872.4	673.1	640.0
65°	1433.4	1096.6	722.9	581.8	569.0
67.5°	1267.3	930.5	581.8	510.9	498.5
70°	1092.7	768.8	481.8	440.4	423.6
72.5°	926.5	618.9	402.9	369.8	361.4
75°	764.3	473.4	332.3	303.2	299.3
77.5°	602.5	336.4	261.8	245.1	236.7
80°	452.7	241.1	199.2	183.0	183.0
82.5°	315.6	162.2	137.1	128.7	128.7
85°	178.5	91.3	78.9	78.9	78.9
87.5°	66.5	33.0	33.0	29.1	29.1
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.1
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.8	160.1	189.7	198.1
105°	824.6	906.1	165.6	195.2	206.2
107.5°	1017.3	1084.8	171.1	200.6	211.7
110°	1201.8	1258.5	474.8	203.6	214.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.4	1424.0	1378.0	208.7	217.1
115°	1559.6	1605.7	1673.7	417.8	222.6
117.5°	1719.8	1773.9	1820.3	1432.1	721.5
120°	1898.8	1939.4	1988.4	2020.9	1654.7
122.5°	2050.6	2094.0	2148.5	2164.6	2167.5
125°	2205.2	2240.6	2292.1	2311.1	2319.2
127.5°	2346.3	2384.2	2425.1	2452.2	2454.8
130°	2479.3	2522.8	2552.4	2582.4	2579.8
132.5°	2614.9	2650.3	2680.0	2704.4	2701.9
135°	2729.0	2772.4	2796.5	2824.0	2818.5
137.5°	2848.1	2880.7	2908.0	2935.1	2927.0
140°	2964.8	2986.6	3016.3	3040.7	3027.2
142.5°	3062.6	3081.6	3116.7	3138.4	3124.8
145°	3165.7	3162.8	3208.8	3227.9	3214.4
147.5°	3255.0	3246.9	3293.0	3306.5	3295.9
150°	3341.9	3322.9	3366.4	3382.5	3369.0
152.5°	3415.0	3393.4	3434.0	3450.5	3431.5
155°	3485.6	3461.4	3493.9	3510.1	3488.5
157.5°	3542.6	3521.0	3545.5	3564.5	3542.6
160°	3591.6	3575.1	3591.6	3607.6	3588.6
162.5°	3634.7	3618.6	3632.1	3651.1	3626.7
165°	3672.7	3656.6	3664.7	3683.6	3664.7
167.5°	3702.6	3686.3	3694.7	3713.6	3689.2
170°	3727.2	3710.7	3716.2	3735.3	3710.7
172.5°	3743.2	3727.2	3732.6	3751.6	3727.2
175°	3756.8	3737.8	3743.2	3762.3	3735.3
177.5°	3762.3	3743.2	3746.2	3765.1	3740.7
180°	3748.8	3748.8	3748.8	3748.8	3748.8

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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	11.05	11.85	12.05	12.85	14.18	7.02	7.82	8.02	8.83	10.15
	3H	12.73	13.44	13.73	14.45	15.80	8.21	8.93	9.22	9.94	11.29
	4H	13.33	14.01	14.35	15.03	16.38	8.66	9.34	9.68	10.35	11.71
	6H	13.76	14.38	14.78	15.40	16.77	8.98	9.61	10.01	10.63	11.99
	8H	13.88	14.47	14.92	15.51	16.87	9.07	9.67	10.11	10.70	12.07
	12H	13.94	14.51	14.98	15.53	16.92	9.12	9.68	10.16	10.71	12.10
4H	2H	11.07	11.74	12.09	12.76	14.11	7.62	8.29	8.64	9.31	10.66
	3H	12.89	13.46	13.93	14.50	15.87	8.97	9.53	10.00	10.57	11.94
	4H	13.58	14.10	14.63	15.13	16.53	9.51	10.03	10.55	11.06	12.45
	6H	14.10	14.54	15.15	15.60	16.99	9.93	10.38	10.98	11.43	12.82
	8H	14.27	14.69	15.33	15.74	17.14	10.06	10.48	11.11	11.53	12.93
	12H	14.37	14.74	15.44	15.81	17.21	10.13	10.50	11.20	11.57	12.97
8H	4H	13.55	13.96	14.60	15.01	16.42	9.79	10.20	10.84	11.26	12.66
	6H	14.12	14.46	15.19	15.55	16.95	10.31	10.65	11.39	11.75	13.14
	8H	14.33	14.63	15.42	15.71	17.13	10.50	10.80	11.59	11.88	13.30
	12H	14.47	14.74	15.56	15.81	17.27	10.62	10.89	11.71	11.96	13.42
12H	4H	13.50	13.87	14.57	14.94	16.35	9.80	10.17	10.86	11.23	12.64
	6H	14.09	14.39	15.17	15.47	16.89	10.36	10.66	11.44	11.74	13.16
	8H	14.31	14.58	15.40	15.65	17.11	10.57	10.84	11.66	11.91	13.37