

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: P927842

Luminaire Tested: DFN2DIP-HX4F0-120D120US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927842
REPORT IS A COMBINATION OF REPORTS P900980 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D120US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

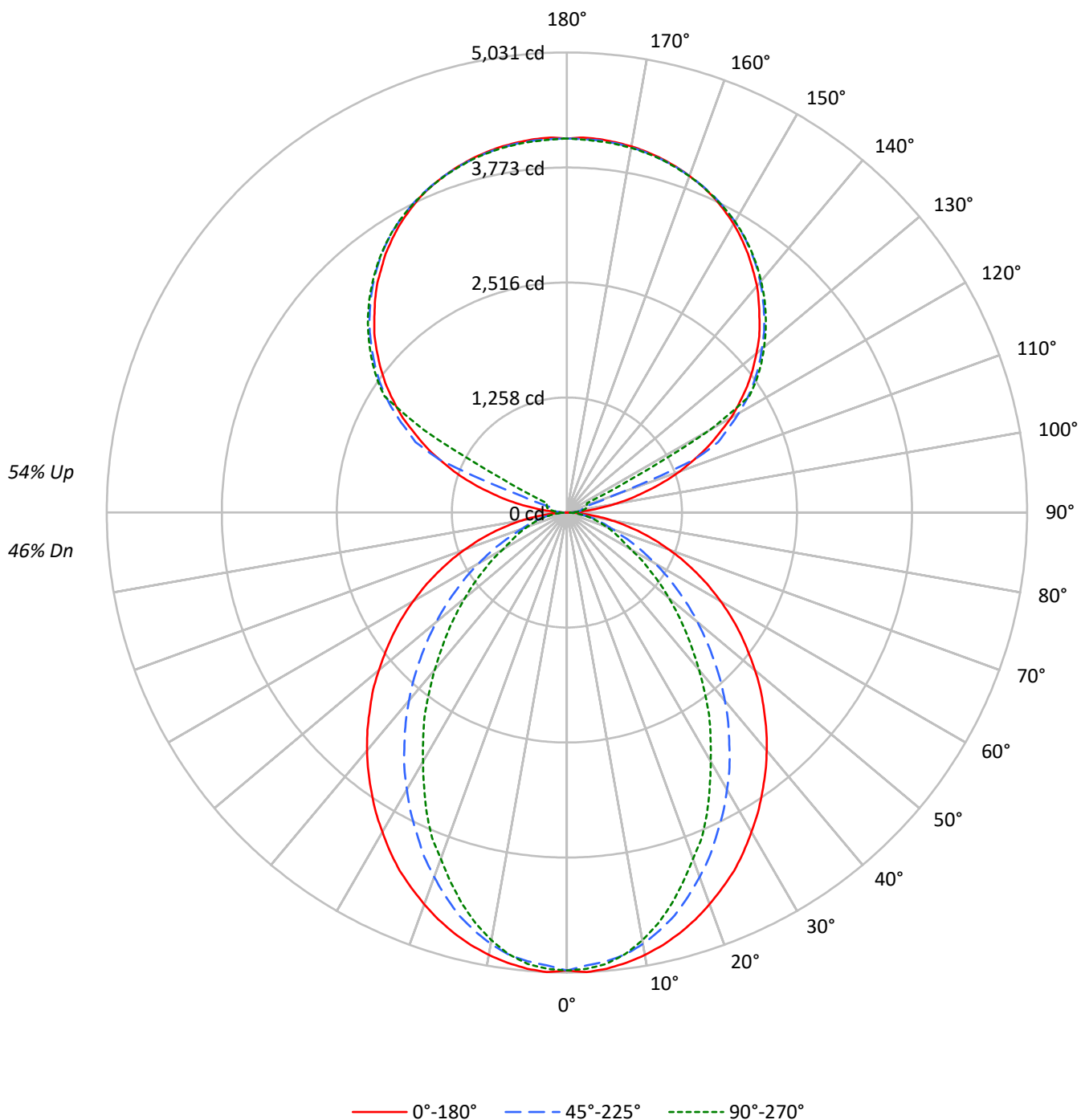
Lumens per Lamp: N/A
Luminaire Lumens: 22296.4 lumens
Efficiency: N/A
Efficacy: 100.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 222.1
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	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°	3724	3724	3724
5°	3730	3665	3688
10°	3694	3594	3569
15°	3643	3475	3383
20°	3576	3312	3156
25°	3508	3129	2936
30°	3415	2941	2657
35°	3325	2739	2412
40°	3233	2530	2132
45°	3126	2298	1877
50°	3016	2063	1628
55°	2901	1813	1390
60°	2767	1551	1144
65°	2614	1285	1030
70°	2428	1037	932
75°	2195	915	849
80°	1857	768	736
85°	1299	515	555

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3126 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	469.4	2.1
10°-20°	1288.5	5.8
20°-30°	1809.0	8.1
30°-40°	1972.0	8.8
40°-50°	1812.5	8.1
50°-60°	1423.4	6.4
60°-70°	926.5	4.2
70°-80°	476.9	2.1
80°-90°	128.9	0.6
90°-100°	134.8	0.6
100°-110°	502.7	2.3
110°-120°	1333.2	6.0
120°-130°	2211.3	9.9
130°-140°	2348.9	10.5
140°-150°	2183.0	9.8
150°-160°	1755.1	7.9
160°-170°	1130.9	5.1
170°-180°	389.2	1.7
0°-30°	3566.9	16.0
0°-40°	5538.9	24.8
0°-60°	8774.8	39.4
0°-90°	10307.2	46.2
90°-120°	1970.8	8.8
90°-150°	8714.0	39.1
90°-180°	11989.0	53.8
0°-180°	22296.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5008	5008	5008	5008	5008	
5°	5008	4986	4926	4967	4954	475
15°	4763	4713	4560	4473	4428	1342
25°	4324	4179	3880	3694	3626	1989
35°	3726	3494	3096	2810	2710	2332
45°	3046	2742	2266	1944	1835	2352
55°	2316	1962	1473	1201	1115	2069
65°	1564	1196	789	635	621	1550
75°	834	516	363	331	326	882
85°	195	100	86	86	86	224
90°	3	35	59	74	80	21
95°	192	94	115	130	127	228
105°	900	988	181	213	225	961
115°	1701	1752	1826	456	243	1675
125°	2406	2444	2501	2521	2530	2146
135°	2977	3024	3051	3081	3075	2300
145°	3454	3450	3501	3521	3506	2160
155°	3802	3776	3812	3829	3806	1752
165°	4007	3989	3998	4019	3998	1132
175°	4098	4078	4084	4104	4075	390
180°	4090	4090	4090	4090	4090	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5008.2	5008.2	5008.2	5008.2	5008.2
2.5°	5030.8	5008.2	4958.2	5003.9	4994.7
5°	5008.2	4985.6	4926.4	4967.3	4953.9
7.5°	4967.3	4940.3	4876.9	4894.7	4872.1
10°	4913.0	4881.3	4790.8	4776.9	4750.0
12.5°	4845.1	4804.3	4681.6	4654.8	4604.8
15°	4763.4	4713.4	4559.5	4473.4	4428.3
17.5°	4668.2	4595.6	4405.2	4305.7	4233.1
20°	4559.5	4468.7	4242.2	4129.2	4029.1
22.5°	4441.7	4337.4	4074.3	3920.4	3852.7
25°	4324.0	4178.7	3879.6	3693.9	3625.7
27.5°	4183.5	4029.1	3698.3	3485.3	3380.9
30°	4033.9	3861.4	3498.8	3267.9	3145.3
32.5°	3888.7	3680.0	3308.8	3036.7	2923.2
35°	3725.8	3494.4	3095.7	2810.2	2710.1
37.5°	3567.0	3317.5	2896.2	2583.2	2470.2
40°	3399.2	3127.6	2687.6	2365.9	2248.0
42.5°	3227.0	2937.1	2479.4	2143.7	2030.7
45°	3045.8	2741.9	2266.3	1944.2	1835.4
47.5°	2873.6	2552.0	2062.4	1740.3	1640.7
50°	2683.2	2361.5	1862.9	1549.8	1455.1
52.5°	2497.1	2157.1	1672.4	1373.3	1287.3
55°	2315.9	1962.4	1472.9	1201.2	1115.1
57.5°	2130.2	1767.7	1296.4	1042.5	969.9
60°	1939.8	1577.2	1110.3	879.5	806.9
62.5°	1754.2	1391.6	951.6	734.3	698.2
65°	1563.8	1196.4	788.7	634.8	620.8
67.5°	1382.5	1015.1	634.8	557.3	543.9
70°	1192.1	838.6	525.6	480.4	462.1
72.5°	1010.8	675.2	439.5	403.4	394.3
75°	833.8	516.4	362.6	330.8	326.5
77.5°	657.4	366.9	285.7	267.4	258.2
80°	493.9	263.1	217.3	199.5	199.5
82.5°	344.3	176.9	149.6	140.4	140.4
85°	194.8	99.6	86.0	86.0	86.0
87.5°	72.6	36.0	36.0	31.7	31.7
90°	2.8	35.4	59.1	74.1	79.8
92.5°	74.1	62.2	71.0	76.9	79.8
95°	192.2	94.5	115.2	130.4	127.2
97.5°	346.2	103.7	150.8	159.9	162.7
100°	523.9	118.4	168.6	192.2	198.2
102.5°	719.0	713.3	174.6	207.0	216.1
105°	899.5	988.5	180.7	213.0	224.9
107.5°	1109.7	1183.5	186.6	218.9	230.8
110°	1311.0	1372.9	517.9	222.1	233.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1500.5	1553.5	1503.3	227.7	236.8
115°	1701.4	1751.7	1825.8	455.7	242.9
117.5°	1876.1	1935.2	1985.8	1562.3	787.1
120°	2071.5	2115.7	2169.2	2204.7	1805.1
122.5°	2237.0	2284.5	2343.8	2361.4	2364.5
125°	2405.6	2444.3	2500.6	2521.3	2530.1
127.5°	2559.5	2601.0	2645.7	2675.2	2678.0
130°	2704.6	2752.1	2784.4	2817.1	2814.3
132.5°	2852.6	2891.3	2923.6	2950.3	2947.5
135°	2977.0	3024.5	3050.8	3080.7	3074.7
137.5°	3107.1	3142.5	3172.4	3201.9	3193.1
140°	3234.3	3258.1	3290.4	3317.2	3302.4
142.5°	3341.0	3361.8	3400.1	3423.6	3408.9
145°	3453.5	3450.4	3500.6	3521.4	3506.5
147.5°	3550.9	3542.1	3592.4	3607.1	3595.5
150°	3645.7	3625.0	3672.4	3690.0	3675.3
152.5°	3725.5	3701.9	3746.3	3764.1	3743.4
155°	3802.4	3776.0	3811.6	3829.2	3805.6
157.5°	3864.6	3841.1	3867.8	3888.5	3864.6
160°	3918.0	3900.2	3918.0	3935.6	3914.9
162.5°	3965.2	3947.6	3962.4	3983.1	3956.4
165°	4006.6	3989.0	3997.8	4018.6	3997.8
167.5°	4039.3	4021.3	4030.5	4051.2	4024.6
170°	4066.0	4048.1	4054.0	4074.7	4048.1
172.5°	4083.5	4066.0	4072.0	4092.7	4066.0
175°	4098.3	4077.6	4083.5	4104.3	4074.7
177.5°	4104.3	4083.5	4086.8	4107.5	4080.8
180°	4089.6	4089.6	4089.6	4089.6	4089.6

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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	11.35	12.15	12.35	13.16	14.48	7.33	8.13	8.32	9.13	10.46
	3H	13.03	13.74	14.04	14.76	16.10	8.51	9.23	9.52	10.24	11.59
	4H	13.64	14.31	14.66	15.33	16.68	8.96	9.64	9.98	10.66	12.01
	6H	14.06	14.68	15.09	15.70	17.07	9.29	9.91	10.31	10.93	12.30
	8H	14.18	14.78	15.22	15.81	17.18	9.38	9.97	10.41	11.00	12.37
	12H	14.25	14.81	15.28	15.84	17.22	9.42	9.98	10.46	11.01	12.40
4H	2H	11.37	12.04	12.39	13.06	14.42	7.92	8.60	8.94	9.61	10.97
	3H	13.20	13.76	14.23	14.80	16.17	9.27	9.83	10.30	10.87	12.24
	4H	13.89	14.40	14.93	15.44	16.83	9.82	10.33	10.86	11.37	12.76
	6H	14.40	14.84	15.45	15.90	17.29	10.24	10.68	11.29	11.74	13.12
	8H	14.58	14.99	15.63	16.04	17.44	10.36	10.78	11.42	11.83	13.23
	12H	14.67	15.04	15.74	16.11	17.52	10.43	10.80	11.50	11.87	13.27
8H	4H	13.85	14.27	14.90	15.32	16.72	10.09	10.51	11.15	11.56	12.96
	6H	14.42	14.76	15.49	15.85	17.25	10.61	10.95	11.69	12.05	13.45
	8H	14.64	14.94	15.72	16.01	17.43	10.81	11.11	11.89	12.18	13.60
	12H	14.78	15.04	15.86	16.11	17.57	10.93	11.19	12.01	12.26	13.72
12H	4H	13.80	14.18	14.87	15.24	16.65	10.10	10.47	11.17	11.54	12.94
	6H	14.40	14.69	15.48	15.77	17.19	10.66	10.96	11.74	12.04	13.46
	8H	14.62	14.88	15.70	15.95	17.41	10.87	11.14	11.96	12.21	13.67