

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: P903430

Luminaire Tested: DFN2DIP-PN4F0-110D120US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903430
REPORT IS A COMBINATION OF REPORTS P899768 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D120US830-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

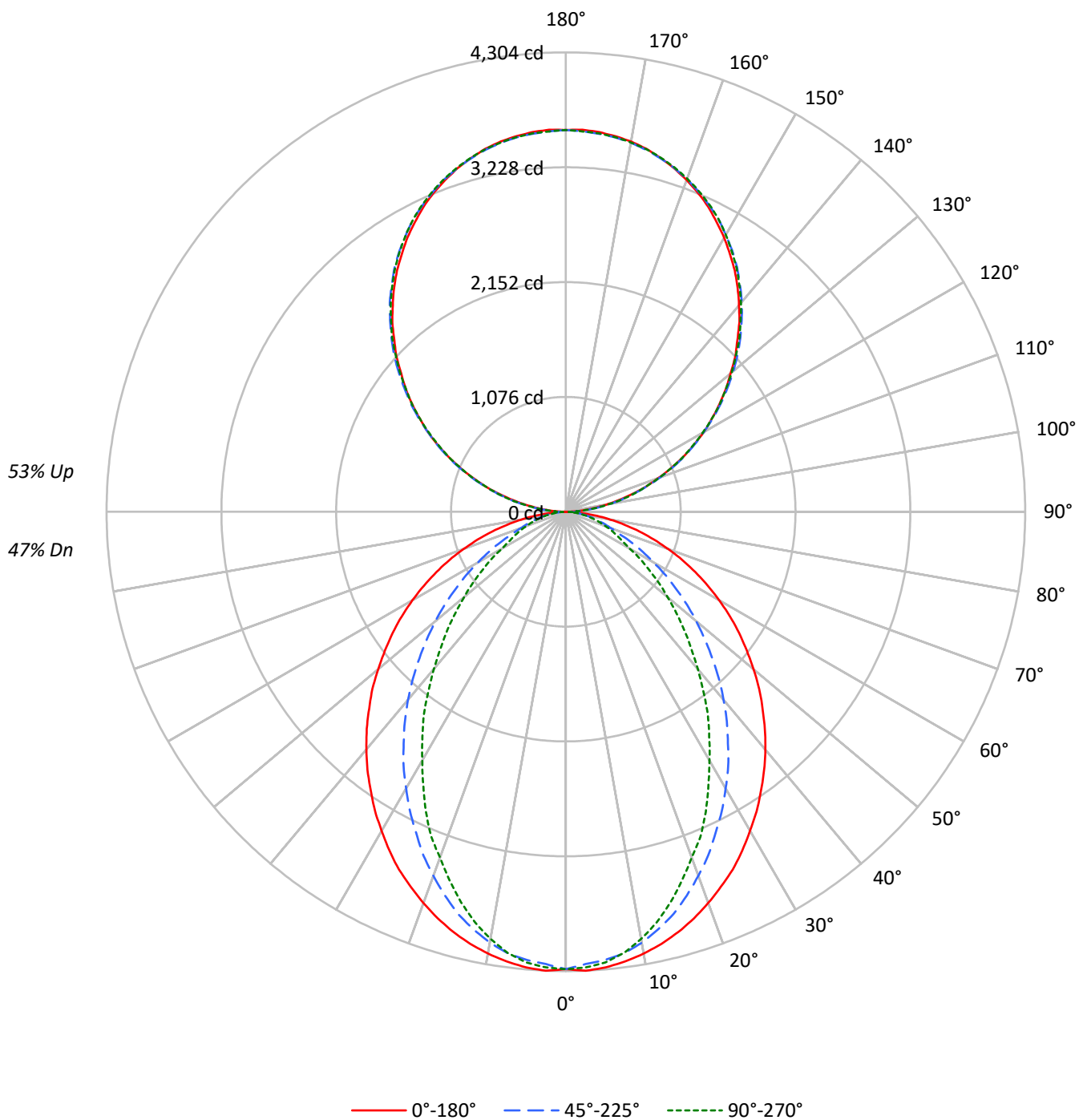
Lumens per Lamp: N/A
Luminaire Lumens: 18822.6 lumens
Efficiency: N/A
Efficacy: 86.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 217.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	82	82	82	67	67	67	53	53	53
1	98	93	90	86	90	86	83	80	72	70	68	59	58	57	48	47	46
2	89	82	76	71	82	76	71	66	64	60	57	53	50	48	43	41	39
3	82	73	65	60	75	67	61	56	57	52	48	47	44	41	38	36	34
4	75	64	57	51	69	60	53	48	51	46	42	42	39	36	34	32	30
5	69	58	50	44	63	53	47	41	45	40	36	38	34	31	31	28	26
6	64	52	44	38	58	48	41	36	41	36	32	35	31	27	28	26	23
7	59	47	39	34	54	44	37	32	37	32	28	32	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	23	27	23	20	22	19	17
10	48	36	29	24	44	34	27	23	29	24	20	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3128	3128	3128
5°	3133	3079	3099
10°	3102	3019	2998
15°	3059	2919	2843
20°	3003	2782	2652
25°	2945	2628	2468
30°	2867	2471	2234
35°	2791	2301	2028
40°	2714	2125	1793
45°	2624	1931	1579
50°	2531	1734	1370
55°	2433	1524	1170
60°	2321	1304	963
65°	2192	1080	868
70°	2035	872	786
75°	1838	769	717
80°	1552	647	624
85°	1081	434	472

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2802 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	401.6	2.1
10°-20°	1102.5	5.9
20°-30°	1547.8	8.2
30°-40°	1687.2	9.0
40°-50°	1550.8	8.2
50°-60°	1217.9	6.5
60°-70°	792.7	4.2
70°-80°	408.1	2.2
80°-90°	114.3	0.6
90°-100°	221.3	1.2
100°-110°	703.3	3.7
110°-120°	1203.6	6.4
120°-130°	1582.9	8.4
130°-140°	1776.7	9.4
140°-150°	1742.3	9.3
150°-160°	1461.5	7.8
160°-170°	969.3	5.1
170°-180°	338.8	1.8
0°-30°	3051.9	16.2
0°-40°	4739.1	25.2
0°-60°	7507.8	39.9
0°-90°	8822.9	46.9
90°-120°	2128.2	11.3
90°-150°	7230.1	38.4
90°-180°	10000.0	53.1
0°-180°	18822.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4285	4285	4285	4285	4285	
5°	4285	4266	4215	4250	4239	406
15°	4076	4033	3901	3828	3789	1148
25°	3700	3575	3319	3161	3102	1701
35°	3188	2990	2649	2404	2319	1995
45°	2606	2346	1939	1663	1570	2013
55°	1981	1679	1260	1028	954	1771
65°	1338	1024	675	543	531	1326
75°	713	442	310	283	279	755
85°	167	85	74	74	74	191
90°	3	39	106	99	102	19
95°	157	188	193	193	188	175
105°	649	658	664	670	670	685
115°	1208	1225	1220	1216	1208	1195
125°	1757	1784	1775	1765	1762	1570
135°	2272	2306	2312	2309	2300	1756
145°	2758	2780	2797	2801	2789	1724
155°	3154	3163	3173	3188	3178	1452
165°	3432	3428	3428	3450	3435	968
175°	3571	3562	3556	3577	3559	339
180°	3577	3577	3577	3577	3577	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4285.1	4285.1	4285.1	4285.1	4285.1
2.5°	4304.4	4285.1	4242.3	4281.4	4273.6
5°	4285.1	4265.8	4215.1	4250.1	4238.6
7.5°	4250.1	4227.0	4172.7	4188.0	4168.6
10°	4203.6	4176.4	4099.1	4087.1	4064.1
12.5°	4145.6	4110.6	4005.7	3982.6	3939.8
15°	4075.6	4032.9	3901.2	3827.6	3788.8
17.5°	3994.2	3932.1	3769.1	3683.9	3621.8
20°	3901.2	3823.4	3629.6	3532.9	3447.3
22.5°	3800.4	3711.1	3486.1	3354.4	3296.4
25°	3699.6	3575.3	3319.4	3160.6	3102.2
27.5°	3579.5	3447.3	3164.3	2982.0	2892.8
30°	3451.5	3303.8	2993.6	2796.1	2691.1
32.5°	3327.3	3148.7	2831.0	2598.2	2501.1
35°	3187.8	2989.8	2648.8	2404.4	2318.8
37.5°	3052.0	2838.5	2478.0	2210.2	2113.6
40°	2908.4	2676.0	2299.5	2024.2	1923.4
42.5°	2761.1	2513.0	2121.4	1834.2	1737.5
45°	2606.0	2346.0	1939.1	1663.4	1570.5
47.5°	2458.7	2183.5	1764.6	1488.9	1403.8
50°	2295.8	2020.5	1593.9	1326.1	1245.0
52.5°	2136.6	1845.7	1431.0	1175.1	1101.4
55°	1981.4	1679.0	1260.2	1027.7	954.1
57.5°	1822.7	1512.4	1109.2	892.0	829.8
60°	1659.7	1349.5	950.0	752.5	690.4
62.5°	1500.9	1190.7	814.3	628.3	597.4
65°	1337.9	1023.6	674.8	543.1	531.1
67.5°	1182.9	868.6	543.1	476.8	465.3
70°	1019.9	717.6	449.7	411.0	395.4
72.5°	864.8	577.7	376.1	345.2	337.3
75°	713.4	441.9	310.2	283.0	279.4
77.5°	562.4	314.0	244.4	228.8	220.9
80°	422.5	225.1	186.0	170.8	170.8
82.5°	294.5	151.4	128.0	120.2	120.2
85°	166.6	85.2	73.6	73.6	73.6
87.5°	62.1	30.8	30.8	27.1	27.1
90°	3.2	38.8	105.7	99.2	102.5
92.5°	66.8	90.6	93.8	97.1	97.1
95°	157.4	187.7	193.0	193.0	187.7
97.5°	262.0	290.1	302.0	302.0	302.0
100°	382.9	407.6	416.2	416.2	413.0
102.5°	510.1	528.4	540.3	543.6	540.3
105°	649.2	657.8	664.3	669.7	669.7
107.5°	787.2	800.2	800.2	802.3	787.2
110°	921.0	938.2	938.2	938.2	929.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1065.4	1083.8	1080.5	1072.0	1065.4
115°	1207.8	1225.1	1219.6	1216.4	1207.8
117.5°	1349.1	1372.8	1357.7	1349.1	1340.5
120°	1491.5	1515.1	1491.5	1491.5	1481.8
122.5°	1620.9	1651.1	1636.0	1627.3	1620.9
125°	1756.7	1783.7	1775.1	1765.4	1762.1
127.5°	1889.4	1922.8	1910.9	1898.0	1889.4
130°	2013.4	2052.2	2046.8	2040.3	2028.4
132.5°	2152.5	2182.7	2184.8	2169.7	2161.2
135°	2272.2	2305.6	2312.2	2308.9	2300.3
137.5°	2405.9	2432.9	2438.3	2436.1	2423.2
140°	2523.5	2550.4	2565.5	2565.5	2553.6
142.5°	2644.3	2671.3	2679.8	2683.0	2671.3
145°	2758.5	2780.1	2797.4	2800.7	2788.8
147.5°	2861.0	2887.9	2901.0	2906.3	2894.5
150°	2966.7	2985.0	2996.9	3006.6	2996.9
152.5°	3060.5	3078.8	3094.0	3105.9	3094.0
155°	3154.3	3163.0	3172.7	3187.8	3178.1
157.5°	3235.3	3241.7	3247.1	3268.6	3253.6
160°	3307.5	3314.0	3317.2	3335.6	3322.6
162.5°	3374.3	3374.3	3377.6	3398.1	3383.0
165°	3431.5	3428.3	3428.3	3449.8	3434.7
167.5°	3483.3	3473.6	3473.6	3495.1	3480.1
170°	3522.1	3513.4	3510.2	3531.8	3513.4
172.5°	3549.0	3540.4	3537.2	3558.8	3540.4
175°	3570.6	3562.0	3555.6	3577.0	3558.8
177.5°	3582.5	3573.8	3567.3	3585.7	3567.3
180°	3577.0	3577.0	3577.0	3577.0	3577.0

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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	10.81	11.62	11.80	12.62	13.94	6.78	7.59	7.77	8.58	9.90
	3H	12.49	13.21	13.49	14.22	15.56	7.97	8.69	8.97	9.69	11.03
	4H	13.10	13.78	14.12	14.79	16.14	8.42	9.10	9.43	10.11	11.46
	6H	13.53	14.15	14.55	15.17	16.53	8.74	9.36	9.76	10.38	11.74
	8H	13.65	14.25	14.68	15.28	16.63	8.83	9.42	9.86	10.45	11.81
	12H	13.71	14.28	14.75	15.31	16.68	8.87	9.44	9.91	10.46	11.84
4H	2H	10.83	11.51	11.85	12.52	13.87	7.37	8.06	8.39	9.06	10.41
	3H	12.66	13.23	13.69	14.27	15.63	8.72	9.29	9.75	10.33	11.69
	4H	13.35	13.87	14.39	14.90	16.29	9.27	9.79	10.31	10.82	12.20
	6H	13.87	14.31	14.92	15.37	16.75	9.69	10.13	10.73	11.19	12.57
	8H	14.05	14.46	15.09	15.51	16.90	9.82	10.23	10.86	11.28	12.67
	12H	14.14	14.52	15.21	15.58	16.98	9.88	10.26	10.95	11.32	12.72
8H	4H	13.32	13.73	14.37	14.78	16.18	9.55	9.97	10.60	11.01	12.41
	6H	13.89	14.23	14.96	15.32	16.71	10.07	10.41	11.14	11.50	12.89
	8H	14.11	14.41	15.18	15.48	16.89	10.26	10.56	11.34	11.64	13.05
	12H	14.25	14.51	15.33	15.58	17.03	10.38	10.64	11.46	11.71	13.16
12H	4H	13.27	13.65	14.33	14.71	16.11	9.55	9.93	10.62	10.99	12.39
	6H	13.86	14.16	14.94	15.24	16.65	10.12	10.42	11.20	11.49	12.90
	8H	14.09	14.35	15.16	15.42	16.87	10.33	10.59	11.41	11.66	13.11

END OF REPORT