

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: P906838

Luminaire Tested: DFN2DIP-SQ4F0-100D140US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906838
REPORT IS A COMBINATION OF REPORTS P900194 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D140US835-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

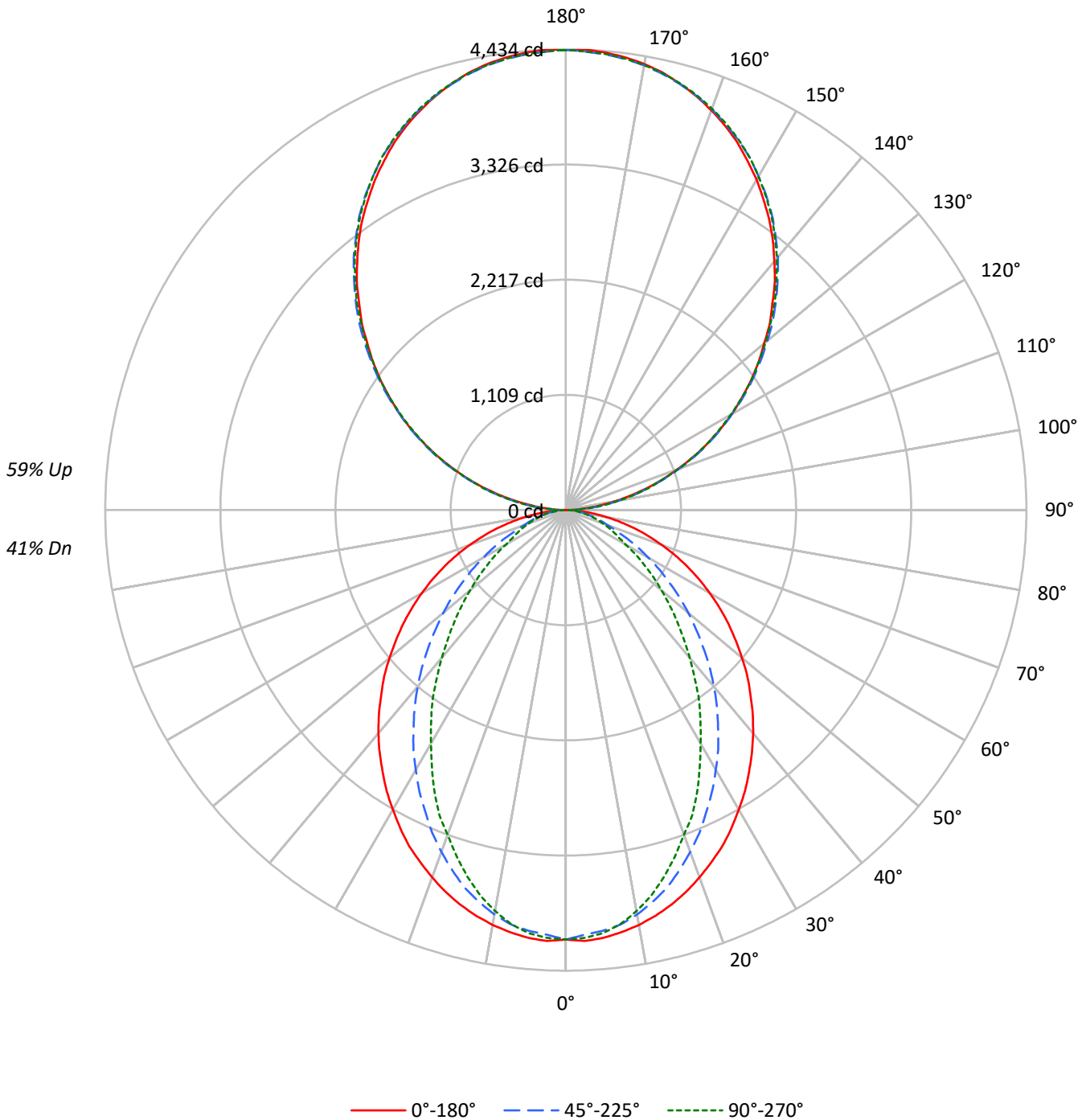
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20890.0 lumens
Efficiency: N/A
Efficacy: 105.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 198.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	41	41	41	41
1	96	92	88	85	87	84	81	78	69	67	65	55	54	53	43	42	41	35	35	35	35
2	88	81	75	70	80	74	69	65	61	57	54	49	47	44	38	36	35	30	30	30	30
3	80	71	64	59	73	65	59	54	54	50	46	44	41	38	34	32	30	26	26	26	26
4	74	63	56	50	67	58	52	46	48	43	40	39	36	33	31	28	26	23	23	23	23
5	68	57	49	43	62	52	45	40	43	38	34	35	32	29	28	25	23	20	20	20	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	21	18	18	18	18
7	58	46	38	33	53	42	36	31	36	30	27	29	25	23	23	21	19	16	16	16	16
8	54	42	34	29	49	39	32	27	32	27	24	27	23	20	21	19	17	14	14	14	14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	13	13	13	13
10	47	35	28	23	43	32	26	22	27	23	19	23	19	17	18	16	14	12	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2900	2900	2900
5°	2905	2855	2873
10°	2876	2799	2780
15°	2836	2707	2637
20°	2784	2580	2460
25°	2730	2438	2289
30°	2658	2292	2073
35°	2587	2134	1882
40°	2516	1972	1664
45°	2432	1791	1466
50°	2346	1609	1272
55°	2256	1414	1086
60°	2151	1210	895
65°	2031	1003	806
70°	1886	809	731
75°	1703	715	667
80°	1438	602	581
85°	1002	405	442

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 3485 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	387.3	1.9
10°-20°	1063.3	5.1
20°-30°	1492.9	7.1
30°-40°	1627.4	7.8
40°-50°	1495.7	7.2
50°-60°	1174.7	5.6
60°-70°	764.6	3.7
70°-80°	393.6	1.9
80°-90°	113.1	0.5
90°-100°	274.0	1.3
100°-110°	870.6	4.2
110°-120°	1489.8	7.1
120°-130°	1959.3	9.4
130°-140°	2199.2	10.5
140°-150°	2156.6	10.3
150°-160°	1809.1	8.7
160°-170°	1199.7	5.7
170°-180°	419.3	2.0
0°-30°	2943.6	14.1
0°-40°	4571.0	21.9
0°-60°	7241.3	34.7
0°-90°	8512.6	40.7
90°-120°	2634.3	12.6
90°-150°	8949.3	42.8
90°-180°	12377.0	59.2
0°-180°	20890.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4133	4133	4133	4133	4133	
5°	4133	4114	4066	4099	4088	392
15°	3931	3890	3763	3692	3654	1108
25°	3568	3448	3202	3048	2992	1641
35°	3075	2884	2555	2319	2236	1924
45°	2514	2263	1870	1604	1515	1941
55°	1911	1620	1216	991	920	1708
65°	1290	987	651	524	512	1279
75°	688	426	299	273	269	728
85°	161	82	71	71	71	184
90°	4	48	131	123	127	21
95°	195	232	239	239	232	217
105°	804	814	822	829	829	848
115°	1495	1516	1510	1506	1495	1479
125°	2174	2208	2197	2185	2181	1943
135°	2812	2854	2862	2858	2847	2174
145°	3414	3441	3463	3467	3452	2133
155°	3904	3915	3927	3946	3934	1797
165°	4248	4244	4244	4270	4252	1198
175°	4420	4409	4401	4428	4405	420
180°	4428	4428	4428	4428	4428	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4133.0	4133.0	4133.0	4133.0	4133.0
2.5°	4151.6	4133.0	4091.7	4129.4	4121.9
5°	4133.0	4114.3	4065.5	4099.3	4088.1
7.5°	4099.3	4077.0	4024.6	4039.3	4020.7
10°	4054.4	4028.2	3953.6	3942.1	3919.9
12.5°	3998.5	3964.7	3863.5	3841.3	3800.0
15°	3931.0	3889.7	3762.7	3691.7	3654.4
17.5°	3852.4	3792.5	3635.4	3553.2	3493.3
20°	3762.7	3687.7	3500.8	3407.6	3325.0
22.5°	3665.5	3579.4	3362.3	3235.4	3179.4
25°	3568.3	3448.5	3201.6	3048.4	2992.1
27.5°	3452.4	3325.0	3052.0	2876.2	2790.1
30°	3329.0	3186.5	2887.3	2696.9	2595.7
32.5°	3209.2	3036.9	2730.6	2506.0	2412.3
35°	3074.6	2883.8	2554.8	2319.1	2236.5
37.5°	2943.7	2737.7	2390.1	2131.8	2038.5
40°	2805.2	2581.0	2217.9	1952.4	1855.2
42.5°	2663.1	2423.8	2046.1	1769.1	1675.8
45°	2513.5	2262.7	1870.3	1604.4	1514.7
47.5°	2371.5	2106.0	1702.0	1436.1	1354.0
50°	2214.3	1948.8	1537.3	1279.0	1200.8
52.5°	2060.7	1780.2	1380.2	1133.3	1062.3
55°	1911.1	1619.5	1215.5	991.3	920.2
57.5°	1758.0	1458.7	1069.9	860.3	800.4
60°	1600.8	1301.6	916.3	725.8	665.9
62.5°	1447.6	1148.4	785.3	606.0	576.2
65°	1290.5	987.3	650.8	523.8	512.3
67.5°	1140.9	837.7	523.8	459.9	448.8
70°	983.7	692.1	433.7	396.4	381.4
72.5°	834.1	557.1	362.7	332.9	325.4
75°	688.1	426.2	299.2	273.0	269.4
77.5°	542.5	302.8	235.7	220.6	213.1
80°	407.5	217.1	179.4	164.7	164.7
82.5°	284.1	146.0	123.4	115.9	115.9
85°	160.7	82.1	71.0	71.0	71.0
87.5°	59.9	29.8	29.8	26.2	26.2
90°	4.0	48.1	130.8	122.8	126.8
92.5°	82.8	112.1	116.1	120.1	120.1
95°	194.9	232.3	238.9	238.9	232.3
97.5°	324.4	359.1	373.8	373.8	373.8
100°	473.9	504.6	515.2	515.2	511.2
102.5°	631.4	654.1	668.8	672.8	668.8
105°	803.6	814.3	822.3	828.9	828.9
107.5°	974.4	990.5	990.5	993.1	974.4
110°	1140.0	1161.3	1161.3	1161.3	1150.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1318.8	1341.5	1337.5	1326.8	1318.8
115°	1495.0	1516.4	1509.7	1505.7	1495.0
117.5°	1669.9	1699.3	1680.6	1669.9	1659.2
120°	1846.1	1875.5	1846.1	1846.1	1834.1
122.5°	2006.3	2043.6	2025.0	2014.3	2006.3
125°	2174.5	2207.8	2197.1	2185.1	2181.1
127.5°	2338.6	2380.0	2365.3	2349.3	2338.6
130°	2492.1	2540.2	2533.5	2525.5	2510.8
132.5°	2664.3	2701.7	2704.4	2685.7	2675.0
135°	2812.5	2853.9	2861.9	2857.9	2847.2
137.5°	2978.0	3011.4	3018.1	3015.4	2999.4
140°	3123.5	3156.9	3175.6	3175.6	3160.9
142.5°	3273.0	3306.4	3317.1	3321.1	3306.4
145°	3414.5	3441.2	3462.6	3466.6	3451.9
147.5°	3541.3	3574.7	3590.7	3597.4	3582.7
150°	3672.1	3694.8	3709.5	3721.5	3709.5
152.5°	3788.3	3811.0	3829.7	3844.3	3829.7
155°	3904.4	3915.1	3927.1	3945.8	3933.8
157.5°	4004.5	4012.5	4019.2	4045.9	4027.2
160°	4094.0	4102.0	4106.0	4128.7	4112.6
162.5°	4176.7	4176.7	4180.7	4206.1	4187.4
165°	4247.5	4243.5	4243.5	4270.2	4251.5
167.5°	4311.5	4299.5	4299.5	4326.2	4307.5
170°	4359.6	4348.9	4344.9	4371.6	4348.9
172.5°	4393.0	4382.3	4378.3	4405.0	4382.3
175°	4419.7	4409.0	4401.0	4427.7	4405.0
177.5°	4434.3	4423.7	4415.7	4438.3	4415.7
180°	4427.7	4427.7	4427.7	4427.7	4427.7



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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	9.93	10.69	10.97	11.73	13.13	5.89	6.65	6.93	7.69	9.09
	3H	11.60	12.28	12.65	13.33	14.75	7.07	7.75	8.12	8.80	10.22
	4H	12.21	12.86	13.27	13.91	15.33	7.52	8.16	8.58	9.21	10.64
	6H	12.63	13.23	13.70	14.28	15.72	7.84	8.43	8.91	9.48	10.92
	8H	12.76	13.32	13.83	14.39	15.83	7.93	8.49	9.00	9.56	10.99
	12H	12.82	13.36	13.90	14.42	15.88	7.97	8.50	9.05	9.57	11.02
4H	2H	9.94	10.58	11.00	11.63	13.06	6.48	7.12	7.54	8.17	9.60
	3H	11.76	12.30	12.84	13.38	14.82	7.82	8.36	8.90	9.44	10.88
	4H	12.46	12.95	13.54	14.02	15.48	8.37	8.86	9.45	9.93	11.39
	6H	12.97	13.39	14.06	14.49	15.94	8.78	9.20	9.87	10.30	11.75
	8H	13.15	13.54	14.24	14.63	16.10	8.91	9.30	10.00	10.39	11.86
	12H	13.24	13.60	14.35	14.70	16.17	8.97	9.33	10.08	10.43	11.90
8H	4H	12.42	12.81	13.51	13.90	15.37	8.65	9.04	9.73	10.12	11.59
	6H	12.99	13.31	14.10	14.44	15.91	9.16	9.49	10.27	10.61	12.08
	8H	13.21	13.49	14.32	14.60	16.09	9.35	9.64	10.47	10.75	12.23
	12H	13.35	13.60	14.47	14.70	16.23	9.47	9.72	10.59	10.83	12.35
12H	4H	12.37	12.72	13.47	13.82	15.30	8.65	9.00	9.75	10.10	11.58
	6H	12.96	13.25	14.08	14.36	15.84	9.21	9.50	10.33	10.61	12.09
	8H	13.18	13.43	14.30	14.54	16.06	9.42	9.67	10.54	10.78	12.30