

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: P904146

Luminaire Tested: DFN2DIP-SQ4F0-110D140US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904146
REPORT IS A COMBINATION OF REPORTS P900196 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D140US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

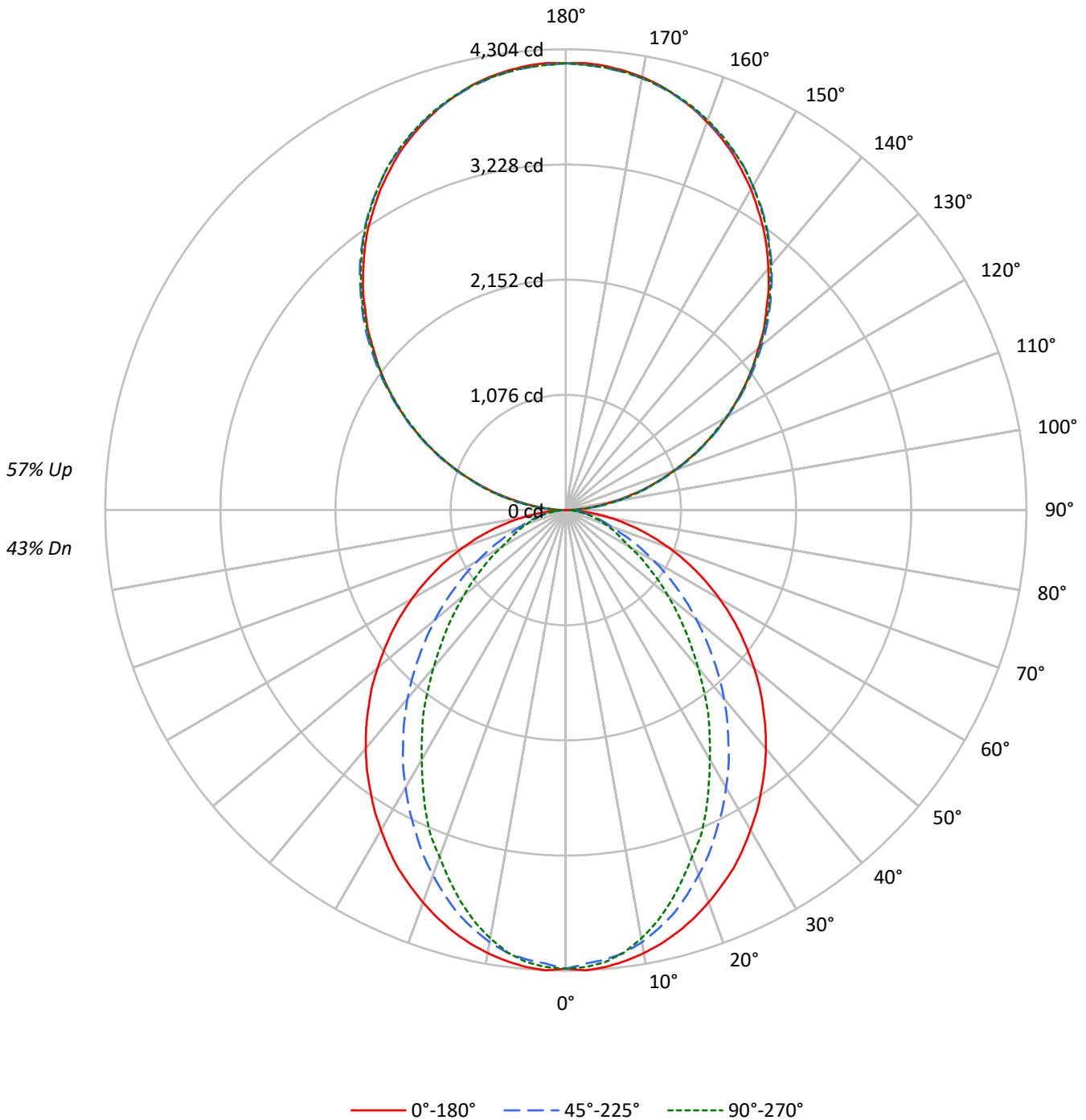
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20490.9 lumens
Efficiency: N/A
Efficacy: 97.2 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): 210.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	79	79	79	64	64	64	50	50	50	43				43
1	97	93	89	85	88	85	82	79	70	68	66	57	55	54	45	44	43	37				37
2	88	81	75	70	81	75	70	65	62	58	55	50	48	46	40	38	37	32				32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	33	32	27				27
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28	24				24
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	26	24	21				21
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	27	24	22	19				19
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	22	19	17				17
8	54	42	35	29	49	39	32	28	33	28	24	28	24	21	22	20	17	15				15
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16	14				14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	14	13				13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3007	3007	3007
5°	3012	2960	2979
10°	2982	2902	2883
15°	2941	2807	2734
20°	2886	2675	2550
25°	2831	2527	2374
30°	2756	2376	2149
35°	2683	2213	1951
40°	2608	2044	1725
45°	2522	1857	1520
50°	2432	1668	1319
55°	2339	1466	1126
60°	2231	1255	928
65°	2106	1040	836
70°	1955	839	758
75°	1766	741	692
80°	1491	624	603
85°	1038	419	459

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 3284 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	401.6	2.0
10°-20°	1102.5	5.4
20°-30°	1547.8	7.6
30°-40°	1687.2	8.2
40°-50°	1550.8	7.6
50°-60°	1217.9	5.9
60°-70°	792.7	3.9
70°-80°	408.1	2.0
80°-90°	116.0	0.6
90°-100°	258.2	1.3
100°-110°	820.5	4.0
110°-120°	1404.2	6.9
120°-130°	1846.7	9.0
130°-140°	2072.8	10.1
140°-150°	2032.6	9.9
150°-160°	1705.1	8.3
160°-170°	1130.8	5.5
170°-180°	395.2	1.9
0°-30°	3051.9	14.9
0°-40°	4739.1	23.1
0°-60°	7507.8	36.6
0°-90°	8824.6	43.1
90°-120°	2483.0	12.1
90°-150°	8435.1	41.2
90°-180°	11666.0	56.9
0°-180°	20490.9	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°	4	45	123	116	120	20
95°	184	219	225	225	219	204
105°	757	768	775	781	781	799
115°	1409	1429	1423	1419	1409	1394
125°	2050	2081	2071	2060	2056	1831
135°	2651	2690	2698	2694	2684	2049
145°	3218	3244	3264	3267	3254	2011
155°	3680	3690	3702	3719	3708	1694
165°	4003	4000	4000	4025	4007	1129
175°	4166	4156	4148	4173	4152	396
180°	4173	4173	4173	4173	4173	



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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°	3.8	45.3	123.3	115.7	119.5
92.5°	78.0	105.7	109.4	113.2	113.2
95°	183.7	219.0	225.2	225.2	219.0
97.5°	305.8	338.5	352.3	352.3	352.3
100°	446.7	475.6	485.6	485.6	481.8
102.5°	595.1	616.5	630.4	634.1	630.4
105°	757.4	767.5	775.1	781.3	781.3
107.5°	918.4	933.6	933.6	936.0	918.4
110°	1074.5	1094.6	1094.6	1094.6	1084.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1243.0	1264.4	1260.7	1250.6	1243.0
115°	1409.1	1429.3	1423.0	1419.2	1409.1
117.5°	1574.0	1601.7	1584.0	1574.0	1563.9
120°	1740.0	1767.7	1740.0	1740.0	1728.7
122.5°	1891.0	1926.2	1908.6	1898.6	1891.0
125°	2049.6	2080.9	2070.9	2059.5	2055.8
127.5°	2204.2	2243.3	2229.4	2214.3	2204.2
130°	2348.9	2394.2	2387.9	2380.4	2366.5
132.5°	2511.2	2546.5	2549.0	2531.4	2521.3
135°	2650.9	2689.9	2697.5	2693.7	2683.6
137.5°	2806.9	2838.4	2844.7	2842.1	2827.1
140°	2944.0	2975.5	2993.1	2993.1	2979.3
142.5°	3084.9	3116.4	3126.5	3130.3	3116.4
145°	3218.3	3243.5	3263.6	3267.4	3253.6
147.5°	3337.8	3369.3	3384.4	3390.7	3376.8
150°	3461.1	3482.5	3496.4	3507.7	3496.4
152.5°	3570.6	3592.0	3609.7	3623.4	3609.7
155°	3680.1	3690.1	3701.5	3719.1	3707.8
157.5°	3774.4	3782.0	3788.3	3813.4	3795.8
160°	3858.8	3866.3	3870.1	3891.5	3876.3
162.5°	3936.7	3936.7	3940.5	3964.4	3946.8
165°	4003.4	3999.7	3999.7	4024.8	4007.2
167.5°	4063.8	4052.5	4052.5	4077.6	4060.0
170°	4109.1	4099.0	4095.3	4120.4	4099.0
172.5°	4140.6	4130.5	4126.7	4151.9	4130.5
175°	4165.8	4155.7	4148.1	4173.3	4151.9
177.5°	4179.5	4169.5	4162.0	4183.3	4162.0
180°	4173.3	4173.3	4173.3	4173.3	4173.3



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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	10.30	11.08	11.32	12.10	13.47	6.26	7.04	7.28	8.06	9.43
	3H	11.98	12.67	13.01	13.70	15.09	7.44	8.14	8.48	9.17	10.56
	4H	12.59	13.24	13.63	14.28	15.68	7.89	8.55	8.94	9.59	10.98
	6H	13.01	13.61	14.06	14.65	16.06	8.21	8.82	9.26	9.86	11.27
	8H	13.14	13.71	14.19	14.77	16.17	8.30	8.88	9.36	9.93	11.34
	12H	13.20	13.74	14.26	14.79	16.22	8.34	8.89	9.41	9.94	11.37
4H	2H	10.31	10.97	11.36	12.00	13.40	6.85	7.51	7.90	8.54	9.94
	3H	12.14	12.69	13.20	13.75	15.16	8.20	8.74	9.25	9.81	11.22
	4H	12.83	13.33	13.90	14.39	15.82	8.74	9.24	9.81	10.30	11.73
	6H	13.35	13.78	14.42	14.86	16.28	9.16	9.59	10.23	10.67	12.10
	8H	13.53	13.93	14.60	15.00	16.44	9.29	9.69	10.36	10.76	12.20
	12H	13.62	13.98	14.71	15.07	16.52	9.35	9.71	10.44	10.80	12.25
8H	4H	12.80	13.20	13.87	14.27	15.71	9.02	9.42	10.09	10.49	11.94
	6H	13.37	13.70	14.46	14.81	16.25	9.54	9.87	10.64	10.98	12.42
	8H	13.59	13.88	14.69	14.97	16.43	9.73	10.02	10.83	11.12	12.58
	12H	13.72	13.98	14.83	15.07	16.57	9.85	10.10	10.95	11.20	12.69
12H	4H	12.75	13.11	13.84	14.19	15.64	9.03	9.39	10.12	10.47	11.92
	6H	13.34	13.63	14.44	14.73	16.19	9.59	9.88	10.69	10.98	12.44
	8H	13.56	13.82	14.67	14.91	16.41	9.80	10.06	10.91	11.15	12.64