

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: P904142

Luminaire Tested: DFN2DIP-SQ4F0-110D120US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904142
REPORT IS A COMBINATION OF REPORTS P900178 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D120US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

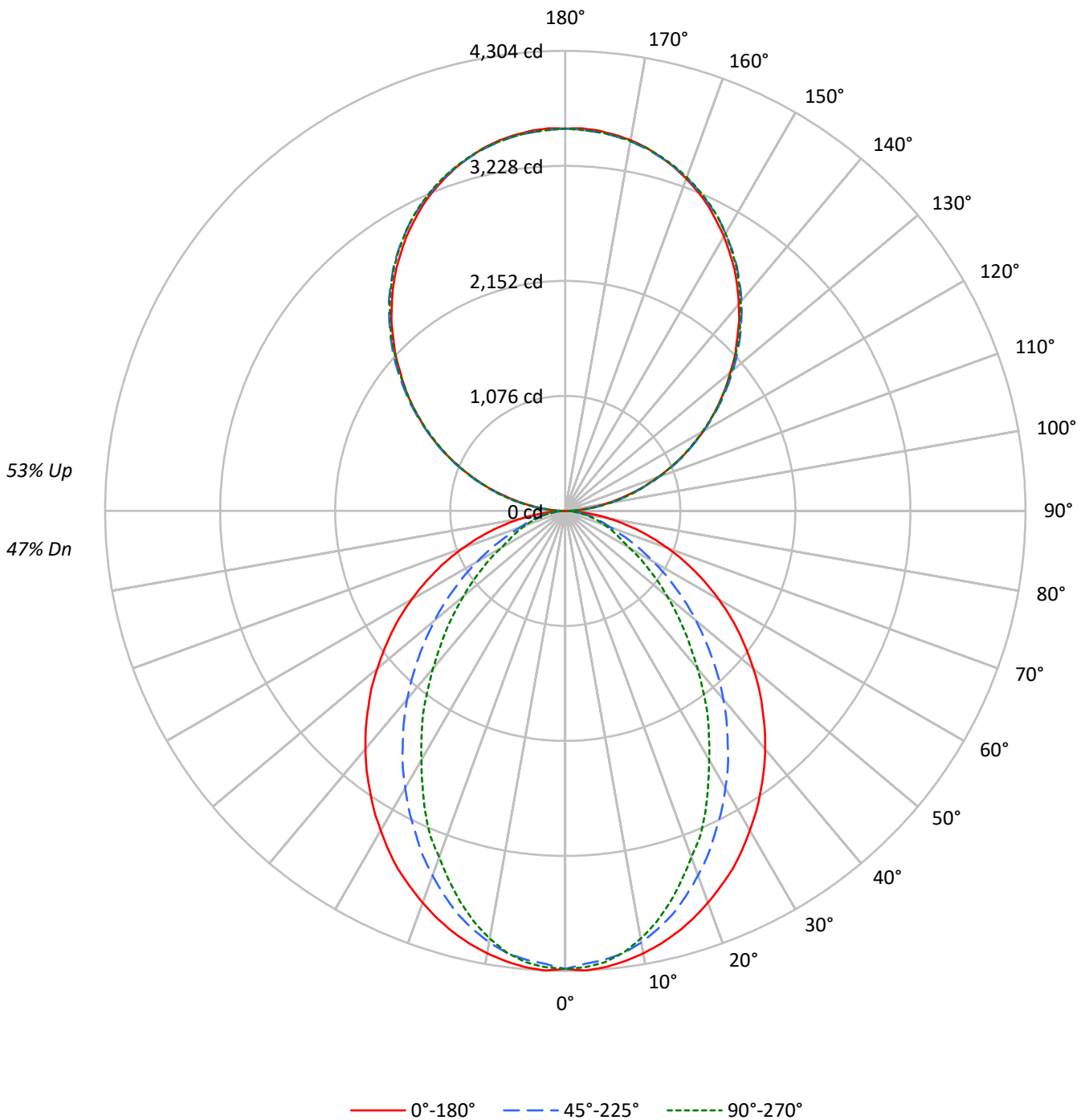
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18822.6 lumens
Efficiency: N/A
Efficacy: 96.4 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): 195.2
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	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53	47	47	47	47
1	98	93	90	86	90	86	83	80	72	70	68	59	58	57	48	47	46	40	40	40	40
2	89	82	76	71	82	76	71	66	64	60	57	53	50	48	43	41	39	35	35	35	35
3	82	73	65	60	75	67	61	56	57	52	48	47	44	41	38	36	34	30	30	30	30
4	75	64	57	51	69	60	53	48	51	46	42	42	39	36	34	32	30	26	26	26	26
5	69	58	50	44	63	53	47	41	45	40	36	38	34	31	31	28	26	23	23	23	23
6	64	52	44	38	58	48	41	36	41	36	32	35	31	27	28	26	23	20	20	20	20
7	59	47	39	34	54	44	37	32	37	32	28	32	27	24	26	23	21	18	18	18	18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16	16	16	16
9	51	39	32	27	47	36	30	25	31	26	23	27	23	20	22	19	17	15	15	15	15
10	48	36	29	24	44	34	27	23	29	24	20	25	21	18	21	18	16	14	14	14	14

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: 2817 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	10.68	11.49	11.67	12.49	13.80	6.64	7.45	7.63	8.45	9.76
	3H	12.36	13.08	13.36	14.09	15.43	7.83	8.55	8.83	9.56	10.90
	4H	12.97	13.65	13.99	14.66	16.01	8.28	8.96	9.29	9.97	11.32
	6H	13.40	14.02	14.42	15.04	16.40	8.60	9.23	9.62	10.24	11.60
	8H	13.53	14.12	14.55	15.15	16.51	8.69	9.29	9.72	10.32	11.67
	12H	13.59	14.15	14.62	15.18	16.56	8.73	9.30	9.77	10.33	11.70
4H	2H	10.70	11.38	11.72	12.39	13.74	7.24	7.92	8.26	8.93	10.28
	3H	12.53	13.10	13.56	14.14	15.50	8.59	9.15	9.62	10.19	11.55
	4H	13.22	13.74	14.26	14.77	16.16	9.13	9.65	10.17	10.68	12.07
	6H	13.74	14.19	14.79	15.24	16.62	9.55	10.00	10.60	11.05	12.43
	8H	13.92	14.33	14.97	15.38	16.78	9.68	10.10	10.73	11.14	12.54
	12H	14.02	14.39	15.08	15.45	16.85	9.75	10.12	10.81	11.18	12.58
8H	4H	13.19	13.61	14.24	14.65	16.05	9.42	9.83	10.46	10.88	12.27
	6H	13.76	14.10	14.83	15.19	16.58	9.93	10.28	11.00	11.37	12.76
	8H	13.98	14.28	15.06	15.35	16.76	10.13	10.43	11.20	11.50	12.91
	12H	14.12	14.39	15.20	15.45	16.91	10.25	10.51	11.33	11.58	13.03
12H	4H	13.14	13.52	14.21	14.58	15.98	9.42	9.80	10.48	10.86	12.26
	6H	13.74	14.04	14.81	15.11	16.52	9.99	10.29	11.06	11.36	12.77
	8H	13.96	14.22	15.04	15.29	16.74	10.20	10.46	11.28	11.53	12.98