

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: P903859

Luminaire Tested: DFN2DIP-SQ3F0-100D110US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903859
REPORT IS A COMBINATION OF REPORTS P901520 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-100D110US830-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

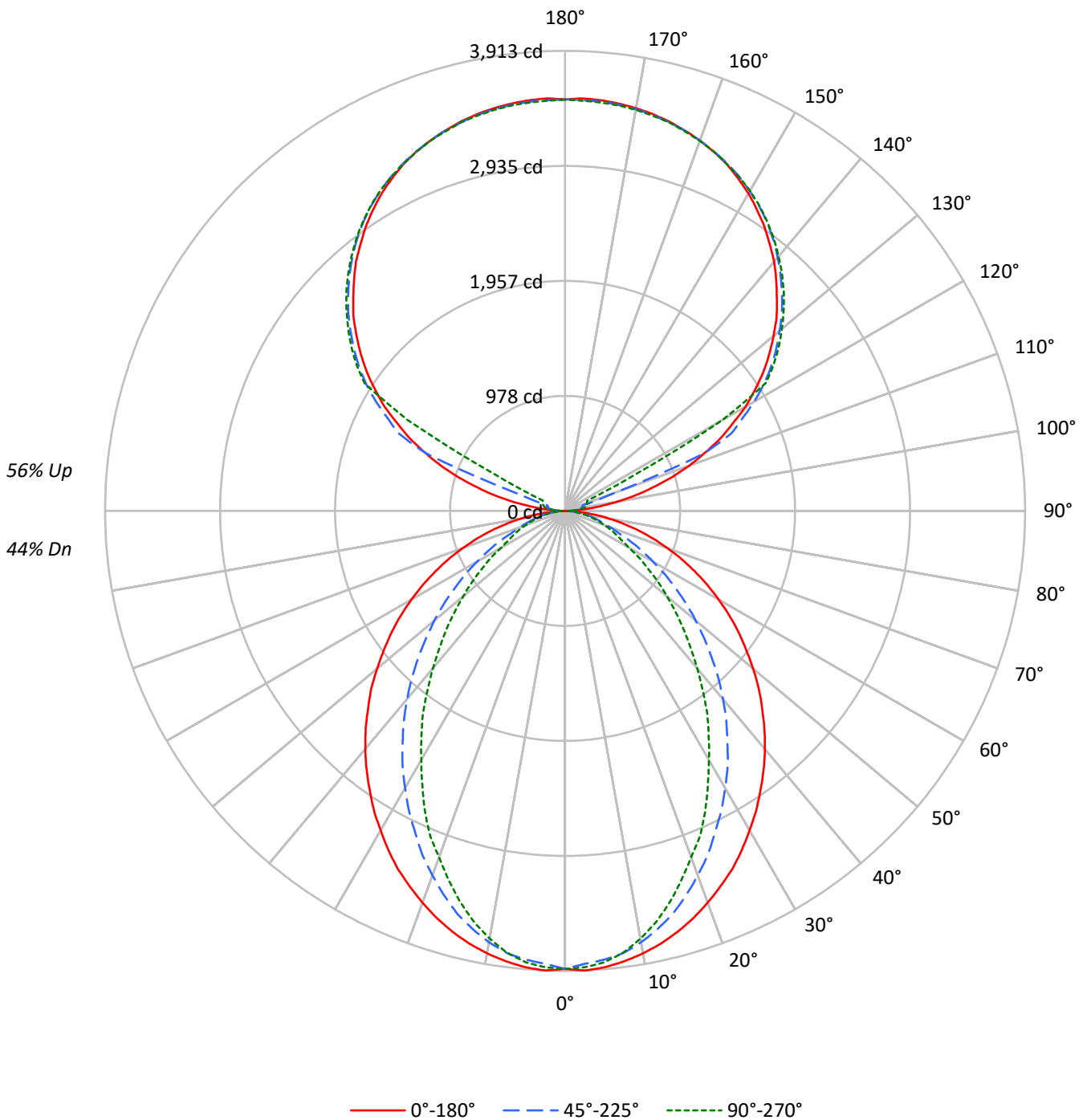
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18275.8 lumens
Efficiency: N/A
Efficacy: 99.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 184.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	97	97	97	97	80	80	80	65	65	65	50	50	50	44			44
1	97	93	89	86	89	85	82	79	71	68	66	57	56	55	45	44	43	38			38
2	89	81	76	71	81	75	70	66	62	59	56	51	48	46	40	39	37	32			32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32	28			28
4	74	64	56	51	68	59	52	47	49	45	41	41	37	34	33	30	28	24			24
5	68	57	49	44	62	53	46	41	44	39	35	37	33	30	30	27	25	21			21
6	63	51	44	38	58	47	41	36	40	35	31	33	29	26	27	24	22	19			19
7	58	46	39	33	53	43	36	31	37	31	27	30	26	24	25	22	20	17			17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15			15
9	50	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14			14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4463	4463	4463
5°	4468	4390	4419
10°	4421	4301	4274
15°	4357	4156	4050
20°	4274	3957	3777
25°	4188	3735	3512
30°	4075	3507	3177
35°	3963	3263	2883
40°	3849	3010	2546
45°	3718	2730	2240
50°	3581	2448	1942
55°	3438	2147	1655
60°	3273	1833	1361
65°	3082	1513	1224
70°	2851	1215	1105
75°	2560	1065	1002
80°	2139	884	864
85°	1451	576	641

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3718 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.1	2.0
10°-20°	1002.2	5.5
20°-30°	1407.1	7.7
30°-40°	1533.9	8.4
40°-50°	1409.8	7.7
50°-60°	1107.2	6.1
60°-70°	720.7	3.9
70°-80°	371.0	2.0
80°-90°	100.9	0.6
90°-100°	115.4	0.6
100°-110°	430.1	2.4
110°-120°	1140.7	6.2
120°-130°	1892.0	10.4
130°-140°	2009.7	11.0
140°-150°	1867.8	10.2
150°-160°	1501.7	8.2
160°-170°	967.6	5.3
170°-180°	333.0	1.8
0°-30°	2774.5	15.2
0°-40°	4308.3	23.6
0°-60°	6825.3	37.3
0°-90°	8017.7	43.9
90°-120°	1686.2	9.2
90°-150°	7455.8	40.8
90°-180°	10258.0	56.1
0°-180°	18275.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3896	3896	3896	3896	3896	
5°	3896	3878	3832	3864	3853	369
15°	3705	3666	3546	3480	3444	1044
25°	3363	3250	3018	2873	2820	1547
35°	2898	2718	2408	2186	2108	1814
45°	2369	2133	1763	1512	1428	1830
55°	1801	1526	1146	934	867	1610
65°	1216	931	613	494	483	1206
75°	649	402	282	257	254	686
85°	152	77	67	67	67	174
90°	2	30	50	63	68	17
95°	164	81	99	112	109	195
105°	770	846	155	182	192	822
115°	1456	1499	1562	390	208	1433
125°	2058	2091	2140	2157	2165	1836
135°	2547	2588	2610	2636	2631	1968
145°	2955	2952	2995	3013	3000	1848
155°	3254	3231	3261	3276	3256	1499
165°	3428	3413	3421	3438	3421	969
175°	3506	3489	3494	3512	3486	334
180°	3499	3499	3499	3499	3499	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3895.5	3895.5	3895.5	3895.5	3895.5
2.5°	3913.1	3895.5	3856.6	3892.1	3885.1
5°	3895.5	3877.9	3831.9	3863.8	3853.2
7.5°	3863.8	3842.7	3793.4	3807.2	3789.7
10°	3821.4	3796.7	3726.4	3715.6	3694.7
12.5°	3768.8	3736.9	3641.5	3620.6	3581.7
15°	3705.1	3666.2	3546.5	3479.6	3444.4
17.5°	3631.0	3574.6	3426.5	3349.0	3292.6
20°	3546.5	3475.8	3299.7	3211.8	3134.0
22.5°	3454.9	3373.7	3169.1	3049.5	2996.7
25°	3363.3	3250.4	3017.6	2873.2	2820.2
27.5°	3254.0	3134.0	2876.6	2710.9	2629.8
30°	3137.7	3003.4	2721.4	2541.9	2446.6
32.5°	3024.8	2862.4	2573.7	2362.0	2273.7
35°	2897.9	2718.1	2408.0	2185.8	2108.0
37.5°	2774.6	2580.4	2252.8	2009.3	1921.4
40°	2644.0	2432.7	2090.5	1840.2	1748.6
42.5°	2510.1	2284.5	1928.5	1667.5	1579.5
45°	2369.1	2132.7	1762.8	1512.2	1427.7
47.5°	2235.2	1985.0	1604.2	1353.6	1276.2
50°	2087.1	1836.8	1449.0	1205.5	1131.8
52.5°	1942.3	1677.9	1300.9	1068.2	1001.3
55°	1801.3	1526.4	1145.7	934.3	867.3
57.5°	1657.0	1374.9	1008.4	810.9	754.4
60°	1508.8	1226.8	863.7	684.1	627.6
62.5°	1364.4	1082.4	740.2	571.2	543.1
65°	1216.4	930.6	613.4	493.7	482.9
67.5°	1075.3	789.6	493.7	433.5	423.0
70°	927.2	652.3	408.8	373.6	359.5
72.5°	786.2	525.1	341.9	313.8	306.7
75°	648.6	401.7	282.0	257.3	253.9
77.5°	511.3	285.4	222.2	207.9	200.9
80°	384.1	204.6	169.1	155.2	155.2
82.5°	267.8	137.6	116.3	109.2	109.2
85°	151.5	77.4	66.9	66.9	66.9
87.5°	56.5	28.1	28.1	24.7	24.7
90°	2.5	30.3	50.5	63.4	68.2
92.5°	63.4	53.3	60.7	65.9	68.2
95°	164.5	80.9	98.6	111.5	108.9
97.5°	296.1	88.7	128.9	136.8	139.2
100°	448.3	101.3	144.3	164.5	169.6
102.5°	615.1	610.3	149.4	177.1	184.9
105°	769.7	845.7	154.6	182.2	192.5
107.5°	949.5	1012.6	159.7	187.3	197.6
110°	1121.7	1174.7	443.2	190.0	199.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1283.8	1329.2	1286.2	194.8	202.6
115°	1455.8	1498.7	1562.3	389.9	207.7
117.5°	1605.2	1655.8	1699.0	1336.7	673.4
120°	1772.4	1810.2	1856.0	1886.3	1544.4
122.5°	1914.0	1954.5	2005.4	2020.4	2023.2
125°	2058.3	2091.4	2139.5	2157.2	2164.7
127.5°	2190.0	2225.4	2263.6	2288.9	2291.3
130°	2314.1	2354.8	2382.4	2410.4	2408.0
132.5°	2440.7	2473.8	2501.5	2524.3	2522.0
135°	2547.2	2587.7	2610.3	2635.9	2630.7
137.5°	2658.4	2688.8	2714.3	2739.6	2732.1
140°	2767.3	2787.7	2815.4	2838.2	2825.6
142.5°	2858.6	2876.4	2909.2	2929.3	2916.7
145°	2954.9	2952.1	2995.1	3012.9	3000.3
147.5°	3038.2	3030.7	3073.6	3086.3	3076.4
150°	3119.3	3101.6	3142.2	3157.2	3144.6
152.5°	3187.6	3167.4	3205.3	3220.7	3202.9
155°	3253.5	3230.8	3261.2	3276.3	3256.1
157.5°	3306.6	3286.5	3309.4	3327.1	3306.6
160°	3352.3	3337.0	3352.3	3367.3	3349.6
162.5°	3392.6	3377.6	3390.2	3408.0	3385.1
165°	3428.1	3413.0	3420.6	3438.3	3420.6
167.5°	3456.0	3440.8	3448.6	3466.3	3443.5
170°	3478.9	3463.6	3468.6	3486.5	3463.6
172.5°	3493.9	3478.9	3484.0	3501.7	3478.9
175°	3506.5	3488.8	3493.9	3511.7	3486.5
177.5°	3511.7	3493.9	3496.6	3514.4	3491.6
180°	3499.1	3499.1	3499.1	3499.1	3499.1



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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	11.71	12.49	12.72	13.51	14.87	7.67	8.45	8.68	9.47	10.83
	3H	13.38	14.08	14.40	15.11	16.49	8.85	9.55	9.87	10.58	11.96
	4H	13.98	14.64	15.02	15.68	17.06	9.29	9.95	10.33	10.99	12.37
	6H	14.40	15.01	15.45	16.04	17.44	9.61	10.21	10.65	11.25	12.65
	8H	14.52	15.10	15.57	16.15	17.55	9.69	10.27	10.74	11.32	12.72
	12H	14.58	15.13	15.64	16.17	17.59	9.73	10.28	10.79	11.33	12.74
4H	2H	11.72	12.38	12.76	13.41	14.80	8.26	8.92	9.30	9.95	11.34
	3H	13.54	14.09	14.59	15.15	16.55	9.60	10.15	10.65	11.21	12.61
	4H	14.23	14.73	15.28	15.78	17.20	10.14	10.64	11.19	11.69	13.11
	6H	14.73	15.17	15.80	16.24	17.66	10.55	10.98	11.61	12.05	13.47
	8H	14.91	15.31	15.97	16.38	17.81	10.67	11.07	11.74	12.14	13.57
	12H	15.00	15.36	16.08	16.44	17.88	10.73	11.09	11.81	12.17	13.61
8H	4H	14.19	14.59	15.26	15.66	17.09	10.41	10.81	11.48	11.88	13.31
	6H	14.75	15.08	15.84	16.19	17.62	10.92	11.25	12.01	12.36	13.79
	8H	14.96	15.25	16.06	16.34	17.79	11.10	11.40	12.20	12.49	13.94
	12H	15.09	15.35	16.19	16.44	17.93	11.22	11.47	12.32	12.56	14.05
12H	4H	14.14	14.50	15.22	15.58	17.02	10.41	10.78	11.50	11.86	13.29
	6H	14.72	15.02	15.82	16.11	17.56	10.97	11.26	12.06	12.35	13.80
	8H	14.94	15.19	16.04	16.28	17.77	11.17	11.43	12.27	12.51	14.00