

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: P904789

Luminaire Tested: DFN2DIP-TR4F0-100D110US830-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904789
REPORT IS A COMBINATION OF REPORTS P902028 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D110US830-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

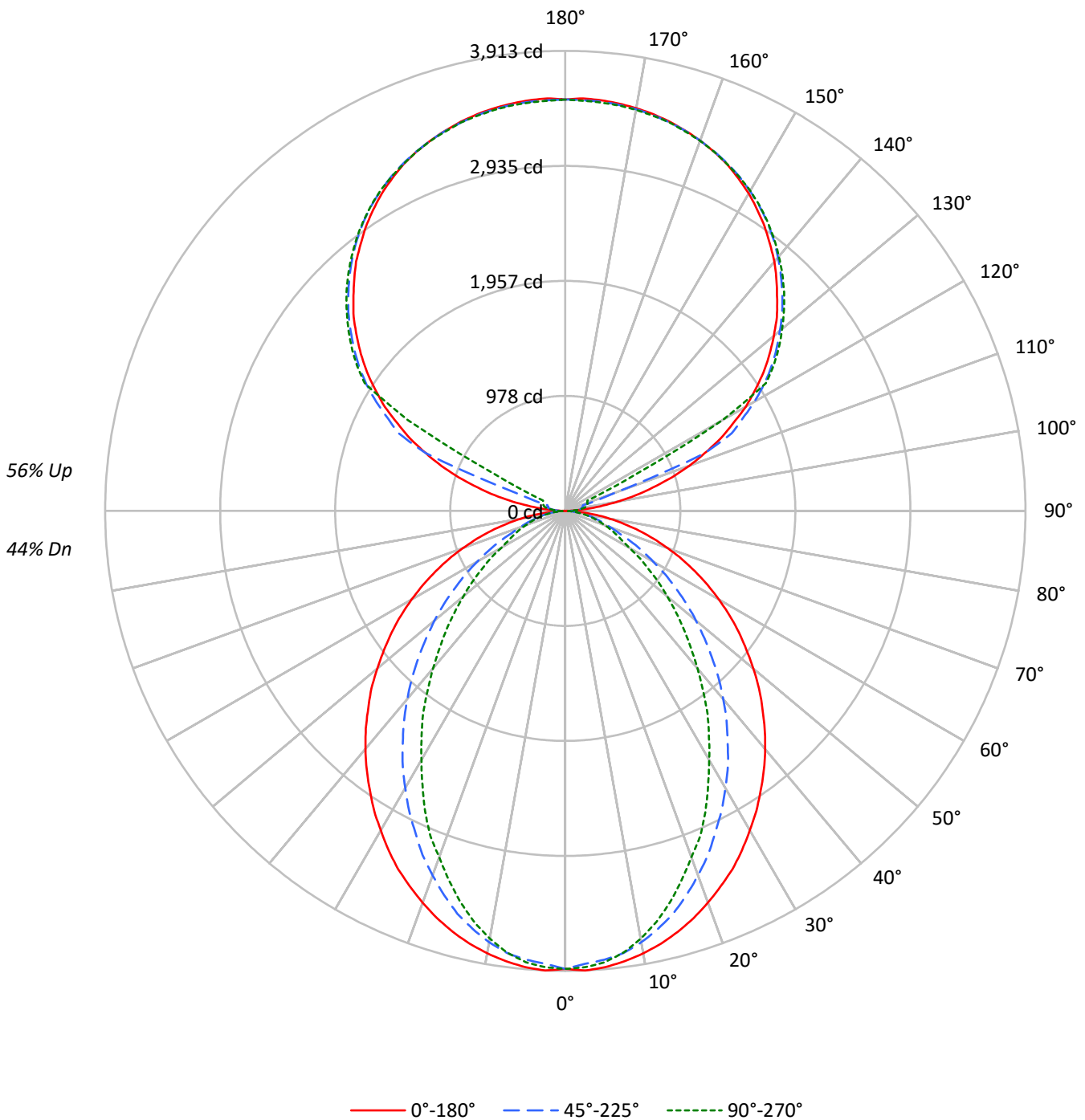
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18275.8 lumens
Efficiency: N/A
Efficacy: 98.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 185.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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°	3095	3095	3095
5°	3100	3046	3065
10°	3069	2986	2965
15°	3027	2887	2811
20°	2971	2751	2622
25°	2914	2598	2439
30°	2837	2442	2207
35°	2762	2274	2003
40°	2685	2100	1770
45°	2596	1907	1559
50°	2504	1712	1352
55°	2408	1504	1153
60°	2297	1286	949
65°	2169	1065	854
70°	2014	859	773
75°	1819	757	703
80°	1537	635	609
85°	1071	423	457

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2596 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	10.47	11.25	11.48	12.27	13.63	6.44	7.22	7.45	8.24	9.60
	3H	12.14	12.84	13.16	13.87	15.25	7.63	8.33	8.65	9.35	10.73
	4H	12.75	13.41	13.78	14.44	15.83	8.07	8.74	9.11	9.77	11.15
	6H	13.17	13.77	14.21	14.81	16.21	8.39	9.00	9.44	10.04	11.44
	8H	13.29	13.87	14.34	14.92	16.31	8.48	9.06	9.54	10.11	11.51
	12H	13.35	13.90	14.41	14.95	16.36	8.53	9.08	9.58	10.12	11.54
4H	2H	10.48	11.14	11.52	12.17	13.56	7.03	7.69	8.07	8.72	10.11
	3H	12.30	12.85	13.35	13.91	15.31	8.38	8.93	9.43	9.99	11.39
	4H	12.99	13.50	14.05	14.55	15.97	8.92	9.43	9.98	10.48	11.90
	6H	13.51	13.94	14.57	15.01	16.43	9.34	9.77	10.41	10.85	12.26
	8H	13.68	14.08	14.75	15.15	16.58	9.47	9.87	10.54	10.94	12.37
	12H	13.77	14.14	14.86	15.22	16.65	9.53	9.90	10.62	10.98	12.41
8H	4H	12.96	13.36	14.03	14.43	15.86	9.20	9.60	10.27	10.67	12.10
	6H	13.52	13.86	14.61	14.96	16.39	9.72	10.05	10.81	11.16	12.59
	8H	13.74	14.03	14.84	15.12	16.57	9.91	10.20	11.01	11.29	12.74
	12H	13.88	14.13	14.98	15.22	16.71	10.03	10.28	11.13	11.37	12.86
12H	4H	12.91	13.27	13.99	14.35	15.79	9.20	9.57	10.29	10.65	12.08
	6H	13.50	13.79	14.59	14.88	16.33	9.77	10.06	10.86	11.15	12.60
	8H	13.72	13.97	14.82	15.06	16.55	9.98	10.23	11.08	11.32	12.81