

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: P912964

Luminaire Tested: DFN2DIP-TR4F0-100D090US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912964
REPORT IS A COMBINATION OF REPORTS P900472 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D090US850-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

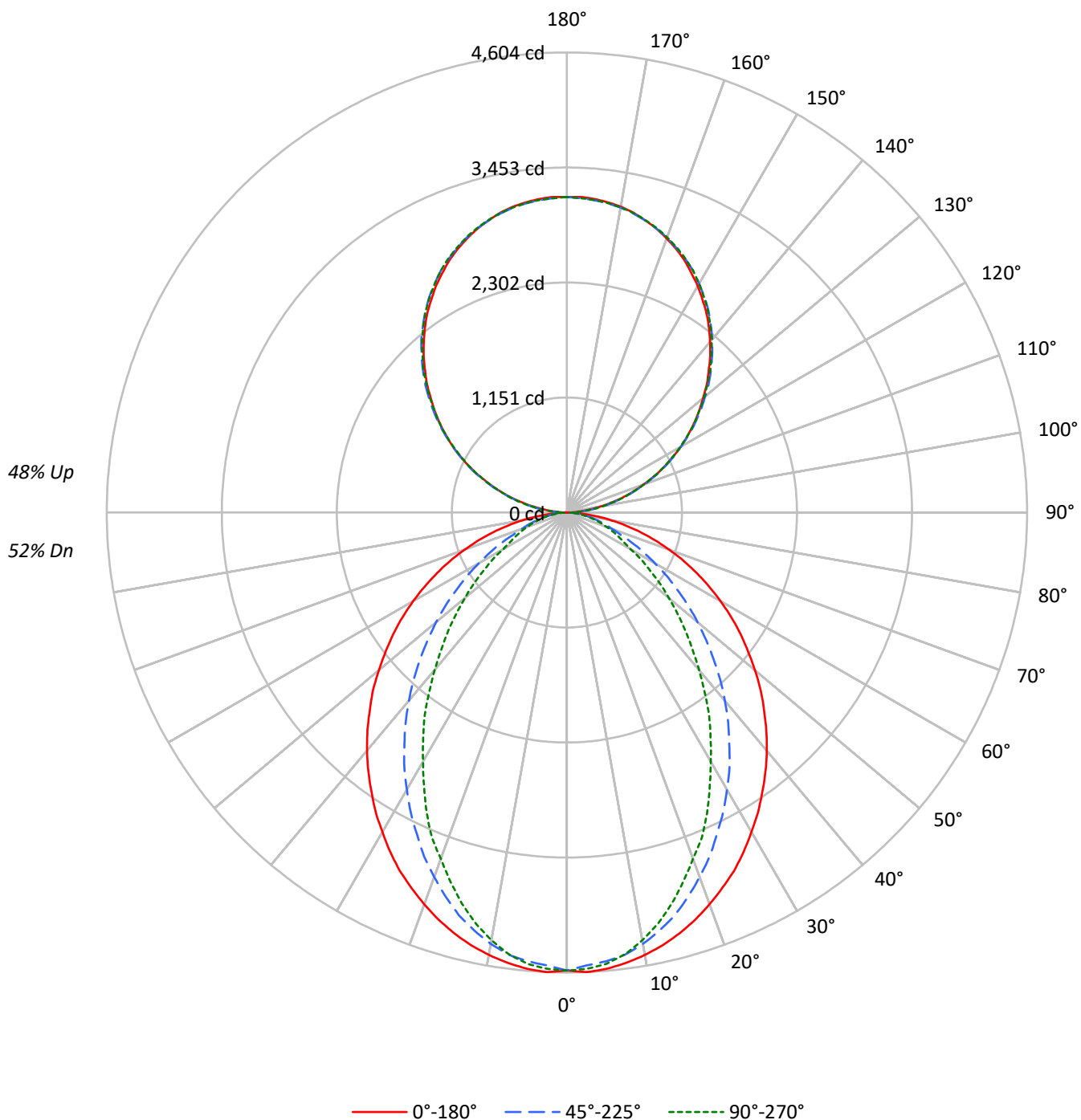
Lumens per Lamp: N/A
Luminaire Lumens: 18259.7 lumens
Efficiency: N/A
Efficacy: 108.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 168.7
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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	108	108	108	108	99	99	99	99	84	84	84	70	70	70	58	58	58
1	99	94	91	87	91	88	84	82	75	72	70	63	61	60	52	51	50
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	46	44	43
3	83	73	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37
4	76	65	58	52	70	61	54	49	52	47	43	45	41	38	37	34	32
5	70	59	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28
6	64	53	45	39	60	49	42	37	43	37	33	37	32	29	31	28	25
7	60	48	40	35	55	45	38	33	39	33	29	33	29	26	28	25	23
8	56	43	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20
9	52	40	32	28	48	37	31	26	33	27	24	28	24	21	24	21	19
10	48	37	30	25	45	34	28	24	30	25	21	26	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3641	3641	3641
5°	3647	3583	3606
10°	3611	3513	3489
15°	3561	3397	3307
20°	3496	3237	3085
25°	3428	3057	2870
30°	3338	2873	2597
35°	3249	2676	2357
40°	3159	2471	2083
45°	3055	2244	1834
50°	2946	2015	1591
55°	2833	1770	1357
60°	2702	1514	1117
65°	2552	1253	1005
70°	2369	1010	910
75°	2140	890	827
80°	1808	747	717
85°	1260	498	538

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3055 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	2.4
10°-20°	1179.3	6.5
20°-30°	1655.6	9.1
30°-40°	1804.7	9.9
40°-50°	1658.8	9.1
50°-60°	1302.7	7.1
60°-70°	847.9	4.6
70°-80°	436.5	2.4
80°-90°	120.4	0.7
90°-100°	195.3	1.1
100°-110°	620.6	3.4
110°-120°	1062.1	5.8
120°-130°	1396.8	7.6
130°-140°	1567.9	8.6
140°-150°	1537.5	8.4
150°-160°	1289.7	7.1
160°-170°	855.3	4.7
170°-180°	299.0	1.6
0°-30°	3264.5	17.9
0°-40°	5069.2	27.8
0°-60°	8030.6	44.0
0°-90°	9435.4	51.7
90°-120°	1878.1	10.3
90°-150°	6380.2	34.9
90°-180°	8824.0	48.3
0°-180°	18259.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1228
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2509	2074	1779	1680	2153
55°	2119	1796	1348	1099	1020	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
90°	3	34	93	88	90	18
95°	139	166	170	170	166	155
105°	573	580	586	591	591	605
115°	1066	1081	1076	1074	1066	1054
125°	1550	1574	1566	1558	1555	1385
135°	2005	2035	2040	2038	2030	1550
145°	2434	2453	2468	2471	2461	1521
155°	2784	2791	2800	2813	2805	1281
165°	3028	3025	3025	3044	3031	854
175°	3151	3143	3138	3157	3140	299
180°	3157	3157	3157	3157	3157	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4583.5	4583.5	4583.5	4583.5	4583.5
2.5°	4604.1	4583.5	4537.7	4579.5	4571.2
5°	4583.5	4562.8	4508.6	4546.1	4533.7
7.5°	4546.1	4521.4	4463.3	4479.6	4459.0
10°	4496.3	4467.3	4384.5	4371.8	4347.2
12.5°	4434.3	4396.9	4284.6	4260.0	4214.2
15°	4359.5	4313.7	4172.8	4094.1	4052.7
17.5°	4272.3	4205.9	4031.7	3940.5	3874.1
20°	4172.8	4089.7	3882.4	3779.0	3687.4
22.5°	4065.0	3969.6	3728.8	3588.1	3526.0
25°	3957.2	3824.4	3550.6	3380.7	3318.2
27.5°	3828.7	3687.4	3384.7	3189.7	3094.2
30°	3691.9	3533.8	3202.0	2990.9	2878.6
32.5°	3559.0	3367.9	3028.2	2779.2	2675.2
35°	3409.7	3198.1	2833.3	2571.9	2480.3
37.5°	3264.6	3036.1	2650.6	2364.2	2260.7
40°	3111.0	2862.3	2459.7	2165.2	2057.4
42.5°	2953.4	2688.0	2269.1	1961.9	1858.5
45°	2787.5	2509.3	2074.2	1779.3	1679.8
47.5°	2630.0	2335.6	1887.5	1592.6	1501.6
50°	2455.7	2161.2	1704.9	1418.4	1331.7
52.5°	2285.3	1974.2	1530.6	1256.8	1178.1
55°	2119.4	1796.0	1348.0	1099.4	1020.5
57.5°	1949.6	1617.7	1186.5	954.1	887.6
60°	1775.3	1443.5	1016.2	804.9	738.5
62.5°	1605.4	1273.6	870.9	672.1	639.0
65°	1431.2	1094.9	721.7	580.9	568.1
67.5°	1265.3	929.0	580.9	510.0	497.7
70°	1090.9	767.5	481.0	439.6	423.0
72.5°	925.0	617.8	402.2	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.6	335.8	261.4	244.6	236.3
80°	451.9	240.8	199.0	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.0	78.7	78.7	78.7
87.5°	66.4	33.0	33.0	29.1	29.1
90°	2.9	34.3	93.3	87.5	90.4
92.5°	59.0	80.0	82.8	85.6	85.6
95°	139.0	165.6	170.3	170.3	165.6
97.5°	231.2	256.0	266.5	266.5	266.5
100°	337.8	359.8	367.3	367.3	364.5
102.5°	450.1	466.3	476.8	479.6	476.8
105°	572.9	580.5	586.2	591.0	591.0
107.5°	694.7	706.1	706.1	708.0	694.7
110°	812.7	828.0	828.0	828.0	820.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	940.2	956.4	953.5	946.0	940.2
115°	1065.9	1081.1	1076.3	1073.5	1065.9
117.5°	1190.5	1211.5	1198.2	1190.5	1182.9
120°	1316.2	1337.0	1316.2	1316.2	1307.5
122.5°	1430.3	1457.0	1443.7	1436.0	1430.3
125°	1550.3	1574.0	1566.5	1557.8	1555.0
127.5°	1667.3	1696.8	1686.3	1674.9	1667.3
130°	1776.7	1811.0	1806.2	1800.5	1790.0
132.5°	1899.5	1926.1	1928.0	1914.7	1907.1
135°	2005.1	2034.6	2040.3	2037.5	2029.9
137.5°	2123.1	2146.9	2151.7	2149.8	2138.4
140°	2226.9	2250.6	2263.9	2263.9	2253.5
142.5°	2333.4	2357.2	2364.8	2367.7	2357.2
145°	2434.4	2453.3	2468.5	2471.4	2461.0
147.5°	2524.7	2548.5	2559.9	2564.7	2554.2
150°	2618.0	2634.2	2644.6	2653.2	2644.6
152.5°	2700.7	2716.9	2730.2	2740.8	2730.2
155°	2783.6	2791.1	2799.8	2813.1	2804.6
157.5°	2854.9	2860.7	2865.4	2884.4	2871.1
160°	2918.7	2924.4	2927.3	2943.4	2932.0
162.5°	2977.7	2977.7	2980.5	2998.6	2985.3
165°	3028.1	3025.2	3025.2	3044.3	3031.0
167.5°	3073.8	3065.3	3065.3	3084.2	3070.9
170°	3108.1	3100.4	3097.7	3116.6	3100.4
172.5°	3131.8	3124.3	3121.4	3140.5	3124.3
175°	3150.9	3143.2	3137.6	3156.7	3140.5
177.5°	3161.3	3153.8	3148.0	3164.2	3148.0
180°	3156.7	3156.7	3156.7	3156.7	3156.7

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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	11.79	12.63	12.74	13.59	14.84	7.76	8.60	8.71	9.56	10.81
	3H	13.46	14.22	14.43	15.19	16.46	8.95	9.70	9.91	10.67	11.95
	4H	14.07	14.79	15.05	15.76	17.04	9.40	10.12	10.38	11.09	12.37
	6H	14.50	15.15	15.48	16.13	17.43	9.72	10.38	10.71	11.36	12.65
	8H	14.62	15.25	15.61	16.24	17.53	9.82	10.44	10.81	11.44	12.73
	12H	14.68	15.28	15.68	16.27	17.58	9.86	10.45	10.86	11.44	12.76
4H	2H	11.81	12.52	12.79	13.49	14.77	8.36	9.07	9.34	10.04	11.33
	3H	13.64	14.23	14.63	15.23	16.53	9.71	10.30	10.70	11.31	12.60
	4H	14.33	14.87	15.33	15.87	17.19	10.26	10.80	11.26	11.80	13.12
	6H	14.84	15.31	15.85	16.33	17.65	10.68	11.14	11.69	12.16	13.48
	8H	15.02	15.45	16.03	16.47	17.80	10.81	11.24	11.82	12.26	13.59
	12H	15.12	15.51	16.14	16.54	17.87	10.87	11.27	11.90	12.30	13.63
8H	4H	14.30	14.73	15.31	15.75	17.08	10.54	10.97	11.55	11.99	13.32
	6H	14.86	15.22	15.90	16.28	17.61	11.06	11.42	12.09	12.47	13.80
	8H	15.08	15.40	16.12	16.44	17.79	11.25	11.57	12.29	12.61	13.96
	12H	15.22	15.50	16.27	16.53	17.92	11.37	11.65	12.42	12.68	14.08
12H	4H	14.25	14.64	15.28	15.67	17.01	10.54	10.94	11.57	11.97	13.30
	6H	14.84	15.16	15.88	16.20	17.54	11.11	11.42	12.15	12.47	13.81
	8H	15.06	15.34	16.11	16.37	17.77	11.32	11.60	12.37	12.63	14.03