

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: P904780

Luminaire Tested: DFN2DIP-TR4F0-100D090US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904780
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-TR4F0-100D090US830-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

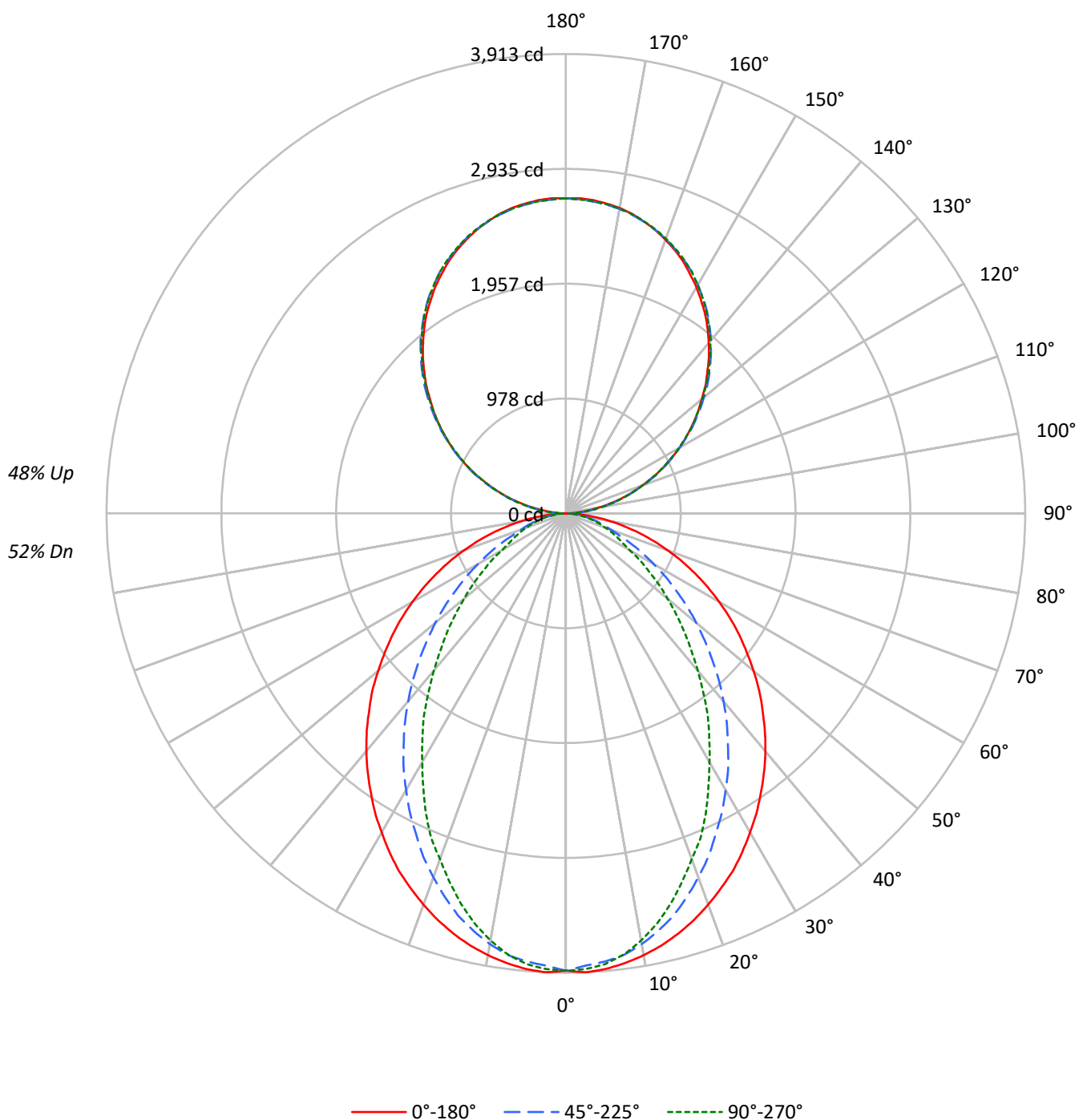
Lumens per Lamp: N/A
Luminaire Lumens: 15518.9 lumens
Efficiency: N/A
Efficacy: 92.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

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°	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	2.4
10°-20°	1002.2	6.5
20°-30°	1407.1	9.1
30°-40°	1533.9	9.9
40°-50°	1409.8	9.1
50°-60°	1107.2	7.1
60°-70°	720.7	4.6
70°-80°	371.0	2.4
80°-90°	102.3	0.7
90°-100°	166.0	1.1
100°-110°	527.5	3.4
110°-120°	902.7	5.8
120°-130°	1187.2	7.6
130°-140°	1332.5	8.6
140°-150°	1306.7	8.4
150°-160°	1096.1	7.1
160°-170°	726.9	4.7
170°-180°	254.1	1.6
0°-30°	2774.5	17.9
0°-40°	4308.3	27.8
0°-60°	6825.3	44.0
0°-90°	8019.2	51.7
90°-120°	1596.2	10.3
90°-150°	5422.6	34.9
90°-180°	7500.0	48.3
0°-180°	15518.9	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	29	79	74	77	15
95°	118	141	145	145	141	131
105°	487	493	498	502	502	514
115°	906	919	915	912	906	896
125°	1318	1338	1331	1324	1322	1177
135°	1704	1729	1734	1732	1725	1317
145°	2069	2085	2098	2100	2092	1293
155°	2366	2372	2380	2391	2384	1089
165°	2574	2571	2571	2587	2576	726
175°	2678	2671	2667	2683	2669	254
180°	2683	2683	2683	2683	2683	

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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	29.1	79.3	74.4	76.8
92.5°	50.1	68.0	70.4	72.8	72.8
95°	118.1	140.7	144.8	144.8	140.7
97.5°	196.5	217.5	226.5	226.5	226.5
100°	287.1	305.8	312.2	312.2	309.8
102.5°	382.6	396.3	405.2	407.6	405.2
105°	486.9	493.3	498.2	502.3	502.3
107.5°	590.4	600.1	600.1	601.7	590.4
110°	690.7	703.7	703.7	703.7	697.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	799.1	812.8	810.4	804.0	799.1
115°	905.9	918.8	914.7	912.4	905.9
117.5°	1011.8	1029.6	1018.3	1011.8	1005.3
120°	1118.6	1136.3	1118.6	1118.6	1111.3
122.5°	1215.6	1238.3	1227.0	1220.5	1215.6
125°	1317.6	1337.8	1331.3	1324.0	1321.6
127.5°	1417.0	1442.1	1433.2	1423.5	1417.0
130°	1510.0	1539.2	1535.1	1530.2	1521.4
132.5°	1614.4	1637.0	1638.6	1627.3	1620.9
135°	1704.1	1729.2	1734.1	1731.6	1725.2
137.5°	1804.4	1824.7	1828.7	1827.1	1817.4
140°	1892.6	1912.8	1924.1	1924.1	1915.2
142.5°	1983.2	2003.4	2009.9	2012.3	2003.4
145°	2069.0	2085.1	2098.0	2100.5	2091.6
147.5°	2145.8	2166.0	2175.7	2179.7	2170.9
150°	2225.1	2238.8	2247.7	2254.9	2247.7
152.5°	2295.4	2309.1	2320.4	2329.4	2320.4
155°	2365.8	2372.2	2379.5	2390.9	2383.6
157.5°	2426.4	2431.3	2435.3	2451.5	2440.1
160°	2480.6	2485.5	2487.9	2501.6	2491.9
162.5°	2530.7	2530.7	2533.2	2548.5	2537.2
165°	2573.6	2571.2	2571.2	2587.4	2576.1
167.5°	2612.4	2605.2	2605.2	2621.3	2610.0
170°	2641.6	2635.1	2632.7	2648.8	2635.1
172.5°	2661.7	2655.3	2652.9	2669.1	2655.3
175°	2678.0	2671.4	2666.6	2682.9	2669.1
177.5°	2686.8	2680.4	2675.5	2689.3	2675.5
180°	2682.9	2682.9	2682.9	2682.9	2682.9

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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	11.22	12.06	12.17	13.03	14.28	7.19	8.04	8.14	9.00	10.25
	3H	12.90	13.65	13.86	14.62	15.90	8.38	9.14	9.35	10.11	11.38
	4H	13.51	14.22	14.48	15.20	16.48	8.84	9.55	9.81	10.52	11.81
	6H	13.93	14.59	14.92	15.57	16.86	9.16	9.82	10.14	10.80	12.09
	8H	14.06	14.68	15.05	15.68	16.97	9.25	9.88	10.24	10.87	12.16
	12H	14.12	14.71	15.12	15.70	17.02	9.29	9.89	10.29	10.88	12.19
4H	2H	11.24	11.95	12.22	12.93	14.21	7.79	8.50	8.77	9.48	10.76
	3H	13.07	13.66	14.06	14.67	15.96	9.14	9.74	10.13	10.74	12.04
	4H	13.76	14.31	14.76	15.30	16.62	9.69	10.23	10.69	11.23	12.55
	6H	14.28	14.74	15.29	15.76	17.08	10.11	10.58	11.12	11.60	12.92
	8H	14.45	14.89	15.47	15.90	17.23	10.24	10.68	11.25	11.69	13.02
	12H	14.55	14.94	15.58	15.97	17.31	10.31	10.70	11.34	11.73	13.07
8H	4H	13.73	14.17	14.74	15.18	16.51	9.97	10.41	10.98	11.42	12.75
	6H	14.30	14.66	15.33	15.71	17.04	10.49	10.85	11.53	11.91	13.24
	8H	14.52	14.83	15.56	15.87	17.22	10.69	11.00	11.73	12.04	13.39
	12H	14.65	14.93	15.70	15.97	17.36	10.81	11.08	11.85	12.12	13.51
12H	4H	13.69	14.08	14.71	15.11	16.44	9.98	10.37	11.01	11.40	12.74
	6H	14.27	14.59	15.32	15.63	16.98	10.54	10.86	11.59	11.90	13.25
	8H	14.50	14.77	15.54	15.81	17.20	10.75	11.03	11.80	12.07	13.46