

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: P923777

Luminaire Tested: DFN2DIP-TR4F0-070D110US940-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923777
REPORT IS A COMBINATION OF REPORTS P902022 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-070D110US940-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

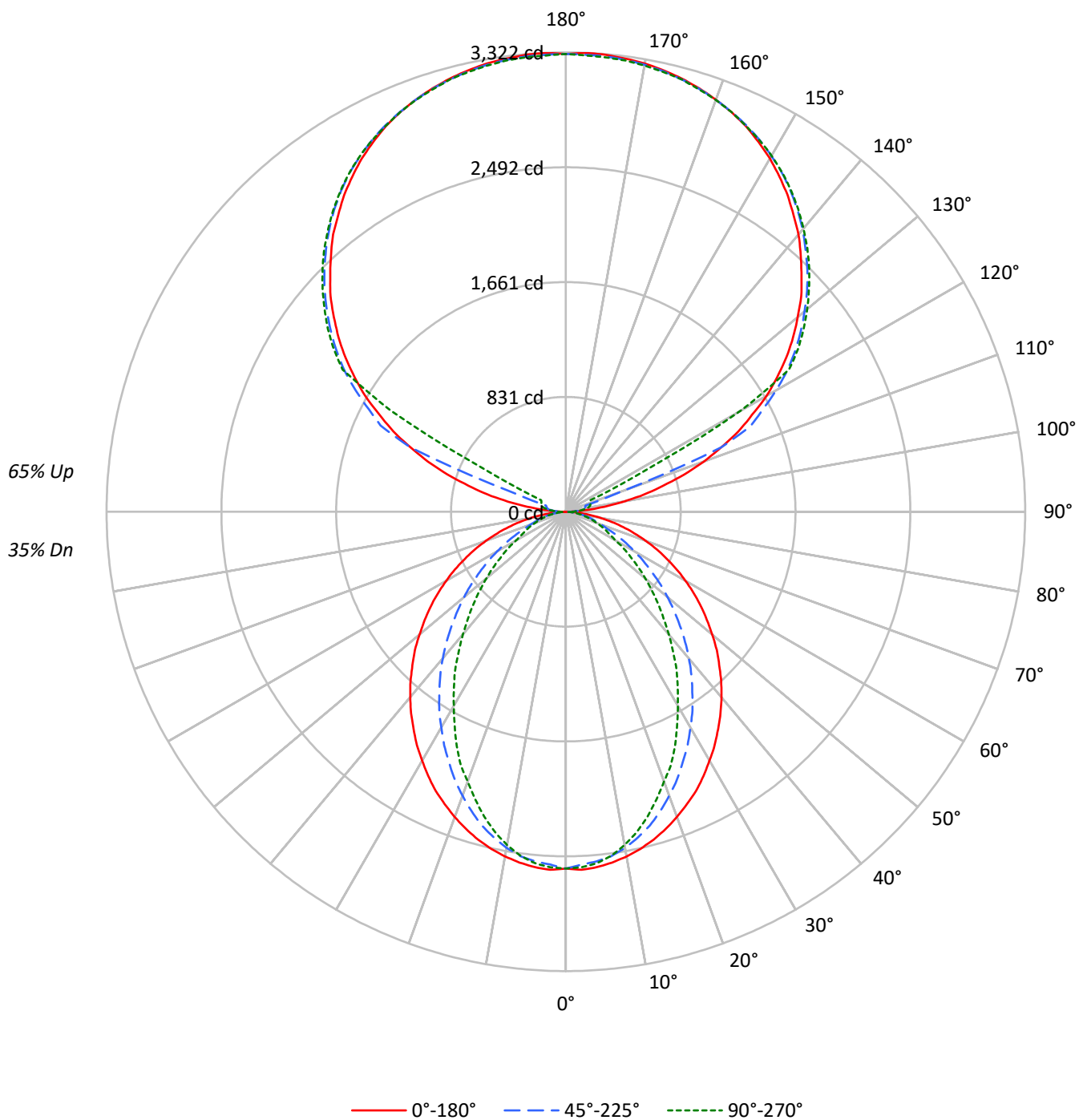
Lumens per Lamp: N/A
Luminaire Lumens: 15016.3 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 150.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37
2	87	80	74	69	78	72	67	63	58	55	52	46	44	41	34	33	31
3	79	70	63	58	71	64	58	53	52	48	44	41	38	35	30	29	27
4	73	62	55	49	65	57	50	45	46	42	38	36	33	31	27	25	24
5	67	56	48	42	60	51	44	39	41	37	33	33	29	27	25	23	21
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	16
8	53	41	33	28	48	37	31	26	31	26	23	25	21	19	19	17	15
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	13
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2049	2049	2049
5°	2053	2017	2030
10°	2033	1977	1964
15°	2004	1912	1862
20°	1968	1822	1736
25°	1930	1721	1615
30°	1879	1617	1462
35°	1829	1506	1327
40°	1778	1391	1172
45°	1719	1263	1032
50°	1658	1134	895
55°	1595	996	764
60°	1521	852	629
65°	1436	705	566
70°	1334	569	512
75°	1205	501	466
80°	1018	421	404
85°	709	280	303

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1758 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.8	1.6
10°-20°	663.7	4.4
20°-30°	931.9	6.2
30°-40°	1015.8	6.8
40°-50°	933.6	6.2
50°-60°	733.2	4.9
60°-70°	477.3	3.2
70°-80°	245.7	1.6
80°-90°	68.5	0.5
90°-100°	109.2	0.7
100°-110°	406.9	2.7
110°-120°	1079.2	7.2
120°-130°	1789.9	11.9
130°-140°	1901.3	12.7
140°-150°	1767.1	11.8
150°-160°	1420.7	9.5
160°-170°	915.4	6.1
170°-180°	315.1	2.1
0°-30°	1837.4	12.2
0°-40°	2853.2	19.0
0°-60°	4520.0	30.1
0°-90°	5311.5	35.4
90°-120°	1595.3	10.6
90°-150°	7053.7	47.0
90°-180°	9705.0	64.6
0°-180°	15016.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2580	2580	2580	2580	2580	
5°	2580	2568	2538	2559	2552	245
15°	2454	2428	2349	2304	2281	691
25°	2227	2152	1998	1903	1868	1024
35°	1919	1800	1595	1448	1396	1201
45°	1569	1412	1167	1002	946	1212
55°	1193	1011	759	619	574	1066
65°	806	616	406	327	320	799
75°	430	266	187	170	168	454
85°	100	51	44	44	44	115
90°	2	29	48	60	65	14
95°	156	76	93	106	103	184
105°	728	800	146	172	182	778
115°	1377	1418	1478	369	196	1356
125°	1947	1979	2024	2041	2048	1737
135°	2410	2448	2470	2494	2489	1862
145°	2796	2793	2834	2850	2838	1748
155°	3078	3057	3085	3100	3080	1418
165°	3243	3229	3236	3253	3236	916
175°	3317	3301	3306	3322	3298	316
180°	3310	3310	3310	3310	3310	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2579.8	2579.8	2579.8	2579.8	2579.8
2.5°	2591.4	2579.8	2554.0	2577.6	2572.9
5°	2579.8	2568.1	2537.7	2558.8	2551.8
7.5°	2558.8	2544.9	2512.2	2521.3	2509.7
10°	2530.8	2514.4	2467.8	2460.7	2446.8
12.5°	2495.8	2474.8	2411.6	2397.7	2371.9
15°	2453.7	2427.9	2348.7	2304.4	2281.1
17.5°	2404.7	2367.3	2269.2	2217.9	2180.5
20°	2348.7	2301.9	2185.2	2127.0	2075.5
22.5°	2288.0	2234.3	2098.7	2019.5	1984.6
25°	2227.3	2152.5	1998.4	1902.8	1867.7
27.5°	2155.0	2075.5	1905.1	1795.4	1741.6
30°	2078.0	1989.0	1802.2	1683.4	1620.2
32.5°	2003.1	1895.7	1704.4	1564.2	1505.7
35°	1919.1	1800.0	1594.7	1447.6	1396.1
37.5°	1837.5	1708.9	1491.9	1330.6	1272.5
40°	1751.0	1611.1	1384.4	1218.7	1158.0
42.5°	1662.3	1513.0	1277.1	1104.2	1046.1
45°	1569.0	1412.4	1167.4	1001.5	945.5
47.5°	1480.2	1314.6	1062.4	896.4	845.2
50°	1382.2	1216.5	959.6	798.3	749.6
52.5°	1286.3	1111.2	861.5	707.4	663.1
55°	1192.9	1010.8	758.7	618.8	574.4
57.5°	1097.3	910.5	667.8	537.0	499.6
60°	999.3	812.4	571.9	453.1	415.6
62.5°	903.6	716.8	490.2	378.3	359.6
65°	805.5	616.3	406.3	327.0	319.8
67.5°	712.1	522.9	327.0	287.0	280.2
70°	614.0	431.9	270.7	247.4	238.0
72.5°	520.7	347.8	226.4	207.9	203.1
75°	429.5	266.0	186.7	170.4	168.2
77.5°	338.6	189.0	147.1	137.7	133.0
80°	254.4	135.5	112.0	102.8	102.8
82.5°	177.4	91.1	77.0	72.3	72.3
85°	100.3	51.3	44.3	44.3	44.3
87.5°	37.4	18.5	18.5	16.3	16.3
90°	2.3	28.7	47.8	60.0	64.6
92.5°	60.0	50.4	57.4	62.3	64.6
95°	155.6	76.5	93.3	105.5	103.0
97.5°	280.2	83.9	122.0	129.4	131.7
100°	424.1	95.9	136.5	155.6	160.4
102.5°	581.9	577.4	141.3	167.6	175.0
105°	728.2	800.1	146.2	172.4	182.1
107.5°	898.3	958.0	151.1	177.2	186.9
110°	1061.2	1111.3	419.3	179.8	189.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1214.6	1257.5	1216.8	184.3	191.7
115°	1377.2	1417.9	1478.0	368.9	196.5
117.5°	1518.7	1566.5	1607.4	1264.6	637.1
120°	1676.8	1712.6	1755.9	1784.6	1461.2
122.5°	1810.8	1849.1	1897.2	1911.5	1914.1
125°	1947.3	1978.6	2024.1	2040.9	2048.0
127.5°	2071.9	2105.4	2141.5	2165.4	2167.7
130°	2189.3	2227.8	2253.9	2280.4	2278.1
132.5°	2309.1	2340.4	2366.6	2388.2	2385.9
135°	2409.8	2448.2	2469.5	2493.8	2488.9
137.5°	2515.1	2543.8	2567.9	2591.8	2584.7
140°	2618.1	2637.3	2663.5	2685.1	2673.2
142.5°	2704.5	2721.2	2752.3	2771.3	2759.4
145°	2795.5	2792.9	2833.6	2850.4	2838.5
147.5°	2874.3	2867.2	2907.9	2919.8	2910.5
150°	2951.1	2934.4	2972.7	2987.0	2975.0
152.5°	3015.7	2996.6	3032.4	3047.0	3030.2
155°	3078.0	3056.6	3085.3	3099.6	3080.5
157.5°	3128.3	3109.2	3130.9	3147.6	3128.3
160°	3171.5	3157.0	3171.5	3185.7	3169.0
162.5°	3209.6	3195.4	3207.4	3224.2	3202.6
165°	3243.2	3229.0	3236.1	3252.9	3236.1
167.5°	3269.6	3255.2	3262.6	3279.4	3257.8
170°	3291.3	3276.8	3281.6	3298.4	3276.8
172.5°	3305.5	3291.3	3296.1	3312.9	3291.3
175°	3317.4	3300.7	3305.5	3322.3	3298.4
177.5°	3322.3	3305.5	3308.1	3324.8	3303.3
180°	3310.4	3310.4	3310.4	3310.4	3310.4

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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	8.09	8.82	9.17	9.89	11.36	4.07	4.79	5.15	5.87	7.33
	3H	9.76	10.41	10.85	11.49	12.98	5.25	5.89	6.34	6.98	8.46
	4H	10.36	10.98	11.46	12.06	13.56	5.69	6.31	6.79	7.39	8.88
	6H	10.78	11.34	11.89	12.43	13.94	6.01	6.57	7.12	7.66	9.17
	8H	10.90	11.44	12.02	12.54	14.04	6.10	6.63	7.21	7.74	9.24
	12H	10.96	11.47	12.08	12.57	14.09	6.14	6.65	7.25	7.75	9.27
4H	2H	8.10	8.71	9.20	9.80	11.29	4.65	5.26	5.75	6.35	7.84
	3H	9.92	10.43	11.03	11.54	13.04	5.99	6.50	7.10	7.61	9.12
	4H	10.60	11.07	11.72	12.18	13.70	6.53	7.00	7.65	8.10	9.63
	6H	11.11	11.51	12.24	12.64	14.16	6.95	7.35	8.07	8.47	9.99
	8H	11.29	11.66	12.41	12.78	14.31	7.08	7.45	8.20	8.57	10.10
	12H	11.38	11.72	12.52	12.85	14.38	7.14	7.48	8.28	8.60	10.14
8H	4H	10.56	10.94	11.69	12.06	13.59	6.81	7.18	7.93	8.30	9.83
	6H	11.13	11.44	12.27	12.59	14.13	7.32	7.63	8.47	8.79	10.32
	8H	11.34	11.61	12.49	12.75	14.30	7.51	7.78	8.66	8.92	10.47
	12H	11.48	11.71	12.63	12.85	14.44	7.63	7.87	8.78	9.00	10.59
12H	4H	10.51	10.85	11.65	11.98	13.52	6.81	7.14	7.95	8.27	9.81
	6H	11.10	11.37	12.25	12.51	14.06	7.37	7.64	8.52	8.78	10.33
	8H	11.32	11.56	12.47	12.69	14.28	7.58	7.81	8.73	8.95	10.54