

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: P907372

Luminaire Tested: DFN2DIP-TR4F0-060D110US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907372
REPORT IS A COMBINATION OF REPORTS P900500 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D110US835-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

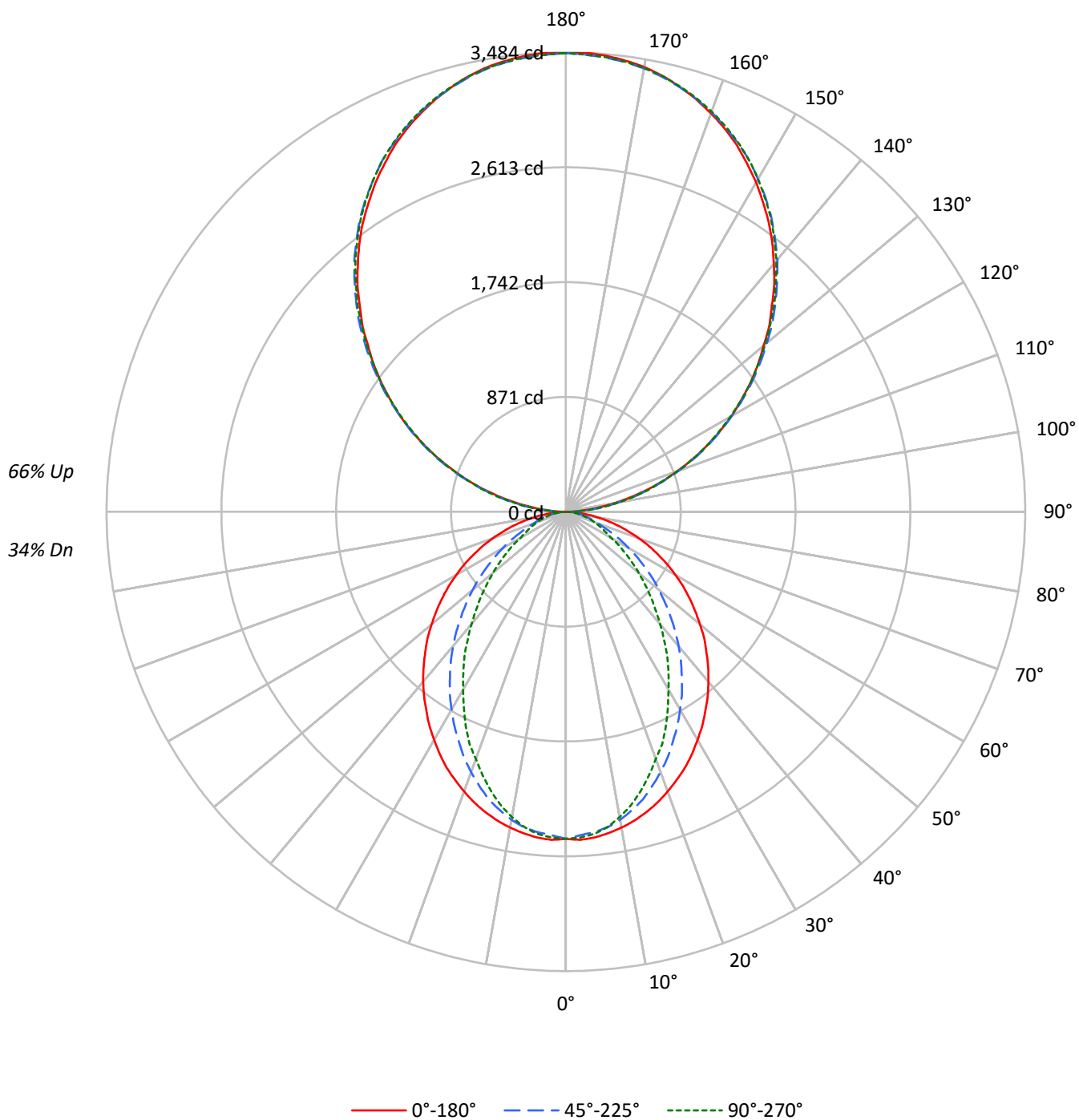
Lumens per Lamp: N/A
Luminaire Lumens: 14835.0 lumens
Efficiency: N/A
Efficacy: 107.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 138.1
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
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	103	103	103	103	93	93	93	93	75	75	75	58	58	58	42	42	42
1	95	91	87	84	85	82	79	76	66	64	62	51	50	48	37	37	36
2	86	79	74	69	78	72	67	63	58	55	52	45	43	41	33	32	31
3	79	70	63	58	71	64	58	53	51	47	44	40	37	35	30	28	27
4	72	62	55	49	65	56	50	45	46	41	38	36	33	30	27	25	23
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20
6	61	50	42	36	55	45	39	34	37	32	28	29	26	23	22	20	18
7	57	45	37	32	51	41	34	30	34	29	25	27	23	21	20	18	16
8	53	41	33	28	47	37	31	26	31	26	22	25	21	18	19	16	15
9	49	37	30	25	44	34	28	23	28	23	20	23	19	17	17	15	13
10	46	34	27	23	41	31	25	21	26	21	18	21	17	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1970	1970	1970
5°	1973	1939	1951
10°	1954	1901	1888
15°	1927	1838	1789
20°	1891	1751	1669
25°	1855	1654	1553
30°	1806	1555	1405
35°	1758	1448	1275
40°	1709	1337	1127
45°	1653	1214	992
50°	1594	1090	861
55°	1533	957	734
60°	1462	819	604
65°	1381	678	544
70°	1282	547	492
75°	1158	482	448
80°	978	404	388
85°	682	270	291

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2711 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.4	1.6
10°-20°	638.0	4.3
20°-30°	895.7	6.0
30°-40°	976.4	6.6
40°-50°	897.4	6.0
50°-60°	704.8	4.8
60°-70°	458.8	3.1
70°-80°	236.1	1.6
80°-90°	70.2	0.5
90°-100°	215.3	1.5
100°-110°	684.0	4.6
110°-120°	1170.5	7.9
120°-130°	1539.4	10.4
130°-140°	1727.9	11.6
140°-150°	1694.4	11.4
150°-160°	1421.4	9.6
160°-170°	942.6	6.4
170°-180°	329.5	2.2
0°-30°	1766.2	11.9
0°-40°	2742.6	18.5
0°-60°	4344.8	29.3
0°-90°	5109.9	34.4
90°-120°	2069.8	14.0
90°-150°	7031.6	47.4
90°-180°	9725.0	65.6
0°-180°	14835.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2480	2480	2480	2480	2480	
5°	2480	2469	2439	2460	2453	235
15°	2359	2334	2258	2215	2193	665
25°	2141	2069	1921	1829	1795	985
35°	1845	1730	1533	1391	1342	1155
45°	1508	1358	1122	963	909	1165
55°	1147	972	729	595	552	1025
65°	774	592	390	314	307	768
75°	413	256	180	164	162	437
85°	96	49	43	43	43	111
90°	3	38	103	96	100	15
95°	153	182	188	188	182	170
105°	631	640	646	651	651	666
115°	1175	1191	1186	1183	1175	1162
125°	1708	1735	1726	1717	1714	1527
135°	2210	2242	2249	2246	2237	1708
145°	2683	2704	2721	2724	2712	1676
155°	3068	3076	3086	3100	3091	1412
165°	3337	3334	3334	3355	3340	941
175°	3473	3464	3458	3479	3461	330
180°	3479	3479	3479	3479	3479	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2479.8	2479.8	2479.8	2479.8	2479.8
2.5°	2491.0	2479.8	2455.0	2477.6	2473.1
5°	2479.8	2468.6	2439.3	2459.6	2452.9
7.5°	2459.6	2446.2	2414.8	2423.6	2412.4
10°	2432.6	2416.9	2372.2	2365.3	2351.9
12.5°	2399.1	2378.8	2318.1	2304.8	2280.0
15°	2358.6	2333.8	2257.6	2215.0	2192.6
17.5°	2311.5	2275.5	2181.2	2131.9	2096.0
20°	2257.6	2212.6	2100.5	2044.5	1995.0
22.5°	2199.3	2147.6	2017.4	1941.2	1907.6
25°	2141.0	2069.1	1921.0	1829.1	1795.3
27.5°	2071.5	1995.0	1831.2	1725.7	1674.1
30°	1997.4	1911.9	1732.4	1618.1	1557.4
32.5°	1925.5	1822.2	1638.4	1503.6	1447.4
35°	1844.8	1730.3	1532.9	1391.4	1341.9
37.5°	1766.2	1642.6	1434.1	1279.1	1223.1
40°	1683.1	1548.6	1330.7	1171.4	1113.1
42.5°	1597.9	1454.3	1227.6	1061.4	1005.5
45°	1508.1	1357.6	1122.2	962.6	908.8
47.5°	1422.9	1263.6	1021.2	861.7	812.4
50°	1328.6	1169.3	922.4	767.4	720.5
52.5°	1236.4	1068.1	828.1	680.0	637.4
55°	1146.7	971.7	729.3	594.8	552.1
57.5°	1054.8	875.2	641.9	516.2	480.2
60°	960.5	781.0	549.8	435.5	399.5
62.5°	868.6	689.1	471.2	363.6	345.7
65°	774.3	592.4	390.5	314.3	307.4
67.5°	684.5	502.6	314.3	276.0	269.3
70°	590.2	415.2	260.2	237.9	228.8
72.5°	500.5	334.3	217.6	199.8	195.2
75°	412.9	255.7	179.5	163.8	161.7
77.5°	325.5	181.7	141.4	132.4	127.9
80°	244.5	130.2	107.6	98.8	98.8
82.5°	170.5	87.6	74.0	69.5	69.5
85°	96.4	49.3	42.6	42.6	42.6
87.5°	36.0	17.9	17.9	15.7	15.7
90°	3.1	37.8	102.8	96.5	99.6
92.5°	65.0	88.1	91.2	94.4	94.4
95°	153.1	182.5	187.7	187.7	182.5
97.5°	254.9	282.1	293.7	293.7	293.7
100°	372.3	396.4	404.8	404.8	401.7
102.5°	496.1	513.9	525.5	528.6	525.5
105°	631.4	639.8	646.1	651.3	651.3
107.5°	765.6	778.2	778.2	780.3	765.6
110°	895.7	912.5	912.5	912.5	904.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1036.2	1054.0	1050.9	1042.5	1036.2
115°	1174.7	1191.4	1186.2	1183.1	1174.7
117.5°	1312.1	1335.1	1320.4	1312.1	1303.7
120°	1450.5	1473.6	1450.5	1450.5	1441.1
122.5°	1576.4	1605.7	1591.0	1582.6	1576.4
125°	1708.5	1734.7	1726.3	1716.9	1713.7
127.5°	1837.5	1870.0	1858.5	1845.9	1837.5
130°	1958.1	1995.9	1990.6	1984.3	1972.8
132.5°	2093.4	2122.8	2124.9	2110.2	2101.8
135°	2209.8	2242.3	2248.6	2245.5	2237.1
137.5°	2339.9	2366.1	2371.3	2369.2	2356.7
140°	2454.2	2480.4	2495.1	2495.1	2483.6
142.5°	2571.7	2597.9	2606.3	2609.4	2597.9
145°	2682.8	2703.8	2720.6	2723.7	2712.2
147.5°	2782.5	2808.7	2821.3	2826.5	2815.0
150°	2885.3	2903.1	2914.6	2924.1	2914.6
152.5°	2976.5	2994.3	3009.0	3020.6	3009.0
155°	3067.8	3076.1	3085.6	3100.3	3090.8
157.5°	3146.4	3152.7	3157.9	3178.9	3164.2
160°	3216.7	3223.0	3226.1	3244.0	3231.4
162.5°	3281.7	3281.7	3284.9	3304.8	3290.1
165°	3337.3	3334.1	3334.1	3355.1	3340.4
167.5°	3387.6	3378.2	3378.2	3399.2	3384.5
170°	3425.4	3417.0	3413.9	3434.8	3417.0
172.5°	3451.6	3443.2	3440.1	3461.1	3443.2
175°	3472.6	3464.2	3457.9	3478.9	3461.1
177.5°	3484.1	3475.7	3469.4	3487.3	3469.4
180°	3478.9	3478.9	3478.9	3478.9	3478.9

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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	7.84	8.56	8.93	9.64	11.12	3.81	4.53	4.90	5.61	7.09
	3H	9.51	10.15	10.60	11.24	12.74	4.99	5.64	6.09	6.73	8.22
	4H	10.11	10.72	11.22	11.81	13.31	5.44	6.05	6.55	7.14	8.64
	6H	10.53	11.09	11.64	12.18	13.70	5.76	6.32	6.87	7.41	8.92
	8H	10.65	11.18	11.77	12.29	13.80	5.84	6.38	6.96	7.49	8.99
	12H	10.71	11.21	11.83	12.32	13.85	5.88	6.39	7.01	7.49	9.02
4H	2H	7.84	8.45	8.96	9.54	11.05	4.39	5.00	5.51	6.09	7.60
	3H	9.66	10.17	10.78	11.29	12.80	5.74	6.24	6.85	7.36	8.87
	4H	10.35	10.81	11.47	11.92	13.46	6.28	6.74	7.40	7.85	9.39
	6H	10.86	11.26	11.99	12.39	13.92	6.69	7.09	7.82	8.22	9.75
	8H	11.03	11.40	12.16	12.53	14.07	6.82	7.19	7.95	8.31	9.86
	12H	11.12	11.46	12.27	12.59	14.14	6.88	7.22	8.03	8.35	9.90
8H	4H	10.31	10.68	11.44	11.80	13.35	6.55	6.92	7.68	8.04	9.59
	6H	10.87	11.18	12.02	12.34	13.88	7.07	7.37	8.22	8.54	10.08
	8H	11.09	11.36	12.24	12.50	14.06	7.26	7.53	8.41	8.67	10.23
	12H	11.22	11.46	12.38	12.60	14.19	7.37	7.61	8.53	8.75	10.35
12H	4H	10.26	10.59	11.40	11.73	13.28	6.55	6.89	7.70	8.02	9.57
	6H	10.85	11.11	12.00	12.26	13.82	7.12	7.38	8.27	8.53	10.09
	8H	11.06	11.30	12.22	12.44	14.03	7.32	7.56	8.48	8.70	10.29