

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: P905975

Luminaire Tested: DFN2DIP-PN4F0-060D110US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905975
REPORT IS A COMBINATION OF REPORTS P901260 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D110US835-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

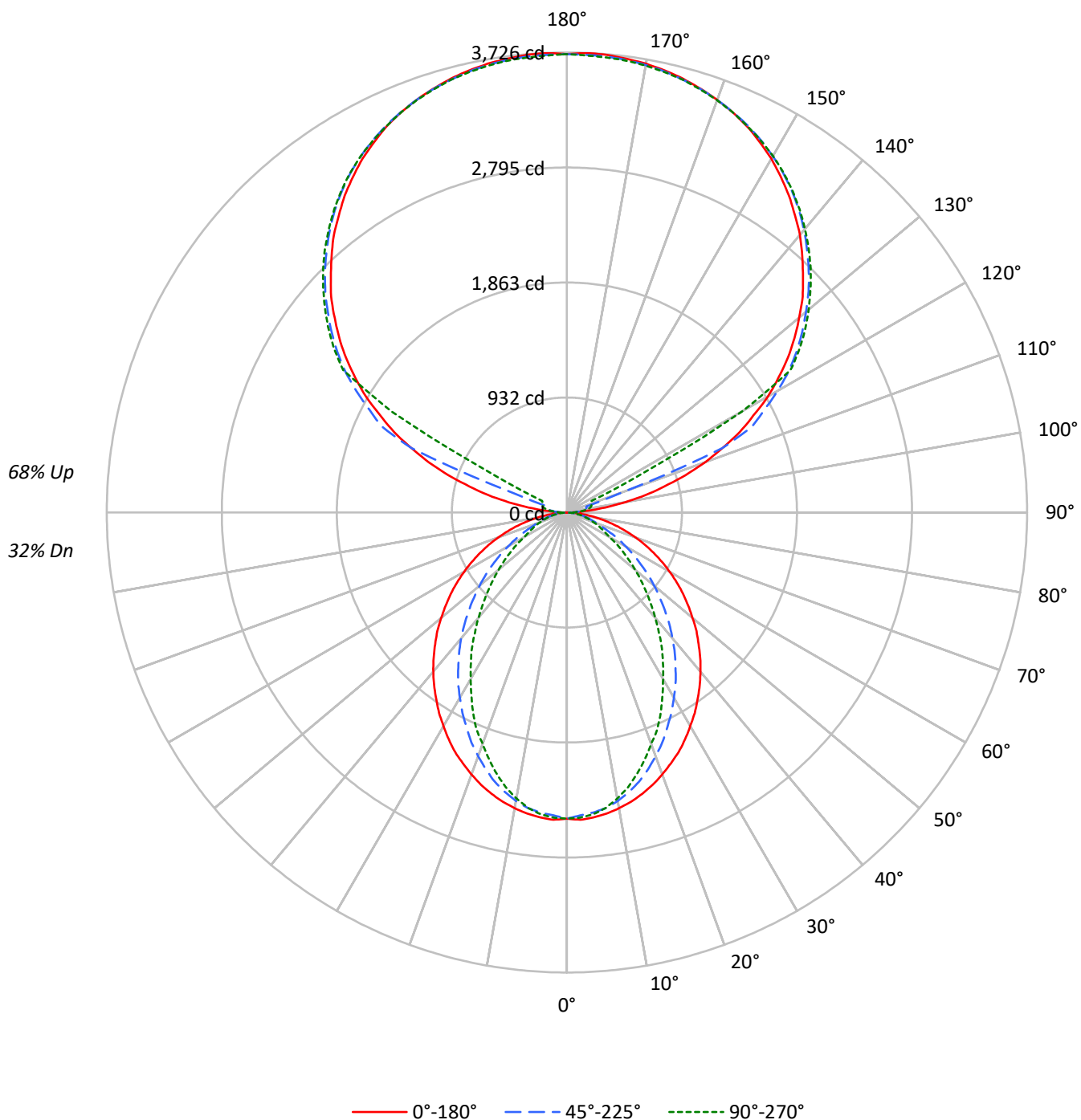
Lumens per Lamp: N/A
Luminaire Lumens: 15990.0 lumens
Efficiency: N/A
Efficacy: 109.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 146.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	73	73	73	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	49	48	47	35	35	34
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	31	30	29
3	78	70	63	57	70	63	57	52	50	46	43	39	36	34	28	26	25
4	72	62	54	48	64	56	49	44	45	40	37	35	32	29	25	23	22
5	66	55	47	42	59	50	43	38	40	35	32	31	28	25	23	21	19
6	61	49	42	36	55	45	38	33	36	31	28	28	25	22	21	19	17
7	56	44	37	32	51	41	34	29	33	28	24	26	22	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	15	14
9	48	37	30	25	44	34	27	23	27	23	19	22	18	16	16	14	12
10	45	34	27	22	41	31	25	21	25	21	17	20	17	14	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1810	1810	1810
5°	1813	1782	1793
10°	1795	1747	1735
15°	1770	1689	1645
20°	1738	1610	1535
25°	1704	1521	1428
30°	1659	1430	1293
35°	1615	1332	1174
40°	1570	1230	1037
45°	1518	1117	914
50°	1464	1003	793
55°	1408	882	677
60°	1343	755	557
65°	1268	625	502
70°	1177	504	455
75°	1064	445	415
80°	898	374	361
85°	626	251	273

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1979 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.4	1.5
10°-20°	638.0	4.0
20°-30°	895.7	5.6
30°-40°	976.4	6.1
40°-50°	897.4	5.6
50°-60°	704.8	4.4
60°-70°	458.8	2.9
70°-80°	236.1	1.5
80°-90°	66.8	0.4
90°-100°	122.4	0.8
100°-110°	456.3	2.9
110°-120°	1210.3	7.6
120°-130°	2007.3	12.6
130°-140°	2132.2	13.3
140°-150°	1981.7	12.4
150°-160°	1593.2	10.0
160°-170°	1026.6	6.4
170°-180°	353.3	2.2
0°-30°	1766.2	11.0
0°-40°	2742.6	17.2
0°-60°	4344.8	27.2
0°-90°	5106.5	31.9
90°-120°	1789.0	11.2
90°-150°	7910.3	49.5
90°-180°	10883.0	68.1
0°-180°	15990.0	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	32	54	67	72	15
95°	174	86	105	118	116	207
105°	817	897	164	193	204	873
115°	1544	1590	1658	414	220	1521
125°	2184	2219	2270	2289	2297	1948
135°	2702	2746	2769	2797	2791	2088
145°	3135	3132	3178	3197	3183	1961
155°	3452	3428	3460	3476	3455	1591
165°	3637	3621	3629	3648	3629	1028
175°	3720	3702	3707	3726	3699	354
180°	3712	3712	3712	3712	3712	

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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°	2.6	32.2	53.6	67.3	72.4
92.5°	67.3	56.5	64.4	69.9	72.4
95°	174.5	85.8	104.6	118.3	115.5
97.5°	314.2	94.1	136.8	145.1	147.7
100°	475.6	107.5	153.1	174.5	179.9
102.5°	652.6	647.5	158.5	187.9	196.2
105°	816.6	897.3	164.0	193.3	204.2
107.5°	1007.4	1074.3	169.4	198.7	209.6
110°	1190.1	1246.3	470.2	201.6	212.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1362.1	1410.2	1364.6	206.7	215.0
115°	1544.5	1590.1	1657.5	413.7	220.4
117.5°	1703.1	1756.7	1802.6	1418.2	714.5
120°	1880.4	1920.6	1969.1	2001.3	1638.6
122.5°	2030.7	2073.7	2127.6	2143.6	2146.5
125°	2183.8	2218.9	2269.9	2288.7	2296.7
127.5°	2323.5	2361.1	2401.6	2428.4	2431.0
130°	2455.2	2498.3	2527.6	2557.3	2554.8
132.5°	2589.5	2624.6	2654.0	2678.2	2675.7
135°	2702.5	2745.5	2769.4	2796.6	2791.1
137.5°	2820.5	2852.7	2879.8	2906.6	2898.6
140°	2936.0	2957.6	2987.0	3011.2	2997.8
142.5°	3032.9	3051.7	3086.5	3107.9	3094.5
145°	3135.0	3132.1	3177.7	3196.6	3183.2
147.5°	3223.4	3215.4	3261.0	3274.4	3263.9
150°	3309.5	3290.7	3333.7	3349.7	3336.3
152.5°	3381.9	3360.5	3400.7	3417.0	3398.2
155°	3451.8	3427.8	3460.0	3476.0	3454.6
157.5°	3508.2	3486.8	3511.1	3529.9	3508.2
160°	3556.7	3540.4	3556.7	3572.6	3553.8
162.5°	3599.4	3583.5	3596.9	3615.7	3591.5
165°	3637.1	3621.1	3629.1	3647.9	3629.1
167.5°	3666.7	3650.5	3658.8	3677.6	3653.4
170°	3691.0	3674.7	3680.1	3699.0	3674.7
172.5°	3706.9	3691.0	3696.4	3715.2	3691.0
175°	3720.3	3701.5	3706.9	3725.8	3699.0
177.5°	3725.8	3706.9	3709.8	3728.6	3704.4
180°	3712.4	3712.4	3712.4	3712.4	3712.4

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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	7.24	7.94	8.35	9.04	10.55	3.21	3.91	4.31	5.01	6.52
	3H	8.91	9.54	10.03	10.65	12.17	4.39	5.01	5.50	6.12	7.65
	4H	9.52	10.11	10.64	11.22	12.75	4.83	5.43	5.95	6.53	8.07
	6H	9.94	10.48	11.07	11.59	13.14	5.15	5.70	6.28	6.80	8.35
	8H	10.06	10.58	11.19	11.70	13.24	5.24	5.76	6.37	6.88	8.42
	12H	10.12	10.61	11.26	11.73	13.29	5.27	5.77	6.41	6.89	8.45
4H	2H	7.25	7.84	8.37	8.95	10.48	3.79	4.38	4.92	5.49	7.02
	3H	9.07	9.56	10.20	10.69	12.24	5.13	5.62	6.26	6.76	8.30
	4H	9.76	10.21	10.89	11.33	12.90	5.67	6.13	6.81	7.25	8.81
	6H	10.27	10.66	11.41	11.80	13.36	6.09	6.47	7.23	7.62	9.18
	8H	10.44	10.80	11.58	11.94	13.51	6.21	6.58	7.36	7.71	9.28
	12H	10.53	10.86	11.69	12.01	13.59	6.27	6.60	7.43	7.75	9.33
8H	4H	9.71	10.08	10.86	11.21	12.79	5.94	6.31	7.09	7.44	9.02
	6H	10.28	10.58	11.44	11.76	13.32	6.46	6.76	7.62	7.94	9.51
	8H	10.50	10.76	11.67	11.91	13.50	6.65	6.91	7.82	8.07	9.66
	12H	10.63	10.86	11.80	12.02	13.64	6.76	6.99	7.94	8.15	9.77
12H	4H	9.66	9.99	10.82	11.14	12.71	5.94	6.27	7.10	7.42	9.00
	6H	10.25	10.51	11.42	11.67	13.26	6.51	6.77	7.68	7.93	9.52
	8H	10.47	10.70	11.64	11.85	13.48	6.71	6.94	7.89	8.10	9.72