

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: P915633

Luminaire Tested: DFN2DIP-TR4F0-080D120US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915633
REPORT IS A COMBINATION OF REPORTS P902042 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D120US927-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

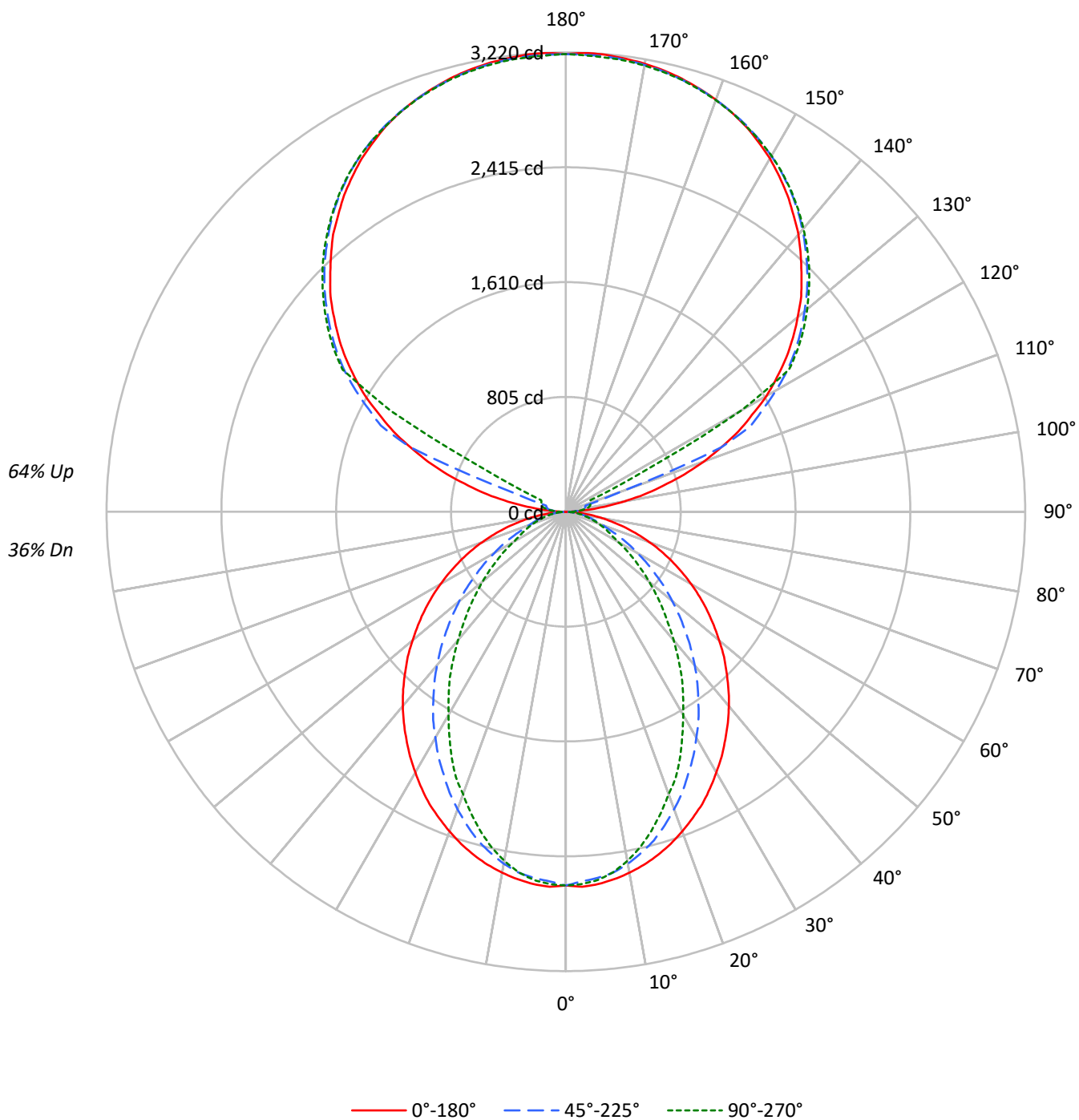
Lumens per Lamp: N/A
Luminaire Lumens: 14797.9 lumens
Efficiency: N/A
Efficacy: 88.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 166.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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		76	76	76		59	59	59		44	44	44
1	95	91	87	84		86	83	80	77		67	65	63		52	51	50		39	38	38
2	87	80	74	69		78	73	68	63		59	56	53		46	44	42		35	33	32
3	79	70	63	58		72	64	58	53		52	48	45		41	38	36		31	29	28
4	73	63	55	49		66	57	51	46		47	42	38		37	34	31		28	26	24
5	67	56	48	42		60	51	44	39		42	37	33		33	30	27		25	23	21
6	62	50	42	37		56	46	39	34		38	33	29		30	27	24		23	21	19
7	57	45	38	32		52	41	35	30		34	29	26		28	24	21		21	19	17
8	53	41	34	29		48	38	31	27		31	26	23		25	22	19		20	17	15
9	49	37	30	25		45	34	28	24		29	24	20		23	20	17		18	16	14
10	46	34	27	23		42	32	25	21		26	22	18		22	18	15		17	14	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2081	2081	2081
5°	2084	2048	2061
10°	2064	2008	1994
15°	2035	1941	1890
20°	1998	1850	1763
25°	1959	1747	1640
30°	1907	1642	1484
35°	1857	1529	1347
40°	1805	1412	1190
45°	1745	1282	1048
50°	1684	1151	909
55°	1619	1011	775
60°	1544	865	638
65°	1458	716	574
70°	1354	577	520
75°	1223	509	473
80°	1034	427	409
85°	721	285	308

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1745 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	245.5	1.7
10°-20°	673.9	4.6
20°-30°	946.1	6.4
30°-40°	1031.3	7.0
40°-50°	947.9	6.4
50°-60°	744.4	5.0
60°-70°	484.5	3.3
70°-80°	249.4	1.7
80°-90°	69.3	0.5
90°-100°	105.8	0.7
100°-110°	394.4	2.7
110°-120°	1045.9	7.1
120°-130°	1734.7	11.7
130°-140°	1842.7	12.5
140°-150°	1712.6	11.6
150°-160°	1376.9	9.3
160°-170°	887.2	6.0
170°-180°	305.4	2.1
0°-30°	1865.5	12.6
0°-40°	2896.8	19.6
0°-60°	4589.2	31.0
0°-90°	5392.5	36.4
90°-120°	1546.1	10.4
90°-150°	6836.0	46.2
90°-180°	9405.0	63.6
0°-180°	14797.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2619	2619	2619	2619	2619	
5°	2619	2608	2576	2598	2591	248
15°	2491	2465	2385	2340	2316	702
25°	2261	2186	2029	1932	1896	1040
35°	1948	1828	1619	1470	1417	1220
45°	1593	1434	1185	1017	960	1230
55°	1211	1026	770	628	583	1082
65°	818	626	412	332	325	811
75°	436	270	190	173	171	461
85°	102	52	45	45	45	117
90°	2	28	46	58	63	14
95°	151	74	90	102	100	179
105°	706	776	142	167	176	754
115°	1335	1374	1432	358	190	1314
125°	1887	1918	1962	1978	1985	1683
135°	2335	2373	2393	2417	2412	1804
145°	2709	2707	2746	2762	2751	1694
155°	2983	2962	2990	3004	2986	1375
165°	3143	3129	3136	3153	3136	888
175°	3215	3199	3204	3220	3197	306
180°	3208	3208	3208	3208	3208	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2619.3	2619.3	2619.3	2619.3	2619.3
2.5°	2631.1	2619.3	2593.1	2617.0	2612.2
5°	2619.3	2607.5	2576.5	2597.9	2590.8
7.5°	2597.9	2583.8	2550.6	2559.9	2548.1
10°	2569.4	2552.9	2505.6	2498.3	2484.2
12.5°	2534.0	2512.6	2448.5	2434.4	2408.2
15°	2491.3	2465.1	2384.6	2339.6	2315.9
17.5°	2441.4	2403.5	2303.9	2251.9	2213.8
20°	2384.6	2337.1	2218.7	2159.6	2107.2
22.5°	2323.0	2268.4	2130.9	2050.4	2014.9
25°	2261.4	2185.5	2029.0	1932.0	1896.2
27.5°	2187.9	2107.2	1934.2	1822.8	1768.2
30°	2109.7	2019.4	1829.9	1709.1	1645.0
32.5°	2033.8	1924.7	1730.5	1588.2	1528.8
35°	1948.5	1827.6	1619.1	1469.7	1417.4
37.5°	1865.5	1735.0	1514.7	1351.0	1291.9
40°	1777.8	1635.7	1405.6	1237.3	1175.7
42.5°	1687.7	1536.1	1296.6	1121.2	1062.0
45°	1592.9	1434.0	1185.3	1016.8	960.0
47.5°	1502.9	1334.7	1078.6	910.1	858.1
50°	1403.3	1235.1	974.3	810.6	761.0
52.5°	1306.0	1128.1	874.6	718.3	673.3
55°	1211.2	1026.3	770.3	628.2	583.2
57.5°	1114.1	924.5	678.0	545.3	507.2
60°	1014.5	824.9	580.7	459.9	422.0
62.5°	917.4	727.8	497.7	384.0	365.2
65°	817.8	625.7	412.4	332.0	324.6
67.5°	723.0	530.9	332.0	291.4	284.5
70°	623.4	438.6	274.9	251.2	241.7
72.5°	528.6	353.1	229.9	211.0	206.2
75°	436.1	270.1	189.6	173.0	170.8
77.5°	343.8	191.9	149.4	139.8	135.1
80°	258.3	137.6	113.7	104.3	104.3
82.5°	180.1	92.5	78.2	73.4	73.4
85°	101.9	52.0	45.0	45.0	45.0
87.5°	37.9	18.9	18.9	16.6	16.6
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.8	74.1	90.4	102.3	99.8
97.5°	271.6	81.4	118.3	125.4	127.6
100°	411.0	92.9	132.3	150.8	155.5
102.5°	564.0	559.6	137.0	162.4	169.5
105°	705.7	775.5	141.7	167.1	176.4
107.5°	870.5	928.4	146.4	171.7	181.1
110°	1028.5	1077.0	406.3	174.2	183.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1177.1	1218.7	1179.3	178.6	185.8
115°	1334.7	1374.2	1432.3	357.5	190.5
117.5°	1471.8	1518.1	1557.8	1225.6	617.5
120°	1625.1	1659.8	1701.7	1729.6	1416.1
122.5°	1754.9	1792.2	1838.7	1852.5	1855.0
125°	1887.2	1917.6	1961.7	1977.9	1984.8
127.5°	2007.9	2040.5	2075.5	2098.6	2100.9
130°	2121.8	2159.0	2184.4	2210.0	2207.8
132.5°	2237.8	2268.2	2293.5	2314.5	2312.3
135°	2335.4	2372.7	2393.3	2416.8	2412.1
137.5°	2437.5	2465.3	2488.7	2511.8	2505.0
140°	2537.3	2556.0	2581.3	2602.3	2590.7
142.5°	2621.0	2637.3	2667.4	2685.8	2674.2
145°	2709.3	2706.8	2746.2	2762.5	2750.8
147.5°	2785.6	2778.7	2818.2	2829.8	2820.6
150°	2860.0	2843.8	2881.0	2894.8	2883.2
152.5°	2922.6	2904.1	2938.9	2952.9	2936.7
155°	2983.0	2962.3	2990.2	3004.0	2985.5
157.5°	3031.8	3013.3	3034.3	3050.5	3031.8
160°	3073.7	3059.6	3073.7	3087.4	3071.2
162.5°	3110.7	3096.9	3108.4	3124.7	3103.8
165°	3143.1	3129.4	3136.2	3152.6	3136.2
167.5°	3168.8	3154.7	3161.9	3178.2	3157.2
170°	3189.7	3175.7	3180.4	3196.6	3175.7
172.5°	3203.5	3189.7	3194.5	3210.7	3189.7
175°	3215.1	3198.8	3203.5	3219.8	3196.6
177.5°	3219.8	3203.5	3206.0	3222.3	3201.4
180°	3208.3	3208.3	3208.3	3208.3	3208.3

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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	8.27	9.00	9.34	10.07	11.53	4.25	4.98	5.32	6.05	7.50
	3H	9.94	10.60	11.02	11.67	13.15	5.43	6.08	6.51	7.16	8.63
	4H	10.55	11.17	11.64	12.24	13.72	5.87	6.49	6.97	7.57	9.05
	6H	10.96	11.53	12.06	12.61	14.11	6.19	6.76	7.29	7.84	9.33
	8H	11.09	11.63	12.19	12.73	14.21	6.28	6.82	7.38	7.92	9.40
	12H	11.14	11.66	12.25	12.75	14.26	6.32	6.83	7.43	7.93	9.43
4H	2H	8.28	8.90	9.38	9.98	11.46	4.83	5.45	5.93	6.53	8.01
	3H	10.10	10.61	11.20	11.72	13.21	6.17	6.69	7.28	7.79	9.28
	4H	10.79	11.26	11.90	12.36	13.87	6.72	7.19	7.83	8.28	9.80
	6H	11.30	11.70	12.41	12.82	14.33	7.13	7.54	8.25	8.65	10.16
	8H	11.47	11.85	12.59	12.96	14.48	7.26	7.64	8.37	8.75	10.27
	12H	11.56	11.90	12.69	13.03	14.55	7.32	7.66	8.45	8.78	10.31
8H	4H	10.75	11.13	11.86	12.24	13.76	6.99	7.37	8.11	8.48	10.00
	6H	11.31	11.62	12.45	12.77	14.29	7.50	7.82	8.64	8.97	10.49
	8H	11.53	11.80	12.67	12.93	14.47	7.70	7.97	8.84	9.10	10.64
	12H	11.66	11.90	12.81	13.03	14.60	7.81	8.05	8.96	9.18	10.75
12H	4H	10.69	11.04	11.83	12.16	13.69	6.99	7.33	8.12	8.45	9.98
	6H	11.29	11.56	12.43	12.69	14.23	7.55	7.83	8.70	8.96	10.50
	8H	11.50	11.74	12.65	12.87	14.45	7.76	8.00	8.91	9.13	10.70