

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: P918251

Luminaire Tested: DFN2DIP-TR4F0-050D120US930-FLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918251
REPORT IS A COMBINATION OF REPORTS P902035 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D120US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

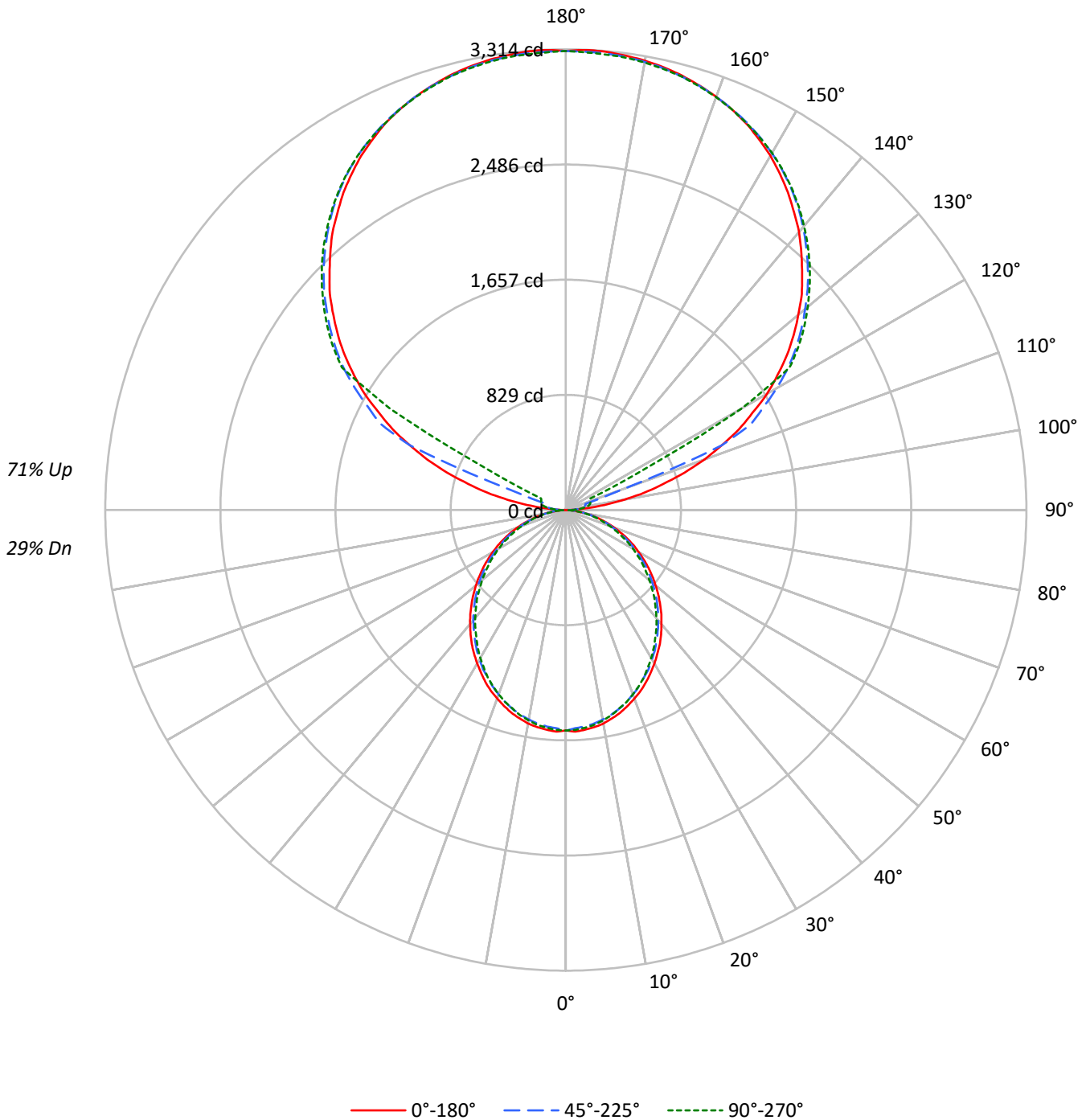
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13721.4 lumens
Efficiency: N/A
Efficacy: 102.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 133.3
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37	29				29
1	93	89	85	82	83	80	77	74	63	61	59	47	46	45	33	32	31	25				25
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	29	28	26	21				21
3	77	68	61	56	69	61	55	51	49	44	41	37	34	32	26	24	22	18				18
4	71	60	53	47	63	54	48	43	43	38	35	33	29	27	23	21	19	15				15
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	21	19	17	13				13
6	60	48	40	34	53	43	36	32	35	30	26	26	23	20	19	16	15	12				12
7	55	43	35	30	49	39	32	28	31	26	23	24	20	18	17	15	13	10				10
8	51	39	32	26	46	35	29	24	28	23	20	22	18	16	16	13	12	9				9
9	47	35	28	23	42	32	26	22	26	21	18	20	17	14	14	12	11	8				8
10	44	32	25	21	40	29	23	19	24	19	16	18	15	13	13	11	10	8				8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1260	1260	1260
5°	1262	1242	1251
10°	1252	1226	1234
15°	1233	1206	1207
20°	1209	1178	1180
25°	1184	1144	1149
30°	1153	1113	1109
35°	1124	1076	1067
40°	1087	1039	1027
45°	1051	1002	986
50°	1012	962	938
55°	971	917	894
60°	924	863	844
65°	873	808	785
70°	808	740	722
75°	719	659	663
80°	611	555	551
85°	442	377	365

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1753 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.3	1.1
10°-20°	420.0	3.1
20°-30°	617.3	4.5
30°-40°	717.0	5.2
40°-50°	716.1	5.2
50°-60°	624.4	4.6
60°-70°	461.6	3.4
70°-80°	261.1	1.9
80°-90°	74.7	0.5
90°-100°	108.9	0.8
100°-110°	405.9	3.0
110°-120°	1076.4	7.8
120°-130°	1785.3	13.0
130°-140°	1896.5	13.8
140°-150°	1762.5	12.8
150°-160°	1417.0	10.3
160°-170°	913.1	6.7
170°-180°	314.3	2.3
0°-30°	1186.6	8.6
0°-40°	1903.6	13.9
0°-60°	3244.1	23.6
0°-90°	4041.5	29.5
90°-120°	1591.2	11.6
90°-150°	7035.5	51.3
90°-180°	9680.0	70.5
0°-180°	13721.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1586	1586	1586	1586	1586	
5°	1586	1580	1563	1576	1573	151
15°	1510	1501	1481	1487	1480	425
25°	1367	1354	1328	1332	1328	629
35°	1179	1164	1139	1130	1123	736
45°	959	949	926	909	903	740
55°	726	717	698	680	673	649
65°	490	480	465	452	444	484
75°	256	253	246	236	240	273
85°	62	61	60	55	53	70
90°	2	29	48	60	64	13
95°	155	76	93	105	103	184
105°	726	798	146	172	182	776
115°	1374	1414	1474	368	196	1352
125°	1942	1974	2019	2036	2043	1732
135°	2404	2442	2463	2487	2482	1857
145°	2788	2786	2826	2843	2831	1744
155°	3070	3049	3077	3092	3073	1415
165°	3235	3221	3228	3245	3228	914
175°	3309	3292	3297	3314	3290	315
180°	3302	3302	3302	3302	3302	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1586.2	1586.2	1586.2	1586.2	1586.2
2.5°	1595.4	1587.8	1571.0	1586.2	1583.3
5°	1586.2	1580.2	1563.3	1575.5	1572.6
7.5°	1575.5	1566.4	1549.6	1561.9	1558.9
10°	1558.9	1548.2	1529.9	1542.0	1537.5
12.5°	1535.9	1526.8	1508.5	1516.1	1513.0
15°	1509.9	1500.9	1481.0	1487.2	1479.5
17.5°	1477.9	1468.8	1448.9	1456.5	1448.9
20°	1442.8	1433.8	1412.4	1416.9	1411.0
22.5°	1407.9	1394.1	1374.2	1374.2	1371.1
25°	1366.6	1354.5	1328.5	1331.5	1328.5
27.5°	1320.8	1310.1	1290.4	1285.8	1278.2
30°	1275.1	1262.9	1240.1	1235.5	1229.4
32.5°	1226.3	1217.2	1192.8	1183.6	1177.5
35°	1179.0	1163.8	1139.4	1130.2	1122.6
37.5°	1125.6	1111.9	1087.4	1076.8	1069.2
40°	1070.8	1058.5	1034.0	1020.4	1014.3
42.5°	1017.4	1005.1	980.8	965.4	956.3
45°	959.4	948.8	925.8	909.1	902.9
47.5°	902.9	892.3	867.9	851.0	842.0
50°	843.4	835.8	814.5	793.1	785.5
52.5°	785.5	774.8	755.0	738.3	727.6
55°	726.1	716.9	698.5	680.3	672.7
57.5°	666.5	658.9	639.0	620.8	614.6
60°	607.0	601.0	579.7	562.8	558.3
62.5°	549.1	538.4	523.2	507.9	501.8
65°	489.7	480.5	465.2	451.5	443.8
67.5°	428.7	420.9	407.3	396.6	390.4
70°	372.2	366.1	352.3	341.6	335.7
72.5°	314.3	308.1	300.5	289.8	285.3
75°	256.2	253.2	245.5	236.4	239.5
77.5°	204.4	198.2	195.2	190.6	186.1
80°	152.6	151.0	147.9	143.4	140.3
82.5°	103.7	103.7	102.2	96.1	96.1
85°	62.5	61.0	59.5	54.9	53.4
87.5°	27.5	24.5	21.4	16.8	15.2
90°	2.3	28.6	47.7	59.8	64.4
92.5°	59.8	50.2	57.3	62.1	64.4
95°	155.2	76.3	93.0	105.3	102.7
97.5°	279.5	83.7	121.7	129.1	131.3
100°	423.0	95.6	136.2	155.2	160.0
102.5°	580.5	575.9	141.0	167.1	174.5
105°	726.3	798.1	145.9	171.9	181.6
107.5°	895.9	955.5	150.7	176.8	186.4
110°	1058.5	1108.5	418.2	179.3	188.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1211.5	1254.3	1213.7	183.8	191.2
115°	1373.7	1414.3	1474.1	367.9	196.1
117.5°	1514.7	1562.4	1603.3	1261.3	635.5
120°	1672.5	1708.2	1751.3	1780.0	1457.4
122.5°	1806.1	1844.4	1892.4	1906.6	1909.1
125°	1942.3	1973.5	2018.9	2035.6	2042.7
127.5°	2066.5	2100.0	2136.1	2159.9	2162.2
130°	2183.7	2222.0	2248.1	2274.5	2272.2
132.5°	2303.1	2334.4	2360.5	2382.1	2379.8
135°	2403.6	2441.9	2463.2	2487.3	2482.5
137.5°	2508.6	2537.2	2561.3	2585.1	2578.1
140°	2611.3	2630.6	2656.6	2678.3	2666.4
142.5°	2697.5	2714.3	2745.2	2764.2	2752.3
145°	2788.3	2785.8	2826.3	2843.1	2831.1
147.5°	2866.9	2859.8	2900.4	2912.3	2903.0
150°	2943.5	2926.8	2965.1	2979.3	2967.4
152.5°	3007.9	2988.9	3024.7	3039.1	3022.4
155°	3070.0	3048.7	3077.4	3091.6	3072.6
157.5°	3120.2	3101.2	3122.8	3139.6	3120.2
160°	3163.4	3148.9	3163.4	3177.5	3160.8
162.5°	3201.4	3187.2	3199.1	3215.9	3194.3
165°	3234.9	3220.7	3227.8	3244.6	3227.8
167.5°	3261.3	3246.8	3254.2	3270.9	3249.4
170°	3282.8	3268.4	3273.2	3289.9	3268.4
172.5°	3297.0	3282.8	3287.7	3304.4	3282.8
175°	3308.9	3292.2	3297.0	3313.8	3289.9
177.5°	3313.8	3297.0	3299.6	3316.3	3294.8
180°	3301.9	3301.9	3301.9	3301.9	3301.9



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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	5.78	6.48	6.90	7.59	9.13	5.35	6.05	6.47	7.16	8.70
	3H	7.43	8.06	8.55	9.18	10.73	6.96	7.59	8.08	8.70	10.26
	4H	8.01	8.61	9.14	9.73	11.28	7.54	8.13	8.67	9.25	10.81
	6H	8.40	8.95	9.54	10.07	11.64	7.93	8.48	9.07	9.60	11.17
	8H	8.50	9.02	9.65	10.16	11.72	8.03	8.55	9.17	9.69	11.25
	12H	8.54	9.04	9.69	10.17	11.76	8.06	8.56	9.21	9.69	11.28
4H	2H	6.22	6.82	7.36	7.94	9.50	5.88	6.48	7.02	7.60	9.15
	3H	8.07	8.57	9.22	9.72	11.29	7.68	8.18	8.83	9.33	10.90
	4H	8.78	9.24	9.93	10.37	11.97	8.38	8.84	9.53	9.97	11.56
	6H	9.29	9.68	10.44	10.84	12.42	8.88	9.27	10.03	10.43	12.01
	8H	9.43	9.80	10.59	10.95	12.55	9.02	9.39	10.18	10.54	12.14
	12H	9.50	9.83	10.67	10.99	12.59	9.08	9.41	10.25	10.57	12.17
8H	4H	8.97	9.33	10.12	10.48	12.08	8.61	8.97	9.76	10.12	11.72
	6H	9.59	9.89	10.77	11.08	12.68	9.23	9.53	10.40	10.72	12.32
	8H	9.81	10.07	10.99	11.24	12.86	9.44	9.70	10.62	10.87	12.49
	12H	9.93	10.17	11.12	11.33	12.98	9.55	9.78	10.73	10.95	12.60
12H	4H	8.94	9.28	10.12	10.44	12.04	8.59	8.92	9.76	10.08	11.69
	6H	9.62	9.88	10.80	11.05	12.67	9.27	9.53	10.45	10.70	12.32
	8H	9.85	10.09	11.04	11.25	12.90	9.50	9.73	10.68	10.89	12.54