

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: P915747

Luminaire Tested: DFN2DIP-TR4F0-120D050US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915747
REPORT IS A COMBINATION OF REPORTS P901923 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D050US927-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

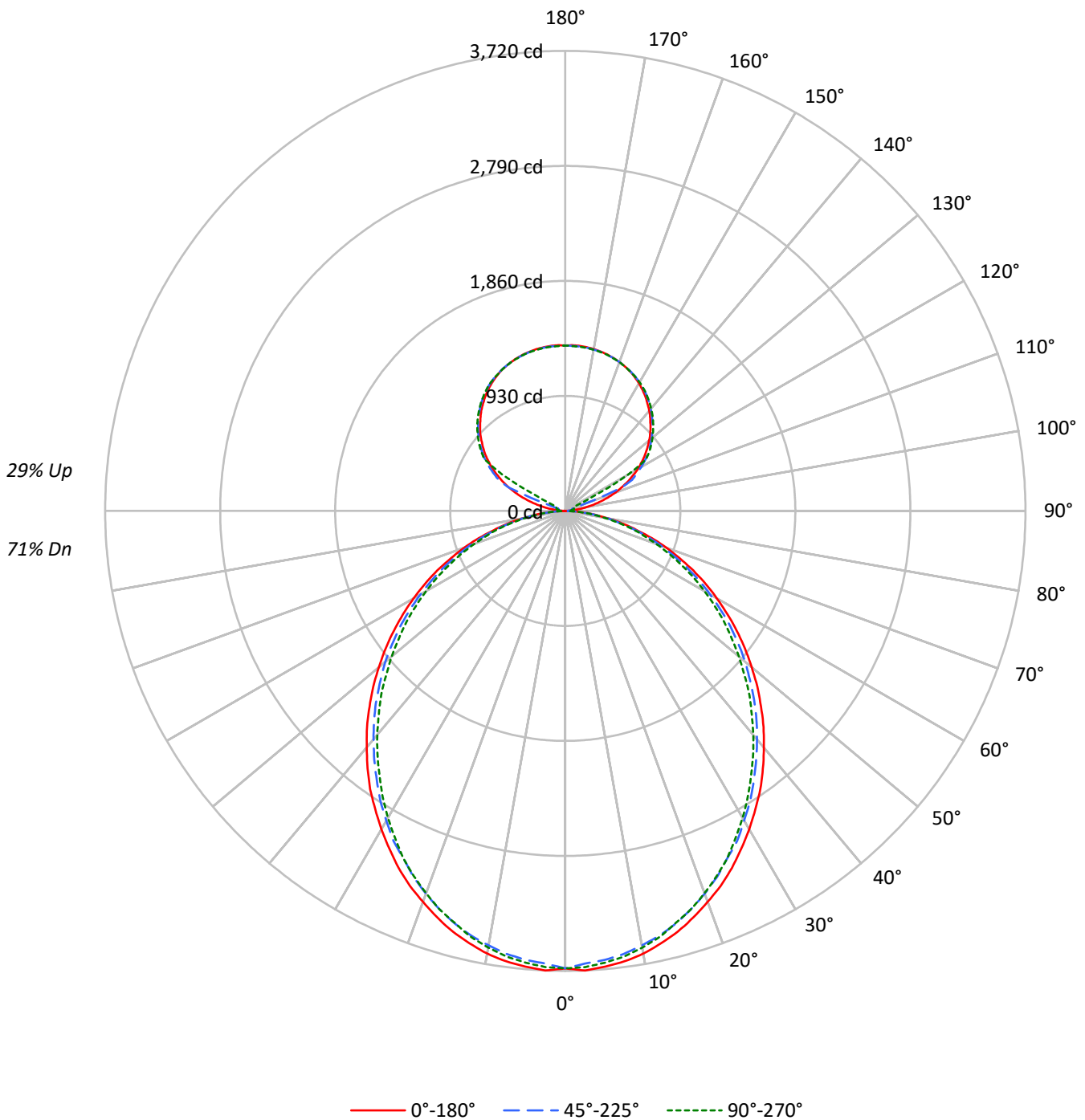
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13332.4 lumens
Efficiency: N/A
Efficacy: 81.5 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-Direct

Input Watts (W): 163.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75	71				71
1	102	98	94	90	97	93	89	86	83	81	78	74	72	71	66	65	63	59				59
2	93	86	79	74	88	81	76	71	73	69	65	65	62	59	58	56	53	50				50
3	85	75	68	62	80	72	65	59	64	59	54	58	54	50	52	48	46	42				42
4	78	67	59	52	73	64	56	50	57	51	47	52	47	43	46	42	39	36				36
5	72	60	51	45	68	57	49	43	51	45	40	46	41	37	42	38	34	32				32
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	34	30	28				28
7	61	49	40	35	58	46	39	33	42	36	31	38	33	29	35	30	27	25				25
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	27	24	22				22
9	53	40	33	28	50	39	32	27	35	29	25	32	27	23	29	25	22	20				20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20	18				18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2939	2939	2939
5°	2943	2898	2917
10°	2919	2859	2877
15°	2877	2811	2816
20°	2819	2746	2752
25°	2761	2668	2679
30°	2689	2595	2586
35°	2620	2509	2488
40°	2536	2422	2394
45°	2452	2336	2299
50°	2360	2244	2188
55°	2263	2139	2086
60°	2155	2013	1969
65°	2036	1884	1831
70°	1885	1726	1683
75°	1676	1536	1546
80°	1424	1295	1284
85°	1030	879	851

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2452 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.1	2.6
10°-20°	979.5	7.3
20°-30°	1439.5	10.8
30°-40°	1671.9	12.5
40°-50°	1669.9	12.5
50°-60°	1456.0	10.9
60°-70°	1076.3	8.1
70°-80°	609.0	4.6
80°-90°	163.1	1.2
90°-100°	44.1	0.3
100°-110°	164.3	1.2
110°-120°	435.8	3.3
120°-130°	722.8	5.4
130°-140°	767.8	5.8
140°-150°	713.6	5.4
150°-160°	573.7	4.3
160°-170°	369.7	2.8
170°-180°	127.2	1.0
0°-30°	2767.2	20.8
0°-40°	4439.1	33.3
0°-60°	7565.0	56.7
0°-90°	9413.5	70.6
90°-120°	644.2	4.8
90°-150°	2848.4	21.4
90°-180°	3919.0	29.4
0°-180°	13332.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3699	3699	3699	3699	3699	
5°	3699	3685	3646	3674	3667	351
15°	3521	3500	3454	3468	3450	992
25°	3187	3158	3098	3105	3098	1466
35°	2749	2714	2657	2636	2618	1717
45°	2237	2212	2159	2120	2106	1727
55°	1693	1672	1629	1586	1569	1514
65°	1142	1120	1085	1053	1035	1129
75°	597	591	572	551	558	638
85°	146	142	139	128	124	162
90°	1	12	19	24	26	12
95°	63	31	38	43	42	74
105°	294	323	59	70	74	314
115°	556	573	597	149	79	548
125°	786	799	817	824	827	701
135°	973	989	997	1007	1005	752
145°	1129	1128	1144	1151	1146	706
155°	1243	1234	1246	1252	1244	573
165°	1310	1304	1307	1314	1307	370
175°	1340	1333	1335	1342	1332	127
180°	1337	1337	1337	1337	1337	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3698.9	3698.9	3698.9	3698.9	3698.9
2.5°	3720.4	3702.7	3663.4	3698.9	3692.1
5°	3698.9	3684.9	3645.7	3674.0	3667.2
7.5°	3674.0	3652.8	3613.6	3642.3	3635.2
10°	3635.2	3610.2	3567.6	3595.9	3585.3
12.5°	3581.5	3560.4	3517.8	3535.5	3528.3
15°	3521.2	3500.0	3453.6	3467.9	3450.2
17.5°	3446.5	3425.3	3378.9	3396.6	3378.9
20°	3364.6	3343.4	3293.7	3304.2	3290.2
22.5°	3283.0	3251.0	3204.5	3204.5	3197.4
25°	3186.8	3158.5	3098.1	3105.0	3098.1
27.5°	3080.0	3055.1	3009.1	2998.5	2980.8
30°	2973.6	2944.9	2891.7	2881.2	2866.8
32.5°	2859.6	2838.5	2781.5	2760.0	2745.7
35°	2749.4	2714.0	2657.0	2635.5	2617.8
37.5°	2624.9	2592.9	2535.9	2511.0	2493.2
40°	2497.0	2468.4	2411.3	2379.6	2365.3
42.5°	2372.5	2343.8	2287.2	2251.4	2230.2
45°	2237.4	2212.5	2158.9	2120.0	2105.7
47.5°	2105.7	2080.7	2023.8	1984.6	1963.4
50°	1966.8	1949.1	1899.3	1849.4	1831.7
52.5°	1831.7	1806.8	1760.8	1721.5	1696.6
55°	1693.2	1671.7	1629.0	1586.4	1568.7
57.5°	1554.3	1536.6	1490.2	1447.6	1433.2
60°	1415.5	1401.5	1351.7	1312.5	1301.9
62.5°	1280.4	1255.4	1220.0	1184.5	1170.2
65°	1141.9	1120.4	1084.9	1052.8	1035.1
67.5°	999.7	981.5	949.8	925.0	910.6
70°	867.9	853.6	821.5	796.6	782.7
72.5°	732.8	718.5	700.8	675.9	665.3
75°	597.4	590.6	572.4	551.4	558.5
77.5°	476.6	462.2	455.1	444.5	434.0
80°	355.8	352.0	344.9	334.4	327.2
82.5°	241.9	241.9	238.5	224.2	224.2
85°	145.7	142.3	138.9	127.9	124.5
87.5°	64.2	57.0	49.8	39.2	35.5
90°	1.0	11.6	19.3	24.2	26.1
92.5°	24.2	20.4	23.2	25.2	26.1
95°	62.8	30.9	37.7	42.6	41.6
97.5°	113.1	33.9	49.3	52.3	53.2
100°	171.3	38.7	55.1	62.8	64.8
102.5°	235.0	233.1	57.1	67.7	70.7
105°	294.1	323.1	59.0	69.6	73.5
107.5°	362.7	386.8	61.0	71.5	75.5
110°	428.6	448.8	169.3	72.6	76.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	490.4	507.8	491.4	74.5	77.4
115°	556.2	572.6	596.8	149.0	79.4
117.5°	613.2	632.6	649.1	510.6	257.3
120°	677.1	691.6	709.0	720.6	590.0
122.5°	731.2	746.7	766.1	771.9	772.9
125°	786.3	799.0	817.4	824.1	827.0
127.5°	836.6	850.2	864.8	874.4	875.4
130°	884.1	899.6	910.1	920.8	920.0
132.5°	932.5	945.1	955.6	964.4	963.5
135°	973.1	988.6	997.2	1007.0	1005.0
137.5°	1015.6	1027.2	1037.0	1046.6	1043.8
140°	1057.2	1065.0	1075.5	1084.3	1079.5
142.5°	1092.1	1098.9	1111.4	1119.1	1114.3
145°	1128.9	1127.8	1144.2	1151.0	1146.2
147.5°	1160.7	1157.8	1174.3	1179.1	1175.3
150°	1191.7	1184.9	1200.4	1206.2	1201.3
152.5°	1217.7	1210.1	1224.6	1230.4	1223.6
155°	1242.9	1234.3	1245.9	1251.6	1244.0
157.5°	1263.2	1255.5	1264.2	1271.1	1263.2
160°	1280.7	1274.9	1280.7	1286.4	1279.7
162.5°	1296.1	1290.4	1295.1	1301.9	1293.2
165°	1309.6	1303.9	1306.8	1313.5	1306.8
167.5°	1320.3	1314.5	1317.5	1324.2	1315.5
170°	1329.0	1323.2	1325.2	1331.9	1323.2
172.5°	1334.8	1329.0	1331.0	1337.8	1329.0
175°	1339.7	1332.8	1334.8	1341.6	1331.9
177.5°	1341.6	1334.8	1335.9	1342.6	1333.9
180°	1336.7	1336.7	1336.7	1336.7	1336.7



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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	12.73	13.81	13.48	14.59	15.53	12.30	13.38	13.05	14.16	15.10
	3H	14.40	15.38	15.17	16.17	17.14	13.93	14.90	14.70	15.69	16.67
	4H	15.00	15.92	15.79	16.72	17.70	14.53	15.45	15.32	16.25	17.23
	6H	15.41	16.26	16.21	17.07	18.07	14.94	15.78	15.74	16.59	17.59
	8H	15.52	16.33	16.33	17.16	18.16	15.05	15.86	15.86	16.68	17.68
	12H	15.58	16.35	16.40	17.17	18.19	15.10	15.87	15.92	16.69	17.71
4H	2H	13.22	14.13	14.01	14.93	15.92	12.87	13.79	13.66	14.59	15.57
	3H	15.10	15.87	15.91	16.70	17.70	14.71	15.48	15.51	16.31	17.31
	4H	15.82	16.52	16.64	17.35	18.38	15.42	16.12	16.24	16.95	17.98
	6H	16.35	16.96	17.19	17.81	18.85	15.94	16.55	16.78	17.40	18.44
	8H	16.51	17.07	17.35	17.92	18.97	16.09	16.66	16.93	17.51	18.56
	12H	16.59	17.10	17.45	17.97	19.02	16.17	16.68	17.03	17.55	18.60
8H	4H	16.04	16.60	16.88	17.45	18.50	15.68	16.24	16.52	17.09	18.14
	6H	16.68	17.15	17.55	18.04	19.09	16.32	16.78	17.18	17.68	18.73
	8H	16.90	17.32	17.78	18.21	19.27	16.53	16.95	17.41	17.84	18.90
	12H	17.04	17.41	17.92	18.29	19.41	16.66	17.03	17.54	17.91	19.02
12H	4H	16.03	16.54	16.89	17.42	18.47	15.68	16.19	16.54	17.06	18.12
	6H	16.71	17.13	17.59	18.01	19.08	16.36	16.78	17.24	17.66	18.73
	8H	16.96	17.33	17.84	18.21	19.33	16.61	16.97	17.49	17.85	18.97