

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: P923954

Luminaire Tested: DFN2DIP-TR4F0-120D110US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923954
REPORT IS A COMBINATION OF REPORTS P900511 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D110US940-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

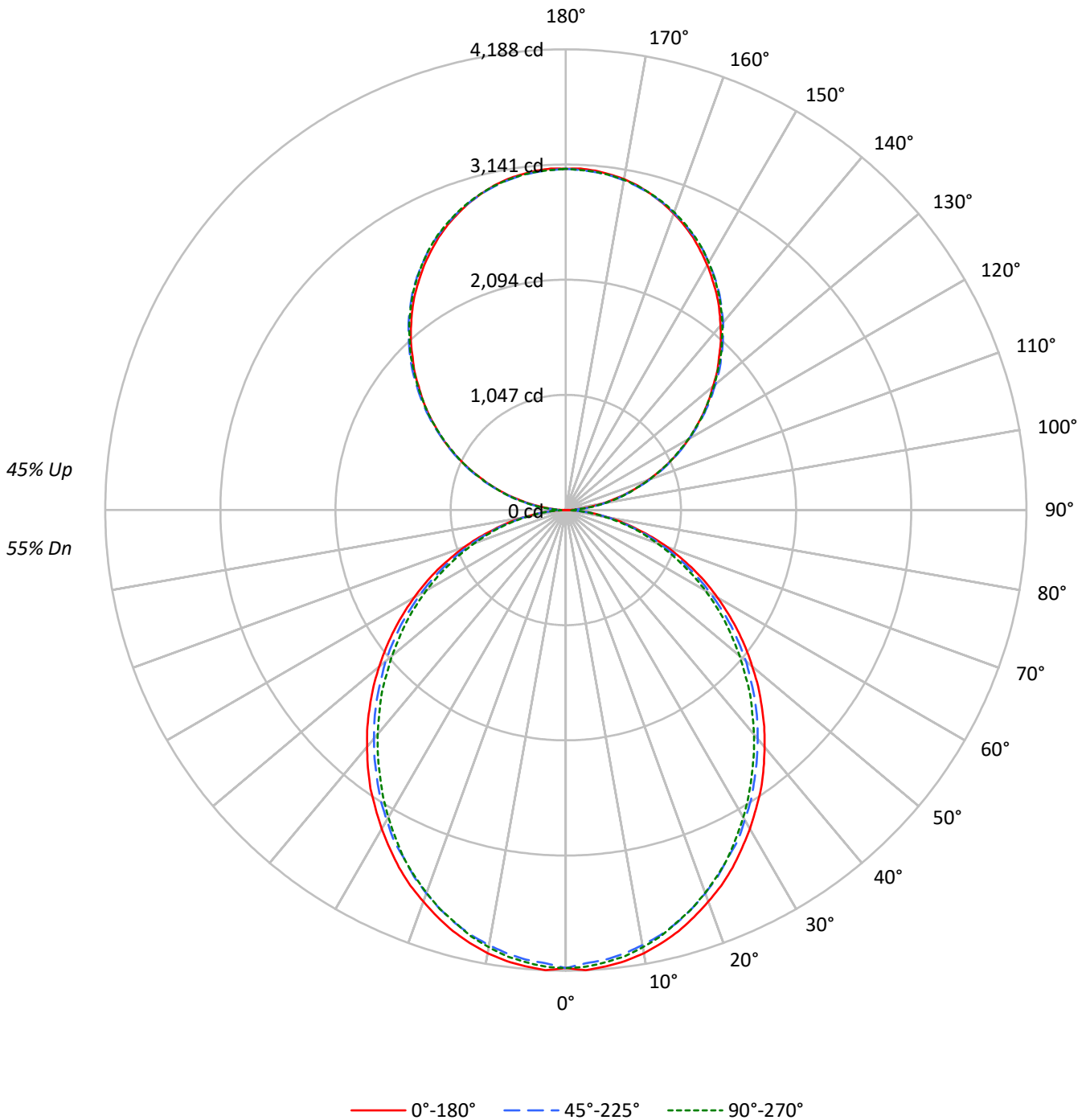
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19274.3 lumens
Efficiency: N/A
Efficacy: 91.6 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: General Diffuse

Input Watts (W): 210.4
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				
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55			
1	99	95	91	87	92	88	85	81	76	73	71	64	62	61	54	52	51	46			
2	90	83	76	71	83	77	71	67	66	62	59	56	53	51	47	45	43	39			
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37	33			
4	75	64	56	50	70	60	53	47	52	46	42	44	40	37	37	34	32	28			
5	69	57	49	43	64	54	46	41	46	41	36	40	35	32	34	30	28	25			
6	64	51	43	37	59	48	41	35	42	36	32	36	32	28	31	27	24	22			
7	59	46	38	33	55	44	36	31	38	32	28	33	28	25	28	24	22	19			
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19	17			
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18	15			
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16	14			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3308	3308	3308
5°	3313	3262	3283
10°	3286	3218	3239
15°	3238	3165	3169
20°	3173	3091	3098
25°	3108	3003	3016
30°	3026	2921	2911
35°	2949	2824	2801
40°	2854	2727	2695
45°	2760	2629	2587
50°	2656	2526	2463
55°	2548	2407	2348
60°	2425	2266	2216
65°	2292	2120	2061
70°	2122	1942	1894
75°	1886	1729	1740
80°	1603	1458	1446
85°	1160	989	958

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2760 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.9	2.0
10°-20°	1102.6	5.7
20°-30°	1620.4	8.4
30°-40°	1882.0	9.8
40°-50°	1879.7	9.8
50°-60°	1639.0	8.5
60°-70°	1211.6	6.3
70°-80°	685.5	3.6
80°-90°	189.7	1.0
90°-100°	192.0	1.0
100°-110°	609.9	3.2
110°-120°	1043.8	5.4
120°-130°	1372.7	7.1
130°-140°	1540.8	8.0
140°-150°	1511.0	7.8
150°-160°	1267.5	6.6
160°-170°	840.6	4.4
170°-180°	293.8	1.5
0°-30°	3114.9	16.2
0°-40°	4996.9	25.9
0°-60°	8515.5	44.2
0°-90°	10602.3	55.0
90°-120°	1845.7	9.6
90°-150°	6270.1	32.5
90°-180°	8672.0	45.0
0°-180°	19274.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4164	4164	4164	4164	4164	
5°	4164	4148	4104	4136	4128	395
15°	3964	3940	3888	3904	3884	1116
25°	3587	3555	3487	3495	3487	1651
35°	3095	3055	2991	2967	2947	1933
45°	2518	2490	2430	2386	2370	1944
55°	1906	1882	1834	1786	1766	1704
65°	1285	1261	1221	1185	1165	1271
75°	672	665	644	621	629	718
85°	164	160	156	144	140	183
90°	3	34	92	86	89	19
95°	136	163	167	167	163	152
105°	563	570	576	581	581	594
115°	1048	1062	1058	1055	1048	1036
125°	1524	1547	1539	1531	1528	1361
135°	1970	2000	2005	2002	1995	1523
145°	2392	2411	2426	2429	2418	1495
155°	2736	2743	2752	2765	2756	1259
165°	2976	2973	2973	2992	2979	840
175°	3097	3089	3083	3102	3086	294
180°	3102	3102	3102	3102	3102	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4163.7	4163.7	4163.7	4163.7	4163.7
2.5°	4187.8	4167.9	4123.7	4163.7	4156.0
5°	4163.7	4147.9	4103.7	4135.6	4127.9
7.5°	4135.6	4111.8	4067.6	4099.9	4091.9
10°	4091.9	4063.8	4015.8	4047.7	4035.8
12.5°	4031.5	4007.7	3959.7	3979.7	3971.6
15°	3963.6	3939.8	3887.5	3903.6	3883.7
17.5°	3879.5	3855.7	3803.4	3823.4	3803.4
20°	3787.3	3763.5	3707.5	3719.3	3703.6
22.5°	3695.5	3659.4	3607.1	3607.1	3599.1
25°	3587.2	3555.3	3487.4	3495.1	3487.4
27.5°	3467.0	3439.0	3387.2	3375.2	3355.3
30°	3347.2	3314.9	3255.0	3243.2	3227.0
32.5°	3218.9	3195.2	3131.0	3106.8	3090.7
35°	3094.9	3055.0	2990.8	2966.6	2946.7
37.5°	2954.7	2918.7	2854.5	2826.5	2806.5
40°	2810.8	2778.5	2714.3	2678.6	2662.5
42.5°	2670.6	2638.3	2574.5	2534.2	2510.4
45°	2518.5	2490.5	2430.1	2386.4	2370.3
47.5°	2370.3	2342.2	2278.1	2233.9	2210.1
50°	2213.9	2194.0	2137.9	2081.8	2061.8
52.5°	2061.8	2033.8	1982.0	1937.8	1909.8
55°	1905.9	1881.8	1833.7	1785.7	1765.8
57.5°	1749.6	1729.7	1677.4	1629.4	1613.3
60°	1593.3	1577.6	1521.5	1477.4	1465.4
62.5°	1441.3	1413.2	1373.3	1333.4	1317.2
65°	1285.4	1261.1	1221.2	1185.1	1165.2
67.5°	1125.2	1104.8	1069.2	1041.2	1025.0
70°	977.0	960.8	924.7	896.7	881.0
72.5°	824.9	808.8	788.8	760.8	748.9
75°	672.4	664.8	644.3	620.6	628.7
77.5°	536.5	520.3	512.3	500.3	488.5
80°	400.6	396.3	388.3	376.4	368.3
82.5°	272.2	272.2	268.5	252.4	252.4
85°	164.0	160.2	156.3	144.0	140.2
87.5°	72.2	64.1	56.1	44.1	39.9
90°	2.8	33.7	91.7	86.1	88.8
92.5°	58.0	78.6	81.3	84.2	84.2
95°	136.5	162.7	167.4	167.4	162.7
97.5°	227.3	251.6	261.9	261.9	261.9
100°	332.0	353.5	361.0	361.0	358.2
102.5°	442.4	458.2	468.6	471.4	468.6
105°	563.0	570.5	576.1	580.8	580.8
107.5°	682.7	693.9	693.9	695.8	682.7
110°	798.7	813.7	813.7	813.7	806.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	924.0	939.9	937.1	929.6	924.0
115°	1047.5	1062.4	1057.7	1055.0	1047.5
117.5°	1170.0	1190.5	1177.4	1170.0	1162.5
120°	1293.4	1314.0	1293.4	1293.4	1285.0
122.5°	1405.7	1431.8	1418.7	1411.2	1405.7
125°	1523.5	1546.8	1539.4	1531.0	1528.1
127.5°	1638.5	1667.5	1657.2	1646.0	1638.5
130°	1746.1	1779.8	1775.0	1769.4	1759.2
132.5°	1866.7	1892.9	1894.8	1881.7	1874.2
135°	1970.5	1999.5	2005.1	2002.3	1994.8
137.5°	2086.5	2109.9	2114.5	2112.6	2101.5
140°	2188.4	2211.8	2224.9	2224.9	2214.7
142.5°	2293.2	2316.6	2324.1	2326.8	2316.6
145°	2392.3	2411.0	2426.0	2428.8	2418.5
147.5°	2481.2	2504.5	2515.8	2520.4	2510.2
150°	2572.9	2588.7	2599.0	2607.5	2599.0
152.5°	2654.2	2670.0	2683.2	2693.5	2683.2
155°	2735.6	2743.0	2751.5	2764.6	2756.1
157.5°	2805.7	2811.3	2815.9	2834.7	2821.5
160°	2868.4	2874.0	2876.7	2892.7	2881.5
162.5°	2926.3	2926.3	2929.2	2946.9	2933.8
165°	2975.9	2973.1	2973.1	2991.8	2978.7
167.5°	3020.8	3012.4	3012.4	3031.1	3018.0
170°	3054.5	3047.0	3044.2	3062.8	3047.0
172.5°	3077.8	3070.3	3067.6	3086.3	3070.3
175°	3096.6	3089.1	3083.4	3102.2	3086.3
177.5°	3106.8	3099.3	3093.7	3109.7	3093.7
180°	3102.2	3102.2	3102.2	3102.2	3102.2



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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	11.87	12.78	12.78	13.71	14.91	11.44	12.35	12.35	13.28	14.48
	3H	13.54	14.35	14.46	15.29	16.51	13.06	13.88	13.99	14.82	16.04
	4H	14.13	14.90	15.06	15.84	17.07	13.65	14.42	14.59	15.37	16.60
	6H	14.53	15.24	15.48	16.19	17.43	14.05	14.76	15.00	15.71	16.96
	8H	14.63	15.31	15.59	16.28	17.52	14.16	14.84	15.12	15.80	17.05
	12H	14.68	15.33	15.65	16.29	17.56	14.20	14.85	15.17	15.81	17.08
4H	2H	12.34	13.11	13.28	14.06	15.29	11.99	12.77	12.94	13.71	14.94
	3H	14.21	14.85	15.16	15.83	17.07	13.82	14.46	14.77	15.44	16.68
	4H	14.93	15.51	15.89	16.48	17.75	14.52	15.11	15.49	16.08	17.35
	6H	15.44	15.95	16.42	16.94	18.21	15.03	15.54	16.01	16.54	17.80
	8H	15.59	16.07	16.57	17.05	18.34	15.18	15.66	16.16	16.64	17.93
	12H	15.67	16.10	16.67	17.10	18.39	15.25	15.68	16.25	16.68	17.97
8H	4H	15.13	15.60	16.11	16.59	17.87	14.77	15.24	15.75	16.23	17.51
	6H	15.76	16.15	16.76	17.18	18.46	15.40	15.79	16.40	16.82	18.10
	8H	15.98	16.33	16.99	17.34	18.64	15.61	15.96	16.62	16.97	18.27
	12H	16.11	16.42	17.13	17.43	18.77	15.73	16.03	16.75	17.05	18.39
12H	4H	15.11	15.54	16.11	16.55	17.83	14.76	15.19	15.76	16.19	17.48
	6H	15.79	16.14	16.80	17.15	18.45	15.44	15.78	16.45	16.80	18.10
	8H	16.03	16.34	17.05	17.35	18.69	15.68	15.98	16.69	16.99	18.34