

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: P912759

Luminaire Tested: DFN2DIP-TR4F0-040D120US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912759
REPORT IS A COMBINATION OF REPORTS P902033 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D120US850-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

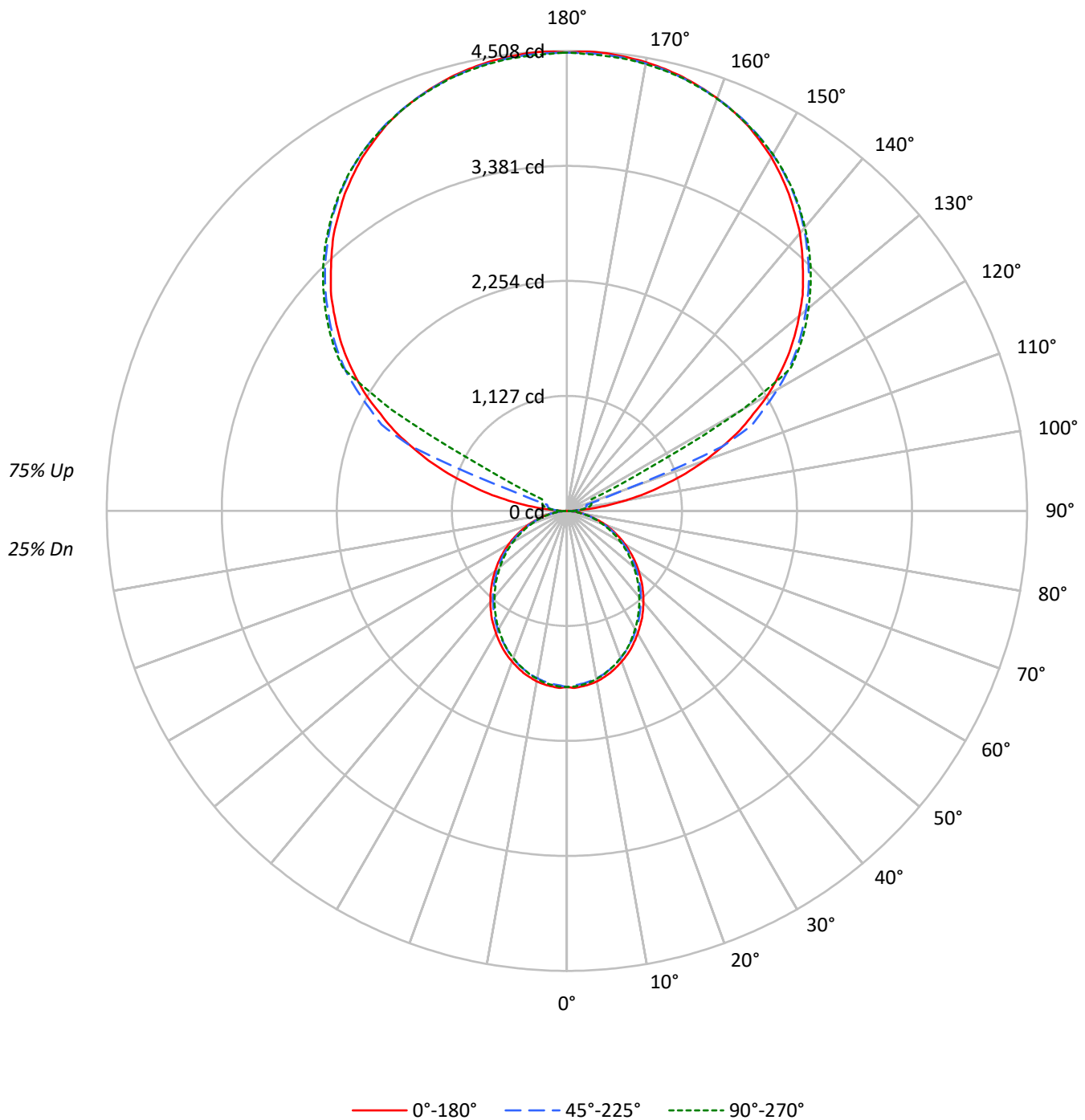
Lumens per Lamp: N/A
Luminaire Lumens: 17566.6 lumens
Efficiency: N/A
Efficacy: 142.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 123.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	101	101	101	101		90	90	90	90		69	69	69		51	51	51		33	33	33
1	92	88	84	81		82	79	75	73		61	59	57		44	43	42		29	29	28
2	84	77	71	66		74	69	64	59		53	50	47		39	37	35		26	25	24
3	76	67	60	55		68	60	54	50		47	43	39		34	32	30		23	21	20
4	70	60	52	46		62	53	47	42		42	37	33		31	28	25		20	19	17
5	64	53	45	39		57	47	41	36		37	32	29		27	24	22		18	16	15
6	59	47	40	34		52	42	36	31		33	28	25		25	21	19		17	15	13
7	54	43	35	30		48	38	32	27		30	25	22		22	19	17		15	13	12
8	50	38	31	26		45	35	28	24		27	23	19		20	17	15		14	12	10
9	47	35	28	23		41	31	25	21		25	20	17		19	15	13		13	11	9
10	43	32	25	20		39	29	23	19		23	18	15		17	14	12		12	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1371	1371	1371
5°	1373	1352	1361
10°	1362	1334	1343
15°	1342	1312	1314
20°	1315	1281	1284
25°	1288	1245	1250
30°	1255	1211	1207
35°	1223	1171	1161
40°	1183	1130	1117
45°	1144	1090	1073
50°	1101	1047	1021
55°	1056	998	973
60°	1005	940	919
65°	950	879	855
70°	880	805	785
75°	782	717	721
80°	664	604	599
85°	481	410	397

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2384 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	0.9
10°-20°	457.1	2.6
20°-30°	671.7	3.8
30°-40°	780.2	4.4
40°-50°	779.2	4.4
50°-60°	679.5	3.9
60°-70°	502.3	2.9
70°-80°	284.2	1.6
80°-90°	82.9	0.5
90°-100°	148.1	0.8
100°-110°	552.1	3.1
110°-120°	1464.2	8.3
120°-130°	2428.5	13.8
130°-140°	2579.6	14.7
140°-150°	2397.5	13.6
150°-160°	1927.5	11.0
160°-170°	1242.0	7.1
170°-180°	427.5	2.4
0°-30°	1291.3	7.4
0°-40°	2071.5	11.8
0°-60°	3530.2	20.1
0°-90°	4399.6	25.0
90°-120°	2164.4	12.3
90°-150°	9570.0	54.5
90°-180°	13167.0	75.0
0°-180°	17566.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1726	1720	1701	1714	1711	164
15°	1643	1633	1612	1618	1610	463
25°	1487	1474	1446	1449	1446	684
35°	1283	1266	1240	1230	1222	801
45°	1044	1032	1007	989	983	806
55°	790	780	760	740	732	706
65°	533	523	506	491	483	527
75°	279	276	267	257	261	298
85°	68	66	65	60	58	76
90°	3	39	65	81	88	16
95°	211	104	126	143	140	250
105°	988	1086	198	234	247	1056
115°	1869	1924	2005	500	267	1840
125°	2642	2684	2746	2769	2779	2356
135°	3269	3322	3350	3383	3377	2526
145°	3793	3789	3844	3867	3851	2372
155°	4176	4147	4186	4205	4180	1924
165°	4400	4381	4390	4413	4390	1243
175°	4501	4478	4485	4508	4475	428
180°	4491	4491	4491	4491	4491	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1726.0	1726.0	1726.0	1726.0	1726.0
2.5°	1736.1	1727.8	1709.5	1726.0	1722.9
5°	1726.0	1719.5	1701.2	1714.4	1711.3
7.5°	1714.4	1704.5	1686.2	1699.7	1696.3
10°	1696.3	1684.7	1664.8	1678.0	1673.0
12.5°	1671.3	1661.4	1641.5	1649.9	1646.4
15°	1643.1	1633.2	1611.6	1618.3	1610.0
17.5°	1608.3	1598.4	1576.8	1585.0	1576.8
20°	1570.0	1560.1	1537.0	1541.8	1535.4
22.5°	1532.0	1517.0	1495.4	1495.4	1492.0
25°	1487.1	1473.9	1445.7	1448.9	1445.7
27.5°	1437.3	1425.6	1404.2	1399.2	1391.0
30°	1387.6	1374.3	1349.4	1344.4	1337.8
32.5°	1334.5	1324.6	1298.0	1288.0	1281.2
35°	1283.0	1266.5	1239.9	1229.9	1221.6
37.5°	1224.9	1209.9	1183.3	1171.8	1163.5
40°	1165.2	1151.8	1125.2	1110.4	1103.8
42.5°	1107.1	1093.7	1067.3	1050.6	1040.7
45°	1044.0	1032.5	1007.4	989.3	982.6
47.5°	982.6	970.9	944.4	926.1	916.3
50°	917.8	909.5	886.3	863.0	854.7
52.5°	854.7	843.2	821.7	803.4	791.7
55°	790.2	780.1	760.2	740.3	732.1
57.5°	725.3	717.1	695.3	675.5	668.8
60°	660.5	654.0	630.8	612.5	607.5
62.5°	597.5	585.9	569.4	552.7	546.1
65°	532.9	522.8	506.3	491.3	483.1
67.5°	466.4	458.0	443.3	431.6	425.0
70°	405.0	398.4	383.4	371.7	365.2
72.5°	342.0	335.3	327.0	315.4	310.4
75°	278.8	275.6	267.2	257.3	260.6
77.5°	222.4	215.7	212.4	207.4	202.5
80°	166.0	164.2	160.9	156.0	152.7
82.5°	112.9	112.9	111.3	104.6	104.6
85°	68.0	66.4	64.8	59.7	58.1
87.5°	29.9	26.6	23.3	18.3	16.5
90°	3.1	38.9	64.9	81.4	87.6
92.5°	81.4	68.3	78.0	84.5	87.6
95°	211.0	103.8	126.5	143.2	139.7
97.5°	380.2	113.9	165.6	175.6	178.7
100°	575.3	130.1	185.2	211.0	217.7
102.5°	789.6	783.4	191.7	227.3	237.3
105°	987.9	1085.6	198.4	233.9	247.0
107.5°	1218.7	1299.7	204.9	240.4	253.5
110°	1439.8	1507.8	568.8	243.9	256.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1647.9	1706.1	1651.0	250.1	260.1
115°	1868.6	1923.8	2005.2	500.5	266.7
117.5°	2060.4	2125.3	2180.8	1715.7	864.5
120°	2275.0	2323.6	2382.2	2421.3	1982.4
122.5°	2456.8	2508.9	2574.1	2593.4	2596.8
125°	2642.0	2684.4	2746.2	2769.0	2778.6
127.5°	2811.0	2856.6	2905.6	2938.0	2941.1
130°	2970.3	3022.5	3058.0	3093.9	3090.8
132.5°	3132.8	3175.3	3210.8	3240.2	3237.1
135°	3269.4	3321.6	3350.5	3383.3	3376.8
137.5°	3412.3	3451.2	3484.0	3516.4	3506.8
140°	3552.0	3578.2	3613.7	3643.1	3626.9
142.5°	3669.2	3692.1	3734.1	3760.0	3743.8
145°	3792.8	3789.3	3844.5	3867.3	3851.0
147.5°	3899.7	3890.0	3945.3	3961.5	3948.7
150°	4003.8	3981.1	4033.2	4052.5	4036.3
152.5°	4091.4	4065.6	4114.3	4133.9	4111.2
155°	4175.9	4147.0	4186.0	4205.3	4179.5
157.5°	4244.3	4218.4	4247.8	4270.5	4244.3
160°	4302.9	4283.3	4302.9	4322.2	4299.5
162.5°	4354.7	4335.4	4351.6	4374.3	4345.1
165°	4400.2	4380.9	4390.5	4413.4	4390.5
167.5°	4436.1	4416.4	4426.5	4449.2	4419.9
170°	4465.4	4445.8	4452.3	4475.0	4445.8
172.5°	4484.7	4465.4	4472.0	4494.8	4465.4
175°	4500.9	4478.1	4484.7	4507.5	4475.0
177.5°	4507.5	4484.7	4488.2	4511.0	4481.7
180°	4491.3	4491.3	4491.3	4491.3	4491.3

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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	5.42	6.10	6.57	7.23	8.82	4.99	5.66	6.14	6.80	8.39
	3H	7.07	7.67	8.22	8.81	10.42	6.59	7.20	7.75	8.34	9.94
	4H	7.65	8.22	8.81	9.36	10.97	7.17	7.75	8.33	8.89	10.50
	6H	8.04	8.56	9.21	9.71	11.33	7.56	8.09	8.73	9.23	10.85
	8H	8.13	8.64	9.31	9.80	11.41	7.66	8.16	8.83	9.32	10.93
	12H	8.18	8.65	9.35	9.81	11.44	7.70	8.17	8.87	9.33	10.96
4H	2H	5.86	6.43	7.03	7.58	9.18	5.52	6.09	6.69	7.23	8.84
	3H	7.71	8.19	8.88	9.36	10.98	7.32	7.79	8.49	8.96	10.58
	4H	8.42	8.86	9.59	10.01	11.65	8.01	8.45	9.19	9.61	11.25
	6H	8.92	9.30	10.10	10.48	12.10	8.51	8.89	9.69	10.07	11.69
	8H	9.06	9.42	10.24	10.59	12.23	8.65	9.00	9.83	10.18	11.82
	12H	9.13	9.45	10.32	10.63	12.28	8.71	9.03	9.90	10.21	11.86
8H	4H	8.60	8.95	9.78	10.12	11.76	8.24	8.59	9.42	9.76	11.40
	6H	9.22	9.51	10.42	10.72	12.36	8.86	9.15	10.06	10.36	12.00
	8H	9.44	9.69	10.64	10.88	12.54	9.07	9.32	10.27	10.51	12.18
	12H	9.56	9.78	10.77	10.97	12.67	9.18	9.40	10.39	10.59	12.28
12H	4H	8.57	8.89	9.77	10.07	11.72	8.22	8.54	9.42	9.72	11.37
	6H	9.25	9.50	10.45	10.69	12.35	8.90	9.15	10.10	10.34	12.00
	8H	9.48	9.70	10.69	10.89	12.59	9.12	9.35	10.33	10.53	12.23

END OF REPORT