

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: P912754

Luminaire Tested: DFN2DIP-TR4F0-040D110US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912754
REPORT IS A COMBINATION OF REPORTS P900495 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D110US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

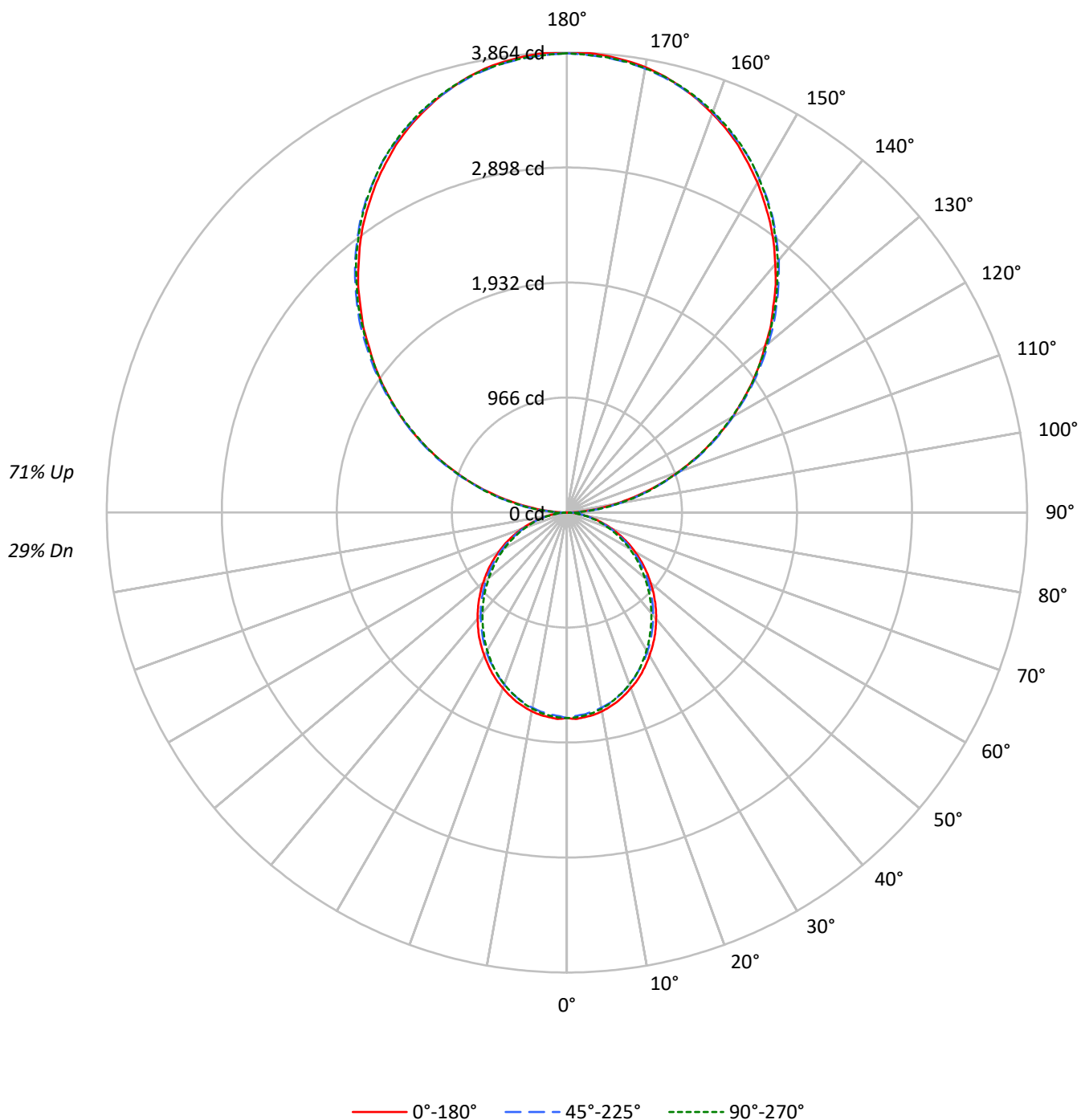
Lumens per Lamp: N/A
Luminaire Lumens: 15187.7 lumens
Efficiency: N/A
Efficacy: 130.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.7
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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	44	32	32	31
2	85	78	72	67	76	70	65	60	55	51	48	41	39	37	29	27	26
3	77	68	61	55	69	61	55	50	48	44	41	36	34	31	25	24	22
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	23	21	19
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	17
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	15
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	15	13
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	12
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9

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: 3007 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	1.1
10°-20°	457.1	3.0
20°-30°	671.7	4.4
30°-40°	780.2	5.1
40°-50°	779.2	5.1
50°-60°	679.5	4.5
60°-70°	502.3	3.3
70°-80°	284.2	1.9
80°-90°	86.0	0.6
90°-100°	238.7	1.6
100°-110°	758.6	5.0
110°-120°	1298.1	8.5
120°-130°	1707.2	11.2
130°-140°	1916.3	12.6
140°-150°	1879.1	12.4
150°-160°	1576.3	10.4
160°-170°	1045.4	6.9
170°-180°	365.4	2.4
0°-30°	1291.3	8.5
0°-40°	2071.5	13.6
0°-60°	3530.2	23.2
0°-90°	4402.6	29.0
90°-120°	2295.4	15.1
90°-150°	7798.0	51.3
90°-180°	10785.0	71.0
0°-180°	15187.7	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	42	114	107	110	15
95°	170	202	208	208	202	189
105°	700	710	716	722	722	739
115°	1303	1321	1316	1312	1303	1288
125°	1895	1924	1914	1904	1900	1693
135°	2451	2487	2494	2490	2481	1894
145°	2975	2998	3017	3021	3008	1859
155°	3402	3411	3422	3438	3428	1566
165°	3701	3698	3698	3721	3704	1044
175°	3851	3842	3835	3858	3838	366
180°	3858	3858	3858	3858	3858	

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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°	3.4	41.9	114.0	107.0	110.5
92.5°	72.1	97.7	101.1	104.7	104.7
95°	169.8	202.4	208.2	208.2	202.4
97.5°	282.7	312.8	325.7	325.7	325.7
100°	412.9	439.6	448.9	448.9	445.5
102.5°	550.2	569.9	582.8	586.2	582.8
105°	700.2	709.5	716.5	722.3	722.3
107.5°	849.1	863.0	863.0	865.4	849.1
110°	993.3	1012.0	1012.0	1012.0	1002.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1149.1	1168.9	1165.4	1156.1	1149.1
115°	1302.7	1321.3	1315.5	1312.1	1302.7
117.5°	1455.1	1480.6	1464.3	1455.1	1445.8
120°	1608.6	1634.2	1608.6	1608.6	1598.2
122.5°	1748.2	1780.7	1764.4	1755.1	1748.2
125°	1894.7	1923.8	1914.5	1904.0	1900.5
127.5°	2037.8	2073.8	2061.1	2047.1	2037.8
130°	2171.5	2213.5	2207.6	2200.6	2187.8
132.5°	2321.6	2354.2	2356.5	2340.2	2330.9
135°	2450.7	2486.7	2493.7	2490.3	2480.9
137.5°	2594.9	2624.0	2629.8	2627.4	2613.6
140°	2721.7	2750.8	2767.1	2767.1	2754.3
142.5°	2852.0	2881.1	2890.4	2893.8	2881.1
145°	2975.2	2998.5	3017.1	3020.6	3007.8
147.5°	3085.8	3114.8	3128.8	3134.6	3121.8
150°	3199.8	3219.5	3232.3	3242.8	3232.3
152.5°	3300.9	3320.7	3337.0	3349.8	3337.0
155°	3402.2	3411.4	3421.9	3438.2	3427.7
157.5°	3489.4	3496.3	3502.1	3525.4	3509.1
160°	3567.3	3574.3	3577.7	3597.6	3583.6
162.5°	3639.4	3639.4	3643.0	3665.0	3648.7
165°	3701.1	3697.5	3697.5	3720.8	3704.5
167.5°	3756.8	3746.4	3746.4	3769.7	3753.4
170°	3798.8	3789.5	3786.0	3809.2	3789.5
172.5°	3827.8	3818.5	3815.1	3838.4	3818.5
175°	3851.1	3841.8	3834.8	3858.1	3838.4
177.5°	3863.9	3854.6	3847.6	3867.4	3847.6
180°	3858.1	3858.1	3858.1	3858.1	3858.1

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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	6.01	6.71	7.13	7.82	9.36	5.57	6.27	6.69	7.39	8.93
	3H	7.65	8.28	8.78	9.40	10.96	7.18	7.81	8.31	8.93	10.49
	4H	8.23	8.83	9.37	9.95	11.51	7.76	8.36	8.90	9.48	11.04
	6H	8.62	9.17	9.77	10.30	11.87	8.15	8.70	9.29	9.82	11.40
	8H	8.72	9.25	9.87	10.39	11.95	8.25	8.77	9.40	9.91	11.48
	12H	8.77	9.26	9.92	10.40	11.99	8.29	8.78	9.44	9.91	11.51
4H	2H	6.45	7.04	7.59	8.17	9.73	6.10	6.70	7.25	7.82	9.38
	3H	8.30	8.80	9.45	9.94	11.52	7.91	8.40	9.06	9.55	11.13
	4H	9.01	9.46	10.16	10.60	12.20	8.60	9.06	9.75	10.19	11.79
	6H	9.51	9.90	10.67	11.06	12.65	9.10	9.49	10.26	10.65	12.24
	8H	9.66	10.02	10.81	11.17	12.78	9.25	9.61	10.40	10.76	12.37
	12H	9.72	10.05	10.90	11.22	12.82	9.30	9.63	10.47	10.79	12.40
8H	4H	9.19	9.56	10.35	10.71	12.31	8.83	9.20	9.99	10.35	11.95
	6H	9.81	10.12	10.99	11.31	12.91	9.45	9.75	10.63	10.95	12.55
	8H	10.03	10.30	11.22	11.47	13.09	9.66	9.93	10.85	11.10	12.72
	12H	10.16	10.39	11.34	11.56	13.21	9.77	10.00	10.96	11.17	12.83
12H	4H	9.17	9.50	10.34	10.66	12.27	8.82	9.15	9.99	10.31	11.92
	6H	9.84	10.11	11.03	11.28	12.90	9.49	9.75	10.67	10.93	12.55
	8H	10.08	10.31	11.26	11.48	13.13	9.72	9.95	10.91	11.12	12.77

END OF REPORT