

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: P911351

Luminaire Tested: DFN2DIP-PN4F0-040D090US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911351
REPORT IS A COMBINATION OF REPORTS P901220 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D090US850-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

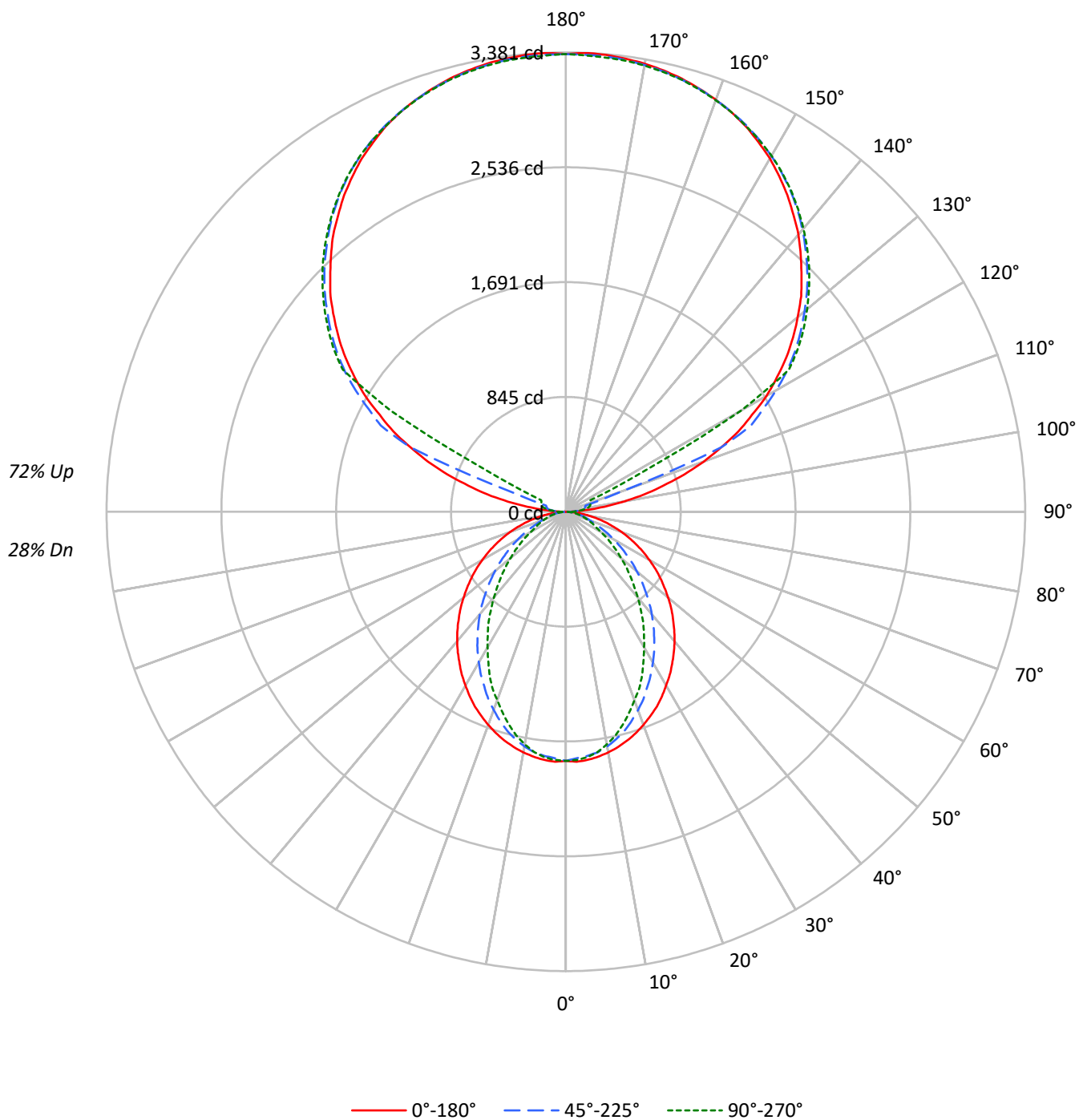
Lumens per Lamp: N/A
Luminaire Lumens: 13651.8 lumens
Efficiency: N/A
Efficacy: 136.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 100
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
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
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		91	91	91	91		71	71	71		53	53	53		36	36	36
1	93	89	85	82		83	80	77	74		62	60	59		46	45	44		32	31	31
2	85	78	72	67		76	70	65	61		55	52	49		41	39	37		28	27	26
3	78	69	62	56		69	62	56	51		49	45	41		37	34	32		25	24	22
4	71	61	53	48		63	55	48	44		43	39	35		33	30	27		23	21	20
5	65	54	47	41		58	49	42	37		39	34	30		29	26	24		21	19	17
6	60	49	41	35		54	44	37	32		35	30	27		27	23	21		19	17	15
7	55	44	36	31		49	40	33	28		32	27	23		24	21	18		17	15	14
8	51	40	32	27		46	36	30	25		29	24	21		22	19	16		16	14	12
9	48	36	29	24		43	33	27	22		26	22	19		20	17	15		15	13	11
10	45	33	26	22		40	30	24	20		24	20	17		19	16	13		14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1338	1338	1338
5°	1340	1317	1326
10°	1327	1292	1283
15°	1309	1249	1216
20°	1285	1190	1135
25°	1260	1125	1056
30°	1227	1057	956
35°	1194	985	868
40°	1161	909	767
45°	1123	826	676
50°	1083	742	586
55°	1041	652	500
60°	993	558	412
65°	938	462	371
70°	871	373	336
75°	786	329	307
80°	664	276	267
85°	463	186	202

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1796 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	1.3
10°-20°	471.7	3.5
20°-30°	662.3	4.9
30°-40°	721.9	5.3
40°-50°	663.5	4.9
50°-60°	521.1	3.8
60°-70°	339.2	2.5
70°-80°	174.6	1.3
80°-90°	50.5	0.4
90°-100°	111.1	0.8
100°-110°	414.0	3.0
110°-120°	1098.2	8.0
120°-130°	1821.4	13.3
130°-140°	1934.7	14.2
140°-150°	1798.1	13.2
150°-160°	1445.6	10.6
160°-170°	931.5	6.8
170°-180°	320.6	2.3
0°-30°	1305.8	9.6
0°-40°	2027.7	14.9
0°-60°	3212.2	23.5
0°-90°	3776.5	27.7
90°-120°	1623.3	11.9
90°-150°	7177.5	52.6
90°-180°	9875.0	72.3
0°-180°	13651.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1833	1833	1833	1833	1833	
5°	1833	1825	1804	1818	1814	174
15°	1744	1726	1669	1638	1621	491
25°	1583	1530	1420	1352	1327	728
35°	1364	1279	1133	1029	992	854
45°	1115	1004	830	712	672	861
55°	848	718	539	440	408	758
65°	572	438	289	232	227	568
75°	305	189	133	121	120	323
85°	71	36	32	32	32	82
90°	2	29	49	61	66	13
95°	158	78	95	107	105	188
105°	741	814	149	175	185	792
115°	1401	1443	1504	375	200	1380
125°	1982	2013	2060	2077	2084	1767
135°	2452	2491	2513	2538	2533	1894
145°	2845	2842	2883	2900	2888	1779
155°	3132	3110	3140	3154	3135	1443
165°	3300	3286	3293	3310	3293	932
175°	3376	3359	3364	3381	3356	321
180°	3368	3368	3368	3368	3368	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.4	1833.4	1833.4	1833.4	1833.4
2.5°	1841.7	1833.4	1815.1	1831.8	1828.4
5°	1833.4	1825.1	1803.5	1818.4	1813.5
7.5°	1818.4	1808.6	1785.4	1791.8	1783.6
10°	1798.6	1786.9	1753.8	1748.7	1738.9
12.5°	1773.7	1758.8	1713.8	1704.0	1685.7
15°	1743.8	1725.5	1669.2	1637.7	1621.1
17.5°	1709.0	1682.4	1612.6	1576.2	1549.6
20°	1669.2	1635.9	1552.9	1511.6	1475.0
22.5°	1626.0	1587.9	1491.5	1435.2	1410.4
25°	1582.9	1529.8	1420.2	1352.3	1327.3
27.5°	1531.5	1475.0	1353.9	1275.9	1237.6
30°	1476.7	1413.5	1280.8	1196.3	1151.5
32.5°	1423.6	1347.2	1211.2	1111.7	1070.1
35°	1364.0	1279.2	1133.3	1028.7	992.1
37.5°	1305.8	1214.5	1060.2	945.6	904.3
40°	1244.4	1144.9	983.9	866.1	823.0
42.5°	1181.3	1075.2	907.6	784.7	743.4
45°	1115.0	1003.8	829.6	711.8	671.9
47.5°	1052.0	934.2	755.0	637.1	600.6
50°	982.2	864.5	681.9	567.4	532.7
52.5°	914.1	789.7	612.3	502.7	471.2
55°	847.8	718.4	539.2	439.7	408.2
57.5°	779.8	647.1	474.5	381.6	355.1
60°	710.1	577.3	406.4	321.9	295.4
62.5°	642.2	509.5	348.3	268.8	255.6
65°	572.5	437.9	288.7	232.3	227.2
67.5°	506.1	371.6	232.3	204.1	199.1
70°	436.4	307.0	192.4	175.9	169.1
72.5°	370.1	247.2	160.9	147.7	144.4
75°	305.2	189.1	132.7	121.1	119.6
77.5°	240.7	134.3	104.6	97.9	94.5
80°	180.8	96.3	79.5	73.1	73.1
82.5°	126.1	64.8	54.8	51.3	51.3
85°	71.3	36.5	31.5	31.5	31.5
87.5°	26.6	13.2	13.2	11.6	11.6
90°	2.3	29.3	48.6	61.1	65.7
92.5°	61.1	51.2	58.4	63.4	65.7
95°	158.4	77.9	94.9	107.4	104.8
97.5°	285.1	85.4	124.2	131.6	134.0
100°	431.5	97.6	139.0	158.4	163.2
102.5°	592.2	587.5	143.8	170.5	178.0
105°	740.9	814.2	148.7	175.4	185.2
107.5°	914.0	974.8	153.7	180.3	190.2
110°	1079.8	1130.8	426.6	182.9	192.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1235.9	1279.6	1238.2	187.5	195.1
115°	1401.4	1442.8	1503.9	375.4	200.0
117.5°	1545.3	1594.0	1635.6	1286.9	648.3
120°	1706.2	1742.7	1786.7	1815.9	1486.8
122.5°	1842.6	1881.6	1930.5	1945.0	1947.6
125°	1981.5	2013.3	2059.6	2076.7	2083.9
127.5°	2108.2	2142.4	2179.2	2203.5	2205.8
130°	2227.8	2266.9	2293.5	2320.4	2318.1
132.5°	2349.6	2381.5	2408.1	2430.2	2427.8
135°	2452.1	2491.1	2512.9	2537.5	2532.6
137.5°	2559.2	2588.4	2613.0	2637.3	2630.1
140°	2663.9	2683.7	2710.3	2732.2	2720.2
142.5°	2752.0	2769.1	2800.6	2820.0	2807.9
145°	2844.6	2841.9	2883.4	2900.5	2888.3
147.5°	2924.8	2917.6	2958.9	2971.1	2961.5
150°	3003.0	2985.9	3024.9	3039.3	3027.2
152.5°	3068.6	3049.2	3085.7	3100.4	3083.4
155°	3132.0	3110.3	3139.5	3154.0	3134.6
157.5°	3183.3	3163.9	3185.8	3202.9	3183.3
160°	3227.2	3212.4	3227.2	3241.7	3224.6
162.5°	3266.0	3251.5	3263.7	3280.8	3258.8
165°	3300.2	3285.6	3293.0	3310.0	3293.0
167.5°	3327.1	3312.4	3319.8	3336.9	3314.9
170°	3349.1	3334.3	3339.2	3356.3	3334.3
172.5°	3363.6	3349.1	3353.9	3371.0	3349.1
175°	3375.7	3358.6	3363.6	3380.6	3356.3
177.5°	3380.6	3363.6	3366.1	3383.2	3361.3
180°	3368.5	3368.5	3368.5	3368.5	3368.5

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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	5.60	6.28	6.74	7.40	8.96	1.57	2.24	2.70	3.36	4.92
	3H	7.27	7.88	8.41	9.00	10.58	2.75	3.35	3.89	4.48	6.05
	4H	7.87	8.45	9.02	9.58	11.16	3.19	3.76	4.34	4.89	6.47
	6H	8.29	8.82	9.45	9.95	11.54	3.50	4.03	4.66	5.16	6.75
	8H	8.41	8.92	9.57	10.06	11.65	3.59	4.09	4.75	5.24	6.82
	12H	8.47	8.95	9.64	10.09	11.70	3.63	4.10	4.79	5.24	6.85
4H	2H	5.60	6.18	6.76	7.31	8.89	2.15	2.72	3.30	3.85	5.43
	3H	7.42	7.90	8.58	9.05	10.65	3.48	3.96	4.64	5.12	6.71
	4H	8.11	8.55	9.27	9.69	11.30	4.03	4.46	5.19	5.61	7.22
	6H	8.62	8.99	9.79	10.16	11.76	4.44	4.81	5.61	5.98	7.58
	8H	8.79	9.14	9.96	10.30	11.92	4.56	4.91	5.73	6.07	7.69
	12H	8.88	9.20	10.07	10.37	11.99	4.62	4.94	5.81	6.11	7.73
8H	4H	8.07	8.42	9.23	9.57	11.19	4.30	4.65	5.46	5.80	7.42
	6H	8.63	8.92	9.82	10.12	11.73	4.81	5.10	6.00	6.30	7.91
	8H	8.85	9.10	10.04	10.28	11.91	5.00	5.25	6.19	6.43	8.07
	12H	8.98	9.20	10.18	10.38	12.05	5.11	5.33	6.31	6.51	8.18
12H	4H	8.01	8.33	9.19	9.50	11.12	4.29	4.61	5.48	5.78	7.40
	6H	8.60	8.86	9.80	10.03	11.67	4.86	5.11	6.05	6.29	7.93
	8H	8.82	9.04	10.02	10.22	11.89	5.06	5.28	6.26	6.46	8.13

END OF REPORT