

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: P905895

Luminaire Tested: DFN2DIP-PN4F0-040D090US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905895
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-PN4F0-040D090US835-RLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

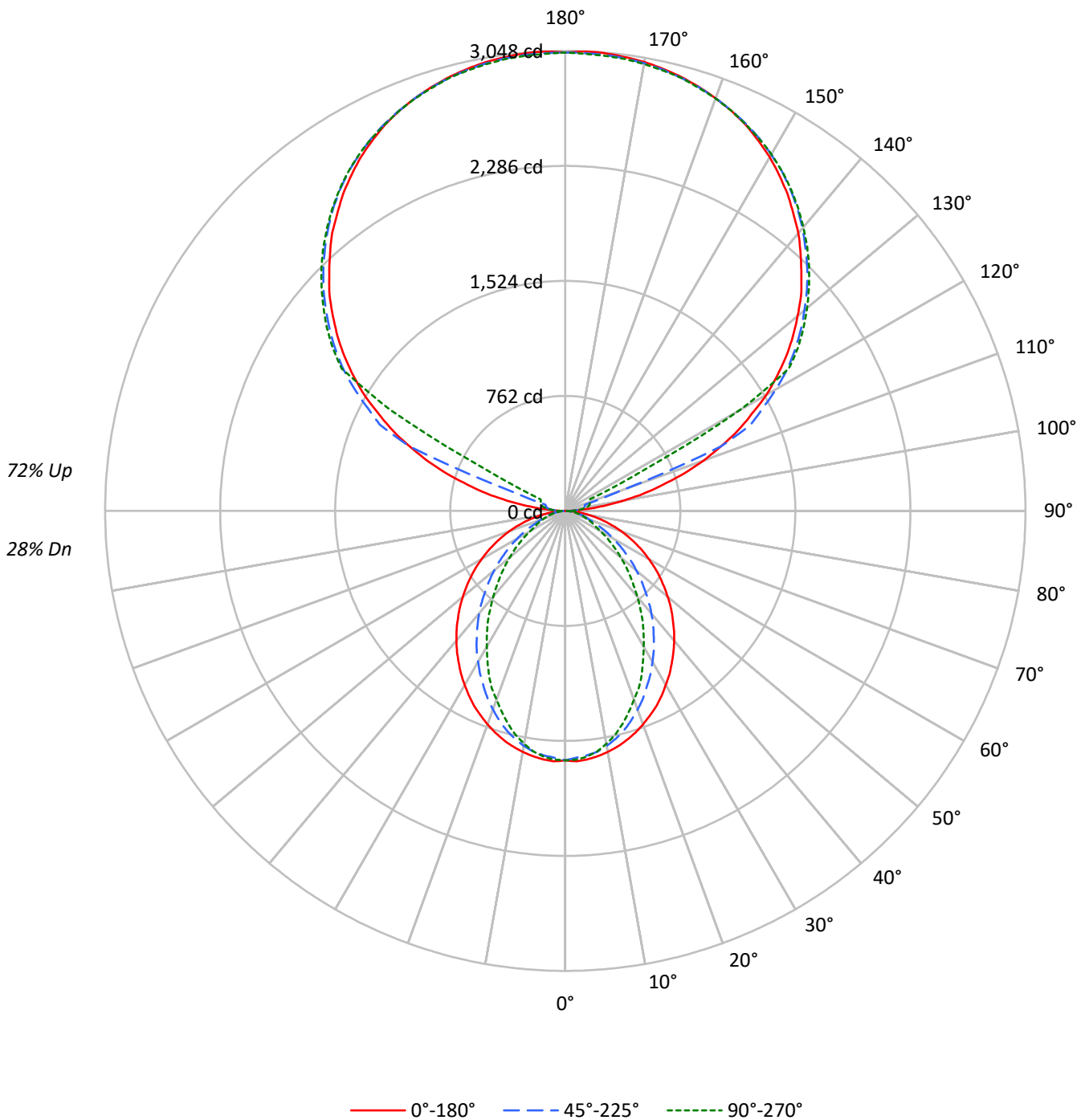
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12310.0 lumens
Efficiency: N/A
Efficacy: 123.1 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			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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	28			28
1	93	89	85	82	83	80	77	74	62	60	59	46	45	44	32	31	31	24			24
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	28	27	26	20			20
3	78	69	62	56	69	62	56	51	49	45	41	37	34	32	25	24	22	18			18
4	71	61	53	48	63	55	48	44	43	39	35	33	30	27	23	21	20	15			15
5	65	54	47	41	58	49	42	37	39	34	30	29	26	24	21	19	17	13			13
6	60	49	41	35	54	44	37	32	35	30	27	27	23	21	19	17	15	12			12
7	55	44	36	31	49	40	33	28	32	27	23	24	21	18	17	15	14	11			11
8	51	40	32	27	46	36	30	25	29	24	21	22	19	16	16	14	12	10			10
9	48	36	29	24	43	33	27	22	26	22	19	20	17	15	15	13	11	9			9
10	45	33	26	22	40	30	24	20	24	20	17	19	16	13	14	12	10	8			8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1207	1207	1207
5°	1209	1188	1195
10°	1197	1165	1157
15°	1180	1126	1097
20°	1158	1073	1023
25°	1136	1014	952
30°	1106	953	862
35°	1077	888	783
40°	1047	820	692
45°	1012	745	609
50°	976	669	529
55°	939	588	451
60°	895	503	372
65°	846	417	335
70°	785	336	303
75°	709	297	276
80°	599	249	241
85°	417	167	182

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1618 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.9	1.3
10°-20°	425.3	3.5
20°-30°	597.2	4.9
30°-40°	650.9	5.3
40°-50°	598.3	4.9
50°-60°	469.9	3.8
60°-70°	305.8	2.5
70°-80°	157.4	1.3
80°-90°	45.5	0.4
90°-100°	100.2	0.8
100°-110°	373.4	3.0
110°-120°	990.2	8.0
120°-130°	1642.4	13.3
130°-140°	1744.6	14.2
140°-150°	1621.4	13.2
150°-160°	1303.5	10.6
160°-170°	840.0	6.8
170°-180°	289.1	2.3
0°-30°	1177.4	9.6
0°-40°	1828.4	14.9
0°-60°	2896.5	23.5
0°-90°	3405.3	27.7
90°-120°	1463.7	11.9
90°-150°	6472.0	52.6
90°-180°	8905.0	72.3
0°-180°	12310.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1653	1653	1653	1653	1653	
5°	1653	1646	1626	1640	1635	157
15°	1572	1556	1505	1477	1462	443
25°	1427	1379	1281	1219	1197	656
35°	1230	1154	1022	928	895	770
45°	1005	905	748	642	606	776
55°	764	648	486	396	368	683
65°	516	395	260	210	205	512
75°	275	170	120	109	108	291
85°	64	33	28	28	28	74
90°	2	26	44	55	59	11
95°	143	70	86	97	94	169
105°	668	734	134	158	167	714
115°	1264	1301	1356	338	180	1244
125°	1787	1815	1857	1873	1879	1594
135°	2211	2246	2266	2288	2284	1708
145°	2565	2563	2600	2615	2604	1604
155°	2824	2805	2831	2844	2826	1301
165°	2976	2963	2969	2985	2969	841
175°	3044	3028	3033	3048	3026	290
180°	3037	3037	3037	3037	3037	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1653.2	1653.2	1653.2	1653.2	1653.2
2.5°	1660.7	1653.2	1636.7	1651.8	1648.7
5°	1653.2	1645.7	1626.2	1639.7	1635.3
7.5°	1639.7	1630.8	1609.9	1615.7	1608.3
10°	1621.8	1611.3	1581.4	1576.8	1568.0
12.5°	1599.4	1585.9	1545.4	1536.5	1520.0
15°	1572.4	1555.9	1505.1	1476.7	1461.8
17.5°	1541.0	1517.0	1454.1	1421.3	1397.3
20°	1505.1	1475.1	1400.3	1363.0	1330.0
22.5°	1466.2	1431.8	1344.9	1294.1	1271.8
25°	1427.3	1379.4	1280.6	1219.4	1196.8
27.5°	1381.0	1330.0	1220.8	1150.5	1116.0
30°	1331.6	1274.6	1154.9	1078.7	1038.3
32.5°	1283.7	1214.8	1092.2	1002.4	964.9
35°	1229.9	1153.5	1021.9	927.6	894.6
37.5°	1177.5	1095.1	956.0	852.7	815.4
40°	1122.1	1032.4	887.2	781.0	742.1
42.5°	1065.2	969.5	818.4	707.6	670.3
45°	1005.4	905.1	748.1	641.8	605.9
47.5°	948.6	842.4	680.8	574.5	541.6
50°	885.7	779.5	614.9	511.6	480.3
52.5°	824.3	712.1	552.1	453.3	424.9
55°	764.5	647.8	486.2	396.5	368.1
57.5°	703.2	583.5	427.9	344.1	320.2
60°	640.3	520.6	366.5	290.3	266.4
62.5°	579.1	459.4	314.1	242.4	230.5
65°	516.2	394.9	260.3	209.5	204.9
67.5°	456.4	335.1	209.5	184.0	179.5
70°	393.5	276.8	173.5	158.6	152.5
72.5°	333.7	222.9	145.1	133.2	130.2
75°	275.2	170.5	119.7	109.2	107.8
77.5°	217.0	121.1	94.3	88.3	85.2
80°	163.0	86.8	71.7	65.9	65.9
82.5°	113.7	58.4	49.4	46.3	46.3
85°	64.3	32.9	28.4	28.4	28.4
87.5°	24.0	11.9	11.9	10.5	10.5
90°	2.1	26.4	43.8	55.1	59.2
92.5°	55.1	46.2	52.7	57.2	59.2
95°	142.8	70.2	85.6	96.8	94.5
97.5°	257.1	77.0	112.0	118.7	120.8
100°	389.1	88.0	125.3	142.8	147.2
102.5°	534.0	529.8	129.7	153.7	160.5
105°	668.1	734.2	134.1	158.2	167.0
107.5°	824.2	879.0	138.6	162.6	171.5
110°	973.7	1019.7	384.7	164.9	173.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1114.4	1153.8	1116.5	169.1	175.9
115°	1263.7	1301.0	1356.1	338.5	180.3
117.5°	1393.4	1437.3	1474.8	1160.4	584.6
120°	1538.5	1571.4	1611.1	1637.4	1340.7
122.5°	1661.5	1696.7	1740.8	1753.8	1756.2
125°	1786.7	1815.4	1857.2	1872.6	1879.1
127.5°	1901.0	1931.8	1965.0	1986.9	1989.0
130°	2008.8	2044.1	2068.1	2092.3	2090.3
132.5°	2118.7	2147.4	2171.4	2191.3	2189.2
135°	2211.1	2246.3	2265.9	2288.1	2283.7
137.5°	2307.7	2334.0	2356.2	2378.1	2371.6
140°	2402.1	2419.9	2443.9	2463.7	2452.8
142.5°	2481.5	2496.9	2525.3	2542.8	2531.9
145°	2565.0	2562.6	2600.0	2615.4	2604.4
147.5°	2637.3	2630.8	2668.1	2679.1	2670.4
150°	2707.8	2692.4	2727.6	2740.6	2729.7
152.5°	2767.0	2749.5	2782.4	2795.7	2780.3
155°	2824.2	2804.6	2830.9	2844.0	2826.5
157.5°	2870.4	2852.9	2872.7	2888.1	2870.4
160°	2910.0	2896.7	2910.0	2923.1	2907.7
162.5°	2945.0	2931.9	2942.9	2958.3	2938.5
165°	2975.8	2962.7	2969.3	2984.7	2969.3
167.5°	3000.1	2986.8	2993.5	3008.9	2989.1
170°	3019.9	3006.6	3011.0	3026.4	3006.6
172.5°	3033.0	3019.9	3024.3	3039.7	3019.9
175°	3043.9	3028.5	3033.0	3048.3	3026.4
177.5°	3048.3	3033.0	3035.3	3050.7	3030.9
180°	3037.4	3037.4	3037.4	3037.4	3037.4



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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	5.24	5.92	6.38	7.04	8.60	1.21	1.88	2.34	3.00	4.56
	3H	6.91	7.52	8.05	8.65	10.22	2.39	2.99	3.53	4.12	5.69
	4H	7.52	8.09	8.66	9.22	10.80	2.83	3.40	3.98	4.53	6.11
	6H	7.93	8.46	9.09	9.59	11.18	3.14	3.67	4.30	4.80	6.39
	8H	8.05	8.56	9.21	9.70	11.29	3.23	3.73	4.39	4.88	6.46
	12H	8.11	8.59	9.28	9.73	11.34	3.27	3.74	4.43	4.88	6.49
4H	2H	5.24	5.82	6.40	6.95	8.53	1.79	2.36	2.94	3.49	5.07
	3H	7.06	7.54	8.22	8.69	10.29	3.12	3.60	4.28	4.76	6.35
	4H	7.75	8.19	8.91	9.33	10.94	3.67	4.11	4.83	5.25	6.86
	6H	8.26	8.63	9.43	9.80	11.40	4.08	4.45	5.25	5.62	7.22
	8H	8.43	8.78	9.60	9.94	11.56	4.20	4.55	5.37	5.71	7.33
	12H	8.52	8.84	9.71	10.01	11.63	4.26	4.58	5.45	5.75	7.37
8H	4H	7.71	8.06	8.87	9.21	10.83	3.94	4.29	5.10	5.44	7.06
	6H	8.27	8.56	9.46	9.76	11.37	4.45	4.74	5.64	5.94	7.56
	8H	8.49	8.74	9.68	9.92	11.55	4.64	4.89	5.83	6.07	7.71
	12H	8.62	8.84	9.82	10.02	11.69	4.75	4.98	5.95	6.15	7.82
12H	4H	7.65	7.97	8.83	9.14	10.76	3.93	4.25	5.12	5.42	7.05
	6H	8.24	8.50	9.44	9.67	11.31	4.50	4.75	5.69	5.93	7.57
	8H	8.46	8.68	9.66	9.86	11.53	4.70	4.93	5.90	6.10	7.77