

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: P911354

Luminaire Tested: DFN2DIP-PN4F0-040D100US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911354
REPORT IS A COMBINATION OF REPORTS P899718 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D100US850-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

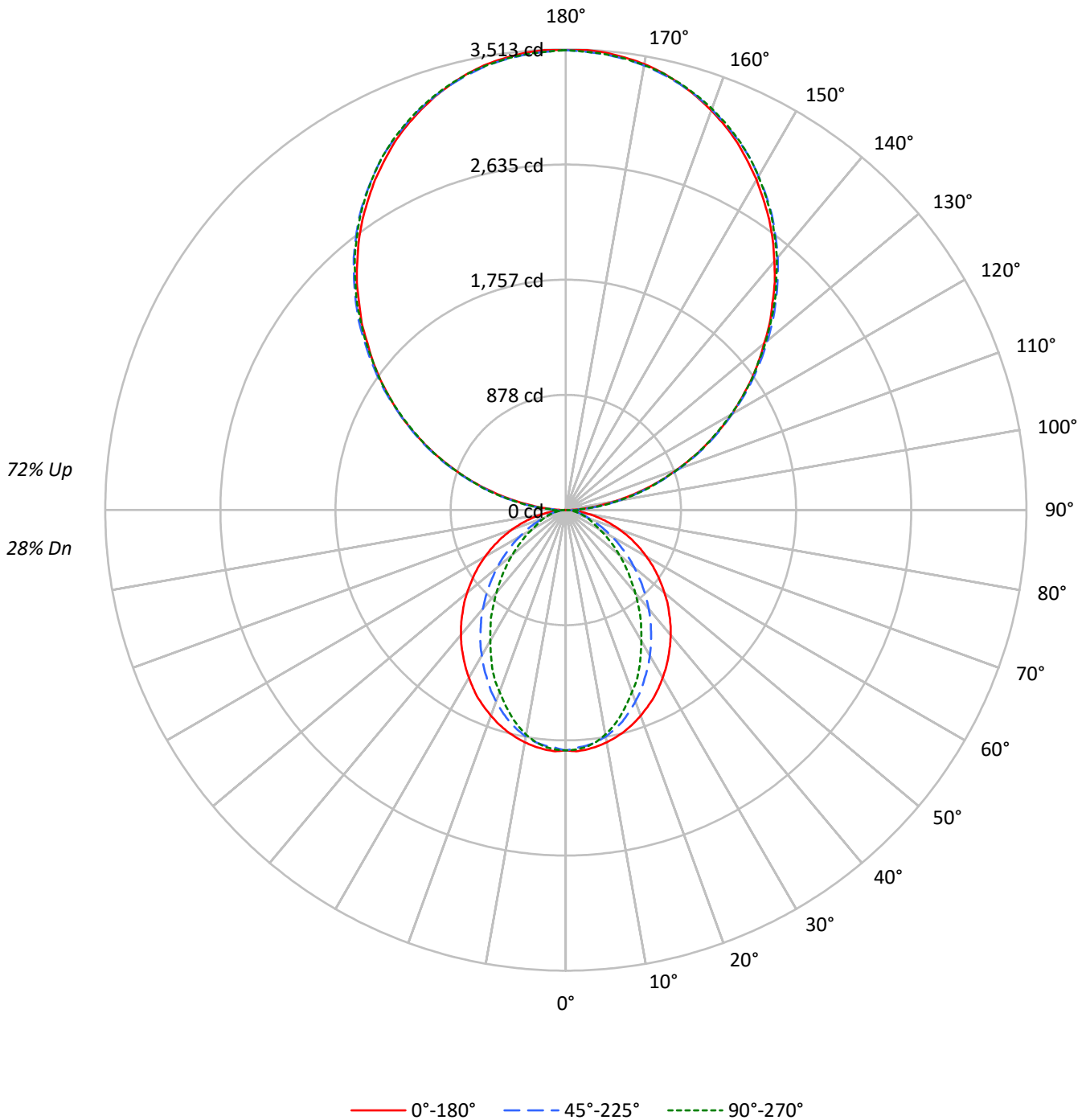
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13585.2 lumens
Efficiency: N/A
Efficacy: 125.4 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): 108.3
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				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	47	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	23	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	31	29	26	24	21	19	17	14			14
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	50	40	33	28	32	27	23	24	21	19	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°	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: 2747 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°	54.5	0.4
90°-100°	217.0	1.6
100°-110°	689.6	5.1
110°-120°	1180.1	8.7
120°-130°	1552.0	11.4
130°-140°	1742.1	12.8
140°-150°	1708.3	12.6
150°-160°	1433.0	10.5
160°-170°	950.4	7.0
170°-180°	332.2	2.4
0°-30°	1305.8	9.6
0°-40°	2027.7	14.9
0°-60°	3212.2	23.6
0°-90°	3780.5	27.8
90°-120°	2086.7	15.4
90°-150°	7089.1	52.2
90°-180°	9805.0	72.2
0°-180°	13585.2	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°	3	38	104	97	100	13
95°	154	184	189	189	184	172
105°	637	645	651	657	657	672
115°	1184	1201	1196	1193	1184	1171
125°	1722	1749	1740	1731	1728	1539
135°	2228	2261	2267	2264	2255	1722
145°	2705	2726	2743	2746	2734	1690
155°	3093	3101	3111	3126	3116	1424
165°	3365	3361	3361	3383	3368	949
175°	3501	3493	3486	3507	3489	333
180°	3507	3507	3507	3507	3507	



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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°	3.2	38.0	103.6	97.3	100.5
92.5°	65.5	88.8	92.0	95.2	95.2
95°	154.4	184.0	189.3	189.3	184.0
97.5°	257.0	284.5	296.1	296.1	296.1
100°	375.4	399.7	408.1	408.1	405.0
102.5°	500.2	518.1	529.8	532.9	529.8
105°	636.6	645.0	651.3	656.6	656.6
107.5°	771.9	784.6	784.6	786.7	771.9
110°	903.1	919.9	919.9	919.9	911.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1044.7	1062.6	1059.5	1051.0	1044.7
115°	1184.3	1201.2	1195.9	1192.7	1184.3
117.5°	1322.8	1346.1	1331.2	1322.8	1314.3
120°	1462.3	1485.6	1462.3	1462.3	1452.9
122.5°	1589.2	1618.8	1604.1	1595.6	1589.2
125°	1722.5	1748.9	1740.5	1730.9	1727.8
127.5°	1852.6	1885.3	1873.7	1861.0	1852.6
130°	1974.1	2012.2	2007.0	2000.5	1989.0
132.5°	2110.5	2140.1	2142.3	2127.5	2119.0
135°	2227.9	2260.7	2267.0	2263.9	2255.4
137.5°	2359.1	2385.5	2390.8	2388.7	2375.9
140°	2474.3	2500.7	2515.5	2515.5	2503.9
142.5°	2592.7	2619.1	2627.6	2630.8	2619.1
145°	2704.7	2725.9	2742.9	2746.0	2734.4
147.5°	2805.2	2831.7	2844.4	2849.7	2838.0
150°	2908.9	2926.9	2938.5	2947.9	2938.5
152.5°	3000.8	3018.8	3033.7	3045.3	3033.7
155°	3092.9	3101.3	3110.9	3125.6	3116.1
157.5°	3172.2	3178.5	3183.8	3204.9	3190.1
160°	3243.0	3249.4	3252.5	3270.4	3257.8
162.5°	3308.6	3308.6	3311.7	3331.8	3317.0
165°	3364.6	3361.4	3361.4	3382.6	3367.8
167.5°	3415.4	3405.8	3405.8	3427.0	3412.2
170°	3453.4	3445.0	3441.8	3463.0	3445.0
172.5°	3479.8	3471.4	3468.2	3489.4	3471.4
175°	3501.0	3492.6	3486.3	3507.3	3489.4
177.5°	3512.6	3504.2	3497.8	3515.8	3497.8
180°	3507.3	3507.3	3507.3	3507.3	3507.3



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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	5.62	6.30	6.75	7.42	8.98	1.59	2.26	2.72	3.38	4.94
	3H	7.29	7.90	8.43	9.03	10.60	2.77	3.37	3.90	4.50	6.07
	4H	7.89	8.47	9.04	9.60	11.18	3.21	3.78	4.36	4.91	6.49
	6H	8.31	8.84	9.47	9.97	11.56	3.52	4.05	4.68	5.18	6.77
	8H	8.43	8.94	9.59	10.08	11.67	3.61	4.11	4.77	5.26	6.84
	12H	8.49	8.97	9.66	10.11	11.71	3.65	4.13	4.81	5.26	6.87
4H	2H	5.62	6.20	6.78	7.33	8.90	2.17	2.74	3.32	3.87	5.45
	3H	7.44	7.92	8.60	9.07	10.66	3.50	3.98	4.66	5.14	6.73
	4H	8.13	8.57	9.29	9.71	11.32	4.05	4.49	5.21	5.63	7.24
	6H	8.64	9.01	9.81	10.18	11.78	4.46	4.83	5.63	6.00	7.60
	8H	8.81	9.16	9.98	10.32	11.94	4.58	4.94	5.75	6.09	7.71
	12H	8.90	9.22	10.09	10.39	12.01	4.64	4.96	5.83	6.13	7.75
8H	4H	8.09	8.44	9.25	9.59	11.21	4.32	4.67	5.48	5.82	7.44
	6H	8.65	8.94	9.84	10.14	11.75	4.83	5.12	6.02	6.32	7.93
	8H	8.87	9.12	10.06	10.30	11.93	5.02	5.27	6.21	6.45	8.09
	12H	9.00	9.22	10.20	10.40	12.07	5.13	5.36	6.33	6.53	8.20
12H	4H	8.03	8.35	9.21	9.52	11.14	4.31	4.63	5.50	5.80	7.42
	6H	8.62	8.88	9.82	10.05	11.69	4.88	5.13	6.07	6.31	7.94
	8H	8.84	9.06	10.04	10.24	11.90	5.08	5.31	6.28	6.48	8.15