

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: P910504

Luminaire Tested: DFN2DIP-4P4F0-040D080US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910504
REPORT IS A COMBINATION OF REPORTS P899142 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D080US850-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

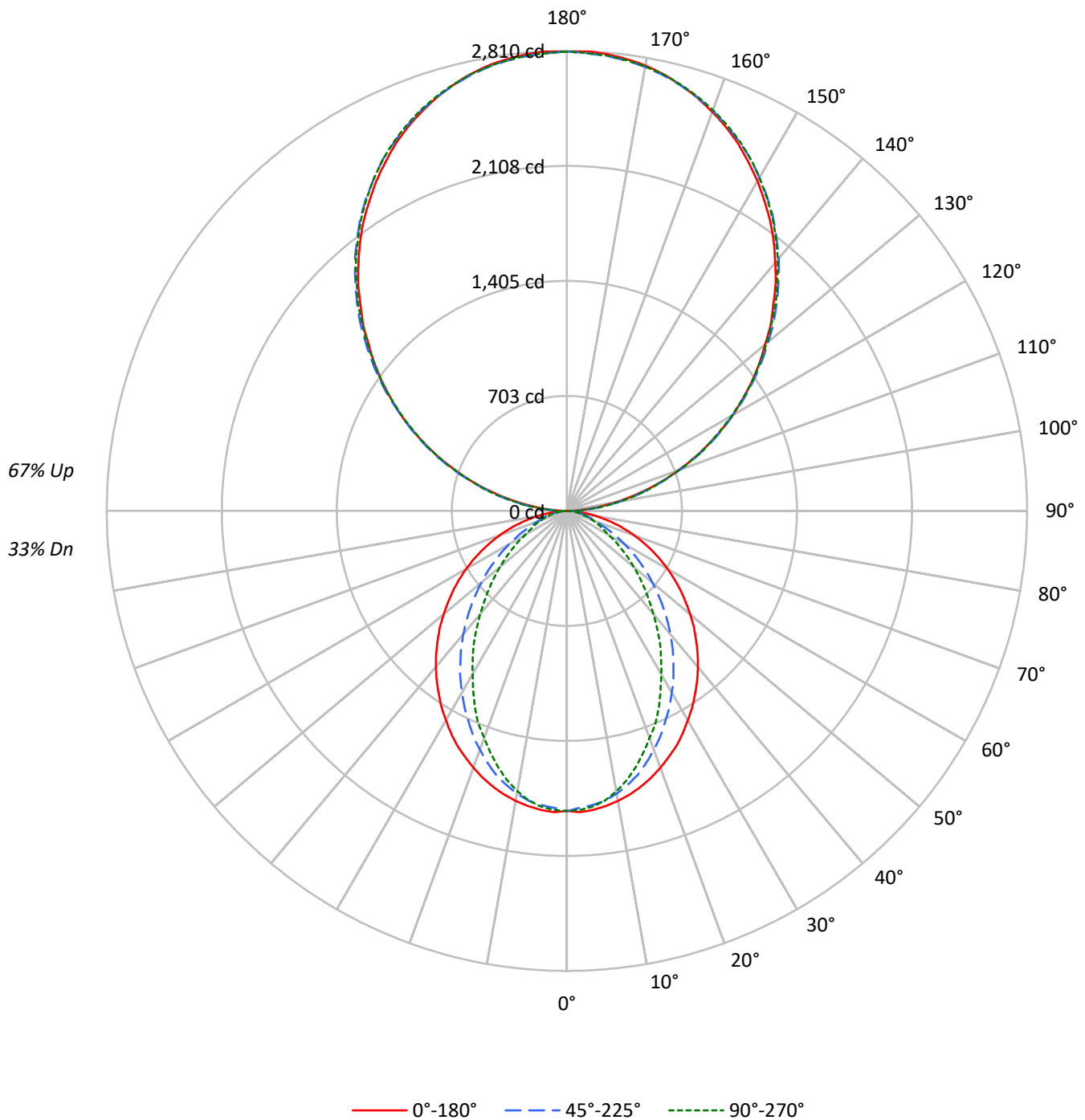
Lumens per Lamp: N/A
Luminaire Lumens: 11622.3 lumens
Efficiency: N/A
Efficacy: 103.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 112.3
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
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	79	73	68	77	71	67	62	57	54	51	44	42	40	32	31	29
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	29	27	25
4	72	62	54	49	65	56	50	45	45	41	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	36	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	15	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1189	1189	1189
5°	1191	1171	1178
10°	1180	1148	1141
15°	1164	1111	1082
20°	1142	1059	1009
25°	1120	1000	939
30°	1091	941	851
35°	1062	876	772
40°	1033	810	683
45°	998	736	602
50°	963	661	522
55°	926	581	446
60°	884	497	368
65°	835	412	331
70°	775	333	300
75°	701	294	275
80°	593	248	240
85°	414	168	183

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2125 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	1.5
10°-20°	471.7	4.1
20°-30°	662.3	5.7
30°-40°	721.9	6.2
40°-50°	663.5	5.7
50°-60°	521.1	4.5
60°-70°	339.2	2.9
70°-80°	174.6	1.5
80°-90°	52.6	0.5
90°-100°	173.6	1.5
100°-110°	551.7	4.7
110°-120°	944.1	8.1
120°-130°	1241.6	10.7
130°-140°	1393.7	12.0
140°-150°	1366.6	11.8
150°-160°	1146.4	9.9
160°-170°	760.3	6.5
170°-180°	265.7	2.3
0°-30°	1305.8	11.2
0°-40°	2027.7	17.4
0°-60°	3212.2	27.6
0°-90°	3778.6	32.5
90°-120°	1669.4	14.4
90°-150°	5671.3	48.8
90°-180°	7844.0	67.5
0°-180°	11622.3	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	30	83	78	80	12
95°	124	147	151	151	147	137
105°	509	516	521	525	525	537
115°	947	961	957	954	947	937
125°	1378	1399	1392	1385	1382	1231
135°	1782	1809	1814	1811	1804	1378
145°	2164	2181	2194	2197	2188	1352
155°	2474	2481	2489	2500	2493	1139
165°	2692	2689	2689	2706	2694	759
175°	2801	2794	2789	2806	2792	266
180°	2806	2806	2806	2806	2806	

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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°	2.6	30.5	83.0	77.9	80.4
92.5°	52.5	71.1	73.6	76.1	76.1
95°	123.5	147.2	151.4	151.4	147.2
97.5°	205.6	227.6	236.9	236.9	236.9
100°	300.3	319.7	326.5	326.5	323.9
102.5°	400.1	414.5	423.7	426.3	423.7
105°	509.3	516.0	521.1	525.3	525.3
107.5°	617.5	627.7	627.7	629.4	617.5
110°	722.4	735.9	735.9	735.9	729.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	835.7	850.2	847.6	840.8	835.7
115°	947.4	960.9	956.7	954.2	947.4
117.5°	1058.2	1076.8	1065.0	1058.2	1051.4
120°	1169.9	1188.5	1169.9	1169.9	1162.2
122.5°	1271.4	1295.1	1283.2	1276.5	1271.4
125°	1377.9	1399.1	1392.3	1384.7	1382.3
127.5°	1482.1	1508.2	1498.9	1488.8	1482.1
130°	1579.3	1609.7	1605.5	1600.5	1591.2
132.5°	1688.5	1712.1	1713.8	1702.0	1695.2
135°	1782.3	1808.6	1813.7	1811.1	1804.3
137.5°	1887.2	1908.4	1912.6	1910.9	1900.7
140°	1979.5	2000.5	2012.4	2012.4	2003.1
142.5°	2074.2	2095.3	2102.1	2104.7	2095.3
145°	2163.9	2180.7	2194.3	2196.8	2187.5
147.5°	2244.2	2265.4	2275.4	2279.8	2270.5
150°	2327.1	2341.4	2350.7	2358.4	2350.7
152.5°	2400.7	2415.1	2426.9	2436.3	2426.9
155°	2474.3	2481.1	2488.7	2500.5	2492.9
157.5°	2537.7	2542.8	2547.0	2563.9	2552.1
160°	2594.4	2599.5	2602.0	2616.4	2606.3
162.5°	2646.9	2646.9	2649.4	2665.5	2653.6
165°	2691.7	2689.1	2689.1	2706.1	2694.2
167.5°	2732.2	2724.7	2724.7	2741.6	2729.7
170°	2762.7	2756.0	2753.4	2770.4	2756.0
172.5°	2783.9	2777.2	2774.6	2791.5	2777.2
175°	2800.8	2794.0	2788.9	2805.9	2791.5
177.5°	2810.1	2803.3	2798.2	2812.6	2798.2
180°	2805.9	2805.9	2805.9	2805.9	2805.9

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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	5.87	6.57	6.97	7.67	9.17	1.83	2.53	2.93	3.63	5.13
	3H	7.54	8.17	8.65	9.27	10.79	3.01	3.64	4.12	4.74	6.26
	4H	8.15	8.75	9.27	9.85	11.37	3.45	4.05	4.57	5.16	6.68
	6H	8.57	9.12	9.69	10.22	11.76	3.77	4.32	4.90	5.43	6.96
	8H	8.69	9.22	9.82	10.34	11.87	3.86	4.38	4.99	5.50	7.03
	12H	8.75	9.25	9.89	10.36	11.92	3.90	4.39	5.03	5.51	7.06
4H	2H	5.87	6.47	7.00	7.57	9.10	2.41	3.01	3.54	4.11	5.64
	3H	7.69	8.19	8.83	9.32	10.86	3.75	4.25	4.88	5.38	6.92
	4H	8.39	8.84	9.52	9.96	11.52	4.30	4.75	5.43	5.87	7.43
	6H	8.90	9.29	10.04	10.43	11.98	4.71	5.10	5.85	6.24	7.79
	8H	9.08	9.44	10.22	10.57	12.14	4.84	5.20	5.98	6.34	7.90
	12H	9.17	9.50	10.33	10.64	12.21	4.90	5.23	6.06	6.37	7.94
8H	4H	8.34	8.71	9.48	9.84	11.41	4.57	4.94	5.71	6.07	7.63
	6H	8.91	9.21	10.07	10.39	11.95	5.09	5.39	6.25	6.56	8.13
	8H	9.13	9.40	10.30	10.55	12.13	5.28	5.54	6.45	6.70	8.28
	12H	9.27	9.50	10.44	10.65	12.27	5.39	5.63	6.56	6.78	8.39
12H	4H	8.29	8.62	9.45	9.77	11.34	4.57	4.90	5.73	6.05	7.62
	6H	8.89	9.15	10.05	10.31	11.89	5.14	5.40	6.30	6.56	8.14
	8H	9.11	9.34	10.28	10.49	12.11	5.34	5.58	6.51	6.73	8.34

END OF REPORT