

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: P909176

Luminaire Tested: DFN2DIP-SQ3F0-070D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909176
REPORT IS A COMBINATION OF REPORTS P899867 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-070D040US840-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

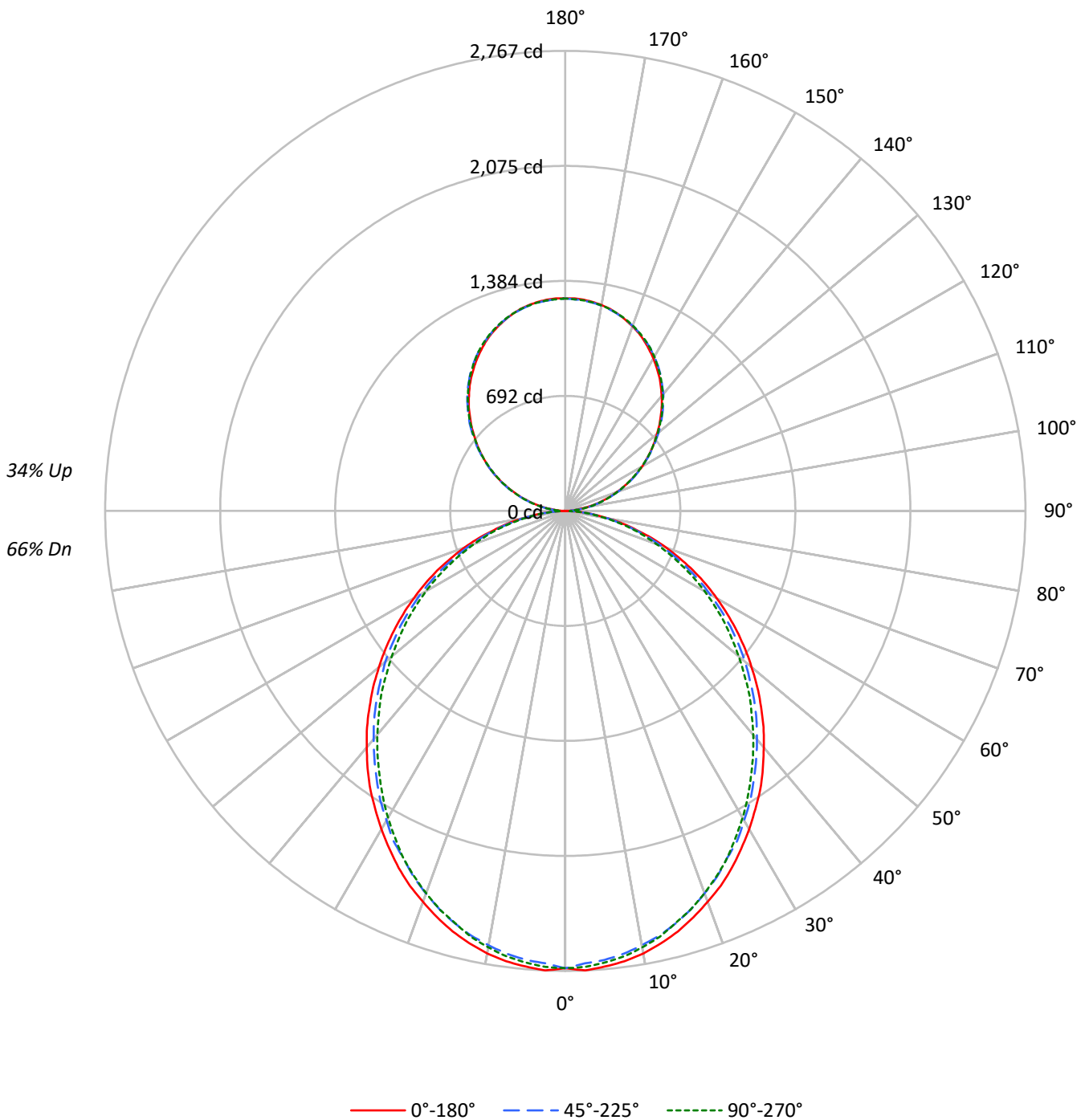
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10573.3 lumens
Efficiency: N/A
Efficacy: 110.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 95.9
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66			66
1	101	97	93	89	95	91	88	85	81	78	76	72	70	68	63	61	60	56			56
2	92	85	78	73	87	80	74	70	71	67	63	63	60	57	55	53	51	47			47
3	84	75	67	61	79	70	64	58	63	57	53	56	51	48	49	46	43	40			40
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34			34
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	32	30			30
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	36	32	29	26			26
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	25	23			23
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21			21
9	53	40	32	27	49	38	31	26	34	28	24	31	26	22	28	24	21	19			19
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17			17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3152	3152	3152
5°	3155	3106	3128
10°	3127	3062	3084
15°	3079	3009	3017
20°	3015	2937	2948
25°	2951	2851	2869
30°	2872	2771	2768
35°	2796	2677	2662
40°	2703	2582	2561
45°	2611	2487	2457
50°	2510	2386	2337
55°	2403	2270	2227
60°	2283	2133	2100
65°	2152	1990	1950
70°	1984	1816	1789
75°	1753	1608	1639
80°	1473	1341	1355
85°	1038	889	887

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2611 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	2.4
10°-20°	728.4	6.9
20°-30°	1070.5	10.1
30°-40°	1243.3	11.8
40°-50°	1241.7	11.7
50°-60°	1082.8	10.2
60°-70°	800.4	7.6
70°-80°	452.9	4.3
80°-90°	123.2	1.2
90°-100°	79.1	0.7
100°-110°	251.2	2.4
110°-120°	429.8	4.1
120°-130°	565.3	5.3
130°-140°	634.5	6.0
140°-150°	622.2	5.9
150°-160°	522.0	4.9
160°-170°	346.2	3.3
170°-180°	121.0	1.1
0°-30°	2057.8	19.5
0°-40°	3301.1	31.2
0°-60°	5625.6	53.2
0°-90°	7002.0	66.2
90°-120°	760.1	7.2
90°-150°	2582.2	24.4
90°-180°	3571.0	33.8
0°-180°	10573.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2751	2751	2751	2751	2751	
5°	2751	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2045	2018	1976	1960	1947	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	840
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	1	14	38	35	37	10
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.6	2750.6	2750.6	2750.6	2750.6
2.5°	2766.6	2753.4	2724.2	2750.6	2745.5
5°	2750.6	2740.3	2711.1	2732.1	2727.0
7.5°	2732.1	2716.3	2687.2	2708.6	2703.2
10°	2703.2	2684.6	2652.9	2674.0	2666.1
12.5°	2663.3	2647.7	2616.0	2629.1	2623.7
15°	2618.5	2602.7	2568.2	2578.9	2565.7
17.5°	2562.8	2547.2	2512.6	2525.9	2512.6
20°	2501.9	2486.3	2449.2	2457.1	2446.7
22.5°	2441.3	2417.5	2383.0	2383.0	2377.6
25°	2369.9	2348.7	2303.9	2309.0	2303.9
27.5°	2290.4	2271.9	2237.7	2229.8	2216.6
30°	2211.3	2189.9	2150.4	2142.5	2131.8
32.5°	2126.5	2110.8	2068.4	2052.5	2041.7
35°	2044.6	2018.2	1975.8	1959.8	1946.6
37.5°	1952.0	1928.1	1885.7	1867.2	1854.0
40°	1856.8	1835.5	1793.1	1769.6	1758.9
42.5°	1764.2	1742.9	1700.8	1674.2	1658.4
45°	1663.8	1645.3	1605.4	1576.5	1565.8
47.5°	1565.8	1547.3	1504.9	1475.7	1460.1
50°	1462.6	1449.4	1412.3	1375.3	1362.1
52.5°	1362.1	1343.6	1309.4	1280.2	1261.6
55°	1259.1	1243.1	1211.4	1179.7	1166.5
57.5°	1155.9	1142.7	1108.1	1076.4	1065.8
60°	1052.6	1042.2	1005.2	976.0	968.2
62.5°	952.1	933.6	907.3	880.9	870.2
65°	849.2	833.1	806.8	782.9	769.7
67.5°	743.4	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.9	592.4	582.0
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.7	410.0	415.4
77.5°	354.5	343.8	338.4	330.5	322.8
80°	264.6	261.9	256.5	248.6	243.3
82.5°	179.9	179.9	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5



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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	12.60	13.63	13.41	14.46	15.48	12.16	13.19	12.96	14.01	15.03
	3H	14.27	15.19	15.09	16.03	17.08	13.78	14.70	14.60	15.54	16.59
	4H	14.86	15.74	15.70	16.58	17.64	14.37	15.24	15.20	16.09	17.14
	6H	15.27	16.07	16.11	16.92	18.00	14.77	15.57	15.61	16.42	17.50
	8H	15.38	16.14	16.23	17.01	18.08	14.87	15.64	15.73	16.51	17.58
	12H	15.43	16.16	16.29	17.02	18.12	14.92	15.65	15.78	16.51	17.61
4H	2H	13.08	13.95	13.92	14.80	15.85	12.72	13.60	13.56	14.44	15.50
	3H	14.95	15.68	15.80	16.56	17.63	14.55	15.28	15.40	16.15	17.23
	4H	15.67	16.34	16.54	17.21	18.31	15.25	15.91	16.11	16.79	17.89
	6H	16.19	16.77	17.07	17.67	18.77	15.76	16.33	16.64	17.23	18.34
	8H	16.34	16.88	17.23	17.77	18.89	15.91	16.44	16.79	17.34	18.45
	12H	16.42	16.91	17.32	17.82	18.94	15.97	16.46	16.87	17.37	18.49
8H	4H	15.88	16.41	16.76	17.31	18.43	15.50	16.04	16.38	16.93	18.05
	6H	16.51	16.95	17.42	17.89	19.01	16.13	16.57	17.03	17.51	18.62
	8H	16.73	17.12	17.65	18.05	19.19	16.34	16.73	17.26	17.66	18.79
	12H	16.87	17.21	17.79	18.13	19.32	16.45	16.80	17.38	17.72	18.91
12H	4H	15.87	16.35	16.77	17.27	18.39	15.50	15.99	16.40	16.90	18.02
	6H	16.54	16.93	17.46	17.86	19.00	16.17	16.56	17.09	17.49	18.62
	8H	16.79	17.13	17.71	18.05	19.24	16.40	16.75	17.33	17.67	18.86