

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: P922689

Luminaire Tested: DFN2DIP-SQ2F0-080D040US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922689
REPORT IS A COMBINATION OF REPORTS P901313 AND P898215
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-080D040US940-FLLONL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

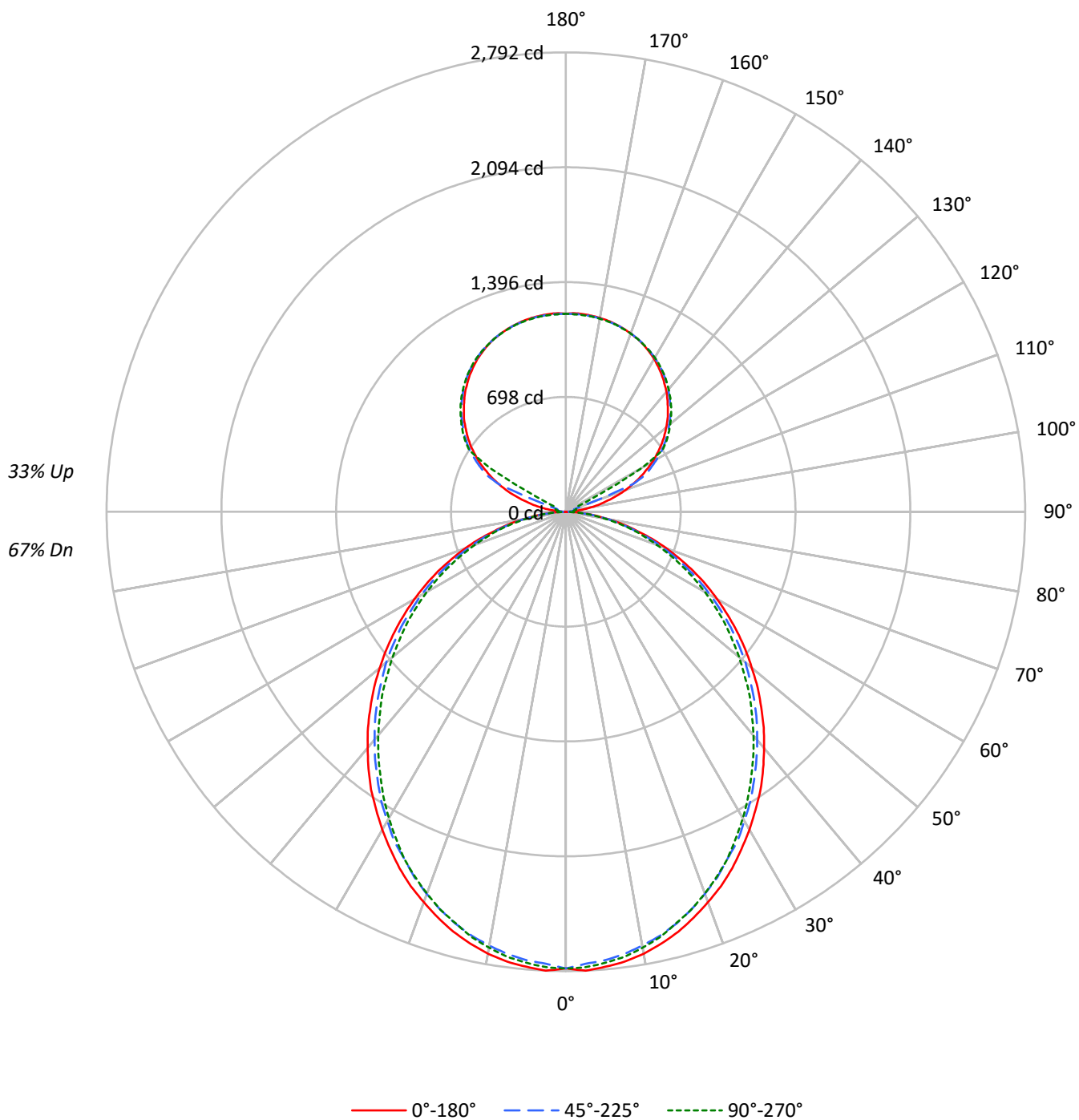
Lumens per Lamp: N/A
Luminaire Lumens: 10593.5 lumens
Efficiency: N/A
Efficacy: 97.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 108.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	6103	6103	6103
5°	6103	6005	6051
10°	6043	5911	5960
15°	5943	5801	5824
20°	5813	5652	5684
25°	5683	5478	5524
30°	5522	5314	5323
35°	5368	5123	5111
40°	5182	4930	4909
45°	4995	4735	4701
50°	4791	4530	4462
55°	4576	4295	4239
60°	4332	4016	3985
65°	4065	3725	3685
70°	3725	3371	3359
75°	3259	2947	3047
80°	2692	2406	2474
85°	1818	1519	1555

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4995 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.3	2.5
10°-20°	735.1	6.9
20°-30°	1080.3	10.2
30°-40°	1254.7	11.8
40°-50°	1253.1	11.8
50°-60°	1092.7	10.3
60°-70°	807.7	7.6
70°-80°	457.0	4.3
80°-90°	122.7	1.2
90°-100°	39.7	0.4
100°-110°	148.0	1.4
110°-120°	392.4	3.7
120°-130°	650.9	6.1
130°-140°	691.4	6.5
140°-150°	642.6	6.1
150°-160°	516.6	4.9
160°-170°	332.9	3.1
170°-180°	114.6	1.1
0°-30°	2076.6	19.6
0°-40°	3331.3	31.4
0°-60°	5677.0	53.6
0°-90°	7064.5	66.7
90°-120°	580.1	5.5
90°-150°	2565.0	24.2
90°-180°	3529.0	33.3
0°-180°	10593.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2776	2776	2776	2776	2776	
5°	2776	2765	2736	2757	2752	263
15°	2642	2626	2592	2602	2589	744
25°	2392	2370	2325	2330	2325	1100
35°	2063	2037	1994	1978	1964	1288
45°	1679	1660	1620	1591	1580	1296
55°	1271	1254	1222	1190	1177	1136
65°	857	841	814	790	777	847
75°	448	443	430	414	419	479
85°	109	107	104	96	94	122
90°	1	10	17	22	24	10
95°	56	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	537	134	72	493
125°	708	720	736	742	745	632
135°	876	890	898	907	905	677
145°	1016	1016	1030	1036	1032	636
155°	1119	1112	1122	1127	1120	516
165°	1179	1174	1177	1183	1177	333
175°	1206	1200	1202	1208	1199	115
180°	1204	1204	1204	1204	1204	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2775.7	2775.7	2775.7	2775.7	2775.7
2.5°	2791.9	2778.6	2749.1	2775.7	2770.6
5°	2775.7	2765.3	2735.9	2757.1	2752.0
7.5°	2757.1	2741.2	2711.8	2733.3	2727.9
10°	2727.9	2709.2	2677.2	2698.4	2690.6
12.5°	2687.7	2671.8	2639.8	2653.1	2647.8
15°	2642.4	2626.5	2591.7	2602.5	2589.2
17.5°	2586.3	2570.4	2535.6	2549.0	2535.6
20°	2524.9	2509.0	2471.6	2479.6	2469.1
22.5°	2463.7	2439.6	2404.8	2404.8	2399.4
25°	2391.5	2370.3	2325.0	2330.0	2325.0
27.5°	2311.3	2292.7	2258.1	2250.1	2236.9
30°	2231.5	2209.9	2170.1	2162.1	2151.3
32.5°	2146.0	2130.1	2087.3	2071.2	2060.5
35°	2063.2	2036.7	1993.9	1977.7	1964.4
37.5°	1969.8	1945.7	1903.0	1884.3	1871.0
40°	1873.8	1852.3	1809.5	1785.7	1774.9
42.5°	1780.4	1758.8	1716.4	1689.4	1673.7
45°	1679.0	1660.3	1620.1	1590.9	1580.2
47.5°	1580.2	1561.5	1518.7	1489.2	1473.4
50°	1476.0	1462.7	1425.2	1387.9	1374.6
52.5°	1374.6	1355.8	1321.3	1291.9	1273.2
55°	1270.6	1254.5	1222.5	1190.5	1177.1
57.5°	1166.4	1153.2	1118.3	1086.3	1075.5
60°	1062.2	1051.8	1014.3	984.9	977.0
62.5°	960.8	942.2	915.5	888.9	878.2
65°	856.9	840.8	814.1	790.1	776.8
67.5°	750.1	736.6	712.7	694.1	683.3
70°	651.3	640.5	616.5	597.8	587.3
72.5°	549.9	539.2	525.8	507.2	499.3
75°	448.3	443.2	429.6	413.8	419.1
77.5°	357.7	346.9	341.5	333.6	325.7
80°	267.1	264.2	258.9	250.9	245.5
82.5°	181.6	181.6	179.0	168.2	168.2
85°	109.3	106.7	104.2	96.0	93.5
87.5°	48.2	42.8	37.4	29.4	26.7
90°	0.8	10.4	17.4	21.8	23.5
92.5°	21.8	18.3	20.9	22.6	23.5
95°	56.5	27.8	33.9	38.3	37.5
97.5°	101.9	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.5	58.3
102.5°	211.6	210.0	51.4	60.9	63.6
105°	264.7	291.0	53.1	62.7	66.2
107.5°	326.6	348.4	54.9	64.5	67.9
110°	385.9	404.1	152.5	65.4	68.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.7	457.3	442.5	67.1	69.7
115°	500.8	515.6	537.4	134.1	71.5
117.5°	552.2	569.6	584.5	459.9	231.7
120°	609.8	622.8	638.5	649.0	531.4
122.5°	658.4	672.4	689.9	695.1	696.0
125°	708.1	719.5	736.0	742.2	744.8
127.5°	753.4	765.6	778.7	787.5	788.3
130°	796.1	810.1	819.6	829.2	828.4
132.5°	839.6	851.0	860.6	868.4	867.6
135°	876.3	890.3	898.0	906.8	905.1
137.5°	914.5	925.0	933.8	942.4	939.9
140°	952.0	959.0	968.6	976.4	972.1
142.5°	983.5	989.5	1000.9	1007.7	1003.4
145°	1016.5	1015.7	1030.4	1036.5	1032.2
147.5°	1045.2	1042.6	1057.4	1061.8	1058.4
150°	1073.1	1067.0	1081.0	1086.2	1081.8
152.5°	1096.6	1089.7	1102.7	1108.0	1101.9
155°	1119.3	1111.5	1121.9	1127.1	1120.2
157.5°	1137.6	1130.6	1138.5	1144.6	1137.6
160°	1153.2	1148.0	1153.2	1158.4	1152.4
162.5°	1167.2	1162.0	1166.4	1172.4	1164.6
165°	1179.4	1174.2	1176.8	1182.9	1176.8
167.5°	1189.0	1183.7	1186.4	1192.5	1184.6
170°	1196.9	1191.6	1193.3	1199.4	1191.6
172.5°	1202.0	1196.9	1198.6	1204.7	1196.9
175°	1206.3	1200.2	1202.0	1208.1	1199.4
177.5°	1208.1	1202.0	1202.9	1209.1	1201.2
180°	1203.8	1203.8	1203.8	1203.8	1203.8

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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	14.85	15.89	15.65	16.71	17.72	14.41	15.44	15.21	16.27	17.28
	3H	16.51	17.44	17.32	18.27	19.31	16.02	16.95	16.83	17.78	18.82
	4H	17.09	17.97	17.92	18.81	19.86	16.60	17.47	17.43	18.31	19.36
	6H	17.48	18.29	18.33	19.14	20.21	16.98	17.79	17.83	18.64	19.71
	8H	17.59	18.36	18.44	19.22	20.29	17.09	17.86	17.94	18.72	19.79
	12H	17.63	18.37	18.49	19.23	20.32	17.13	17.86	17.98	18.72	19.81
4H	2H	15.33	16.20	16.16	17.04	18.09	14.97	15.85	15.80	16.69	17.74
	3H	17.18	17.92	18.03	18.79	19.86	16.78	17.51	17.62	18.38	19.45
	4H	17.89	18.56	18.75	19.43	20.52	17.47	18.13	18.32	19.00	20.10
	6H	18.40	18.97	19.27	19.87	20.96	17.96	18.54	18.84	19.44	20.53
	8H	18.54	19.08	19.42	19.97	21.08	18.10	18.64	18.98	19.53	20.64
	12H	18.61	19.10	19.51	20.01	21.12	18.16	18.65	19.06	19.56	20.67
8H	4H	18.09	18.63	18.97	19.52	20.63	17.71	18.25	18.59	19.14	20.25
	6H	18.70	19.15	19.61	20.08	21.19	18.32	18.77	19.22	19.70	20.81
	8H	18.91	19.31	19.83	20.23	21.36	18.52	18.92	19.43	19.84	20.97
	12H	19.04	19.39	19.96	20.30	21.48	18.63	18.98	19.55	19.89	21.07
12H	4H	18.08	18.57	18.98	19.47	20.59	17.71	18.20	18.61	19.10	20.22
	6H	18.73	19.13	19.64	20.05	21.18	18.36	18.75	19.27	19.68	20.80
	8H	18.96	19.31	19.88	20.23	21.41	18.58	18.93	19.50	19.85	21.03

END OF REPORT