

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: P903593

Luminaire Tested: DFN2DIP-SQ2F0-080D040US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903593
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-SQ2F0-080D040US830-FLLONL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

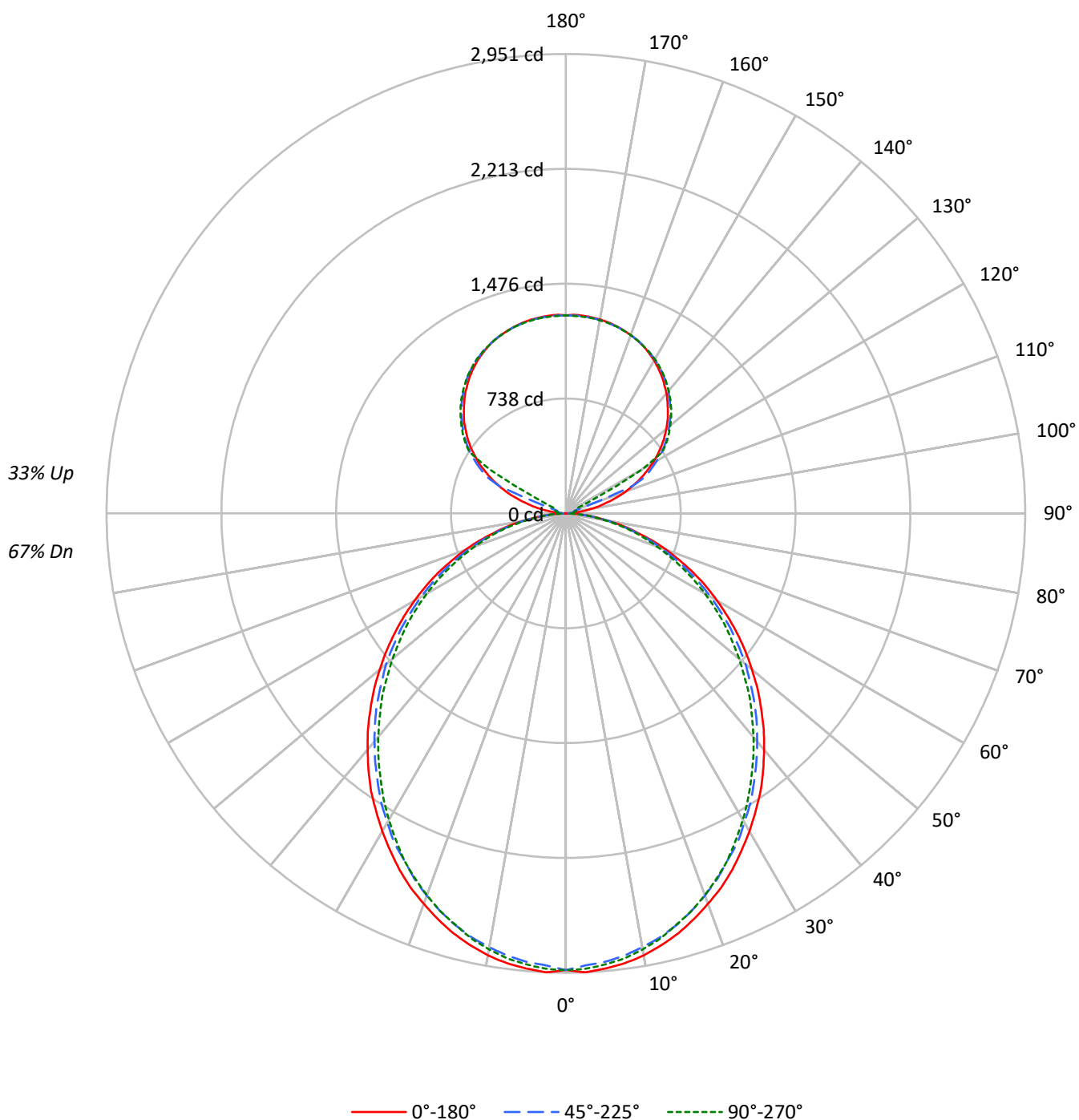
Lumens per Lamp: N/A
Luminaire Lumens: 11197.4 lumens
Efficiency: N/A
Efficacy: 103.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Direct

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
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		71
1	102	97	93	90	95	92	88	85	81	79	76		72	70	68		63
2	92	85	79	73	87	80	75	70	71	67	63		63	60	57		56
3	84	75	67	61	79	71	64	58	63	58	53		56	52	48		49
4	77	66	58	52	72	63	55	50	56	50	45		50	45	41		44
5	71	59	51	44	67	56	48	43	50	44	39		45	40	36		40
6	66	53	45	39	62	50	43	37	45	39	34		41	35	32		36
7	61	48	40	34	57	46	38	33	41	35	30		37	32	28		33
8	56	44	36	30	53	42	34	29	38	31	27		34	29	25		30
9	53	40	32	27	50	38	31	26	35	29	24		31	26	23		28
10	49	37	29	24	46	35	28	24	32	26	22		29	24	20		26

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	6451	6451	6451
5°	6450	6348	6395
10°	6387	6248	6300
15°	6282	6131	6156
20°	6144	5974	6008
25°	6006	5790	5839
30°	5837	5617	5627
35°	5675	5415	5403
40°	5478	5211	5188
45°	5280	5005	4970
50°	5064	4789	4716
55°	4836	4539	4481
60°	4579	4245	4211
65°	4296	3937	3894
70°	3937	3564	3550
75°	3444	3115	3220
80°	2845	2543	2616
85°	1923	1607	1644

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 5280 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	2.5
10°-20°	777.0	6.9
20°-30°	1141.8	10.2
30°-40°	1326.2	11.8
40°-50°	1324.5	11.8
50°-60°	1155.0	10.3
60°-70°	853.8	7.6
70°-80°	483.0	4.3
80°-90°	129.7	1.2
90°-100°	41.9	0.4
100°-110°	156.4	1.4
110°-120°	414.8	3.7
120°-130°	688.0	6.1
130°-140°	730.8	6.5
140°-150°	679.2	6.1
150°-160°	546.1	4.9
160°-170°	351.9	3.1
170°-180°	121.1	1.1
0°-30°	2195.0	19.6
0°-40°	3521.1	31.4
0°-60°	6000.6	53.6
0°-90°	7467.2	66.7
90°-120°	613.2	5.5
90°-150°	2711.2	24.2
90°-180°	3730.0	33.3
0°-180°	11197.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	279
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2458	2463	2458	1163
35°	2181	2153	2108	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	896
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	1	11	18	23	25	10
95°	60	29	36	40	40	71
105°	280	308	56	66	70	299
115°	529	545	568	142	76	521
125°	748	760	778	784	787	668
135°	926	941	949	958	957	715
145°	1074	1074	1089	1096	1091	672
155°	1183	1175	1186	1191	1184	545
165°	1247	1241	1244	1250	1244	352
175°	1275	1269	1270	1277	1268	121
180°	1272	1272	1272	1272	1272	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2933.9	2933.9	2933.9	2933.9	2933.9
2.5°	2951.0	2937.0	2905.9	2933.9	2928.6
5°	2933.9	2922.9	2891.8	2914.2	2908.9
7.5°	2914.2	2897.5	2866.4	2889.1	2883.4
10°	2883.4	2863.6	2829.8	2852.2	2843.9
12.5°	2840.9	2824.1	2790.3	2804.3	2798.7
15°	2793.0	2776.3	2739.4	2750.8	2736.8
17.5°	2733.7	2717.0	2680.1	2694.3	2680.1
20°	2668.8	2652.0	2612.5	2620.9	2609.8
22.5°	2604.2	2578.7	2541.8	2541.8	2536.2
25°	2527.8	2505.4	2457.5	2462.9	2457.5
27.5°	2443.1	2423.4	2386.8	2378.4	2364.4
30°	2358.7	2335.9	2293.8	2285.4	2274.0
32.5°	2268.3	2251.5	2206.3	2189.2	2177.9
35°	2180.9	2152.8	2107.5	2090.5	2076.4
37.5°	2082.1	2056.6	2011.5	1991.7	1977.6
40°	1980.7	1957.8	1912.7	1887.5	1876.1
42.5°	1881.9	1859.1	1814.2	1785.7	1769.1
45°	1774.7	1754.9	1712.4	1681.6	1670.3
47.5°	1670.3	1650.5	1605.2	1574.1	1557.4
50°	1560.1	1546.1	1506.5	1467.0	1452.9
52.5°	1452.9	1433.1	1396.7	1365.6	1345.8
55°	1343.0	1326.0	1292.2	1258.4	1244.3
57.5°	1232.9	1218.9	1182.0	1148.2	1136.8
60°	1122.8	1111.7	1072.1	1041.0	1032.6
62.5°	1015.6	995.9	967.7	939.6	928.2
65°	905.8	888.7	860.5	835.1	821.0
67.5°	792.9	778.5	753.4	733.7	722.3
70°	688.4	677.0	651.7	631.9	620.8
72.5°	581.3	570.0	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.1	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
90°	0.8	11.0	18.4	23.1	24.8
92.5°	23.1	19.3	22.1	23.9	24.8
95°	59.8	29.4	35.8	40.5	39.6
97.5°	107.7	32.2	46.9	49.8	50.6
100°	163.0	36.9	52.5	59.8	61.6
102.5°	223.7	222.0	54.3	64.4	67.2
105°	279.8	307.6	56.2	66.3	69.9
107.5°	345.3	368.3	58.1	68.1	71.8
110°	407.9	427.2	161.2	69.1	72.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	466.8	483.3	467.7	70.9	73.7
115°	529.3	545.0	568.1	141.8	75.6
117.5°	583.7	602.1	617.8	486.1	244.9
120°	644.5	658.3	674.9	686.0	561.7
122.5°	696.0	710.8	729.2	734.7	735.7
125°	748.5	760.5	778.0	784.5	787.2
127.5°	796.4	809.3	823.1	832.4	833.2
130°	841.5	856.3	866.3	876.5	875.6
132.5°	887.5	899.6	909.6	917.9	917.1
135°	926.2	941.0	949.2	958.5	956.7
137.5°	966.7	977.7	987.0	996.2	993.4
140°	1006.3	1013.7	1023.8	1032.1	1027.5
142.5°	1039.5	1045.9	1057.9	1065.2	1060.6
145°	1074.5	1073.6	1089.1	1095.6	1091.0
147.5°	1104.8	1102.0	1117.7	1122.3	1118.7
150°	1134.3	1127.8	1142.6	1148.1	1143.5
152.5°	1159.1	1151.8	1165.5	1171.1	1164.7
155°	1183.1	1174.9	1185.9	1191.4	1184.0
157.5°	1202.4	1195.0	1203.4	1209.8	1202.4
160°	1219.0	1213.4	1219.0	1224.5	1218.0
162.5°	1233.7	1228.2	1232.8	1239.3	1231.0
165°	1246.6	1241.1	1243.9	1250.3	1243.9
167.5°	1256.8	1251.1	1254.1	1260.5	1252.2
170°	1265.1	1259.5	1261.3	1267.8	1259.5
172.5°	1270.5	1265.1	1267.0	1273.4	1265.1
175°	1275.1	1268.7	1270.5	1277.0	1267.8
177.5°	1277.0	1270.5	1271.5	1278.0	1269.7
180°	1272.4	1272.4	1272.4	1272.4	1272.4

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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	15.05	16.08	15.85	16.90	17.91	14.60	15.64	15.40	16.46	17.47
	3H	16.70	17.63	17.51	18.46	19.50	16.21	17.14	17.02	17.97	19.01
	4H	17.28	18.16	18.11	19.00	20.05	16.79	17.67	17.62	18.51	19.56
	6H	17.68	18.49	18.52	19.33	20.40	17.18	17.99	18.02	18.83	19.90
	8H	17.78	18.55	18.63	19.42	20.48	17.28	18.05	18.13	18.91	19.98
	12H	17.83	18.56	18.68	19.42	20.51	17.32	18.05	18.17	18.91	20.00
4H	2H	15.52	16.40	16.35	17.23	18.29	15.16	16.04	16.00	16.88	17.93
	3H	17.38	18.11	18.22	18.98	20.05	16.97	17.70	17.81	18.57	19.64
	4H	18.08	18.75	18.94	19.62	20.71	17.66	18.33	18.52	19.20	20.29
	6H	18.59	19.17	19.46	20.06	21.16	18.16	18.73	19.03	19.63	20.72
	8H	18.73	19.27	19.61	20.16	21.27	18.30	18.84	19.17	19.72	20.83
	12H	18.81	19.29	19.70	20.20	21.32	18.36	18.84	19.25	19.75	20.87
8H	4H	18.28	18.82	19.16	19.71	20.82	17.90	18.44	18.78	19.33	20.44
	6H	18.90	19.34	19.80	20.27	21.38	18.51	18.96	19.42	19.89	21.00
	8H	19.10	19.50	20.02	20.42	21.55	18.71	19.11	19.63	20.03	21.16
	12H	19.23	19.58	20.15	20.50	21.68	18.82	19.17	19.74	20.09	21.26
12H	4H	18.27	18.76	19.17	19.67	20.78	17.90	18.39	18.80	19.30	20.41
	6H	18.92	19.32	19.84	20.24	21.37	18.55	18.95	19.46	19.87	21.00
	8H	19.16	19.51	20.08	20.42	21.60	18.78	19.12	19.69	20.04	21.22