

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: P903504

Luminaire Tested: DFN2DIP-SQ2F0-040D060US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903504
REPORT IS A COMBINATION OF REPORTS P899809 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-040D060US830-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

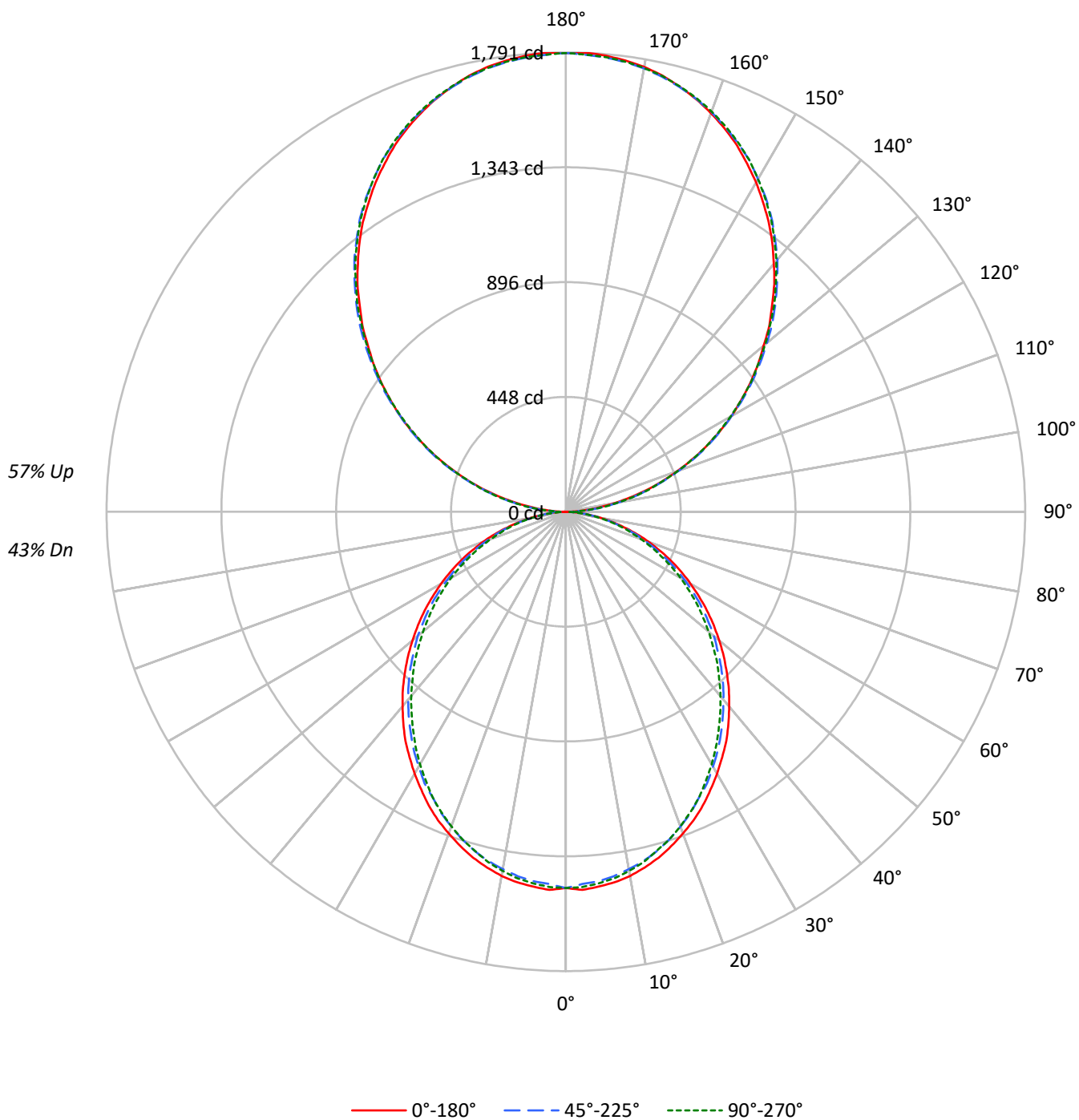
Lumens per Lamp: N/A
Luminaire Lumens: 8737.4 lumens
Efficiency: N/A
Efficacy: 109.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 79.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3226	3226	3226
5°	3225	3174	3198
10°	3194	3124	3150
15°	3141	3066	3078
20°	3072	2987	3004
25°	3003	2895	2920
30°	2918	2808	2813
35°	2837	2708	2701
40°	2739	2605	2594
45°	2640	2503	2485
50°	2532	2395	2358
55°	2419	2270	2241
60°	2290	2123	2106
65°	2148	1969	1948
70°	1968	1782	1775
75°	1723	1558	1610
80°	1422	1271	1308
85°	962	802	822

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2640 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.6
10°-20°	388.5	4.4
20°-30°	570.9	6.5
30°-40°	663.1	7.6
40°-50°	662.3	7.6
50°-60°	577.5	6.6
60°-70°	426.9	4.9
70°-80°	241.5	2.8
80°-90°	68.8	0.8
90°-100°	110.7	1.3
100°-110°	351.6	4.0
110°-120°	601.8	6.9
120°-130°	791.4	9.1
130°-140°	888.4	10.2
140°-150°	871.1	10.0
150°-160°	730.8	8.4
160°-170°	484.6	5.5
170°-180°	169.4	1.9
0°-30°	1097.5	12.6
0°-40°	1760.6	20.1
0°-60°	3000.3	34.3
0°-90°	3737.5	42.8
90°-120°	1064.1	12.2
90°-150°	3615.0	41.4
90°-180°	5000.0	57.2
0°-180°	8737.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	2	19	53	50	51	9
95°	79	94	96	96	94	88
105°	325	329	332	335	335	343
115°	604	613	610	608	604	597
125°	878	892	888	883	881	785
135°	1136	1153	1156	1154	1150	878
145°	1379	1390	1399	1400	1394	862
155°	1577	1582	1586	1594	1589	726
165°	1716	1714	1714	1725	1717	484
175°	1785	1781	1778	1789	1779	170
180°	1789	1789	1789	1789	1789	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	1.6	19.4	52.9	49.6	51.2
92.5°	33.5	45.3	46.9	48.5	48.5
95°	78.7	93.8	96.5	96.5	93.8
97.5°	131.0	145.1	151.0	151.0	151.0
100°	191.4	203.8	208.1	208.1	206.5
102.5°	255.1	264.2	270.1	271.7	270.1
105°	324.6	328.9	332.2	334.9	334.9
107.5°	393.6	400.1	400.1	401.1	393.6
110°	460.5	469.1	469.1	469.1	464.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	532.7	541.9	540.3	535.9	532.7
115°	603.9	612.6	609.8	608.2	603.9
117.5°	674.6	686.5	678.8	674.6	670.2
120°	745.7	757.6	745.7	745.7	740.8
122.5°	810.4	825.5	817.9	813.7	810.4
125°	878.4	891.8	887.5	882.7	881.1
127.5°	944.7	961.4	955.5	949.0	944.7
130°	1006.7	1026.1	1023.4	1020.2	1014.3
132.5°	1076.3	1091.4	1092.4	1084.9	1080.5
135°	1136.1	1152.8	1156.0	1154.4	1150.1
137.5°	1203.0	1216.4	1219.2	1218.0	1211.6
140°	1261.8	1275.3	1282.8	1282.8	1276.9
142.5°	1322.1	1335.6	1339.9	1341.5	1335.6
145°	1379.3	1390.1	1398.7	1400.3	1394.4
147.5°	1430.5	1444.0	1450.5	1453.1	1447.2
150°	1483.4	1492.5	1498.5	1503.3	1498.5
152.5°	1530.2	1539.5	1547.0	1552.9	1547.0
155°	1577.2	1581.5	1586.3	1593.9	1589.0
157.5°	1617.6	1620.9	1623.5	1634.4	1626.8
160°	1653.8	1657.0	1658.6	1667.7	1661.3
162.5°	1687.2	1687.2	1688.8	1699.0	1691.5
165°	1715.7	1714.1	1714.1	1724.9	1717.4
167.5°	1741.6	1736.8	1736.8	1747.6	1740.0
170°	1761.0	1756.7	1755.1	1765.9	1756.7
172.5°	1774.5	1770.2	1768.6	1779.3	1770.2
175°	1785.3	1781.0	1777.7	1788.6	1779.3
177.5°	1791.2	1787.0	1783.7	1792.8	1783.7
180°	1788.6	1788.6	1788.6	1788.6	1788.6

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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	10.52	11.32	11.53	12.34	13.71	10.07	10.87	11.09	11.90	13.27
	3H	12.15	12.87	13.18	13.91	15.30	11.66	12.38	12.69	13.42	14.81
	4H	12.73	13.41	13.76	14.44	15.84	12.23	12.91	13.27	13.95	15.35
	6H	13.11	13.73	14.16	14.77	16.18	12.61	13.23	13.66	14.27	15.69
	8H	13.20	13.80	14.26	14.86	16.26	12.70	13.30	13.76	14.35	15.76
	12H	13.24	13.81	14.30	14.86	16.29	12.73	13.30	13.79	14.35	15.78
4H	2H	10.96	11.64	12.01	12.68	14.07	10.60	11.28	11.65	12.32	13.72
	3H	12.80	13.36	13.85	14.43	15.84	12.39	12.96	13.44	14.02	15.43
	4H	13.49	14.01	14.55	15.07	16.50	13.07	13.59	14.13	14.65	16.08
	6H	13.99	14.43	15.06	15.51	16.94	13.55	14.00	14.62	15.08	16.51
	8H	14.13	14.54	15.20	15.61	17.06	13.69	14.11	14.76	15.18	16.62
	12H	14.19	14.56	15.27	15.65	17.10	13.74	14.12	14.83	15.20	16.65
8H	4H	13.67	14.09	14.74	15.16	16.61	13.30	13.71	14.37	14.79	16.23
	6H	14.28	14.62	15.37	15.74	17.18	13.89	14.24	14.99	15.35	16.79
	8H	14.49	14.79	15.59	15.88	17.35	14.09	14.39	15.19	15.49	16.95
	12H	14.60	14.87	15.70	15.96	17.46	14.19	14.46	15.29	15.55	17.05
12H	4H	13.65	14.03	14.74	15.12	16.57	13.28	13.66	14.37	14.75	16.20
	6H	14.30	14.61	15.40	15.70	17.16	13.93	14.23	15.03	15.33	16.79
	8H	14.53	14.79	15.63	15.89	17.38	14.15	14.41	15.25	15.50	17.00