

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: P903600

Luminaire Tested: DFN2DIP-SQ2F0-080D060US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903600
REPORT IS A COMBINATION OF REPORTS P899817 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-080D060US830-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

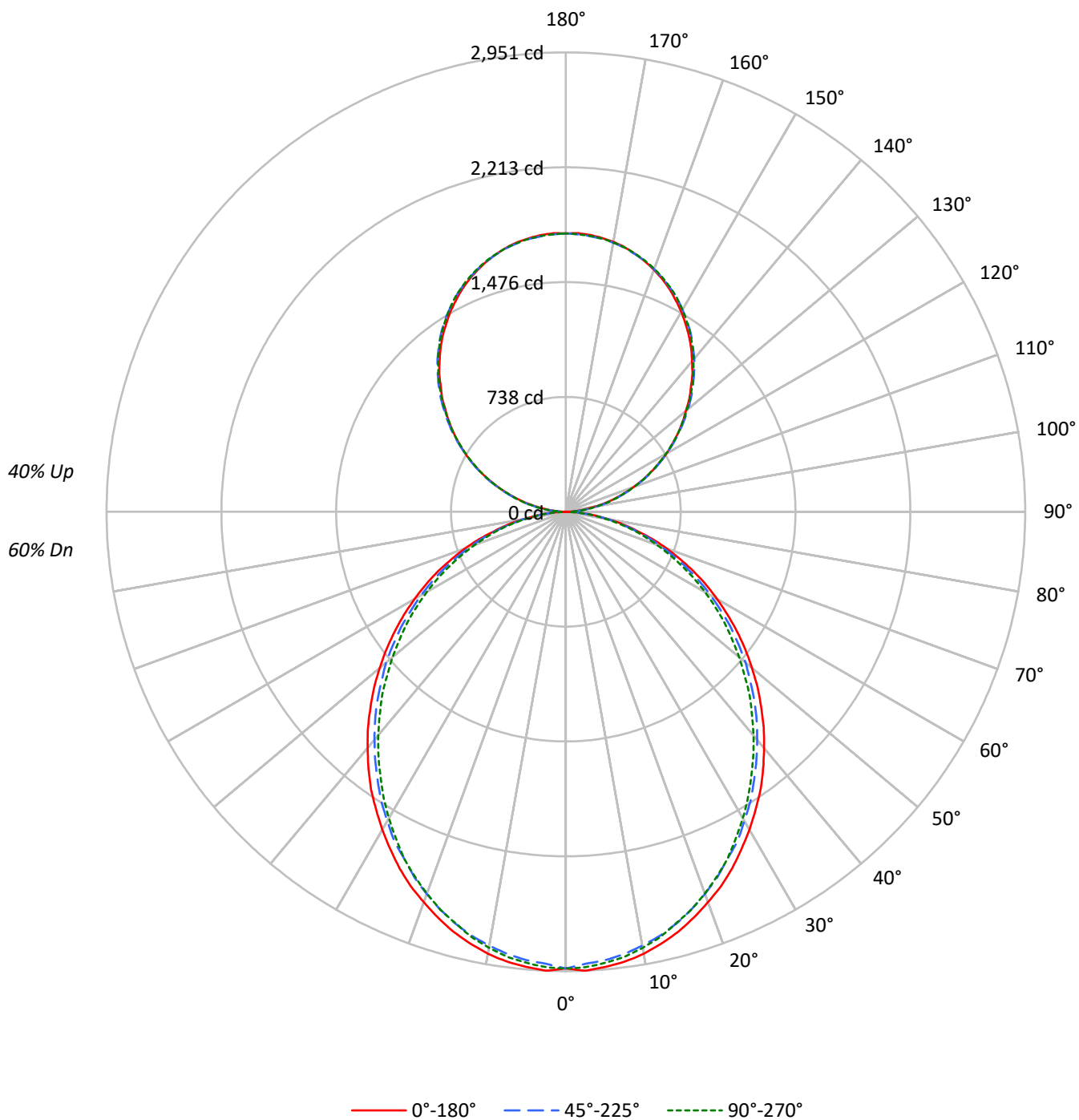
Lumens per Lamp: N/A
Luminaire Lumens: 12469.8 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 124.8
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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	89	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	43	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	29	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

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	2.2
10°-20°	777.0	6.2
20°-30°	1141.8	9.2
30°-40°	1326.2	10.6
40°-50°	1324.5	10.6
50°-60°	1155.0	9.3
60°-70°	853.8	6.8
70°-80°	483.0	3.9
80°-90°	132.6	1.1
90°-100°	110.7	0.9
100°-110°	351.6	2.8
110°-120°	601.8	4.8
120°-130°	791.4	6.3
130°-140°	888.4	7.1
140°-150°	871.1	7.0
150°-160°	730.8	5.9
160°-170°	484.6	3.9
170°-180°	169.4	1.4
0°-30°	2195.0	17.6
0°-40°	3521.1	28.2
0°-60°	6000.6	48.1
0°-90°	7470.0	59.9
90°-120°	1064.1	8.5
90°-150°	3615.0	29.0
90°-180°	5000.0	40.1
0°-180°	12469.8	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°	2	19	53	50	51	12
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°	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°	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	14.50	15.46	15.37	16.35	17.47	14.06	15.01	14.92	15.90	17.02
	3H	16.15	17.01	17.03	17.91	19.05	15.66	16.52	16.54	17.42	18.56
	4H	16.73	17.54	17.62	18.44	19.60	16.23	17.05	17.13	17.95	19.11
	6H	17.12	17.87	18.02	18.78	19.95	16.62	17.37	17.52	18.28	19.45
	8H	17.22	17.93	18.13	18.86	20.03	16.72	17.43	17.63	18.36	19.53
	12H	17.26	17.94	18.18	18.86	20.06	16.75	17.43	17.67	18.36	19.55
4H	2H	14.96	15.78	15.86	16.68	17.84	14.61	15.42	15.51	16.32	17.48
	3H	16.81	17.49	17.72	18.43	19.60	16.41	17.08	17.32	18.02	19.19
	4H	17.52	18.14	18.44	19.07	20.26	17.09	17.71	18.01	18.64	19.84
	6H	18.02	18.55	18.95	19.51	20.71	17.59	18.12	18.52	19.08	20.27
	8H	18.16	18.66	19.10	19.61	20.82	17.72	18.22	18.66	19.17	20.39
	12H	18.23	18.68	19.19	19.65	20.87	17.78	18.23	18.74	19.20	20.42
8H	4H	17.71	18.21	18.65	19.16	20.37	17.33	17.83	18.27	18.78	19.99
	6H	18.32	18.73	19.29	19.72	20.94	17.94	18.35	18.90	19.34	20.55
	8H	18.53	18.89	19.50	19.87	21.10	18.14	18.50	19.11	19.48	20.71
	12H	18.65	18.97	19.63	19.95	21.22	18.24	18.56	19.22	19.54	20.81
12H	4H	17.70	18.15	18.65	19.11	20.33	17.33	17.78	18.28	18.74	19.96
	6H	18.35	18.71	19.32	19.69	20.92	17.97	18.34	18.95	19.32	20.55
	8H	18.58	18.90	19.55	19.87	21.15	18.20	18.52	19.17	19.49	20.77