

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: P903712

Luminaire Tested: DFN2DIP-SQ3F0-060D110US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903712
REPORT IS A COMBINATION OF REPORTS P899991 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-060D110US830-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

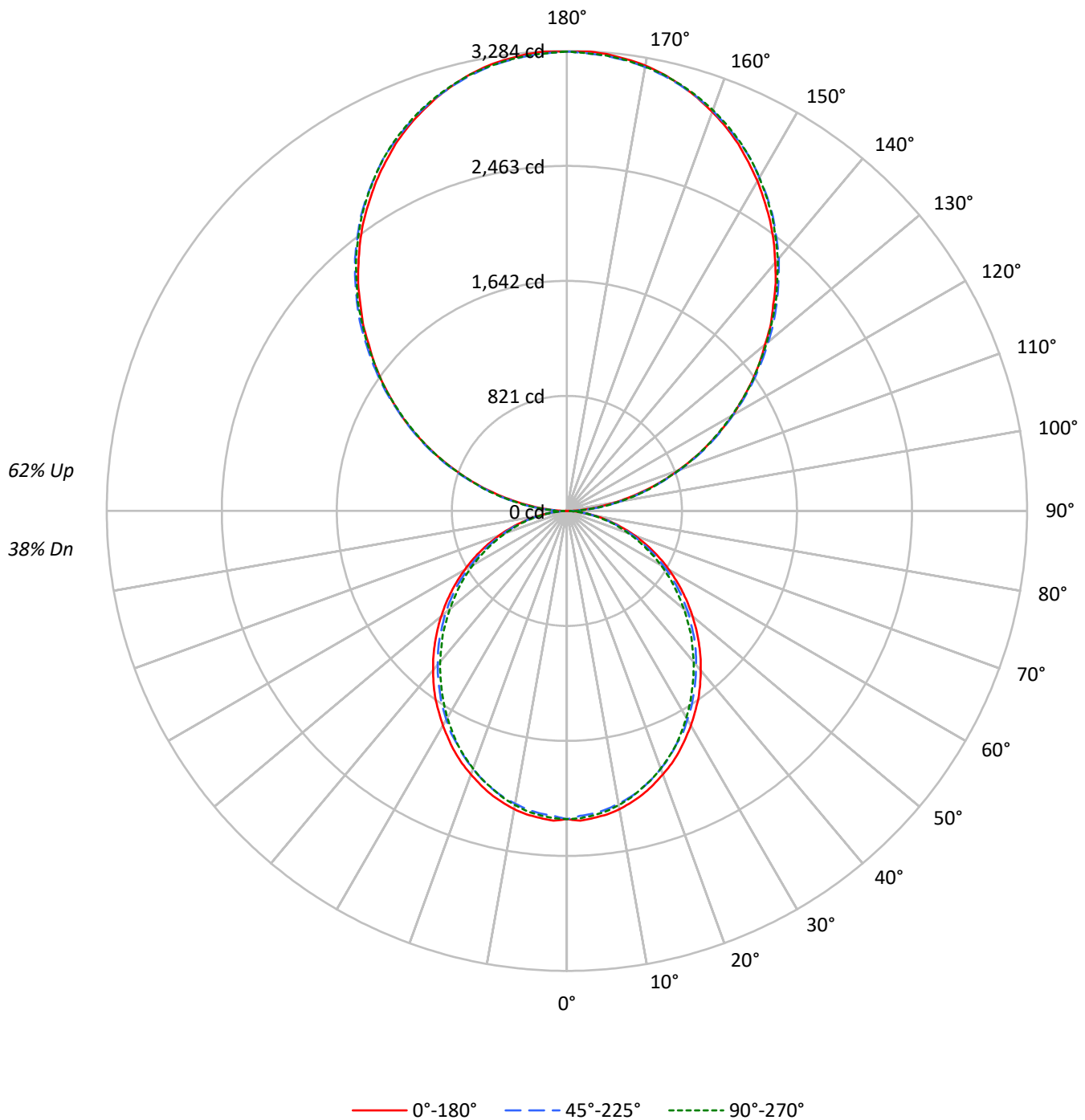
Lumens per Lamp: N/A
Luminaire Lumens: 14774.3 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 139.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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	104	104	104	104	95	95	95	95	77	77	77	60	60	60	45	45	45
1	95	91	87	84	86	83	79	76	67	65	63	53	51	50	40	39	38
2	87	79	73	68	78	72	67	63	59	55	52	46	44	42	35	33	32
3	79	70	62	57	71	63	57	52	52	47	44	41	38	35	31	29	27
4	72	62	54	48	65	56	49	44	46	41	37	37	33	30	28	25	23
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	22	20
6	61	49	41	35	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	36	31	51	41	34	29	33	28	24	27	23	20	21	18	16
8	52	40	32	27	47	37	30	25	30	25	22	25	21	18	19	16	14
9	48	37	29	24	44	34	27	23	28	23	19	23	19	16	17	15	13
10	45	33	26	22	41	31	24	20	26	21	17	21	17	14	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2521	2521	2521
5°	2524	2484	2502
10°	2502	2449	2467
15°	2463	2407	2414
20°	2412	2350	2359
25°	2361	2281	2295
30°	2297	2217	2215
35°	2237	2142	2130
40°	2163	2066	2049
45°	2089	1989	1966
50°	2008	1909	1870
55°	1923	1816	1781
60°	1827	1707	1680
65°	1721	1593	1560
70°	1587	1453	1431
75°	1402	1286	1311
80°	1179	1073	1084
85°	829	711	710

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3298 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	1.4
10°-20°	582.7	3.9
20°-30°	856.4	5.8
30°-40°	994.6	6.7
40°-50°	993.4	6.7
50°-60°	866.2	5.9
60°-70°	640.3	4.3
70°-80°	362.3	2.5
80°-90°	104.9	0.7
90°-100°	202.9	1.4
100°-110°	644.7	4.4
110°-120°	1103.3	7.5
120°-130°	1451.0	9.8
130°-140°	1628.6	11.0
140°-150°	1597.1	10.8
150°-160°	1339.7	9.1
160°-170°	888.5	6.0
170°-180°	310.5	2.1
0°-30°	1646.2	11.1
0°-40°	2640.9	17.9
0°-60°	4500.5	30.5
0°-90°	5608.0	38.0
90°-120°	1950.9	13.2
90°-150°	6627.6	44.9
90°-180°	9166.0	62.0
0°-180°	14774.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2200	2200	2200	2200	2200	
5°	2200	2192	2169	2186	2182	209
15°	2095	2082	2055	2063	2053	590
25°	1896	1879	1843	1847	1843	872
35°	1636	1615	1581	1568	1557	1021
45°	1331	1316	1284	1261	1253	1027
55°	1007	994	969	944	933	901
65°	679	667	646	626	616	672
75°	355	351	340	328	332	379
85°	87	85	83	76	74	97
90°	3	36	97	91	94	14
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2114	2119	2116	2109	1610
145°	2529	2548	2564	2567	2556	1580
155°	2892	2899	2908	2922	2913	1331
165°	3146	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2200.5	2200.5	2200.5	2200.5	2200.5
2.5°	2213.3	2202.7	2179.3	2200.5	2196.4
5°	2200.5	2192.2	2168.8	2185.7	2181.6
7.5°	2185.7	2173.1	2149.8	2166.8	2162.6
10°	2162.6	2147.8	2122.3	2139.2	2132.9
12.5°	2130.7	2118.1	2092.7	2103.3	2099.0
15°	2094.7	2082.2	2054.6	2063.1	2052.6
17.5°	2050.3	2037.8	2010.2	2020.6	2010.2
20°	2001.6	1989.0	1959.4	1965.7	1957.4
22.5°	1953.1	1934.0	1906.4	1906.4	1902.1
25°	1895.8	1879.1	1843.0	1847.1	1843.0
27.5°	1832.3	1817.5	1790.1	1783.9	1773.3
30°	1769.1	1751.9	1720.3	1714.0	1705.4
32.5°	1701.2	1688.7	1654.7	1641.9	1633.4
35°	1635.7	1614.6	1580.6	1567.8	1557.3
37.5°	1561.6	1542.5	1508.6	1493.7	1483.2
40°	1485.4	1468.4	1434.5	1415.7	1407.1
42.5°	1411.4	1394.3	1360.7	1339.4	1326.7
45°	1331.1	1316.2	1284.3	1261.2	1252.6
47.5°	1252.6	1237.8	1204.0	1180.6	1168.0
50°	1170.1	1159.5	1129.9	1100.2	1089.7
52.5°	1089.7	1074.9	1047.4	1024.2	1009.4
55°	1007.3	994.5	969.1	943.8	933.2
57.5°	924.7	914.2	886.6	861.2	852.6
60°	842.1	833.8	804.2	780.8	774.5
62.5°	761.7	746.9	725.8	704.6	696.2
65°	679.3	666.6	645.5	626.3	615.8
67.5°	594.6	583.9	565.1	550.3	541.7
70°	516.3	507.8	488.7	473.9	465.6
72.5°	435.9	427.4	416.9	402.1	395.8
75°	355.3	351.4	340.5	328.0	332.2
77.5°	283.5	275.0	270.7	264.5	258.2
80°	211.7	209.4	205.2	198.9	194.6
82.5°	143.9	143.9	141.9	133.4	133.4
85°	86.6	84.6	82.6	76.1	74.1
87.5°	38.2	33.9	29.6	23.4	21.1
90°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.3	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	609.0	613.9	613.9
107.5°	721.6	733.5	733.5	735.5	721.6
110°	844.2	860.1	860.1	860.1	852.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.7	993.4	990.5	982.6	976.7
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.4	1244.5	1236.7	1228.8
120°	1367.2	1388.9	1367.2	1367.2	1358.3
122.5°	1485.8	1513.4	1499.6	1491.7	1485.8
125°	1610.3	1635.0	1627.1	1618.3	1615.2
127.5°	1731.9	1762.6	1751.7	1739.8	1731.9
130°	1845.6	1881.2	1876.2	1870.3	1859.4
132.5°	1973.1	2000.8	2002.8	1989.0	1981.0
135°	2082.8	2113.5	2119.4	2116.5	2108.6
137.5°	2205.5	2230.1	2235.1	2233.1	2221.3
140°	2313.2	2337.9	2351.7	2351.7	2340.9
142.5°	2423.9	2448.6	2456.5	2459.5	2448.6
145°	2528.7	2548.4	2564.3	2567.2	2556.4
147.5°	2622.6	2647.3	2659.2	2664.1	2653.3
150°	2719.5	2736.3	2747.1	2756.1	2747.1
152.5°	2805.5	2822.3	2836.1	2847.0	2836.1
155°	2891.5	2899.4	2908.3	2922.2	2913.2
157.5°	2965.6	2971.6	2976.5	2996.2	2982.4
160°	3031.9	3037.8	3040.7	3057.6	3045.7
162.5°	3093.1	3093.1	3096.2	3114.9	3101.1
165°	3145.5	3142.5	3142.5	3162.3	3148.5
167.5°	3193.0	3184.1	3184.1	3203.9	3190.0
170°	3228.6	3220.7	3217.7	3237.4	3220.7
172.5°	3253.3	3245.4	3242.4	3262.2	3245.4
175°	3273.1	3265.2	3259.2	3279.0	3262.2
177.5°	3283.9	3276.0	3270.1	3286.9	3270.1
180°	3279.0	3279.0	3279.0	3279.0	3279.0

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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	9.22	9.98	10.28	11.04	12.48	8.78	9.54	9.83	10.60	12.03
	3H	10.87	11.55	11.93	12.62	14.07	10.38	11.06	11.44	12.13	13.58
	4H	11.45	12.10	12.52	13.17	14.62	10.96	11.60	12.03	12.67	14.13
	6H	11.84	12.44	12.92	13.51	14.98	11.34	11.94	12.42	13.01	14.48
	8H	11.94	12.51	13.03	13.60	15.06	11.44	12.01	12.53	13.09	14.56
	12H	11.98	12.52	13.08	13.60	15.09	11.47	12.01	12.57	13.10	14.58
4H	2H	9.67	10.31	10.75	11.38	12.84	9.31	9.96	10.39	11.03	12.49
	3H	11.52	12.06	12.61	13.15	14.63	11.11	11.65	12.20	12.75	14.22
	4H	12.22	12.72	13.32	13.81	15.30	11.80	12.30	12.89	13.38	14.87
	6H	12.73	13.15	13.83	14.26	15.75	12.30	12.72	13.40	13.83	15.32
	8H	12.87	13.27	13.98	14.37	15.87	12.44	12.83	13.54	13.94	15.44
	12H	12.94	13.30	14.06	14.41	15.92	12.49	12.85	13.61	13.97	15.47
8H	4H	12.41	12.81	13.51	13.91	15.41	12.03	12.43	13.13	13.53	15.03
	6H	13.03	13.36	14.15	14.50	16.00	12.65	12.97	13.77	14.12	15.62
	8H	13.25	13.53	14.38	14.66	16.18	12.85	13.14	13.98	14.27	15.78
	12H	13.37	13.62	14.50	14.74	16.30	12.96	13.21	14.09	14.33	15.89
12H	4H	12.39	12.75	13.51	13.86	15.37	12.02	12.38	13.14	13.49	15.00
	6H	13.06	13.34	14.19	14.47	15.99	12.68	12.97	13.81	14.10	15.62
	8H	13.29	13.54	14.42	14.66	16.22	12.91	13.16	14.04	14.28	15.84