

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: P903557

Luminaire Tested: DFN2DIP-SQ2F0-060D070US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903557
REPORT IS A COMBINATION OF REPORTS P901345 AND P898215
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-060D070US830-FLLONL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

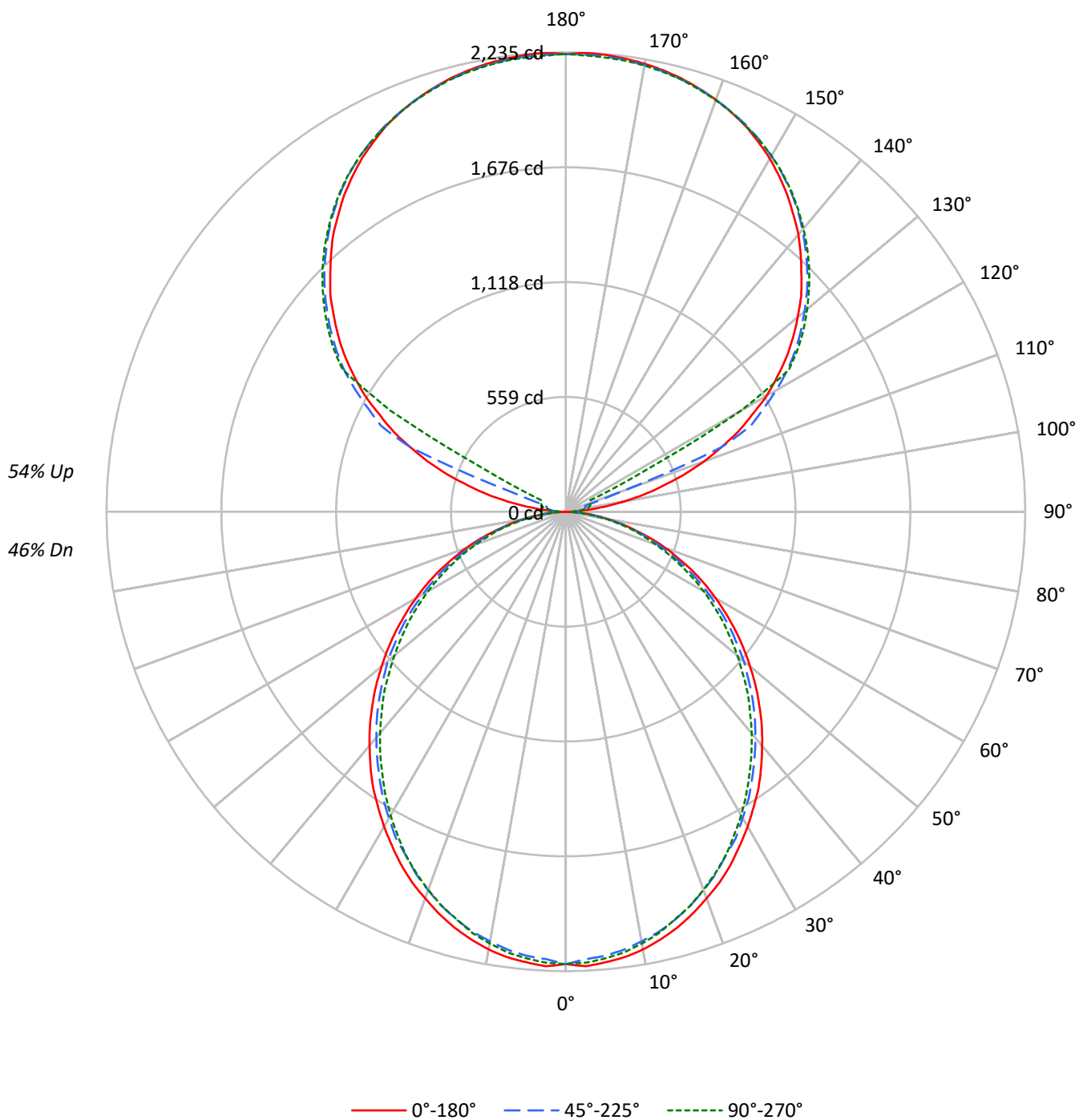
Lumens per Lamp: N/A
Luminaire Lumens: 12130.5 lumens
Efficiency: N/A
Efficacy: 110.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 109.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	106	106	106	106	98	98	98	98	81	81	81		66	66	66		53
1	97	93	89	85	89	85	82	79	71	69	67		58	57	55		46
2	88	81	75	70	81	74	69	65	62	59	55		51	48	46		41
3	81	71	64	58	74	66	59	54	55	50	46		45	42	39		36
4	74	63	55	49	67	58	51	46	49	44	40		40	37	33		32
5	68	56	48	42	62	52	45	39	44	38	34		36	32	29		29
6	62	50	42	36	57	46	39	34	39	34	30		33	29	25		26
7	58	45	37	32	53	42	35	30	36	30	26		30	26	22		24
8	53	41	33	28	49	38	31	26	33	27	23		27	23	20		22
9	50	38	30	25	46	35	28	24	30	24	21		25	21	18		21
10	46	34	27	22	43	32	26	21	27	22	19		23	19	16		19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4839	4839	4839
5°	4838	4761	4796
10°	4791	4686	4725
15°	4711	4598	4617
20°	4608	4481	4506
25°	4505	4342	4379
30°	4378	4212	4220
35°	4256	4061	4052
40°	4108	3908	3891
45°	3960	3754	3727
50°	3798	3592	3537
55°	3627	3404	3361
60°	3435	3184	3159
65°	3222	2954	2921
70°	2953	2673	2663
75°	2583	2336	2415
80°	2134	1907	1961
85°	1441	1204	1233

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3960 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	1.7
10°-20°	582.7	4.8
20°-30°	856.4	7.1
30°-40°	994.6	8.2
40°-50°	993.4	8.2
50°-60°	866.2	7.1
60°-70°	640.3	5.3
70°-80°	362.3	3.0
80°-90°	99.5	0.8
90°-100°	73.4	0.6
100°-110°	273.7	2.3
110°-120°	725.9	6.0
120°-130°	1204.0	9.9
130°-140°	1278.9	10.5
140°-150°	1188.6	9.8
150°-160°	955.6	7.9
160°-170°	615.8	5.1
170°-180°	211.9	1.7
0°-30°	1646.2	13.6
0°-40°	2640.9	21.8
0°-60°	4500.5	37.1
0°-90°	5602.6	46.2
90°-120°	1073.0	8.8
90°-150°	4744.6	39.1
90°-180°	6528.0	53.8
0°-180°	12130.5	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°	2	19	32	40	44	11
95°	105	52	63	71	69	124
105°	490	538	98	116	122	523
115°	926	954	994	248	132	912
125°	1310	1331	1362	1373	1378	1168
135°	1621	1647	1661	1677	1674	1252
145°	1880	1879	1906	1917	1909	1176
155°	2070	2056	2075	2085	2072	954
165°	2182	2172	2177	2188	2177	616
175°	2232	2220	2224	2235	2219	212
180°	2227	2227	2227	2227	2227	

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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°	1.5	19.3	32.1	40.3	43.5
92.5°	40.3	33.8	38.6	41.9	43.5
95°	104.6	51.5	62.8	71.0	69.3
97.5°	188.4	56.5	82.1	87.1	88.6
100°	285.3	64.5	91.8	104.6	107.9
102.5°	391.4	388.4	95.1	112.7	117.6
105°	489.8	538.2	98.3	115.9	122.4
107.5°	604.2	644.4	101.6	119.2	125.7
110°	713.9	747.5	282.0	120.9	127.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	817.0	845.8	818.5	123.9	128.9
115°	926.4	953.8	994.1	248.2	132.2
117.5°	1021.5	1053.7	1081.2	850.6	428.6
120°	1127.8	1152.0	1181.1	1200.4	982.9
122.5°	1218.0	1243.8	1276.2	1285.7	1287.4
125°	1309.9	1330.9	1361.5	1372.8	1377.5
127.5°	1393.6	1416.2	1440.5	1456.6	1458.1
130°	1472.6	1498.5	1516.1	1533.9	1532.4
132.5°	1553.2	1574.2	1591.9	1606.4	1604.9
135°	1620.9	1646.7	1661.1	1677.3	1674.1
137.5°	1691.7	1711.1	1727.3	1743.4	1738.6
140°	1761.0	1774.0	1791.6	1806.1	1798.1
142.5°	1819.1	1830.4	1851.2	1864.1	1856.1
145°	1880.4	1878.7	1906.0	1917.3	1909.3
147.5°	1933.3	1928.6	1956.0	1964.0	1957.7
150°	1985.0	1973.8	1999.6	2009.1	2001.1
152.5°	2028.4	2015.6	2039.8	2049.5	2038.2
155°	2070.4	2056.0	2075.3	2084.9	2072.1
157.5°	2104.2	2091.4	2105.9	2117.2	2104.2
160°	2133.4	2123.5	2133.4	2142.9	2131.6
162.5°	2159.0	2149.4	2157.4	2168.7	2154.2
165°	2181.5	2172.0	2176.7	2188.0	2176.7
167.5°	2199.3	2189.5	2194.5	2205.8	2191.3
170°	2213.8	2204.1	2207.3	2218.7	2204.1
172.5°	2223.5	2213.8	2217.1	2228.4	2213.8
175°	2231.5	2220.2	2223.5	2234.7	2218.7
177.5°	2234.7	2223.5	2225.2	2236.5	2221.9
180°	2226.7	2226.7	2226.7	2226.7	2226.7

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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	12.27	13.10	13.26	14.10	15.43	11.83	12.66	12.82	13.66	14.98
	3H	13.91	14.65	14.91	15.66	17.01	13.42	14.16	14.42	15.17	16.52
	4H	14.48	15.19	15.50	16.20	17.55	13.99	14.69	15.00	15.71	17.06
	6H	14.87	15.51	15.89	16.53	17.90	14.37	15.01	15.39	16.03	17.40
	8H	14.96	15.58	15.99	16.61	17.98	14.46	15.08	15.49	16.11	17.47
	12H	15.00	15.59	16.04	16.62	18.00	14.49	15.08	15.53	16.11	17.50
4H	2H	12.72	13.42	13.74	14.43	15.79	12.36	13.07	13.38	14.08	15.43
	3H	14.56	15.14	15.59	16.19	17.55	14.15	14.74	15.18	15.78	17.15
	4H	15.25	15.79	16.29	16.83	18.22	14.83	15.37	15.87	16.40	17.79
	6H	15.75	16.21	16.79	17.27	18.65	15.32	15.78	16.36	16.84	18.22
	8H	15.89	16.32	16.94	17.37	18.77	15.45	15.88	16.50	16.93	18.33
	12H	15.95	16.34	17.02	17.41	18.81	15.50	15.89	16.57	16.96	18.36
8H	4H	15.44	15.87	16.48	16.92	18.32	15.06	15.49	16.11	16.54	17.94
	6H	16.04	16.40	17.11	17.49	18.89	15.66	16.02	16.73	17.11	18.51
	8H	16.25	16.56	17.33	17.64	19.06	15.86	16.17	16.93	17.25	18.66
	12H	16.37	16.64	17.45	17.71	19.17	15.96	16.23	17.04	17.30	18.76
12H	4H	15.42	15.81	16.48	16.87	18.28	15.05	15.44	16.11	16.50	17.91
	6H	16.07	16.38	17.14	17.46	18.88	15.69	16.01	16.77	17.08	18.50
	8H	16.29	16.57	17.37	17.64	19.10	15.91	16.19	16.99	17.26	18.72