

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: P917353

Luminaire Tested: DFN2DIP-SQ3F0-060D110US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917353
REPORT IS A COMBINATION OF REPORTS P901511 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-060D110US930-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

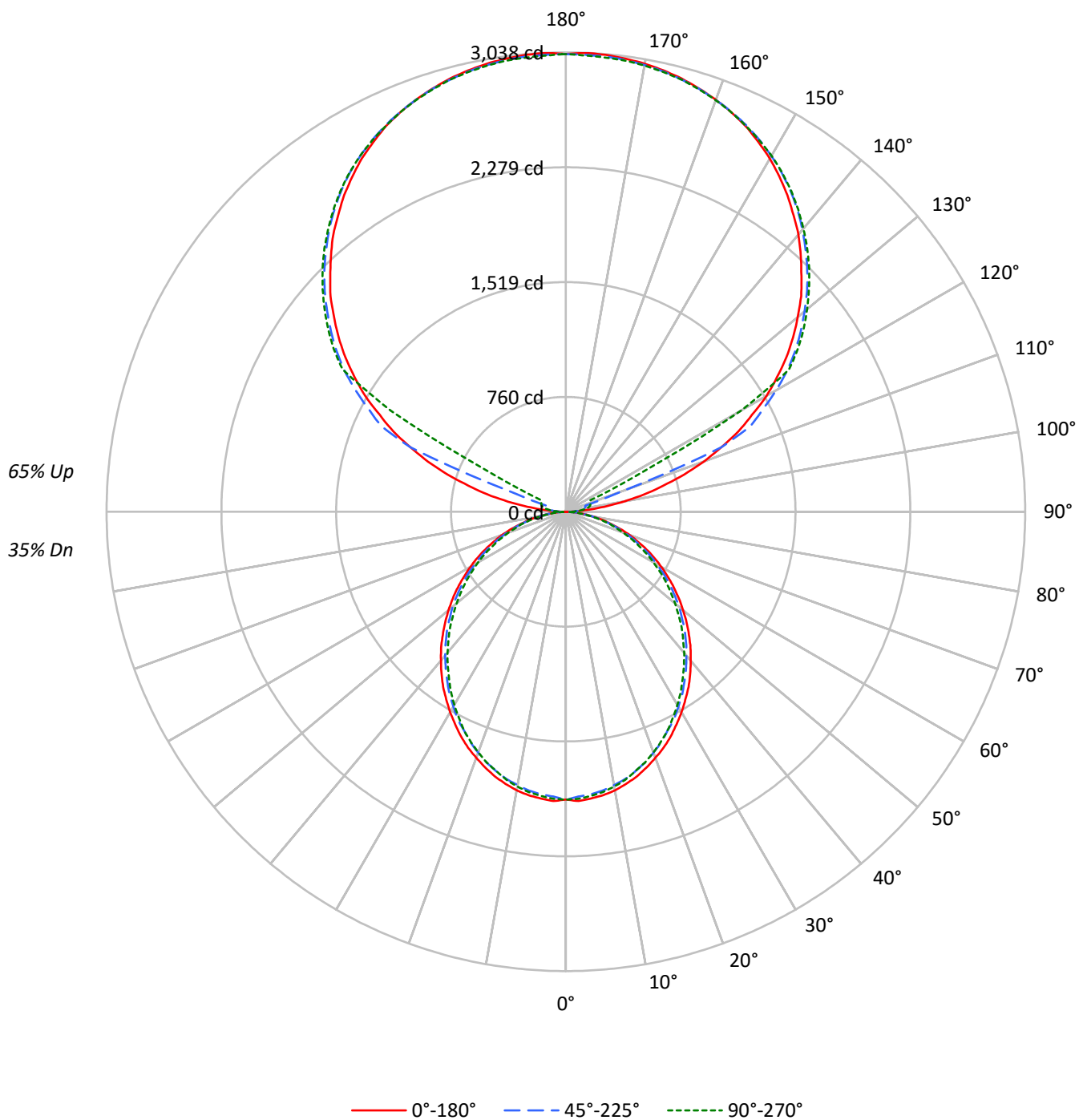
Lumens per Lamp: N/A
Luminaire Lumens: 13721.5 lumens
Efficiency: N/A
Efficacy: 98.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43	35		
1	95	90	86	83	85	82	79	76	66	64	62	51	50	48	38	37	36	30		
2	86	79	73	68	78	71	66	62	58	54	51	45	43	40	33	32	30	25		
3	78	69	62	56	71	63	57	52	51	46	43	40	37	34	29	27	26	21		
4	72	61	53	48	65	56	49	44	45	40	36	35	32	29	26	24	22	18		
5	66	54	46	41	59	50	43	38	40	35	31	32	28	25	24	21	19	16		
6	60	49	41	35	54	44	37	32	36	31	27	29	25	22	21	19	17	14		
7	56	44	36	31	50	40	33	28	33	28	24	26	22	19	20	17	15	12		
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	15	13	11		
9	48	36	29	24	43	33	27	22	27	22	19	22	18	15	17	14	12	10		
10	45	33	26	21	41	30	24	20	25	20	17	20	16	14	15	13	11	9		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2181	2181	2181
5°	2183	2149	2164
10°	2164	2119	2134
15°	2131	2082	2088
20°	2086	2032	2040
25°	2042	1973	1985
30°	1987	1918	1916
35°	1935	1853	1842
40°	1871	1787	1772
45°	1807	1721	1700
50°	1737	1651	1617
55°	1663	1571	1541
60°	1580	1476	1453
65°	1489	1377	1350
70°	1373	1257	1238
75°	1213	1113	1134
80°	1020	928	938
85°	717	615	614

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2072 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.3
10°-20°	504.1	3.7
20°-30°	740.8	5.4
30°-40°	860.4	6.3
40°-50°	859.3	6.3
50°-60°	749.3	5.5
60°-70°	553.9	4.0
70°-80°	313.4	2.3
80°-90°	88.0	0.6
90°-100°	99.8	0.7
100°-110°	372.1	2.7
110°-120°	986.7	7.2
120°-130°	1636.6	11.9
130°-140°	1738.4	12.7
140°-150°	1615.7	11.8
150°-160°	1298.9	9.5
160°-170°	837.0	6.1
170°-180°	288.1	2.1
0°-30°	1424.0	10.4
0°-40°	2284.3	16.6
0°-60°	3892.9	28.4
0°-90°	4848.2	35.3
90°-120°	1458.6	10.6
90°-150°	6449.2	47.0
90°-180°	8873.0	64.7
0°-180°	13721.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	2	26	44	55	59	13
95°	142	70	85	96	94	169
105°	666	732	134	158	166	711
115°	1259	1296	1351	337	180	1240
125°	1780	1809	1851	1866	1872	1588
135°	2203	2238	2258	2280	2276	1702
145°	2556	2554	2591	2606	2595	1599
155°	2814	2795	2821	2834	2816	1297
165°	2965	2952	2959	2974	2959	838
175°	3033	3018	3022	3038	3016	289
180°	3027	3027	3027	3027	3027	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	2.1	26.3	43.7	54.9	59.0
92.5°	54.9	46.1	52.5	57.0	59.0
95°	142.3	70.0	85.3	96.4	94.2
97.5°	256.2	76.7	111.5	118.3	120.4
100°	387.8	87.6	124.8	142.3	146.7
102.5°	532.1	527.9	129.2	153.2	160.0
105°	665.8	731.6	133.7	157.6	166.5
107.5°	821.3	875.9	138.1	162.0	170.9
110°	970.3	1016.1	383.4	164.4	172.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.5	1149.7	1112.6	168.5	175.3
115°	1259.2	1296.4	1351.4	337.3	179.7
117.5°	1388.5	1432.2	1469.7	1156.3	582.5
120°	1533.1	1565.9	1605.4	1631.7	1335.9
122.5°	1655.6	1690.7	1734.6	1747.7	1750.0
125°	1780.4	1809.1	1850.6	1866.0	1872.5
127.5°	1894.3	1925.0	1958.0	1979.9	1982.0
130°	2001.7	2036.9	2060.7	2085.0	2082.9
132.5°	2111.2	2139.8	2163.8	2183.5	2181.5
135°	2203.3	2238.4	2257.9	2280.1	2275.6
137.5°	2299.5	2325.8	2347.9	2369.7	2363.2
140°	2393.7	2411.3	2435.3	2455.0	2444.1
142.5°	2472.7	2488.0	2516.4	2533.9	2522.9
145°	2556.0	2553.6	2590.8	2606.2	2595.3
147.5°	2628.0	2621.5	2658.7	2669.6	2661.1
150°	2698.2	2682.9	2718.0	2731.0	2720.1
152.5°	2757.3	2739.8	2772.6	2785.9	2770.5
155°	2814.2	2794.7	2820.9	2834.0	2816.5
157.5°	2860.2	2842.8	2862.6	2877.9	2860.2
160°	2899.8	2886.5	2899.8	2912.7	2897.4
162.5°	2934.6	2921.6	2932.5	2947.9	2928.1
165°	2965.3	2952.3	2958.8	2974.1	2958.8
167.5°	2989.5	2976.2	2983.0	2998.3	2978.6
170°	3009.3	2996.0	3000.4	3015.8	2996.0
172.5°	3022.2	3009.3	3013.7	3029.0	3009.3
175°	3033.2	3017.8	3022.2	3037.6	3015.8
177.5°	3037.6	3022.2	3024.6	3039.9	3020.2
180°	3026.7	3026.7	3026.7	3026.7	3026.7

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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	8.41	9.16	9.49	10.23	11.70	7.97	8.71	9.04	9.79	11.25
	3H	10.06	10.73	11.14	11.81	13.29	9.57	10.24	10.65	11.32	12.80
	4H	10.64	11.27	11.73	12.36	13.85	10.15	10.78	11.24	11.86	13.35
	6H	11.03	11.61	12.13	12.70	14.20	10.53	11.11	11.63	12.20	13.70
	8H	11.13	11.68	12.24	12.79	14.28	10.63	11.18	11.73	12.29	13.78
	12H	11.17	11.70	12.28	12.80	14.32	10.66	11.19	11.77	12.29	13.81
4H	2H	8.86	9.49	9.96	10.57	12.06	8.50	9.13	9.60	10.22	11.71
	3H	10.71	11.23	11.81	12.35	13.85	10.30	10.83	11.41	11.94	13.44
	4H	11.41	11.90	12.52	13.00	14.52	10.99	11.47	12.10	12.57	14.10
	6H	11.92	12.33	13.04	13.46	14.97	11.48	11.90	12.60	13.02	14.54
	8H	12.06	12.45	13.18	13.56	15.10	11.62	12.01	12.74	13.13	14.66
	12H	12.13	12.48	13.26	13.61	15.14	11.68	12.03	12.81	13.16	14.69
8H	4H	11.60	11.98	12.71	13.10	14.63	11.22	11.61	12.34	12.72	14.25
	6H	12.22	12.54	13.36	13.69	15.22	11.83	12.15	12.97	13.31	14.84
	8H	12.43	12.71	13.58	13.85	15.40	12.04	12.32	13.19	13.46	15.01
	12H	12.55	12.80	13.70	13.94	15.52	12.14	12.39	13.29	13.53	15.11
12H	4H	11.57	11.93	12.71	13.05	14.59	11.21	11.56	12.34	12.69	14.22
	6H	12.24	12.52	13.39	13.66	15.21	11.87	12.15	13.02	13.29	14.84
	8H	12.47	12.72	13.63	13.86	15.44	12.09	12.34	13.24	13.48	15.06