

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: P917727

Luminaire Tested: DFN2DIP-SQ4F0-100D070US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917727
REPORT IS A COMBINATION OF REPORTS P901606 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D070US930-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

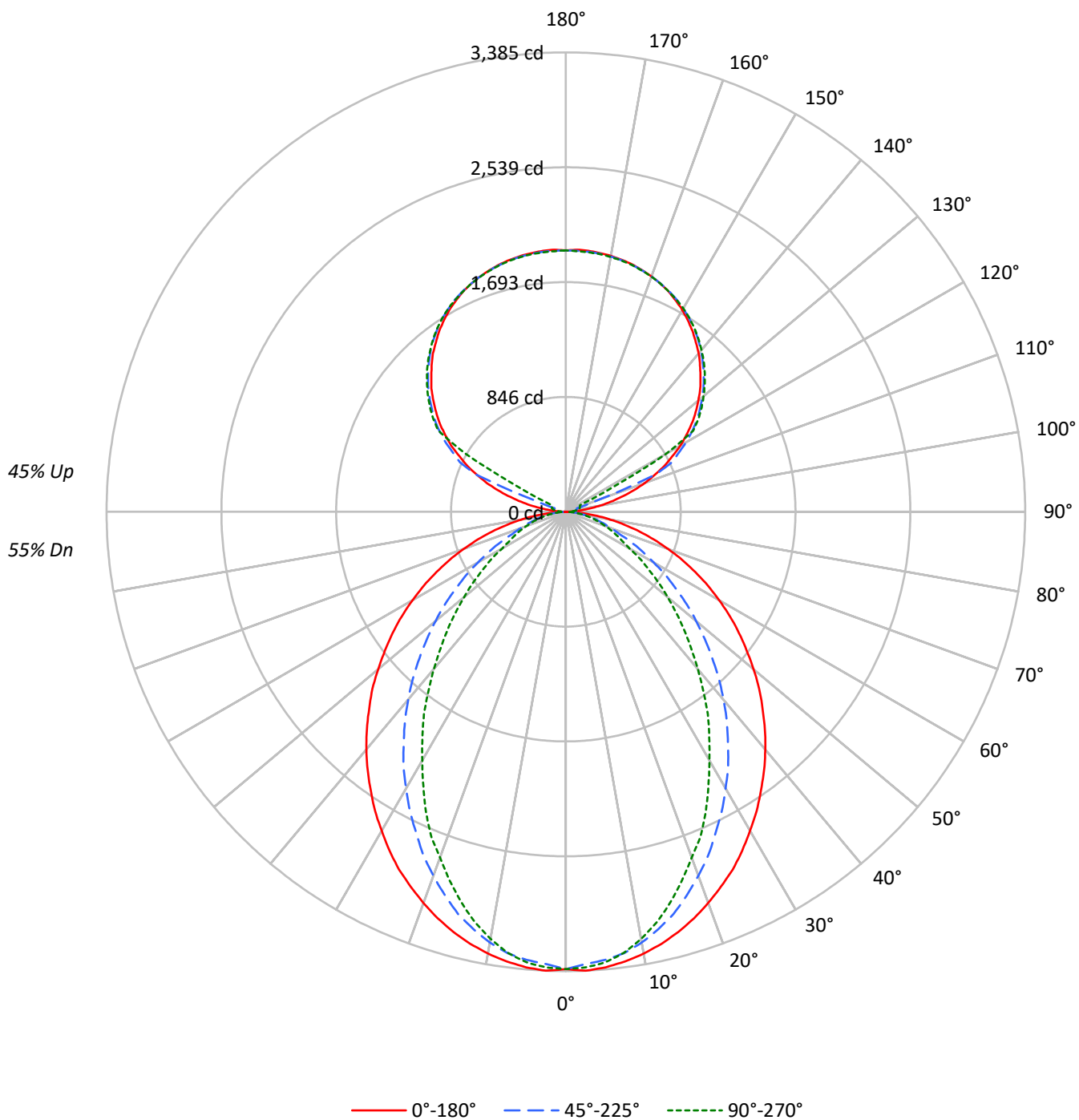
Lumens per Lamp: N/A
Luminaire Lumens: 12580.1 lumens
Efficiency: N/A
Efficacy: 86.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 144.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	108	108	108	108		101	101	101	101		86	86	86		73	73	73		61	61	61
1	99	95	92	88		92	89	86	83		76	74	72		65	63	62		55	53	52
2	91	84	78	73		84	78	73	69		68	64	60		58	55	52		49	47	45
3	83	74	67	61		77	69	63	58		60	55	51		52	48	45		44	41	39
4	77	66	58	52		71	62	55	50		54	48	44		46	42	39		39	36	34
5	70	59	51	45		65	55	48	43		48	43	39		42	38	34		36	33	30
6	65	53	45	40		60	50	43	38		44	38	34		38	34	30		33	29	27
7	60	48	41	35		56	45	38	33		40	34	30		35	30	27		30	27	24
8	56	44	36	31		52	41	35	30		37	31	27		32	28	24		28	24	22
9	52	40	33	28		49	38	31	27		34	28	24		29	25	22		26	22	20
10	49	37	30	25		46	35	29	24		31	26	22		27	23	20		24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2364	2364	2364
5°	2368	2327	2342
10°	2345	2282	2267
15°	2312	2207	2150
20°	2270	2104	2006
25°	2226	1987	1866
30°	2167	1868	1690
35°	2109	1740	1534
40°	2051	1608	1356
45°	1983	1460	1195
50°	1912	1312	1037
55°	1839	1153	885
60°	1754	987	730
65°	1656	818	658
70°	1538	660	596
75°	1389	583	544
80°	1173	491	474
85°	816	330	361

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1983 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	315.8	2.5
10°-20°	866.9	6.9
20°-30°	1217.2	9.7
30°-40°	1326.8	10.5
40°-50°	1219.5	9.7
50°-60°	957.7	7.6
60°-70°	623.4	5.0
70°-80°	320.9	2.6
80°-90°	85.3	0.7
90°-100°	63.5	0.5
100°-110°	236.8	1.9
110°-120°	627.9	5.0
120°-130°	1041.5	8.3
130°-140°	1106.3	8.8
140°-150°	1028.1	8.2
150°-160°	826.6	6.6
160°-170°	532.6	4.2
170°-180°	183.3	1.5
0°-30°	2399.9	19.1
0°-40°	3726.7	29.6
0°-60°	5903.9	46.9
0°-90°	6933.4	55.1
90°-120°	928.2	7.4
90°-150°	4104.1	32.6
90°-180°	5647.0	44.9
0°-180°	12580.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3370	3370	3370	3370	3370	
5°	3370	3354	3315	3342	3333	320
15°	3205	3171	3068	3010	2979	903
25°	2909	2812	2610	2485	2440	1338
35°	2507	2351	2083	1891	1823	1569
45°	2049	1845	1525	1308	1235	1583
55°	1558	1320	991	808	750	1392
65°	1052	805	531	427	418	1043
75°	561	348	244	223	220	593
85°	131	67	58	58	58	150
90°	1	17	28	35	38	12
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3369.6	3369.6	3369.6	3369.6	3369.6
2.5°	3384.8	3369.6	3336.0	3366.7	3360.6
5°	3369.6	3354.4	3314.6	3342.2	3333.0
7.5°	3342.2	3324.0	3281.2	3293.2	3278.1
10°	3305.5	3284.2	3223.4	3214.0	3195.9
12.5°	3260.0	3232.4	3149.9	3131.8	3098.1
15°	3204.9	3171.3	3067.7	3009.8	2979.4
17.5°	3140.9	3092.0	2963.9	2896.9	2848.1
20°	3067.7	3006.6	2854.2	2778.2	2710.9
22.5°	2988.5	2918.3	2741.3	2637.8	2592.2
25°	2909.2	2811.6	2610.3	2485.4	2439.5
27.5°	2814.7	2710.9	2488.3	2345.0	2274.8
30°	2714.1	2597.9	2354.0	2198.8	2116.3
32.5°	2616.5	2476.0	2226.3	2043.1	1966.7
35°	2506.7	2351.2	2082.9	1890.8	1823.4
37.5°	2400.0	2232.0	1948.6	1738.1	1662.0
40°	2287.1	2104.3	1808.2	1591.8	1512.5
42.5°	2171.2	1976.1	1668.2	1442.3	1366.3
45°	2049.3	1844.8	1524.9	1308.1	1234.9
47.5°	1933.5	1717.0	1387.6	1170.8	1103.9
50°	1805.3	1588.9	1253.4	1042.8	979.0
52.5°	1680.1	1451.4	1125.3	924.0	866.1
55°	1558.1	1320.4	991.0	808.2	750.2
57.5°	1433.3	1189.3	872.3	701.4	652.6
60°	1305.1	1061.2	747.1	591.7	542.9
62.5°	1180.2	936.3	640.3	494.1	469.8
65°	1052.1	804.9	530.6	427.1	417.7
67.5°	930.2	683.0	427.1	375.0	365.9
70°	802.0	564.3	353.6	323.2	311.0
72.5°	680.0	454.2	295.7	271.4	265.3
75°	561.0	347.5	243.9	222.6	219.6
77.5°	442.3	246.9	192.2	179.9	173.7
80°	332.2	177.0	146.3	134.3	134.3
82.5°	231.6	119.0	100.6	94.5	94.5
85°	131.0	66.9	57.9	57.9	57.9
87.5°	48.8	24.3	24.3	21.4	21.4
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1

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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	10.61	11.49	11.53	12.42	13.62	6.57	7.45	7.49	8.38	9.58
	3H	12.30	13.08	13.23	14.02	15.25	7.77	8.55	8.70	9.49	10.71
	4H	12.91	13.65	13.86	14.60	15.83	8.22	8.96	9.17	9.91	11.14
	6H	13.34	14.02	14.30	14.97	16.22	8.54	9.22	9.50	10.18	11.42
	8H	13.47	14.12	14.43	15.09	16.33	8.64	9.28	9.60	10.25	11.49
	12H	13.54	14.15	14.50	15.11	16.38	8.68	9.30	9.65	10.26	11.53
4H	2H	10.64	11.38	11.59	12.32	13.56	7.18	7.92	8.13	8.86	10.10
	3H	12.48	13.09	13.44	14.07	15.31	8.53	9.15	9.49	10.12	11.37
	4H	13.17	13.73	14.14	14.70	15.97	9.08	9.64	10.05	10.61	11.89
	6H	13.70	14.18	14.68	15.17	16.44	9.51	9.99	10.49	10.98	12.25
	8H	13.87	14.32	14.86	15.31	16.59	9.64	10.09	10.62	11.07	12.36
	12H	13.97	14.38	14.98	15.38	16.67	9.70	10.11	10.71	11.11	12.40
8H	4H	13.14	13.59	14.13	14.58	15.87	9.37	9.82	10.35	10.81	12.09
	6H	13.72	14.09	14.73	15.12	16.40	9.89	10.26	10.90	11.29	12.57
	8H	13.94	14.26	14.95	15.28	16.58	10.08	10.41	11.10	11.43	12.73
	12H	14.08	14.37	15.10	15.38	16.73	10.21	10.49	11.23	11.50	12.85
12H	4H	13.10	13.50	14.10	14.51	15.80	9.38	9.78	10.38	10.79	12.08
	6H	13.69	14.02	14.71	15.04	16.34	9.94	10.27	10.96	11.29	12.59
	8H	13.92	14.21	14.94	15.22	16.56	10.16	10.44	11.18	11.45	12.80