

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: P922628

Luminaire Tested: DFN2DIP-SQ2F0-050D070US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922628
REPORT IS A COMBINATION OF REPORTS P899823 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-050D070US940-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

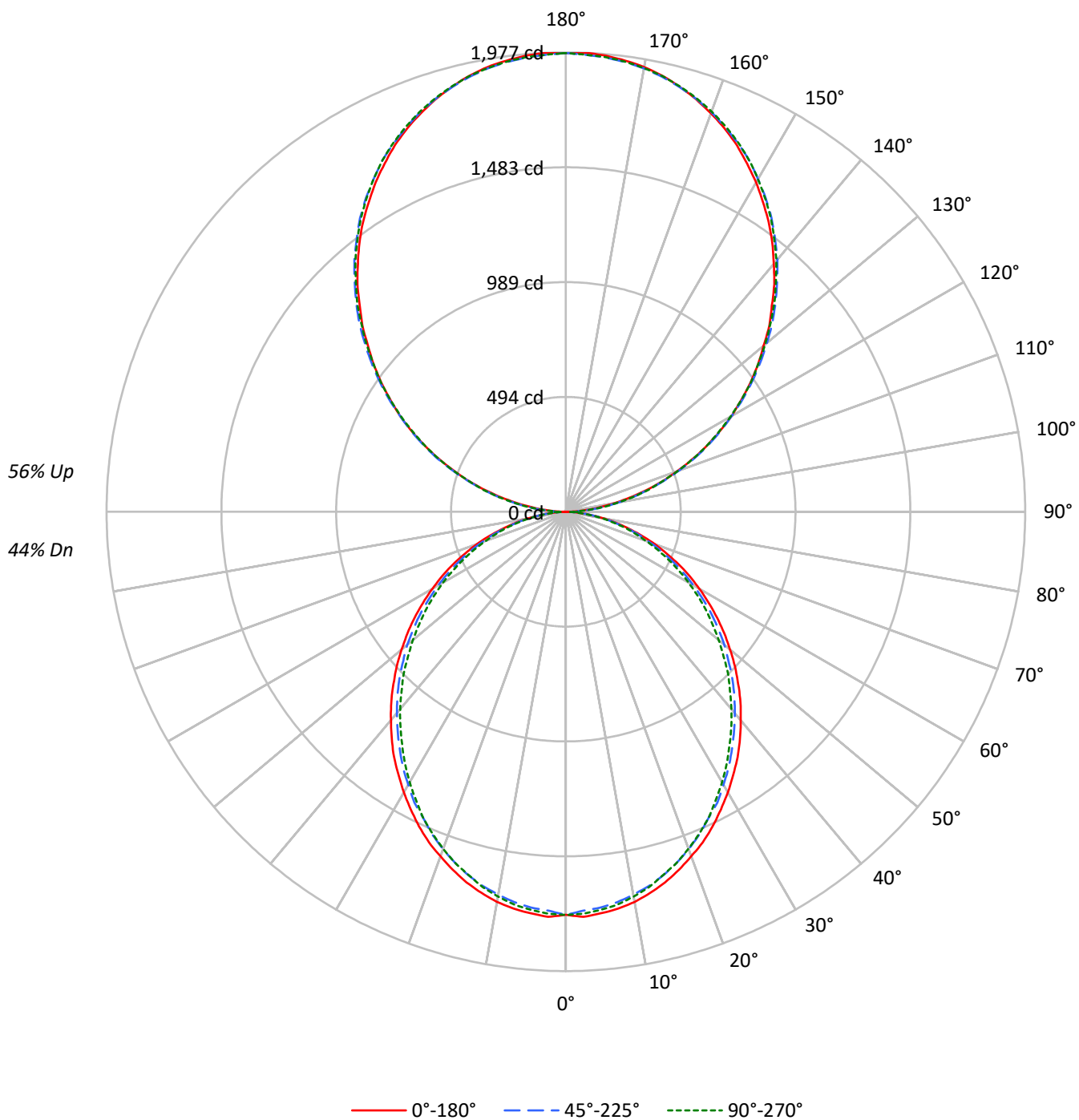
Lumens per Lamp: N/A
Luminaire Lumens: 9938.2 lumens
Efficiency: N/A
Efficacy: 100.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 98.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	31	29	27
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	20	24	20	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3815	3815	3815
5°	3814	3753	3782
10°	3777	3695	3725
15°	3714	3625	3640
20°	3633	3533	3553
25°	3552	3423	3453
30°	3451	3321	3327
35°	3355	3202	3195
40°	3239	3081	3068
45°	3122	2959	2938
50°	2994	2832	2789
55°	2860	2684	2650
60°	2708	2510	2490
65°	2540	2328	2302
70°	2328	2107	2099
75°	2037	1842	1905
80°	1682	1504	1547
85°	1136	949	972

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3122 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.6
10°-20°	459.4	4.6
20°-30°	675.2	6.8
30°-40°	784.2	7.9
40°-50°	783.2	7.9
50°-60°	682.9	6.9
60°-70°	504.8	5.1
70°-80°	285.6	2.9
80°-90°	81.0	0.8
90°-100°	122.2	1.2
100°-110°	388.1	3.9
110°-120°	664.2	6.7
120°-130°	873.6	8.8
130°-140°	980.5	9.9
140°-150°	961.5	9.7
150°-160°	806.6	8.1
160°-170°	534.9	5.4
170°-180°	187.0	1.9
0°-30°	1297.9	13.1
0°-40°	2082.0	20.9
0°-60°	3548.1	35.7
0°-90°	4419.6	44.5
90°-120°	1174.5	11.8
90°-150°	3990.1	40.1
90°-180°	5519.0	55.5
0°-180°	9938.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1728	1710	1723	1720	165
15°	1651	1642	1620	1627	1618	465
25°	1495	1481	1453	1456	1453	688
35°	1290	1273	1246	1236	1228	805
45°	1049	1038	1012	994	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	485	530
75°	280	277	268	259	262	299
85°	68	67	65	60	58	76
90°	2	21	58	55	56	10
95°	87	104	107	107	104	97
105°	358	363	367	370	370	378
115°	667	676	673	671	667	659
125°	970	984	980	974	972	866
135°	1254	1272	1276	1274	1269	969
145°	1522	1534	1544	1546	1539	951
155°	1741	1746	1751	1759	1754	801
165°	1894	1892	1892	1904	1896	534
175°	1970	1966	1962	1974	1964	187
180°	1974	1974	1974	1974	1974	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1734.8	1734.8	1734.8	1734.8	1734.8
2.5°	1744.9	1736.6	1718.2	1734.8	1731.7
5°	1734.8	1728.3	1709.9	1723.1	1720.0
7.5°	1723.1	1713.2	1694.9	1708.3	1705.0
10°	1705.0	1693.3	1673.3	1686.5	1681.6
12.5°	1679.8	1669.9	1649.9	1658.2	1654.8
15°	1651.4	1641.5	1619.8	1626.6	1618.2
17.5°	1616.4	1606.5	1584.7	1593.0	1584.7
20°	1578.1	1568.2	1544.8	1549.7	1543.2
22.5°	1539.8	1524.7	1503.0	1503.0	1499.6
25°	1494.7	1481.4	1453.0	1456.3	1453.0
27.5°	1444.6	1432.9	1411.3	1406.3	1398.0
30°	1394.6	1381.3	1356.3	1351.3	1344.6
32.5°	1341.2	1331.3	1304.6	1294.5	1287.8
35°	1289.5	1272.9	1246.2	1236.1	1227.8
37.5°	1231.1	1216.1	1189.4	1177.7	1169.4
40°	1171.2	1157.7	1131.0	1116.1	1109.4
42.5°	1112.8	1099.3	1072.7	1055.9	1046.0
45°	1049.4	1037.7	1012.5	994.3	987.6
47.5°	987.6	975.9	949.2	930.8	920.9
50°	922.5	914.2	890.8	867.5	859.1
52.5°	859.1	847.4	825.8	807.4	795.8
55°	794.2	784.1	764.0	744.0	735.8
57.5°	729.0	720.7	698.9	678.9	672.2
60°	663.9	657.4	634.0	615.5	610.6
62.5°	600.6	588.9	572.2	555.5	548.8
65°	535.6	525.5	508.8	493.8	485.4
67.5°	468.9	460.4	445.5	433.8	427.0
70°	407.1	400.4	385.3	373.6	367.1
72.5°	343.8	337.0	328.7	317.0	312.0
75°	280.2	277.0	268.5	258.6	262.0
77.5°	223.6	216.8	213.5	208.5	203.6
80°	166.9	165.1	161.8	156.9	153.5
82.5°	113.4	113.4	111.8	105.1	105.1
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
90°	1.8	21.4	58.3	54.8	56.5
92.5°	36.9	50.0	51.8	53.6	53.6
95°	86.9	103.5	106.6	106.6	103.5
97.5°	144.6	160.1	166.7	166.7	166.7
100°	211.2	225.0	229.7	229.7	227.9
102.5°	281.5	291.6	298.2	300.0	298.2
105°	358.3	363.0	366.6	369.6	369.6
107.5°	434.4	441.6	441.6	442.8	434.4
110°	508.3	517.8	517.8	517.8	513.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.0	598.2	596.4	591.6	588.0
115°	666.6	676.1	673.2	671.4	666.6
117.5°	744.5	757.6	749.3	744.5	739.8
120°	823.0	836.2	823.0	823.0	817.7
122.5°	894.5	911.1	902.9	898.0	894.5
125°	969.5	984.4	979.6	974.3	972.5
127.5°	1042.7	1061.1	1054.6	1047.5	1042.7
130°	1111.2	1132.6	1129.6	1126.1	1119.5
132.5°	1187.9	1204.6	1205.8	1197.5	1192.7
135°	1254.0	1272.4	1276.0	1274.2	1269.4
137.5°	1327.8	1342.6	1345.6	1344.4	1337.3
140°	1392.7	1407.6	1415.9	1415.9	1409.3
142.5°	1459.3	1474.2	1478.9	1480.7	1474.2
145°	1522.4	1534.3	1543.8	1545.6	1539.1
147.5°	1579.0	1593.8	1601.0	1603.9	1597.4
150°	1637.3	1647.3	1653.9	1659.3	1653.9
152.5°	1689.0	1699.2	1707.4	1714.0	1707.4
155°	1740.8	1745.5	1751.0	1759.3	1753.9
157.5°	1785.5	1789.0	1792.0	1803.9	1795.5
160°	1825.3	1828.9	1830.7	1840.8	1833.6
162.5°	1862.2	1862.2	1864.0	1875.3	1867.0
165°	1893.7	1891.9	1891.9	1903.9	1895.5
167.5°	1922.3	1917.0	1917.0	1928.9	1920.6
170°	1943.8	1939.0	1937.2	1949.1	1939.0
172.5°	1958.6	1953.8	1952.0	1964.0	1953.8
175°	1970.5	1965.8	1962.2	1974.1	1964.0
177.5°	1977.1	1972.3	1968.7	1978.9	1968.7
180°	1974.1	1974.1	1974.1	1974.1	1974.1

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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	11.27	12.09	12.28	13.10	14.45	10.83	11.64	11.83	12.66	14.00
	3H	12.91	13.64	13.92	14.66	16.03	12.42	13.15	13.43	14.17	15.54
	4H	13.48	14.17	14.51	15.20	16.58	12.99	13.68	14.02	14.71	16.08
	6H	13.87	14.50	14.90	15.53	16.92	13.37	14.00	14.40	15.03	16.42
	8H	13.96	14.57	15.00	15.61	17.00	13.46	14.07	14.50	15.11	16.50
	12H	14.00	14.58	15.05	15.62	17.03	13.49	14.07	14.54	15.11	16.52
4H	2H	11.72	12.41	12.75	13.43	14.81	11.36	12.05	12.39	13.08	14.45
	3H	13.56	14.13	14.60	15.19	16.58	13.15	13.72	14.19	14.78	16.17
	4H	14.25	14.78	15.30	15.83	17.24	13.83	14.36	14.88	15.40	16.81
	6H	14.75	15.20	15.80	16.27	17.68	14.31	14.77	15.37	15.84	17.24
	8H	14.89	15.31	15.94	16.37	17.79	14.45	14.87	15.51	15.93	17.36
	12H	14.95	15.33	16.02	16.41	17.83	14.50	14.88	15.58	15.96	17.39
8H	4H	14.43	14.86	15.49	15.92	17.34	14.06	14.48	15.11	15.54	16.96
	6H	15.04	15.39	16.12	16.49	17.91	14.65	15.01	15.74	16.11	17.53
	8H	15.25	15.55	16.34	16.64	18.08	14.85	15.16	15.94	16.25	17.69
	12H	15.36	15.63	16.45	16.72	18.19	14.95	15.22	16.05	16.31	17.78
12H	4H	14.41	14.80	15.49	15.87	17.30	14.04	14.43	15.12	15.50	16.93
	6H	15.06	15.37	16.15	16.46	17.90	14.69	15.00	15.78	16.09	17.52
	8H	15.29	15.56	16.38	16.64	18.12	14.91	15.18	16.00	16.26	17.74