

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: P923010

Luminaire Tested: DFN2DIP-SQ3F0-120D070US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923010
REPORT IS A COMBINATION OF REPORTS P899932 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D070US940-RLLFLL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

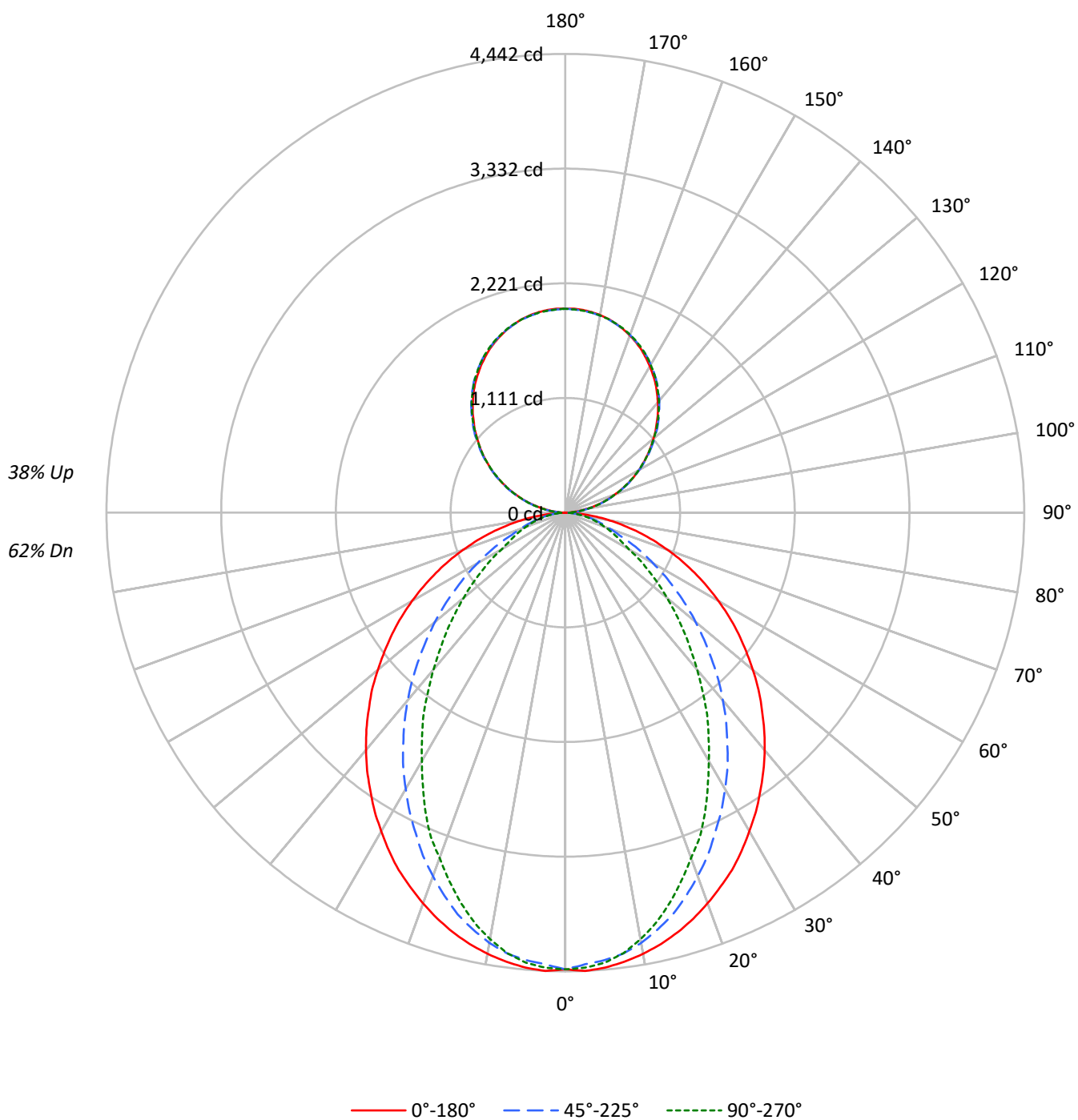
Lumens per Lamp: N/A
Luminaire Lumens: 14619.6 lumens
Efficiency: N/A
Efficacy: 82.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 178.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67
1	101	97	93	90	95	91	88	85	80	78	75	70	68	66	60	59	58
2	93	85	79	74	87	80	75	71	71	67	63	62	59	56	54	52	50
3	85	76	68	63	79	71	65	60	63	58	54	55	52	48	48	46	43
4	78	67	60	54	73	64	57	51	56	51	47	50	46	42	44	40	38
5	72	60	52	47	67	57	50	45	51	45	41	45	41	37	40	36	33
6	66	55	47	41	62	52	44	39	46	40	36	41	36	33	36	32	30
7	62	49	42	36	58	47	40	35	42	36	32	38	33	29	33	29	27
8	57	45	37	32	54	43	36	31	39	33	29	34	30	26	31	27	24
9	54	41	34	29	50	39	33	28	36	30	26	32	27	24	28	25	22
10	50	38	31	26	47	36	30	25	33	27	24	30	25	22	26	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5067	5067	5067
5°	5072	4984	5017
10°	5019	4882	4852
15°	4946	4718	4598
20°	4852	4492	4287
25°	4755	4240	3987
30°	4626	3982	3607
35°	4499	3704	3273
40°	4370	3418	2890
45°	4221	3100	2543
50°	4066	2779	2205
55°	3903	2438	1880
60°	3716	2080	1546
65°	3499	1718	1389
70°	3237	1380	1254
75°	2906	1209	1138
80°	2428	1004	981
85°	1647	654	728

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4221 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.5	2.8
10°-20°	1137.8	7.8
20°-30°	1597.5	10.9
30°-40°	1741.4	11.9
40°-50°	1600.5	10.9
50°-60°	1256.9	8.6
60°-70°	818.2	5.6
70°-80°	421.2	2.9
80°-90°	113.1	0.8
90°-100°	122.2	0.8
100°-110°	388.1	2.7
110°-120°	664.2	4.5
120°-130°	873.6	6.0
130°-140°	980.5	6.7
140°-150°	961.5	6.6
150°-160°	806.6	5.5
160°-170°	534.9	3.7
170°-180°	187.0	1.3
0°-30°	3149.8	21.5
0°-40°	4891.2	33.5
0°-60°	7748.6	53.0
0°-90°	9101.0	62.3
90°-120°	1174.5	8.0
90°-150°	3990.1	27.3
90°-180°	5519.0	37.8
0°-180°	14619.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4422	4422	4422	4422	4422	
5°	4422	4403	4350	4386	4375	419
15°	4206	4162	4026	3950	3910	1185
25°	3818	3690	3426	3262	3202	1756
35°	3290	3086	2734	2482	2393	2059
45°	2690	2421	2001	1717	1621	2077
55°	2045	1733	1301	1061	985	1827
65°	1381	1056	696	560	548	1369
75°	736	456	320	292	288	779
85°	172	88	76	76	76	197
90°	2	21	58	55	56	14
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°	4422.5	4422.5	4422.5	4422.5	4422.5
2.5°	4442.5	4422.5	4378.4	4418.7	4410.6
5°	4422.5	4402.6	4350.3	4386.4	4374.6
7.5°	4386.4	4362.6	4306.6	4322.3	4302.3
10°	4338.4	4310.4	4230.5	4218.2	4194.5
12.5°	4278.5	4242.5	4134.1	4110.4	4066.3
15°	4206.4	4162.2	4026.3	3950.3	3910.4
17.5°	4122.3	4058.2	3890.0	3802.2	3738.0
20°	4026.3	3946.1	3746.1	3646.3	3557.9
22.5°	3922.3	3830.2	3597.9	3462.0	3402.1
25°	3818.3	3690.0	3425.9	3262.0	3201.7
27.5°	3694.3	3557.9	3265.8	3077.7	2985.5
30°	3562.2	3409.8	3089.6	2885.8	2777.5
32.5°	3434.0	3249.7	2921.9	2681.6	2581.3
35°	3290.1	3085.8	2733.7	2481.5	2393.2
37.5°	3149.9	2929.5	2557.5	2281.1	2181.3
40°	3001.7	2761.8	2373.3	2089.2	1985.1
42.5°	2849.6	2593.6	2189.4	1893.0	1793.2
45°	2689.6	2421.3	2001.3	1716.8	1620.8
47.5°	2537.5	2253.5	1821.2	1536.8	1448.9
50°	2369.5	2085.4	1645.0	1368.6	1285.0
52.5°	2205.1	1904.9	1476.9	1212.7	1136.8
55°	2045.0	1732.9	1300.6	1060.7	984.7
57.5°	1881.1	1560.9	1144.8	920.6	856.5
60°	1713.0	1392.8	980.4	776.7	712.6
62.5°	1549.1	1228.9	840.3	648.5	616.5
65°	1380.9	1056.5	696.4	560.5	548.2
67.5°	1220.8	896.3	560.5	492.1	480.3
70°	1052.7	740.6	464.1	424.2	408.0
72.5°	892.6	596.2	388.1	356.2	348.2
75°	736.3	456.0	320.2	292.1	288.3
77.5°	580.5	324.0	252.3	236.1	228.0
80°	436.1	232.3	191.9	176.2	176.2
82.5°	304.1	156.2	132.1	123.9	123.9
85°	172.0	87.9	76.0	76.0	76.0
87.5°	64.1	31.8	31.8	28.0	28.0
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	13.82	14.76	14.67	15.63	16.72	9.78	10.73	10.64	11.59	12.68
	3H	15.50	16.35	16.37	17.22	18.34	10.97	11.82	11.84	12.69	13.81
	4H	16.12	16.91	17.00	17.79	18.92	11.43	12.22	12.31	13.10	14.23
	6H	16.54	17.27	17.43	18.16	19.30	11.75	12.48	12.64	13.37	14.51
	8H	16.67	17.36	17.57	18.27	19.41	11.84	12.53	12.74	13.44	14.58
	12H	16.73	17.39	17.64	18.29	19.46	11.88	12.54	12.79	13.45	14.61
4H	2H	13.85	14.65	14.74	15.53	16.66	10.39	11.19	11.28	12.07	13.19
	3H	15.69	16.35	16.58	17.26	18.40	11.74	12.40	12.64	13.32	14.46
	4H	16.38	16.98	17.29	17.89	19.06	12.29	12.89	13.20	13.80	14.97
	6H	16.90	17.41	17.82	18.35	19.52	12.71	13.23	13.63	14.16	15.33
	8H	17.07	17.55	18.00	18.48	19.67	12.84	13.32	13.76	14.25	15.43
	12H	17.17	17.60	18.11	18.55	19.74	12.90	13.34	13.84	14.28	15.47
8H	4H	16.35	16.84	17.28	17.77	18.95	12.58	13.06	13.50	13.99	15.17
	6H	16.92	17.32	17.87	18.29	19.47	13.09	13.49	14.04	14.46	15.64
	8H	17.13	17.49	18.09	18.45	19.65	13.28	13.63	14.24	14.59	15.79
	12H	17.27	17.58	18.23	18.54	19.79	13.39	13.70	14.36	14.66	15.91
12H	4H	16.31	16.75	17.25	17.69	18.88	12.58	13.02	13.53	13.97	15.15
	6H	16.89	17.25	17.85	18.21	19.41	13.14	13.49	14.10	14.45	15.65
	8H	17.12	17.43	18.08	18.38	19.63	13.35	13.66	14.31	14.61	15.86