

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: P912340

Luminaire Tested: DFN2DIP-SQ4F0-120D070US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912340
REPORT IS A COMBINATION OF REPORTS P900089 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D070US850-FLLFL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

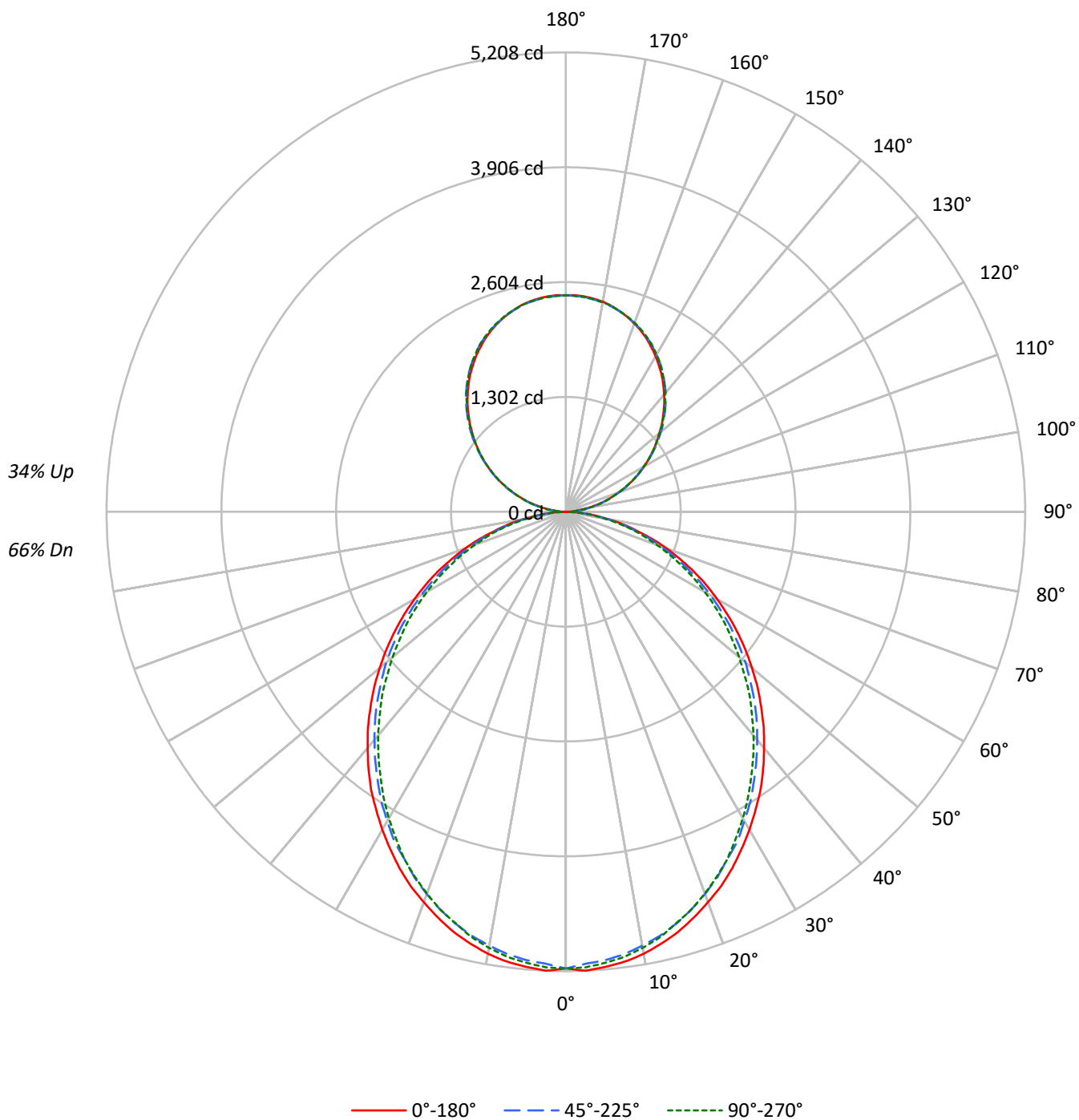
Lumens per Lamp: N/A
Luminaire Lumens: 20045.2 lumens
Efficiency: N/A
Efficacy: 118.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 169.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	101	97	93	89	95	91	88	85	81	78	76	71	69	67	62	61	60
2	92	85	78	73	87	80	74	70	71	67	63	63	59	56	55	52	50
3	84	74	67	61	79	70	64	58	63	57	53	55	51	48	49	46	43
4	77	66	58	52	72	62	55	49	56	50	45	49	45	41	44	40	37
5	71	59	51	44	66	56	48	43	50	44	39	44	39	36	39	35	32
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	36	32	28
7	61	48	40	34	57	45	38	33	41	35	30	37	32	28	33	28	25
8	56	44	36	30	53	41	34	29	37	31	27	34	28	25	30	26	23
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3633	3633	3633
5°	3639	3584	3608
10°	3610	3536	3560
15°	3557	3478	3485
20°	3485	3398	3408
25°	3413	3302	3318
30°	3324	3213	3205
35°	3239	3108	3084
40°	3135	3001	2969
45°	3031	2894	2852
50°	2917	2783	2716
55°	2798	2653	2592
60°	2663	2499	2449
65°	2516	2340	2281
70°	2329	2146	2101
75°	2070	1915	1935
80°	1758	1620	1617
85°	1271	1108	1086

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3031 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	487.4	2.4
10°-20°	1371.3	6.8
20°-30°	2015.2	10.1
30°-40°	2340.6	11.7
40°-50°	2337.7	11.7
50°-60°	2038.4	10.2
60°-70°	1506.8	7.5
70°-80°	852.5	4.3
80°-90°	232.0	1.2
90°-100°	151.9	0.8
100°-110°	482.7	2.4
110°-120°	826.1	4.1
120°-130°	1086.4	5.4
130°-140°	1219.5	6.1
140°-150°	1195.8	6.0
150°-160°	1003.1	5.0
160°-170°	665.3	3.3
170°-180°	232.5	1.2
0°-30°	3873.9	19.3
0°-40°	6214.5	31.0
0°-60°	10590.5	52.8
0°-90°	13181.9	65.8
90°-120°	1460.7	7.3
90°-150°	4962.4	24.8
90°-180°	6863.0	34.2
0°-180°	20045.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5178	5178	5178	5178	5178	
5°	5178	5159	5104	5143	5134	492
15°	4929	4900	4835	4855	4830	1388
25°	4461	4422	4337	4347	4337	2053
35°	3849	3799	3720	3690	3665	2404
45°	3132	3097	3022	2968	2948	2417
55°	2370	2340	2280	2221	2196	2119
65°	1599	1568	1519	1474	1449	1581
75°	836	827	801	772	782	893
85°	204	199	194	179	174	227
90°	2	27	72	68	70	19
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5178.3	5178.3	5178.3	5178.3	5178.3
2.5°	5208.3	5183.5	5128.6	5178.3	5168.7
5°	5178.3	5158.6	5103.7	5143.3	5133.8
7.5°	5143.3	5113.7	5058.8	5099.0	5089.0
10°	5089.0	5054.0	4994.4	5034.0	5019.2
12.5°	5013.9	4984.3	4924.6	4949.5	4939.4
15°	4929.4	4899.8	4834.8	4854.9	4830.0
17.5°	4824.8	4795.2	4730.2	4755.1	4730.2
20°	4710.1	4680.5	4610.9	4625.6	4606.1
22.5°	4596.0	4551.1	4486.1	4486.1	4476.1
25°	4461.3	4421.7	4337.2	4346.7	4337.2
27.5°	4311.8	4277.0	4212.5	4197.7	4172.9
30°	4162.9	4122.7	4048.2	4033.4	4013.4
32.5°	4003.3	3973.8	3893.9	3863.9	3843.8
35°	3849.0	3799.4	3719.6	3689.5	3664.7
37.5°	3674.7	3629.9	3550.0	3515.2	3490.4
40°	3495.7	3455.5	3375.7	3331.3	3311.3
42.5°	3321.3	3281.2	3201.9	3151.8	3122.2
45°	3132.1	3097.3	3022.2	2967.9	2947.8
47.5°	2947.8	2912.9	2833.2	2778.3	2748.7
50°	2753.4	2728.6	2658.8	2589.1	2564.2
52.5°	2564.2	2529.4	2465.0	2410.0	2375.1
55°	2370.4	2340.3	2280.5	2220.9	2196.0
57.5°	2176.0	2151.1	2086.1	2026.5	2006.4
60°	1981.6	1962.0	1892.3	1837.4	1822.5
62.5°	1792.5	1757.5	1708.0	1658.3	1638.2
65°	1598.6	1568.5	1518.8	1473.9	1449.1
67.5°	1399.4	1374.1	1329.7	1294.9	1274.8
70°	1215.0	1194.9	1150.0	1115.2	1095.7
72.5°	1025.9	1005.9	981.0	946.2	931.3
75°	836.3	826.8	801.4	771.9	781.8
77.5°	667.2	647.1	637.1	622.3	607.5
80°	498.2	492.8	482.9	468.1	458.0
82.5°	338.6	338.6	333.9	313.8	313.8
85°	203.9	199.2	194.4	179.1	174.3
87.5°	89.8	79.7	69.8	54.9	49.7
90°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1

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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	13.11	14.13	13.91	14.96	15.99	12.66	13.69	13.47	14.52	15.54
	3H	14.78	15.70	15.60	16.54	17.60	14.29	15.21	15.11	16.05	17.11
	4H	15.38	16.25	16.22	17.10	18.16	14.89	15.75	15.73	16.60	17.67
	6H	15.79	16.59	16.64	17.45	18.53	15.29	16.09	16.14	16.95	18.03
	8H	15.90	16.67	16.76	17.54	18.62	15.40	16.16	16.26	17.04	18.12
	12H	15.96	16.69	16.82	17.55	18.66	15.45	16.18	16.32	17.05	18.15
4H	2H	13.59	14.46	14.43	15.30	16.37	13.23	14.10	14.08	14.95	16.02
	3H	15.47	16.20	16.33	17.08	18.16	15.06	15.79	15.92	16.67	17.75
	4H	16.20	16.86	17.06	17.74	18.84	15.77	16.43	16.64	17.31	18.42
	6H	16.72	17.30	17.61	18.20	19.31	16.29	16.86	17.18	17.77	18.88
	8H	16.88	17.41	17.77	18.31	19.44	16.44	16.98	17.33	17.87	19.00
	12H	16.96	17.44	17.87	18.36	19.49	16.51	17.00	17.42	17.91	19.04
8H	4H	16.41	16.94	17.29	17.84	18.96	16.03	16.56	16.92	17.46	18.59
	6H	17.05	17.49	17.96	18.43	19.56	16.67	17.11	17.58	18.05	19.17
	8H	17.27	17.67	18.20	18.60	19.74	16.88	17.27	17.81	18.21	19.35
	12H	17.42	17.76	18.34	18.69	19.88	17.01	17.35	17.93	18.28	19.47
12H	4H	16.40	16.88	17.31	17.80	18.93	16.03	16.51	16.94	17.43	18.56
	6H	17.08	17.47	18.00	18.41	19.55	16.71	17.10	17.63	18.03	19.18
	8H	17.33	17.68	18.26	18.60	19.80	16.95	17.30	17.88	18.22	19.42