

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: P926064

Luminaire Tested: DFN2DIP-SQ4F0-160D100US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926064
REPORT IS A COMBINATION OF REPORTS P900147 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D100US950-FLLFL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

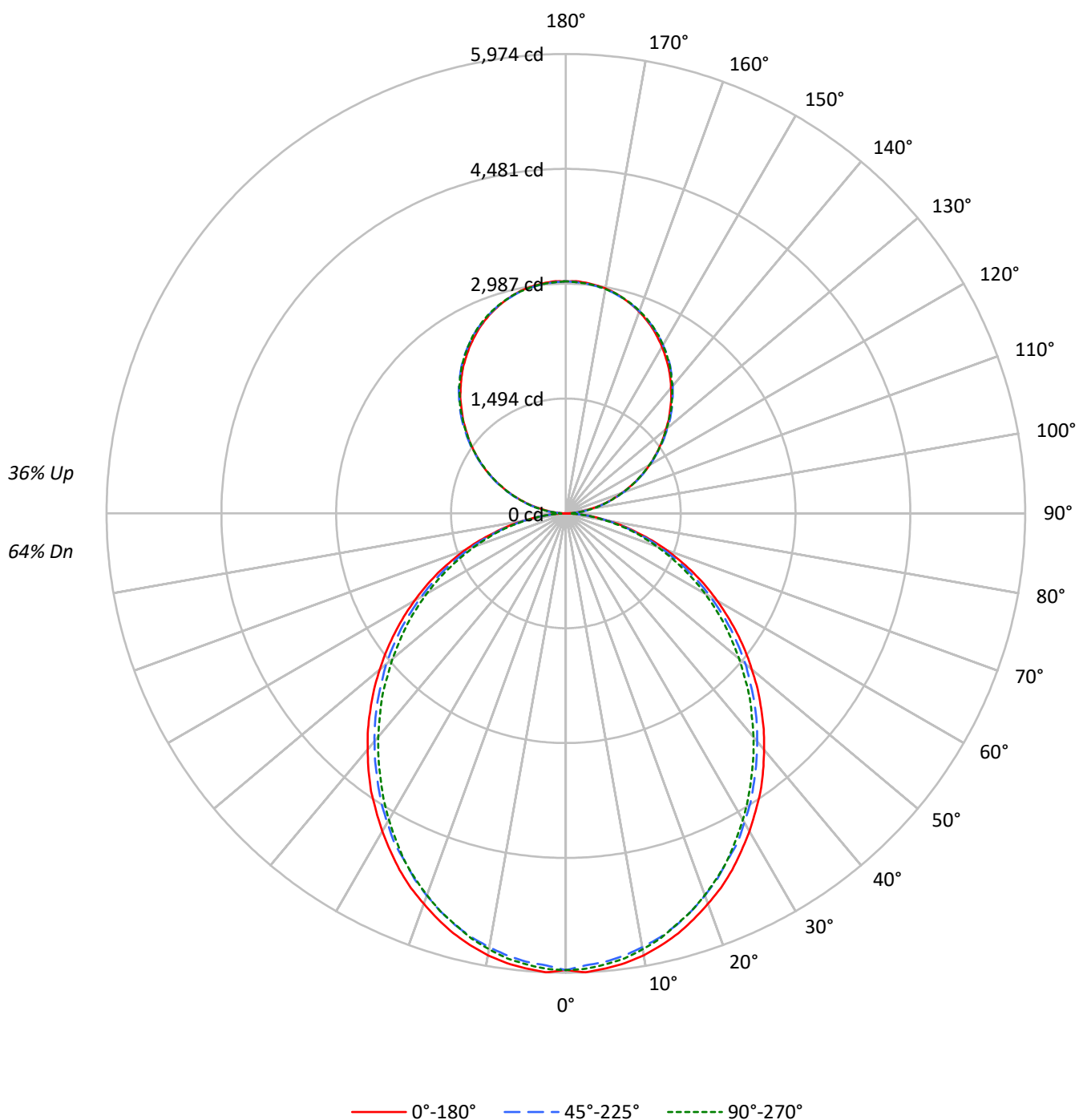
Lumens per Lamp: N/A
Luminaire Lumens: 23554.3 lumens
Efficiency: N/A
Efficacy: 97.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 241.4
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

TEST NUMBER: P926064

CATALOG NUMBER: DFN2DIP-SQ4F0-160D100US950-FLLFLL

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	91	91	91	80	80	80	69	69	69
1	101	97	93	89	95	91	87	84	80	77	75	70	68	66	61	60	58
2	92	84	78	73	86	79	74	69	70	66	62	62	58	56	54	51	49
3	84	74	67	61	79	70	63	58	62	57	52	55	50	47	48	45	42
4	77	66	58	51	72	62	55	49	55	49	45	49	44	40	43	39	36
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	38	35	32
6	65	53	44	38	61	50	42	37	45	38	34	40	35	31	35	31	28
7	60	48	40	34	56	45	38	32	40	34	30	36	31	27	32	28	25
8	56	43	35	30	53	41	34	29	37	31	27	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	26	22	27	23	20
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4167	4167	4167
5°	4174	4110	4138
10°	4140	4056	4083
15°	4079	3990	3997
20°	3997	3898	3909
25°	3915	3788	3806
30°	3812	3685	3675
35°	3715	3564	3537
40°	3595	3442	3406
45°	3476	3320	3272
50°	3346	3192	3116
55°	3209	3043	2973
60°	3054	2867	2809
65°	2886	2684	2616
70°	2672	2462	2409
75°	2374	2196	2220
80°	2017	1857	1855
85°	1458	1270	1246

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3476 cd/sqm

TEST NUMBER: P926064

CATALOG NUMBER: DFN2DIP-SQ4F0-160D100US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	559.0	2.4
10°-20°	1572.8	6.7
20°-30°	2311.4	9.8
30°-40°	2684.6	11.4
40°-50°	2681.3	11.4
50°-60°	2338.0	9.9
60°-70°	1728.3	7.3
70°-80°	977.8	4.2
80°-90°	266.6	1.1
90°-100°	186.7	0.8
100°-110°	593.2	2.5
110°-120°	1015.2	4.3
120°-130°	1335.1	5.7
130°-140°	1498.6	6.4
140°-150°	1469.5	6.2
150°-160°	1232.7	5.2
160°-170°	817.5	3.5
170°-180°	285.7	1.2
0°-30°	4443.3	18.9
0°-40°	7127.9	30.3
0°-60°	12147.2	51.6
0°-90°	15119.9	64.2
90°-120°	1795.1	7.6
90°-150°	6098.3	25.9
90°-180°	8434.0	35.8
0°-180°	23554.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5939	5939	5939	5939	5939	
5°	5939	5917	5854	5899	5888	564
15°	5654	5620	5545	5568	5540	1592
25°	5117	5072	4975	4986	4975	2355
35°	4415	4358	4266	4232	4203	2757
45°	3593	3552	3466	3404	3381	2773
55°	2719	2684	2616	2547	2519	2431
65°	1834	1799	1742	1691	1662	1813
75°	959	948	919	885	897	1024
85°	234	228	223	205	200	261
90°	3	33	89	84	86	23
95°	133	158	163	163	158	148
105°	548	555	560	565	565	578
115°	1019	1033	1029	1026	1019	1008
125°	1482	1504	1497	1489	1486	1324
135°	1916	1945	1950	1948	1940	1481
145°	2327	2345	2360	2362	2352	1454
155°	2661	2668	2676	2689	2680	1225
165°	2894	2892	2892	2910	2897	817
175°	3012	3004	2999	3017	3002	286
180°	3017	3017	3017	3017	3017	



TEST NUMBER: P926064

CATALOG NUMBER: DFN2DIP-SQ4F0-160D100US950-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5939.3	5939.3	5939.3	5939.3	5939.3
2.5°	5973.9	5945.3	5882.4	5939.3	5928.3
5°	5939.3	5916.9	5853.8	5899.3	5888.4
7.5°	5899.3	5865.4	5802.3	5848.4	5836.9
10°	5836.9	5796.9	5728.5	5773.9	5756.9
12.5°	5750.9	5716.9	5648.4	5677.0	5665.4
15°	5653.9	5620.0	5545.4	5568.5	5540.0
17.5°	5534.0	5500.0	5425.5	5453.9	5425.5
20°	5402.4	5368.5	5288.5	5305.5	5283.1
22.5°	5271.6	5220.1	5145.5	5145.5	5134.0
25°	5117.1	5071.7	4974.6	4985.6	4974.6
27.5°	4945.5	4905.6	4831.6	4814.7	4786.2
30°	4774.7	4728.7	4643.2	4626.2	4603.2
32.5°	4591.7	4557.8	4466.2	4431.7	4408.7
35°	4414.8	4357.9	4266.3	4231.8	4203.3
37.5°	4214.9	4163.4	4071.9	4031.8	4003.4
40°	4009.4	3963.4	3871.9	3821.0	3798.0
42.5°	3809.5	3763.4	3672.5	3615.0	3581.0
45°	3592.6	3552.5	3466.5	3404.1	3381.1
47.5°	3381.1	3341.1	3249.6	3186.6	3152.7
50°	3158.1	3129.6	3049.7	2969.6	2941.2
52.5°	2941.2	2901.2	2827.3	2764.2	2724.2
55°	2718.8	2684.3	2615.8	2547.3	2518.8
57.5°	2495.9	2467.3	2392.8	2324.3	2301.3
60°	2272.8	2250.4	2170.4	2107.4	2090.4
62.5°	2055.9	2015.9	1958.9	1902.0	1879.0
65°	1833.5	1799.0	1742.0	1690.6	1662.1
67.5°	1605.1	1576.0	1525.2	1485.1	1462.1
70°	1393.6	1370.6	1319.1	1279.1	1256.7
72.5°	1176.7	1153.7	1125.2	1085.2	1068.3
75°	959.2	948.3	919.2	885.2	896.8
77.5°	765.3	742.3	730.8	713.8	696.8
80°	571.4	565.3	553.8	536.8	525.4
82.5°	388.4	388.4	382.9	359.9	359.9
85°	233.9	228.4	222.9	205.4	200.0
87.5°	103.0	91.5	79.9	63.1	57.0
90°	2.8	32.7	89.1	83.7	86.4
92.5°	56.4	76.4	79.2	81.9	81.9
95°	132.8	158.3	162.8	162.8	158.3
97.5°	221.0	244.7	254.7	254.7	254.7
100°	322.9	343.8	351.1	351.1	348.4
102.5°	430.3	445.7	455.7	458.4	455.7
105°	547.6	554.8	560.3	564.9	564.9
107.5°	664.0	675.0	675.0	676.8	664.0
110°	776.8	791.3	791.3	791.3	784.1

TEST NUMBER: P926064

CATALOG NUMBER: DFN2DIP-SQ4F0-160D100US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	898.7	914.1	911.5	904.1	898.7
115°	1018.8	1033.3	1028.8	1026.0	1018.8
117.5°	1137.9	1158.0	1145.2	1137.9	1130.6
120°	1257.9	1278.0	1257.9	1257.9	1249.8
122.5°	1367.1	1392.6	1379.9	1372.6	1367.1
125°	1481.8	1504.5	1497.2	1489.0	1486.3
127.5°	1593.7	1621.8	1611.8	1600.9	1593.7
130°	1698.2	1730.9	1726.5	1720.9	1711.0
132.5°	1815.6	1841.0	1842.8	1830.2	1822.8
135°	1916.5	1944.7	1950.2	1947.5	1940.1
137.5°	2029.3	2052.1	2056.6	2054.8	2043.8
140°	2128.5	2151.2	2164.0	2164.0	2153.9
142.5°	2230.4	2253.1	2260.3	2263.1	2253.1
145°	2326.7	2344.9	2359.5	2362.2	2352.2
147.5°	2413.1	2435.9	2446.8	2451.4	2441.4
150°	2502.3	2517.8	2527.8	2535.9	2527.8
152.5°	2581.4	2596.9	2609.7	2619.7	2609.7
155°	2660.6	2667.9	2676.1	2688.8	2680.5
157.5°	2728.8	2734.3	2738.8	2757.0	2744.3
160°	2789.8	2795.2	2797.9	2813.3	2802.5
162.5°	2846.2	2846.2	2848.8	2866.1	2853.4
165°	2894.3	2891.6	2891.6	2909.8	2897.1
167.5°	2938.0	2929.8	2929.8	2948.1	2935.3
170°	2970.8	2963.5	2960.7	2979.0	2963.5
172.5°	2993.5	2986.2	2983.4	3001.7	2986.2
175°	3011.7	3004.4	2999.0	3017.1	3001.7
177.5°	3021.7	3014.4	3008.9	3024.4	3008.9
180°	3017.1	3017.1	3017.1	3017.1	3017.1

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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	13.46	14.46	14.28	15.31	16.36	13.01	14.02	13.84	14.87	15.92
	3H	15.13	16.04	15.97	16.89	17.97	14.64	15.55	15.48	16.40	17.48
	4H	15.73	16.58	16.58	17.45	18.54	15.24	16.09	16.09	16.95	18.04
	6H	16.14	16.93	17.01	17.80	18.90	15.64	16.43	16.51	17.30	18.40
	8H	16.25	17.00	17.13	17.89	19.00	15.75	16.50	16.63	17.39	18.49
	12H	16.31	17.02	17.19	17.90	19.04	15.80	16.51	16.68	17.39	18.53
4H	2H	13.94	14.79	14.80	15.65	16.74	13.58	14.43	14.44	15.30	16.39
	3H	15.82	16.53	16.69	17.43	18.54	15.41	16.12	16.28	17.02	18.13
	4H	16.54	17.19	17.43	18.09	19.22	16.12	16.77	17.00	17.66	18.80
	6H	17.07	17.63	17.97	18.55	19.69	16.64	17.20	17.54	18.12	19.25
	8H	17.23	17.75	18.13	18.66	19.81	16.79	17.31	17.69	18.23	19.37
	12H	17.31	17.78	18.23	18.71	19.87	16.86	17.33	17.78	18.26	19.42
8H	4H	16.75	17.28	17.65	18.19	19.34	16.38	16.90	17.28	17.81	18.96
	6H	17.39	17.83	18.32	18.78	19.93	17.01	17.45	17.94	18.40	19.55
	8H	17.62	18.00	18.56	18.95	20.12	17.23	17.61	18.16	18.56	19.72
	12H	17.76	18.10	18.70	19.04	20.25	17.35	17.69	18.29	18.63	19.84
12H	4H	16.75	17.22	17.67	18.15	19.30	16.38	16.85	17.30	17.78	18.93
	6H	17.43	17.81	18.36	18.76	19.92	17.05	17.44	17.99	18.38	19.55
	8H	17.68	18.02	18.62	18.95	20.17	17.30	17.64	18.24	18.57	19.79