

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: P923017

Luminaire Tested: DFN2DIP-SQ3F0-120D090US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923017
REPORT IS A COMBINATION OF REPORTS P901487 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D090US940-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

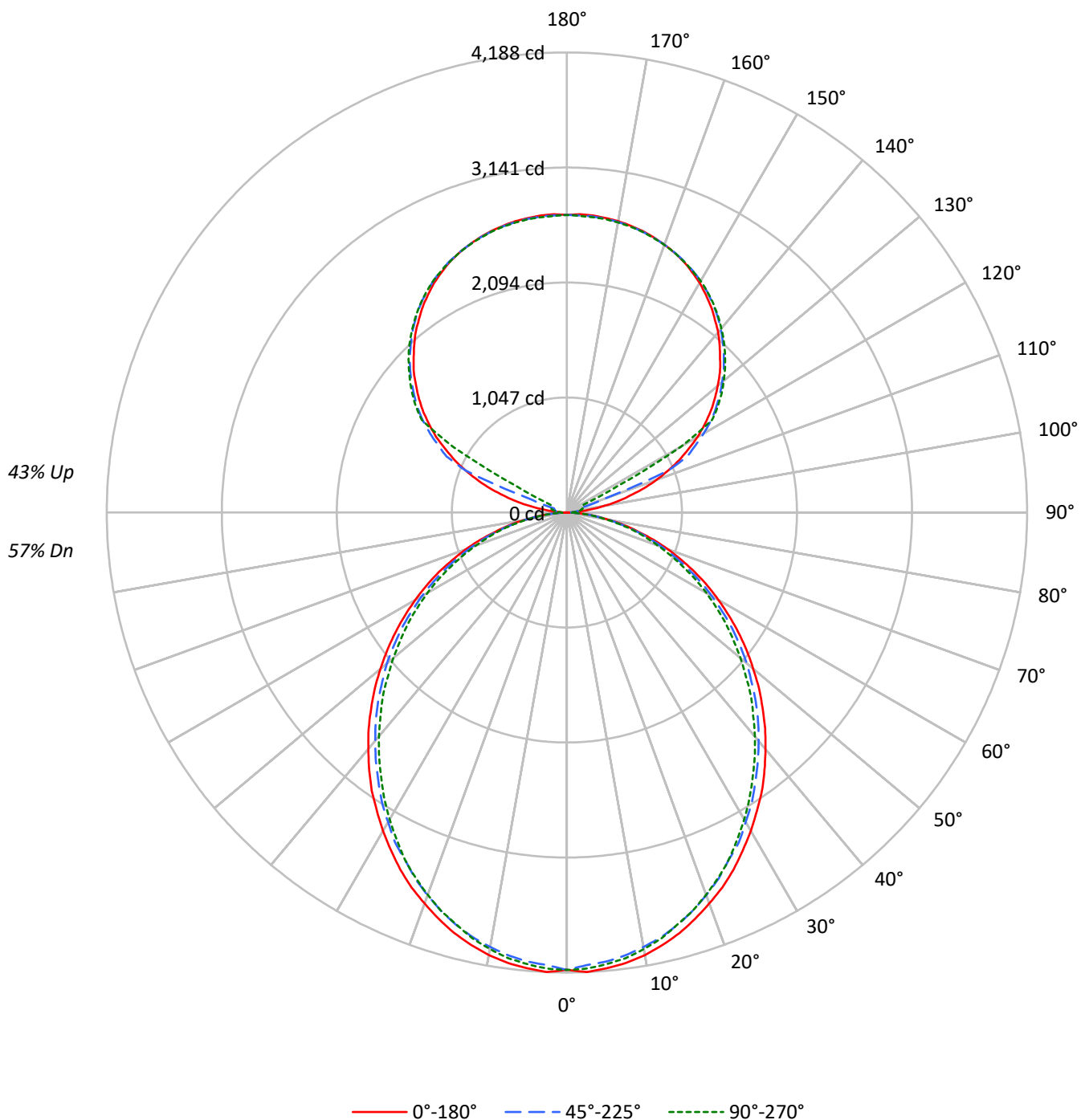
Lumens per Lamp: N/A
Luminaire Lumens: 18538.7 lumens
Efficiency: N/A
Efficacy: 95.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 194.3
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

TEST NUMBER: P923017

CATALOG NUMBER: DFN2DIP-SQ3F0-120D090US940-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P923017

CATALOG NUMBER: DFN2DIP-SQ3F0-120D090US940-FLONL

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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	55	54	53
2	91	83	77	72	84	77	72	67	67	63	59	58	55	52	49	47	45
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	40	38
4	76	65	57	50	70	61	53	48	53	47	43	45	41	38	39	35	33
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25
7	59	47	39	33	55	44	37	32	39	33	28	34	29	25	29	25	22
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18
10	48	36	28	24	45	34	27	22	30	24	20	26	22	18	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4771	4771	4771
5°	4775	4701	4734
10°	4734	4635	4669
15°	4661	4555	4567
20°	4564	4446	4463
25°	4467	4316	4343
30°	4347	4195	4191
35°	4232	4052	4030
40°	4092	3909	3876
45°	3952	3764	3719
50°	3799	3612	3538
55°	3638	3437	3370
60°	3456	3229	3178
65°	3257	3013	2953
70°	3004	2749	2709
75°	2654	2433	2481
80°	2231	2031	2051
85°	1570	1345	1343

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3952 cd/sqm

TEST NUMBER: P923017

CATALOG NUMBER: DFN2DIP-SQ3F0-120D090US940-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.9	2.1
10°-20°	1102.6	5.9
20°-30°	1620.4	8.7
30°-40°	1882.0	10.2
40°-50°	1879.7	10.1
50°-60°	1639.0	8.8
60°-70°	1211.6	6.5
70°-80°	685.5	3.7
80°-90°	185.7	1.0
90°-100°	89.3	0.5
100°-110°	332.9	1.8
110°-120°	883.0	4.8
120°-130°	1464.5	7.9
130°-140°	1555.6	8.4
140°-150°	1445.8	7.8
150°-160°	1162.4	6.3
160°-170°	749.0	4.0
170°-180°	257.8	1.4
0°-30°	3114.9	16.8
0°-40°	4996.9	27.0
0°-60°	8515.5	45.9
0°-90°	10598.3	57.2
90°-120°	1305.2	7.0
90°-150°	5771.2	31.1
90°-180°	7940.0	42.8
0°-180°	18538.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4164	4164	4164	4164	4164	
5°	4164	4148	4104	4136	4128	395
15°	3964	3940	3888	3904	3884	1116
25°	3587	3555	3487	3495	3487	1651
35°	3095	3055	2991	2967	2947	1933
45°	2518	2490	2430	2386	2370	1944
55°	1906	1882	1834	1786	1766	1704
65°	1285	1261	1221	1185	1165	1271
75°	672	665	644	621	629	718
85°	164	160	156	144	140	183
90°	2	24	39	49	53	17
95°	127	63	76	86	84	151
105°	596	655	120	141	149	637
115°	1127	1160	1209	302	161	1109
125°	1593	1619	1656	1670	1676	1421
135°	1972	2003	2020	2040	2036	1523
145°	2287	2285	2318	2332	2322	1431
155°	2518	2501	2524	2536	2520	1161
165°	2654	2642	2648	2662	2648	750
175°	2714	2700	2705	2718	2699	258
180°	2708	2708	2708	2708	2708	

TEST NUMBER: P923017

CATALOG NUMBER: DFN2DIP-SQ3F0-120D090US940-FLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4163.7	4163.7	4163.7	4163.7	4163.7
2.5°	4187.8	4167.9	4123.7	4163.7	4156.0
5°	4163.7	4147.9	4103.7	4135.6	4127.9
7.5°	4135.6	4111.8	4067.6	4099.9	4091.9
10°	4091.9	4063.8	4015.8	4047.7	4035.8
12.5°	4031.5	4007.7	3959.7	3979.7	3971.6
15°	3963.6	3939.8	3887.5	3903.6	3883.7
17.5°	3879.5	3855.7	3803.4	3823.4	3803.4
20°	3787.3	3763.5	3707.5	3719.3	3703.6
22.5°	3695.5	3659.4	3607.1	3607.1	3599.1
25°	3587.2	3555.3	3487.4	3495.1	3487.4
27.5°	3467.0	3439.0	3387.2	3375.2	3355.3
30°	3347.2	3314.9	3255.0	3243.2	3227.0
32.5°	3218.9	3195.2	3131.0	3106.8	3090.7
35°	3094.9	3055.0	2990.8	2966.6	2946.7
37.5°	2954.7	2918.7	2854.5	2826.5	2806.5
40°	2810.8	2778.5	2714.3	2678.6	2662.5
42.5°	2670.6	2638.3	2574.5	2534.2	2510.4
45°	2518.5	2490.5	2430.1	2386.4	2370.3
47.5°	2370.3	2342.2	2278.1	2233.9	2210.1
50°	2213.9	2194.0	2137.9	2081.8	2061.8
52.5°	2061.8	2033.8	1982.0	1937.8	1909.8
55°	1905.9	1881.8	1833.7	1785.7	1765.8
57.5°	1749.6	1729.7	1677.4	1629.4	1613.3
60°	1593.3	1577.6	1521.5	1477.4	1465.4
62.5°	1441.3	1413.2	1373.3	1333.4	1317.2
65°	1285.4	1261.1	1221.2	1185.1	1165.2
67.5°	1125.2	1104.8	1069.2	1041.2	1025.0
70°	977.0	960.8	924.7	896.7	881.0
72.5°	824.9	808.8	788.8	760.8	748.9
75°	672.4	664.8	644.3	620.6	628.7
77.5°	536.5	520.3	512.3	500.3	488.5
80°	400.6	396.3	388.3	376.4	368.3
82.5°	272.2	272.2	268.5	252.4	252.4
85°	164.0	160.2	156.3	144.0	140.2
87.5°	72.2	64.1	56.1	44.1	39.9
90°	1.9	23.5	39.1	49.1	52.8
92.5°	49.1	41.2	47.0	51.0	52.8
95°	127.3	62.6	76.3	86.3	84.3
97.5°	229.3	68.7	99.9	105.8	107.7
100°	347.0	78.5	111.7	127.3	131.3
102.5°	476.2	472.4	115.7	137.1	143.1
105°	595.8	654.7	119.6	141.1	148.9
107.5°	734.9	783.8	123.6	145.0	152.9
110°	868.3	909.3	343.0	147.0	154.8

TEST NUMBER: P923017

CATALOG NUMBER: DFN2DIP-SQ3F0-120D090US940-FLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	993.7	1028.9	995.6	150.8	156.9
115°	1126.9	1160.1	1209.2	301.8	160.8
117.5°	1242.5	1281.7	1315.1	1034.7	521.3
120°	1371.9	1401.2	1436.6	1460.1	1195.5
122.5°	1481.6	1513.0	1552.3	1563.9	1566.0
125°	1593.2	1618.8	1656.1	1669.8	1675.6
127.5°	1695.1	1722.6	1752.2	1771.7	1773.6
130°	1791.3	1822.7	1844.1	1865.7	1863.9
132.5°	1889.3	1914.9	1936.3	1954.0	1952.1
135°	1971.7	2003.0	2020.5	2040.3	2036.4
137.5°	2057.8	2081.3	2101.0	2120.6	2114.8
140°	2142.0	2157.8	2179.3	2196.9	2187.2
142.5°	2212.8	2226.5	2251.8	2267.4	2257.7
145°	2287.2	2285.1	2318.4	2332.2	2322.4
147.5°	2351.7	2345.9	2379.2	2389.0	2381.2
150°	2414.6	2400.8	2432.2	2443.8	2434.1
152.5°	2467.4	2451.8	2481.1	2493.0	2479.2
155°	2518.4	2500.9	2524.3	2536.0	2520.4
157.5°	2559.6	2544.0	2561.6	2575.3	2559.6
160°	2594.9	2583.0	2594.9	2606.6	2592.8
162.5°	2626.1	2614.4	2624.2	2637.9	2620.3
165°	2653.6	2641.9	2647.8	2661.5	2647.8
167.5°	2675.2	2663.4	2669.3	2683.1	2665.4
170°	2692.9	2681.0	2684.9	2698.7	2681.0
172.5°	2704.6	2692.9	2696.8	2710.5	2692.9
175°	2714.3	2700.5	2704.6	2718.2	2698.7
177.5°	2718.2	2704.6	2706.6	2720.3	2702.7
180°	2708.5	2708.5	2708.5	2708.5	2708.5

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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	13.30	14.23	14.20	15.15	16.31	12.86	13.79	13.75	14.70	15.87
	3H	14.96	15.80	15.87	16.72	17.91	14.47	15.31	15.38	16.23	17.42
	4H	15.55	16.34	16.47	17.27	18.47	15.06	15.85	15.98	16.77	17.97
	6H	15.95	16.68	16.88	17.61	18.83	15.45	16.18	16.38	17.11	18.33
	8H	16.06	16.75	17.00	17.70	18.91	15.56	16.25	16.49	17.20	18.41
	12H	16.11	16.77	17.05	17.71	18.95	15.60	16.26	16.54	17.20	18.44
4H	2H	13.77	14.56	14.69	15.49	16.69	13.41	14.20	14.34	15.13	16.33
	3H	15.64	16.29	16.57	17.25	18.47	15.23	15.89	16.16	16.84	18.06
	4H	16.35	16.95	17.30	17.90	19.14	15.92	16.53	16.87	17.48	18.72
	6H	16.86	17.38	17.82	18.36	19.60	16.43	16.95	17.39	17.93	19.17
	8H	17.01	17.50	17.97	18.47	19.72	16.58	17.06	17.54	18.03	19.28
	12H	17.09	17.52	18.07	18.51	19.77	16.64	17.08	17.62	18.06	19.32
8H	4H	16.55	17.03	17.51	18.00	19.25	16.17	16.65	17.13	17.62	18.88
	6H	17.17	17.58	18.16	18.59	19.84	16.79	17.19	17.78	18.20	19.46
	8H	17.39	17.75	18.39	18.75	20.02	17.00	17.35	18.00	18.36	19.62
	12H	17.52	17.84	18.52	18.83	20.15	17.11	17.43	18.11	18.42	19.74
12H	4H	16.53	16.97	17.52	17.96	19.22	16.17	16.60	17.15	17.59	18.85
	6H	17.20	17.56	18.20	18.56	19.83	16.83	17.19	17.83	18.19	19.46
	8H	17.44	17.76	18.44	18.75	20.07	17.06	17.38	18.06	18.37	19.69