

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: P923008

Luminaire Tested: DFN2DIP-SQ3F0-120D070US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923008
REPORT IS A COMBINATION OF REPORTS P899931 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D070US940-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

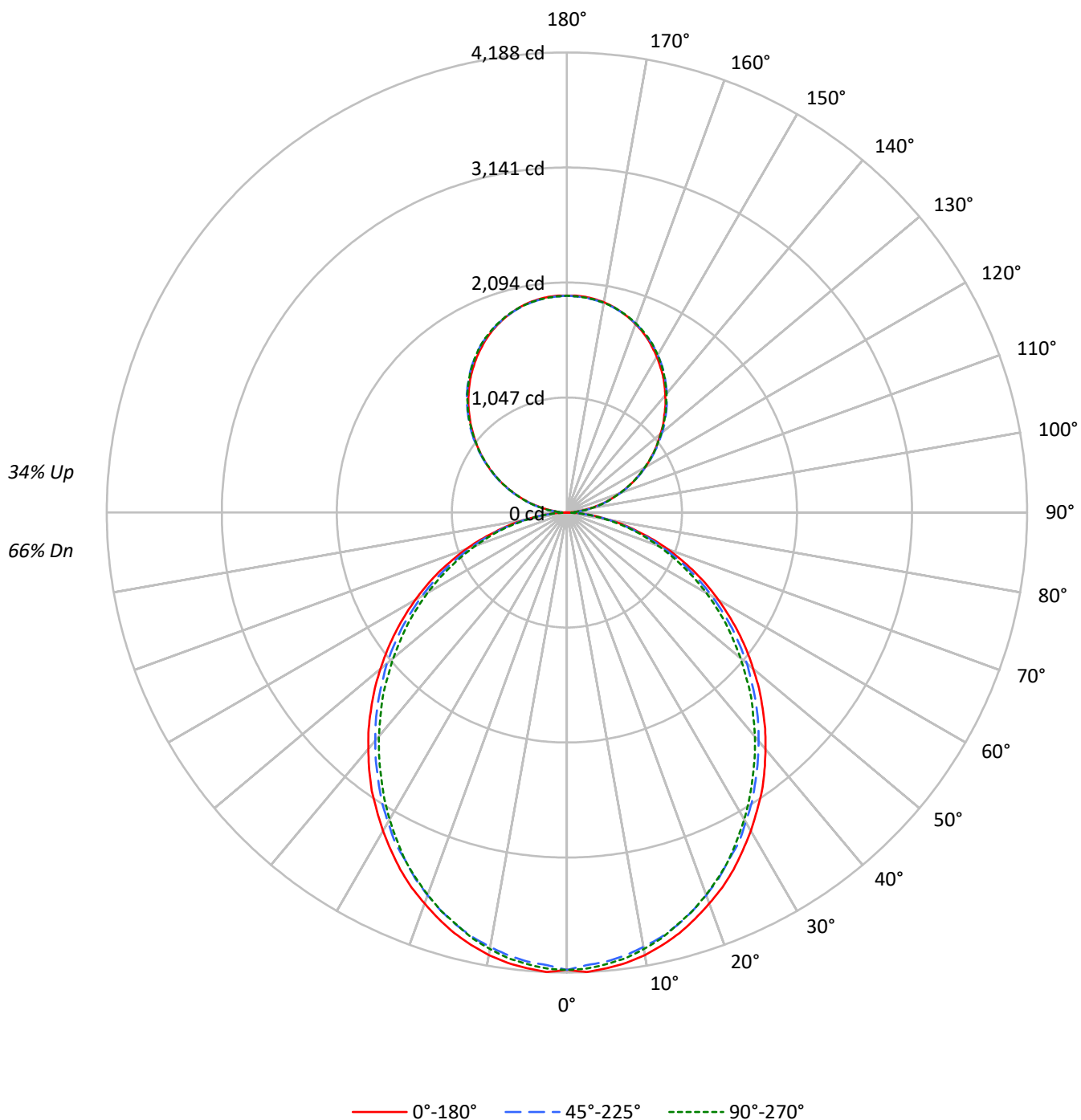
Lumens per Lamp: N/A
Luminaire Lumens: 16117.7 lumens
Efficiency: N/A
Efficacy: 90.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

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

TEST NUMBER: P923008

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P923008

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US940-FLLFL

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°	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: P923008

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.9	2.4
10°-20°	1102.6	6.8
20°-30°	1620.4	10.1
30°-40°	1882.0	11.7
40°-50°	1879.7	11.7
50°-60°	1639.0	10.2
60°-70°	1211.6	7.5
70°-80°	685.5	4.3
80°-90°	186.5	1.2
90°-100°	122.2	0.8
100°-110°	388.1	2.4
110°-120°	664.2	4.1
120°-130°	873.6	5.4
130°-140°	980.5	6.1
140°-150°	961.5	6.0
150°-160°	806.6	5.0
160°-170°	534.9	3.3
170°-180°	187.0	1.2
0°-30°	3114.9	19.3
0°-40°	4996.9	31.0
0°-60°	8515.5	52.8
0°-90°	10599.1	65.8
90°-120°	1174.5	7.3
90°-150°	3990.1	24.8
90°-180°	5519.0	34.2
0°-180°	16117.7	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	21	58	55	56	15
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	

TEST NUMBER: P923008

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US940-FLLFLL

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°	1.8	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

TEST NUMBER: P923008

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US940-FLLFL

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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CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US940-FLLFLL

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	14.01	15.03	14.81	15.86	16.89	13.56	14.58	14.37	15.42	16.44
	3H	15.67	16.59	16.50	17.43	18.49	15.18	16.10	16.01	16.94	18.00
	4H	16.27	17.13	17.10	17.98	19.05	15.77	16.64	16.61	17.49	18.55
	6H	16.67	17.47	17.52	18.33	19.41	16.17	16.97	17.02	17.83	18.91
	8H	16.78	17.54	17.64	18.42	19.50	16.28	17.04	17.14	17.91	18.99
	12H	16.83	17.56	17.70	18.43	19.53	16.32	17.05	17.19	17.92	19.02
4H	2H	14.48	15.35	15.33	16.20	17.27	14.13	15.00	14.97	15.84	16.91
	3H	16.36	17.08	17.21	17.96	19.05	15.95	16.67	16.80	17.56	18.64
	4H	17.07	17.73	17.94	18.61	19.72	16.65	17.31	17.52	18.19	19.30
	6H	17.59	18.17	18.48	19.07	20.18	17.16	17.73	18.04	18.64	19.75
	8H	17.75	18.28	18.63	19.18	20.30	17.31	17.84	18.19	18.74	19.86
	12H	17.82	18.31	18.73	19.22	20.35	17.38	17.86	18.28	18.77	19.90
8H	4H	17.28	17.81	18.17	18.71	19.84	16.90	17.44	17.79	18.33	19.46
	6H	17.91	18.35	18.83	19.29	20.42	17.53	17.97	18.44	18.91	20.03
	8H	18.13	18.52	19.05	19.45	20.60	17.74	18.13	18.66	19.06	20.20
	12H	18.27	18.61	19.19	19.54	20.73	17.86	18.20	18.78	19.13	20.32
12H	4H	17.27	17.75	18.18	18.67	19.80	16.90	17.38	17.81	18.30	19.43
	6H	17.94	18.33	18.86	19.27	20.41	17.57	17.96	18.49	18.89	20.03
	8H	18.19	18.53	19.11	19.46	20.65	17.81	18.15	18.73	19.08	20.27