

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: P909361

Luminaire Tested: DFN2DIP-SQ3F0-120D050US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909361
REPORT IS A COMBINATION OF REPORTS P901415 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D050US840-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

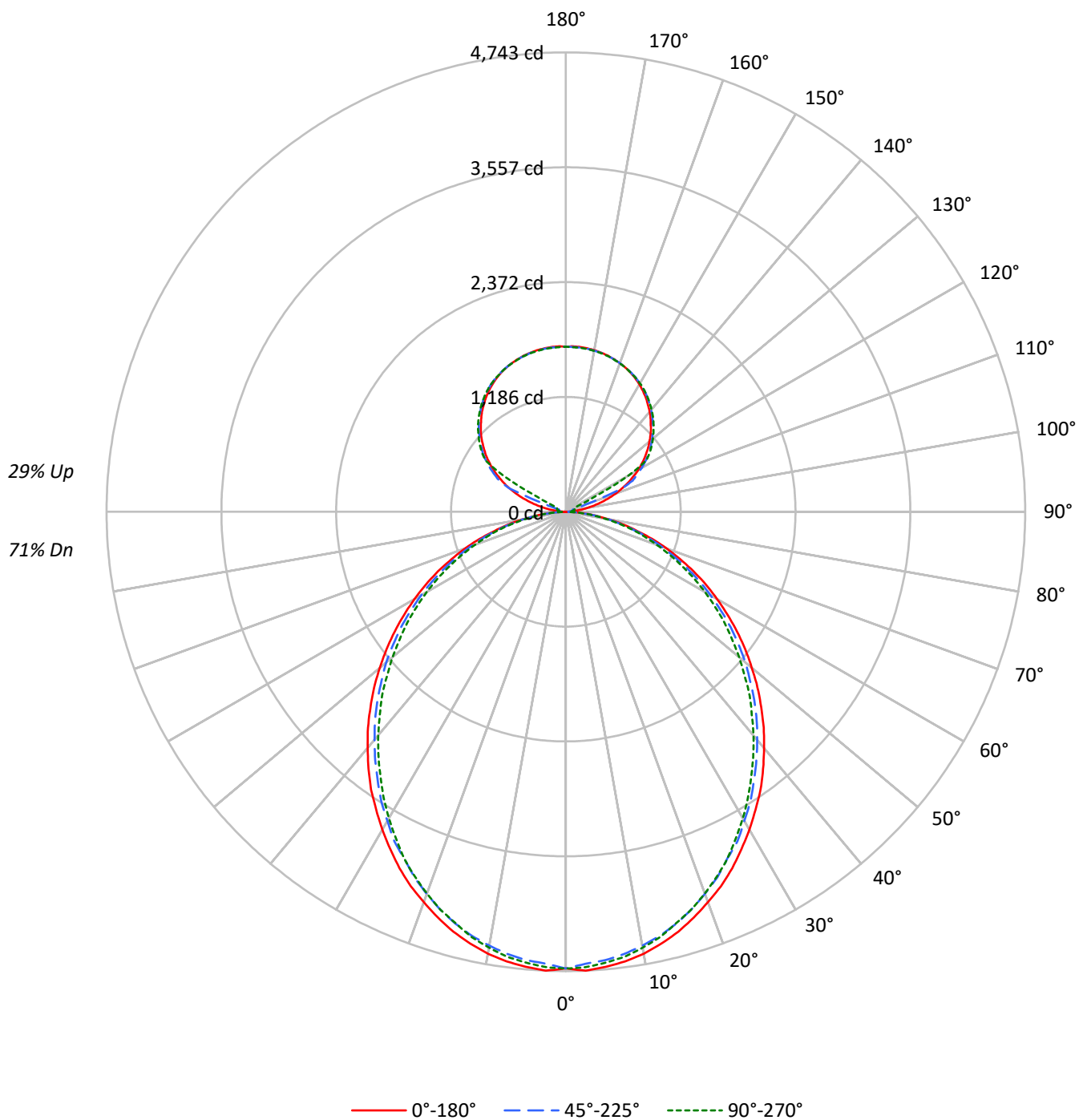
Lumens per Lamp: N/A
Luminaire Lumens: 16996.0 lumens
Efficiency: N/A
Efficacy: 104.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 162.7
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	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75
1	102	98	94	90	97	93	89	86	83	81	78	74	72	71	66	65	63
2	93	86	79	74	88	81	76	71	73	69	65	65	62	59	58	56	53
3	85	75	68	62	80	72	65	59	64	59	54	58	54	50	52	48	46
4	78	67	59	52	73	64	56	50	57	51	47	52	47	43	46	42	39
5	72	60	51	45	68	57	49	43	51	45	40	46	41	37	42	38	34
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	34	30
7	61	49	40	35	58	46	39	33	42	36	31	38	33	29	35	30	27
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	27	24
9	53	40	33	28	50	39	32	27	35	29	25	32	27	23	29	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5403	5403	5403
5°	5408	5324	5362
10°	5361	5249	5287
15°	5279	5159	5172
20°	5168	5035	5054
25°	5059	4888	4918
30°	4923	4751	4746
35°	4793	4589	4564
40°	4634	4426	4390
45°	4476	4263	4212
50°	4302	4091	4006
55°	4120	3892	3817
60°	3914	3656	3600
65°	3689	3412	3344
70°	3402	3114	3067
75°	3005	2756	2810
80°	2526	2300	2322
85°	1778	1523	1521

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4476 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.8	2.6
10°-20°	1248.7	7.3
20°-30°	1835.1	10.8
30°-40°	2131.4	12.5
40°-50°	2128.7	12.5
50°-60°	1856.2	10.9
60°-70°	1372.1	8.1
70°-80°	776.3	4.6
80°-90°	207.9	1.2
90°-100°	56.2	0.3
100°-110°	209.5	1.2
110°-120°	555.6	3.3
120°-130°	921.4	5.4
130°-140°	978.8	5.8
140°-150°	909.7	5.4
150°-160°	731.3	4.3
160°-170°	471.2	2.8
170°-180°	162.2	1.0
0°-30°	3527.6	20.8
0°-40°	5659.0	33.3
0°-60°	9643.8	56.7
0°-90°	12000.2	70.6
90°-120°	821.2	4.8
90°-150°	3631.1	21.4
90°-180°	4996.0	29.4
0°-180°	16996.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4715	4715	4715	4715	4715	
5°	4715	4698	4648	4684	4675	448
15°	4489	4462	4403	4421	4398	1264
25°	4062	4026	3950	3958	3950	1869
35°	3505	3460	3387	3360	3337	2189
45°	2852	2820	2752	2703	2684	2201
55°	2158	2131	2077	2022	2000	1930
65°	1456	1428	1383	1342	1320	1439
75°	762	753	730	703	712	813
85°	186	181	177	163	159	207
90°	1	15	25	31	33	16
95°	80	39	48	54	53	95
105°	375	412	75	89	94	401
115°	709	730	761	190	101	698
125°	1002	1019	1042	1051	1054	894
135°	1240	1260	1271	1284	1281	958
145°	1439	1438	1459	1467	1461	900
155°	1584	1574	1588	1596	1586	730
165°	1670	1662	1666	1674	1666	472
175°	1708	1699	1702	1710	1698	163
180°	1704	1704	1704	1704	1704	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4715.4	4715.4	4715.4	4715.4	4715.4
2.5°	4742.7	4720.1	4670.1	4715.4	4706.7
5°	4715.4	4697.5	4647.5	4683.6	4674.9
7.5°	4683.6	4656.6	4606.6	4643.2	4634.1
10°	4634.1	4602.3	4547.9	4584.0	4570.6
12.5°	4565.7	4538.7	4484.4	4507.0	4497.8
15°	4488.8	4461.8	4402.6	4420.9	4398.3
17.5°	4393.5	4366.6	4307.4	4330.0	4307.4
20°	4289.1	4262.1	4198.7	4212.1	4194.4
22.5°	4185.2	4144.3	4085.1	4085.1	4076.0
25°	4062.5	4026.4	3949.5	3958.2	3949.5
27.5°	3926.4	3894.6	3836.0	3822.4	3799.9
30°	3790.7	3754.2	3686.3	3672.9	3654.6
32.5°	3645.4	3618.6	3545.8	3518.5	3500.2
35°	3504.9	3459.8	3387.1	3359.7	3337.1
37.5°	3346.2	3305.4	3232.7	3201.0	3178.3
40°	3183.2	3146.6	3073.9	3033.5	3015.3
42.5°	3024.4	2987.9	2915.7	2870.0	2843.1
45°	2852.2	2820.5	2752.1	2702.6	2684.3
47.5°	2684.3	2652.5	2579.9	2529.9	2503.0
50°	2507.3	2484.7	2421.2	2357.6	2335.0
52.5°	2335.0	2303.3	2244.6	2194.5	2162.8
55°	2158.5	2131.1	2076.7	2022.4	1999.7
57.5°	1981.5	1958.8	1899.7	1845.3	1827.0
60°	1804.4	1786.7	1723.1	1673.1	1659.6
62.5°	1632.2	1600.4	1555.3	1510.1	1491.8
65°	1455.7	1428.3	1383.0	1342.1	1319.6
67.5°	1274.3	1251.2	1210.8	1179.1	1160.8
70°	1106.4	1088.1	1047.2	1015.5	997.7
72.5°	934.2	915.9	893.3	861.6	848.1
75°	761.5	752.9	729.7	702.9	712.0
77.5°	607.5	589.3	580.2	566.6	553.2
80°	453.6	448.8	439.7	426.3	417.1
82.5°	308.3	308.3	304.1	285.8	285.8
85°	185.7	181.4	177.0	163.1	158.8
87.5°	81.8	72.6	63.5	50.0	45.2
90°	1.2	14.7	24.6	30.9	33.2
92.5°	30.9	26.0	29.6	32.1	33.2
95°	80.1	39.4	48.1	54.3	53.0
97.5°	144.2	43.2	62.8	66.7	67.8
100°	218.3	49.4	70.3	80.1	82.6
102.5°	299.6	297.2	72.8	86.2	90.1
105°	374.9	411.9	75.2	88.8	93.7
107.5°	462.4	493.1	77.8	91.2	96.2
110°	546.3	572.1	215.8	92.5	97.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	625.2	647.3	626.4	94.9	98.7
115°	709.0	729.9	760.8	190.0	101.2
117.5°	781.7	806.4	827.5	651.0	328.0
120°	863.1	881.6	903.8	918.7	752.1
122.5°	932.1	951.9	976.6	984.0	985.3
125°	1002.4	1018.6	1042.0	1050.6	1054.3
127.5°	1066.5	1083.8	1102.5	1114.7	1115.9
130°	1127.0	1146.8	1160.2	1173.9	1172.8
132.5°	1188.7	1204.8	1218.2	1229.4	1228.2
135°	1240.5	1260.3	1271.2	1283.7	1281.2
137.5°	1294.6	1309.5	1321.9	1334.2	1330.6
140°	1347.7	1357.7	1371.1	1382.2	1376.1
142.5°	1392.2	1400.9	1416.8	1426.6	1420.5
145°	1439.1	1437.7	1458.6	1467.3	1461.2
147.5°	1479.7	1475.9	1496.9	1503.1	1498.2
150°	1519.1	1510.6	1530.2	1537.6	1531.5
152.5°	1552.4	1542.6	1561.1	1568.5	1559.8
155°	1584.5	1573.5	1588.2	1595.6	1585.8
157.5°	1610.3	1600.5	1611.6	1620.3	1610.3
160°	1632.6	1625.2	1632.6	1639.9	1631.3
162.5°	1652.2	1645.0	1651.0	1659.7	1648.6
165°	1669.5	1662.2	1665.9	1674.5	1665.9
167.5°	1683.1	1675.7	1679.5	1688.1	1677.0
170°	1694.3	1686.8	1689.3	1697.9	1686.8
172.5°	1701.6	1694.3	1696.8	1705.4	1694.3
175°	1707.8	1699.1	1701.6	1710.2	1697.9
177.5°	1710.2	1701.6	1702.9	1711.5	1700.4
180°	1704.0	1704.0	1704.0	1704.0	1704.0

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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	14.81	15.90	15.57	16.68	17.62	14.37	15.45	15.13	16.23	17.18
	3H	16.49	17.46	17.26	18.25	19.22	16.00	16.97	16.77	17.76	18.73
	4H	17.08	18.00	17.87	18.80	19.78	16.59	17.51	17.38	18.30	19.29
	6H	17.49	18.34	18.29	19.14	20.14	16.99	17.84	17.79	18.64	19.64
	8H	17.60	18.41	18.41	19.23	20.23	17.10	17.90	17.91	18.73	19.73
	12H	17.65	18.42	18.47	19.24	20.27	17.14	17.91	17.96	18.73	19.76
4H	2H	15.30	16.22	16.09	17.01	18.00	14.94	15.86	15.74	16.66	17.64
	3H	17.18	17.95	17.98	18.78	19.78	16.77	17.54	17.57	18.37	19.37
	4H	17.90	18.60	18.72	19.43	20.46	17.47	18.17	18.29	19.00	20.03
	6H	18.42	19.03	19.26	19.88	20.92	17.99	18.59	18.82	19.45	20.48
	8H	18.57	19.14	19.41	19.99	21.04	18.14	18.70	18.98	19.55	20.60
	12H	18.65	19.16	19.51	20.04	21.09	18.21	18.71	19.07	19.59	20.64
8H	4H	18.11	18.67	18.95	19.52	20.57	17.73	18.30	18.57	19.15	20.19
	6H	18.74	19.21	19.61	20.10	21.15	18.36	18.83	19.23	19.72	20.77
	8H	18.96	19.38	19.84	20.27	21.33	18.57	18.98	19.45	19.87	20.94
	12H	19.10	19.47	19.98	20.35	21.46	18.69	19.06	19.57	19.94	21.05
12H	4H	18.10	18.61	18.96	19.48	20.54	17.73	18.24	18.59	19.12	20.17
	6H	18.77	19.19	19.65	20.08	21.14	18.40	18.82	19.28	19.70	20.77
	8H	19.02	19.39	19.90	20.27	21.38	18.64	19.01	19.52	19.89	21.00

END OF REPORT