

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: P903681

Luminaire Tested: DFN2DIP-SQ3F0-050D120US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903681
REPORT IS A COMBINATION OF REPORTS P901527 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-050D120US830-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

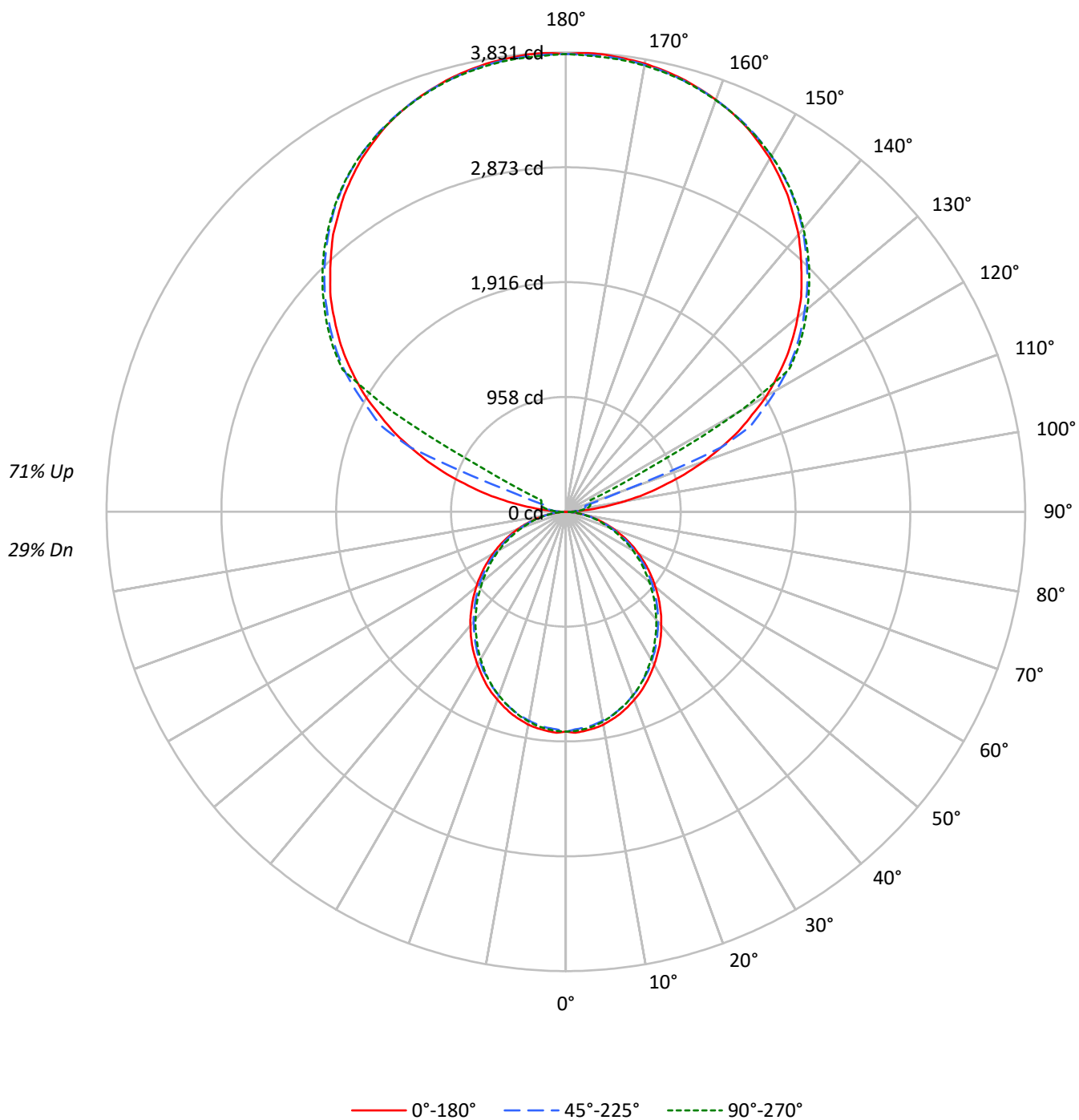
Lumens per Lamp: N/A
Luminaire Lumens: 15863.0 lumens
Efficiency: N/A
Efficacy: 116.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 136.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	45	33	32	31
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	29	28	26
3	77	68	61	56	69	61	55	51	49	44	41	37	34	32	26	24	22
4	71	60	53	47	63	54	48	43	43	38	35	33	29	27	23	21	19
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	21	19	17
6	60	48	40	34	53	43	36	32	35	30	26	26	23	20	19	16	15
7	55	43	35	30	49	39	32	28	31	26	23	24	20	18	17	15	13
8	51	39	32	26	46	35	29	24	28	23	20	22	18	16	16	13	12
9	47	35	28	23	42	32	26	22	26	21	18	20	17	14	14	12	11
10	44	32	25	21	40	29	23	19	24	19	16	18	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2101	2101	2101
5°	2103	2070	2085
10°	2085	2041	2056
15°	2053	2006	2011
20°	2010	1958	1966
25°	1967	1901	1913
30°	1914	1848	1846
35°	1864	1785	1775
40°	1802	1721	1707
45°	1741	1658	1638
50°	1673	1591	1558
55°	1602	1514	1484
60°	1522	1422	1400
65°	1434	1327	1300
70°	1323	1211	1193
75°	1169	1072	1093
80°	982	894	903
85°	691	592	591

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2616 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.6	1.1
10°-20°	485.6	3.1
20°-30°	713.7	4.5
30°-40°	828.9	5.2
40°-50°	827.8	5.2
50°-60°	721.8	4.6
60°-70°	533.6	3.4
70°-80°	301.9	1.9
80°-90°	86.4	0.5
90°-100°	125.9	0.8
100°-110°	469.2	3.0
110°-120°	1244.4	7.8
120°-130°	2064.0	13.0
130°-140°	2192.4	13.8
140°-150°	2037.6	12.8
150°-160°	1638.2	10.3
160°-170°	1055.6	6.7
170°-180°	363.3	2.3
0°-30°	1371.9	8.6
0°-40°	2200.7	13.9
0°-60°	3750.4	23.6
0°-90°	4672.3	29.5
90°-120°	1839.5	11.6
90°-150°	8133.6	51.3
90°-180°	11191.0	70.5
0°-180°	15863.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1834	1834	1834	1834	1834	
5°	1834	1827	1807	1821	1818	174
15°	1746	1735	1712	1719	1710	492
25°	1580	1566	1536	1539	1536	727
35°	1363	1346	1317	1307	1298	851
45°	1109	1097	1070	1051	1044	856
55°	839	829	808	786	778	750
65°	566	555	538	522	513	560
75°	296	293	284	273	277	316
85°	72	70	69	63	62	81
90°	3	33	55	69	74	15
95°	179	88	108	122	119	212
105°	840	923	169	199	210	897
115°	1588	1635	1704	425	227	1563
125°	2245	2282	2334	2353	2362	2003
135°	2779	2823	2848	2876	2870	2146
145°	3224	3221	3267	3287	3273	2016
155°	3549	3524	3558	3574	3552	1635
165°	3740	3723	3732	3751	3732	1057
175°	3825	3806	3812	3831	3803	364
180°	3817	3817	3817	3817	3817	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.7	1833.7	1833.7	1833.7	1833.7
2.5°	1844.4	1835.6	1816.2	1833.7	1830.4
5°	1833.7	1826.8	1807.3	1821.4	1818.1
7.5°	1821.4	1810.9	1791.5	1805.7	1802.1
10°	1802.1	1789.8	1768.7	1782.6	1777.4
12.5°	1775.6	1765.1	1744.0	1752.8	1749.2
15°	1745.6	1735.1	1712.1	1719.3	1710.4
17.5°	1708.5	1698.1	1675.1	1683.9	1675.1
20°	1668.0	1657.6	1632.9	1638.0	1631.2
22.5°	1627.6	1611.7	1588.7	1588.7	1585.1
25°	1579.9	1565.8	1535.9	1539.3	1535.9
27.5°	1526.9	1514.6	1491.8	1486.5	1477.7
30°	1474.1	1460.0	1433.6	1428.3	1421.3
32.5°	1417.7	1407.2	1378.9	1368.3	1361.2
35°	1363.0	1345.5	1317.2	1306.6	1297.8
37.5°	1301.3	1285.4	1257.2	1244.8	1236.0
40°	1237.9	1223.7	1195.4	1179.7	1172.6
42.5°	1176.2	1162.0	1133.9	1116.1	1105.6
45°	1109.2	1096.8	1070.3	1051.0	1043.9
47.5°	1043.9	1031.5	1003.3	983.8	973.4
50°	975.1	966.3	941.6	916.9	908.0
52.5°	908.0	895.7	872.9	853.5	841.1
55°	839.4	828.8	807.6	786.5	777.7
57.5°	770.5	761.8	738.8	717.7	710.5
60°	701.7	694.8	670.1	650.6	645.5
62.5°	634.8	622.5	604.8	587.2	580.1
65°	566.1	555.4	537.8	522.0	513.1
67.5°	495.6	486.6	470.9	458.5	451.4
70°	430.3	423.2	407.3	394.9	388.0
72.5°	363.4	356.2	347.4	335.1	329.8
75°	296.1	292.8	283.8	273.3	276.9
77.5°	236.3	229.1	225.6	220.4	215.2
80°	176.4	174.6	171.0	165.8	162.2
82.5°	119.9	119.9	118.2	111.1	111.1
85°	72.2	70.5	68.8	63.4	61.7
87.5°	31.8	28.3	24.7	19.4	17.6
90°	2.6	33.1	55.1	69.2	74.5
92.5°	69.2	58.1	66.3	71.8	74.5
95°	179.4	88.2	107.5	121.7	118.8
97.5°	323.1	96.8	140.7	149.2	151.8
100°	489.0	110.6	157.4	179.4	185.0
102.5°	671.1	665.8	163.0	193.2	201.7
105°	839.6	922.7	168.6	198.8	209.9
107.5°	1035.8	1104.7	174.2	204.3	215.5
110°	1223.7	1281.5	483.4	207.3	218.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1400.5	1450.0	1403.2	212.5	221.0
115°	1588.1	1635.0	1704.2	425.4	226.7
117.5°	1751.1	1806.3	1853.5	1458.2	734.7
120°	1933.5	1974.8	2024.7	2057.9	1684.9
122.5°	2088.0	2132.3	2187.7	2204.1	2207.1
125°	2245.4	2281.5	2334.0	2353.3	2361.5
127.5°	2389.1	2427.8	2469.5	2497.0	2499.6
130°	2524.5	2568.8	2599.0	2629.5	2626.9
132.5°	2662.6	2698.7	2728.8	2753.8	2751.2
135°	2778.7	2823.0	2847.6	2875.5	2869.9
137.5°	2900.1	2933.2	2961.1	2988.6	2980.4
140°	3018.9	3041.1	3071.3	3096.3	3082.5
142.5°	3118.5	3137.9	3173.6	3195.6	3181.8
145°	3223.5	3220.6	3267.4	3286.8	3273.0
147.5°	3314.4	3306.2	3353.1	3366.9	3356.0
150°	3402.9	3383.5	3427.8	3444.2	3430.5
152.5°	3477.3	3455.4	3496.7	3513.4	3494.1
155°	3549.1	3524.5	3557.7	3574.1	3552.2
157.5°	3607.2	3585.2	3610.2	3629.5	3607.2
160°	3657.1	3640.4	3657.1	3673.5	3654.1
162.5°	3701.1	3684.7	3698.4	3717.8	3692.9
165°	3739.7	3723.3	3731.5	3750.9	3731.5
167.5°	3770.3	3753.5	3762.1	3781.4	3756.5
170°	3795.1	3778.5	3784.0	3803.3	3778.5
172.5°	3811.5	3795.1	3800.8	3820.1	3795.1
175°	3825.3	3806.0	3811.5	3831.0	3803.3
177.5°	3831.0	3811.5	3814.6	3833.9	3809.0
180°	3817.2	3817.2	3817.2	3817.2	3817.2

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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	7.53	8.23	8.64	9.34	10.88	7.08	7.79	8.20	8.90	10.43
	3H	9.17	9.80	10.30	10.92	12.47	8.68	9.31	9.81	10.43	11.98
	4H	9.75	10.35	10.88	11.47	13.03	9.26	9.85	10.39	10.97	12.53
	6H	10.14	10.69	11.28	11.81	13.38	9.64	10.19	10.78	11.31	12.88
	8H	10.24	10.76	11.38	11.90	13.46	9.73	10.26	10.88	11.39	12.96
	12H	10.28	10.77	11.43	11.90	13.49	9.77	10.26	10.92	11.40	12.98
4H	2H	7.97	8.56	9.11	9.68	11.24	7.61	8.21	8.75	9.33	10.89
	3H	9.81	10.31	10.96	11.46	13.03	9.40	9.90	10.55	11.05	12.62
	4H	10.52	10.98	11.67	12.11	13.70	10.09	10.55	11.24	11.68	13.28
	6H	11.02	11.41	12.17	12.57	14.15	10.59	10.98	11.74	12.14	13.72
	8H	11.16	11.53	12.32	12.68	14.27	10.72	11.09	11.88	12.24	13.84
	12H	11.22	11.56	12.40	12.72	14.32	10.78	11.11	11.95	12.27	13.87
8H	4H	10.70	11.06	11.85	12.21	13.81	10.32	10.69	11.47	11.83	13.43
	6H	11.31	11.62	12.49	12.81	14.40	10.93	11.23	12.11	12.42	14.02
	8H	11.53	11.79	12.71	12.96	14.58	11.14	11.40	12.32	12.57	14.19
	12H	11.65	11.88	12.83	13.05	14.70	11.24	11.47	12.42	12.64	14.29
12H	4H	10.67	11.01	11.84	12.17	13.77	10.30	10.64	11.48	11.80	13.40
	6H	11.34	11.61	12.52	12.77	14.39	10.97	11.23	12.15	12.40	14.02
	8H	11.57	11.80	12.76	12.97	14.62	11.19	11.42	12.38	12.59	14.24