

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: P903804

Luminaire Tested: DFN2DIP-SQ3F0-090D070US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903804
REPORT IS A COMBINATION OF REPORTS P899925 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D070US830-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

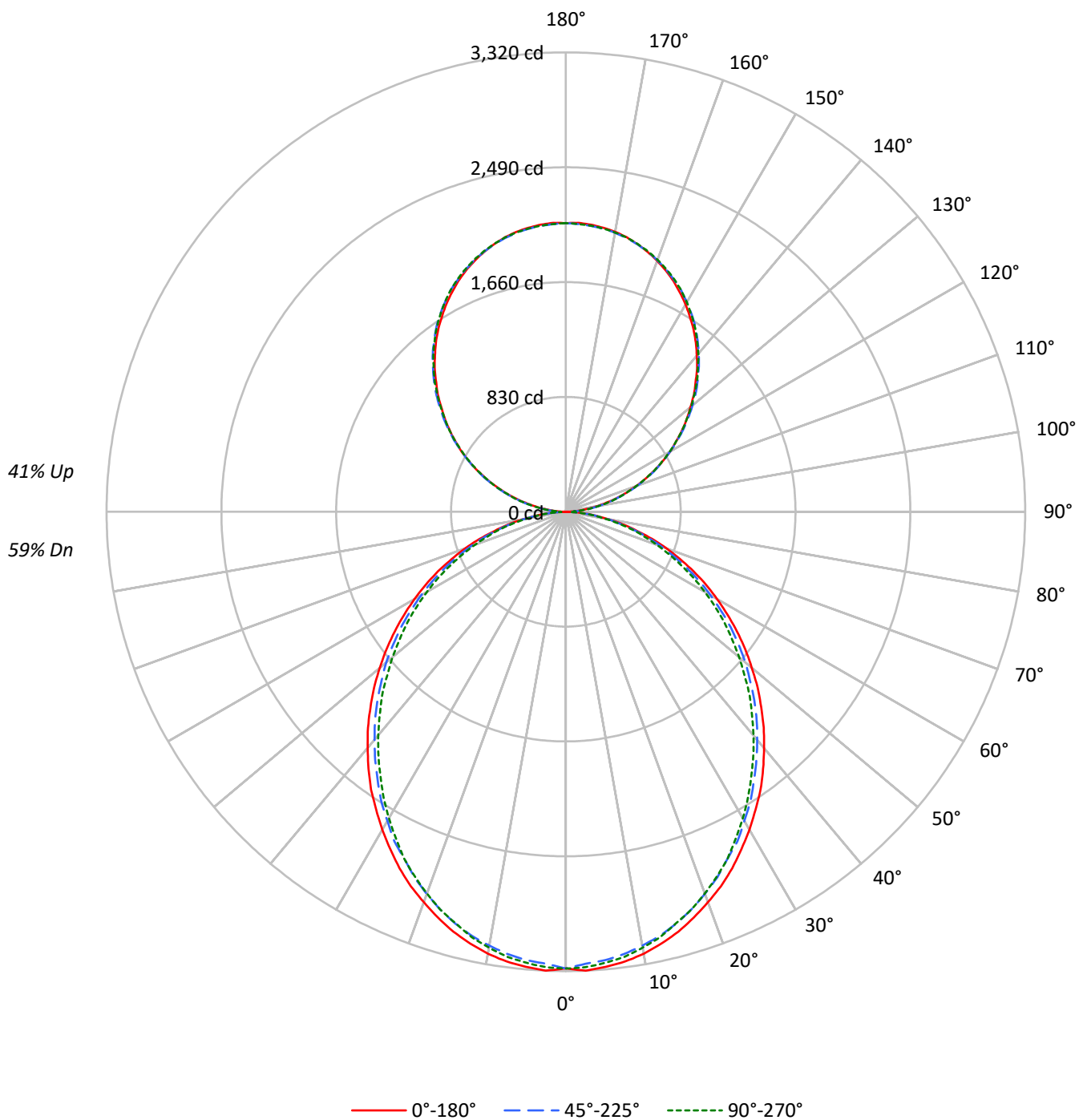
Lumens per Lamp: N/A
Luminaire Lumens: 14237.1 lumens
Efficiency: N/A
Efficacy: 101.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 140.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P903804

CATALOG NUMBER: DFN2DIP-SQ3F0-090D070US830-FLLFLL

Luminous Intensity Polar Plot



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CATALOG NUMBER: DFN2DIP-SQ3F0-090D070US830-FLLFLL

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	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	95	91	88	93	89	86	83	78	75	73	67	65	63	57	56	54
2	91	83	77	72	85	78	73	68	68	64	60	59	56	53	50	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	42	39
4	76	65	57	51	71	61	54	48	53	48	43	46	42	38	40	36	34
5	70	58	50	44	65	54	47	41	48	42	37	42	37	33	36	32	29
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	33	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3782	3782	3782
5°	3786	3727	3753
10°	3753	3674	3701
15°	3695	3611	3620
20°	3618	3524	3538
25°	3541	3422	3443
30°	3446	3325	3322
35°	3355	3213	3195
40°	3244	3098	3073
45°	3133	2984	2949
50°	3011	2864	2805
55°	2884	2724	2672
60°	2740	2560	2520
65°	2582	2388	2341
70°	2381	2180	2147
75°	2104	1930	1967
80°	1768	1609	1626
85°	1245	1066	1064

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3133 cd/sqm

TEST NUMBER: P903804

CATALOG NUMBER: DFN2DIP-SQ3F0-090D070US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.7	2.2
10°-20°	874.1	6.1
20°-30°	1284.6	9.0
30°-40°	1492.0	10.5
40°-50°	1490.1	10.5
50°-60°	1299.3	9.1
60°-70°	960.5	6.7
70°-80°	543.4	3.8
80°-90°	149.3	1.0
90°-100°	129.1	0.9
100°-110°	410.3	2.9
110°-120°	702.1	4.9
120°-130°	923.3	6.5
130°-140°	1036.4	7.3
140°-150°	1016.3	7.1
150°-160°	852.6	6.0
160°-170°	565.4	4.0
170°-180°	197.6	1.4
0°-30°	2469.3	17.3
0°-40°	3961.3	27.8
0°-60°	6750.7	47.4
0°-90°	8404.0	59.0
90°-120°	1241.5	8.7
90°-150°	4217.6	29.6
90°-180°	5833.0	41.0
0°-180°	14237.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3301	3301	3301	3301	3301	
5°	3301	3288	3253	3278	3272	313
15°	3142	3123	3082	3095	3079	885
25°	2844	2818	2765	2771	2765	1309
35°	2454	2422	2371	2352	2336	1532
45°	1996	1974	1926	1892	1879	1541
55°	1511	1492	1454	1416	1400	1351
65°	1019	1000	968	940	924	1007
75°	533	527	511	492	498	569
85°	130	127	124	114	111	145
90°	2	23	62	58	60	14
95°	92	109	113	113	109	102
105°	379	384	388	391	391	400
115°	705	715	712	710	705	697
125°	1025	1040	1036	1030	1028	916
135°	1326	1345	1349	1347	1342	1025
145°	1609	1622	1632	1634	1627	1005
155°	1840	1845	1851	1860	1854	847
165°	2002	2000	2000	2012	2004	565
175°	2083	2078	2074	2087	2076	198
180°	2087	2087	2087	2087	2087	

TEST NUMBER: P903804

CATALOG NUMBER: DFN2DIP-SQ3F0-090D070US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3300.7	3300.7	3300.7	3300.7	3300.7
2.5°	3319.9	3304.1	3269.1	3300.7	3294.7
5°	3300.7	3288.2	3253.3	3278.5	3272.4
7.5°	3278.5	3259.7	3224.6	3250.3	3243.9
10°	3243.9	3221.6	3183.5	3208.8	3199.4
12.5°	3196.0	3177.1	3139.1	3154.9	3148.6
15°	3142.2	3123.3	3081.8	3094.6	3078.8
17.5°	3075.4	3056.6	3015.2	3031.0	3015.2
20°	3002.4	2983.5	2939.0	2948.5	2936.0
22.5°	2929.6	2901.1	2859.6	2859.6	2853.2
25°	2843.7	2818.5	2764.7	2770.7	2764.7
27.5°	2748.5	2726.2	2685.2	2675.8	2659.9
30°	2653.5	2627.9	2580.4	2571.0	2558.2
32.5°	2551.8	2533.0	2482.1	2463.0	2450.1
35°	2453.5	2421.9	2371.0	2351.8	2336.0
37.5°	2342.4	2313.8	2262.9	2240.7	2224.9
40°	2228.2	2202.6	2151.7	2123.5	2110.7
42.5°	2117.0	2091.5	2041.0	2009.0	1990.2
45°	1996.5	1974.3	1926.5	1891.8	1879.1
47.5°	1879.1	1856.8	1805.9	1770.9	1752.1
50°	1755.1	1739.3	1694.8	1650.4	1634.6
52.5°	1634.6	1612.3	1571.2	1536.2	1514.0
55°	1511.0	1491.8	1453.7	1415.7	1399.9
57.5°	1387.0	1371.2	1329.8	1291.8	1278.9
60°	1263.1	1250.7	1206.2	1171.2	1161.8
62.5°	1142.5	1120.3	1088.6	1057.1	1044.2
65°	1019.0	999.8	968.1	939.5	923.7
67.5°	892.0	875.9	847.5	825.4	812.6
70°	774.5	761.7	733.1	710.9	698.4
72.5°	653.9	641.1	625.3	603.1	593.7
75°	533.1	527.0	510.9	492.0	498.4
77.5°	425.3	412.6	406.1	396.7	387.3
80°	317.5	314.1	307.7	298.3	292.0
82.5°	215.8	215.8	212.8	200.0	200.0
85°	130.0	127.0	123.9	114.1	111.1
87.5°	57.2	50.8	44.5	35.1	31.7
90°	1.9	22.6	61.6	57.9	59.8
92.5°	39.0	52.9	54.8	56.6	56.6
95°	91.8	109.4	112.6	112.6	109.4
97.5°	152.9	169.2	176.2	176.2	176.2
100°	223.3	237.8	242.8	242.8	240.9
102.5°	297.6	308.2	315.2	317.1	315.2
105°	378.7	383.7	387.5	390.7	390.7
107.5°	459.2	466.7	466.7	468.1	459.2
110°	537.2	547.3	547.3	547.3	542.2

TEST NUMBER: P903804

CATALOG NUMBER: DFN2DIP-SQ3F0-090D070US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	621.5	632.3	630.4	625.3	621.5
115°	704.6	714.6	711.5	709.6	704.6
117.5°	786.9	800.8	792.0	786.9	781.9
120°	870.0	883.8	870.0	870.0	864.3
122.5°	945.5	963.1	954.3	949.2	945.5
125°	1024.7	1040.5	1035.5	1029.8	1027.9
127.5°	1102.1	1121.6	1114.7	1107.2	1102.1
130°	1174.5	1197.1	1194.0	1190.2	1183.3
132.5°	1255.7	1273.3	1274.5	1265.7	1260.7
135°	1325.5	1344.9	1348.8	1346.8	1341.8
137.5°	1403.4	1419.2	1422.3	1421.1	1413.5
140°	1472.1	1487.8	1496.6	1496.6	1489.7
142.5°	1542.5	1558.2	1563.2	1565.1	1558.2
145°	1609.2	1621.7	1631.8	1633.7	1626.8
147.5°	1669.0	1684.7	1692.2	1695.4	1688.5
150°	1730.6	1741.3	1748.2	1753.9	1748.2
152.5°	1785.3	1796.0	1804.8	1811.8	1804.8
155°	1840.0	1845.0	1850.8	1859.5	1853.9
157.5°	1887.3	1891.0	1894.1	1906.8	1897.9
160°	1929.4	1933.2	1935.0	1945.7	1938.1
162.5°	1968.4	1968.4	1970.3	1982.2	1973.4
165°	2001.7	1999.8	1999.8	2012.4	2003.6
167.5°	2031.9	2026.3	2026.3	2038.8	2030.0
170°	2054.6	2049.6	2047.7	2060.2	2049.6
172.5°	2070.3	2065.2	2063.3	2075.9	2065.2
175°	2082.8	2077.8	2074.1	2086.6	2075.9
177.5°	2089.8	2084.7	2080.9	2091.7	2080.9
180°	2086.6	2086.6	2086.6	2086.6	2086.6

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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	12.65	13.60	13.53	14.50	15.63	12.21	13.16	13.08	14.05	15.19
	3H	14.31	15.17	15.20	16.07	17.23	13.82	14.68	14.71	15.58	16.74
	4H	14.90	15.71	15.81	16.62	17.79	14.41	15.21	15.31	16.13	17.30
	6H	15.30	16.05	16.22	16.96	18.15	14.80	15.55	15.72	16.46	17.65
	8H	15.41	16.12	16.33	17.05	18.24	14.91	15.62	15.83	16.55	17.73
	12H	15.46	16.13	16.39	17.06	18.27	14.95	15.62	15.88	16.55	17.76
4H	2H	13.12	13.93	14.03	14.84	16.01	12.77	13.57	13.67	14.48	15.65
	3H	14.99	15.66	15.91	16.60	17.79	14.58	15.25	15.50	16.20	17.38
	4H	15.70	16.32	16.63	17.25	18.47	15.28	15.89	16.21	16.83	18.04
	6H	16.22	16.75	17.16	17.71	18.92	15.79	16.32	16.73	17.28	18.49
	8H	16.37	16.86	17.31	17.82	19.04	15.93	16.43	16.88	17.38	18.61
	12H	16.44	16.89	17.41	17.86	19.09	15.99	16.44	16.96	17.41	18.64
8H	4H	15.90	16.40	16.85	17.35	18.58	15.53	16.02	16.47	16.98	18.20
	6H	16.53	16.94	17.50	17.94	19.16	16.15	16.56	17.12	17.55	18.78
	8H	16.75	17.11	17.73	18.10	19.34	16.36	16.72	17.34	17.70	18.95
	12H	16.88	17.20	17.87	18.18	19.47	16.47	16.79	17.46	17.77	19.06
12H	4H	15.89	16.34	16.86	17.31	18.54	15.52	15.97	16.49	16.94	18.17
	6H	16.56	16.92	17.54	17.91	19.15	16.19	16.55	17.17	17.54	18.78
	8H	16.80	17.12	17.79	18.10	19.39	16.42	16.74	17.41	17.72	19.01