

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: P904020

Luminaire Tested: DFN2DIP-SQ4F0-080D090US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904020
REPORT IS A COMBINATION OF REPORTS P900117 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D090US830-FLLFL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

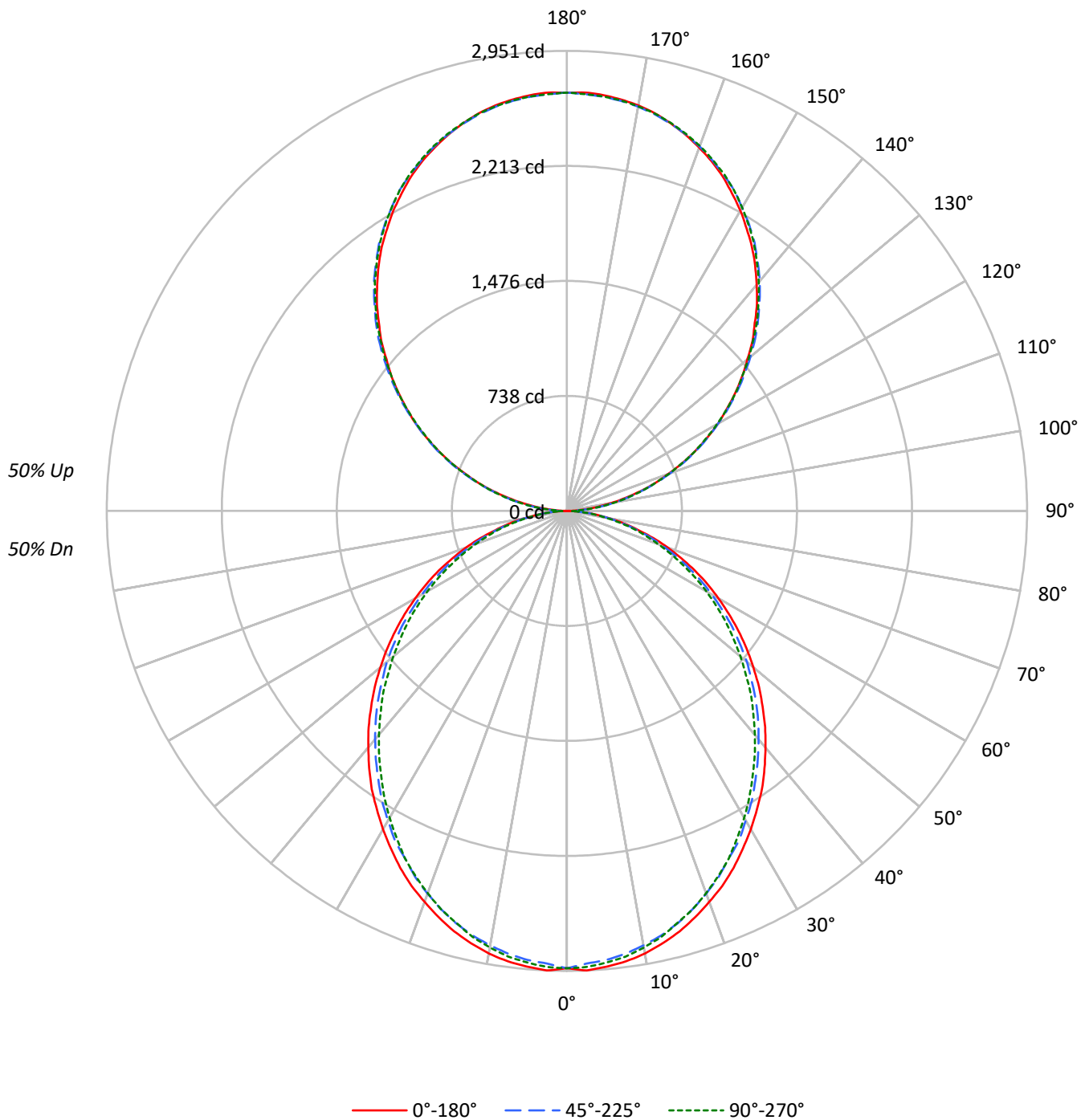
Lumens per Lamp: N/A
Luminaire Lumens: 14972.3 lumens
Efficiency: N/A
Efficacy: 108.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 138.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P904020

CATALOG NUMBER: DFN2DIP-SQ4F0-080D090US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P904020

CATALOG NUMBER: DFN2DIP-SQ4F0-080D090US830-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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	75	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	63	56	50	68	59	52	46	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	25
6	63	51	43	37	58	47	40	35	40	35	31	34	30	26	28	25	22
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	22	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2059	2059	2059
5°	2062	2030	2044
10°	2045	2003	2017
15°	2015	1971	1975
20°	1974	1925	1931
25°	1934	1871	1880
30°	1883	1821	1816
35°	1835	1761	1747
40°	1776	1700	1682
45°	1717	1640	1616
50°	1653	1577	1539
55°	1585	1503	1469
60°	1509	1416	1388
65°	1426	1326	1292
70°	1320	1216	1190
75°	1173	1085	1097
80°	996	918	916
85°	720	628	616

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2111 cd/sqm

TEST NUMBER: P904020

CATALOG NUMBER: DFN2DIP-SQ4F0-080D090US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	1.8
10°-20°	777.0	5.2
20°-30°	1141.8	7.6
30°-40°	1326.2	8.9
40°-50°	1324.5	8.8
50°-60°	1155.0	7.7
60°-70°	853.8	5.7
70°-80°	483.0	3.2
80°-90°	135.1	0.9
90°-100°	166.0	1.1
100°-110°	527.5	3.5
110°-120°	902.7	6.0
120°-130°	1187.2	7.9
130°-140°	1332.5	8.9
140°-150°	1306.7	8.7
150°-160°	1096.1	7.3
160°-170°	726.9	4.9
170°-180°	254.1	1.7
0°-30°	2195.0	14.7
0°-40°	3521.1	23.5
0°-60°	6000.6	40.1
0°-90°	7472.6	49.9
90°-120°	1596.2	10.7
90°-150°	5422.6	36.2
90°-180°	7500.0	50.1
0°-180°	14972.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	279
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2458	2463	2458	1163
35°	2181	2153	2108	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	896
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	2	29	79	74	77	15
95°	118	141	145	145	141	131
105°	487	493	498	502	502	514
115°	906	919	915	912	906	896
125°	1318	1338	1331	1324	1322	1177
135°	1704	1729	1734	1732	1725	1317
145°	2069	2085	2098	2100	2092	1293
155°	2366	2372	2380	2391	2384	1089
165°	2574	2571	2571	2587	2576	726
175°	2678	2671	2667	2683	2669	254
180°	2683	2683	2683	2683	2683	

TEST NUMBER: P904020

CATALOG NUMBER: DFN2DIP-SQ4F0-080D090US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2933.9	2933.9	2933.9	2933.9	2933.9
2.5°	2951.0	2937.0	2905.9	2933.9	2928.6
5°	2933.9	2922.9	2891.8	2914.2	2908.9
7.5°	2914.2	2897.5	2866.4	2889.1	2883.4
10°	2883.4	2863.6	2829.8	2852.2	2843.9
12.5°	2840.9	2824.1	2790.3	2804.3	2798.7
15°	2793.0	2776.3	2739.4	2750.8	2736.8
17.5°	2733.7	2717.0	2680.1	2694.3	2680.1
20°	2668.8	2652.0	2612.5	2620.9	2609.8
22.5°	2604.2	2578.7	2541.8	2541.8	2536.2
25°	2527.8	2505.4	2457.5	2462.9	2457.5
27.5°	2443.1	2423.4	2386.8	2378.4	2364.4
30°	2358.7	2335.9	2293.8	2285.4	2274.0
32.5°	2268.3	2251.5	2206.3	2189.2	2177.9
35°	2180.9	2152.8	2107.5	2090.5	2076.4
37.5°	2082.1	2056.6	2011.5	1991.7	1977.6
40°	1980.7	1957.8	1912.7	1887.5	1876.1
42.5°	1881.9	1859.1	1814.2	1785.7	1769.1
45°	1774.7	1754.9	1712.4	1681.6	1670.3
47.5°	1670.3	1650.5	1605.2	1574.1	1557.4
50°	1560.1	1546.1	1506.5	1467.0	1452.9
52.5°	1452.9	1433.1	1396.7	1365.6	1345.8
55°	1343.0	1326.0	1292.2	1258.4	1244.3
57.5°	1232.9	1218.9	1182.0	1148.2	1136.8
60°	1122.8	1111.7	1072.1	1041.0	1032.6
62.5°	1015.6	995.9	967.7	939.6	928.2
65°	905.8	888.7	860.5	835.1	821.0
67.5°	792.9	778.5	753.4	733.7	722.3
70°	688.4	677.0	651.7	631.9	620.8
72.5°	581.3	570.0	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.1	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
90°	2.5	29.1	79.3	74.4	76.8
92.5°	50.1	68.0	70.4	72.8	72.8
95°	118.1	140.7	144.8	144.8	140.7
97.5°	196.5	217.5	226.5	226.5	226.5
100°	287.1	305.8	312.2	312.2	309.8
102.5°	382.6	396.3	405.2	407.6	405.2
105°	486.9	493.3	498.2	502.3	502.3
107.5°	590.4	600.1	600.1	601.7	590.4
110°	690.7	703.7	703.7	703.7	697.2



TEST NUMBER: P904020

CATALOG NUMBER: DFN2DIP-SQ4F0-080D090US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	799.1	812.8	810.4	804.0	799.1
115°	905.9	918.8	914.7	912.4	905.9
117.5°	1011.8	1029.6	1018.3	1011.8	1005.3
120°	1118.6	1136.3	1118.6	1118.6	1111.3
122.5°	1215.6	1238.3	1227.0	1220.5	1215.6
125°	1317.6	1337.8	1331.3	1324.0	1321.6
127.5°	1417.0	1442.1	1433.2	1423.5	1417.0
130°	1510.0	1539.2	1535.1	1530.2	1521.4
132.5°	1614.4	1637.0	1638.6	1627.3	1620.9
135°	1704.1	1729.2	1734.1	1731.6	1725.2
137.5°	1804.4	1824.7	1828.7	1827.1	1817.4
140°	1892.6	1912.8	1924.1	1924.1	1915.2
142.5°	1983.2	2003.4	2009.9	2012.3	2003.4
145°	2069.0	2085.1	2098.0	2100.5	2091.6
147.5°	2145.8	2166.0	2175.7	2179.7	2170.9
150°	2225.1	2238.8	2247.7	2254.9	2247.7
152.5°	2295.4	2309.1	2320.4	2329.4	2320.4
155°	2365.8	2372.2	2379.5	2390.9	2383.6
157.5°	2426.4	2431.3	2435.3	2451.5	2440.1
160°	2480.6	2485.5	2487.9	2501.6	2491.9
162.5°	2530.7	2530.7	2533.2	2548.5	2537.2
165°	2573.6	2571.2	2571.2	2587.4	2576.1
167.5°	2612.4	2605.2	2605.2	2621.3	2610.0
170°	2641.6	2635.1	2632.7	2648.8	2635.1
172.5°	2661.7	2655.3	2652.9	2669.1	2655.3
175°	2678.0	2671.4	2666.6	2682.9	2669.1
177.5°	2686.8	2680.4	2675.5	2689.3	2675.5
180°	2682.9	2682.9	2682.9	2682.9	2682.9

TEST NUMBER: P904020

CATALOG NUMBER: DFN2DIP-SQ4F0-080D090US830-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	9.78	10.64	10.74	11.62	12.89	9.34	10.20	10.30	11.17	12.45
	3H	11.45	12.22	12.42	13.20	14.50	10.96	11.73	11.93	12.71	14.01
	4H	12.04	12.77	13.02	13.76	15.06	11.54	12.27	12.53	13.26	14.56
	6H	12.44	13.12	13.44	14.11	15.42	11.94	12.61	12.93	13.61	14.92
	8H	12.55	13.19	13.55	14.20	15.51	12.05	12.69	13.05	13.70	15.01
	12H	12.60	13.21	13.60	14.21	15.55	12.09	12.70	13.09	13.70	15.04
4H	2H	10.24	10.98	11.23	11.96	13.26	9.89	10.62	10.88	11.61	12.91
	3H	12.12	12.73	13.11	13.74	15.06	11.71	12.32	12.71	13.33	14.65
	4H	12.83	13.39	13.84	14.40	15.74	12.41	12.97	13.42	13.98	15.32
	6H	13.35	13.83	14.37	14.86	16.20	12.92	13.40	13.94	14.43	15.77
	8H	13.50	13.95	14.52	14.98	16.33	13.07	13.52	14.09	14.54	15.89
	12H	13.58	13.99	14.62	15.03	16.38	13.13	13.54	14.17	14.58	15.93
8H	4H	13.03	13.48	14.05	14.50	15.86	12.65	13.10	13.67	14.13	15.48
	6H	13.67	14.04	14.71	15.10	16.45	13.28	13.65	14.33	14.72	16.07
	8H	13.89	14.22	14.94	15.27	16.64	13.50	13.82	14.55	14.88	16.24
	12H	14.02	14.31	15.08	15.36	16.77	13.61	13.90	14.67	14.95	16.36
12H	4H	13.02	13.42	14.05	14.46	15.82	12.65	13.05	13.69	14.09	15.45
	6H	13.70	14.02	14.75	15.08	16.44	13.32	13.65	14.38	14.70	16.07
	8H	13.94	14.23	15.00	15.28	16.69	13.56	13.85	14.62	14.90	16.31