

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: P917668

Luminaire Tested: DFN2DIP-SQ4F0-080D110US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917668
REPORT IS A COMBINATION OF REPORTS P900153 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D110US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

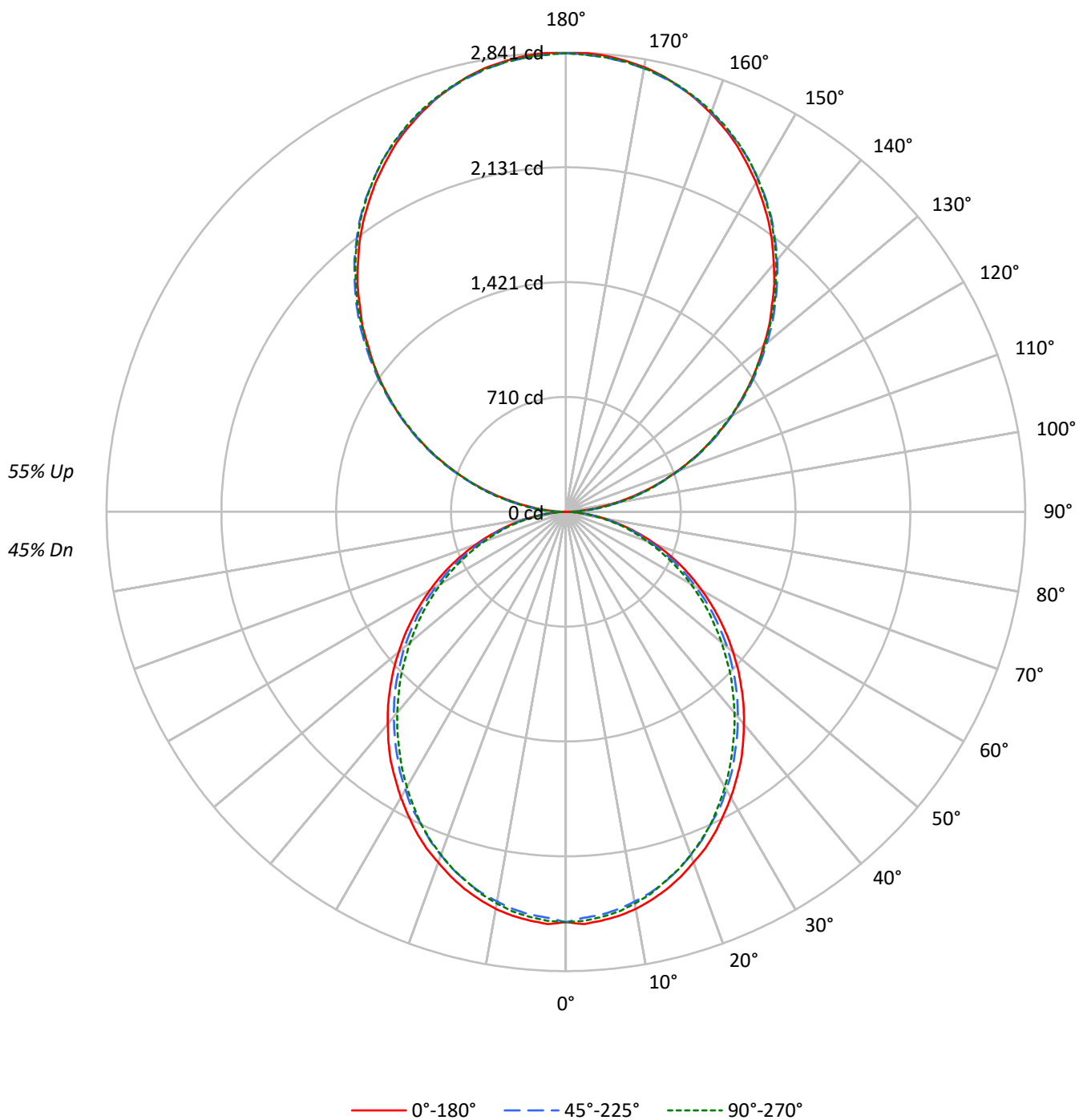
Lumens per Lamp: N/A
Luminaire Lumens: 14394.1 lumens
Efficiency: N/A
Efficacy: 93.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 154.2
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

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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	106	106	106	106	97	97	97	97	81	81	81	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	71	68	66	57	56	54	45	44	43
2	88	81	75	69	80	74	69	64	62	58	55	50	48	45	40	38	37
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	35	33	31
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	21	25	21	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1781	1781	1781
5°	1784	1756	1768
10°	1769	1733	1745
15°	1743	1705	1708
20°	1708	1666	1670
25°	1673	1618	1626
30°	1629	1575	1571
35°	1587	1523	1511
40°	1536	1471	1455
45°	1485	1419	1398
50°	1430	1364	1331
55°	1371	1300	1270
60°	1305	1225	1200
65°	1233	1147	1118
70°	1142	1052	1029
75°	1015	938	949
80°	862	794	792
85°	623	543	532

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2232 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.9	1.7
10°-20°	672.1	4.7
20°-30°	987.7	6.9
30°-40°	1147.1	8.0
40°-50°	1145.7	8.0
50°-60°	999.0	6.9
60°-70°	738.5	5.1
70°-80°	417.8	2.9
80°-90°	118.3	0.8
90°-100°	175.5	1.2
100°-110°	557.7	3.9
110°-120°	954.3	6.6
120°-130°	1255.1	8.7
130°-140°	1408.8	9.8
140°-150°	1381.5	9.6
150°-160°	1158.9	8.1
160°-170°	768.5	5.3
170°-180°	268.6	1.9
0°-30°	1898.6	13.2
0°-40°	3045.8	21.2
0°-60°	5190.5	36.1
0°-90°	6465.2	44.9
90°-120°	1687.5	11.7
90°-150°	5732.8	39.8
90°-180°	7929.0	55.1
0°-180°	14394.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2538	2538	2538	2538	2538	
5°	2538	2528	2501	2521	2516	241
15°	2416	2402	2370	2379	2367	680
25°	2186	2167	2126	2130	2126	1006
35°	1886	1862	1823	1808	1796	1178
45°	1535	1518	1481	1455	1445	1185
55°	1162	1147	1118	1088	1076	1039
65°	784	769	744	722	710	775
75°	410	405	393	378	383	438
85°	100	98	95	88	85	112
90°	2	31	84	79	81	14
95°	125	149	153	153	149	139
105°	515	522	527	531	531	543
115°	958	971	967	965	958	947
125°	1393	1414	1407	1400	1397	1245
135°	1802	1828	1833	1831	1824	1393
145°	2187	2204	2218	2221	2211	1367
155°	2501	2508	2516	2528	2520	1151
165°	2721	2718	2718	2735	2723	768
175°	2831	2824	2819	2836	2822	269
180°	2836	2836	2836	2836	2836	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2537.9	2537.9	2537.9	2537.9	2537.9
2.5°	2552.6	2540.5	2513.6	2537.9	2533.2
5°	2537.9	2528.3	2501.4	2520.8	2516.2
7.5°	2520.8	2506.3	2479.4	2499.1	2494.2
10°	2494.2	2477.0	2447.8	2467.2	2460.0
12.5°	2457.4	2442.9	2413.6	2425.8	2420.9
15°	2416.0	2401.5	2369.6	2379.4	2367.3
17.5°	2364.7	2350.2	2318.3	2330.5	2318.3
20°	2308.5	2294.0	2259.8	2267.1	2257.5
22.5°	2252.6	2230.6	2198.7	2198.7	2193.8
25°	2186.5	2167.1	2125.7	2130.4	2125.7
27.5°	2113.3	2096.2	2064.6	2057.3	2045.2
30°	2040.3	2020.6	1984.1	1976.9	1967.0
32.5°	1962.1	1947.6	1908.5	1893.7	1883.9
35°	1886.4	1862.1	1823.0	1808.2	1796.1
37.5°	1801.0	1779.0	1739.9	1722.8	1710.7
40°	1713.3	1693.5	1654.5	1632.7	1622.9
42.5°	1627.8	1608.1	1569.3	1544.7	1530.2
45°	1535.1	1518.0	1481.2	1454.6	1444.8
47.5°	1444.8	1427.7	1388.5	1361.6	1347.1
50°	1349.5	1337.3	1303.1	1268.9	1256.8
52.5°	1256.8	1239.7	1208.1	1181.2	1164.1
55°	1161.7	1147.0	1117.8	1088.5	1076.3
57.5°	1066.5	1054.3	1022.5	993.2	983.3
60°	971.2	961.6	927.4	900.5	893.2
62.5°	878.5	861.4	837.1	812.8	802.9
65°	783.5	768.7	744.4	722.4	710.2
67.5°	685.8	673.4	651.7	634.6	624.8
70°	595.5	585.6	563.7	546.6	537.0
72.5°	502.8	493.0	480.8	463.7	456.5
75°	409.9	405.2	392.8	378.3	383.2
77.5°	327.0	317.2	312.3	305.0	297.7
80°	244.2	241.6	236.7	229.4	224.5
82.5°	166.0	166.0	163.6	153.8	153.8
85°	100.0	97.6	95.3	87.8	85.4
87.5°	44.0	39.1	34.2	26.9	24.4
90°	2.5	30.8	83.8	78.7	81.2
92.5°	53.0	71.8	74.4	77.0	77.0
95°	124.8	148.8	153.0	153.0	148.8
97.5°	207.8	230.0	239.5	239.5	239.5
100°	303.5	323.2	330.0	330.0	327.5
102.5°	404.5	419.0	428.4	431.0	428.4
105°	514.8	521.6	526.8	531.0	531.0
107.5°	624.2	634.5	634.5	636.2	624.2
110°	730.3	744.0	744.0	744.0	737.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	844.8	859.3	856.8	849.9	844.8
115°	957.7	971.3	967.1	964.6	957.7
117.5°	1069.8	1088.5	1076.5	1069.8	1062.9
120°	1182.6	1201.4	1182.6	1182.6	1174.9
122.5°	1285.2	1309.1	1297.1	1290.3	1285.2
125°	1392.9	1414.3	1407.4	1399.8	1397.2
127.5°	1498.1	1524.6	1515.2	1505.0	1498.1
130°	1596.4	1627.3	1622.9	1617.8	1608.4
132.5°	1706.7	1730.7	1732.4	1720.4	1713.6
135°	1801.6	1828.1	1833.3	1830.8	1823.9
137.5°	1907.7	1929.1	1933.3	1931.6	1921.4
140°	2000.9	2022.3	2034.3	2034.3	2024.9
142.5°	2096.7	2118.1	2124.9	2127.4	2118.1
145°	2187.3	2204.4	2218.1	2220.6	2211.3
147.5°	2268.6	2289.9	2300.2	2304.4	2295.1
150°	2352.4	2366.9	2376.3	2384.0	2376.3
152.5°	2426.7	2441.2	2453.2	2462.7	2453.2
155°	2501.2	2507.9	2515.7	2527.7	2519.9
157.5°	2565.3	2570.4	2574.6	2591.8	2579.8
160°	2622.6	2627.7	2630.2	2644.8	2634.6
162.5°	2675.6	2675.6	2678.2	2694.4	2682.4
165°	2720.9	2718.3	2718.3	2735.4	2723.4
167.5°	2761.9	2754.2	2754.2	2771.4	2759.4
170°	2792.7	2785.9	2783.3	2800.4	2785.9
172.5°	2814.1	2807.2	2804.7	2821.8	2807.2
175°	2831.2	2824.4	2819.2	2836.3	2821.8
177.5°	2840.6	2833.7	2828.6	2843.2	2828.6
180°	2836.3	2836.3	2836.3	2836.3	2836.3

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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	8.80	9.62	9.80	10.63	11.97	8.35	9.17	9.35	10.18	11.52
	3H	10.46	11.19	11.47	12.21	13.57	9.97	10.70	10.98	11.72	13.08
	4H	11.05	11.74	12.07	12.76	14.14	10.55	11.25	11.58	12.27	13.64
	6H	11.45	12.09	12.48	13.12	14.50	10.95	11.59	11.98	12.62	14.00
	8H	11.55	12.16	12.59	13.21	14.59	11.05	11.66	12.09	12.70	14.08
	12H	11.60	12.18	12.65	13.22	14.62	11.09	11.67	12.14	12.71	14.11
4H	2H	9.25	9.95	10.28	10.97	12.34	8.90	9.59	9.93	10.62	11.99
	3H	11.12	11.70	12.16	12.75	14.13	10.71	11.29	11.75	12.34	13.73
	4H	11.84	12.37	12.88	13.41	14.82	11.41	11.94	12.46	12.99	14.39
	6H	12.35	12.81	13.41	13.88	15.28	11.92	12.38	12.98	13.44	14.85
	8H	12.50	12.93	13.56	13.99	15.41	12.07	12.49	13.12	13.55	14.97
	12H	12.58	12.96	13.65	14.04	15.46	12.13	12.51	13.20	13.59	15.01
8H	4H	12.03	12.46	13.09	13.52	14.93	11.65	12.08	12.71	13.14	14.56
	6H	12.66	13.02	13.74	14.12	15.53	12.28	12.63	13.36	13.73	15.15
	8H	12.89	13.20	13.97	14.28	15.72	12.50	12.81	13.58	13.89	15.32
	12H	13.02	13.29	14.11	14.37	15.85	12.61	12.88	13.70	13.96	15.44
12H	4H	12.01	12.40	13.09	13.47	14.89	11.65	12.03	12.72	13.10	14.53
	6H	12.69	13.00	13.78	14.09	15.52	12.32	12.63	13.41	13.72	15.15
	8H	12.94	13.21	14.03	14.29	15.76	12.56	12.83	13.65	13.91	15.38