

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: P908965

Luminaire Tested: DFN2DIP-SQ2F0-040D070US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908965
REPORT IS A COMBINATION OF REPORTS P901341 AND P898215
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-040D070US840-FLLONL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

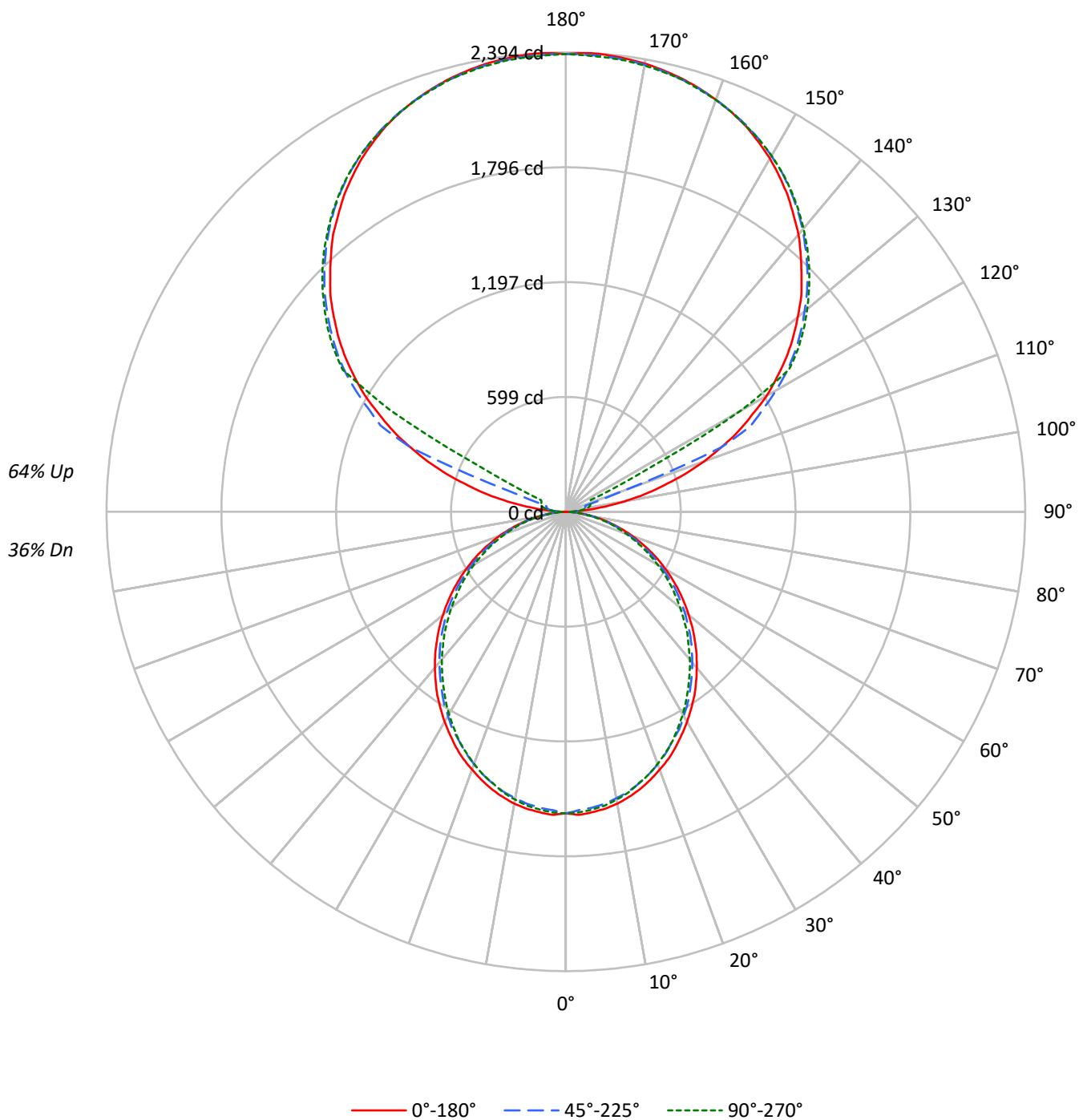
Lumens per Lamp: N/A
Luminaire Lumens: 10997.4 lumens
Efficiency: N/A
Efficacy: 124.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 88.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	90	87	83	86	82	79	76	66	64	62	52	50	49	39	38	37
2	86	79	73	68	78	72	67	62	58	54	51	46	43	41	34	32	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	26
4	72	61	54	48	65	56	49	44	45	41	37	36	32	30	27	25	23
5	66	55	47	41	59	50	43	38	41	35	32	32	28	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	27	29	25	22	22	19	17
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	17	15
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	18	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	18	16	17	14	12
10	45	33	26	21	41	31	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3456	3456	3456
5°	3456	3400	3426
10°	3422	3347	3375
15°	3365	3284	3298
20°	3291	3201	3219
25°	3218	3102	3128
30°	3127	3009	3014
35°	3040	2901	2894
40°	2935	2791	2780
45°	2829	2681	2662
50°	2713	2566	2526
55°	2591	2432	2401
60°	2453	2274	2256
65°	2301	2109	2087
70°	2109	1909	1902
75°	1846	1669	1725
80°	1524	1362	1402
85°	1030	860	880

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2829 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.3
10°-20°	416.2	3.8
20°-30°	611.7	5.6
30°-40°	710.5	6.5
40°-50°	709.6	6.5
50°-60°	618.7	5.6
60°-70°	457.4	4.2
70°-80°	258.8	2.4
80°-90°	72.5	0.7
90°-100°	78.7	0.7
100°-110°	293.3	2.7
110°-120°	777.8	7.1
120°-130°	1290.0	11.7
130°-140°	1370.3	12.5
140°-150°	1273.5	11.6
150°-160°	1023.9	9.3
160°-170°	659.7	6.0
170°-180°	227.1	2.1
0°-30°	1175.9	10.7
0°-40°	1886.3	17.2
0°-60°	3214.6	29.2
0°-90°	4003.2	36.4
90°-120°	1149.7	10.5
90°-150°	5083.5	46.2
90°-180°	6994.0	63.6
0°-180°	10997.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1468	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	2	21	34	43	47	10
95°	112	55	67	76	74	133
105°	525	577	105	124	131	561
115°	993	1022	1065	266	142	977
125°	1403	1426	1459	1471	1476	1252
135°	1737	1764	1780	1797	1794	1342
145°	2015	2013	2042	2054	2046	1260
155°	2218	2203	2224	2234	2220	1022
165°	2337	2327	2332	2344	2332	660
175°	2391	2379	2382	2394	2377	228
180°	2386	2386	2386	2386	2386	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.8	1571.8	1571.8	1571.8	1571.8
2.5°	1580.9	1573.4	1556.7	1571.8	1568.9
5°	1571.8	1565.8	1549.1	1561.2	1558.3
7.5°	1561.2	1552.2	1535.5	1547.7	1544.7
10°	1544.7	1534.1	1516.0	1528.0	1523.5
12.5°	1521.9	1512.9	1494.8	1502.4	1499.2
15°	1496.2	1487.2	1467.5	1473.6	1466.1
17.5°	1464.5	1455.5	1435.8	1443.3	1435.8
20°	1429.7	1420.7	1399.6	1404.0	1398.2
22.5°	1395.0	1381.4	1361.7	1361.7	1358.7
25°	1354.1	1342.1	1316.5	1319.4	1316.5
27.5°	1308.8	1298.2	1278.7	1274.1	1266.7
30°	1263.5	1251.4	1228.8	1224.3	1218.2
32.5°	1215.2	1206.2	1181.9	1172.9	1166.7
35°	1168.3	1153.3	1129.0	1119.9	1112.4
37.5°	1115.4	1101.8	1077.5	1067.0	1059.4
40°	1061.1	1048.8	1024.6	1011.2	1005.1
42.5°	1008.1	995.9	971.9	956.6	947.7
45°	950.7	940.2	917.4	900.9	894.7
47.5°	894.7	884.1	860.0	843.3	834.4
50°	835.8	828.2	807.1	785.9	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.3	674.1	666.6
57.5°	660.5	653.0	633.2	615.1	609.0
60°	601.5	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.5	503.3	497.3
65°	485.2	476.1	461.0	447.4	439.9
67.5°	424.7	417.1	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.7
75°	253.9	251.0	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.1
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	1.6	20.7	34.4	43.2	46.6
92.5°	43.2	36.3	41.4	44.9	46.6
95°	112.1	55.1	67.3	76.0	74.2
97.5°	201.9	60.5	88.0	93.3	94.9
100°	305.7	69.1	98.4	112.1	115.6
102.5°	419.4	416.2	101.9	120.8	126.0
105°	524.8	576.6	105.3	124.2	131.2
107.5°	647.3	690.4	108.9	127.7	134.7
110°	764.9	800.9	302.2	129.6	136.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	875.4	906.3	877.0	132.8	138.1
115°	992.6	1021.9	1065.1	265.9	141.7
117.5°	1094.5	1128.9	1158.4	911.4	459.2
120°	1208.4	1234.3	1265.5	1286.2	1053.1
122.5°	1304.9	1332.6	1367.4	1377.6	1379.4
125°	1403.4	1425.9	1458.8	1470.9	1475.9
127.5°	1493.2	1517.3	1543.4	1560.6	1562.3
130°	1577.8	1605.5	1624.4	1643.5	1641.8
132.5°	1664.2	1686.7	1705.6	1721.1	1719.5
135°	1736.7	1764.3	1779.8	1797.2	1793.7
137.5°	1812.5	1833.3	1850.7	1867.9	1862.8
140°	1886.7	1900.7	1919.6	1935.1	1926.5
142.5°	1949.0	1961.2	1983.5	1997.2	1988.6
145°	2014.7	2012.9	2042.2	2054.3	2045.7
147.5°	2071.4	2066.4	2095.7	2104.3	2097.5
150°	2126.8	2114.8	2142.4	2152.6	2144.0
152.5°	2173.3	2159.6	2185.5	2195.9	2183.8
155°	2218.3	2202.8	2223.5	2233.8	2220.1
157.5°	2254.5	2240.8	2256.3	2268.5	2254.5
160°	2285.7	2275.2	2285.7	2295.9	2283.8
162.5°	2313.2	2302.9	2311.5	2323.6	2308.0
165°	2337.3	2327.1	2332.2	2344.3	2332.2
167.5°	2356.4	2345.9	2351.3	2363.4	2347.8
170°	2372.0	2361.6	2365.0	2377.1	2361.6
172.5°	2382.3	2372.0	2375.5	2387.5	2372.0
175°	2390.9	2378.7	2382.3	2394.3	2377.1
177.5°	2394.3	2382.3	2384.1	2396.2	2380.6
180°	2385.7	2385.7	2385.7	2385.7	2385.7

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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	10.06	10.81	11.12	11.88	13.33	9.61	10.37	10.68	11.43	12.89
	3H	11.69	12.36	12.77	13.44	14.91	11.20	11.87	12.28	12.95	14.42
	4H	12.26	12.90	13.35	13.98	15.46	11.77	12.41	12.85	13.48	14.96
	6H	12.64	13.23	13.74	14.31	15.80	12.14	12.73	13.24	13.81	15.30
	8H	12.73	13.29	13.83	14.39	15.87	12.23	12.79	13.33	13.89	15.37
	12H	12.77	13.30	13.88	14.39	15.90	12.26	12.79	13.37	13.89	15.39
4H	2H	10.50	11.13	11.59	12.21	13.69	10.14	10.78	11.23	11.86	13.33
	3H	12.33	12.86	13.43	13.97	15.46	11.92	12.45	13.02	13.56	15.05
	4H	13.02	13.51	14.13	14.61	16.12	12.60	13.09	13.70	14.18	15.69
	6H	13.51	13.93	14.63	15.05	16.55	13.08	13.50	14.19	14.62	16.12
	8H	13.65	14.04	14.76	15.15	16.67	13.21	13.61	14.33	14.72	16.24
	12H	13.71	14.06	14.84	15.19	16.71	13.26	13.62	14.39	14.74	16.26
8H	4H	13.20	13.59	14.31	14.70	16.22	12.82	13.21	13.93	14.32	15.84
	6H	13.80	14.13	14.94	15.28	16.79	13.42	13.74	14.55	14.89	16.41
	8H	14.01	14.29	15.15	15.42	16.96	13.61	13.90	14.75	15.03	16.57
	12H	14.12	14.37	15.27	15.50	17.07	13.71	13.96	14.85	15.09	16.66
12H	4H	13.18	13.53	14.31	14.65	16.18	12.81	13.16	13.94	14.28	15.81
	6H	13.83	14.11	14.97	15.24	16.78	13.45	13.74	14.59	14.87	16.41
	8H	14.05	14.30	15.19	15.43	17.00	13.67	13.91	14.81	15.04	16.62