

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: P913755

Luminaire Tested: DFN2DIP-HX4F0-120D100US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913755
REPORT IS A COMBINATION OF REPORTS P899424 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D100US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

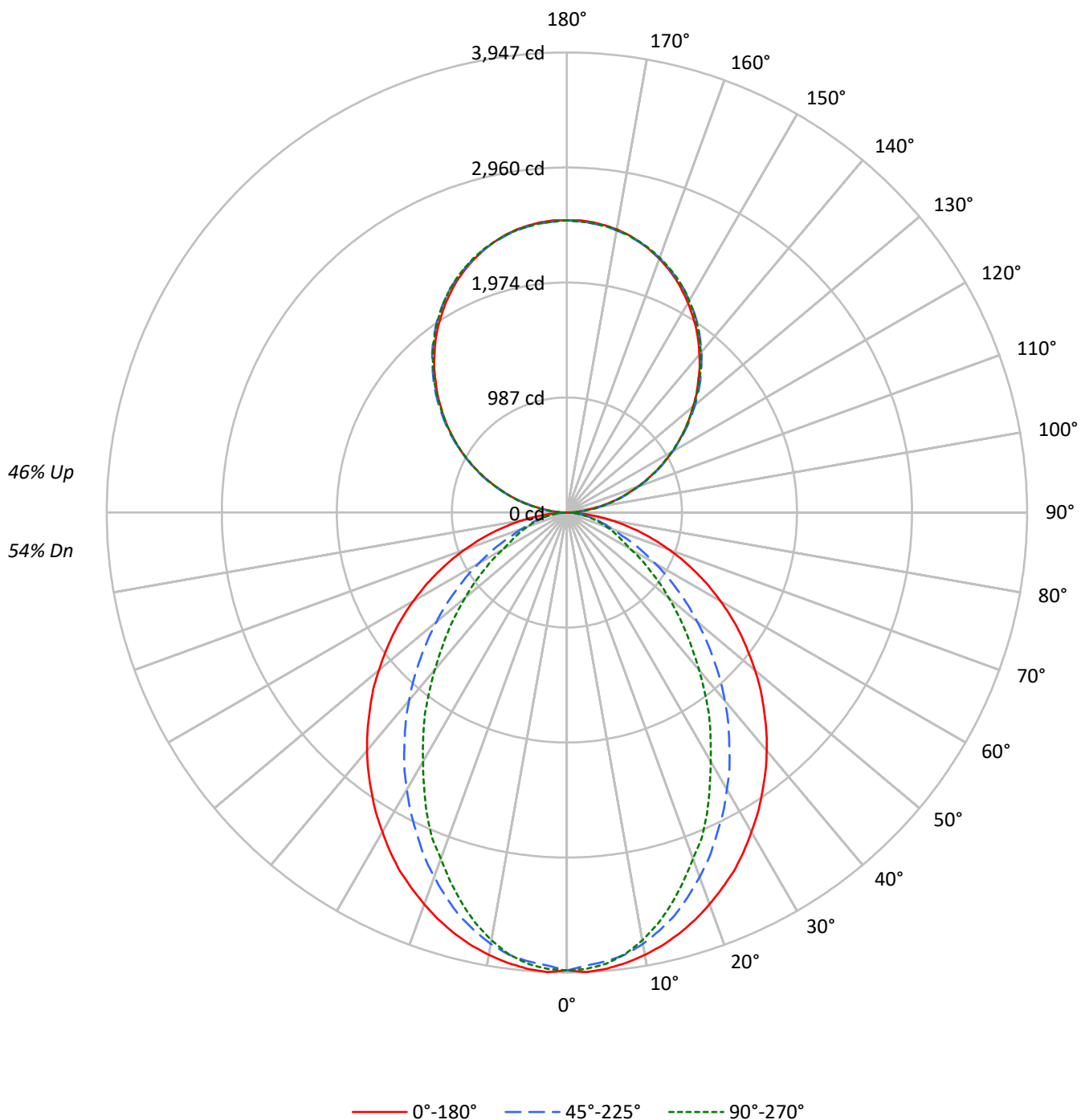
Lumens per Lamp: N/A
Luminaire Lumens: 15091.1 lumens
Efficiency: N/A
Efficacy: 82.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 183.9
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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	43	40	38
4	76	66	58	52	71	61	55	49	53	48	44	46	42	38	38	36	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	29	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	27	29	26	23
8	56	44	36	31	52	41	34	30	36	31	27	31	27	24	27	24	21
9	52	40	33	28	48	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2921	2921	2921
5°	2926	2875	2894
10°	2898	2819	2800
15°	2858	2726	2654
20°	2805	2598	2476
25°	2752	2454	2303
30°	2679	2307	2085
35°	2608	2148	1892
40°	2536	1984	1672
45°	2453	1802	1473
50°	2366	1619	1277
55°	2276	1422	1090
60°	2171	1217	897
65°	2051	1008	808
70°	1905	813	731
75°	1722	718	666
80°	1457	603	578
85°	1019	404	435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2453 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	368.2	2.4
10°-20°	1010.8	6.7
20°-30°	1419.2	9.4
30°-40°	1547.0	10.3
40°-50°	1421.9	9.4
50°-60°	1116.7	7.4
60°-70°	726.9	4.8
70°-80°	374.2	2.5
80°-90°	102.6	0.7
90°-100°	155.0	1.0
100°-110°	492.6	3.3
110°-120°	843.0	5.6
120°-130°	1108.6	7.3
130°-140°	1244.4	8.2
140°-150°	1220.3	8.1
150°-160°	1023.6	6.8
160°-170°	678.9	4.5
170°-180°	237.3	1.6
0°-30°	2798.2	18.5
0°-40°	4345.2	28.8
0°-60°	6883.7	45.6
0°-90°	8087.4	53.6
90°-120°	1490.6	9.9
90°-150°	5063.9	33.6
90°-180°	7004.0	46.4
0°-180°	15091.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3929	3929	3929	3929	3929	
5°	3929	3911	3865	3897	3886	373
15°	3737	3698	3577	3509	3474	1053
25°	3392	3278	3044	2898	2844	1560
35°	2923	2741	2429	2205	2126	1829
45°	2389	2151	1778	1525	1440	1845
55°	1817	1540	1156	942	875	1623
65°	1227	939	619	498	487	1216
75°	654	405	284	260	256	692
85°	153	78	68	68	68	175
90°	2	27	74	70	72	15
95°	110	131	135	135	131	123
105°	455	461	465	469	469	480
115°	846	858	854	852	846	837
125°	1230	1249	1243	1236	1234	1100
135°	1591	1615	1619	1617	1611	1230
145°	1932	1947	1959	1962	1953	1207
155°	2209	2215	2222	2233	2226	1017
165°	2403	2401	2401	2416	2406	678
175°	2501	2495	2490	2505	2492	238
180°	2505	2505	2505	2505	2505	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3928.9	3928.9	3928.9	3928.9	3928.9
2.5°	3946.6	3928.9	3889.7	3925.5	3918.3
5°	3928.9	3911.2	3864.7	3896.8	3886.3
7.5°	3896.8	3875.7	3825.9	3839.9	3822.1
10°	3854.2	3829.3	3758.3	3747.4	3726.3
12.5°	3801.0	3769.0	3672.7	3651.6	3612.4
15°	3736.9	3697.7	3576.9	3509.4	3474.0
17.5°	3662.2	3605.2	3455.8	3377.8	3320.8
20°	3576.9	3505.6	3328.0	3239.3	3160.8
22.5°	3484.5	3402.7	3196.3	3075.6	3022.4
25°	3392.1	3278.1	3043.5	2897.9	2844.3
27.5°	3281.9	3160.8	2901.3	2734.2	2652.3
30°	3164.6	3029.2	2744.7	2563.7	2467.5
32.5°	3050.7	2886.9	2595.7	2382.2	2293.2
35°	2922.8	2741.3	2428.6	2204.6	2126.1
37.5°	2798.3	2602.6	2272.1	2026.5	1937.8
40°	2666.6	2453.5	2108.4	1856.0	1763.6
42.5°	2531.6	2304.1	1945.0	1681.7	1593.1
45°	2389.4	2151.0	1777.9	1525.2	1439.9
47.5°	2254.3	2002.0	1618.0	1365.2	1287.1
50°	2105.0	1852.6	1461.4	1215.8	1141.5
52.5°	1959.0	1692.3	1312.0	1077.4	1009.9
55°	1816.8	1539.5	1155.5	942.3	874.8
57.5°	1671.1	1386.7	1017.0	817.8	760.9
60°	1521.8	1237.3	871.0	690.0	633.0
62.5°	1376.2	1091.7	746.6	576.1	547.7
65°	1226.8	938.6	618.7	498.0	487.0
67.5°	1084.6	796.3	498.0	437.2	426.7
70°	935.2	657.9	412.3	376.8	362.5
72.5°	793.0	529.7	344.8	316.5	309.3
75°	654.1	405.1	284.5	259.5	256.1
77.5°	515.7	287.8	224.1	209.8	202.6
80°	387.5	206.4	170.5	156.5	156.5
82.5°	270.1	138.8	117.3	110.1	110.1
85°	152.8	78.1	67.5	67.5	67.5
87.5°	57.0	28.3	28.3	24.9	24.9
90°	2.3	27.2	74.0	69.5	71.8
92.5°	46.8	63.5	65.8	68.0	68.0
95°	110.3	131.4	135.2	135.2	131.4
97.5°	183.5	203.2	211.5	211.5	211.5
100°	268.2	285.5	291.5	291.5	289.3
102.5°	357.3	370.1	378.4	380.6	378.4
105°	454.7	460.7	465.2	469.1	469.1
107.5°	551.4	560.5	560.5	562.0	551.4
110°	645.1	657.1	657.1	657.1	651.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	746.2	759.1	756.8	750.8	746.2
115°	846.0	858.0	854.3	852.0	846.0
117.5°	944.9	961.5	950.9	944.9	938.8
120°	1044.6	1061.2	1044.6	1044.6	1037.8
122.5°	1135.2	1156.3	1145.8	1139.8	1135.2
125°	1230.4	1249.3	1243.2	1236.4	1234.2
127.5°	1323.3	1346.7	1338.4	1329.4	1323.3
130°	1410.2	1437.3	1433.6	1429.0	1420.8
132.5°	1507.6	1528.8	1530.3	1519.7	1513.6
135°	1591.4	1614.9	1619.4	1617.2	1611.1
137.5°	1685.1	1704.0	1707.8	1706.3	1697.2
140°	1767.4	1786.3	1796.9	1796.9	1788.6
142.5°	1852.0	1870.9	1876.9	1879.2	1870.9
145°	1932.1	1947.2	1959.3	1961.5	1953.2
147.5°	2003.8	2022.8	2031.8	2035.6	2027.3
150°	2077.9	2090.7	2099.0	2105.8	2099.0
152.5°	2143.6	2156.4	2167.0	2175.3	2167.0
155°	2209.3	2215.3	2222.1	2232.7	2225.9
157.5°	2266.0	2270.5	2274.3	2289.3	2278.8
160°	2316.6	2321.1	2323.3	2336.1	2327.1
162.5°	2363.4	2363.4	2365.6	2379.9	2369.4
165°	2403.4	2401.1	2401.1	2416.2	2405.7
167.5°	2439.7	2432.9	2432.9	2448.0	2437.4
170°	2466.9	2460.8	2458.5	2473.7	2460.8
172.5°	2485.7	2479.7	2477.4	2492.5	2479.7
175°	2500.8	2494.8	2490.3	2505.4	2492.5
177.5°	2509.2	2503.1	2498.5	2511.4	2498.5
180°	2505.4	2505.4	2505.4	2505.4	2505.4

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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	11.20	12.06	12.13	13.01	14.23	7.17	8.03	8.11	8.98	10.20
	3H	12.88	13.65	13.83	14.61	15.85	8.37	9.14	9.31	10.09	11.34
	4H	13.49	14.22	14.45	15.18	16.43	8.82	9.55	9.78	10.51	11.76
	6H	13.92	14.59	14.89	15.55	16.82	9.14	9.81	10.11	10.78	12.04
	8H	14.04	14.68	15.02	15.66	16.93	9.24	9.87	10.21	10.85	12.12
	12H	14.11	14.71	15.09	15.69	16.98	9.28	9.89	10.26	10.86	12.15
4H	2H	11.22	11.95	12.19	12.91	14.16	7.77	8.50	8.74	9.46	10.71
	3H	13.06	13.66	14.03	14.65	15.92	9.13	9.73	10.10	10.72	11.99
	4H	13.75	14.30	14.73	15.28	16.58	9.68	10.23	10.66	11.21	12.51
	6H	14.27	14.74	15.26	15.75	17.04	10.10	10.58	11.10	11.58	12.87
	8H	14.44	14.89	15.44	15.89	17.19	10.23	10.67	11.23	11.67	12.98
	12H	14.54	14.94	15.56	15.96	17.27	10.30	10.70	11.31	11.71	13.02
8H	4H	13.72	14.16	14.72	15.16	16.47	9.96	10.40	10.96	11.40	12.71
	6H	14.29	14.65	15.31	15.70	17.00	10.48	10.85	11.50	11.89	13.19
	8H	14.51	14.83	15.54	15.86	17.18	10.68	11.00	11.71	12.03	13.35
	12H	14.65	14.93	15.68	15.95	17.32	10.80	11.08	11.83	12.10	13.47
12H	4H	13.67	14.07	14.69	15.09	16.40	9.97	10.37	10.98	11.38	12.69
	6H	14.26	14.59	15.29	15.62	16.94	10.53	10.86	11.56	11.88	13.21
	8H	14.49	14.77	15.52	15.79	17.16	10.75	11.03	11.78	12.05	13.42