

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: P928474

Luminaire Tested: DFN2DIP-HX4F0-120D080US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928474
REPORT IS A COMBINATION OF REPORTS P900908 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D080US927-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

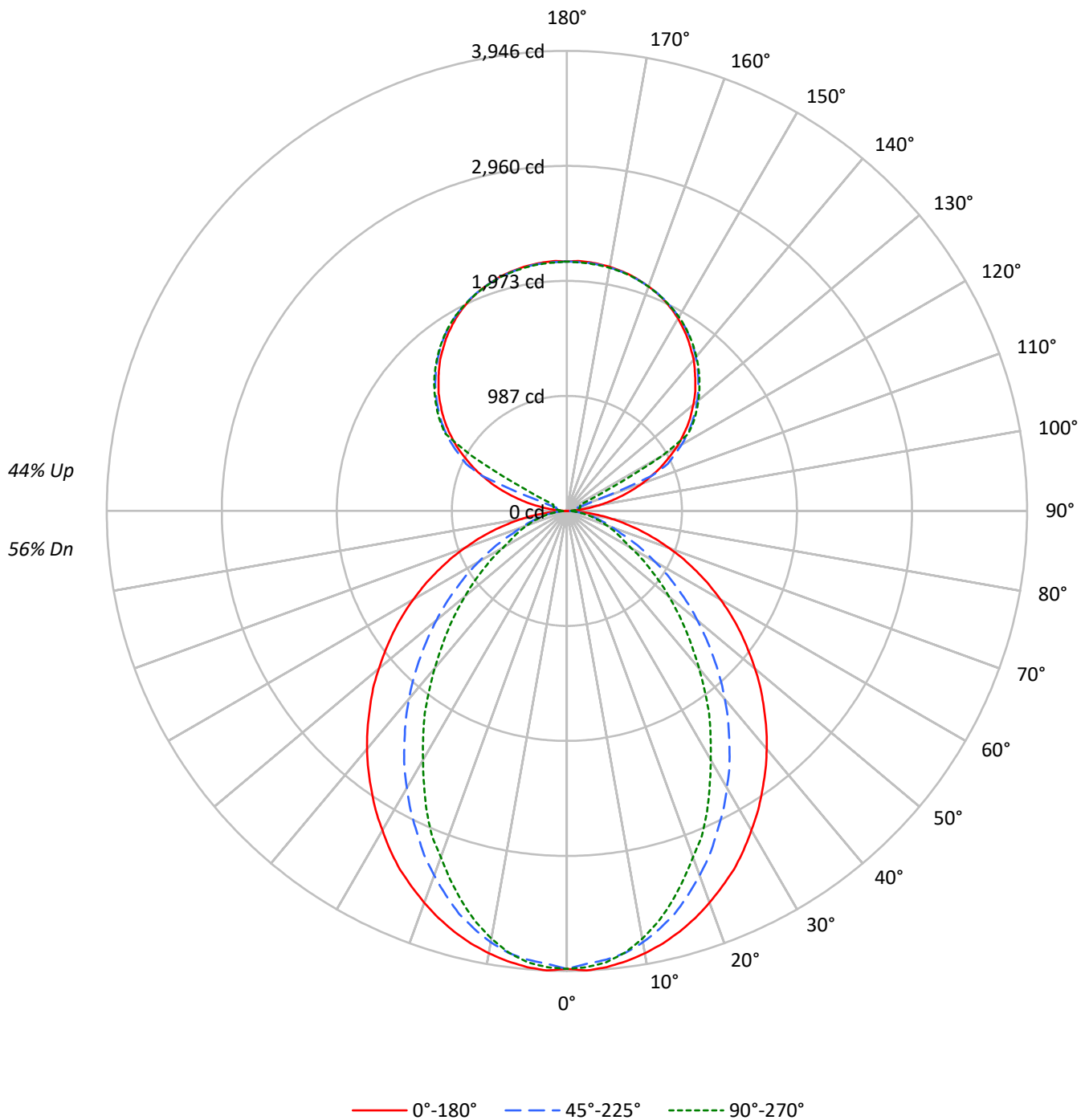
Lumens per Lamp: N/A
Luminaire Lumens: 14351.1 lumens
Efficiency: N/A
Efficacy: 77.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 184.5
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	56	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	50	48	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	31
6	65	54	46	40	61	50	43	38	44	39	34	39	34	31	33	30	27
7	61	49	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2921	2921	2921
5°	2926	2875	2893
10°	2897	2819	2799
15°	2857	2726	2654
20°	2805	2598	2475
25°	2751	2454	2303
30°	2679	2306	2084
35°	2608	2148	1892
40°	2536	1984	1672
45°	2452	1802	1472
50°	2365	1618	1277
55°	2275	1422	1090
60°	2171	1216	897
65°	2050	1008	808
70°	1905	813	731
75°	1722	717	666
80°	1457	602	578
85°	1019	404	435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2452 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	368.1	2.6
10°-20°	1010.6	7.0
20°-30°	1418.9	9.9
30°-40°	1546.6	10.8
40°-50°	1421.5	9.9
50°-60°	1116.4	7.8
60°-70°	726.7	5.1
70°-80°	374.1	2.6
80°-90°	99.3	0.7
90°-100°	70.5	0.5
100°-110°	262.9	1.8
110°-120°	697.1	4.9
120°-130°	1156.2	8.1
130°-140°	1228.2	8.6
140°-150°	1141.5	8.0
150°-160°	917.7	6.4
160°-170°	591.3	4.1
170°-180°	203.5	1.4
0°-30°	2797.6	19.5
0°-40°	4344.2	30.3
0°-60°	6882.2	48.0
0°-90°	8082.2	56.3
90°-120°	1030.5	7.2
90°-150°	4556.4	31.7
90°-180°	6269.0	43.7
0°-180°	14351.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3928	3928	3928	3928	3928	
5°	3928	3910	3864	3896	3885	372
15°	3736	3697	3576	3509	3473	1053
25°	3391	3277	3043	2897	2844	1560
35°	2922	2741	2428	2204	2126	1829
45°	2389	2150	1778	1525	1440	1845
55°	1816	1539	1155	942	875	1623
65°	1226	938	619	498	487	1216
75°	654	405	284	260	256	692
85°	153	78	68	68	68	175
90°	2	18	31	39	42	14
95°	100	49	60	68	66	119
105°	470	517	94	111	118	503
115°	890	916	955	238	127	876
125°	1258	1278	1307	1318	1323	1122
135°	1557	1581	1595	1611	1608	1202
145°	1806	1804	1830	1841	1834	1129
155°	1988	1974	1993	2002	1990	916
165°	2095	2086	2090	2101	2090	592
175°	2143	2132	2135	2146	2131	204
180°	2138	2138	2138	2138	2138	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3928.0	3928.0	3928.0	3928.0	3928.0
2.5°	3945.7	3928.0	3888.8	3924.6	3917.4
5°	3928.0	3910.3	3863.9	3895.9	3885.4
7.5°	3895.9	3874.8	3825.0	3839.0	3821.2
10°	3853.3	3828.4	3757.5	3746.6	3725.5
12.5°	3800.1	3768.1	3671.9	3650.8	3611.6
15°	3736.0	3696.8	3576.1	3508.6	3473.2
17.5°	3661.3	3604.4	3455.0	3377.0	3320.1
20°	3576.1	3504.8	3327.2	3238.6	3160.1
22.5°	3483.7	3401.9	3195.6	3074.9	3021.7
25°	3391.3	3277.4	3042.8	2897.2	2843.7
27.5°	3281.2	3160.1	2900.6	2733.6	2651.7
30°	3163.9	3028.5	2744.1	2563.1	2466.9
32.5°	3050.0	2886.3	2595.1	2381.7	2292.7
35°	2922.2	2740.7	2428.0	2204.1	2125.6
37.5°	2797.7	2602.0	2271.5	2026.0	1937.4
40°	2666.0	2453.0	2107.9	1855.6	1763.2
42.5°	2531.0	2303.6	1944.6	1681.3	1592.7
45°	2388.8	2150.5	1777.5	1524.8	1439.5
47.5°	2253.8	2001.5	1617.6	1364.9	1286.8
50°	2104.5	1852.2	1461.1	1215.6	1141.3
52.5°	1958.5	1691.9	1311.7	1077.1	1009.6
55°	1816.4	1539.2	1155.2	942.1	874.6
57.5°	1670.7	1386.4	1016.8	817.7	760.7
60°	1521.4	1237.0	870.8	689.8	632.9
62.5°	1375.9	1091.5	746.4	575.9	547.6
65°	1226.5	938.4	618.6	497.9	486.9
67.5°	1084.3	796.1	497.9	437.1	426.6
70°	935.0	657.8	412.2	376.8	362.4
72.5°	792.8	529.5	344.7	316.4	309.3
75°	654.0	405.0	284.4	259.5	256.1
77.5°	515.6	287.7	224.1	209.7	202.5
80°	387.4	206.3	170.4	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°	56.9	28.3	28.3	24.9	24.9
90°	1.5	18.5	30.9	38.7	41.7
92.5°	38.7	32.6	37.1	40.2	41.7
95°	100.5	49.4	60.3	68.2	66.5
97.5°	181.0	54.2	78.8	83.6	85.1
100°	274.0	61.9	88.2	100.5	103.6
102.5°	376.0	373.0	91.3	108.2	113.0
105°	470.4	516.9	94.4	111.4	117.6
107.5°	580.2	618.8	97.6	114.4	120.7
110°	685.6	717.9	270.9	116.1	122.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	784.6	812.3	786.1	119.0	123.9
115°	889.7	915.9	954.7	238.3	127.0
117.5°	981.0	1011.9	1038.3	816.9	411.6
120°	1083.1	1106.3	1134.2	1152.8	943.8
122.5°	1169.6	1194.5	1225.5	1234.7	1236.4
125°	1257.9	1278.1	1307.4	1318.3	1322.9
127.5°	1338.3	1360.0	1383.4	1398.8	1400.3
130°	1414.2	1439.0	1455.9	1473.0	1471.5
132.5°	1491.6	1511.8	1528.7	1542.7	1541.2
135°	1556.6	1581.4	1595.2	1610.8	1607.7
137.5°	1624.6	1643.2	1658.8	1674.2	1669.6
140°	1691.1	1703.6	1720.5	1734.5	1726.7
142.5°	1747.0	1757.8	1777.8	1790.2	1782.4
145°	1805.8	1804.1	1830.4	1841.2	1833.5
147.5°	1856.7	1852.1	1878.3	1886.1	1880.0
150°	1906.3	1895.4	1920.2	1929.4	1921.7
152.5°	1948.0	1935.6	1958.8	1968.2	1957.3
155°	1988.2	1974.5	1993.0	2002.2	1989.9
157.5°	2020.7	2008.4	2022.4	2033.2	2020.7
160°	2048.7	2039.3	2048.7	2057.9	2047.0
162.5°	2073.3	2064.1	2071.8	2082.6	2068.7
165°	2095.0	2085.8	2090.4	2101.2	2090.4
167.5°	2112.0	2102.7	2107.4	2118.3	2104.3
170°	2126.0	2116.6	2119.8	2130.6	2116.6
172.5°	2135.2	2126.0	2129.1	2140.0	2126.0
175°	2142.9	2132.1	2135.2	2146.0	2130.6
177.5°	2146.0	2135.2	2136.8	2147.7	2133.7
180°	2138.3	2138.3	2138.3	2138.3	2138.3

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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	11.44	12.33	12.35	13.25	14.43	7.42	8.30	8.32	9.22	10.40
	3H	13.13	13.92	14.05	14.85	16.05	8.61	9.40	9.53	10.33	11.54
	4H	13.74	14.48	14.67	15.42	16.64	9.06	9.81	10.00	10.75	11.96
	6H	14.16	14.85	15.11	15.79	17.02	9.39	10.08	10.34	11.02	12.25
	8H	14.29	14.94	15.24	15.90	17.13	9.48	10.14	10.44	11.10	12.32
	12H	14.35	14.98	15.31	15.93	17.18	9.53	10.15	10.49	11.10	12.35
4H	2H	11.47	12.21	12.41	13.15	14.37	8.02	8.77	8.96	9.70	10.92
	3H	13.30	13.92	14.25	14.89	16.12	9.38	10.00	10.33	10.96	12.19
	4H	14.00	14.56	14.96	15.53	16.78	9.93	10.49	10.89	11.45	12.71
	6H	14.52	15.00	15.49	15.99	17.24	10.35	10.84	11.32	11.82	13.08
	8H	14.69	15.15	15.67	16.13	17.39	10.48	10.94	11.46	11.92	13.18
	12H	14.79	15.20	15.79	16.20	17.47	10.55	10.96	11.54	11.96	13.23
8H	4H	13.97	14.42	14.94	15.40	16.67	10.21	10.67	11.19	11.65	12.91
	6H	14.54	14.91	15.54	15.94	17.20	10.73	11.11	11.73	12.13	13.40
	8H	14.76	15.09	15.77	16.10	17.38	10.93	11.26	11.94	12.27	13.55
	12H	14.90	15.19	15.91	16.19	17.52	11.05	11.34	12.06	12.34	13.67
12H	4H	13.92	14.33	14.92	15.33	16.60	10.22	10.63	11.21	11.62	12.90
	6H	14.52	14.85	15.52	15.86	17.14	10.78	11.12	11.79	12.12	13.41
	8H	14.74	15.03	15.75	16.03	17.36	11.00	11.29	12.01	12.29	13.62

END OF REPORT