

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: P928798

Luminaire Tested: DFN2DIP-HX4F0-120D080US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928798
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-HX4F0-120D080US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

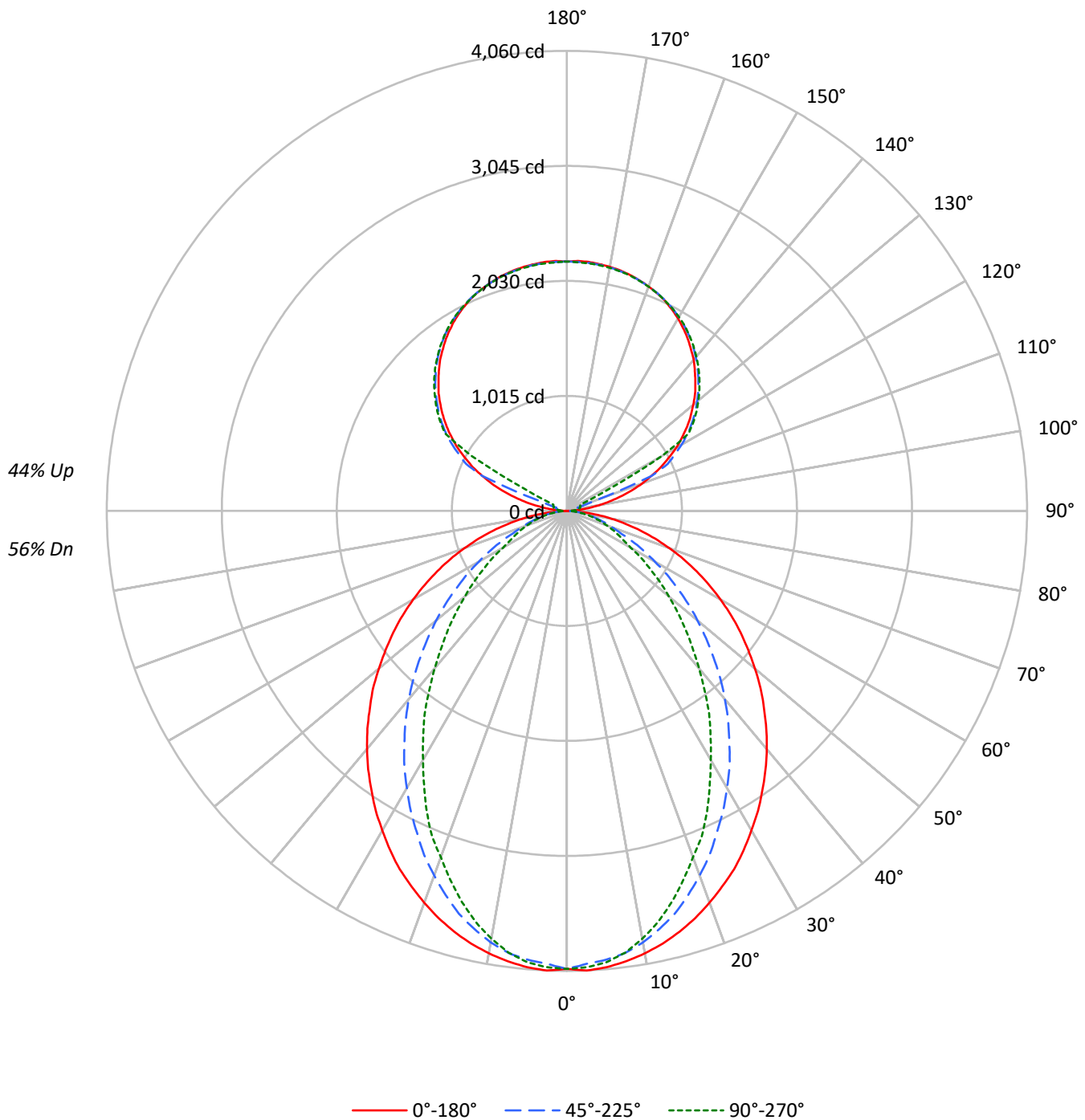
Lumens per Lamp: N/A
Luminaire Lumens: 14767.9 lumens
Efficiency: N/A
Efficacy: 80.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

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

TEST NUMBER: P928798

CATALOG NUMBER: DFN2DIP-HX4F0-120D080US930-RLLONL

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°	3006	3006	3006
5°	3011	2958	2977
10°	2981	2900	2880
15°	2940	2805	2731
20°	2886	2673	2547
25°	2831	2525	2370
30°	2756	2373	2145
35°	2684	2210	1947
40°	2609	2042	1720
45°	2523	1854	1515
50°	2434	1665	1314
55°	2341	1463	1121
60°	2234	1252	923
65°	2110	1037	831
70°	1960	837	752
75°	1771	738	685
80°	1499	620	594
85°	1048	415	448

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2523 cd/sqm

TEST NUMBER: P928798

CATALOG NUMBER: DFN2DIP-HX4F0-120D080US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.8	2.6
10°-20°	1040.0	7.0
20°-30°	1460.1	9.9
30°-40°	1591.6	10.8
40°-50°	1462.8	9.9
50°-60°	1148.8	7.8
60°-70°	747.8	5.1
70°-80°	384.9	2.6
80°-90°	102.1	0.7
90°-100°	72.6	0.5
100°-110°	270.5	1.8
110°-120°	717.4	4.9
120°-130°	1189.8	8.1
130°-140°	1263.8	8.6
140°-150°	1174.6	8.0
150°-160°	944.4	6.4
160°-170°	608.5	4.1
170°-180°	209.4	1.4
0°-30°	2878.9	19.5
0°-40°	4470.4	30.3
0°-60°	7082.1	48.0
0°-90°	8316.9	56.3
90°-120°	1060.4	7.2
90°-150°	4688.7	31.7
90°-180°	6451.0	43.7
0°-180°	14767.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4042	4042	4042	4042	4042	
5°	4042	4024	3976	4009	3998	383
15°	3844	3804	3680	3610	3574	1083
25°	3490	3373	3131	2981	2926	1605
35°	3007	2820	2498	2268	2187	1882
45°	2458	2213	1829	1569	1481	1898
55°	1869	1584	1189	969	900	1670
65°	1262	966	636	512	501	1251
75°	673	417	293	267	264	712
85°	157	80	69	69	69	180
90°	2	19	32	40	43	14
95°	103	51	62	70	68	122
105°	484	532	97	115	121	517
115°	916	942	982	245	131	901
125°	1294	1315	1345	1357	1361	1154
135°	1602	1627	1642	1658	1654	1237
145°	1858	1856	1884	1895	1887	1162
155°	2046	2032	2051	2060	2048	943
165°	2156	2146	2151	2162	2151	609
175°	2205	2194	2197	2208	2192	210
180°	2200	2200	2200	2200	2200	

TEST NUMBER: P928798

CATALOG NUMBER: DFN2DIP-HX4F0-120D080US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4042.1	4042.1	4042.1	4042.1	4042.1
2.5°	4060.3	4042.1	4001.7	4038.6	4031.2
5°	4042.1	4023.8	3976.1	4009.1	3998.2
7.5°	4009.1	3987.3	3936.1	3950.5	3932.2
10°	3965.2	3939.6	3866.6	3855.4	3833.7
12.5°	3910.5	3877.5	3778.5	3756.8	3716.5
15°	3844.5	3804.2	3680.0	3610.4	3574.0
17.5°	3767.7	3709.1	3555.4	3475.1	3416.5
20°	3680.0	3606.6	3423.8	3332.6	3251.8
22.5°	3584.9	3500.7	3288.4	3164.2	3109.5
25°	3489.8	3372.6	3131.1	2981.4	2926.3
27.5°	3376.5	3251.8	2984.9	2813.0	2728.7
30°	3255.8	3116.5	2823.8	2637.5	2538.6
32.5°	3138.6	2970.1	2670.5	2450.9	2359.3
35°	3007.0	2820.3	2498.5	2268.1	2187.3
37.5°	2878.9	2677.5	2337.5	2084.9	1993.7
40°	2743.5	2524.2	2169.1	1909.5	1814.4
42.5°	2604.5	2370.5	2001.1	1730.2	1639.0
45°	2458.2	2213.0	1829.1	1569.1	1481.3
47.5°	2319.2	2059.7	1664.6	1404.6	1324.2
50°	2165.6	1906.0	1503.5	1250.9	1174.4
52.5°	2015.4	1741.0	1349.8	1108.4	1039.0
55°	1869.1	1583.9	1188.8	969.4	900.0
57.5°	1719.2	1426.7	1046.3	841.4	782.8
60°	1565.6	1272.9	896.1	709.9	651.3
62.5°	1415.8	1123.2	768.1	592.7	563.5
65°	1262.1	965.6	636.5	512.3	501.1
67.5°	1115.8	819.2	512.3	449.8	439.0
70°	962.1	676.9	424.2	387.7	372.9
72.5°	815.8	544.9	354.7	325.6	318.3
75°	672.9	416.8	292.7	267.0	263.5
77.5°	530.6	296.1	230.6	215.8	208.4
80°	398.6	212.3	175.4	161.0	161.0
82.5°	277.9	142.8	120.7	113.3	113.3
85°	157.2	80.4	69.4	69.4	69.4
87.5°	58.6	29.1	29.1	25.6	25.6
90°	1.5	19.1	31.8	39.9	43.0
92.5°	39.9	33.5	38.2	41.4	43.0
95°	103.4	50.9	62.0	70.2	68.5
97.5°	186.2	55.7	81.1	86.1	87.5
100°	281.9	63.7	90.8	103.4	106.6
102.5°	386.9	383.8	94.0	111.3	116.3
105°	484.0	531.9	97.1	114.6	121.0
107.5°	597.1	636.8	100.4	117.8	124.2
110°	705.5	738.7	278.7	119.5	125.8

TEST NUMBER: P928798

CATALOG NUMBER: DFN2DIP-HX4F0-120D080US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	807.3	835.9	808.9	122.5	127.5
115°	915.5	942.5	982.4	245.2	130.6
117.5°	1009.5	1041.2	1068.5	840.6	423.6
120°	1114.6	1138.4	1167.2	1186.2	971.2
122.5°	1203.6	1229.2	1261.1	1270.6	1272.3
125°	1294.4	1315.2	1345.4	1356.6	1361.3
127.5°	1377.2	1399.5	1423.6	1439.4	1440.9
130°	1455.3	1480.8	1498.2	1515.8	1514.3
132.5°	1534.9	1555.7	1573.1	1587.5	1585.9
135°	1601.8	1627.3	1641.5	1657.6	1654.4
137.5°	1671.8	1690.9	1706.9	1722.8	1718.1
140°	1740.2	1753.1	1770.5	1784.8	1776.9
142.5°	1797.7	1808.8	1829.4	1842.1	1834.2
145°	1858.2	1856.5	1883.5	1894.7	1886.7
147.5°	1910.6	1905.9	1932.9	1940.8	1934.6
150°	1961.6	1950.5	1976.0	1985.4	1977.5
152.5°	2004.6	1991.9	2015.7	2025.4	2014.2
155°	2046.0	2031.8	2050.9	2060.3	2047.7
157.5°	2079.4	2066.8	2081.1	2092.3	2079.4
160°	2108.2	2098.5	2108.2	2117.6	2106.4
162.5°	2133.5	2124.1	2132.0	2143.1	2128.8
165°	2155.8	2146.4	2151.1	2162.2	2151.1
167.5°	2173.4	2163.7	2168.6	2179.8	2165.5
170°	2187.8	2178.1	2181.3	2192.5	2178.1
172.5°	2197.2	2187.8	2191.0	2202.1	2187.8
175°	2205.1	2194.0	2197.2	2208.3	2192.5
177.5°	2208.3	2197.2	2198.9	2210.0	2195.7
180°	2200.4	2200.4	2200.4	2200.4	2200.4

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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	11.54	12.43	12.45	13.35	14.53	7.51	8.40	8.42	9.32	10.50
	3H	13.22	14.02	14.14	14.95	16.15	8.71	9.50	9.63	10.43	11.64
	4H	13.84	14.58	14.77	15.52	16.74	9.16	9.91	10.10	10.85	12.06
	6H	14.26	14.95	15.21	15.89	17.12	9.49	10.18	10.44	11.12	12.35
	8H	14.39	15.04	15.34	16.00	17.23	9.58	10.24	10.54	11.20	12.42
	12H	14.45	15.08	15.41	16.03	17.28	9.63	10.25	10.59	11.20	12.45
4H	2H	11.57	12.31	12.51	13.25	14.47	8.12	8.86	9.06	9.80	11.02
	3H	13.40	14.02	14.35	14.99	16.22	9.47	10.10	10.43	11.06	12.29
	4H	14.10	14.66	15.06	15.63	16.88	10.03	10.59	10.99	11.55	12.81
	6H	14.62	15.10	15.59	16.09	17.34	10.45	10.94	11.42	11.92	13.18
	8H	14.79	15.25	15.77	16.23	17.49	10.58	11.04	11.56	12.01	13.28
	12H	14.89	15.30	15.88	16.30	17.57	10.65	11.06	11.64	12.05	13.33
8H	4H	14.07	14.52	15.04	15.50	16.77	10.31	10.77	11.29	11.74	13.01
	6H	14.64	15.01	15.64	16.04	17.30	10.83	11.21	11.83	12.23	13.50
	8H	14.86	15.19	15.87	16.20	17.48	11.03	11.36	12.03	12.37	13.65
	12H	15.00	15.29	16.01	16.29	17.62	11.15	11.44	12.16	12.44	13.77
12H	4H	14.02	14.43	15.02	15.43	16.70	10.32	10.73	11.31	11.72	13.00
	6H	14.61	14.95	15.62	15.95	17.24	10.88	11.21	11.89	12.22	13.51
	8H	14.84	15.13	15.85	16.13	17.46	11.10	11.39	12.11	12.39	13.72

END OF REPORT