

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: P928790

Luminaire Tested: DFN2DIP-HX4F0-120D060US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928790
REPORT IS A COMBINATION OF REPORTS P900872 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D060US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

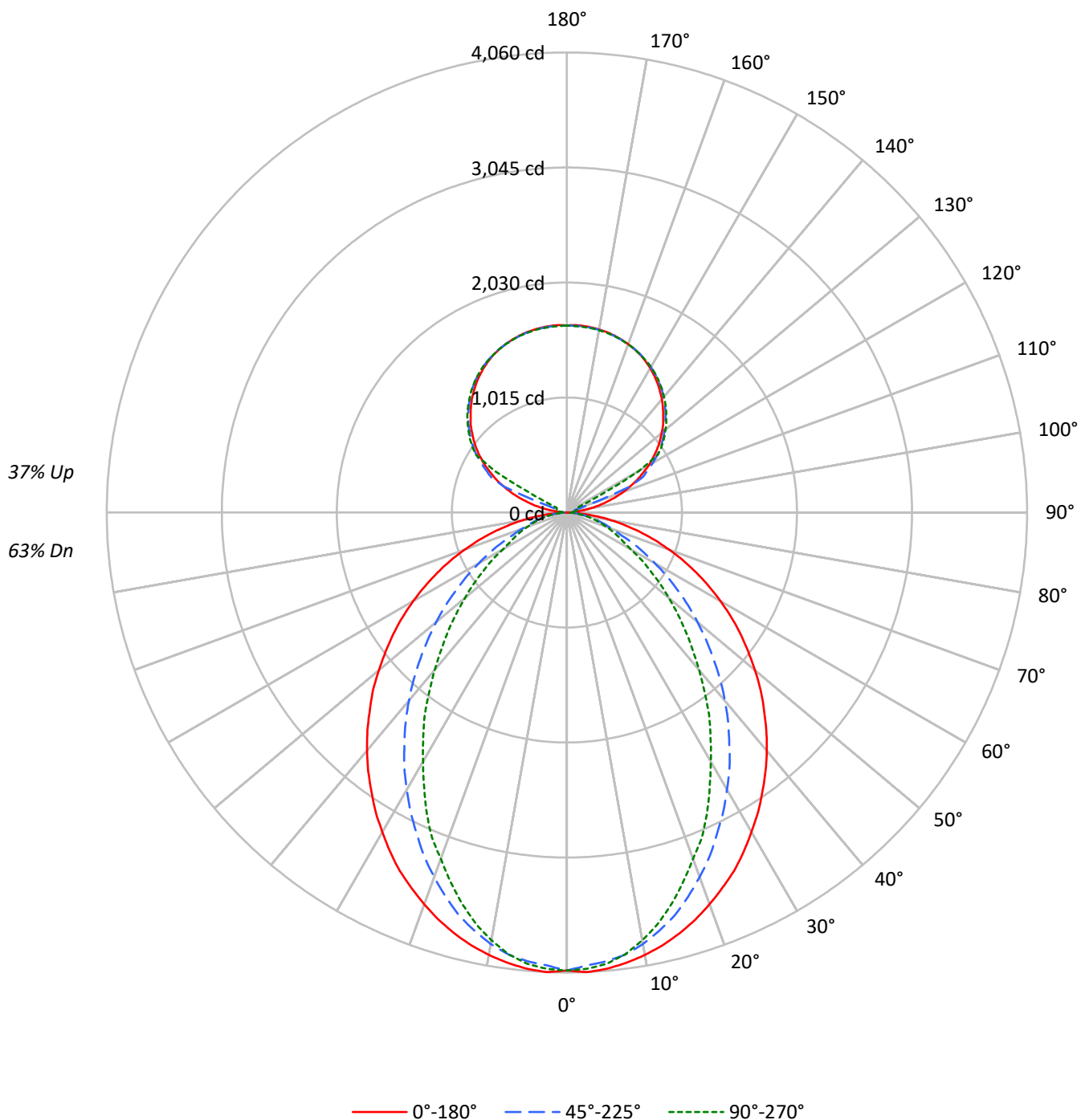
Lumens per Lamp: N/A
Luminaire Lumens: 13154.1 lumens
Efficiency: N/A
Efficacy: 77.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 170.2
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

TEST NUMBER: P928790

CATALOG NUMBER: DFN2DIP-HX4F0-120D060US930-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928790

CATALOG NUMBER: DFN2DIP-HX4F0-120D060US930-RLLONL

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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	53	51
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

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: P928790

CATALOG NUMBER: DFN2DIP-HX4F0-120D060US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.8	2.9
10°-20°	1040.0	7.9
20°-30°	1460.1	11.1
30°-40°	1591.6	12.1
40°-50°	1462.8	11.1
50°-60°	1148.8	8.7
60°-70°	747.8	5.7
70°-80°	384.9	2.9
80°-90°	101.2	0.8
90°-100°	54.4	0.4
100°-110°	202.9	1.5
110°-120°	538.0	4.1
120°-130°	892.3	6.8
130°-140°	947.9	7.2
140°-150°	880.9	6.7
150°-160°	708.2	5.4
160°-170°	456.4	3.5
170°-180°	157.1	1.2
0°-30°	2878.9	21.9
0°-40°	4470.4	34.0
0°-60°	7082.1	53.8
0°-90°	8315.9	63.2
90°-120°	795.3	6.0
90°-150°	3516.4	26.7
90°-180°	4838.0	36.8
0°-180°	13154.1	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°	1	14	24	30	32	12
95°	78	38	46	53	51	92
105°	363	399	73	86	91	388
115°	687	707	737	184	98	676
125°	971	986	1009	1017	1021	866
135°	1201	1220	1231	1243	1241	928
145°	1394	1392	1413	1421	1415	872
155°	1534	1524	1538	1545	1536	707
165°	1617	1610	1613	1622	1613	457
175°	1654	1646	1648	1656	1644	157
180°	1650	1650	1650	1650	1650	

TEST NUMBER: P928790

CATALOG NUMBER: DFN2DIP-HX4F0-120D060US930-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°	1.1	14.3	23.8	29.9	32.2
92.5°	29.9	25.1	28.6	31.1	32.2
95°	77.6	38.1	46.5	52.6	51.3
97.5°	139.7	41.8	60.8	64.5	65.7
100°	211.4	47.8	68.1	77.6	80.0
102.5°	290.1	287.9	70.5	83.5	87.2
105°	363.0	398.9	72.9	85.9	90.8
107.5°	447.8	477.6	75.3	88.3	93.2
110°	529.1	554.0	209.0	89.6	94.3

TEST NUMBER: P928790

CATALOG NUMBER: DFN2DIP-HX4F0-120D060US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	605.5	626.9	606.6	91.9	95.6
115°	686.6	706.9	736.8	183.9	98.0
117.5°	757.1	780.9	801.3	630.5	317.6
120°	835.9	853.8	875.4	889.7	728.4
122.5°	902.7	921.8	945.8	952.9	954.2
125°	970.8	986.4	1009.1	1017.4	1021.0
127.5°	1032.9	1049.6	1067.6	1079.5	1080.7
130°	1091.4	1110.6	1123.6	1136.8	1135.7
132.5°	1151.2	1166.8	1179.8	1190.6	1189.4
135°	1201.4	1220.5	1231.1	1243.2	1240.8
137.5°	1253.8	1268.1	1280.2	1292.1	1288.6
140°	1305.1	1314.8	1327.9	1338.6	1332.7
142.5°	1348.3	1356.6	1372.1	1381.6	1375.6
145°	1393.6	1392.3	1412.6	1421.0	1415.1
147.5°	1432.9	1429.3	1449.6	1455.6	1450.9
150°	1471.2	1462.8	1482.0	1489.1	1483.1
152.5°	1503.4	1493.9	1511.7	1519.0	1510.6
155°	1534.5	1523.8	1538.1	1545.2	1535.7
157.5°	1559.6	1550.0	1560.8	1569.2	1559.6
160°	1581.1	1573.8	1581.1	1588.2	1579.9
162.5°	1600.1	1593.0	1598.9	1607.3	1596.6
165°	1616.9	1609.8	1613.3	1621.7	1613.3
167.5°	1630.0	1622.8	1626.5	1634.9	1624.1
170°	1640.8	1633.6	1636.0	1644.3	1633.6
172.5°	1647.9	1640.8	1643.2	1651.6	1640.8
175°	1653.9	1645.5	1647.9	1656.2	1644.3
177.5°	1656.2	1647.9	1649.2	1657.5	1646.8
180°	1650.3	1650.3	1650.3	1650.3	1650.3

TEST NUMBER: P928790

CATALOG NUMBER: DFN2DIP-HX4F0-120D060US930-RLONL

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	12.12	13.07	12.97	13.93	15.01	8.10	9.05	8.94	9.91	10.98
	3H	13.81	14.66	14.67	15.53	16.63	9.30	10.15	10.15	11.02	12.12
	4H	14.43	15.23	15.30	16.10	17.21	9.75	10.56	10.63	11.43	12.54
	6H	14.85	15.59	15.74	16.48	17.60	10.08	10.82	10.97	11.70	12.83
	8H	14.99	15.69	15.88	16.59	17.71	10.18	10.88	11.07	11.78	12.90
	12H	15.05	15.72	15.95	16.61	17.76	10.23	10.89	11.12	11.79	12.94
4H	2H	12.16	12.96	13.03	13.83	14.94	8.71	9.51	9.58	10.39	11.50
	3H	14.00	14.66	14.89	15.57	16.70	10.07	10.74	10.96	11.64	12.77
	4H	14.70	15.30	15.59	16.21	17.36	10.62	11.23	11.52	12.13	13.29
	6H	15.22	15.74	16.13	16.67	17.82	11.05	11.57	11.97	12.50	13.66
	8H	15.40	15.88	16.31	16.81	17.97	11.18	11.67	12.10	12.59	13.76
	12H	15.50	15.94	16.43	16.88	18.05	11.26	11.70	12.19	12.64	13.81
8H	4H	14.67	15.16	15.59	16.08	17.25	10.91	11.40	11.83	12.32	13.49
	6H	15.24	15.65	16.19	16.61	17.78	11.44	11.84	12.38	12.81	13.97
	8H	15.46	15.82	16.41	16.77	17.96	11.63	11.99	12.58	12.94	14.13
	12H	15.61	15.92	16.56	16.87	18.10	11.76	12.07	12.71	13.02	14.25
12H	4H	14.63	15.07	15.57	16.01	17.18	10.93	11.36	11.86	12.30	13.48
	6H	15.22	15.58	16.17	16.53	17.72	11.49	11.85	12.44	12.80	13.98
	8H	15.45	15.76	16.40	16.71	17.94	11.71	12.02	12.66	12.97	14.20