

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: P927778

Luminaire Tested: DFN2DIP-HX4F0-110D050US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927778
REPORT IS A COMBINATION OF REPORTS P900852 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D050US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

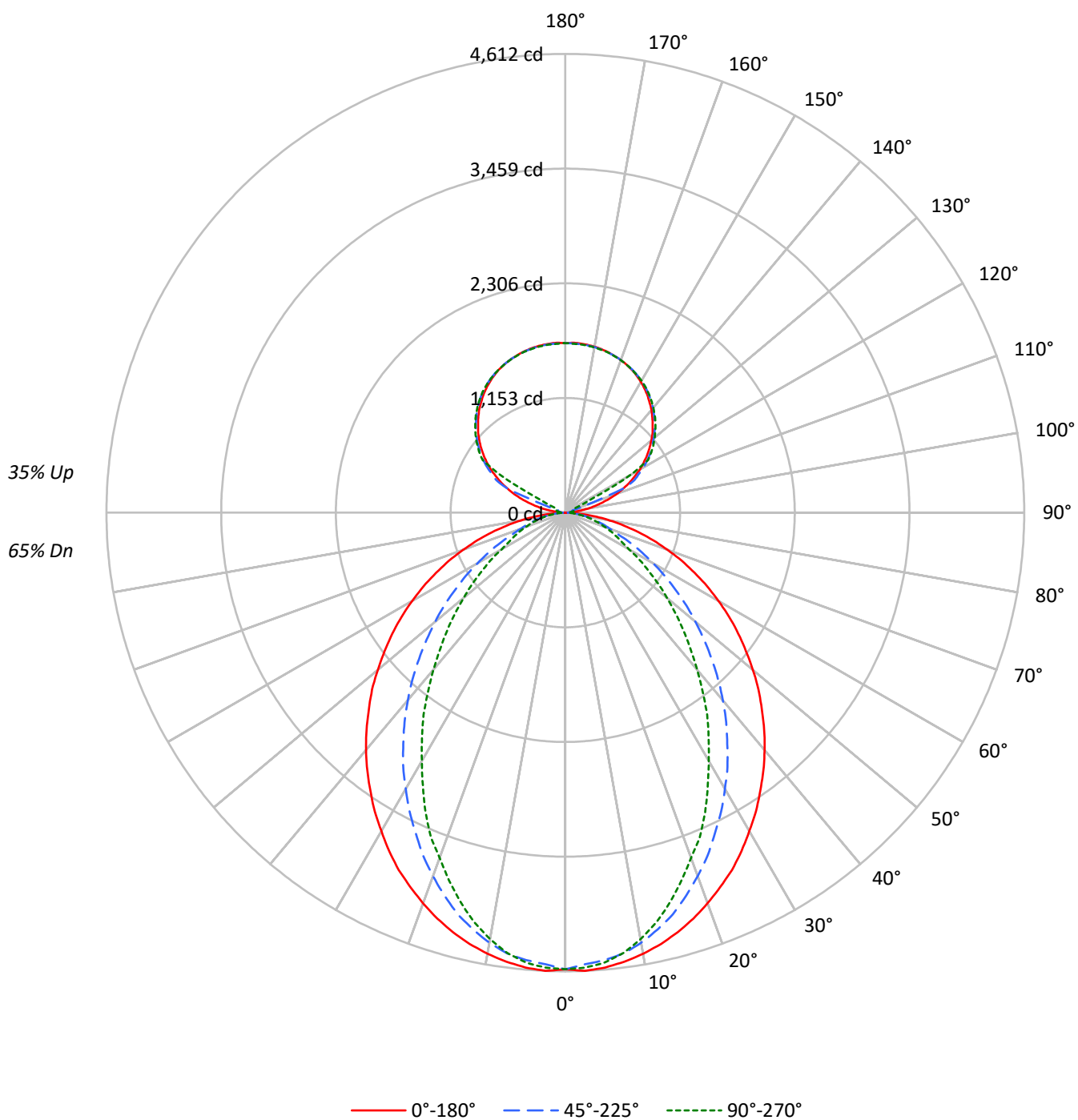
Lumens per Lamp: N/A
Luminaire Lumens: 14440.1 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 149.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927778

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US840-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P927778

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US840-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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	70	70	70
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	56	54	52
3	86	76	69	63	80	72	66	61	64	59	55	57	53	50	50	48	45
4	79	68	60	54	74	64	57	52	58	52	48	51	47	43	46	42	39
5	72	61	53	47	68	58	51	45	52	46	42	46	42	38	41	38	35
6	67	55	47	41	63	52	45	40	47	41	37	42	37	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	36	32	39	34	29	36	31	27	32	28	25
9	54	42	34	29	51	40	33	28	36	31	27	33	28	25	30	26	23
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3414	3414	3414
5°	3419	3360	3381
10°	3386	3294	3271
15°	3339	3186	3101
20°	3278	3036	2893
25°	3215	2868	2691
30°	3131	2696	2436
35°	3048	2510	2211
40°	2964	2319	1954
45°	2866	2106	1721
50°	2765	1891	1493
55°	2659	1662	1274
60°	2537	1422	1049
65°	2396	1178	944
70°	2226	950	855
75°	2012	838	778
80°	1702	704	675
85°	1190	472	509

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2866 cd/sqm

TEST NUMBER: P927778

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US840-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	3.0
10°-20°	1181.1	8.2
20°-30°	1658.3	11.5
30°-40°	1807.6	12.5
40°-50°	1661.4	11.5
50°-60°	1304.8	9.0
60°-70°	849.3	5.9
70°-80°	437.2	3.0
80°-90°	114.6	0.8
90°-100°	56.2	0.4
100°-110°	209.5	1.5
110°-120°	555.5	3.8
120°-130°	921.4	6.4
130°-140°	978.7	6.8
140°-150°	909.6	6.3
150°-160°	731.3	5.1
160°-170°	471.2	3.3
170°-180°	162.2	1.1
0°-30°	3269.7	22.6
0°-40°	5077.3	35.2
0°-60°	8043.5	55.7
0°-90°	9444.6	65.4
90°-120°	821.2	5.7
90°-150°	3630.8	25.1
90°-180°	4996.0	34.6
0°-180°	14440.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4591	4591	4591	4591	4591	
5°	4591	4570	4516	4553	4541	435
15°	4366	4321	4180	4101	4059	1230
25°	3964	3830	3556	3386	3324	1823
35°	3415	3203	2838	2576	2484	2138
45°	2792	2513	2078	1782	1682	2156
55°	2123	1799	1350	1101	1022	1897
65°	1433	1097	723	582	569	1421
75°	764	473	332	303	299	808
85°	178	91	79	79	79	205
90°	1	15	25	31	33	14
95°	80	39	48	54	53	95
105°	375	412	75	89	94	401
115°	709	730	761	190	101	698
125°	1002	1018	1042	1050	1054	894
135°	1240	1260	1271	1284	1281	958
145°	1439	1438	1459	1467	1461	900
155°	1584	1573	1588	1596	1586	730
165°	1669	1662	1666	1674	1666	472
175°	1708	1699	1702	1710	1698	163
180°	1704	1704	1704	1704	1704	

TEST NUMBER: P927778

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4590.9	4590.9	4590.9	4590.9	4590.9
2.5°	4611.6	4590.9	4545.0	4586.9	4578.5
5°	4590.9	4570.2	4515.9	4553.4	4541.1
7.5°	4553.4	4528.7	4470.5	4486.8	4466.0
10°	4503.6	4474.4	4391.6	4378.8	4354.2
12.5°	4441.4	4403.9	4291.5	4266.8	4221.0
15°	4366.5	4320.6	4179.6	4100.7	4059.2
17.5°	4279.2	4212.7	4038.1	3946.8	3880.3
20°	4179.6	4096.3	3888.6	3785.0	3693.3
22.5°	4071.6	3975.9	3734.8	3593.8	3531.6
25°	3963.6	3830.5	3556.3	3386.2	3323.6
27.5°	3834.9	3693.3	3390.1	3194.8	3099.2
30°	3697.8	3539.6	3207.2	2995.6	2883.2
32.5°	3564.7	3373.3	3033.0	2783.6	2679.6
35°	3415.2	3203.2	2837.8	2576.0	2484.3
37.5°	3269.8	3041.0	2654.9	2367.9	2264.4
40°	3115.9	2866.9	2463.6	2168.6	2060.7
42.5°	2958.1	2692.3	2272.8	1965.1	1861.5
45°	2792.0	2513.4	2077.5	1782.1	1682.5
47.5°	2634.2	2339.3	1890.5	1595.2	1504.0
50°	2459.6	2164.7	1707.7	1420.7	1333.8
52.5°	2289.0	1977.4	1533.1	1258.9	1180.0
55°	2122.8	1798.9	1350.1	1101.1	1022.2
57.5°	1952.8	1620.3	1188.3	955.7	889.0
60°	1778.2	1445.8	1017.8	806.2	739.7
62.5°	1608.0	1275.7	872.4	673.1	640.0
65°	1433.4	1096.6	722.9	581.8	569.0
67.5°	1267.3	930.5	581.8	510.9	498.5
70°	1092.7	768.8	481.8	440.4	423.6
72.5°	926.5	618.9	402.9	369.8	361.4
75°	764.3	473.4	332.3	303.2	299.3
77.5°	602.5	336.4	261.8	245.1	236.7
80°	452.7	241.1	199.2	183.0	183.0
82.5°	315.6	162.2	137.1	128.7	128.7
85°	178.5	91.3	78.9	78.9	78.9
87.5°	66.5	33.0	33.0	29.1	29.1
90°	1.2	14.7	24.6	30.9	33.2
92.5°	30.9	26.0	29.6	32.1	33.2
95°	80.1	39.4	48.1	54.3	53.0
97.5°	144.2	43.2	62.8	66.6	67.8
100°	218.3	49.4	70.3	80.1	82.6
102.5°	299.6	297.2	72.8	86.2	90.1
105°	374.8	411.9	75.2	88.8	93.7
107.5°	462.4	493.1	77.8	91.2	96.2
110°	546.3	572.1	215.8	92.5	97.3

TEST NUMBER: P927778

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US840-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	625.2	647.3	626.4	94.9	98.7
115°	709.0	729.9	760.8	189.9	101.2
117.5°	781.7	806.3	827.4	650.9	328.0
120°	863.1	881.6	903.8	918.6	752.1
122.5°	932.0	951.8	976.6	983.9	985.3
125°	1002.3	1018.5	1041.9	1050.5	1054.2
127.5°	1066.4	1083.7	1102.4	1114.6	1115.8
130°	1126.9	1146.7	1160.2	1173.8	1172.7
132.5°	1188.6	1204.7	1218.1	1229.3	1228.1
135°	1240.4	1260.2	1271.1	1283.7	1281.1
137.5°	1294.6	1309.4	1321.8	1334.1	1330.5
140°	1347.6	1357.6	1371.0	1382.1	1376.1
142.5°	1392.1	1400.8	1416.7	1426.5	1420.4
145°	1439.0	1437.7	1458.6	1467.2	1461.1
147.5°	1479.6	1475.8	1496.8	1503.0	1498.1
150°	1519.0	1510.5	1530.1	1537.5	1531.4
152.5°	1552.3	1542.5	1560.9	1568.4	1559.7
155°	1584.4	1573.4	1588.1	1595.5	1585.7
157.5°	1610.2	1600.4	1611.5	1620.2	1610.2
160°	1632.5	1625.1	1632.5	1639.8	1631.2
162.5°	1652.1	1644.9	1650.9	1659.6	1648.5
165°	1669.4	1662.1	1665.8	1674.3	1665.8
167.5°	1683.0	1675.6	1679.4	1688.0	1676.9
170°	1694.1	1686.7	1689.2	1697.8	1686.7
172.5°	1701.5	1694.1	1696.7	1705.2	1694.1
175°	1707.7	1699.0	1701.5	1710.1	1697.8
177.5°	1710.1	1701.5	1702.8	1711.4	1700.3
180°	1703.9	1703.9	1703.9	1703.9	1703.9

TEST NUMBER: P927778

CATALOG NUMBER: DFN2DIP-HX4F0-110D050US840-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	12.74	13.72	13.56	14.55	15.59	8.72	9.69	9.54	10.53	11.56
	3H	14.43	15.30	15.27	16.15	17.21	9.92	10.79	10.75	11.64	12.70
	4H	15.05	15.87	15.90	16.72	17.80	10.38	11.20	11.23	12.05	13.13
	6H	15.48	16.23	16.34	17.10	18.18	10.71	11.46	11.57	12.32	13.41
	8H	15.61	16.33	16.48	17.21	18.30	10.80	11.52	11.67	12.40	13.49
	12H	15.68	16.36	16.55	17.23	18.35	10.85	11.54	11.73	12.41	13.52
4H	2H	12.78	13.60	13.63	14.45	15.53	9.33	10.15	10.18	11.01	12.08
	3H	14.62	15.30	15.49	16.19	17.28	10.70	11.38	11.56	12.26	13.35
	4H	15.32	15.94	16.20	16.83	17.94	11.25	11.87	12.13	12.75	13.87
	6H	15.85	16.38	16.74	17.29	18.41	11.68	12.21	12.57	13.12	14.24
	8H	16.02	16.52	16.92	17.43	18.56	11.81	12.31	12.71	13.21	14.35
	12H	16.13	16.57	17.04	17.50	18.63	11.88	12.33	12.80	13.26	14.39
8H	4H	15.30	15.80	16.20	16.70	17.83	11.54	12.04	12.44	12.94	14.08
	6H	15.87	16.28	16.79	17.23	18.36	12.07	12.48	12.99	13.42	14.56
	8H	16.09	16.46	17.02	17.39	18.54	12.26	12.63	13.19	13.56	14.71
	12H	16.24	16.56	17.17	17.49	18.69	12.39	12.71	13.32	13.64	14.84
12H	4H	15.26	15.71	16.17	16.63	17.77	11.55	12.00	12.47	12.92	14.06
	6H	15.85	16.21	16.78	17.15	18.30	12.12	12.48	13.05	13.42	14.57
	8H	16.08	16.40	17.01	17.33	18.53	12.34	12.66	13.27	13.59	14.79