

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: P929364

Luminaire Tested: DFN2DIP-HX4F0-100D060US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929364
REPORT IS A COMBINATION OF REPORTS P900867 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D060US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

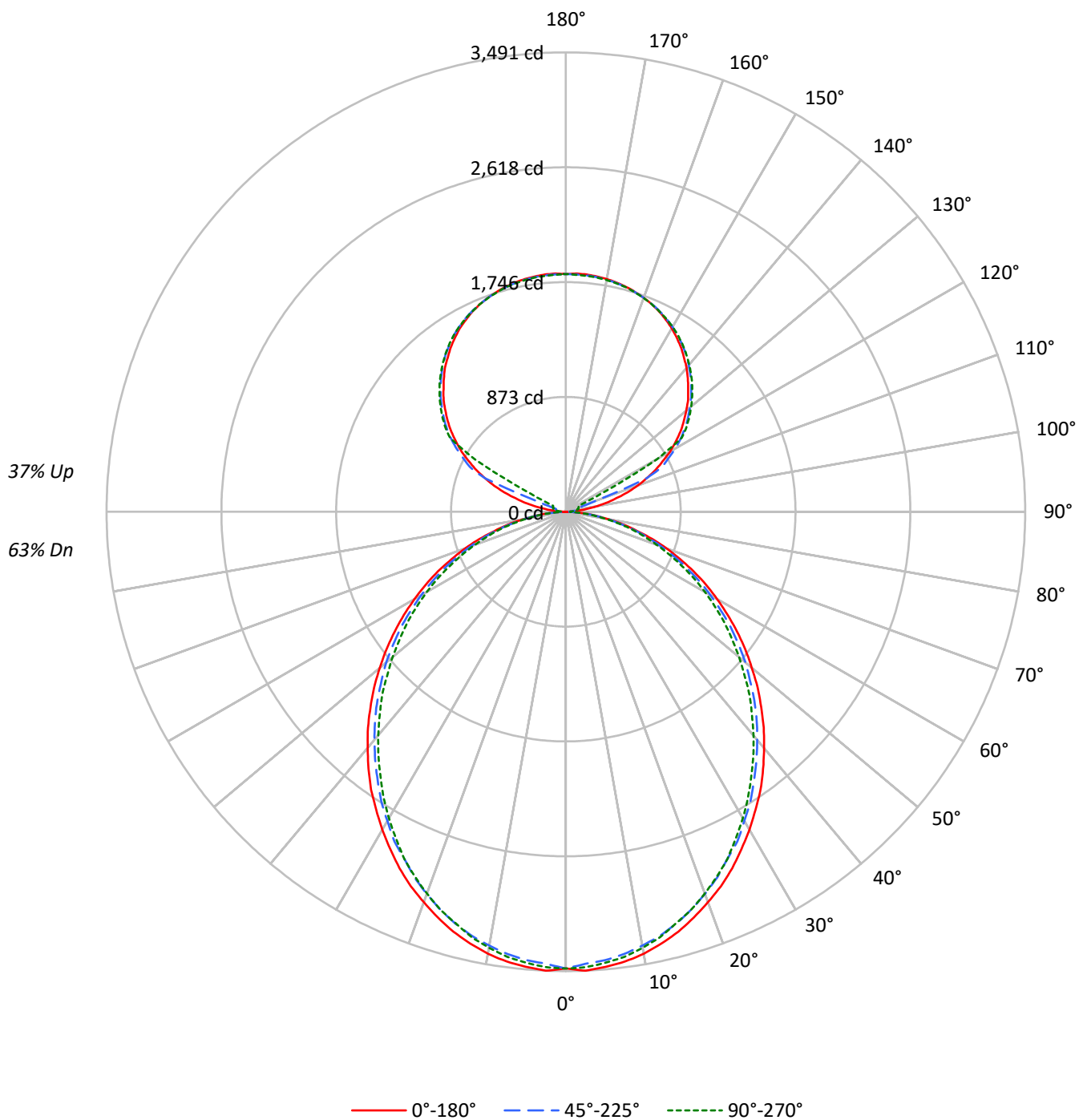
Lumens per Lamp: N/A
Luminaire Lumens: 14129.2 lumens
Efficiency: N/A
Efficacy: 98.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 143.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P929364

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US940-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P929364

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US940-FLLONL

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	90	90	90	78	78	78	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	65	60	58	57
2	92	84	78	72	86	79	73	69	69	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	57	61	56	52	54	50	46	47	44	41
4	77	65	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	34	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	47	39	34	56	45	38	32	40	34	30	35	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	37	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	34	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2581	2581	2581
5°	2585	2545	2562
10°	2564	2511	2528
15°	2527	2470	2473
20°	2476	2413	2418
25°	2426	2344	2354
30°	2362	2281	2273
35°	2302	2205	2186
40°	2229	2130	2104
45°	2155	2054	2021
50°	2074	1974	1924
55°	1990	1881	1834
60°	1895	1772	1732
65°	1791	1659	1611
70°	1659	1520	1482
75°	1476	1355	1362
80°	1256	1144	1133
85°	911	780	754

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2155 cd/sqm

TEST NUMBER: P929364

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US940-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	326.7	2.3
10°-20°	919.1	6.5
20°-30°	1350.8	9.6
30°-40°	1568.8	11.1
40°-50°	1566.9	11.1
50°-60°	1366.3	9.7
60°-70°	1010.0	7.1
70°-80°	571.4	4.0
80°-90°	154.0	1.1
90°-100°	59.5	0.4
100°-110°	222.0	1.6
110°-120°	588.9	4.2
120°-130°	976.7	6.9
130°-140°	1037.4	7.3
140°-150°	964.2	6.8
150°-160°	775.2	5.5
160°-170°	499.5	3.5
170°-180°	171.9	1.2
0°-30°	2596.6	18.4
0°-40°	4165.4	29.5
0°-60°	7098.5	50.2
0°-90°	8833.9	62.5
90°-120°	870.4	6.2
90°-150°	3848.7	27.2
90°-180°	5295.0	37.5
0°-180°	14129.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3471	3471	3471	3471	3471	
5°	3471	3458	3421	3448	3441	329
15°	3304	3284	3241	3254	3238	931
25°	2990	2964	2907	2914	2907	1376
35°	2580	2547	2493	2473	2456	1611
45°	2099	2076	2026	1989	1976	1620
55°	1589	1569	1529	1489	1472	1420
65°	1072	1051	1018	988	971	1059
75°	560	554	537	517	524	598
85°	137	134	130	120	117	152
90°	1	16	26	33	35	13
95°	85	42	51	58	56	101
105°	397	436	80	94	99	425
115°	752	774	806	201	107	740
125°	1063	1080	1104	1114	1117	948
135°	1315	1336	1348	1361	1358	1016
145°	1525	1524	1546	1555	1549	954
155°	1680	1668	1684	1691	1681	774
165°	1770	1762	1766	1775	1766	500
175°	1810	1801	1804	1813	1800	172
180°	1806	1806	1806	1806	1806	

TEST NUMBER: P929364

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3470.9	3470.9	3470.9	3470.9	3470.9
2.5°	3491.0	3474.3	3437.5	3470.9	3464.4
5°	3470.9	3457.7	3420.9	3447.5	3441.1
7.5°	3447.5	3427.6	3390.8	3417.7	3411.0
10°	3411.0	3387.6	3347.6	3374.2	3364.3
12.5°	3360.7	3340.9	3300.8	3317.5	3310.7
15°	3304.1	3284.3	3240.6	3254.1	3237.5
17.5°	3233.9	3214.1	3170.5	3187.2	3170.5
20°	3157.1	3137.3	3090.5	3100.4	3087.3
22.5°	3080.6	3050.6	3006.9	3006.9	3000.2
25°	2990.3	2963.8	2907.1	2913.5	2907.1
27.5°	2890.1	2866.7	2823.5	2813.6	2797.0
30°	2790.3	2763.3	2713.4	2703.5	2690.0
32.5°	2683.3	2663.5	2610.0	2589.8	2576.4
35°	2579.9	2546.7	2493.1	2473.0	2456.3
37.5°	2463.1	2432.9	2379.5	2356.1	2339.4
40°	2343.0	2316.1	2262.6	2232.9	2219.5
42.5°	2226.2	2199.2	2146.2	2112.5	2092.7
45°	2099.4	2076.0	2025.7	1989.2	1975.9
47.5°	1975.9	1952.5	1899.0	1862.1	1842.3
50°	1845.5	1828.9	1782.1	1735.4	1718.8
52.5°	1718.8	1695.4	1652.2	1615.4	1592.0
55°	1588.8	1568.7	1528.6	1488.6	1472.0
57.5°	1458.5	1441.8	1398.3	1358.3	1344.9
60°	1328.2	1315.1	1268.3	1231.5	1221.6
62.5°	1201.4	1178.1	1144.8	1111.5	1098.1
65°	1071.5	1051.3	1018.0	987.9	971.3
67.5°	938.0	921.0	891.3	867.9	854.4
70°	814.4	800.9	770.9	747.5	734.4
72.5°	687.6	674.2	657.6	634.2	624.2
75°	560.5	554.2	537.2	517.4	524.0
77.5°	447.2	433.8	427.0	417.1	407.2
80°	333.9	330.4	323.6	313.7	307.0
82.5°	227.0	227.0	223.8	210.3	210.3
85°	136.7	133.5	130.3	120.1	116.9
87.5°	60.2	53.4	46.7	36.8	33.3
90°	1.2	15.7	26.0	32.7	35.2
92.5°	32.7	27.5	31.3	34.0	35.2
95°	84.9	41.7	50.9	57.6	56.2
97.5°	152.9	45.8	66.5	70.6	71.9
100°	231.4	52.3	74.5	84.9	87.5
102.5°	317.6	315.1	77.2	91.4	95.4
105°	397.3	436.5	79.7	94.0	99.4
107.5°	490.2	522.7	82.4	96.7	102.0
110°	579.1	606.4	228.8	98.1	103.2



TEST NUMBER: P929364

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US940-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	662.7	686.1	663.9	100.5	104.6
115°	751.5	773.7	806.5	201.3	107.2
117.5°	828.6	854.7	877.0	690.1	347.6
120°	914.9	934.5	958.1	973.7	797.3
122.5°	988.0	1008.9	1035.2	1042.9	1044.4
125°	1062.6	1079.6	1104.4	1113.6	1117.4
127.5°	1130.5	1148.8	1168.5	1181.5	1182.8
130°	1194.6	1215.5	1229.8	1244.3	1243.0
132.5°	1260.0	1277.0	1291.3	1303.0	1301.8
135°	1314.9	1335.9	1347.5	1360.7	1358.0
137.5°	1372.3	1388.0	1401.2	1414.2	1410.3
140°	1428.4	1439.1	1453.3	1465.1	1458.6
142.5°	1475.6	1484.8	1501.8	1512.1	1505.6
145°	1525.3	1523.9	1546.1	1555.3	1548.8
147.5°	1568.3	1564.4	1586.6	1593.1	1588.0
150°	1610.2	1601.1	1622.0	1629.8	1623.3
152.5°	1645.5	1635.0	1654.6	1662.5	1653.3
155°	1679.5	1667.8	1683.5	1691.2	1680.8
157.5°	1706.9	1696.5	1708.3	1717.5	1706.9
160°	1730.5	1722.5	1730.5	1738.2	1729.1
162.5°	1751.3	1743.5	1750.0	1759.2	1747.4
165°	1769.6	1761.9	1765.7	1774.9	1765.7
167.5°	1784.0	1776.2	1780.2	1789.4	1777.5
170°	1795.9	1787.9	1790.6	1799.7	1787.9
172.5°	1803.6	1795.9	1798.5	1807.6	1795.9
175°	1810.1	1800.9	1803.6	1812.7	1799.7
177.5°	1812.7	1803.6	1805.0	1814.1	1802.4
180°	1806.2	1806.2	1806.2	1806.2	1806.2

TEST NUMBER: P929364

CATALOG NUMBER: DFN2DIP-HX4F0-100D060US940-FLONL

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	11.65	12.63	12.49	13.50	14.58	11.22	12.20	12.06	13.07	14.15
	3H	13.32	14.20	14.17	15.08	16.18	12.85	13.73	13.70	14.60	15.71
	4H	13.91	14.75	14.78	15.63	16.75	13.44	14.28	14.31	15.16	16.27
	6H	14.32	15.09	15.20	15.98	17.11	13.84	14.62	14.73	15.50	16.63
	8H	14.43	15.16	15.32	16.07	17.20	13.95	14.69	14.84	15.59	16.72
	12H	14.48	15.18	15.38	16.08	17.24	14.00	14.70	14.90	15.60	16.76
4H	2H	12.13	12.96	13.00	13.84	14.96	11.78	12.62	12.66	13.50	14.62
	3H	14.00	14.70	14.89	15.61	16.75	13.61	14.31	14.50	15.22	16.35
	4H	14.72	15.36	15.62	16.27	17.43	14.32	14.96	15.22	15.86	17.02
	6H	15.25	15.80	16.16	16.73	17.89	14.84	15.39	15.75	16.32	17.48
	8H	15.40	15.91	16.32	16.84	18.02	14.99	15.50	15.90	16.43	17.60
	12H	15.48	15.94	16.42	16.89	18.07	15.06	15.52	15.99	16.47	17.65
8H	4H	14.93	15.45	15.85	16.37	17.55	14.57	15.09	15.49	16.01	17.19
	6H	15.57	16.00	16.51	16.96	18.14	15.21	15.63	16.15	16.60	17.77
	8H	15.79	16.17	16.74	17.13	18.32	15.42	15.80	16.37	16.76	17.95
	12H	15.93	16.26	16.89	17.21	18.45	15.55	15.88	16.50	16.83	18.07
12H	4H	14.92	15.39	15.86	16.33	17.51	14.57	15.03	15.51	15.98	17.16
	6H	15.60	15.98	16.55	16.94	18.13	15.25	15.63	16.20	16.59	17.78
	8H	15.85	16.18	16.80	17.13	18.37	15.49	15.82	16.45	16.78	18.02