

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: P929148

Luminaire Tested: DFN2DIP-HX4F0-040D060US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929148
REPORT IS A COMBINATION OF REPORTS P900855 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D060US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

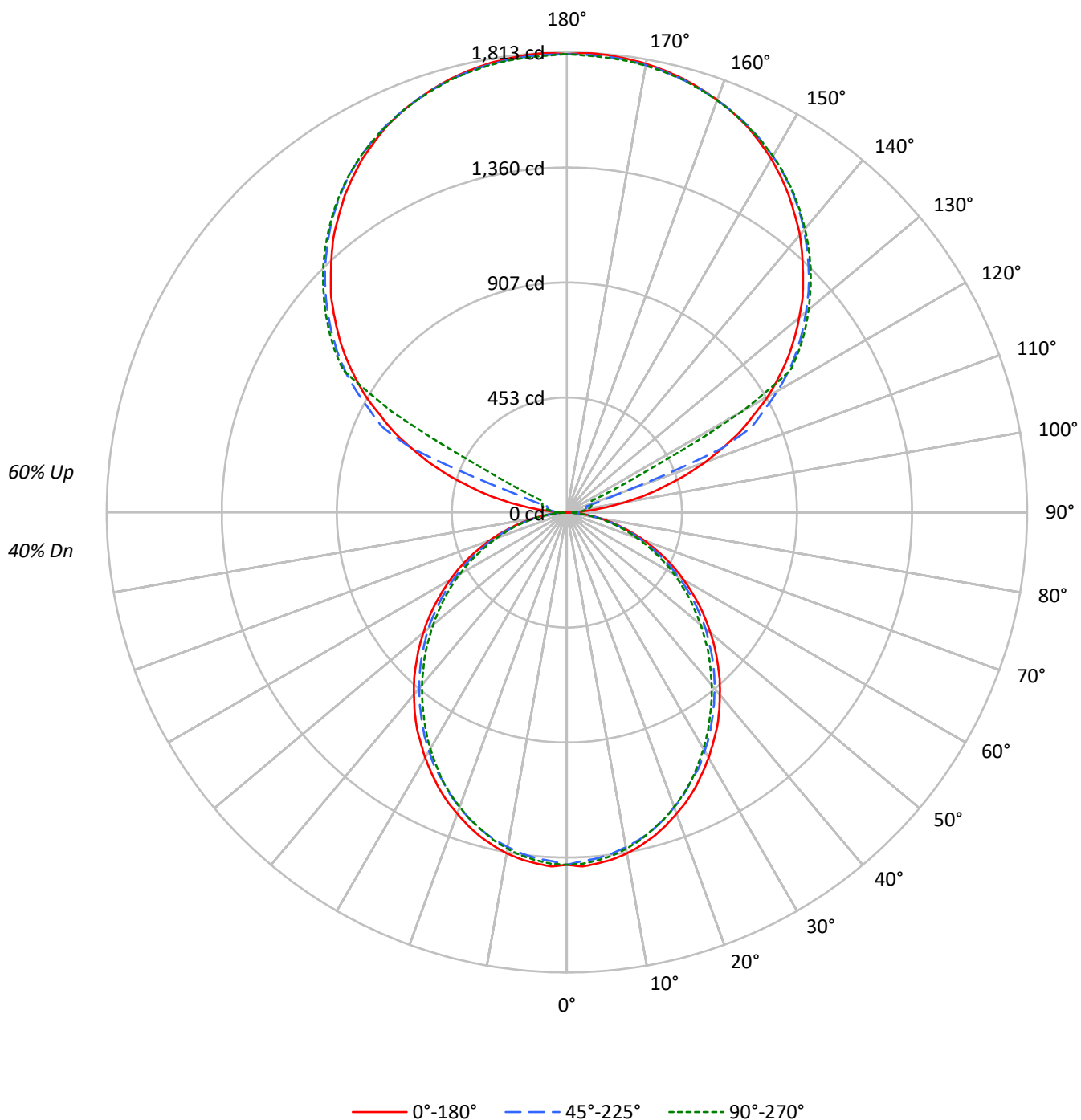
Lumens per Lamp: N/A
Luminaire Lumens: 8830.8 lumens
Efficiency: N/A
Efficacy: 114.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 77.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P929148

CATALOG NUMBER: DFN2DIP-HX4F0-040D060US940-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P929148

CATALOG NUMBER: DFN2DIP-HX4F0-040D060US940-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	50	30	10
RCR																				
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	47	47	40
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40	40	40	34
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33	33	33	28
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28	28	28	24
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24	24	24	21
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21	21	21	18
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19	19	19	16
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17	17	17	14
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15	15	15	12
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13	13	13	11
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12	12	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1032	1032	1032
5°	1034	1018	1025
10°	1026	1004	1011
15°	1011	988	989
20°	990	965	967
25°	970	938	942
30°	945	912	909
35°	921	882	875
40°	891	852	842
45°	862	821	808
50°	830	790	769
55°	796	753	734
60°	758	709	693
65°	717	663	645
70°	664	608	593
75°	590	542	545
80°	502	457	453
85°	365	312	301

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 927 cd/sqm

TEST NUMBER: P929148

CATALOG NUMBER: DFN2DIP-HX4F0-040D060US940-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.7	1.5
10°-20°	367.6	4.2
20°-30°	540.3	6.1
30°-40°	627.5	7.1
40°-50°	626.8	7.1
50°-60°	546.5	6.2
60°-70°	404.0	4.6
70°-80°	228.6	2.6
80°-90°	63.5	0.7
90°-100°	59.5	0.7
100°-110°	222.0	2.5
110°-120°	588.9	6.7
120°-130°	976.7	11.1
130°-140°	1037.4	11.7
140°-150°	964.2	10.9
150°-160°	775.2	8.8
160°-170°	499.5	5.7
170°-180°	171.9	1.9
0°-30°	1038.6	11.8
0°-40°	1666.2	18.9
0°-60°	2839.4	32.2
0°-90°	3535.5	40.0
90°-120°	870.4	9.9
90°-150°	3848.7	43.6
90°-180°	5295.0	60.0
0°-180°	8830.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1379	1376	132
15°	1322	1314	1296	1302	1295	372
25°	1196	1186	1163	1165	1163	550
35°	1032	1019	997	989	982	644
45°	840	830	810	796	790	648
55°	636	627	612	595	589	568
65°	429	420	407	395	389	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	1	16	26	33	35	8
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: P929148

CATALOG NUMBER: DFN2DIP-HX4F0-040D060US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1388.3	1388.3	1388.3	1388.3	1388.3
2.5°	1396.4	1389.7	1375.0	1388.3	1385.8
5°	1388.3	1383.0	1368.3	1378.9	1376.4
7.5°	1378.9	1371.0	1356.3	1367.1	1364.4
10°	1364.4	1355.0	1339.1	1349.7	1345.7
12.5°	1344.2	1336.3	1320.3	1327.0	1324.3
15°	1321.6	1313.6	1296.3	1301.6	1295.0
17.5°	1293.6	1285.6	1268.2	1274.8	1268.2
20°	1262.8	1254.9	1236.2	1240.1	1235.0
22.5°	1232.2	1220.2	1202.8	1202.8	1200.1
25°	1196.1	1185.5	1162.8	1165.4	1162.8
27.5°	1156.0	1146.7	1129.5	1125.4	1118.8
30°	1116.1	1105.4	1085.4	1081.4	1076.0
32.5°	1073.3	1065.4	1044.0	1036.0	1030.5
35°	1032.0	1018.7	997.3	989.2	982.5
37.5°	985.2	973.2	951.8	942.5	935.8
40°	937.2	926.4	905.0	893.2	887.8
42.5°	890.5	879.7	858.5	845.0	837.1
45°	839.7	830.5	810.3	795.8	790.3
47.5°	790.3	780.9	759.6	744.9	737.0
50°	738.2	731.5	712.9	694.2	687.5
52.5°	687.5	678.2	660.9	646.2	636.8
55°	635.6	627.4	611.5	595.4	588.8
57.5°	583.4	576.8	559.3	543.3	538.0
60°	531.3	526.0	507.4	492.7	488.6
62.5°	480.6	471.2	458.0	444.6	439.2
65°	428.6	420.5	407.2	395.2	388.6
67.5°	375.2	368.4	356.5	347.2	341.8
70°	325.8	320.4	308.4	299.0	293.7
72.5°	275.1	269.7	263.1	253.7	249.7
75°	224.2	221.7	214.9	206.9	209.6
77.5°	178.8	173.5	170.8	166.8	162.9
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.6	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
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: P929148

CATALOG NUMBER: DFN2DIP-HX4F0-040D060US940-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: P929148

CATALOG NUMBER: DFN2DIP-HX4F0-040D060US940-FLLONL

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	6.39	7.16	7.42	8.21	9.62	5.95	6.73	6.99	7.78	9.18
	3H	8.04	8.74	9.09	9.79	11.22	7.57	8.27	8.62	9.32	10.74
	4H	8.63	9.29	9.69	10.34	11.78	8.15	8.81	9.21	9.87	11.30
	6H	9.02	9.63	10.09	10.69	12.13	8.55	9.15	9.62	10.21	11.66
	8H	9.12	9.70	10.20	10.78	12.22	8.65	9.23	9.72	10.30	11.74
	12H	9.17	9.72	10.25	10.79	12.25	8.69	9.24	9.77	10.31	11.77
4H	2H	6.84	7.50	7.91	8.56	9.99	6.49	7.15	7.56	8.21	9.64
	3H	8.70	9.25	9.77	10.33	11.78	8.30	8.86	9.38	9.94	11.39
	4H	9.41	9.92	10.49	10.99	12.46	9.00	9.51	10.08	10.58	12.05
	6H	9.92	10.36	11.01	11.45	12.91	9.51	9.95	10.60	11.04	12.50
	8H	10.07	10.47	11.16	11.56	13.04	9.66	10.06	10.75	11.15	12.63
	12H	10.14	10.51	11.24	11.61	13.09	9.72	10.08	10.82	11.19	12.67
8H	4H	9.60	10.01	10.69	11.10	12.57	9.24	9.65	10.33	10.73	12.21
	6H	10.23	10.56	11.34	11.70	13.17	9.87	10.20	10.98	11.33	12.81
	8H	10.45	10.74	11.57	11.86	13.35	10.08	10.37	11.20	11.49	12.98
	12H	10.58	10.84	11.70	11.95	13.48	10.19	10.45	11.31	11.56	13.09
12H	4H	9.58	9.95	10.69	11.05	12.53	9.23	9.60	10.34	10.70	12.18
	6H	10.26	10.55	11.38	11.67	13.16	9.91	10.20	11.02	11.31	12.81
	8H	10.50	10.76	11.62	11.87	13.40	10.14	10.40	11.26	11.51	13.04

END OF REPORT