

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: P921816

Luminaire Tested: DFN2DIP-HX4F0-050D120US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921816
REPORT IS A COMBINATION OF REPORTS P899445 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D120US940-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

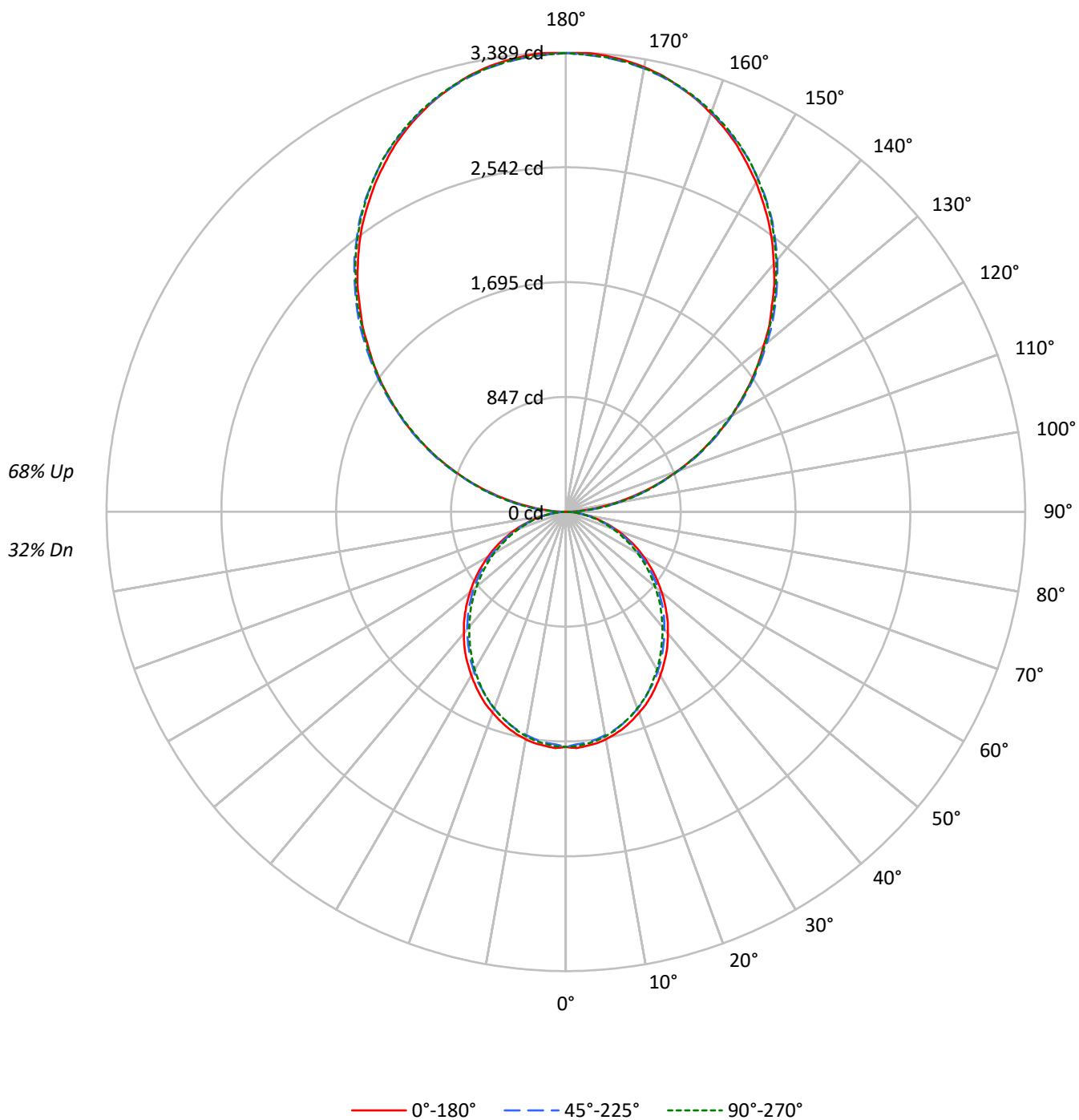
Lumens per Lamp: N/A
Luminaire Lumens: 13883.9 lumens
Efficiency: N/A
Efficacy: 118.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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: P921816

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P921816

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US940-FLLFL

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	103	103	103	103	93	93	93	93	73	73	73	56	56	56	39	39	39
1	94	89	86	82	84	81	77	75	64	62	60	49	47	46	35	34	33
2	85	78	72	67	76	70	65	61	56	53	50	43	41	39	31	29	28
3	78	69	62	56	70	62	56	51	49	45	42	38	35	33	27	25	24
4	71	61	53	47	64	55	48	43	44	39	35	34	30	28	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	27	24	22	20	18
6	60	48	40	35	54	44	37	32	35	30	26	27	24	21	20	17	16
7	55	43	36	30	50	39	33	28	32	27	23	25	21	19	18	16	14
8	51	39	32	27	46	36	29	25	29	24	20	23	19	16	17	14	12
9	48	36	29	24	43	33	26	22	26	22	18	21	17	15	15	13	11
10	44	33	26	21	40	30	24	19	24	20	16	19	16	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1290	1290	1290
5°	1292	1272	1281
10°	1282	1255	1263
15°	1263	1235	1236
20°	1238	1206	1209
25°	1212	1172	1177
30°	1181	1140	1136
35°	1151	1102	1093
40°	1114	1065	1052
45°	1077	1026	1010
50°	1037	987	961
55°	995	940	917
60°	947	886	866
65°	895	829	805
70°	829	760	741
75°	738	677	681
80°	628	572	567
85°	455	389	377

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2551 cd/sqm

TEST NUMBER: P921816

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.2
10°-20°	459.4	3.3
20°-30°	675.2	4.9
30°-40°	784.2	5.6
40°-50°	783.2	5.6
50°-60°	682.9	4.9
60°-70°	504.8	3.6
70°-80°	285.6	2.1
80°-90°	85.0	0.6
90°-100°	209.4	1.5
100°-110°	665.4	4.8
110°-120°	1138.7	8.2
120°-130°	1497.5	10.8
130°-140°	1680.9	12.1
140°-150°	1648.3	11.9
150°-160°	1382.7	10.0
160°-170°	917.0	6.6
170°-180°	320.5	2.3
0°-30°	1297.9	9.3
0°-40°	2082.0	15.0
0°-60°	3548.1	25.6
0°-90°	4423.6	31.9
90°-120°	2013.4	14.5
90°-150°	6840.1	49.3
90°-180°	9460.0	68.1
0°-180°	13883.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1728	1710	1723	1720	165
15°	1651	1642	1620	1627	1618	465
25°	1495	1481	1453	1456	1453	688
35°	1290	1273	1246	1236	1228	805
45°	1049	1038	1012	994	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	485	530
75°	280	277	268	259	262	299
85°	68	67	65	60	58	76
90°	3	37	100	94	97	14
95°	149	178	183	183	178	166
105°	614	622	628	634	634	648
115°	1143	1159	1154	1151	1143	1130
125°	1662	1688	1679	1670	1667	1485
135°	2150	2181	2188	2184	2176	1662
145°	2610	2630	2646	2650	2638	1631
155°	2984	2992	3002	3016	3007	1374
165°	3246	3243	3243	3264	3250	916
175°	3378	3370	3364	3384	3367	321
180°	3384	3384	3384	3384	3384	

TEST NUMBER: P921816

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1734.8	1734.8	1734.8	1734.8	1734.8
2.5°	1744.9	1736.6	1718.2	1734.8	1731.7
5°	1734.8	1728.3	1709.9	1723.1	1720.0
7.5°	1723.1	1713.2	1694.9	1708.3	1705.0
10°	1705.0	1693.3	1673.3	1686.5	1681.6
12.5°	1679.8	1669.9	1649.9	1658.2	1654.8
15°	1651.4	1641.5	1619.8	1626.6	1618.2
17.5°	1616.4	1606.5	1584.7	1593.0	1584.7
20°	1578.1	1568.2	1544.8	1549.7	1543.2
22.5°	1539.8	1524.7	1503.0	1503.0	1499.6
25°	1494.7	1481.4	1453.0	1456.3	1453.0
27.5°	1444.6	1432.9	1411.3	1406.3	1398.0
30°	1394.6	1381.3	1356.3	1351.3	1344.6
32.5°	1341.2	1331.3	1304.6	1294.5	1287.8
35°	1289.5	1272.9	1246.2	1236.1	1227.8
37.5°	1231.1	1216.1	1189.4	1177.7	1169.4
40°	1171.2	1157.7	1131.0	1116.1	1109.4
42.5°	1112.8	1099.3	1072.7	1055.9	1046.0
45°	1049.4	1037.7	1012.5	994.3	987.6
47.5°	987.6	975.9	949.2	930.8	920.9
50°	922.5	914.2	890.8	867.5	859.1
52.5°	859.1	847.4	825.8	807.4	795.8
55°	794.2	784.1	764.0	744.0	735.8
57.5°	729.0	720.7	698.9	678.9	672.2
60°	663.9	657.4	634.0	615.5	610.6
62.5°	600.6	588.9	572.2	555.5	548.8
65°	535.6	525.5	508.8	493.8	485.4
67.5°	468.9	460.4	445.5	433.8	427.0
70°	407.1	400.4	385.3	373.6	367.1
72.5°	343.8	337.0	328.7	317.0	312.0
75°	280.2	277.0	268.5	258.6	262.0
77.5°	223.6	216.8	213.5	208.5	203.6
80°	166.9	165.1	161.8	156.9	153.5
82.5°	113.4	113.4	111.8	105.1	105.1
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
90°	3.0	36.7	100.0	93.9	96.9
92.5°	63.2	85.7	88.7	91.8	91.8
95°	148.9	177.5	182.6	182.6	177.5
97.5°	247.9	274.5	285.7	285.7	285.7
100°	362.2	385.7	393.8	393.8	390.7
102.5°	482.6	499.9	511.1	514.2	511.1
105°	614.2	622.3	628.5	633.6	633.6
107.5°	744.8	757.1	757.1	759.0	744.8
110°	871.3	887.6	887.6	887.6	879.5

TEST NUMBER: P921816

CATALOG NUMBER: DFN2DIP-HX4F0-050D120US940-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1008.0	1025.4	1022.3	1014.1	1008.0
115°	1142.6	1159.0	1153.9	1150.8	1142.6
117.5°	1276.3	1298.8	1284.5	1276.3	1268.2
120°	1411.0	1433.4	1411.0	1411.0	1401.9
122.5°	1533.5	1562.0	1547.7	1539.5	1533.5
125°	1662.0	1687.5	1679.4	1670.2	1667.1
127.5°	1787.5	1819.1	1807.9	1795.6	1787.5
130°	1904.8	1941.5	1936.4	1930.3	1919.0
132.5°	2036.4	2065.0	2067.0	2052.7	2044.6
135°	2149.6	2181.3	2187.5	2184.3	2176.2
137.5°	2276.2	2301.7	2306.8	2304.7	2292.5
140°	2387.4	2412.9	2427.1	2427.1	2415.9
142.5°	2501.7	2527.2	2535.3	2538.3	2527.2
145°	2609.8	2630.2	2646.5	2649.6	2638.4
147.5°	2706.7	2732.2	2744.5	2749.6	2738.4
150°	2806.7	2824.0	2835.3	2844.5	2835.3
152.5°	2895.5	2912.8	2927.1	2938.4	2927.1
155°	2984.2	2992.4	3001.6	3015.9	3006.7
157.5°	3060.8	3066.9	3071.9	3092.4	3078.1
160°	3129.1	3135.3	3138.3	3155.7	3143.4
162.5°	3192.3	3192.3	3195.4	3214.8	3200.5
165°	3246.4	3243.4	3243.4	3263.7	3249.5
167.5°	3295.4	3286.2	3286.2	3306.6	3292.4
170°	3332.1	3323.9	3320.9	3341.3	3323.9
172.5°	3357.6	3349.4	3346.4	3366.8	3349.4
175°	3378.1	3369.9	3363.8	3384.1	3366.8
177.5°	3389.3	3381.1	3374.9	3392.3	3374.9
180°	3384.1	3384.1	3384.1	3384.1	3384.1

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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	6.19	6.91	7.29	8.00	9.51	5.76	6.48	6.85	7.57	9.08
	3H	7.84	8.48	8.95	9.59	11.11	7.37	8.01	8.47	9.11	10.64
	4H	8.42	9.03	9.54	10.14	11.67	7.95	8.56	9.06	9.66	11.19
	6H	8.81	9.38	9.94	10.48	12.03	8.34	8.90	9.46	10.01	11.55
	8H	8.91	9.45	10.04	10.57	12.11	8.44	8.97	9.57	10.10	11.63
	12H	8.96	9.47	10.09	10.58	12.14	8.48	8.99	9.61	10.10	11.66
4H	2H	6.63	7.24	7.76	8.35	9.88	6.29	6.90	7.41	8.00	9.54
	3H	8.49	9.00	9.62	10.13	11.67	8.09	8.60	9.22	9.74	11.28
	4H	9.20	9.67	10.33	10.79	12.35	8.79	9.26	9.92	10.38	11.94
	6H	9.70	10.11	10.85	11.25	12.81	9.29	9.70	10.44	10.84	12.40
	8H	9.85	10.23	10.99	11.36	12.93	9.44	9.81	10.58	10.95	12.52
	12H	9.92	10.26	11.07	11.41	12.98	9.50	9.84	10.65	10.98	12.56
8H	4H	9.38	9.76	10.52	10.89	12.47	9.02	9.40	10.16	10.53	12.10
	6H	10.01	10.32	11.17	11.50	13.06	9.65	9.96	10.81	11.13	12.70
	8H	10.23	10.50	11.40	11.66	13.25	9.86	10.13	11.03	11.29	12.88
	12H	10.35	10.59	11.53	11.75	13.37	9.97	10.21	11.14	11.36	12.98
12H	4H	9.36	9.70	10.52	10.85	12.43	9.01	9.35	10.17	10.50	12.07
	6H	10.04	10.31	11.20	11.47	13.05	9.69	9.96	10.85	11.11	12.70
	8H	10.27	10.51	11.44	11.67	13.29	9.92	10.15	11.09	11.31	12.93

END OF REPORT