

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: P908272

Luminaire Tested: DFN2DIP-HX4F0-110D060US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908272
REPORT IS A COMBINATION OF REPORTS P899349 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D060US840-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

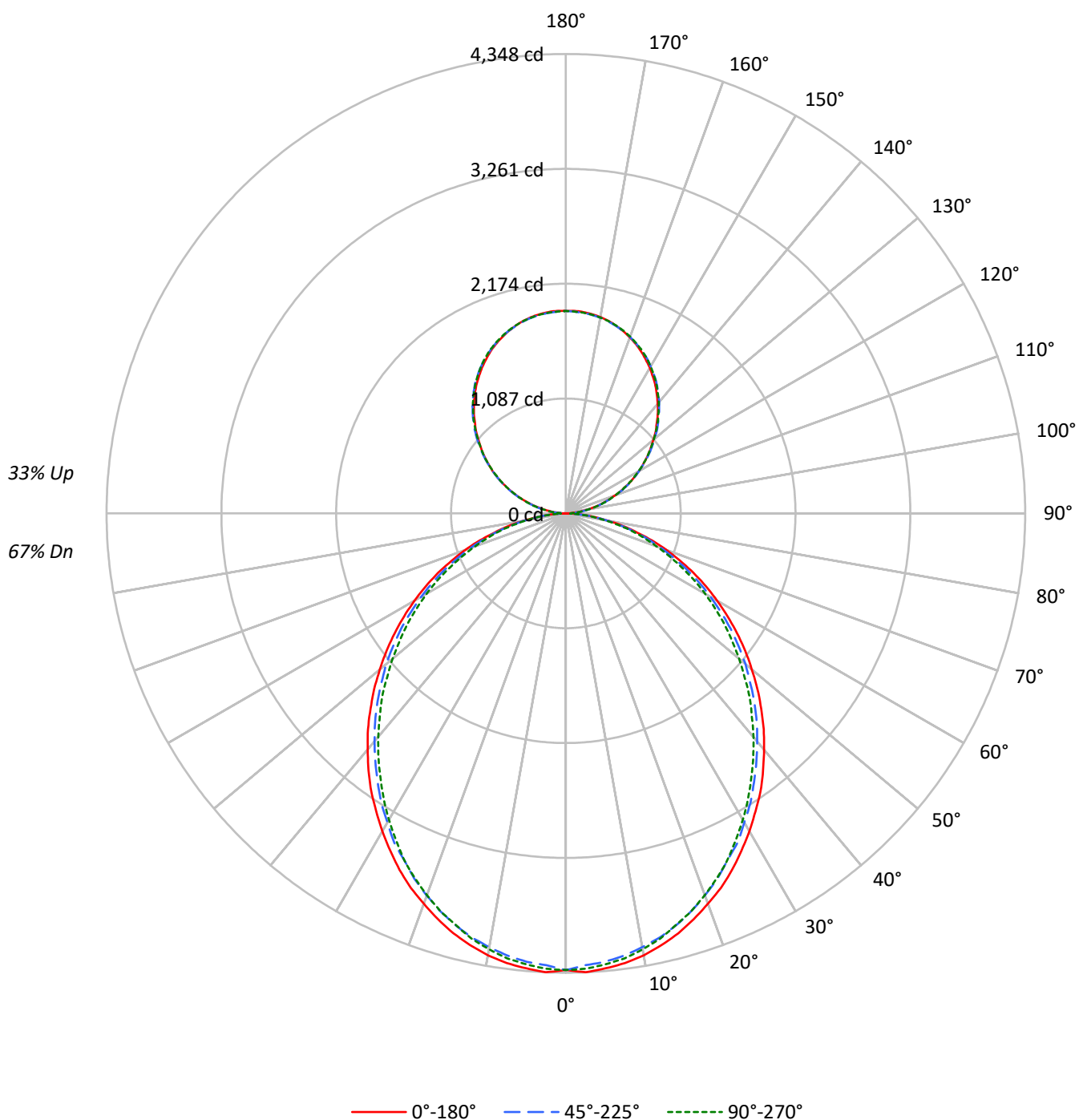
Lumens per Lamp: N/A
Luminaire Lumens: 16359.8 lumens
Efficiency: N/A
Efficacy: 111.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 146.3
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: P908272

CATALOG NUMBER: DFN2DIP-HX4F0-110D060US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P908272

CATALOG NUMBER: DFN2DIP-HX4F0-110D060US840-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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72
1	102	97	93	90	96	92	88	85	82	79	76	72	70	68	64	62	61
2	93	85	79	73	87	80	75	70	72	67	63	63	60	57	56	54	51
3	85	75	67	61	79	71	64	58	63	58	53	56	52	48	50	46	44
4	77	66	58	52	73	63	55	50	56	50	46	50	45	42	44	41	38
5	71	59	51	45	67	56	49	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	51	43	37	45	39	35	41	36	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	31	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	32	27	34	29	25	31	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	21	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3214	3214	3214
5°	3219	3169	3191
10°	3194	3127	3148
15°	3147	3076	3080
20°	3084	3005	3011
25°	3021	2920	2932
30°	2942	2840	2830
35°	2867	2747	2723
40°	2775	2652	2621
45°	2684	2557	2516
50°	2583	2458	2395
55°	2478	2343	2284
60°	2360	2206	2157
65°	2231	2066	2007
70°	2066	1893	1845
75°	1838	1687	1696
80°	1564	1425	1411
85°	1135	971	938

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2684 cd/sqm

TEST NUMBER: P908272

CATALOG NUMBER: DFN2DIP-HX4F0-110D060US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.8	2.5
10°-20°	1144.7	7.0
20°-30°	1682.2	10.3
30°-40°	1953.7	11.9
40°-50°	1951.3	11.9
50°-60°	1701.5	10.4
60°-70°	1257.8	7.7
70°-80°	711.6	4.3
80°-90°	193.3	1.2
90°-100°	118.6	0.7
100°-110°	376.8	2.3
110°-120°	644.8	3.9
120°-130°	848.0	5.2
130°-140°	951.8	5.8
140°-150°	933.4	5.7
150°-160°	783.0	4.8
160°-170°	519.2	3.2
170°-180°	181.5	1.1
0°-30°	3233.7	19.8
0°-40°	5187.4	31.7
0°-60°	8840.2	54.0
0°-90°	11002.9	67.3
90°-120°	1140.1	7.0
90°-150°	3873.3	23.7
90°-180°	5357.0	32.7
0°-180°	16359.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4322	4322	4322	4322	4322	
5°	4322	4306	4260	4293	4285	410
15°	4115	4090	4036	4052	4032	1159
25°	3724	3691	3620	3628	3620	1714
35°	3213	3172	3105	3080	3059	2006
45°	2614	2585	2523	2477	2461	2018
55°	1979	1954	1904	1854	1833	1769
65°	1334	1309	1268	1230	1210	1319
75°	698	690	669	644	653	745
85°	170	166	162	150	146	190
90°	2	21	57	53	55	16
95°	84	100	103	103	100	94
105°	348	352	356	359	359	367
115°	647	656	653	652	647	640
125°	941	956	951	946	944	841
135°	1217	1235	1239	1237	1232	941
145°	1478	1489	1499	1500	1494	923
155°	1690	1694	1700	1708	1702	778
165°	1838	1836	1836	1848	1840	519
175°	1913	1908	1905	1916	1906	182
180°	1916	1916	1916	1916	1916	

TEST NUMBER: P908272

CATALOG NUMBER: DFN2DIP-HX4F0-110D060US840-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4322.4	4322.4	4322.4	4322.4	4322.4
2.5°	4347.5	4326.8	4280.9	4322.4	4314.4
5°	4322.4	4306.1	4260.2	4293.2	4285.4
7.5°	4293.2	4268.6	4222.8	4256.3	4247.9
10°	4247.9	4218.7	4168.9	4201.9	4189.6
12.5°	4185.3	4160.5	4110.8	4131.5	4123.1
15°	4114.7	4090.0	4035.7	4052.5	4031.8
17.5°	4027.3	4002.7	3948.5	3969.2	3948.5
20°	3931.7	3907.0	3848.8	3861.1	3844.9
22.5°	3836.5	3798.9	3744.7	3744.7	3736.3
25°	3724.0	3691.0	3620.4	3628.3	3620.4
27.5°	3599.2	3570.1	3516.3	3503.9	3483.2
30°	3474.8	3441.3	3379.1	3366.8	3350.0
32.5°	3341.6	3317.0	3250.4	3225.2	3208.4
35°	3212.9	3171.5	3104.8	3079.7	3059.0
37.5°	3067.4	3029.9	2963.3	2934.2	2913.5
40°	2917.9	2884.4	2817.8	2780.8	2764.0
42.5°	2772.4	2738.9	2672.7	2630.8	2606.2
45°	2614.5	2585.4	2522.7	2477.4	2460.6
47.5°	2460.6	2431.6	2364.9	2319.1	2294.3
50°	2298.4	2277.7	2219.4	2161.2	2140.5
52.5°	2140.5	2111.3	2057.6	2011.7	1982.6
55°	1978.6	1953.5	1903.7	1853.8	1833.1
57.5°	1816.3	1795.6	1741.4	1691.5	1674.8
60°	1654.1	1637.8	1579.5	1533.7	1521.4
62.5°	1496.2	1467.1	1425.6	1384.2	1367.5
65°	1334.3	1309.2	1267.8	1230.3	1209.6
67.5°	1168.1	1147.0	1109.9	1080.9	1064.1
70°	1014.2	997.4	960.0	930.9	914.5
72.5°	856.4	839.6	818.9	789.8	777.4
75°	698.0	690.1	668.9	644.3	652.7
77.5°	556.9	540.2	531.8	519.5	507.2
80°	415.9	411.4	403.0	390.7	382.3
82.5°	282.7	282.7	278.7	262.0	262.0
85°	170.3	166.2	162.3	149.5	145.5
87.5°	74.9	66.6	58.2	45.8	41.4
90°	1.7	20.8	56.7	53.1	54.8
92.5°	35.9	48.6	50.3	52.0	52.0
95°	84.3	100.5	103.4	103.4	100.5
97.5°	140.4	155.4	161.8	161.8	161.8
100°	205.1	218.3	223.0	223.0	221.3
102.5°	273.3	283.1	289.4	291.1	289.4
105°	347.8	352.4	355.9	358.8	358.8
107.5°	421.7	428.7	428.7	429.8	421.7
110°	493.4	502.6	502.6	502.6	498.0

TEST NUMBER: P908272

CATALOG NUMBER: DFN2DIP-HX4F0-110D060US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	570.8	580.6	578.9	574.2	570.8
115°	647.0	656.3	653.4	651.7	647.0
117.5°	722.8	735.5	727.3	722.8	718.1
120°	799.0	811.7	799.0	799.0	793.8
122.5°	868.3	884.4	876.4	871.8	868.3
125°	941.1	955.5	950.9	945.7	944.0
127.5°	1012.2	1030.1	1023.7	1016.8	1012.2
130°	1078.6	1099.4	1096.5	1093.1	1086.7
132.5°	1153.2	1169.3	1170.4	1162.4	1157.7
135°	1217.3	1235.2	1238.6	1236.9	1232.2
137.5°	1288.9	1303.3	1306.3	1305.0	1298.2
140°	1351.9	1366.3	1374.4	1374.4	1368.1
142.5°	1416.5	1431.0	1435.6	1437.3	1431.0
145°	1477.8	1489.3	1498.6	1500.4	1494.0
147.5°	1532.7	1547.1	1554.1	1556.9	1550.5
150°	1589.3	1599.1	1605.5	1610.6	1605.5
152.5°	1639.5	1649.4	1657.5	1663.9	1657.5
155°	1689.8	1694.5	1699.6	1707.8	1702.5
157.5°	1733.1	1736.7	1739.5	1751.1	1743.0
160°	1771.9	1775.3	1777.1	1786.9	1780.0
162.5°	1807.7	1807.7	1809.4	1820.4	1812.3
165°	1838.3	1836.5	1836.5	1848.2	1840.1
167.5°	1866.0	1860.9	1860.9	1872.4	1864.3
170°	1886.8	1882.2	1880.5	1892.0	1882.2
172.5°	1901.3	1896.6	1894.9	1906.4	1896.6
175°	1912.8	1908.2	1904.7	1916.3	1906.4
177.5°	1919.1	1914.6	1911.1	1920.9	1911.1
180°	1916.3	1916.3	1916.3	1916.3	1916.3

TEST NUMBER: P908272

CATALOG NUMBER: DFN2DIP-HX4F0-110D060US840-FLLFLL

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	12.79	13.83	13.58	14.64	15.64	12.35	13.39	13.15	14.21	15.21
	3H	14.46	15.40	15.27	16.22	17.25	13.99	14.92	14.79	15.75	16.78
	4H	15.06	15.94	15.88	16.77	17.81	14.58	15.47	15.41	16.30	17.34
	6H	15.47	16.28	16.30	17.12	18.18	14.99	15.81	15.83	16.65	17.70
	8H	15.58	16.35	16.42	17.21	18.27	15.10	15.88	15.95	16.74	17.79
	12H	15.63	16.37	16.48	17.23	18.31	15.15	15.89	16.00	16.74	17.83
4H	2H	13.27	14.15	14.10	14.99	16.03	12.92	13.81	13.75	14.64	15.68
	3H	15.15	15.89	15.99	16.76	17.81	14.76	15.50	15.60	16.36	17.42
	4H	15.87	16.55	16.73	17.41	18.50	15.47	16.14	16.32	17.01	18.09
	6H	16.40	16.98	17.27	17.87	18.96	15.99	16.57	16.86	17.46	18.55
	8H	16.56	17.10	17.43	17.98	19.08	16.14	16.69	17.02	17.57	18.67
	12H	16.64	17.13	17.53	18.03	19.14	16.22	16.71	17.11	17.61	18.72
8H	4H	16.09	16.63	16.96	17.51	18.61	15.73	16.27	16.60	17.15	18.25
	6H	16.73	17.18	17.63	18.10	19.20	16.36	16.81	17.26	17.74	18.84
	8H	16.95	17.35	17.86	18.27	19.39	16.58	16.98	17.49	17.90	19.02
	12H	17.09	17.44	18.00	18.35	19.52	16.71	17.06	17.62	17.97	19.14
12H	4H	16.08	16.57	16.97	17.47	18.58	15.73	16.22	16.62	17.12	18.23
	6H	16.76	17.16	17.67	18.08	19.19	16.41	16.81	17.32	17.72	18.84
	8H	17.01	17.36	17.92	18.27	19.44	16.65	17.00	17.57	17.91	19.09

END OF REPORT