

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: P921774

Luminaire Tested: DFN2DIP-HX3F0-090D070US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921774
REPORT IS A COMBINATION OF REPORTS P899269 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D070US940-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

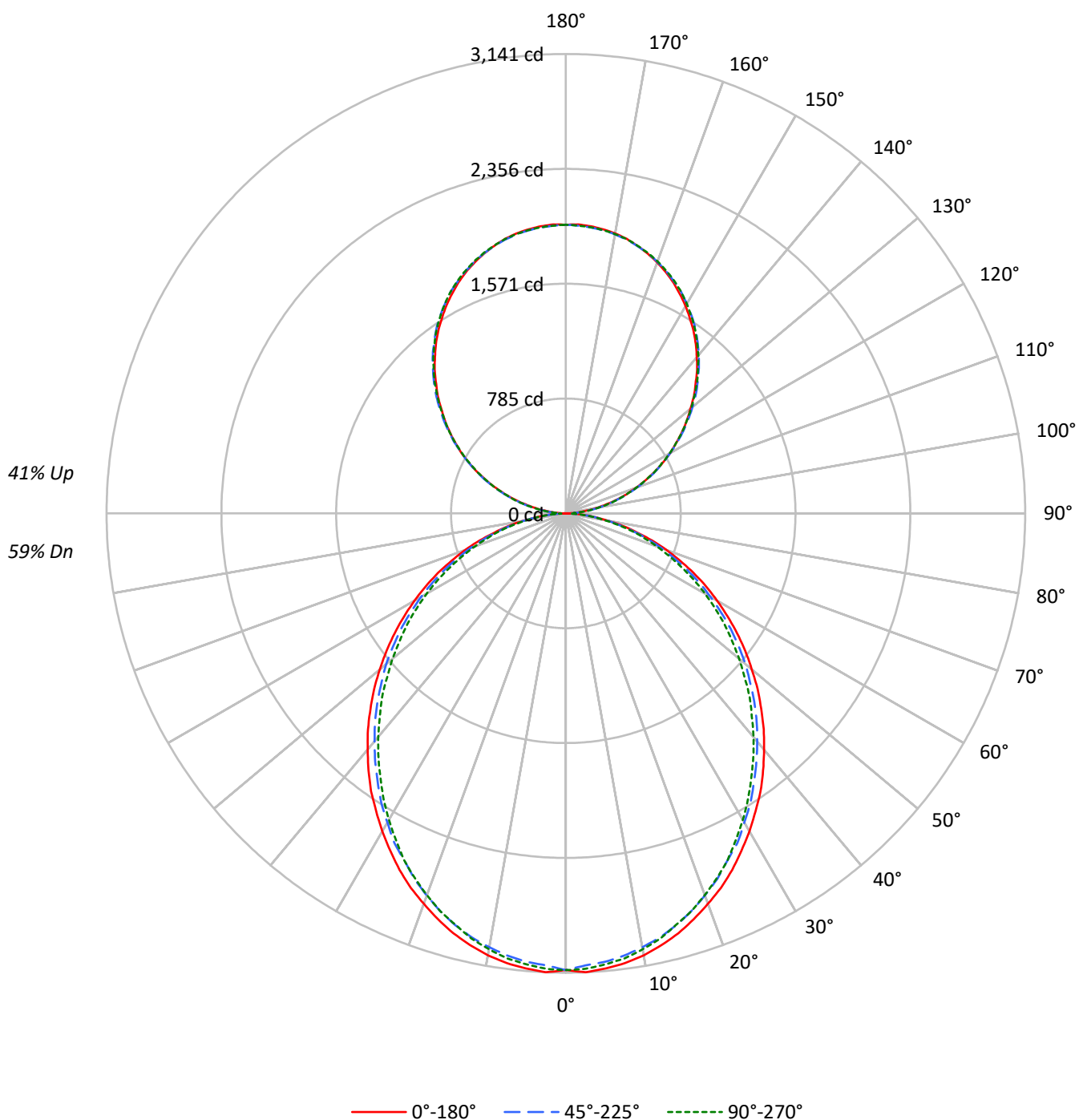
Lumens per Lamp: N/A
Luminaire Lumens: 13469.4 lumens
Efficiency: N/A
Efficacy: 92.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921774

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P921774

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US940-FLLFLL

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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	95	91	88	93	89	86	83	78	75	73	67	65	63	57	56	54
2	91	83	77	72	85	78	73	68	68	64	60	59	56	53	50	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	42	39
4	76	65	57	51	71	61	54	48	53	48	43	46	42	38	40	36	34
5	70	58	50	44	65	54	47	41	48	42	37	42	37	33	36	32	29
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	33	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3617	3617	3617
5°	3621	3564	3589
10°	3590	3514	3538
15°	3536	3453	3460
20°	3463	3370	3381
25°	3390	3272	3289
30°	3300	3180	3173
35°	3214	3072	3050
40°	3108	2963	2933
45°	3002	2853	2813
50°	2887	2738	2674
55°	2766	2604	2546
60°	2629	2446	2400
65°	2480	2283	2227
70°	2289	2083	2040
75°	2027	1843	1865
80°	1708	1537	1536
85°	1212	1018	996

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3002 cd/sqm

TEST NUMBER: P921774

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.9	2.2
10°-20°	827.0	6.1
20°-30°	1215.3	9.0
30°-40°	1411.5	10.5
40°-50°	1409.7	10.5
50°-60°	1229.3	9.1
60°-70°	908.7	6.7
70°-80°	514.1	3.8
80°-90°	141.3	1.0
90°-100°	122.2	0.9
100°-110°	388.1	2.9
110°-120°	664.2	4.9
120°-130°	873.6	6.5
130°-140°	980.5	7.3
140°-150°	961.5	7.1
150°-160°	806.6	6.0
160°-170°	534.9	4.0
170°-180°	187.0	1.4
0°-30°	2336.2	17.3
0°-40°	3747.7	27.8
0°-60°	6386.7	47.4
0°-90°	7950.8	59.0
90°-120°	1174.5	8.7
90°-150°	3990.1	29.6
90°-180°	5519.0	41.0
0°-180°	13469.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3123	3123	3123	3123	3123	
5°	3123	3111	3078	3102	3096	296
15°	2973	2955	2916	2928	2913	837
25°	2690	2666	2616	2621	2616	1238
35°	2321	2291	2243	2225	2210	1449
45°	1889	1868	1823	1790	1778	1458
55°	1430	1411	1375	1339	1324	1278
65°	964	946	916	889	874	953
75°	504	499	483	466	472	538
85°	123	120	117	108	105	137
90°	2	21	58	55	56	13
95°	87	104	107	107	104	97
105°	358	363	367	370	370	378
115°	667	676	673	671	667	659
125°	970	984	980	974	972	866
135°	1254	1272	1276	1274	1269	969
145°	1522	1534	1544	1546	1539	951
155°	1741	1746	1751	1759	1754	801
165°	1894	1892	1892	1904	1896	534
175°	1970	1966	1962	1974	1964	187
180°	1974	1974	1974	1974	1974	

TEST NUMBER: P921774

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3122.7	3122.7	3122.7	3122.7	3122.7
2.5°	3140.9	3125.9	3092.8	3122.7	3117.0
5°	3122.7	3110.9	3077.8	3101.7	3095.9
7.5°	3101.7	3083.9	3050.7	3075.0	3068.9
10°	3068.9	3047.9	3011.8	3035.7	3026.8
12.5°	3023.6	3005.8	2969.8	2984.7	2978.8
15°	2972.7	2954.9	2915.6	2927.8	2912.8
17.5°	2909.6	2891.7	2852.6	2867.6	2852.6
20°	2840.5	2822.6	2780.5	2789.4	2777.7
22.5°	2771.6	2744.6	2705.4	2705.4	2699.3
25°	2690.4	2666.5	2615.6	2621.3	2615.6
27.5°	2600.2	2579.2	2540.4	2531.5	2516.5
30°	2510.4	2486.2	2441.2	2432.3	2420.3
32.5°	2414.2	2396.4	2348.2	2330.1	2318.0
35°	2321.2	2291.2	2243.1	2225.0	2210.0
37.5°	2216.1	2189.0	2140.8	2119.9	2104.9
40°	2108.0	2083.8	2035.7	2008.9	1996.9
42.5°	2002.9	1978.7	1930.9	1900.7	1882.8
45°	1888.8	1867.9	1822.6	1789.8	1777.7
47.5°	1777.7	1756.7	1708.5	1675.4	1657.6
50°	1660.5	1645.5	1603.4	1561.4	1546.4
52.5°	1546.4	1525.4	1486.5	1453.4	1432.4
55°	1429.5	1411.3	1375.3	1339.3	1324.4
57.5°	1312.2	1297.3	1258.1	1222.1	1210.0
60°	1195.0	1183.2	1141.1	1108.0	1099.1
62.5°	1080.9	1059.9	1029.9	1000.1	987.9
65°	964.0	945.8	915.9	888.9	873.9
67.5°	843.9	828.7	801.8	780.9	768.7
70°	732.7	720.6	693.6	672.5	660.8
72.5°	618.7	606.5	591.6	570.6	561.7
75°	504.4	498.6	483.3	465.5	471.5
77.5°	402.3	390.3	384.2	375.3	366.4
80°	300.4	297.2	291.1	282.2	276.3
82.5°	204.2	204.2	201.3	189.2	189.2
85°	123.0	120.1	117.3	108.0	105.1
87.5°	54.1	48.1	42.1	33.2	30.0
90°	1.8	21.4	58.3	54.8	56.5
92.5°	36.9	50.0	51.8	53.6	53.6
95°	86.9	103.5	106.6	106.6	103.5
97.5°	144.6	160.1	166.7	166.7	166.7
100°	211.2	225.0	229.7	229.7	227.9
102.5°	281.5	291.6	298.2	300.0	298.2
105°	358.3	363.0	366.6	369.6	369.6
107.5°	434.4	441.6	441.6	442.8	434.4
110°	508.3	517.8	517.8	517.8	513.0

TEST NUMBER: P921774

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US940-FLLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.0	598.2	596.4	591.6	588.0
115°	666.6	676.1	673.2	671.4	666.6
117.5°	744.5	757.6	749.3	744.5	739.8
120°	823.0	836.2	823.0	823.0	817.7
122.5°	894.5	911.1	902.9	898.0	894.5
125°	969.5	984.4	979.6	974.3	972.5
127.5°	1042.7	1061.1	1054.6	1047.5	1042.7
130°	1111.2	1132.6	1129.6	1126.1	1119.5
132.5°	1187.9	1204.6	1205.8	1197.5	1192.7
135°	1254.0	1272.4	1276.0	1274.2	1269.4
137.5°	1327.8	1342.6	1345.6	1344.4	1337.3
140°	1392.7	1407.6	1415.9	1415.9	1409.3
142.5°	1459.3	1474.2	1478.9	1480.7	1474.2
145°	1522.4	1534.3	1543.8	1545.6	1539.1
147.5°	1579.0	1593.8	1601.0	1603.9	1597.4
150°	1637.3	1647.3	1653.9	1659.3	1653.9
152.5°	1689.0	1699.2	1707.4	1714.0	1707.4
155°	1740.8	1745.5	1751.0	1759.3	1753.9
157.5°	1785.5	1789.0	1792.0	1803.9	1795.5
160°	1825.3	1828.9	1830.7	1840.8	1833.6
162.5°	1862.2	1862.2	1864.0	1875.3	1867.0
165°	1893.7	1891.9	1891.9	1903.9	1895.5
167.5°	1922.3	1917.0	1917.0	1928.9	1920.6
170°	1943.8	1939.0	1937.2	1949.1	1939.0
172.5°	1958.6	1953.8	1952.0	1964.0	1953.8
175°	1970.5	1965.8	1962.2	1974.1	1964.0
177.5°	1977.1	1972.3	1968.7	1978.9	1968.7
180°	1974.1	1974.1	1974.1	1974.1	1974.1

TEST NUMBER: P921774

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US940-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	12.49	13.44	13.36	14.33	15.47	12.06	13.01	12.93	13.90	15.04
	3H	14.15	15.00	15.04	15.90	17.07	13.68	14.53	14.57	15.44	16.60
	4H	14.73	15.54	15.64	16.45	17.62	14.27	15.07	15.17	15.98	17.15
	6H	15.13	15.87	16.05	16.79	17.98	14.66	15.40	15.58	16.32	17.51
	8H	15.24	15.94	16.16	16.88	18.06	14.77	15.47	15.69	16.41	17.59
	12H	15.28	15.96	16.21	16.89	18.10	14.81	15.48	15.74	16.41	17.62
4H	2H	12.96	13.76	13.87	14.67	15.85	12.61	13.42	13.52	14.33	15.50
	3H	14.82	15.49	15.74	16.44	17.62	14.43	15.10	15.35	16.05	17.23
	4H	15.53	16.15	16.46	17.09	18.30	15.13	15.75	16.06	16.68	17.90
	6H	16.05	16.58	16.99	17.54	18.75	15.64	16.17	16.59	17.13	18.35
	8H	16.19	16.69	17.14	17.65	18.87	15.79	16.28	16.73	17.24	18.46
	12H	16.27	16.71	17.23	17.69	18.92	15.85	16.30	16.82	17.27	18.50
8H	4H	15.73	16.23	16.68	17.19	18.41	15.38	15.87	16.32	16.83	18.05
	6H	16.36	16.77	17.33	17.77	18.99	16.00	16.41	16.97	17.41	18.63
	8H	16.58	16.94	17.56	17.93	19.17	16.21	16.57	17.19	17.56	18.80
	12H	16.71	17.03	17.69	18.01	19.30	16.33	16.65	17.31	17.63	18.92
12H	4H	15.72	16.17	16.69	17.14	18.37	15.37	15.82	16.34	16.79	18.03
	6H	16.39	16.75	17.37	17.74	18.98	16.04	16.40	17.02	17.39	18.63
	8H	16.63	16.95	17.61	17.93	19.22	16.28	16.60	17.26	17.58	18.87