

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: P927139

Luminaire Tested: DFN2DIP-HX4F0-110D080US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927139
REPORT IS A COMBINATION OF REPORTS P899385 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D080US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

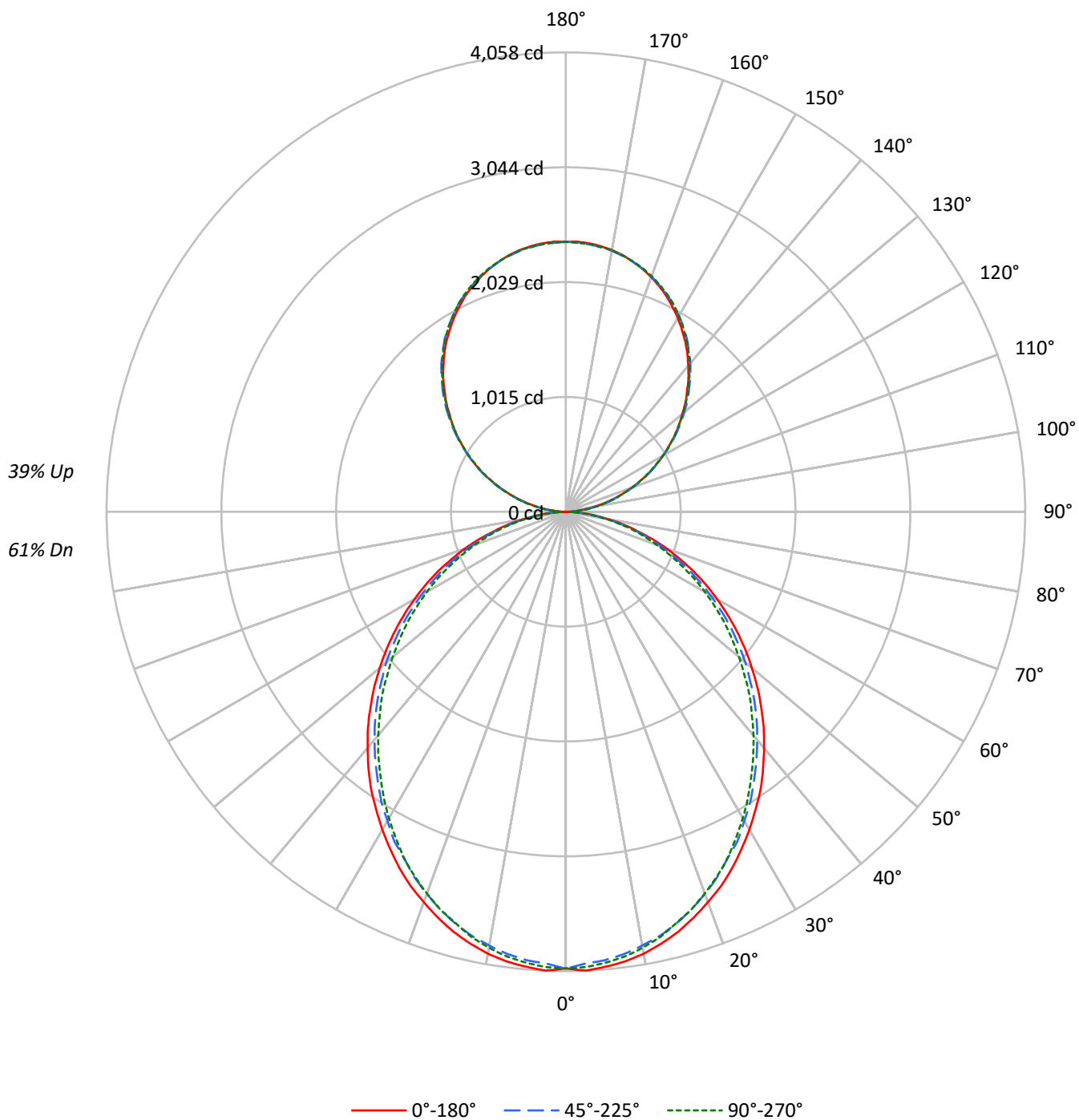
Lumens per Lamp: N/A
Luminaire Lumens: 16936.7 lumens
Efficiency: N/A
Efficacy: 99.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 170.6
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: P927139

CATALOG NUMBER: DFN2DIP-HX4F0-110D080US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P927139

CATALOG NUMBER: DFN2DIP-HX4F0-110D080US830-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	0
RCR																		
0	110	110	110	110	103	103	103	103	89	89	89	77	77	77	66	66	66	61
1	100	96	92	88	94	90	86	83	78	76	73	68	66	64	58	57	56	51
2	91	84	77	72	85	78	73	68	69	64	61	60	56	54	51	49	47	43
3	83	74	66	60	78	69	62	57	61	55	51	53	49	45	45	42	40	36
4	76	65	57	51	71	61	54	48	54	48	44	47	43	39	41	37	34	31
5	70	58	50	44	65	55	47	42	48	42	38	42	38	34	37	33	30	27
6	65	52	44	38	60	49	42	36	44	38	33	38	33	30	33	29	26	24
7	60	47	39	33	56	45	37	32	40	34	29	35	30	26	30	27	24	21
8	55	43	35	30	52	41	33	28	36	30	26	32	27	24	28	24	21	19
9	52	39	32	26	48	37	30	25	33	27	23	29	25	21	26	22	19	17
10	48	36	29	24	45	34	27	23	31	25	21	27	23	19	24	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3000	3000	3000
5°	3005	2958	2978
10°	2980	2919	2938
15°	2937	2871	2875
20°	2878	2804	2811
25°	2819	2725	2736
30°	2746	2651	2641
35°	2676	2563	2541
40°	2590	2475	2446
45°	2505	2387	2349
50°	2411	2294	2236
55°	2313	2187	2132
60°	2202	2059	2013
65°	2082	1928	1873
70°	1928	1767	1722
75°	1715	1575	1583
80°	1459	1330	1317
85°	1059	906	876

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2505 cd/sqm

TEST NUMBER: P927139

CATALOG NUMBER: DFN2DIP-HX4F0-110D080US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.7	2.2
10°-20°	1068.3	6.3
20°-30°	1570.0	9.3
30°-40°	1823.4	10.8
40°-50°	1821.2	10.8
50°-60°	1588.0	9.4
60°-70°	1173.9	6.9
70°-80°	664.1	3.9
80°-90°	182.1	1.1
90°-100°	147.6	0.9
100°-110°	468.9	2.8
110°-120°	802.3	4.7
120°-130°	1055.2	6.2
130°-140°	1184.4	7.0
140°-150°	1161.5	6.9
150°-160°	974.3	5.8
160°-170°	646.1	3.8
170°-180°	225.8	1.3
0°-30°	3017.9	17.8
0°-40°	4841.4	28.6
0°-60°	8250.5	48.7
0°-90°	10270.6	60.6
90°-120°	1418.8	8.4
90°-150°	4819.9	28.5
90°-180°	6666.0	39.4
0°-180°	16936.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4034	4034	4034	4034	4034	
5°	4034	4019	3976	4007	4000	383
15°	3840	3817	3766	3782	3763	1082
25°	3476	3445	3379	3386	3379	1599
35°	2999	2960	2898	2874	2855	1872
45°	2440	2413	2354	2312	2296	1883
55°	1847	1823	1777	1730	1711	1651
65°	1245	1222	1183	1148	1129	1231
75°	652	644	624	601	609	695
85°	159	155	152	140	136	177
90°	2	26	70	66	68	16
95°	105	125	129	129	125	117
105°	433	438	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1533	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2285	2285	2300	2290	645
175°	2380	2374	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	

TEST NUMBER: P927139

CATALOG NUMBER: DFN2DIP-HX4F0-110D080US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4034.1	4034.1	4034.1	4034.1	4034.1
2.5°	4057.5	4038.1	3995.4	4034.1	4026.6
5°	4034.1	4018.8	3976.0	4006.9	3999.5
7.5°	4006.9	3983.9	3941.1	3972.4	3964.5
10°	3964.5	3937.3	3890.8	3921.6	3910.1
12.5°	3906.1	3883.0	3836.5	3855.9	3848.0
15°	3840.2	3817.1	3766.5	3782.2	3762.8
17.5°	3758.7	3735.7	3685.1	3704.4	3685.1
20°	3669.4	3646.3	3592.1	3603.6	3588.4
22.5°	3580.6	3545.5	3494.9	3494.9	3487.1
25°	3475.6	3444.7	3378.9	3386.3	3378.9
27.5°	3359.1	3331.9	3281.7	3270.2	3250.9
30°	3243.0	3211.8	3153.7	3142.2	3126.6
32.5°	3118.7	3095.7	3033.5	3010.1	2994.4
35°	2998.6	2959.9	2897.7	2874.2	2854.9
37.5°	2862.7	2827.8	2765.7	2738.4	2719.1
40°	2723.3	2692.0	2629.9	2595.3	2579.6
42.5°	2587.4	2556.2	2494.4	2455.3	2432.3
45°	2440.1	2412.9	2354.5	2312.1	2296.5
47.5°	2296.5	2269.4	2207.1	2164.4	2141.3
50°	2145.0	2125.7	2071.3	2017.0	1997.7
52.5°	1997.7	1970.5	1920.3	1877.5	1850.3
55°	1846.6	1823.2	1776.7	1730.1	1710.8
57.5°	1695.2	1675.9	1625.2	1578.7	1563.0
60°	1543.7	1528.5	1474.2	1431.4	1419.9
62.5°	1396.4	1369.3	1330.5	1291.9	1276.2
65°	1245.3	1221.9	1183.2	1148.2	1128.9
67.5°	1090.2	1070.5	1035.9	1008.8	993.1
70°	946.6	930.9	895.9	868.8	853.5
72.5°	799.2	783.6	764.3	737.1	725.5
75°	651.5	644.1	624.3	601.3	609.1
77.5°	519.8	504.1	496.3	484.8	473.3
80°	388.1	384.0	376.2	364.7	356.8
82.5°	263.8	263.8	260.1	244.5	244.5
85°	158.9	155.1	151.5	139.5	135.8
87.5°	69.9	62.1	54.3	42.8	38.6
90°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.5	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	613.9	625.4	625.4	625.4	619.7

TEST NUMBER: P927139

CATALOG NUMBER: DFN2DIP-HX4F0-110D080US830-FLLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.5	720.4	714.6	710.3
115°	805.2	816.7	813.1	810.9	805.2
117.5°	899.3	915.2	905.1	899.3	893.6
120°	994.2	1010.1	994.2	994.2	987.7
122.5°	1080.5	1100.7	1090.6	1084.8	1080.5
125°	1171.1	1189.1	1183.3	1176.8	1174.7
127.5°	1259.6	1281.8	1273.9	1265.3	1259.6
130°	1342.2	1368.0	1364.5	1360.2	1352.3
132.5°	1435.0	1455.0	1456.5	1446.5	1440.7
135°	1514.7	1537.0	1541.4	1539.2	1533.4
137.5°	1603.9	1621.9	1625.4	1624.0	1615.4
140°	1682.3	1700.2	1710.3	1710.3	1702.3
142.5°	1762.8	1780.8	1786.5	1788.7	1780.8
145°	1839.0	1853.3	1864.8	1867.0	1859.1
147.5°	1907.2	1925.2	1933.8	1937.5	1929.6
150°	1977.7	1989.9	1997.8	2004.3	1997.8
152.5°	2040.2	2052.5	2062.6	2070.5	2062.6
155°	2102.8	2108.6	2115.1	2125.1	2118.6
157.5°	2156.7	2161.1	2164.6	2179.0	2169.0
160°	2204.9	2209.2	2211.4	2223.5	2215.0
162.5°	2249.5	2249.5	2251.6	2265.3	2255.2
165°	2287.5	2285.4	2285.4	2299.8	2289.7
167.5°	2322.0	2315.6	2315.6	2330.0	2319.9
170°	2348.0	2342.2	2340.0	2354.5	2342.2
172.5°	2366.0	2360.2	2358.0	2372.4	2360.2
175°	2380.3	2374.5	2370.2	2384.6	2372.4
177.5°	2388.2	2382.5	2378.1	2390.4	2378.1
180°	2384.6	2384.6	2384.6	2384.6	2384.6

TEST NUMBER: P927139

CATALOG NUMBER: DFN2DIP-HX4F0-110D080US830-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	12.02	12.98	12.88	13.86	14.97	11.58	12.55	12.44	13.43	14.54
	3H	13.69	14.55	14.56	15.44	16.58	13.21	14.08	14.08	14.97	16.11
	4H	14.28	15.10	15.17	15.99	17.14	13.80	14.62	14.69	15.52	16.67
	6H	14.68	15.44	15.58	16.34	17.50	14.21	14.96	15.11	15.87	17.03
	8H	14.79	15.51	15.70	16.43	17.59	14.32	15.04	15.22	15.96	17.12
	12H	14.84	15.53	15.76	16.45	17.63	14.36	15.05	15.28	15.96	17.15
4H	2H	12.49	13.31	13.38	14.21	15.35	12.15	12.97	13.04	13.86	15.01
	3H	14.37	15.05	15.27	15.98	17.14	13.97	14.66	14.88	15.59	16.75
	4H	15.09	15.71	16.00	16.64	17.82	14.68	15.30	15.60	16.23	17.42
	6H	15.61	16.15	16.54	17.10	18.28	15.20	15.74	16.13	16.69	17.87
	8H	15.76	16.27	16.69	17.21	18.41	15.35	15.85	16.28	16.80	18.00
	12H	15.84	16.29	16.79	17.25	18.46	15.42	15.87	16.37	16.83	18.04
8H	4H	15.29	15.80	16.22	16.74	17.94	14.93	15.44	15.86	16.38	17.58
	6H	15.93	16.35	16.89	17.33	18.53	15.57	15.98	16.52	16.97	18.17
	8H	16.15	16.52	17.12	17.49	18.71	15.78	16.15	16.75	17.13	18.34
	12H	16.29	16.61	17.26	17.58	18.85	15.90	16.23	16.88	17.20	18.46
12H	4H	15.28	15.74	16.23	16.70	17.91	14.93	15.39	15.88	16.35	17.55
	6H	15.96	16.33	16.93	17.30	18.52	15.61	15.98	16.58	16.95	18.17
	8H	16.21	16.53	17.18	17.50	18.77	15.85	16.18	16.82	17.14	18.41