

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: P927079

Luminaire Tested: DFN2DIP-HX4F0-090D110US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927079
REPORT IS A COMBINATION OF REPORTS P899435 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D110US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

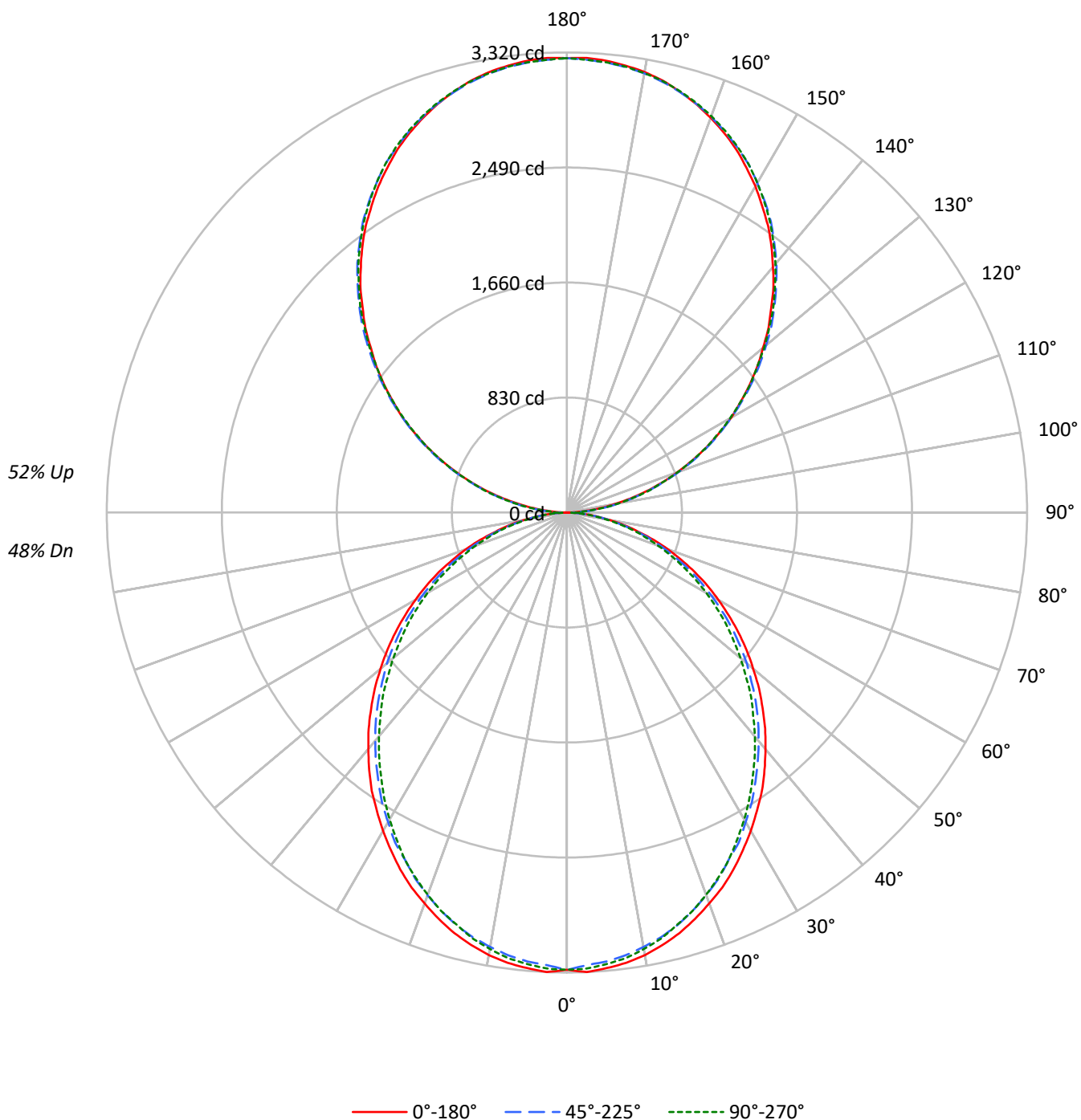
Lumens per Lamp: N/A
Luminaire Lumens: 17572.9 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 175.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927079

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P927079

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-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	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54
1	97	93	89	86	89	86	82	79	72	70	67	59	58	56	48	47	46
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	37	35	33
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	31	28
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	25
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22
7	58	46	38	32	53	42	35	30	36	31	26	30	26	23	25	22	19
8	54	41	34	28	49	38	32	27	33	27	24	28	23	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16
10	47	35	27	23	43	32	26	21	28	23	19	24	19	17	20	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2454	2454	2454
5°	2458	2420	2436
10°	2439	2388	2404
15°	2403	2349	2352
20°	2355	2294	2299
25°	2307	2229	2239
30°	2246	2169	2161
35°	2190	2097	2079
40°	2119	2025	2001
45°	2049	1953	1922
50°	1973	1877	1829
55°	1893	1789	1744
60°	1802	1685	1647
65°	1703	1577	1532
70°	1578	1446	1409
75°	1403	1288	1295
80°	1194	1088	1078
85°	867	741	717

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2472 cd/sqm

TEST NUMBER: P927079

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.7	1.8
10°-20°	874.1	5.0
20°-30°	1284.5	7.3
30°-40°	1491.9	8.5
40°-50°	1490.0	8.5
50°-60°	1299.3	7.4
60°-70°	960.4	5.5
70°-80°	543.4	3.1
80°-90°	152.7	0.9
90°-100°	202.9	1.2
100°-110°	644.7	3.7
110°-120°	1103.2	6.3
120°-130°	1450.9	8.3
130°-140°	1628.6	9.3
140°-150°	1597.0	9.1
150°-160°	1339.7	7.6
160°-170°	888.4	5.1
170°-180°	310.5	1.8
0°-30°	2469.2	14.1
0°-40°	3961.1	22.5
0°-60°	6750.4	38.4
0°-90°	8407.0	47.8
90°-120°	1950.8	11.1
90°-150°	6627.3	37.7
90°-180°	9166.0	52.2
0°-180°	17572.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3300	3300	3300	3300	3300	
5°	3300	3288	3253	3278	3272	313
15°	3142	3123	3082	3094	3079	885
25°	2844	2818	2764	2771	2764	1308
35°	2453	2422	2371	2352	2336	1532
45°	1996	1974	1926	1892	1879	1541
55°	1511	1492	1454	1416	1400	1351
65°	1019	1000	968	940	924	1007
75°	533	527	511	492	498	569
85°	130	127	124	114	111	145
90°	3	36	97	91	94	17
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2113	2119	2116	2108	1610
145°	2528	2548	2564	2567	2556	1580
155°	2891	2899	2908	2922	2913	1331
165°	3145	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	

TEST NUMBER: P927079

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3300.5	3300.5	3300.5	3300.5	3300.5
2.5°	3319.8	3303.9	3269.0	3300.5	3294.5
5°	3300.5	3288.1	3253.1	3278.4	3272.3
7.5°	3278.4	3259.5	3224.5	3250.1	3243.7
10°	3243.7	3221.5	3183.4	3208.6	3199.2
12.5°	3195.8	3177.0	3139.0	3154.7	3148.4
15°	3142.0	3123.2	3081.7	3094.5	3078.7
17.5°	3075.3	3056.4	3015.1	3030.9	3015.1
20°	3002.2	2983.4	2938.9	2948.3	2935.9
22.5°	2929.5	2900.9	2859.5	2859.5	2853.0
25°	2843.6	2818.4	2764.5	2770.6	2764.5
27.5°	2748.3	2726.1	2685.1	2675.7	2659.8
30°	2653.4	2627.8	2580.3	2570.9	2558.1
32.5°	2551.7	2532.9	2482.0	2462.8	2450.0
35°	2453.4	2421.8	2370.9	2351.7	2335.9
37.5°	2342.3	2313.6	2262.8	2240.6	2224.8
40°	2228.1	2202.5	2151.6	2123.4	2110.6
42.5°	2116.9	2091.4	2040.9	2008.9	1990.1
45°	1996.4	1974.3	1926.4	1891.7	1879.0
47.5°	1879.0	1856.7	1805.8	1770.9	1752.0
50°	1755.0	1739.2	1694.7	1650.3	1634.5
52.5°	1634.5	1612.2	1571.1	1536.2	1513.9
55°	1510.9	1491.7	1453.6	1415.6	1399.8
57.5°	1387.0	1371.1	1329.8	1291.7	1278.9
60°	1263.0	1250.6	1206.1	1171.2	1161.7
62.5°	1142.5	1120.3	1088.6	1057.0	1044.2
65°	1018.9	999.7	968.0	939.5	923.6
67.5°	892.0	875.9	847.5	825.3	812.5
70°	774.5	761.6	733.1	710.8	698.4
72.5°	653.9	641.1	625.3	603.1	593.7
75°	533.1	527.0	510.8	492.0	498.4
77.5°	425.3	412.5	406.1	396.7	387.3
80°	317.5	314.1	307.7	298.3	292.0
82.5°	215.8	215.8	212.8	200.0	200.0
85°	130.0	127.0	123.9	114.1	111.1
87.5°	57.2	50.8	44.5	35.1	31.7
90°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.2	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	608.9	613.9	613.9
107.5°	721.6	733.5	733.5	735.4	721.6
110°	844.2	860.0	860.0	860.0	852.1

TEST NUMBER: P927079

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.6	993.4	990.5	982.6	976.6
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.3	1244.5	1236.7	1228.7
120°	1367.1	1388.9	1367.1	1367.1	1358.2
122.5°	1485.8	1513.4	1499.5	1491.6	1485.8
125°	1610.3	1635.0	1627.0	1618.2	1615.2
127.5°	1731.8	1762.5	1751.6	1739.8	1731.8
130°	1845.5	1881.1	1876.1	1870.2	1859.4
132.5°	1973.0	2000.7	2002.7	1988.9	1980.9
135°	2082.7	2113.4	2119.3	2116.4	2108.5
137.5°	2205.4	2230.0	2235.0	2233.0	2221.2
140°	2313.1	2337.8	2351.6	2351.6	2340.8
142.5°	2423.8	2448.5	2456.4	2459.4	2448.5
145°	2528.5	2548.3	2564.2	2567.1	2556.2
147.5°	2622.5	2647.2	2659.1	2664.0	2653.1
150°	2719.4	2736.2	2747.0	2756.0	2747.0
152.5°	2805.4	2822.1	2836.0	2846.9	2836.0
155°	2891.4	2899.2	2908.2	2922.0	2913.1
157.5°	2965.5	2971.4	2976.3	2996.1	2982.3
160°	3031.7	3037.7	3040.6	3057.5	3045.6
162.5°	3093.0	3093.0	3096.0	3114.8	3100.9
165°	3145.4	3142.4	3142.4	3162.2	3148.3
167.5°	3192.8	3184.0	3184.0	3203.7	3189.9
170°	3228.4	3220.5	3217.6	3237.3	3220.5
172.5°	3253.1	3245.2	3242.3	3262.1	3245.2
175°	3272.9	3265.0	3259.1	3278.9	3262.1
177.5°	3283.8	3275.8	3269.9	3286.8	3269.9
180°	3278.9	3278.9	3278.9	3278.9	3278.9

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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	10.19	11.03	11.16	12.02	13.32	9.76	10.60	10.73	11.59	12.89
	3H	11.85	12.60	12.83	13.60	14.92	11.37	12.13	12.36	13.13	14.45
	4H	12.43	13.15	13.43	14.15	15.48	11.96	12.68	12.96	13.68	15.01
	6H	12.83	13.49	13.84	14.50	15.84	12.36	13.02	13.37	14.02	15.37
	8H	12.94	13.57	13.95	14.59	15.93	12.46	13.09	13.48	14.11	15.45
	12H	12.99	13.58	14.01	14.60	15.96	12.51	13.10	13.53	14.12	15.48
4H	2H	10.65	11.36	11.65	12.36	13.70	10.30	11.02	11.31	12.02	13.35
	3H	12.51	13.11	13.53	14.14	15.48	12.12	12.72	13.13	13.75	15.09
	4H	13.23	13.77	14.25	14.80	16.16	12.82	13.37	13.84	14.39	15.76
	6H	13.74	14.21	14.77	15.26	16.62	13.33	13.80	14.37	14.85	16.21
	8H	13.89	14.33	14.93	15.37	16.75	13.48	13.92	14.51	14.96	16.34
	12H	13.96	14.36	15.02	15.41	16.80	13.54	13.94	14.59	14.99	16.38
8H	4H	13.42	13.86	14.46	14.90	16.28	13.06	13.50	14.10	14.54	15.92
	6H	14.05	14.42	15.11	15.50	16.88	13.69	14.05	14.75	15.14	16.51
	8H	14.28	14.60	15.34	15.66	17.06	13.91	14.23	14.97	15.29	16.69
	12H	14.41	14.69	15.48	15.75	17.19	14.02	14.30	15.09	15.36	16.80
12H	4H	13.41	13.80	14.46	14.86	16.24	13.06	13.45	14.11	14.51	15.89
	6H	14.08	14.40	15.15	15.47	16.87	13.73	14.05	14.80	15.12	16.51
	8H	14.33	14.61	15.40	15.67	17.11	13.97	14.25	15.04	15.31	16.75

END OF REPORT