

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: P927091

Luminaire Tested: DFN2DIP-HX4F0-100D050US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927091
REPORT IS A COMBINATION OF REPORTS P899329 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D050US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

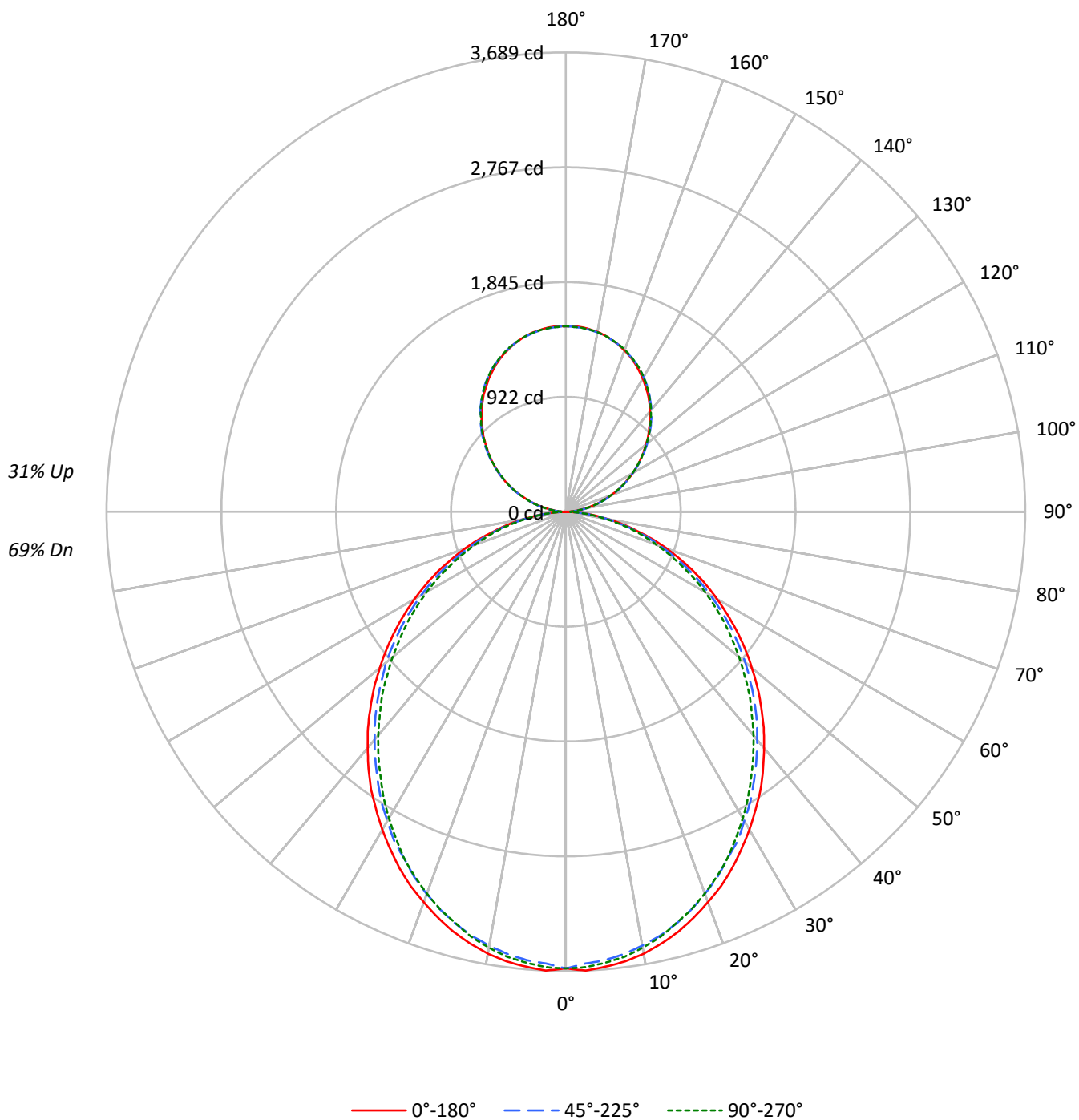
Lumens per Lamp: N/A
Luminaire Lumens: 13501.3 lumens
Efficiency: N/A
Efficacy: 98.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 137
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927091

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P927091

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US830-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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2727	2727	2727
5°	2732	2689	2707
10°	2710	2653	2671
15°	2670	2610	2614
20°	2616	2549	2555
25°	2563	2477	2487
30°	2496	2410	2401
35°	2433	2330	2310
40°	2355	2250	2224
45°	2277	2170	2135
50°	2192	2086	2032
55°	2103	1988	1938
60°	2002	1872	1830
65°	1893	1753	1703
70°	1753	1606	1566
75°	1559	1432	1439
80°	1327	1209	1197
85°	963	824	797

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2277 cd/sqm

TEST NUMBER: P927091

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.2	2.6
10°-20°	971.2	7.2
20°-30°	1427.2	10.6
30°-40°	1657.6	12.3
40°-50°	1655.6	12.3
50°-60°	1443.6	10.7
60°-70°	1067.2	7.9
70°-80°	603.8	4.5
80°-90°	163.6	1.2
90°-100°	92.2	0.7
100°-110°	293.0	2.2
110°-120°	501.5	3.7
120°-130°	659.5	4.9
130°-140°	740.3	5.5
140°-150°	725.9	5.4
150°-160°	608.9	4.5
160°-170°	403.8	3.0
170°-180°	141.2	1.0
0°-30°	2743.6	20.3
0°-40°	4401.2	32.6
0°-60°	7500.4	55.6
0°-90°	9335.0	69.1
90°-120°	886.7	6.6
90°-150°	3012.4	22.3
90°-180°	4166.0	30.9
0°-180°	13501.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3667	3667	3667	3667	3667	
5°	3667	3654	3615	3643	3636	348
15°	3491	3470	3424	3438	3421	983
25°	3160	3132	3072	3078	3072	1454
35°	2726	2691	2634	2613	2595	1702
45°	2218	2194	2140	2102	2088	1712
55°	1679	1658	1615	1573	1555	1501
65°	1132	1111	1076	1044	1026	1119
75°	592	586	568	547	554	632
85°	144	141	138	127	124	161
90°	1	16	44	41	43	13
95°	66	78	80	80	78	73
105°	270	274	277	279	279	285
115°	503	510	508	507	503	498
125°	732	743	740	736	734	654
135°	947	961	963	962	958	732
145°	1149	1158	1166	1167	1162	718
155°	1314	1318	1322	1328	1324	605
165°	1430	1428	1428	1437	1431	403
175°	1488	1484	1481	1490	1483	141
180°	1490	1490	1490	1490	1490	

TEST NUMBER: P927091

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3667.4	3667.4	3667.4	3667.4	3667.4
2.5°	3688.7	3671.0	3632.1	3667.4	3660.6
5°	3667.4	3653.5	3614.6	3642.7	3635.9
7.5°	3642.7	3621.7	3582.7	3611.2	3604.1
10°	3604.1	3579.4	3537.1	3565.2	3554.7
12.5°	3551.0	3530.0	3487.7	3505.3	3498.2
15°	3491.1	3470.2	3424.1	3438.3	3420.8
17.5°	3417.0	3396.1	3350.0	3367.6	3350.0
20°	3335.8	3314.9	3265.5	3275.9	3262.1
22.5°	3255.0	3223.3	3177.2	3177.2	3170.1
25°	3159.6	3131.6	3071.7	3078.4	3071.7
27.5°	3053.7	3029.0	2983.4	2972.9	2955.3
30°	2948.2	2919.8	2867.0	2856.5	2842.3
32.5°	2835.2	2814.3	2757.8	2736.5	2722.2
35°	2726.0	2690.8	2634.3	2613.0	2595.4
37.5°	2602.5	2570.7	2514.2	2489.5	2471.9
40°	2475.7	2447.2	2390.7	2359.4	2345.1
42.5°	2352.2	2323.7	2267.7	2232.1	2211.2
45°	2218.3	2193.6	2140.4	2101.9	2087.7
47.5°	2087.7	2063.0	2006.5	1967.6	1946.6
50°	1950.0	1932.4	1883.0	1833.6	1816.1
52.5°	1816.1	1791.4	1745.7	1706.9	1682.2
55°	1678.8	1657.5	1615.2	1572.8	1555.3
57.5°	1541.1	1523.5	1477.5	1435.2	1421.0
60°	1403.4	1389.5	1340.1	1301.2	1290.8
62.5°	1269.5	1244.8	1209.6	1174.4	1160.2
65°	1132.1	1110.8	1075.7	1043.8	1026.3
67.5°	991.1	973.1	941.7	917.1	902.8
70°	860.5	846.3	814.5	789.8	776.0
72.5°	726.6	712.3	694.8	670.1	659.6
75°	592.3	585.6	567.6	546.6	553.7
77.5°	472.6	458.3	451.2	440.7	430.3
80°	352.8	349.1	341.9	331.5	324.4
82.5°	239.9	239.9	236.5	222.2	222.2
85°	144.4	141.1	137.7	126.9	123.5
87.5°	63.6	56.5	49.4	38.9	35.2
90°	1.3	16.2	44.0	41.4	42.7
92.5°	27.9	37.7	39.1	40.4	40.4
95°	65.6	78.2	80.4	80.4	78.2
97.5°	109.1	120.8	125.8	125.8	125.8
100°	159.5	169.8	173.4	173.4	172.1
102.5°	212.5	220.2	225.1	226.5	225.1
105°	270.5	274.1	276.8	279.0	279.0
107.5°	328.0	333.4	333.4	334.3	328.0
110°	383.7	390.9	390.9	390.9	387.3

TEST NUMBER: P927091

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	443.9	451.6	450.2	446.7	443.9
115°	503.2	510.5	508.2	506.9	503.2
117.5°	562.1	572.0	565.7	562.1	558.5
120°	621.4	631.3	621.4	621.4	617.3
122.5°	675.3	687.9	681.6	678.0	675.3
125°	731.9	743.2	739.6	735.5	734.2
127.5°	787.2	801.1	796.2	790.8	787.2
130°	838.9	855.0	852.8	850.1	845.1
132.5°	896.9	909.4	910.4	904.0	900.5
135°	946.7	960.6	963.3	962.0	958.4
137.5°	1002.4	1013.7	1015.9	1015.0	1009.6
140°	1051.4	1062.7	1068.9	1068.9	1064.0
142.5°	1101.7	1113.0	1116.6	1117.9	1113.0
145°	1149.4	1158.3	1165.5	1166.9	1161.9
147.5°	1192.1	1203.3	1208.7	1210.9	1205.9
150°	1236.1	1243.7	1248.6	1252.7	1248.6
152.5°	1275.2	1282.8	1289.1	1294.1	1289.1
155°	1314.2	1317.8	1321.9	1328.2	1324.1
157.5°	1348.0	1350.6	1352.9	1361.9	1355.6
160°	1378.0	1380.8	1382.1	1389.7	1384.3
162.5°	1405.9	1405.9	1407.2	1415.8	1409.5
165°	1429.8	1428.4	1428.4	1437.4	1431.1
167.5°	1451.3	1447.2	1447.2	1456.3	1449.9
170°	1467.5	1463.9	1462.6	1471.5	1463.9
172.5°	1478.7	1475.1	1473.8	1482.7	1475.1
175°	1487.7	1484.1	1481.4	1490.4	1482.7
177.5°	1492.6	1489.1	1486.3	1494.0	1486.3
180°	1490.4	1490.4	1490.4	1490.4	1490.4

TEST NUMBER: P927091

CATALOG NUMBER: DFN2DIP-HX4F0-100D050US830-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	12.36	13.42	13.13	14.22	15.19	11.93	12.99	12.70	13.79	14.76
	3H	14.04	14.99	14.82	15.80	16.80	13.56	14.52	14.35	15.33	16.32
	4H	14.63	15.54	15.44	16.35	17.36	14.16	15.06	14.96	15.88	16.89
	6H	15.05	15.88	15.86	16.70	17.72	14.57	15.40	15.39	16.22	17.25
	8H	15.16	15.95	15.98	16.79	17.82	14.68	15.47	15.51	16.32	17.34
	12H	15.21	15.97	16.04	16.80	17.85	14.73	15.49	15.56	16.32	17.37
4H	2H	12.85	13.75	13.66	14.56	15.57	12.50	13.41	13.31	14.22	15.23
	3H	14.73	15.49	15.55	16.33	17.36	14.34	15.09	15.16	15.94	16.97
	4H	15.46	16.14	16.29	16.99	18.04	15.05	15.74	15.88	16.58	17.64
	6H	15.98	16.58	16.83	17.45	18.51	15.57	16.17	16.42	17.04	18.10
	8H	16.14	16.69	16.99	17.56	18.63	15.73	16.28	16.58	17.15	18.22
	12H	16.22	16.72	17.10	17.61	18.68	15.80	16.30	16.67	17.19	18.26
8H	4H	15.67	16.22	16.52	17.09	18.16	15.31	15.86	16.16	16.73	17.80
	6H	16.31	16.77	17.19	17.68	18.75	15.95	16.41	16.83	17.31	18.39
	8H	16.53	16.94	17.43	17.84	18.93	16.16	16.57	17.06	17.47	18.56
	12H	16.68	17.04	17.57	17.93	19.07	16.29	16.65	17.19	17.54	18.69
12H	4H	15.66	16.17	16.54	17.05	18.13	15.31	15.81	16.19	16.70	17.78
	6H	16.34	16.75	17.23	17.65	18.74	15.99	16.40	16.88	17.30	18.39
	8H	16.60	16.96	17.49	17.85	18.99	16.24	16.60	17.13	17.49	18.63