

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: P905447

Luminaire Tested: DFN2DIP-HX4F0-050D110US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905447
REPORT IS A COMBINATION OF REPORTS P899428 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D110US835-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

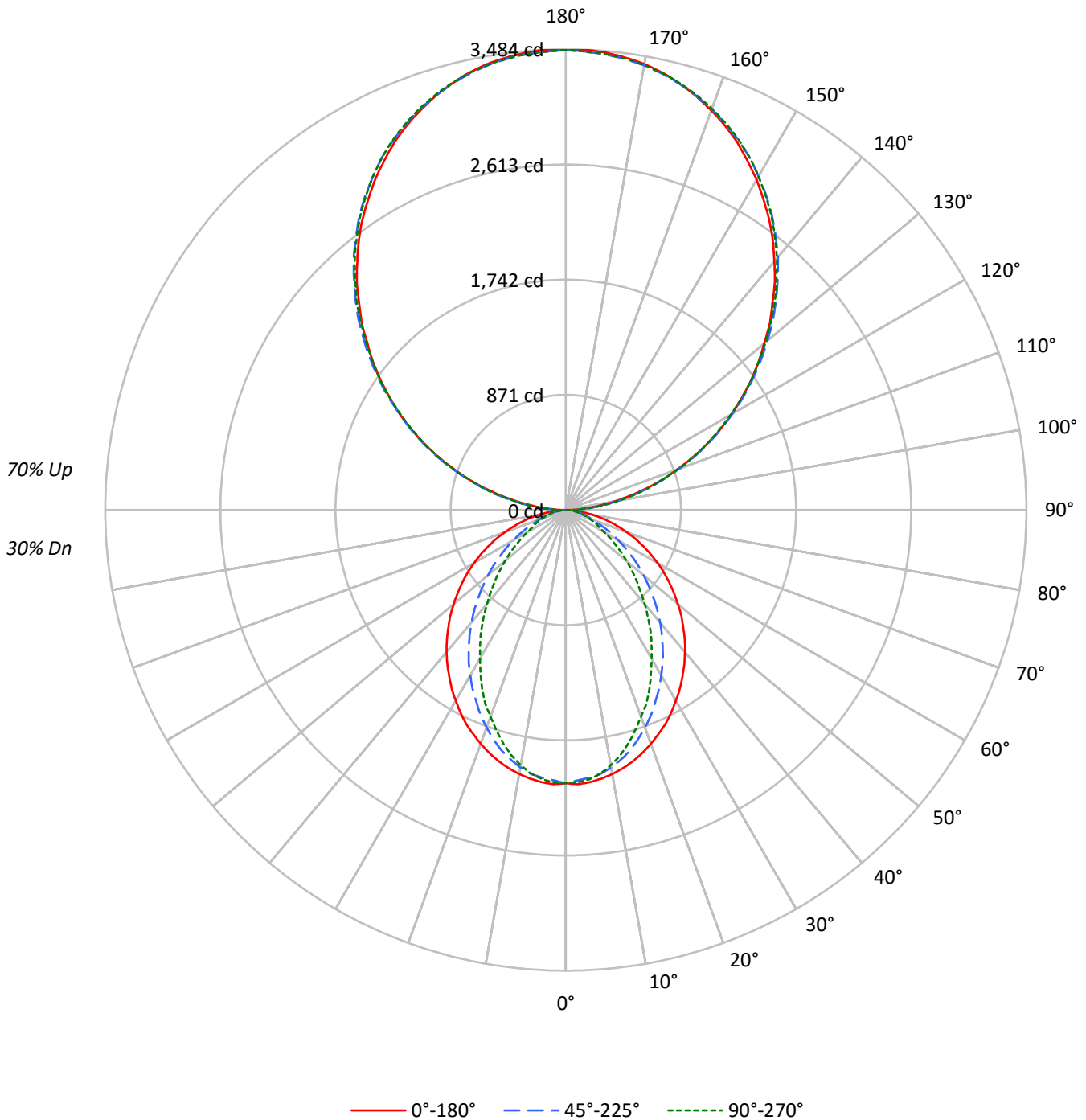
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13985.0 lumens
Efficiency: N/A
Efficacy: 128.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 108.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P905447
CATALOG NUMBER: DFN2DIP-HX4F0-050D110US835-RLFL

Luminous Intensity Polar Plot





TEST NUMBER: P905447

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US835-RLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	102	102	102	102	92	92	92	92	72	72	72	55	55	55	38	38	38	38	38	38	38	30
1	94	90	86	83	84	81	78	75	64	62	60	48	47	46	34	33	33	34	33	33	34	26
2	86	79	73	68	77	71	66	62	56	53	50	43	41	39	30	29	28	30	29	28	30	22
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	26	24	27	26	24	27	19
4	72	61	54	48	64	55	49	44	44	40	36	34	31	29	24	23	21	24	23	21	24	17
5	66	55	47	41	59	50	43	38	40	35	31	31	27	25	22	20	18	22	20	18	22	15
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16	20	18	16	20	13
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15	18	16	15	18	12
8	52	40	33	28	47	36	30	26	30	25	21	23	20	17	17	15	13	17	15	13	17	11
9	48	37	29	25	43	33	27	23	27	22	19	21	18	16	16	14	12	16	14	12	16	10
10	45	33	27	22	40	31	24	20	25	20	17	20	16	14	15	12	11	15	12	11	15	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1537	1537	1537
5°	1539	1512	1522
10°	1524	1483	1472
15°	1503	1434	1396
20°	1476	1367	1302
25°	1447	1291	1211
30°	1409	1213	1096
35°	1372	1130	995
40°	1334	1044	880
45°	1290	948	774
50°	1245	851	672
55°	1197	748	573
60°	1142	640	472
65°	1079	530	425
70°	1002	428	385
75°	906	377	350
80°	766	317	304
85°	536	212	229

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2622 cd/sqm



TEST NUMBER: P905447

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US835-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	193.7	1.4
10°-20°	531.7	3.8
20°-30°	746.5	5.3
30°-40°	813.7	5.8
40°-50°	747.9	5.3
50°-60°	587.3	4.2
60°-70°	382.3	2.7
70°-80°	196.8	1.4
80°-90°	60.1	0.4
90°-100°	215.3	1.5
100°-110°	684.0	4.9
110°-120°	1170.5	8.4
120°-130°	1539.4	11.0
130°-140°	1727.9	12.4
140°-150°	1694.4	12.1
150°-160°	1421.4	10.2
160°-170°	942.6	6.7
170°-180°	329.5	2.4
0°-30°	1471.8	10.5
0°-40°	2285.5	16.3
0°-60°	3620.7	25.9
0°-90°	4259.9	30.5
90°-120°	2069.8	14.8
90°-150°	7031.6	50.3
90°-180°	9725.0	69.5
0°-180°	13985.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2066	2066	2066	2066	2066	
5°	2066	2057	2033	2050	2044	196
15°	1966	1945	1881	1846	1827	554
25°	1784	1724	1601	1524	1496	821
35°	1537	1442	1277	1160	1118	962
45°	1257	1131	935	802	757	971
55°	956	810	608	496	460	854
65°	645	494	325	262	256	640
75°	344	213	150	136	135	364
85°	80	41	36	36	36	92
90°	3	38	103	96	100	14
95°	153	182	188	188	182	170
105°	631	640	646	651	651	666
115°	1175	1191	1186	1183	1175	1162
125°	1708	1735	1726	1717	1714	1527
135°	2210	2242	2249	2246	2237	1708
145°	2683	2704	2721	2724	2712	1676
155°	3068	3076	3086	3100	3091	1412
165°	3337	3334	3334	3355	3340	941
175°	3473	3464	3458	3479	3461	330
180°	3479	3479	3479	3479	3479	



TEST NUMBER: P905447

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US835-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2066.5	2066.5	2066.5	2066.5	2066.5
2.5°	2075.8	2066.5	2045.9	2064.7	2060.9
5°	2066.5	2057.2	2032.8	2049.6	2044.1
7.5°	2049.6	2038.5	2012.3	2019.7	2010.3
10°	2027.2	2014.1	1976.8	1971.1	1959.9
12.5°	1999.2	1982.4	1931.8	1920.7	1900.0
15°	1965.5	1944.9	1881.4	1845.9	1827.2
17.5°	1926.2	1896.3	1817.7	1776.6	1746.6
20°	1881.4	1843.9	1750.4	1703.8	1662.5
22.5°	1832.8	1789.7	1681.2	1617.7	1589.7
25°	1784.1	1724.2	1600.8	1524.2	1496.0
27.5°	1726.2	1662.5	1526.0	1438.1	1395.1
30°	1664.5	1593.3	1443.7	1348.4	1297.8
32.5°	1604.6	1518.5	1365.3	1253.0	1206.2
35°	1537.3	1441.9	1277.4	1159.5	1118.3
37.5°	1471.8	1368.9	1195.1	1065.9	1019.3
40°	1402.6	1290.5	1108.9	976.2	927.6
42.5°	1331.6	1211.9	1023.0	884.5	837.9
45°	1256.8	1131.4	935.1	802.2	757.3
47.5°	1185.7	1053.0	851.0	718.1	677.0
50°	1107.2	974.4	768.7	639.5	600.4
52.5°	1030.4	890.1	690.1	566.7	531.2
55°	955.6	809.7	607.7	495.6	460.1
57.5°	879.0	729.4	534.9	430.2	400.2
60°	800.4	650.8	458.1	362.9	332.9
62.5°	723.8	574.2	392.7	303.0	288.1
65°	645.2	493.7	325.4	261.9	256.2
67.5°	570.4	418.9	261.9	230.0	224.4
70°	491.9	346.0	216.9	198.2	190.7
72.5°	417.1	278.6	181.4	166.5	162.7
75°	344.1	213.1	149.6	136.5	134.7
77.5°	271.2	151.4	117.9	110.3	106.5
80°	203.8	108.5	89.7	82.3	82.3
82.5°	142.1	73.0	61.7	57.9	57.9
85°	80.4	41.1	35.5	35.5	35.5
87.5°	30.0	14.9	14.9	13.1	13.1
90°	3.1	37.8	102.8	96.5	99.6
92.5°	65.0	88.1	91.2	94.4	94.4
95°	153.1	182.5	187.7	187.7	182.5
97.5°	254.9	282.1	293.7	293.7	293.7
100°	372.3	396.4	404.8	404.8	401.7
102.5°	496.1	513.9	525.5	528.6	525.5
105°	631.4	639.8	646.1	651.3	651.3
107.5°	765.6	778.2	778.2	780.3	765.6
110°	895.7	912.5	912.5	912.5	904.1



TEST NUMBER: P905447

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US835-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1036.2	1054.0	1050.9	1042.5	1036.2
115°	1174.7	1191.4	1186.2	1183.1	1174.7
117.5°	1312.1	1335.1	1320.4	1312.1	1303.7
120°	1450.5	1473.6	1450.5	1450.5	1441.1
122.5°	1576.4	1605.7	1591.0	1582.6	1576.4
125°	1708.5	1734.7	1726.3	1716.9	1713.7
127.5°	1837.5	1870.0	1858.5	1845.9	1837.5
130°	1958.1	1995.9	1990.6	1984.3	1972.8
132.5°	2093.4	2122.8	2124.9	2110.2	2101.8
135°	2209.8	2242.3	2248.6	2245.5	2237.1
137.5°	2339.9	2366.1	2371.3	2369.2	2356.7
140°	2454.2	2480.4	2495.1	2495.1	2483.6
142.5°	2571.7	2597.9	2606.3	2609.4	2597.9
145°	2682.8	2703.8	2720.6	2723.7	2712.2
147.5°	2782.5	2808.7	2821.3	2826.5	2815.0
150°	2885.3	2903.1	2914.6	2924.1	2914.6
152.5°	2976.5	2994.3	3009.0	3020.6	3009.0
155°	3067.8	3076.1	3085.6	3100.3	3090.8
157.5°	3146.4	3152.7	3157.9	3178.9	3164.2
160°	3216.7	3223.0	3226.1	3244.0	3231.4
162.5°	3281.7	3281.7	3284.9	3304.8	3290.1
165°	3337.3	3334.1	3334.1	3355.1	3340.4
167.5°	3387.6	3378.2	3378.2	3399.2	3384.5
170°	3425.4	3417.0	3413.9	3434.8	3417.0
172.5°	3451.6	3443.2	3440.1	3461.1	3443.2
175°	3472.6	3464.2	3457.9	3478.9	3461.1
177.5°	3484.1	3475.7	3469.4	3487.3	3469.4
180°	3478.9	3478.9	3478.9	3478.9	3478.9



TEST NUMBER: P905447
 CATALOG NUMBER: DFN2DIP-HX4F0-050D110US835-RLLFLL

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	6.47	7.16	7.58	8.27	9.79	2.44	3.13	3.56	4.24	5.77
	3H	8.14	8.76	9.26	9.87	11.41	3.62	4.24	4.74	5.35	6.90
	4H	8.74	9.33	9.87	10.44	11.99	4.07	4.65	5.20	5.77	7.32
	6H	9.15	9.69	10.29	10.81	12.37	4.38	4.92	5.52	6.04	7.60
	8H	9.28	9.79	10.42	10.92	12.48	4.47	4.98	5.61	6.11	7.67
	12H	9.33	9.82	10.48	10.95	12.52	4.51	5.00	5.66	6.12	7.70
4H	2H	6.47	7.06	7.61	8.17	9.72	3.02	3.61	4.16	4.72	6.27
	3H	8.29	8.78	9.43	9.92	11.48	4.36	4.85	5.50	5.99	7.55
	4H	8.97	9.42	10.12	10.55	12.13	4.90	5.35	6.05	6.48	8.06
	6H	9.48	9.87	10.64	11.02	12.59	5.32	5.70	6.47	6.85	8.43
	8H	9.66	10.02	10.81	11.16	12.75	5.44	5.80	6.60	6.95	8.54
	12H	9.75	10.07	10.91	11.23	12.82	5.50	5.83	6.67	6.98	8.58
8H	4H	8.93	9.29	10.08	10.44	12.02	5.17	5.53	6.33	6.68	8.27
	6H	9.49	9.79	10.67	10.98	12.56	5.69	5.99	6.86	7.17	8.76
	8H	9.71	9.97	10.89	11.13	12.74	5.88	6.14	7.06	7.30	8.91
	12H	9.85	10.07	11.03	11.23	12.87	6.00	6.22	7.18	7.38	9.02
12H	4H	8.88	9.20	10.05	10.36	11.95	5.17	5.50	6.34	6.65	8.25
	6H	9.47	9.73	10.65	10.89	12.50	5.74	6.00	6.92	7.16	8.77
	8H	9.69	9.91	10.87	11.07	12.71	5.94	6.17	7.13	7.33	8.97