

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: P924607

Luminaire Tested: DFN2DIP-HX4F0-090D070US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924607
REPORT IS A COMBINATION OF REPORTS P899364 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D070US950-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

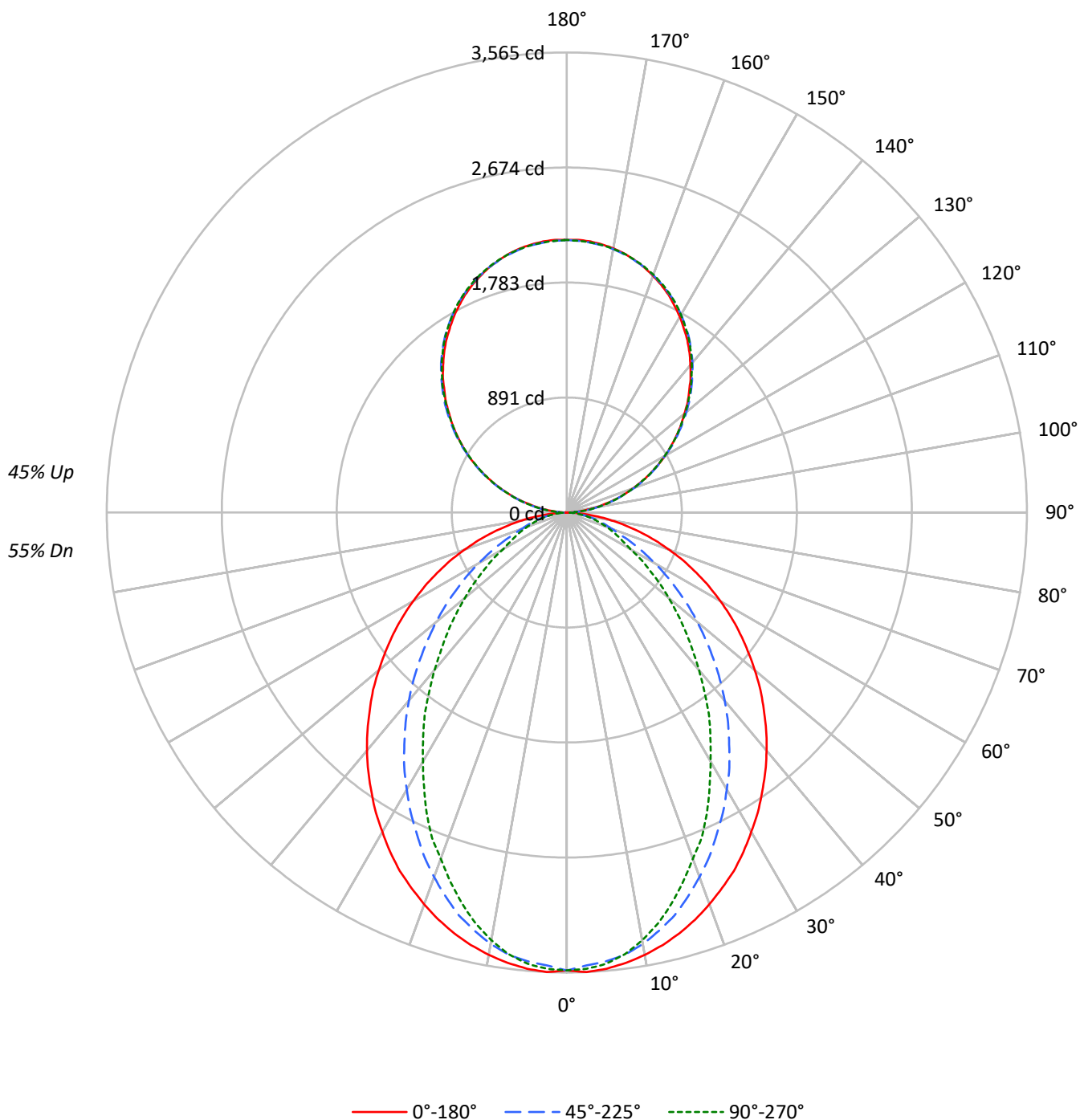
Lumens per Lamp: N/A
Luminaire Lumens: 13208.2 lumens
Efficiency: N/A
Efficacy: 103.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 128.2
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: P924607

CATALOG NUMBER: DFN2DIP-HX4F0-090D070US950-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P924607

CATALOG NUMBER: DFN2DIP-HX4F0-090D070US950-RLLFLL

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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61
1	99	95	92	88	92	89	86	83	76	74	72	65	63	62	55	54	53
2	91	84	78	73	84	78	73	69	68	64	60	58	55	53	49	47	45
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	41	39
4	77	66	58	52	71	62	55	50	54	49	44	46	42	39	39	36	34
5	71	59	51	45	65	55	48	43	48	43	39	42	38	34	36	33	30
6	65	53	45	40	60	50	43	38	44	38	34	38	34	30	33	29	27
7	60	48	41	35	56	45	38	33	40	34	30	35	30	27	30	27	24
8	56	44	36	31	52	41	35	30	37	31	27	32	28	24	28	24	22
9	52	40	33	28	49	38	31	27	34	28	24	30	25	22	26	22	20
10	49	37	30	25	46	35	29	24	31	26	22	27	23	20	24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2639	2639	2639
5°	2643	2597	2613
10°	2617	2546	2529
15°	2581	2462	2397
20°	2534	2347	2236
25°	2485	2217	2080
30°	2420	2084	1883
35°	2356	1940	1709
40°	2291	1792	1510
45°	2215	1628	1330
50°	2137	1462	1154
55°	2055	1285	985
60°	1961	1099	811
65°	1852	910	730
70°	1721	734	661
75°	1555	648	601
80°	1316	544	522
85°	919	365	393

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2215 cd/sqm

TEST NUMBER: P924607

CATALOG NUMBER: DFN2DIP-HX4F0-090D070US950-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.6	2.5
10°-20°	913.0	6.9
20°-30°	1281.8	9.7
30°-40°	1397.3	10.6
40°-50°	1284.2	9.7
50°-60°	1008.6	7.6
60°-70°	656.5	5.0
70°-80°	337.9	2.6
80°-90°	92.3	0.7
90°-100°	130.7	1.0
100°-110°	415.3	3.1
110°-120°	710.6	5.4
120°-130°	934.6	7.1
130°-140°	1049.0	7.9
140°-150°	1028.7	7.8
150°-160°	862.9	6.5
160°-170°	572.3	4.3
170°-180°	200.0	1.5
0°-30°	2527.4	19.1
0°-40°	3924.6	29.7
0°-60°	6217.4	47.1
0°-90°	7304.1	55.3
90°-120°	1256.6	9.5
90°-150°	4268.9	32.3
90°-180°	5904.0	44.7
0°-180°	13208.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3549	3549	3549	3549	3549	
5°	3549	3533	3491	3520	3510	336
15°	3375	3340	3231	3170	3138	951
25°	3064	2961	2749	2617	2569	1409
35°	2640	2476	2194	1991	1920	1652
45°	2158	1943	1606	1378	1300	1667
55°	1641	1390	1044	851	790	1466
65°	1108	848	559	450	440	1099
75°	591	366	257	234	231	625
85°	138	70	61	61	61	158
90°	2	23	62	59	60	13
95°	93	111	114	114	111	103
105°	383	388	392	395	395	405
115°	713	723	720	718	713	705
125°	1037	1053	1048	1042	1040	927
135°	1342	1361	1365	1363	1358	1037
145°	1629	1642	1652	1654	1647	1018
155°	1862	1868	1873	1882	1876	857
165°	2026	2024	2024	2037	2028	572
175°	2108	2103	2099	2112	2101	200
180°	2112	2112	2112	2112	2112	

TEST NUMBER: P924607

CATALOG NUMBER: DFN2DIP-HX4F0-090D070US950-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3548.6	3548.6	3548.6	3548.6	3548.6
2.5°	3564.6	3548.6	3513.1	3545.5	3539.1
5°	3548.6	3532.6	3490.7	3519.6	3510.1
7.5°	3519.6	3500.5	3455.6	3468.2	3452.1
10°	3481.1	3458.6	3394.6	3384.7	3365.6
12.5°	3433.1	3404.2	3317.2	3298.2	3262.7
15°	3375.2	3339.8	3230.7	3169.7	3137.7
17.5°	3307.7	3256.3	3121.3	3050.8	2999.4
20°	3230.7	3166.3	3005.8	2925.7	2854.8
22.5°	3147.2	3073.3	2886.9	2777.9	2729.9
25°	3063.8	2960.8	2749.0	2617.4	2569.0
27.5°	2964.3	2854.8	2620.4	2469.5	2395.6
30°	2858.3	2736.0	2479.1	2315.5	2228.6
32.5°	2755.3	2607.5	2344.5	2151.7	2071.2
35°	2639.9	2476.0	2193.5	1991.2	1920.3
37.5°	2527.4	2350.7	2052.1	1830.3	1750.3
40°	2408.6	2216.0	1904.3	1676.4	1592.9
42.5°	2286.5	2081.2	1756.7	1519.0	1438.8
45°	2158.1	1942.8	1605.8	1377.5	1300.5
47.5°	2036.1	1808.2	1461.3	1233.0	1162.5
50°	1901.2	1673.2	1320.0	1098.1	1031.0
52.5°	1769.4	1528.5	1185.1	973.1	912.1
55°	1640.9	1390.5	1043.6	851.2	790.1
57.5°	1509.4	1252.5	918.6	738.7	687.3
60°	1374.4	1117.5	786.8	623.2	571.7
62.5°	1243.0	986.1	674.3	520.3	494.7
65°	1108.0	847.7	558.8	449.7	439.9
67.5°	979.6	719.2	449.7	394.9	385.3
70°	844.7	594.2	372.4	340.4	327.4
72.5°	716.2	478.3	311.4	285.8	279.4
75°	590.8	366.0	256.9	234.4	231.3
77.5°	465.7	260.0	202.3	189.5	183.0
80°	349.9	186.4	154.0	141.4	141.4
82.5°	243.9	125.4	106.0	99.5	99.5
85°	137.9	70.5	61.0	61.0	61.0
87.5°	51.4	25.6	25.6	22.5	22.5
90°	1.9	22.9	62.4	58.6	60.5
92.5°	39.5	53.5	55.4	57.3	57.3
95°	92.9	110.8	114.0	114.0	110.8
97.5°	154.7	171.2	178.3	178.3	178.3
100°	226.0	240.7	245.8	245.8	243.8
102.5°	301.2	312.0	319.0	320.9	319.0
105°	383.3	388.4	392.2	395.4	395.4
107.5°	464.8	472.4	472.4	473.8	464.8
110°	543.8	554.0	554.0	554.0	548.8

TEST NUMBER: P924607

CATALOG NUMBER: DFN2DIP-HX4F0-090D070US950-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	629.1	639.9	638.0	632.9	629.1
115°	713.1	723.3	720.2	718.3	713.1
117.5°	796.5	810.5	801.6	796.5	791.4
120°	880.5	894.6	880.5	880.5	874.8
122.5°	957.0	974.8	965.9	960.8	957.0
125°	1037.2	1053.1	1048.1	1042.3	1040.4
127.5°	1115.5	1135.3	1128.3	1120.7	1115.5
130°	1188.8	1211.7	1208.5	1204.7	1197.7
132.5°	1270.9	1288.8	1290.0	1281.1	1276.0
135°	1341.6	1361.3	1365.2	1363.2	1358.1
137.5°	1420.5	1436.4	1439.6	1438.3	1430.7
140°	1490.0	1505.9	1514.8	1514.8	1507.8
142.5°	1561.2	1577.2	1582.2	1584.1	1577.2
145°	1628.8	1641.5	1651.7	1653.6	1646.6
147.5°	1689.2	1705.2	1712.8	1716.0	1709.0
150°	1751.6	1762.4	1769.5	1775.2	1769.5
152.5°	1807.0	1817.8	1826.7	1833.8	1826.7
155°	1862.4	1867.5	1873.3	1882.1	1876.4
157.5°	1910.2	1914.0	1917.2	1929.9	1921.0
160°	1952.8	1956.7	1958.6	1969.3	1961.7
162.5°	1992.3	1992.3	1994.2	2006.3	1997.4
165°	2026.0	2024.1	2024.1	2036.9	2027.9
167.5°	2056.6	2050.9	2050.9	2063.6	2054.7
170°	2079.5	2074.5	2072.6	2085.3	2074.5
172.5°	2095.5	2090.3	2088.4	2101.2	2090.3
175°	2108.1	2103.1	2099.3	2112.0	2101.2
177.5°	2115.2	2110.1	2106.2	2117.1	2106.2
180°	2112.0	2112.0	2112.0	2112.0	2112.0

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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	11.00	11.87	11.92	12.81	14.00	6.97	7.85	7.89	8.78	9.98
	3H	12.68	13.46	13.61	14.40	15.63	8.17	8.95	9.10	9.89	11.11
	4H	13.29	14.03	14.24	14.98	16.21	8.62	9.36	9.56	10.30	11.53
	6H	13.72	14.40	14.67	15.35	16.59	8.94	9.63	9.90	10.58	11.82
	8H	13.85	14.49	14.81	15.46	16.70	9.04	9.69	10.00	10.65	11.89
	12H	13.91	14.52	14.88	15.49	16.75	9.08	9.70	10.05	10.66	11.93
4H	2H	11.02	11.76	11.97	12.71	13.94	7.57	8.31	8.52	9.26	10.49
	3H	12.86	13.47	13.82	14.45	15.69	8.93	9.54	9.89	10.52	11.76
	4H	13.55	14.11	14.52	15.08	16.35	9.48	10.04	10.45	11.01	12.28
	6H	14.07	14.55	15.05	15.55	16.81	9.90	10.39	10.89	11.38	12.65
	8H	14.25	14.70	15.23	15.68	16.97	10.04	10.49	11.02	11.47	12.75
	12H	14.35	14.75	15.35	15.75	17.04	10.10	10.51	11.11	11.51	12.80
8H	4H	13.52	13.97	14.51	14.96	16.24	9.77	10.22	10.75	11.20	12.48
	6H	14.09	14.46	15.10	15.49	16.77	10.29	10.66	11.29	11.69	12.97
	8H	14.31	14.64	15.33	15.65	16.95	10.48	10.81	11.50	11.82	13.12
	12H	14.45	14.74	15.47	15.75	17.09	10.60	10.89	11.62	11.90	13.25
12H	4H	13.48	13.88	14.48	14.89	16.17	9.77	10.18	10.77	11.18	12.47
	6H	14.07	14.40	15.08	15.41	16.71	10.34	10.67	11.35	11.68	12.98
	8H	14.29	14.58	15.31	15.59	16.93	10.55	10.84	11.57	11.85	13.19