

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: P916361

Luminaire Tested: DFN2DIP-HX4F0-050D120US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916361
REPORT IS A COMBINATION OF REPORTS P899446 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D120US930-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

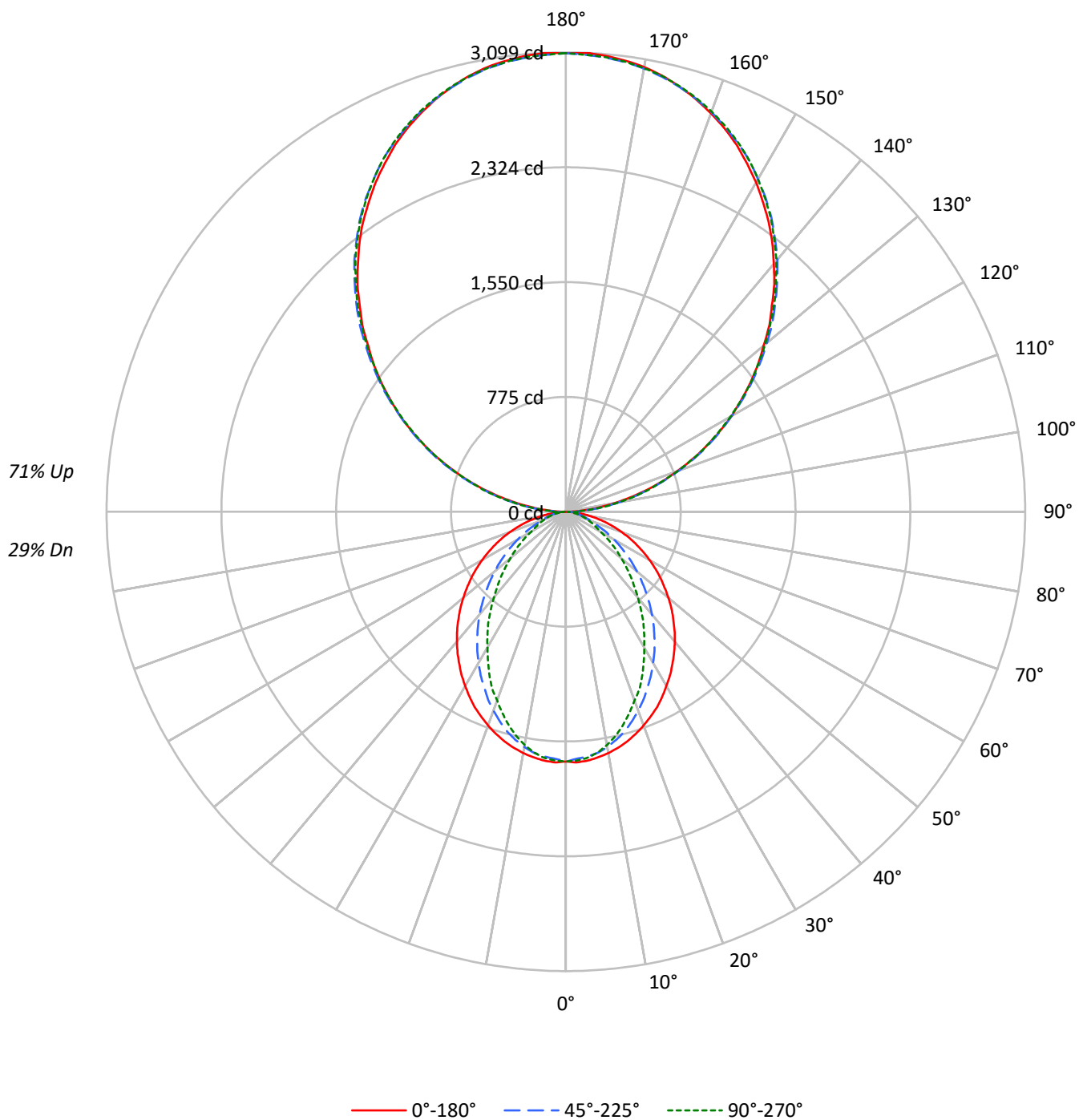
Lumens per Lamp: N/A
Luminaire Lumens: 12123.4 lumens
Efficiency: N/A
Efficacy: 103.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.9
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

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Luminous Intensity Polar Plot



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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	50	30	10
RCR																				
0	102	102	102	102	91	91	91	91	71	71	71	53	53	53	37	37	37			29
1	93	89	86	82	83	80	77	74	63	61	59	47	46	45	33	32	31			25
2	85	78	72	68	76	70	65	61	55	52	49	42	40	38	29	28	27			21
3	78	69	62	56	69	62	56	51	49	45	42	37	34	32	26	24	23			18
4	71	61	54	48	64	55	49	44	44	39	36	33	30	28	23	22	20			16
5	65	54	47	41	58	49	42	38	39	34	31	30	27	24	21	19	18			14
6	60	49	41	36	54	44	37	33	35	30	27	27	24	21	19	17	16			12
7	56	44	36	31	50	40	33	29	32	27	24	25	21	19	18	16	14			11
8	52	40	32	27	46	36	30	25	29	24	21	22	19	17	16	14	13			10
9	48	36	29	24	43	33	27	22	27	22	19	21	17	15	15	13	11			9
10	45	33	26	22	40	30	24	20	24	20	17	19	16	14	14	12	10			8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1253	1253	1253
5°	1255	1233	1241
10°	1243	1209	1200
15°	1226	1169	1138
20°	1203	1114	1062
25°	1180	1052	988
30°	1149	989	894
35°	1119	921	812
40°	1088	851	717
45°	1052	773	631
50°	1015	694	548
55°	976	610	467
60°	931	522	385
65°	879	432	347
70°	817	349	314
75°	738	308	285
80°	625	258	248
85°	437	173	186

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2333 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.9	1.3
10°-20°	433.5	3.6
20°-30°	608.6	5.0
30°-40°	663.4	5.5
40°-50°	609.7	5.0
50°-60°	478.8	3.9
60°-70°	311.7	2.6
70°-80°	160.4	1.3
80°-90°	49.7	0.4
90°-100°	191.5	1.6
100°-110°	608.3	5.0
110°-120°	1041.1	8.6
120°-130°	1369.2	11.3
130°-140°	1536.9	12.7
140°-150°	1507.1	12.4
150°-160°	1264.2	10.4
160°-170°	838.4	6.9
170°-180°	293.0	2.4
0°-30°	1200.0	9.9
0°-40°	1863.4	15.4
0°-60°	2951.9	24.3
0°-90°	3473.8	28.7
90°-120°	1840.9	15.2
90°-150°	6254.0	51.6
90°-180°	8650.0	71.3
0°-180°	12123.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1685	1685	1685	1685	1685	
5°	1685	1677	1657	1671	1667	160
15°	1602	1586	1534	1505	1490	452
25°	1455	1406	1305	1243	1220	669
35°	1253	1176	1042	945	912	784
45°	1025	922	762	654	617	791
55°	779	660	496	404	375	696
65°	526	402	265	214	209	521
75°	280	174	122	111	110	297
85°	66	34	29	29	29	75
90°	3	34	91	86	89	12
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1684.8	1684.8	1684.8	1684.8	1684.8
2.5°	1692.4	1684.8	1668.0	1683.3	1680.2
5°	1684.8	1677.2	1657.3	1671.0	1666.6
7.5°	1671.0	1662.0	1640.6	1646.7	1639.0
10°	1652.8	1642.1	1611.7	1607.0	1597.9
12.5°	1629.9	1616.2	1575.0	1565.9	1549.1
15°	1602.5	1585.7	1533.9	1505.0	1489.7
17.5°	1570.4	1546.1	1482.0	1448.5	1424.0
20°	1533.9	1503.3	1427.1	1389.1	1355.4
22.5°	1494.3	1459.1	1370.7	1318.9	1296.1
25°	1454.6	1405.7	1305.1	1242.7	1219.7
27.5°	1407.4	1355.4	1244.1	1172.5	1137.4
30°	1357.1	1299.0	1177.0	1099.3	1058.1
32.5°	1308.2	1238.0	1113.1	1021.6	983.4
35°	1253.4	1175.6	1041.5	945.3	911.7
37.5°	1200.0	1116.1	974.4	869.0	831.0
40°	1143.5	1052.1	904.1	795.9	756.3
42.5°	1085.7	988.1	834.1	721.1	683.1
45°	1024.7	922.4	762.4	654.0	617.4
47.5°	966.7	858.5	693.8	585.5	552.0
50°	902.7	794.4	626.7	521.4	489.5
52.5°	840.1	725.7	562.6	462.0	433.1
55°	779.1	660.1	495.5	404.1	375.1
57.5°	716.6	594.7	436.1	350.7	326.3
60°	652.6	530.6	373.5	295.9	271.4
62.5°	590.1	468.1	320.2	247.0	234.9
65°	526.0	402.5	265.3	213.5	208.9
67.5°	465.0	341.5	213.5	187.5	183.0
70°	401.0	282.1	176.8	161.6	155.5
72.5°	340.1	227.1	147.9	135.7	132.6
75°	280.5	173.7	122.0	111.3	109.8
77.5°	221.1	123.4	96.1	89.9	86.8
80°	166.2	88.5	73.1	67.1	67.1
82.5°	115.9	59.5	50.3	47.2	47.2
85°	65.5	33.5	28.9	28.9	28.9
87.5°	24.5	12.1	12.1	10.7	10.7
90°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1

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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	5.51	6.19	6.63	7.30	8.85	1.48	2.16	2.61	3.28	4.83
	3H	7.17	7.78	8.31	8.91	10.47	2.66	3.27	3.79	4.39	5.96
	4H	7.78	8.35	8.92	9.48	11.05	3.10	3.68	4.25	4.81	6.38
	6H	8.19	8.72	9.34	9.85	11.43	3.42	3.95	4.57	5.08	6.66
	8H	8.31	8.82	9.47	9.96	11.53	3.51	4.01	4.66	5.15	6.73
	12H	8.37	8.85	9.53	9.99	11.58	3.54	4.02	4.70	5.16	6.76
4H	2H	5.51	6.09	6.66	7.21	8.78	2.06	2.64	3.21	3.76	5.33
	3H	7.32	7.81	8.48	8.96	10.54	3.40	3.88	4.55	5.03	6.61
	4H	8.01	8.45	9.17	9.59	11.19	3.94	4.38	5.10	5.52	7.12
	6H	8.52	8.90	9.68	10.06	11.65	4.35	4.73	5.52	5.89	7.48
	8H	8.69	9.05	9.85	10.20	11.81	4.48	4.83	5.64	5.99	7.59
	12H	8.78	9.10	9.96	10.27	11.88	4.54	4.86	5.72	6.02	7.64
8H	4H	7.97	8.32	9.13	9.47	11.08	4.21	4.56	5.37	5.72	7.32
	6H	8.53	8.82	9.71	10.02	11.62	4.72	5.02	5.91	6.21	7.82
	8H	8.75	9.00	9.93	10.17	11.80	4.92	5.17	6.10	6.34	7.97
	12H	8.88	9.10	10.07	10.27	11.93	5.03	5.25	6.22	6.42	8.08
12H	4H	7.91	8.23	9.09	9.40	11.01	4.21	4.53	5.39	5.69	7.31
	6H	8.50	8.76	9.69	9.93	11.56	4.77	5.03	5.96	6.20	7.83
	8H	8.72	8.94	9.91	10.11	11.77	4.98	5.20	6.17	6.37	8.03

END OF REPORT