

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: P905515

Luminaire Tested: DFN2DIP-HX4F0-090D090US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905515
REPORT IS A COMBINATION OF REPORTS P899400 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D090US835-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

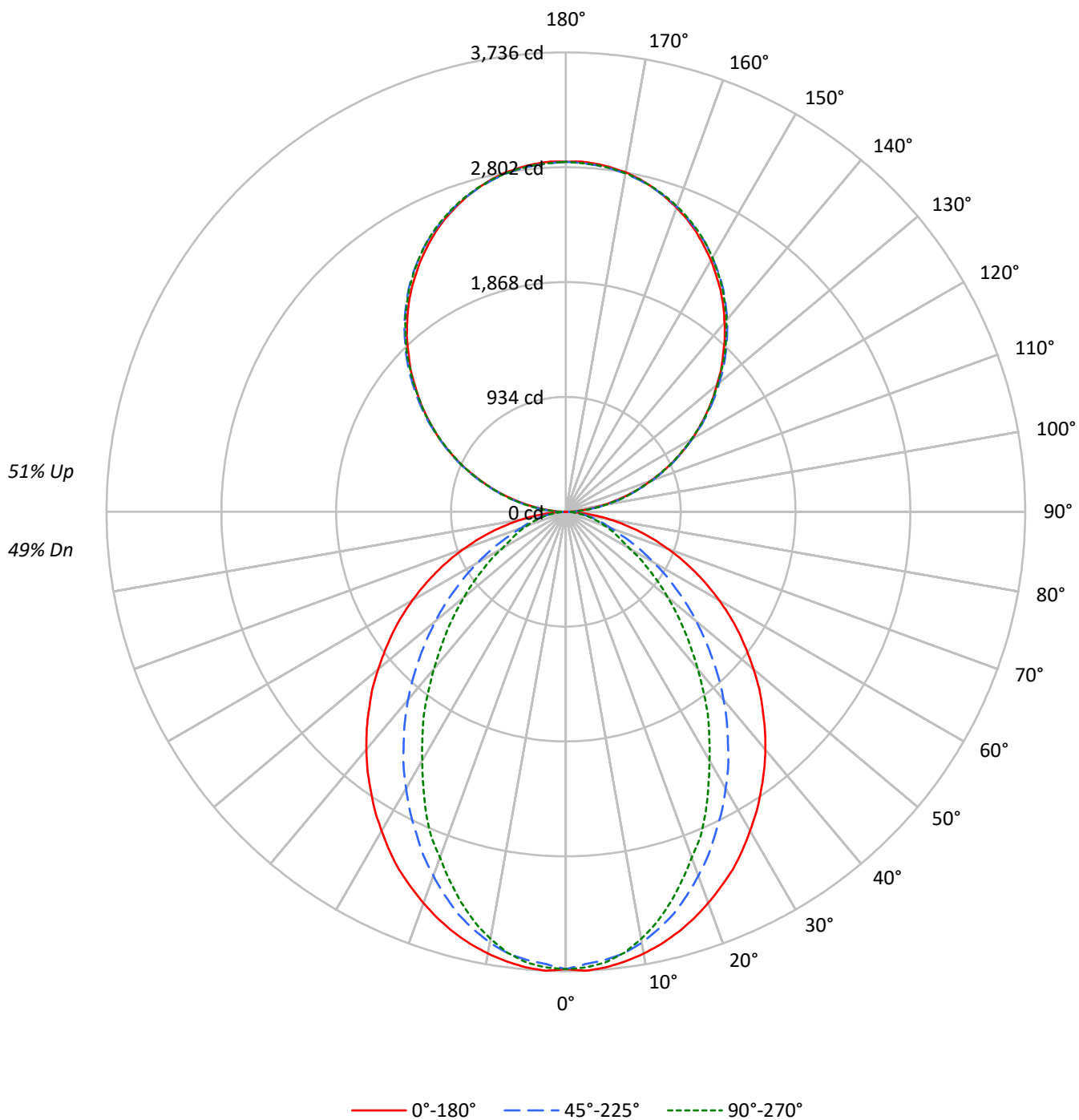
Lumens per Lamp: N/A
Luminaire Lumens: 15615.0 lumens
Efficiency: N/A
Efficacy: 111.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 139.7
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: P905515

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US835-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P905515

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US835-RLFL

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	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2766	2766	2766
5°	2770	2722	2739
10°	2743	2669	2650
15°	2706	2581	2513
20°	2656	2460	2344
25°	2605	2324	2181
30°	2537	2184	1974
35°	2470	2034	1792
40°	2401	1879	1583
45°	2322	1706	1394
50°	2240	1532	1209
55°	2154	1346	1032
60°	2055	1152	850
65°	1942	954	765
70°	1804	770	692
75°	1630	679	630
80°	1379	571	547
85°	964	382	412

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2322 cd/sqm

TEST NUMBER: P905515

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US835-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.6	2.2
10°-20°	957.0	6.1
20°-30°	1343.6	8.6
30°-40°	1464.6	9.4
40°-50°	1346.2	8.6
50°-60°	1057.2	6.8
60°-70°	688.1	4.4
70°-80°	354.2	2.3
80°-90°	98.5	0.6
90°-100°	176.1	1.1
100°-110°	559.6	3.6
110°-120°	957.7	6.1
120°-130°	1259.5	8.1
130°-140°	1413.8	9.1
140°-150°	1386.4	8.9
150°-160°	1163.0	7.4
160°-170°	771.2	4.9
170°-180°	269.6	1.7
0°-30°	2649.2	17.0
0°-40°	4113.9	26.3
0°-60°	6517.2	41.7
0°-90°	7658.1	49.0
90°-120°	1693.5	10.8
90°-150°	5753.1	36.8
90°-180°	7957.0	51.0
0°-180°	15615.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3720	3720	3720	3720	3720	
5°	3720	3703	3659	3689	3679	353
15°	3538	3501	3386	3322	3289	997
25°	3212	3104	2882	2744	2693	1477
35°	2767	2595	2299	2087	2013	1732
45°	2262	2036	1683	1444	1363	1747
55°	1720	1458	1094	892	828	1537
65°	1161	889	586	471	461	1151
75°	619	384	269	246	242	655
85°	145	74	64	64	64	166
90°	3	31	84	79	82	15
95°	125	149	154	154	149	139
105°	517	523	529	533	533	545
115°	961	975	970	968	961	951
125°	1398	1419	1412	1405	1402	1249
135°	1808	1835	1840	1837	1830	1398
145°	2195	2212	2226	2228	2219	1372
155°	2510	2517	2525	2537	2529	1155
165°	2730	2728	2728	2745	2733	770
175°	2841	2834	2829	2846	2832	270
180°	2846	2846	2846	2846	2846	

TEST NUMBER: P905515

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US835-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3719.7	3719.7	3719.7	3719.7	3719.7
2.5°	3736.5	3719.7	3682.5	3716.5	3709.7
5°	3719.7	3702.9	3659.0	3689.3	3679.3
7.5°	3689.3	3669.3	3622.2	3635.4	3618.6
10°	3649.0	3625.4	3558.3	3547.9	3527.9
12.5°	3598.6	3568.3	3477.2	3457.2	3420.0
15°	3537.9	3500.8	3386.5	3322.5	3289.0
17.5°	3467.2	3413.3	3271.8	3197.9	3144.0
20°	3386.5	3319.0	3150.7	3066.8	2992.5
22.5°	3299.0	3221.5	3026.1	2911.8	2861.5
25°	3211.5	3103.6	2881.5	2743.6	2692.9
27.5°	3107.2	2992.5	2746.8	2588.6	2511.1
30°	2996.1	2867.9	2598.6	2427.2	2336.1
32.5°	2888.2	2733.2	2457.5	2255.4	2171.1
35°	2767.2	2595.4	2299.3	2087.2	2012.9
37.5°	2649.3	2464.0	2151.1	1918.6	1834.7
40°	2524.7	2322.9	1996.1	1757.2	1669.7
42.5°	2396.8	2181.5	1841.4	1592.2	1508.2
45°	2262.2	2036.5	1683.2	1443.9	1363.2
47.5°	2134.3	1895.4	1531.8	1292.5	1218.6
50°	1992.9	1753.9	1383.6	1151.1	1080.7
52.5°	1854.7	1602.2	1242.2	1020.0	956.1
55°	1720.0	1457.5	1093.9	892.2	828.2
57.5°	1582.2	1312.9	962.9	774.3	720.4
60°	1440.7	1171.4	824.7	653.2	599.3
62.5°	1302.9	1033.6	706.8	545.4	518.6
65°	1161.4	888.6	585.7	471.4	461.1
67.5°	1026.8	753.9	471.4	413.9	403.9
70°	885.4	622.9	390.4	356.8	343.2
72.5°	750.7	501.4	326.4	299.6	292.9
75°	619.3	383.6	269.3	245.7	242.5
77.5°	488.2	272.5	212.1	198.6	191.8
80°	366.8	195.4	161.4	148.2	148.2
82.5°	255.7	131.4	111.1	104.3	104.3
85°	144.6	73.9	63.9	63.9	63.9
87.5°	53.9	26.8	26.8	23.6	23.6
90°	2.6	30.9	84.1	78.9	81.5
92.5°	53.2	72.1	74.7	77.2	77.2
95°	125.3	149.3	153.6	153.6	149.3
97.5°	208.5	230.8	240.3	240.3	240.3
100°	304.6	324.4	331.2	331.2	328.7
102.5°	405.9	420.5	429.9	432.5	429.9
105°	516.6	523.4	528.6	532.9	532.9
107.5°	626.4	636.7	636.7	638.4	626.4
110°	732.8	746.6	746.6	746.6	739.7

TEST NUMBER: P905515

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US835-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	847.8	862.4	859.8	853.0	847.8
115°	961.1	974.8	970.5	968.0	961.1
117.5°	1073.5	1092.4	1080.4	1073.5	1066.6
120°	1186.8	1205.6	1186.8	1186.8	1179.0
122.5°	1289.7	1313.8	1301.8	1294.9	1289.7
125°	1397.9	1419.3	1412.5	1404.7	1402.2
127.5°	1503.4	1530.0	1520.6	1510.3	1503.4
130°	1602.1	1633.0	1628.7	1623.5	1614.1
132.5°	1712.8	1736.8	1738.5	1726.5	1719.7
135°	1808.0	1834.6	1839.8	1837.2	1830.4
137.5°	1914.4	1935.9	1940.2	1938.5	1928.2
140°	2008.0	2029.4	2041.4	2041.4	2032.0
142.5°	2104.1	2125.5	2132.4	2135.0	2125.5
145°	2195.1	2212.2	2225.9	2228.5	2219.1
147.5°	2276.6	2298.0	2308.3	2312.6	2303.2
150°	2360.7	2375.3	2384.7	2392.4	2384.7
152.5°	2435.3	2449.9	2461.9	2471.4	2461.9
155°	2510.0	2516.8	2524.6	2536.6	2528.9
157.5°	2574.3	2579.5	2583.8	2600.9	2588.9
160°	2631.8	2637.0	2639.6	2654.1	2643.8
162.5°	2685.0	2685.0	2687.6	2703.9	2691.9
165°	2730.5	2727.9	2727.9	2745.1	2733.1
167.5°	2771.7	2764.0	2764.0	2781.1	2769.1
170°	2802.6	2795.7	2793.2	2810.3	2795.7
172.5°	2824.0	2817.2	2814.6	2831.8	2817.2
175°	2841.2	2834.3	2829.2	2846.4	2831.8
177.5°	2850.6	2843.8	2838.6	2853.2	2838.6
180°	2846.4	2846.4	2846.4	2846.4	2846.4

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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	10.59	11.41	11.56	12.39	13.68	6.56	7.39	7.54	8.37	9.66
	3H	12.27	13.00	13.25	13.99	15.30	7.75	8.49	8.74	9.48	10.79
	4H	12.88	13.57	13.87	14.57	15.88	8.20	8.90	9.20	9.89	11.21
	6H	13.30	13.94	14.31	14.94	16.27	8.53	9.17	9.53	10.17	11.50
	8H	13.43	14.03	14.44	15.05	16.38	8.62	9.23	9.63	10.24	11.57
	12H	13.49	14.07	14.51	15.08	16.43	8.66	9.24	9.68	10.25	11.60
4H	2H	10.61	11.30	11.61	12.30	13.62	7.16	7.85	8.16	8.85	10.17
	3H	12.44	13.02	13.45	14.04	15.37	8.51	9.09	9.52	10.11	11.44
	4H	13.13	13.66	14.15	14.67	16.03	9.06	9.59	10.08	10.60	11.96
	6H	13.65	14.10	14.68	15.14	16.49	9.48	9.93	10.51	10.97	12.32
	8H	13.82	14.25	14.85	15.28	16.64	9.61	10.03	10.64	11.07	12.43
	12H	13.92	14.30	14.97	15.35	16.72	9.68	10.06	10.72	11.10	12.48
8H	4H	13.10	13.52	14.13	14.55	15.92	9.34	9.76	10.37	10.79	12.16
	6H	13.67	14.01	14.72	15.09	16.45	9.86	10.21	10.91	11.28	12.65
	8H	13.88	14.19	14.94	15.25	16.63	10.05	10.36	11.11	11.42	12.80
	12H	14.02	14.29	15.09	15.35	16.77	10.17	10.44	11.24	11.50	12.92
12H	4H	13.05	13.43	14.10	14.48	15.85	9.34	9.73	10.39	10.77	12.14
	6H	13.64	13.95	14.70	15.01	16.39	9.91	10.22	10.97	11.28	12.66
	8H	13.86	14.13	14.93	15.19	16.61	10.12	10.39	11.19	11.45	12.87