

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: P905424

Luminaire Tested: DFN2DIP-HX4F0-040D090US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905424
REPORT IS A COMBINATION OF REPORTS P899389 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D090US835-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

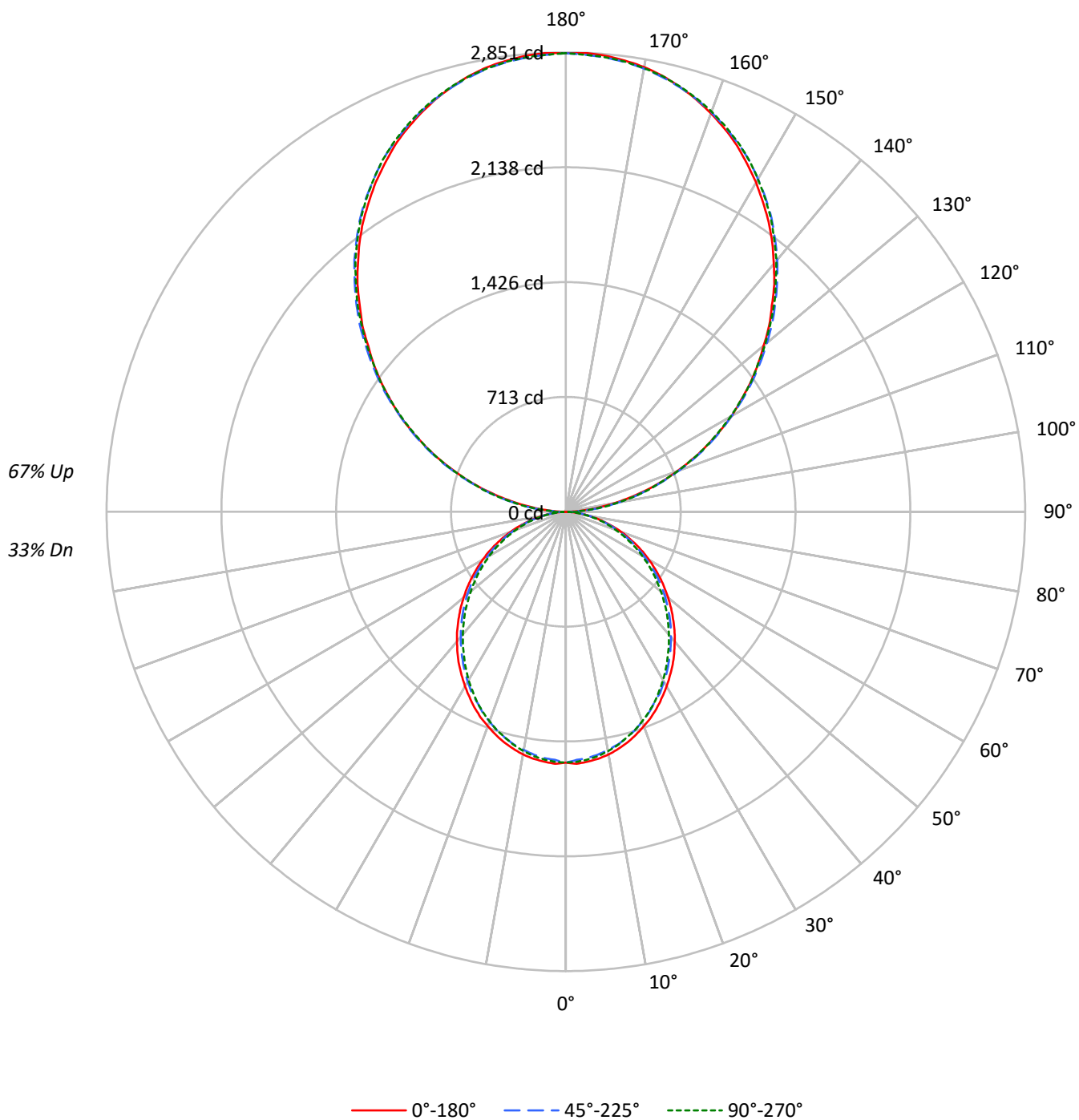
Lumens per Lamp: N/A
Luminaire Lumens: 11925.0 lumens
Efficiency: N/A
Efficacy: 141.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 84.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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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CATALOG NUMBER: DFN2DIP-HX4F0-040D090US835-FLLFL

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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	18	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1157	1157	1157
5°	1159	1141	1149
10°	1150	1126	1133
15°	1133	1108	1109
20°	1110	1082	1084
25°	1088	1051	1056
30°	1059	1023	1019
35°	1032	989	980
40°	999	955	944
45°	966	921	906
50°	930	885	863
55°	892	844	823
60°	850	795	777
65°	803	744	723
70°	744	682	664
75°	662	608	611
80°	563	513	508
85°	409	349	338

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2146 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.5	1.2
10°-20°	412.2	3.5
20°-30°	605.7	5.1
30°-40°	703.5	5.9
40°-50°	702.6	5.9
50°-60°	612.7	5.1
60°-70°	452.9	3.8
70°-80°	256.2	2.1
80°-90°	75.7	0.6
90°-100°	176.1	1.5
100°-110°	559.6	4.7
110°-120°	957.7	8.0
120°-130°	1259.5	10.6
130°-140°	1413.8	11.9
140°-150°	1386.4	11.6
150°-160°	1163.0	9.8
160°-170°	771.2	6.5
170°-180°	269.6	2.3
0°-30°	1164.4	9.8
0°-40°	1867.9	15.7
0°-60°	3183.2	26.7
0°-90°	3968.1	33.3
90°-120°	1693.5	14.2
90°-150°	5753.1	48.2
90°-180°	7957.0	66.7
0°-180°	11925.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1556	1556	1556	1556	1556	
5°	1556	1550	1534	1546	1543	148
15°	1482	1473	1453	1459	1452	417
25°	1341	1329	1304	1306	1304	617
35°	1157	1142	1118	1109	1102	722
45°	941	931	908	892	886	727
55°	712	703	686	668	660	637
65°	480	471	456	443	436	475
75°	251	248	241	232	235	268
85°	61	60	58	54	52	68
90°	3	31	84	79	82	12
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1556.4	1556.4	1556.4	1556.4	1556.4
2.5°	1565.5	1558.0	1541.5	1556.4	1553.6
5°	1556.4	1550.5	1534.0	1545.9	1543.1
7.5°	1545.9	1537.0	1520.5	1532.6	1529.6
10°	1529.6	1519.1	1501.2	1513.1	1508.6
12.5°	1507.0	1498.1	1480.2	1487.7	1484.6
15°	1481.6	1472.7	1453.2	1459.2	1451.8
17.5°	1450.2	1441.3	1421.8	1429.2	1421.8
20°	1415.7	1406.8	1385.9	1390.3	1384.5
22.5°	1381.4	1367.9	1348.4	1348.4	1345.4
25°	1340.9	1329.0	1303.6	1306.5	1303.6
27.5°	1296.0	1285.5	1266.2	1261.7	1254.3
30°	1251.2	1239.2	1216.8	1212.3	1206.3
32.5°	1203.3	1194.4	1170.4	1161.4	1155.3
35°	1156.9	1142.0	1118.0	1109.0	1101.5
37.5°	1104.5	1091.0	1067.0	1056.6	1049.1
40°	1050.7	1038.6	1014.6	1001.3	995.3
42.5°	998.3	986.2	962.4	947.3	938.4
45°	941.4	931.0	908.4	892.1	886.0
47.5°	886.0	875.5	851.6	835.1	826.2
50°	827.6	820.1	799.2	778.2	770.7
52.5°	770.7	760.3	740.9	724.4	713.9
55°	712.5	703.4	685.5	667.5	660.1
57.5°	654.0	646.6	627.0	609.1	603.1
60°	595.6	589.7	568.8	552.3	547.8
62.5°	538.8	528.3	513.4	498.4	492.4
65°	480.5	471.4	456.5	443.0	435.6
67.5°	420.6	413.0	399.7	389.2	383.2
70°	365.2	359.2	345.7	335.2	329.3
72.5°	308.4	302.3	294.9	284.4	279.9
75°	251.4	248.5	240.9	232.0	235.0
77.5°	200.5	194.5	191.5	187.0	182.6
80°	149.7	148.1	145.1	140.7	137.7
82.5°	101.8	101.8	100.4	94.3	94.3
85°	61.3	59.9	58.4	53.8	52.4
87.5°	27.0	24.0	21.0	16.5	14.9
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

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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	5.99	6.72	7.08	7.81	9.30	5.56	6.29	6.65	7.38	8.87
	3H	7.64	8.30	8.74	9.39	10.90	7.17	7.82	8.27	8.92	10.43
	4H	8.23	8.85	9.33	9.94	11.46	7.75	8.37	8.86	9.47	10.98
	6H	8.62	9.19	9.74	10.29	11.82	8.14	8.71	9.26	9.81	11.34
	8H	8.72	9.26	9.84	10.38	11.90	8.24	8.79	9.37	9.90	11.42
	12H	8.76	9.28	9.89	10.39	11.93	8.28	8.80	9.41	9.91	11.45
4H	2H	6.44	7.06	7.55	8.15	9.67	6.09	6.71	7.21	7.81	9.32
	3H	8.29	8.81	9.41	9.93	11.46	7.90	8.42	9.02	9.54	11.07
	4H	9.00	9.48	10.13	10.59	12.14	8.60	9.07	9.72	10.19	11.73
	6H	9.51	9.92	10.64	11.05	12.59	9.10	9.51	10.23	10.64	12.18
	8H	9.66	10.04	10.79	11.17	12.72	9.25	9.63	10.38	10.75	12.31
	12H	9.73	10.07	10.87	11.21	12.77	9.30	9.65	10.45	10.79	12.35
8H	4H	9.19	9.57	10.32	10.70	12.25	8.83	9.21	9.96	10.34	11.89
	6H	9.82	10.13	10.97	11.30	12.85	9.45	9.77	10.61	10.94	12.49
	8H	10.04	10.31	11.19	11.46	13.03	9.67	9.94	10.83	11.09	12.66
	12H	10.16	10.40	11.32	11.55	13.16	9.78	10.02	10.94	11.17	12.77
12H	4H	9.17	9.51	10.32	10.65	12.21	8.82	9.16	9.96	10.30	11.86
	6H	9.85	10.12	11.00	11.27	12.84	9.49	9.77	10.65	10.92	12.49
	8H	10.08	10.32	11.24	11.47	13.08	9.72	9.97	10.89	11.11	12.72

END OF REPORT