

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: P910642

Luminaire Tested: DFN2DIP-HX2F0-040D020US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910642
REPORT IS A COMBINATION OF REPORTS P899155 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-040D020US850-FLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

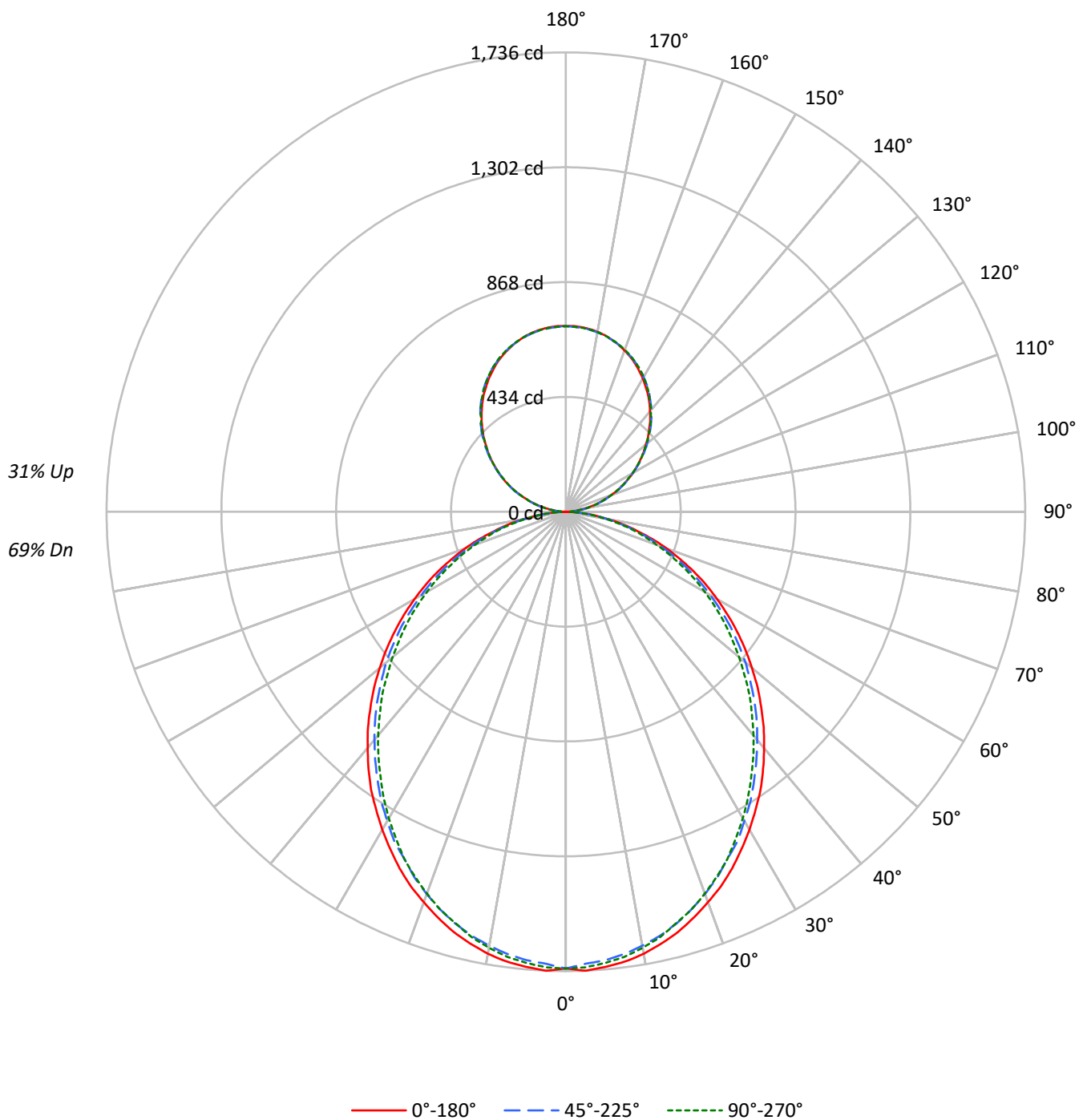
Lumens per Lamp: N/A
Luminaire Lumens: 6354.6 lumens
Efficiency: N/A
Efficacy: 123.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 51.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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
RCR																	
0	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4067	4067	4067
5°	4067	4000	4030
10°	4027	3937	3967
15°	3962	3862	3875
20°	3875	3763	3781
25°	3789	3646	3672
30°	3683	3536	3537
35°	3581	3408	3394
40°	3458	3278	3258
45°	3334	3148	3117
50°	3198	3011	2956
55°	3056	2853	2806
60°	2894	2666	2633
65°	2717	2471	2431
70°	2492	2234	2211
75°	2183	1950	1998
80°	1806	1586	1612
85°	1227	996	997

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3334 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	2.6
10°-20°	457.1	7.2
20°-30°	671.7	10.6
30°-40°	780.2	12.3
40°-50°	779.2	12.3
50°-60°	679.5	10.7
60°-70°	502.3	7.9
70°-80°	284.2	4.5
80°-90°	77.0	1.2
90°-100°	43.4	0.7
100°-110°	137.9	2.2
110°-120°	236.0	3.7
120°-130°	310.4	4.9
130°-140°	348.4	5.5
140°-150°	341.7	5.4
150°-160°	286.6	4.5
160°-170°	190.1	3.0
170°-180°	66.4	1.0
0°-30°	1291.3	20.3
0°-40°	2071.5	32.6
0°-60°	3530.2	55.6
0°-90°	4393.7	69.1
90°-120°	417.3	6.6
90°-150°	1417.8	22.3
90°-180°	1961.0	30.9
0°-180°	6354.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1726	1720	1701	1714	1711	164
15°	1643	1633	1612	1618	1610	463
25°	1487	1474	1446	1449	1446	684
35°	1283	1266	1240	1230	1222	801
45°	1044	1032	1007	989	983	806
55°	790	780	760	740	732	706
65°	533	523	506	491	483	527
75°	279	276	267	257	261	298
85°	68	66	65	60	58	76
90°	1	8	21	19	20	6
95°	31	37	38	38	37	34
105°	127	129	130	131	131	134
115°	237	240	239	238	237	234
125°	344	350	348	346	346	308
135°	446	452	453	453	451	344
145°	541	545	549	549	547	338
155°	619	620	622	625	623	285
165°	673	672	672	676	674	190
175°	700	699	697	701	698	67
180°	701	701	701	701	701	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1726.0	1726.0	1726.0	1726.0	1726.0
2.5°	1736.1	1727.8	1709.5	1726.0	1722.9
5°	1726.0	1719.5	1701.2	1714.4	1711.3
7.5°	1714.4	1704.5	1686.2	1699.7	1696.3
10°	1696.3	1684.7	1664.8	1678.0	1673.0
12.5°	1671.3	1661.4	1641.5	1649.9	1646.4
15°	1643.1	1633.2	1611.6	1618.3	1610.0
17.5°	1608.3	1598.4	1576.8	1585.0	1576.8
20°	1570.0	1560.1	1537.0	1541.8	1535.4
22.5°	1532.0	1517.0	1495.4	1495.4	1492.0
25°	1487.1	1473.9	1445.7	1448.9	1445.7
27.5°	1437.3	1425.6	1404.2	1399.2	1391.0
30°	1387.6	1374.3	1349.4	1344.4	1337.8
32.5°	1334.5	1324.6	1298.0	1288.0	1281.2
35°	1283.0	1266.5	1239.9	1229.9	1221.6
37.5°	1224.9	1209.9	1183.3	1171.8	1163.5
40°	1165.2	1151.8	1125.2	1110.4	1103.8
42.5°	1107.1	1093.7	1067.3	1050.6	1040.7
45°	1044.0	1032.5	1007.4	989.3	982.6
47.5°	982.6	970.9	944.4	926.1	916.3
50°	917.8	909.5	886.3	863.0	854.7
52.5°	854.7	843.2	821.7	803.4	791.7
55°	790.2	780.1	760.2	740.3	732.1
57.5°	725.3	717.1	695.3	675.5	668.8
60°	660.5	654.0	630.8	612.5	607.5
62.5°	597.5	585.9	569.4	552.7	546.1
65°	532.9	522.8	506.3	491.3	483.1
67.5°	466.4	458.0	443.3	431.6	425.0
70°	405.0	398.4	383.4	371.7	365.2
72.5°	342.0	335.3	327.0	315.4	310.4
75°	278.8	275.6	267.2	257.3	260.6
77.5°	222.4	215.7	212.4	207.4	202.5
80°	166.0	164.2	160.9	156.0	152.7
82.5°	112.9	112.9	111.3	104.6	104.6
85°	68.0	66.4	64.8	59.7	58.1
87.5°	29.9	26.6	23.3	18.3	16.5
90°	0.7	7.7	20.7	19.4	20.1
92.5°	13.1	17.7	18.4	19.1	19.1
95°	30.8	36.8	37.8	37.8	36.8
97.5°	51.3	56.9	59.2	59.2	59.2
100°	75.1	80.0	81.6	81.6	81.0
102.5°	100.0	103.6	105.9	106.6	105.9
105°	127.3	129.0	130.3	131.3	131.3
107.5°	154.4	156.9	156.9	157.4	154.4
110°	180.7	184.0	184.0	184.0	182.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	208.9	212.5	211.9	210.2	208.9
115°	236.9	240.2	239.2	238.5	236.9
117.5°	264.6	269.3	266.3	264.6	262.8
120°	292.4	297.1	292.4	292.4	290.6
122.5°	317.8	323.7	320.8	319.2	317.8
125°	344.5	349.8	348.1	346.2	345.6
127.5°	370.5	377.1	374.7	372.2	370.5
130°	394.8	402.5	401.3	400.1	397.8
132.5°	422.1	428.1	428.4	425.5	423.7
135°	445.6	452.1	453.4	452.8	451.0
137.5°	471.8	477.1	478.2	477.8	475.2
140°	494.8	500.2	503.2	503.2	500.8
142.5°	518.6	523.8	525.6	526.1	523.8
145°	541.0	545.2	548.6	549.2	546.8
147.5°	561.0	566.4	568.9	569.9	567.6
150°	581.8	585.3	587.7	589.5	587.7
152.5°	600.2	603.7	606.7	609.1	606.7
155°	618.6	620.3	622.1	625.1	623.3
157.5°	634.5	635.7	636.8	641.0	638.0
160°	648.7	649.9	650.5	654.1	651.5
162.5°	661.7	661.7	662.3	666.4	663.4
165°	672.9	672.3	672.3	676.5	673.6
167.5°	683.0	681.1	681.1	685.4	682.5
170°	690.7	689.0	688.4	692.6	689.0
172.5°	696.0	694.2	693.7	697.9	694.2
175°	700.2	698.6	697.2	701.4	697.9
177.5°	702.6	700.9	699.6	703.1	699.6
180°	701.4	701.4	701.4	701.4	701.4

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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	13.61	14.68	14.39	15.47	16.44	13.19	14.25	13.96	15.05	16.02
	3H	15.26	16.22	16.05	17.02	18.02	14.80	15.76	15.59	16.56	17.56
	4H	15.84	16.75	16.65	17.56	18.57	15.38	16.29	16.19	17.10	18.11
	6H	16.23	17.07	17.05	17.89	18.91	15.77	16.61	16.59	17.43	18.45
	8H	16.33	17.13	17.16	17.97	18.99	15.88	16.67	16.70	17.51	18.54
	12H	16.38	17.14	17.21	17.97	19.02	15.92	16.67	16.75	17.51	18.56
4H	2H	14.09	14.99	14.90	15.80	16.81	13.75	14.65	14.56	15.47	16.48
	3H	15.94	16.70	16.76	17.54	18.57	15.56	16.31	16.38	17.16	18.19
	4H	16.65	17.33	17.48	18.18	19.23	16.25	16.94	17.09	17.78	18.84
	6H	17.15	17.74	18.00	18.61	19.67	16.75	17.35	17.60	18.22	19.28
	8H	17.29	17.85	18.14	18.71	19.78	16.89	17.45	17.75	18.31	19.39
	12H	17.36	17.86	18.24	18.75	19.82	16.96	17.46	17.83	18.34	19.42
8H	4H	16.85	17.40	17.70	18.27	19.34	16.50	17.05	17.35	17.92	18.99
	6H	17.46	17.92	18.34	18.82	19.90	17.11	17.57	17.99	18.47	19.54
	8H	17.66	18.07	18.56	18.97	20.06	17.31	17.72	18.20	18.62	19.71
	12H	17.79	18.15	18.68	19.04	20.18	17.42	17.78	18.31	18.67	19.81
12H	4H	16.84	17.34	17.71	18.23	19.30	16.50	17.00	17.37	17.88	18.96
	6H	17.48	17.89	18.38	18.79	19.88	17.14	17.55	18.03	18.45	19.54
	8H	17.72	18.08	18.61	18.97	20.11	17.37	17.73	18.27	18.63	19.77