

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: P913747

Luminaire Tested: DFN2DIP-HX4F0-120D060US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913747
REPORT IS A COMBINATION OF REPORTS P899352 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D060US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

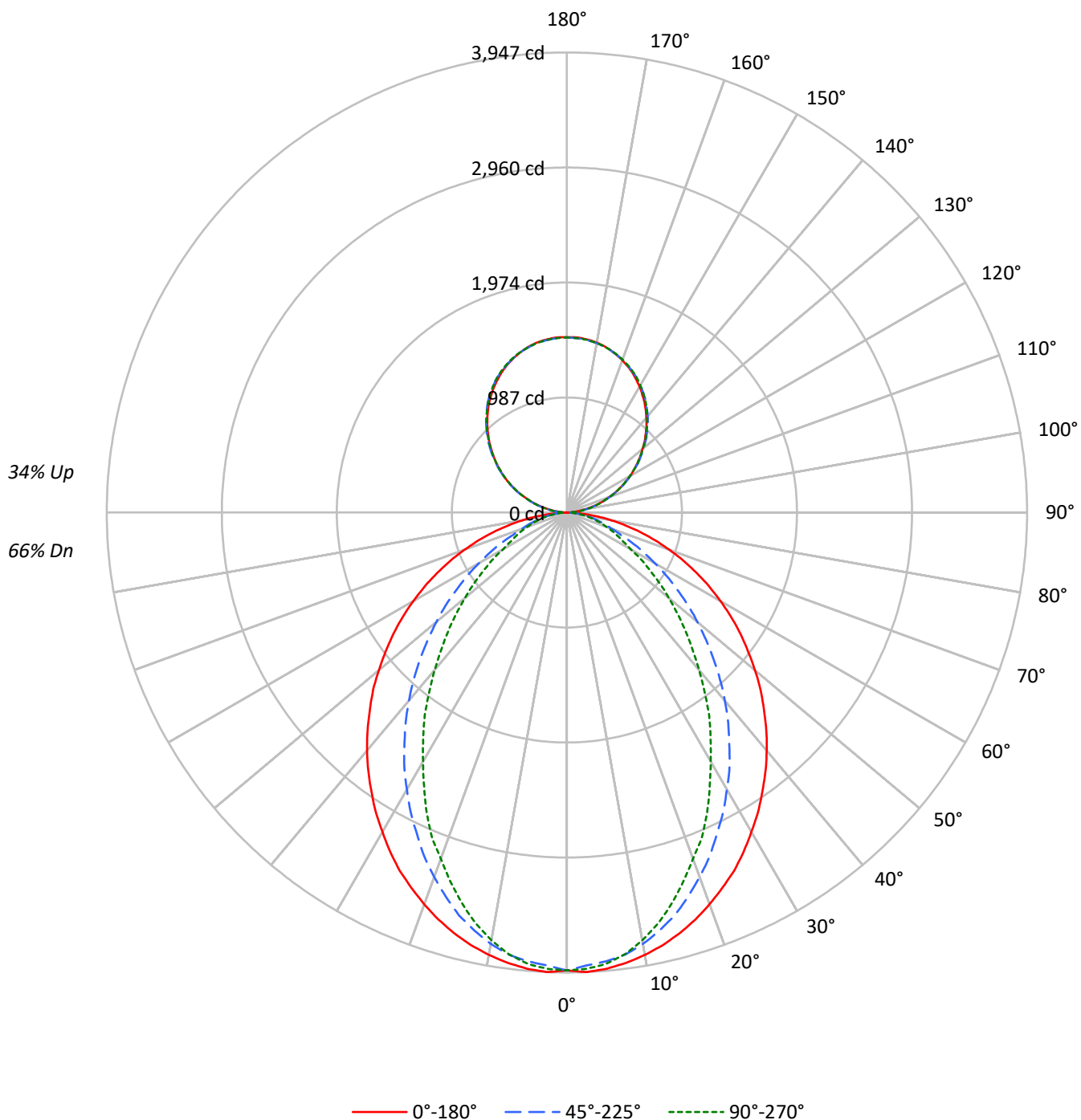
Lumens per Lamp: N/A
Luminaire Lumens: 12286.8 lumens
Efficiency: N/A
Efficacy: 76.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 160.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35
6	67	55	47	41	63	52	45	40	47	41	37	42	38	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2921	2921	2921
5°	2926	2875	2894
10°	2898	2819	2800
15°	2858	2726	2654
20°	2805	2598	2476
25°	2752	2454	2303
30°	2679	2307	2085
35°	2608	2148	1892
40°	2536	1984	1672
45°	2453	1802	1473
50°	2366	1619	1277
55°	2276	1422	1090
60°	2171	1217	897
65°	2051	1008	808
70°	1905	813	731
75°	1722	718	666
80°	1457	603	578
85°	1019	404	435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2453 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	368.2	3.0
10°-20°	1010.8	8.2
20°-30°	1419.2	11.6
30°-40°	1547.0	12.6
40°-50°	1421.9	11.6
50°-60°	1116.7	9.1
60°-70°	726.9	5.9
70°-80°	374.2	3.0
80°-90°	99.8	0.8
90°-100°	93.0	0.8
100°-110°	295.6	2.4
110°-120°	505.8	4.1
120°-130°	665.2	5.4
130°-140°	746.6	6.1
140°-150°	732.2	6.0
150°-160°	614.2	5.0
160°-170°	407.3	3.3
170°-180°	142.4	1.2
0°-30°	2798.2	22.8
0°-40°	4345.2	35.4
0°-60°	6883.7	56.0
0°-90°	8084.5	65.8
90°-120°	894.4	7.3
90°-150°	3038.4	24.7
90°-180°	4202.0	34.2
0°-180°	12286.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3929	3929	3929	3929	3929	
5°	3929	3911	3865	3897	3886	373
15°	3737	3698	3577	3509	3474	1053
25°	3392	3278	3044	2898	2844	1560
35°	2923	2741	2429	2205	2126	1829
45°	2389	2151	1778	1525	1440	1845
55°	1817	1540	1156	942	875	1623
65°	1227	939	619	498	487	1216
75°	654	405	284	260	256	692
85°	153	78	68	68	68	175
90°	1	16	44	42	43	12
95°	66	79	81	81	79	74
105°	273	276	279	282	282	288
115°	508	515	512	511	508	502
125°	738	750	746	742	740	660
135°	955	969	972	970	967	738
145°	1159	1168	1176	1177	1172	724
155°	1326	1329	1333	1340	1336	610
165°	1442	1441	1441	1450	1443	407
175°	1500	1497	1494	1503	1496	143
180°	1503	1503	1503	1503	1503	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3928.9	3928.9	3928.9	3928.9	3928.9
2.5°	3946.6	3928.9	3889.7	3925.5	3918.3
5°	3928.9	3911.2	3864.7	3896.8	3886.3
7.5°	3896.8	3875.7	3825.9	3839.9	3822.1
10°	3854.2	3829.3	3758.3	3747.4	3726.3
12.5°	3801.0	3769.0	3672.7	3651.6	3612.4
15°	3736.9	3697.7	3576.9	3509.4	3474.0
17.5°	3662.2	3605.2	3455.8	3377.8	3320.8
20°	3576.9	3505.6	3328.0	3239.3	3160.8
22.5°	3484.5	3402.7	3196.3	3075.6	3022.4
25°	3392.1	3278.1	3043.5	2897.9	2844.3
27.5°	3281.9	3160.8	2901.3	2734.2	2652.3
30°	3164.6	3029.2	2744.7	2563.7	2467.5
32.5°	3050.7	2886.9	2595.7	2382.2	2293.2
35°	2922.8	2741.3	2428.6	2204.6	2126.1
37.5°	2798.3	2602.6	2272.1	2026.5	1937.8
40°	2666.6	2453.5	2108.4	1856.0	1763.6
42.5°	2531.6	2304.1	1945.0	1681.7	1593.1
45°	2389.4	2151.0	1777.9	1525.2	1439.9
47.5°	2254.3	2002.0	1618.0	1365.2	1287.1
50°	2105.0	1852.6	1461.4	1215.8	1141.5
52.5°	1959.0	1692.3	1312.0	1077.4	1009.9
55°	1816.8	1539.5	1155.5	942.3	874.8
57.5°	1671.1	1386.7	1017.0	817.8	760.9
60°	1521.8	1237.3	871.0	690.0	633.0
62.5°	1376.2	1091.7	746.6	576.1	547.7
65°	1226.8	938.6	618.7	498.0	487.0
67.5°	1084.6	796.3	498.0	437.2	426.7
70°	935.2	657.9	412.3	376.8	362.5
72.5°	793.0	529.7	344.8	316.5	309.3
75°	654.1	405.1	284.5	259.5	256.1
77.5°	515.7	287.8	224.1	209.8	202.6
80°	387.5	206.4	170.5	156.5	156.5
82.5°	270.1	138.8	117.3	110.1	110.1
85°	152.8	78.1	67.5	67.5	67.5
87.5°	57.0	28.3	28.3	24.9	24.9
90°	1.3	16.3	44.4	41.7	43.0
92.5°	28.1	38.1	39.5	40.8	40.8
95°	66.1	78.8	81.1	81.1	78.8
97.5°	110.1	121.9	126.9	126.9	126.9
100°	160.9	171.3	174.9	174.9	173.6
102.5°	214.4	222.0	227.0	228.4	227.0
105°	272.8	276.5	279.2	281.5	281.5
107.5°	330.8	336.3	336.3	337.2	330.8
110°	387.1	394.3	394.3	394.3	390.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	447.7	455.4	454.1	450.4	447.7
115°	507.6	514.8	512.5	511.2	507.6
117.5°	567.0	576.9	570.5	567.0	563.3
120°	626.8	636.8	626.8	626.8	622.7
122.5°	681.1	693.8	687.5	683.9	681.1
125°	738.2	749.6	745.9	741.9	740.5
127.5°	794.0	808.0	803.0	797.6	794.0
130°	846.1	862.4	860.2	857.5	852.5
132.5°	904.6	917.3	918.1	911.8	908.2
135°	954.9	968.9	971.6	970.3	966.6
137.5°	1011.1	1022.4	1024.7	1023.7	1018.3
140°	1060.5	1071.8	1078.2	1078.2	1073.2
142.5°	1111.2	1122.5	1126.2	1127.5	1122.5
145°	1159.3	1168.3	1175.6	1176.9	1172.0
147.5°	1202.3	1213.6	1219.1	1221.3	1216.3
150°	1246.7	1254.4	1259.4	1263.4	1259.4
152.5°	1286.1	1293.9	1300.2	1305.2	1300.2
155°	1325.6	1329.2	1333.2	1339.7	1335.5
157.5°	1359.5	1362.3	1364.5	1373.6	1367.3
160°	1390.0	1392.7	1394.0	1401.7	1396.3
162.5°	1418.0	1418.0	1419.4	1428.0	1421.6
165°	1442.0	1440.7	1440.7	1449.8	1443.4
167.5°	1463.8	1459.8	1459.8	1468.8	1462.4
170°	1480.1	1476.5	1475.1	1484.2	1476.5
172.5°	1491.4	1487.8	1486.4	1495.5	1487.8
175°	1500.5	1496.9	1494.1	1503.2	1495.5
177.5°	1505.5	1501.9	1499.1	1506.8	1499.1
180°	1503.2	1503.2	1503.2	1503.2	1503.2

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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	12.23	13.21	13.05	14.04	15.07	8.21	9.18	9.02	10.02	11.05
	3H	13.92	14.80	14.75	15.64	16.70	9.41	10.28	10.24	11.13	12.18
	4H	14.54	15.36	15.38	16.21	17.28	9.87	10.69	10.71	11.54	12.61
	6H	14.97	15.73	15.83	16.59	17.67	10.20	10.96	11.05	11.81	12.90
	8H	15.10	15.82	15.97	16.70	17.78	10.29	11.01	11.16	11.89	12.97
	12H	15.17	15.85	16.04	16.72	17.83	10.34	11.03	11.21	11.90	13.01
4H	2H	12.27	13.09	13.12	13.94	15.01	8.82	9.65	9.67	10.50	11.56
	3H	14.11	14.80	14.97	15.68	16.77	10.19	10.87	11.05	11.75	12.84
	4H	14.81	15.43	15.69	16.32	17.43	10.74	11.36	11.61	12.24	13.35
	6H	15.34	15.87	16.23	16.78	17.89	11.17	11.71	12.06	12.61	13.73
	8H	15.51	16.02	16.41	16.92	18.04	11.30	11.80	12.19	12.70	13.83
	12H	15.62	16.07	16.53	16.99	18.12	11.38	11.83	12.29	12.74	13.88
8H	4H	14.79	15.29	15.68	16.19	17.32	11.03	11.53	11.92	12.43	13.56
	6H	15.36	15.78	16.28	16.72	17.85	11.56	11.97	12.48	12.91	14.04
	8H	15.58	15.95	16.51	16.88	18.03	11.75	12.12	12.68	13.05	14.19
	12H	15.73	16.05	16.66	16.98	18.17	11.88	12.20	12.81	13.13	14.32
12H	4H	14.75	15.20	15.66	16.12	17.25	11.04	11.49	11.95	12.41	13.54
	6H	15.34	15.71	16.27	16.64	17.78	11.61	11.98	12.54	12.91	14.05
	8H	15.57	15.89	16.50	16.82	18.01	11.83	12.15	12.76	13.07	14.27