

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: P921550

Luminaire Tested: DFN2DIP-HX2F0-030D060US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921550
REPORT IS A COMBINATION OF REPORTS P899193 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-030D060US940-FLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

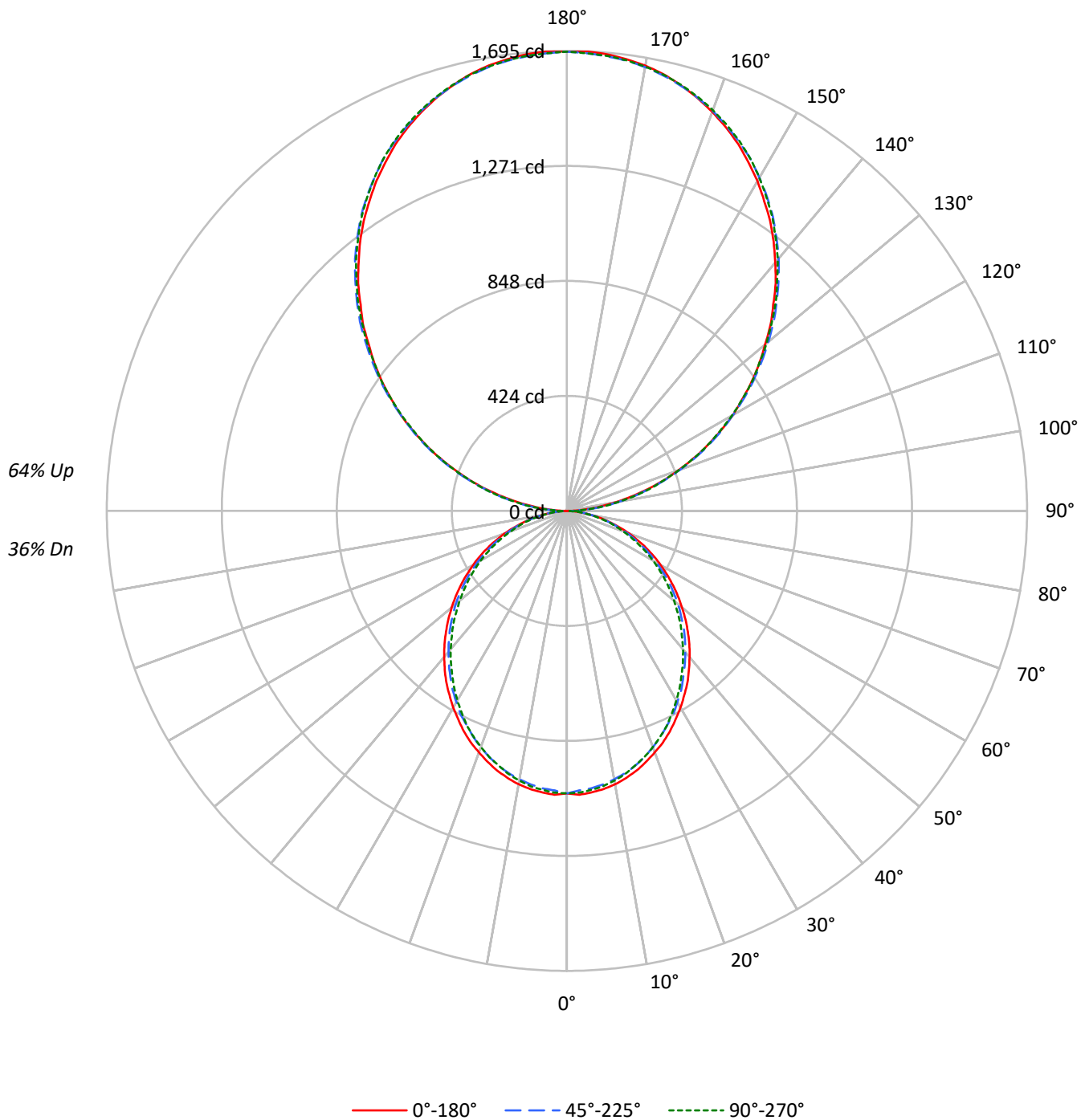
Lumens per Lamp: N/A
Luminaire Lumens: 7383.4 lumens
Efficiency: N/A
Efficacy: 100.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 73.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2453	2453	2453
5°	2453	2412	2430
10°	2429	2374	2393
15°	2389	2329	2337
20°	2337	2269	2280
25°	2285	2198	2215
30°	2221	2132	2133
35°	2160	2055	2047
40°	2085	1977	1965
45°	2010	1898	1880
50°	1929	1816	1783
55°	1843	1720	1692
60°	1745	1608	1588
65°	1639	1490	1466
70°	1503	1347	1333
75°	1316	1176	1205
80°	1089	956	972
85°	740	601	601

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2268 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	98.0	1.3
10°-20°	275.6	3.7
20°-30°	405.1	5.5
30°-40°	470.5	6.4
40°-50°	469.9	6.4
50°-60°	409.8	5.5
60°-70°	302.9	4.1
70°-80°	171.4	2.3
80°-90°	50.0	0.7
90°-100°	104.7	1.4
100°-110°	332.7	4.5
110°-120°	569.3	7.7
120°-130°	748.8	10.1
130°-140°	840.5	11.4
140°-150°	824.2	11.2
150°-160°	691.4	9.4
160°-170°	458.5	6.2
170°-180°	160.3	2.2
0°-30°	778.7	10.5
0°-40°	1249.2	16.9
0°-60°	2128.9	28.8
0°-90°	2653.2	35.9
90°-120°	1006.7	13.6
90°-150°	3420.1	46.3
90°-180°	4730.0	64.1
0°-180°	7383.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1041	1041	1041	1041	1041	
5°	1041	1037	1026	1034	1032	99
15°	991	985	972	976	971	279
25°	897	889	872	874	872	413
35°	774	764	748	742	737	483
45°	630	623	608	597	592	486
55°	476	470	458	446	442	426
65°	321	315	305	296	291	318
75°	168	166	161	155	157	179
85°	41	40	39	36	35	46
90°	2	18	50	47	48	7
95°	74	89	91	91	89	83
105°	307	311	314	317	317	324
115°	571	580	577	575	571	565
125°	831	844	840	835	834	743
135°	1075	1091	1094	1092	1088	831
145°	1305	1315	1323	1325	1319	815
155°	1492	1496	1501	1508	1503	687
165°	1623	1622	1622	1632	1625	458
175°	1689	1685	1682	1692	1683	160
180°	1692	1692	1692	1692	1692	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1040.9	1040.9	1040.9	1040.9	1040.9
2.5°	1047.0	1042.0	1030.9	1040.9	1039.0
5°	1040.9	1037.0	1025.9	1033.9	1032.0
7.5°	1033.9	1028.0	1016.9	1025.0	1023.0
10°	1023.0	1015.9	1004.0	1011.9	1009.0
12.5°	1007.9	1001.9	990.0	994.9	992.9
15°	990.9	985.0	971.9	975.9	970.9
17.5°	969.8	963.9	950.8	955.8	950.8
20°	946.8	940.8	926.8	929.8	925.9
22.5°	923.9	914.9	901.8	901.8	899.7
25°	896.8	888.9	871.8	873.8	871.8
27.5°	866.7	859.7	846.8	843.8	838.8
30°	836.8	828.8	813.8	810.7	806.7
32.5°	804.8	798.8	782.7	776.7	772.7
35°	773.7	763.7	747.7	741.6	736.6
37.5°	738.7	729.7	713.6	706.6	701.6
40°	702.7	694.6	678.6	669.7	665.7
42.5°	667.6	659.6	643.6	633.6	627.6
45°	629.6	622.6	607.5	596.6	592.5
47.5°	592.5	585.6	569.5	558.5	552.5
50°	553.5	548.5	534.5	520.5	515.5
52.5°	515.5	508.5	495.5	484.5	477.4
55°	476.5	470.5	458.4	446.5	441.5
57.5°	437.4	432.4	419.4	407.3	403.3
60°	398.3	394.4	380.4	369.3	366.4
62.5°	360.3	353.3	343.3	333.3	329.3
65°	321.4	315.3	305.3	296.3	291.3
67.5°	281.3	276.3	267.2	260.3	256.3
70°	244.2	240.2	231.2	224.2	220.3
72.5°	206.3	202.2	197.2	190.2	187.3
75°	168.1	166.2	161.1	155.2	157.2
77.5°	134.1	130.1	128.0	125.1	122.2
80°	100.1	99.1	97.0	94.1	92.1
82.5°	68.0	68.0	67.1	63.0	63.0
85°	41.0	40.0	39.1	36.0	35.0
87.5°	18.0	16.1	14.0	11.1	10.0
90°	1.5	18.4	50.0	46.9	48.4
92.5°	31.7	42.9	44.4	45.9	45.9
95°	74.5	88.7	91.3	91.3	88.7
97.5°	123.9	137.2	142.9	142.9	142.9
100°	181.1	192.8	196.9	196.9	195.4
102.5°	241.3	249.9	255.6	257.1	255.6
105°	307.1	311.2	314.2	316.8	316.8
107.5°	372.4	378.5	378.5	379.5	372.4
110°	435.7	443.8	443.8	443.8	439.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	504.0	512.6	511.1	507.0	504.0
115°	571.3	579.5	576.9	575.4	571.3
117.5°	638.2	649.4	642.2	638.2	634.1
120°	705.5	716.8	705.5	705.5	700.9
122.5°	766.7	781.0	773.8	769.8	766.7
125°	831.0	843.7	839.6	835.1	833.6
127.5°	893.8	909.5	903.9	897.9	893.8
130°	952.4	970.8	968.2	965.2	959.6
132.5°	1018.2	1032.5	1033.5	1026.4	1022.3
135°	1074.9	1090.7	1093.7	1092.2	1088.1
137.5°	1138.1	1150.8	1153.4	1152.4	1146.3
140°	1193.7	1206.5	1213.6	1213.6	1208.0
142.5°	1250.8	1263.6	1267.7	1269.2	1263.6
145°	1304.9	1315.1	1323.3	1324.8	1319.2
147.5°	1353.3	1366.1	1372.3	1374.7	1369.1
150°	1403.4	1412.0	1417.6	1422.2	1417.6
152.5°	1447.7	1456.4	1463.6	1469.2	1463.6
155°	1492.1	1496.2	1500.7	1508.0	1503.3
157.5°	1530.4	1533.5	1536.0	1546.2	1539.1
160°	1564.6	1567.6	1569.1	1577.8	1571.7
162.5°	1596.2	1596.2	1597.7	1607.4	1600.3
165°	1623.2	1621.7	1621.7	1631.9	1624.8
167.5°	1647.7	1643.2	1643.2	1653.3	1646.2
170°	1666.1	1662.0	1660.5	1670.6	1662.0
172.5°	1678.8	1674.7	1673.2	1683.4	1674.7
175°	1689.0	1685.0	1681.9	1692.1	1683.4
177.5°	1694.6	1690.6	1687.5	1696.1	1687.5
180°	1692.1	1692.1	1692.1	1692.1	1692.1

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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	8.79	9.54	9.86	10.61	12.07	8.36	9.11	9.43	10.18	11.64
	3H	10.41	11.08	11.49	12.16	13.64	9.95	10.62	11.03	11.70	13.18
	4H	10.98	11.62	12.07	12.70	14.18	10.52	11.16	11.61	12.24	13.72
	6H	11.35	11.94	12.45	13.02	14.52	10.90	11.48	11.99	12.57	14.06
	8H	11.45	12.00	12.55	13.10	14.59	10.99	11.55	12.09	12.65	14.13
	12H	11.48	12.01	12.59	13.10	14.62	11.02	11.55	12.13	12.64	14.16
4H	2H	9.23	9.86	10.32	10.94	12.43	8.89	9.52	9.98	10.60	12.09
	3H	11.05	11.58	12.15	12.69	14.19	10.67	11.20	11.77	12.31	13.80
	4H	11.74	12.23	12.85	13.33	14.84	11.35	11.84	12.46	12.93	14.45
	6H	12.23	12.64	13.34	13.77	15.27	11.83	12.25	12.95	13.37	14.88
	8H	12.36	12.75	13.48	13.86	15.39	11.96	12.36	13.08	13.47	14.99
	12H	12.42	12.77	13.55	13.90	15.43	12.01	12.37	13.15	13.49	15.02
8H	4H	11.92	12.31	13.03	13.42	14.95	11.57	11.96	12.68	13.07	14.60
	6H	12.51	12.84	13.65	13.99	15.51	12.16	12.49	13.30	13.64	15.16
	8H	12.72	13.00	13.86	14.14	15.68	12.36	12.64	13.51	13.78	15.32
	12H	12.83	13.08	13.97	14.21	15.79	12.46	12.71	13.61	13.84	15.42
12H	4H	11.90	12.25	13.03	13.37	14.91	11.55	11.91	12.68	13.03	14.56
	6H	12.54	12.82	13.68	13.96	15.50	12.20	12.48	13.34	13.62	15.16
	8H	12.76	13.00	13.90	14.14	15.71	12.41	12.66	13.56	13.79	15.37