

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: P921652

Luminaire Tested: DFN2DIP-HX3F0-040D060US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921652
REPORT IS A COMBINATION OF REPORTS P899246 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-040D060US940-RLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

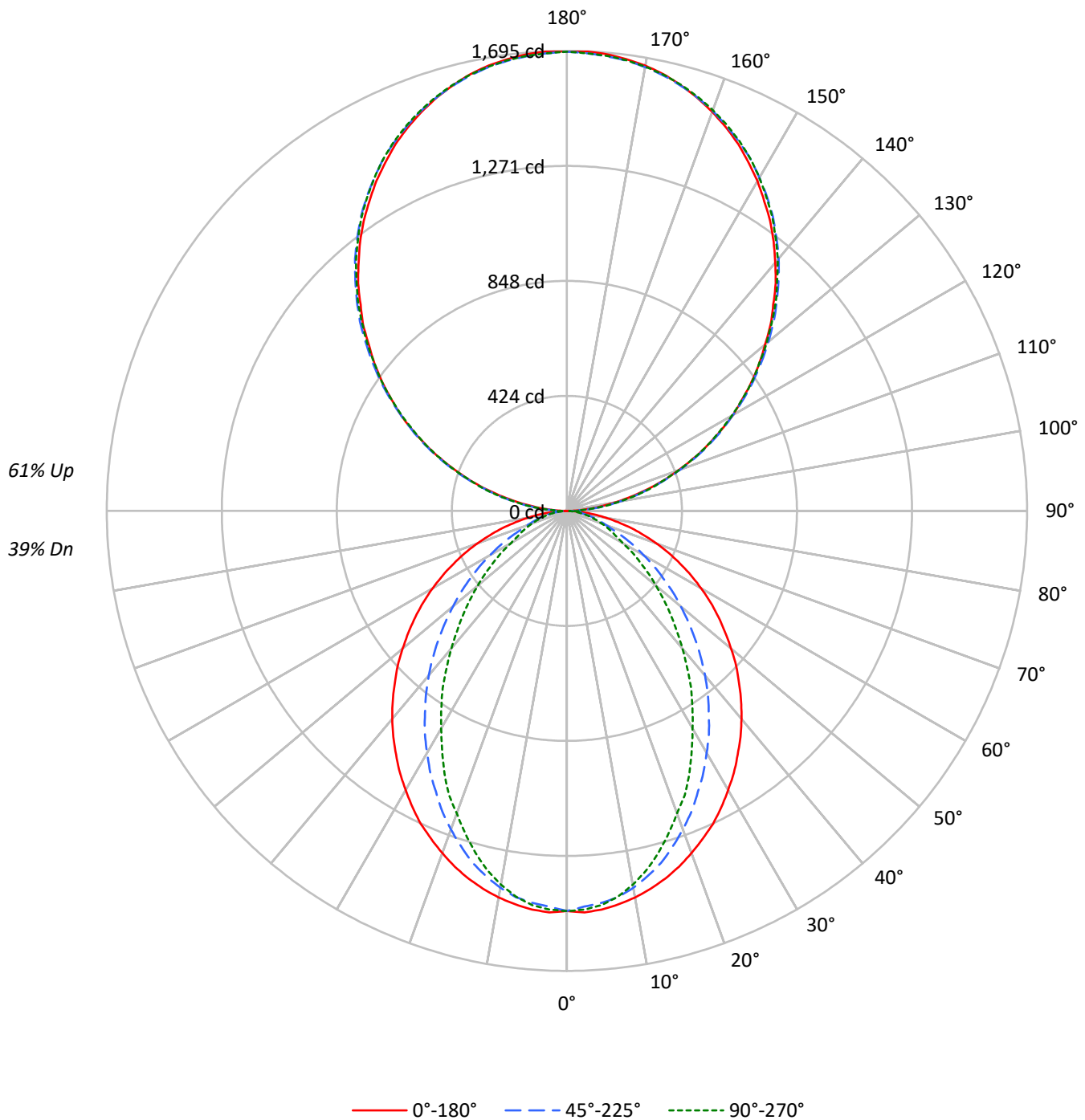
Lumens per Lamp: N/A
Luminaire Lumens: 7766.8 lumens
Efficiency: N/A
Efficacy: 97.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 79.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921652

CATALOG NUMBER: DFN2DIP-HX3F0-040D060US940-RLLFLL

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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1708	1708	1708
5°	1710	1679	1690
10°	1692	1645	1634
15°	1668	1590	1549
20°	1636	1514	1443
25°	1604	1428	1342
30°	1561	1341	1214
35°	1518	1248	1101
40°	1475	1151	972
45°	1425	1044	855
50°	1373	936	741
55°	1319	821	631
60°	1256	701	519
65°	1184	578	466
70°	1096	465	420
75°	986	407	380
80°	826	337	327
85°	565	220	240

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1590 cd/sqm

TEST NUMBER: P921652

CATALOG NUMBER: DFN2DIP-HX3F0-040D060US940-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	1.8
10°-20°	379.3	4.9
20°-30°	532.5	6.9
30°-40°	580.5	7.5
40°-50°	533.5	6.9
50°-60°	419.0	5.4
60°-70°	272.7	3.5
70°-80°	140.4	1.8
80°-90°	40.6	0.5
90°-100°	104.7	1.3
100°-110°	332.7	4.3
110°-120°	569.3	7.3
120°-130°	748.8	9.6
130°-140°	840.5	10.8
140°-150°	824.2	10.6
150°-160°	691.4	8.9
160°-170°	458.5	5.9
170°-180°	160.3	2.1
0°-30°	1049.9	13.5
0°-40°	1630.4	21.0
0°-60°	2582.9	33.3
0°-90°	3036.6	39.1
90°-120°	1006.7	13.0
90°-150°	3420.1	44.0
90°-180°	4730.0	60.9
0°-180°	7766.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1474	1474	1474	1474	1474	
5°	1474	1468	1450	1462	1458	140
15°	1402	1387	1342	1317	1304	395
25°	1273	1230	1142	1087	1067	585
35°	1097	1029	911	827	798	686
45°	896	807	667	572	540	692
55°	682	578	434	354	328	609
65°	460	352	232	187	183	456
75°	245	152	107	97	96	260
85°	57	29	25	25	25	66
90°	2	18	50	47	48	8
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	

TEST NUMBER: P921652

CATALOG NUMBER: DFN2DIP-HX3F0-040D060US940-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.2	1474.2	1474.2	1474.2	1474.2
2.5°	1480.9	1474.2	1459.5	1472.9	1470.2
5°	1474.2	1467.5	1450.1	1462.1	1458.2
7.5°	1462.1	1454.2	1435.6	1440.7	1434.1
10°	1446.2	1436.8	1410.2	1406.0	1398.2
12.5°	1426.2	1414.2	1378.0	1370.1	1355.4
15°	1402.1	1387.4	1342.1	1316.8	1303.5
17.5°	1374.1	1352.7	1296.6	1267.4	1246.0
20°	1342.1	1315.4	1248.7	1215.4	1186.0
22.5°	1307.4	1276.8	1199.3	1154.0	1134.1
25°	1272.7	1230.0	1141.9	1087.4	1067.2
27.5°	1231.5	1186.0	1088.6	1025.9	995.1
30°	1187.4	1136.6	1029.8	961.9	925.9
32.5°	1144.7	1083.2	973.9	893.9	860.4
35°	1096.7	1028.6	911.2	827.2	797.7
37.5°	1050.0	976.5	852.5	760.4	727.1
40°	1000.6	920.6	791.1	696.4	661.7
42.5°	949.8	864.5	729.8	631.0	597.7
45°	896.5	807.1	667.1	572.3	540.3
47.5°	845.9	751.2	607.1	512.3	483.0
50°	789.8	695.1	548.3	456.2	428.3
52.5°	735.0	635.0	492.3	404.2	378.9
55°	681.7	577.6	433.5	353.6	328.2
57.5°	627.1	520.3	381.6	306.8	285.5
60°	571.0	464.2	326.8	258.9	237.6
62.5°	516.4	409.7	280.1	216.2	205.5
65°	460.3	352.1	232.1	186.8	182.7
67.5°	407.0	298.8	186.8	164.1	160.1
70°	350.9	246.8	154.7	141.4	136.0
72.5°	297.6	198.8	129.4	118.8	116.1
75°	245.4	152.0	106.7	97.4	96.1
77.5°	193.5	108.0	84.1	78.7	76.0
80°	145.3	77.4	63.9	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.3	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
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

TEST NUMBER: P921652

CATALOG NUMBER: DFN2DIP-HX3F0-040D060US940-RLFL

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	7.85	8.60	8.90	9.65	11.07	3.82	4.57	4.88	5.62	7.05
	3H	9.51	10.18	10.57	11.24	12.68	5.00	5.67	6.06	6.73	8.17
	4H	10.11	10.75	11.18	11.81	13.26	5.45	6.08	6.52	7.14	8.59
	6H	10.52	11.11	11.61	12.17	13.63	5.76	6.34	6.84	7.41	8.87
	8H	10.64	11.20	11.73	12.28	13.73	5.85	6.40	6.93	7.48	8.94
	12H	10.70	11.23	11.79	12.30	13.78	5.88	6.41	6.98	7.49	8.96
4H	2H	7.86	8.49	8.94	9.55	11.00	4.41	5.04	5.48	6.10	7.55
	3H	9.67	10.20	10.76	11.29	12.75	5.74	6.27	6.83	7.36	8.82
	4H	10.35	10.84	11.44	11.92	13.40	6.28	6.77	7.38	7.85	9.33
	6H	10.86	11.27	11.95	12.37	13.85	6.70	7.11	7.79	8.21	9.69
	8H	11.03	11.41	12.12	12.51	14.00	6.82	7.21	7.92	8.30	9.79
	12H	11.11	11.46	12.23	12.57	14.06	6.88	7.23	7.99	8.34	9.83
8H	4H	10.31	10.70	11.41	11.80	13.29	6.55	6.94	7.65	8.04	9.53
	6H	10.87	11.19	11.99	12.32	13.81	7.06	7.38	8.18	8.52	10.01
	8H	11.08	11.36	12.21	12.48	13.98	7.25	7.53	8.38	8.65	10.16
	12H	11.21	11.45	12.34	12.57	14.11	7.36	7.61	8.49	8.72	10.27
12H	4H	10.26	10.61	11.38	11.72	13.21	6.55	6.90	7.67	8.01	9.51
	6H	10.84	11.12	11.97	12.24	13.75	7.11	7.39	8.24	8.51	10.02
	8H	11.05	11.30	12.18	12.41	13.96	7.31	7.56	8.44	8.67	10.22