

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: P929212

Luminaire Tested: DFN2DIP-HX4F0-060D040US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929212
REPORT IS A COMBINATION OF REPORTS P900823 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D040US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

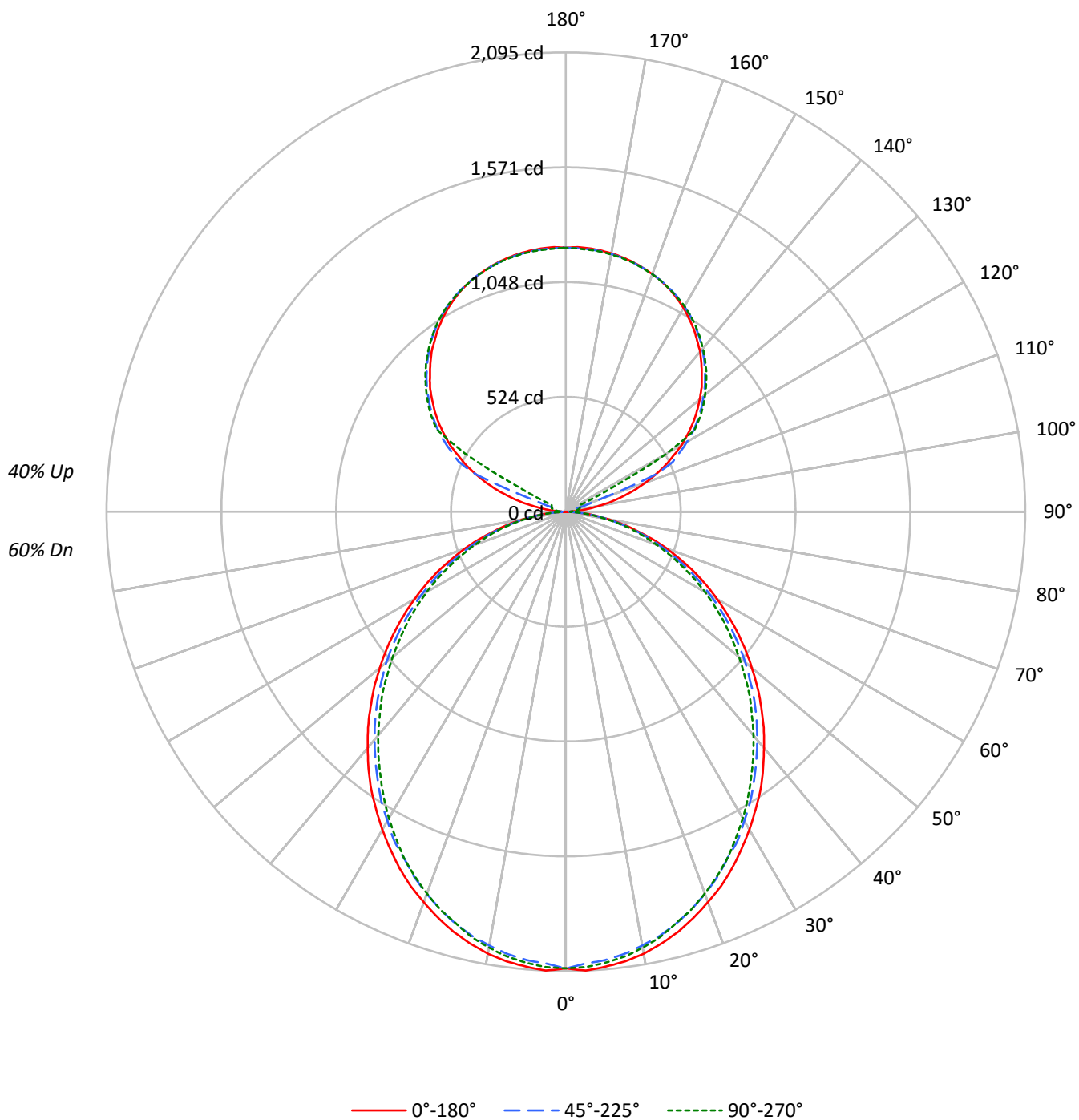
Lumens per Lamp: N/A
Luminaire Lumens: 8830.8 lumens
Efficiency: N/A
Efficacy: 104.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 84.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P929212

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US940-FLLONL

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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1548	1548	1548
5°	1551	1527	1537
10°	1539	1507	1516
15°	1516	1482	1484
20°	1486	1448	1451
25°	1455	1407	1412
30°	1417	1368	1364
35°	1381	1323	1312
40°	1337	1278	1263
45°	1293	1232	1212
50°	1245	1184	1154
55°	1194	1129	1101
60°	1137	1063	1039
65°	1075	995	967
70°	995	912	889
75°	885	813	817
80°	753	686	680
85°	547	467	452

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1293 cd/sqm

TEST NUMBER: P929212

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US940-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	196.0	2.2
10°-20°	551.5	6.2
20°-30°	810.5	9.2
30°-40°	941.3	10.7
40°-50°	940.1	10.6
50°-60°	819.8	9.3
60°-70°	606.0	6.9
70°-80°	342.9	3.9
80°-90°	92.6	1.0
90°-100°	39.7	0.4
100°-110°	148.0	1.7
110°-120°	392.6	4.4
120°-130°	651.1	7.4
130°-140°	691.6	7.8
140°-150°	642.8	7.3
150°-160°	516.8	5.9
160°-170°	333.0	3.8
170°-180°	114.6	1.3
0°-30°	1558.0	17.6
0°-40°	2499.3	28.3
0°-60°	4259.1	48.2
0°-90°	5300.6	60.0
90°-120°	580.3	6.6
90°-150°	2565.8	29.1
90°-180°	3530.0	40.0
0°-180°	8830.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2075	2052	2068	2065	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	826
35°	1548	1528	1496	1484	1474	967
45°	1260	1246	1215	1194	1186	972
55°	953	941	917	893	883	852
65°	643	631	611	593	583	636
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	1	10	17	22	24	8
95°	57	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	538	134	72	493
125°	708	720	736	742	745	632
135°	877	891	898	907	905	677
145°	1017	1016	1031	1037	1032	636
155°	1120	1112	1122	1128	1120	516
165°	1180	1175	1177	1183	1177	333
175°	1207	1201	1202	1208	1200	115
180°	1204	1204	1204	1204	1204	

TEST NUMBER: P929212

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2082.5	2082.5	2082.5	2082.5	2082.5
2.5°	2094.6	2084.6	2062.5	2082.5	2078.6
5°	2082.5	2074.6	2052.5	2068.5	2064.6
7.5°	2068.5	2056.6	2034.5	2050.6	2046.6
10°	2046.6	2032.6	2008.5	2024.5	2018.5
12.5°	2016.5	2004.5	1980.5	1990.5	1986.5
15°	1982.4	1970.5	1944.4	1952.5	1942.5
17.5°	1940.4	1928.5	1902.4	1912.3	1902.4
20°	1894.3	1882.4	1854.3	1860.3	1852.4
22.5°	1848.4	1830.3	1804.2	1804.2	1800.1
25°	1794.2	1778.3	1744.2	1748.1	1744.2
27.5°	1734.0	1720.0	1694.1	1688.2	1678.2
30°	1674.2	1658.0	1628.1	1622.1	1614.0
32.5°	1610.0	1598.1	1566.0	1553.9	1545.8
35°	1548.0	1528.0	1495.9	1483.8	1473.8
37.5°	1477.9	1459.8	1427.7	1413.6	1403.7
40°	1405.8	1389.6	1357.6	1339.8	1331.7
42.5°	1335.7	1319.5	1287.7	1267.5	1255.6
45°	1259.7	1245.6	1215.4	1193.6	1185.5
47.5°	1185.5	1171.5	1139.4	1117.3	1105.4
50°	1107.3	1097.3	1069.3	1041.2	1031.2
52.5°	1031.2	1017.2	991.3	969.2	955.2
55°	953.3	941.1	917.2	893.2	883.2
57.5°	875.1	865.2	839.0	815.0	806.9
60°	796.9	789.1	761.1	738.9	733.0
62.5°	720.8	706.8	686.8	666.9	658.8
65°	642.9	630.8	610.8	592.7	582.7
67.5°	562.8	552.6	534.8	520.7	512.6
70°	488.6	480.6	462.5	448.5	440.6
72.5°	412.6	404.5	394.5	380.5	374.6
75°	336.3	332.5	322.3	310.4	314.4
77.5°	268.3	260.3	256.2	250.3	244.3
80°	200.3	198.2	194.2	188.2	184.2
82.5°	136.2	136.2	134.2	126.2	126.2
85°	82.0	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	0.8	10.4	17.4	21.9	23.5
92.5°	21.9	18.3	20.9	22.7	23.5
95°	56.6	27.8	33.9	38.4	37.5
97.5°	102.0	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.6	58.3
102.5°	211.7	210.1	51.4	60.9	63.6
105°	264.8	291.1	53.2	62.7	66.2
107.5°	326.7	348.5	54.9	64.5	68.0
110°	386.1	404.3	152.5	65.4	68.8



TEST NUMBER: P929212

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US940-FLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.8	457.4	442.6	67.1	69.8
115°	500.9	515.8	537.6	134.2	71.5
117.5°	552.4	569.8	584.7	460.0	231.7
120°	609.9	623.0	638.7	649.2	531.5
122.5°	658.7	672.7	690.1	695.3	696.2
125°	708.3	719.8	736.3	742.4	745.0
127.5°	753.7	765.9	779.0	787.7	788.5
130°	796.4	810.4	819.8	829.5	828.7
132.5°	839.9	851.3	860.9	868.7	867.9
135°	876.6	890.6	898.3	907.1	905.4
137.5°	914.8	925.3	934.1	942.8	940.2
140°	952.3	959.3	968.9	976.7	972.4
142.5°	983.8	989.9	1001.2	1008.0	1003.8
145°	1016.9	1016.0	1030.7	1036.9	1032.5
147.5°	1045.5	1042.9	1057.7	1062.1	1058.7
150°	1073.4	1067.4	1081.4	1086.5	1082.2
152.5°	1097.0	1090.0	1103.0	1108.3	1102.2
155°	1119.6	1111.9	1122.3	1127.5	1120.5
157.5°	1137.9	1131.0	1138.9	1145.0	1137.9
160°	1153.6	1148.4	1153.6	1158.8	1152.7
162.5°	1167.5	1162.4	1166.7	1172.8	1165.0
165°	1179.8	1174.6	1177.2	1183.2	1177.2
167.5°	1189.4	1184.0	1186.8	1192.9	1185.0
170°	1197.2	1192.0	1193.7	1199.8	1192.0
172.5°	1202.4	1197.2	1199.0	1205.1	1197.2
175°	1206.7	1200.6	1202.4	1208.5	1199.8
177.5°	1208.5	1202.4	1203.3	1209.5	1201.6
180°	1204.2	1204.2	1204.2	1204.2	1204.2

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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	9.67	10.63	10.54	11.52	12.64	9.24	10.20	10.10	11.08	12.20
	3H	11.34	12.20	12.22	13.10	14.24	10.86	11.73	11.74	12.62	13.77
	4H	11.93	12.74	12.82	13.65	14.80	11.46	12.27	12.35	13.17	14.33
	6H	12.34	13.09	13.24	14.00	15.17	11.86	12.61	12.77	13.52	14.69
	8H	12.44	13.16	13.36	14.09	15.25	11.97	12.68	12.88	13.61	14.78
	12H	12.50	13.18	13.42	14.10	15.29	12.01	12.69	12.93	13.62	14.81
4H	2H	10.14	10.96	11.04	11.86	13.02	9.80	10.61	10.70	11.51	12.67
	3H	12.02	12.70	12.93	13.63	14.80	11.63	12.31	12.54	13.24	14.41
	4H	12.74	13.36	13.66	14.29	15.48	12.33	12.95	13.25	13.88	15.08
	6H	13.26	13.79	14.19	14.75	15.95	12.85	13.38	13.78	14.34	15.54
	8H	13.41	13.91	14.35	14.86	16.07	13.00	13.50	13.94	14.45	15.66
	12H	13.49	13.94	14.45	14.91	16.12	13.07	13.52	14.02	14.48	15.70
8H	4H	12.94	13.44	13.88	14.39	15.60	12.58	13.08	13.52	14.03	15.24
	6H	13.58	13.99	14.54	14.98	16.19	13.22	13.63	14.18	14.62	15.83
	8H	13.80	14.17	14.78	15.15	16.38	13.43	13.80	14.41	14.78	16.01
	12H	13.94	14.26	14.92	15.23	16.51	13.55	13.88	14.53	14.85	16.13
12H	4H	12.93	13.38	13.89	14.35	15.57	12.58	13.03	13.54	14.00	15.21
	6H	13.61	13.98	14.58	14.96	16.18	13.26	13.63	14.23	14.60	15.83
	8H	13.86	14.18	14.84	15.15	16.43	13.50	13.82	14.48	14.80	16.07