

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: P921603

Luminaire Tested: DFN2DIP-HX2F0-060D040US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921603
REPORT IS A COMBINATION OF REPORTS P900699 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-060D040US940-FLLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

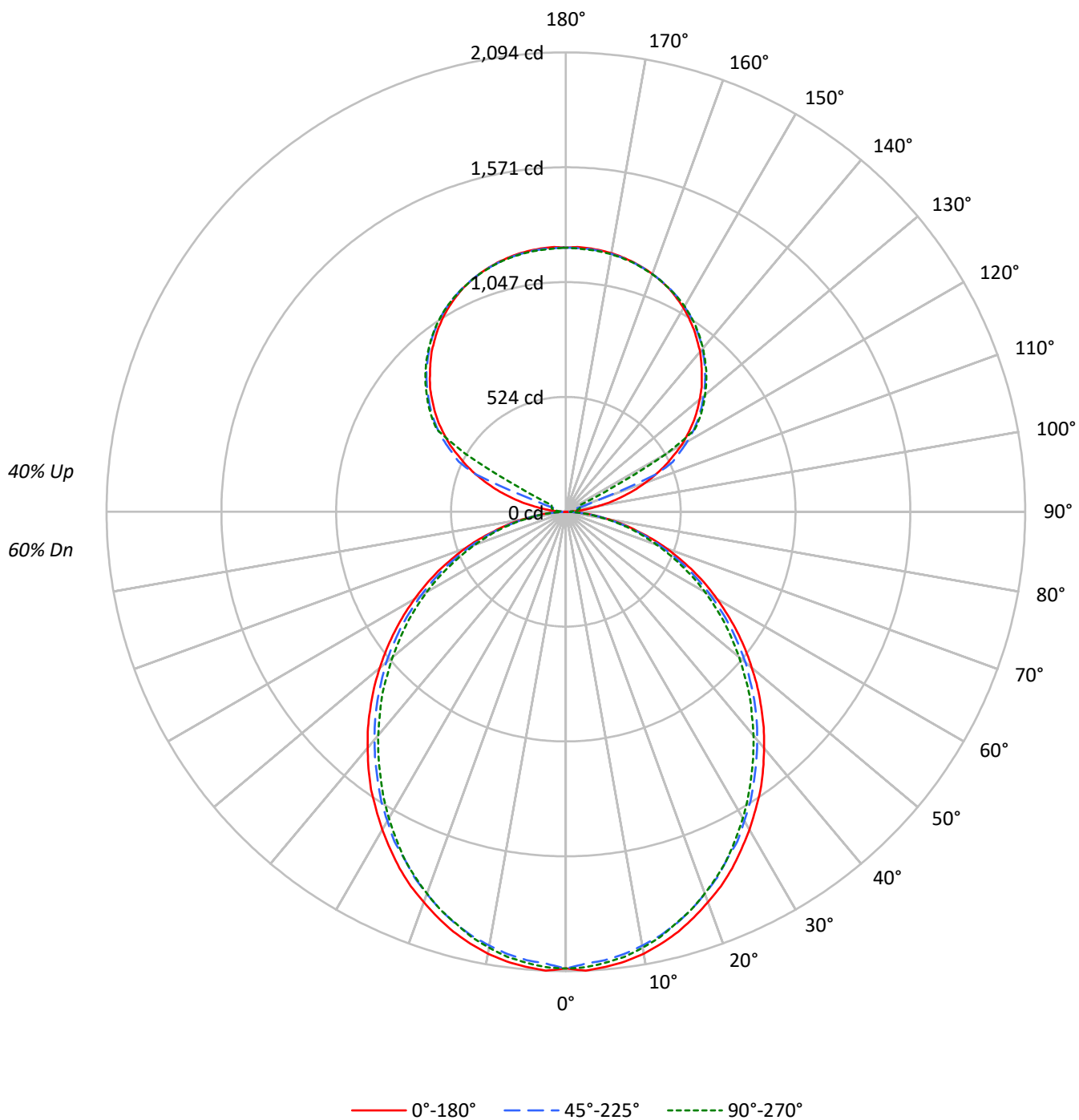
Lumens per Lamp: N/A
Luminaire Lumens: 8827.9 lumens
Efficiency: N/A
Efficacy: 99.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 88.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921603

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US940-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P921603

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US940-FLONL

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°	4905	4905	4905
5°	4905	4825	4860
10°	4857	4748	4785
15°	4778	4659	4674
20°	4674	4538	4560
25°	4570	4397	4429
30°	4442	4265	4266
35°	4319	4110	4094
40°	4170	3954	3929
45°	4021	3797	3760
50°	3858	3631	3565
55°	3686	3441	3384
60°	3491	3216	3176
65°	3277	2980	2932
70°	3006	2694	2666
75°	2633	2351	2409
80°	2180	1914	1944
85°	1478	1201	1204

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4021 cd/sqm

TEST NUMBER: P921603

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US940-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	2.2
10°-20°	551.3	6.2
20°-30°	810.2	9.2
30°-40°	941.0	10.7
40°-50°	939.8	10.6
50°-60°	819.5	9.3
60°-70°	605.8	6.9
70°-80°	342.7	3.9
80°-90°	92.6	1.0
90°-100°	39.7	0.4
100°-110°	148.0	1.7
110°-120°	392.4	4.4
120°-130°	650.9	7.4
130°-140°	691.4	7.8
140°-150°	642.6	7.3
150°-160°	516.6	5.9
160°-170°	332.9	3.8
170°-180°	114.6	1.3
0°-30°	1557.4	17.6
0°-40°	2498.4	28.3
0°-60°	4257.8	48.2
0°-90°	5298.9	60.0
90°-120°	580.1	6.6
90°-150°	2565.0	29.1
90°-180°	3529.0	40.0
0°-180°	8827.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	1	10	17	22	24	8
95°	56	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	537	134	72	493
125°	708	720	736	742	745	632
135°	876	890	898	907	905	677
145°	1016	1016	1030	1036	1032	636
155°	1119	1112	1122	1127	1120	516
165°	1179	1174	1177	1183	1177	333
175°	1206	1200	1202	1208	1199	115
180°	1204	1204	1204	1204	1204	

TEST NUMBER: P921603

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	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	21.8	23.5
92.5°	21.8	18.3	20.9	22.6	23.5
95°	56.5	27.8	33.9	38.3	37.5
97.5°	101.9	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.5	58.3
102.5°	211.6	210.0	51.4	60.9	63.6
105°	264.7	291.0	53.1	62.7	66.2
107.5°	326.6	348.4	54.9	64.5	67.9
110°	385.9	404.1	152.5	65.4	68.8

TEST NUMBER: P921603

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US940-FLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.7	457.3	442.5	67.1	69.7
115°	500.8	515.6	537.4	134.1	71.5
117.5°	552.2	569.6	584.5	459.9	231.7
120°	609.8	622.8	638.5	649.0	531.4
122.5°	658.4	672.4	689.9	695.1	696.0
125°	708.1	719.5	736.0	742.2	744.8
127.5°	753.4	765.6	778.7	787.5	788.3
130°	796.1	810.1	819.6	829.2	828.4
132.5°	839.6	851.0	860.6	868.4	867.6
135°	876.3	890.3	898.0	906.8	905.1
137.5°	914.5	925.0	933.8	942.4	939.9
140°	952.0	959.0	968.6	976.4	972.1
142.5°	983.5	989.5	1000.9	1007.7	1003.4
145°	1016.5	1015.7	1030.4	1036.5	1032.2
147.5°	1045.2	1042.6	1057.4	1061.8	1058.4
150°	1073.1	1067.0	1081.0	1086.2	1081.8
152.5°	1096.6	1089.7	1102.7	1108.0	1101.9
155°	1119.3	1111.5	1121.9	1127.1	1120.2
157.5°	1137.6	1130.6	1138.5	1144.6	1137.6
160°	1153.2	1148.0	1153.2	1158.4	1152.4
162.5°	1167.2	1162.0	1166.4	1172.4	1164.6
165°	1179.4	1174.2	1176.8	1182.9	1176.8
167.5°	1189.0	1183.7	1186.4	1192.5	1184.6
170°	1196.9	1191.6	1193.3	1199.4	1191.6
172.5°	1202.0	1196.9	1198.6	1204.7	1196.9
175°	1206.3	1200.2	1202.0	1208.1	1199.4
177.5°	1208.1	1202.0	1202.9	1209.1	1201.2
180°	1203.8	1203.8	1203.8	1203.8	1203.8

TEST NUMBER: P921603

CATALOG NUMBER: DFN2DIP-HX2F0-060D040US940-FLONL

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	13.54	14.50	14.40	15.38	16.50	13.11	14.07	13.98	14.96	16.08
	3H	15.18	16.04	16.06	16.94	18.08	14.72	15.58	15.60	16.48	17.62
	4H	15.76	16.57	16.65	17.47	18.63	15.30	16.11	16.19	17.01	18.17
	6H	16.14	16.89	17.05	17.80	18.97	15.68	16.43	16.59	17.34	18.51
	8H	16.24	16.95	17.15	17.88	19.05	15.78	16.50	16.69	17.42	18.59
	12H	16.28	16.96	17.20	17.88	19.08	15.82	16.50	16.74	17.42	18.61
4H	2H	14.00	14.81	14.90	15.72	16.87	13.66	14.48	14.56	15.38	16.54
	3H	15.85	16.53	16.76	17.46	18.63	15.46	16.14	16.37	17.08	18.25
	4H	16.54	17.16	17.47	18.09	19.29	16.15	16.77	17.07	17.70	18.90
	6H	17.04	17.58	17.98	18.53	19.73	16.65	17.18	17.58	18.14	19.33
	8H	17.18	17.68	18.12	18.63	19.84	16.79	17.29	17.72	18.23	19.44
	12H	17.25	17.70	18.20	18.66	19.88	16.84	17.29	17.80	18.26	19.48
8H	4H	16.74	17.24	17.68	18.19	19.40	16.39	16.89	17.32	17.83	19.05
	6H	17.34	17.76	18.31	18.75	19.96	16.99	17.41	17.96	18.40	19.61
	8H	17.55	17.92	18.52	18.89	20.12	17.19	17.56	18.17	18.54	19.77
	12H	17.67	17.99	18.65	18.96	20.24	17.30	17.62	18.28	18.60	19.87
12H	4H	16.73	17.18	17.68	18.14	19.36	16.38	16.83	17.34	17.80	19.02
	6H	17.37	17.74	18.34	18.72	19.94	17.03	17.40	18.00	18.37	19.60
	8H	17.60	17.92	18.57	18.89	20.17	17.25	17.58	18.23	18.55	19.82