

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: P929162

Luminaire Tested: DFN2DIP-HX4F0-040D090US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929162
REPORT IS A COMBINATION OF REPORTS P900910 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D090US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

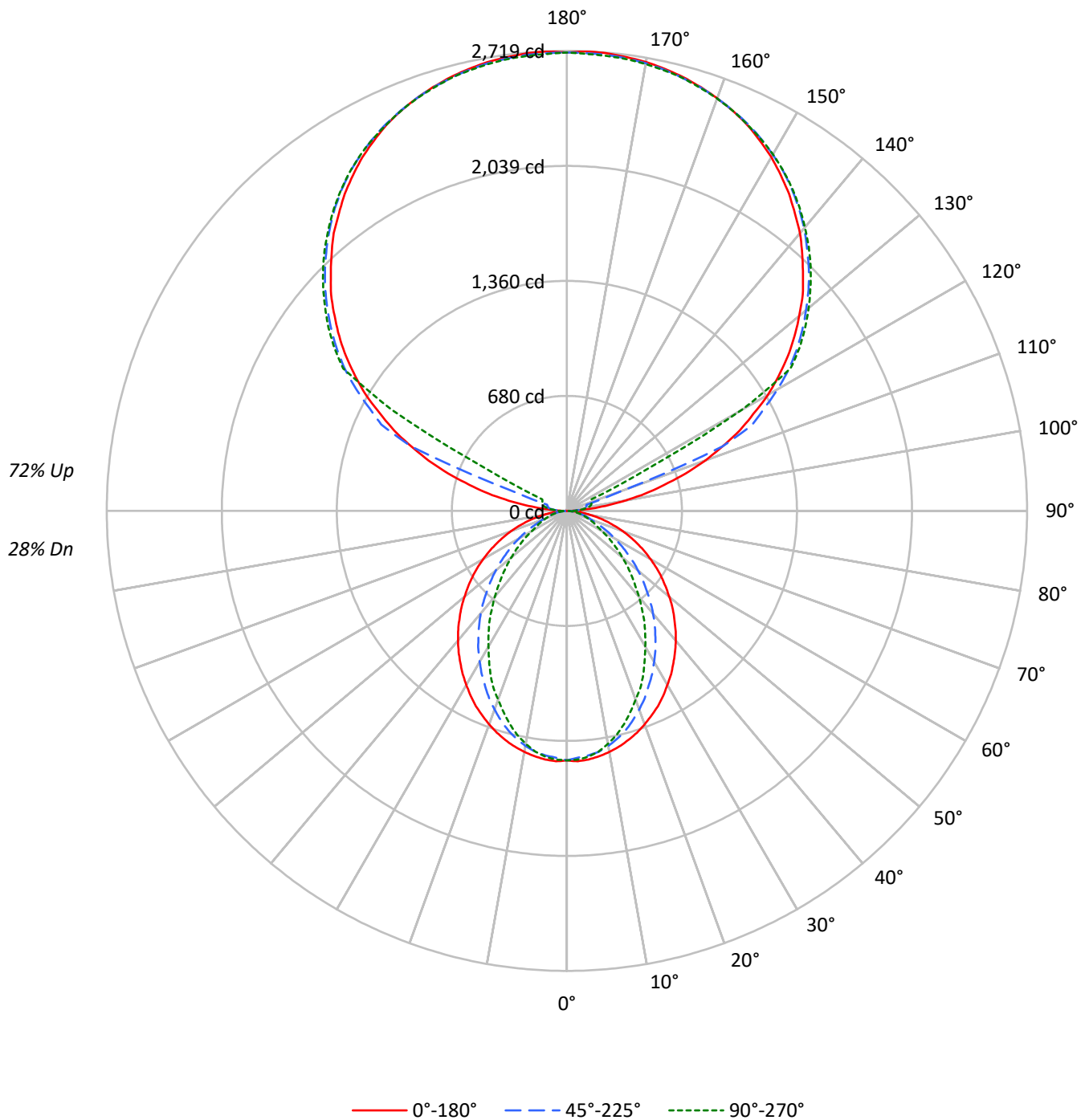
Lumens per Lamp: N/A
Luminaire Lumens: 10980.5 lumens
Efficiency: N/A
Efficacy: 108.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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: P929162

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US940-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P929162

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US940-RLLONL

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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36
1	93	89	85	82	83	80	77	74	62	60	59	46	45	44	32	31	31
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	28	27	26
3	78	69	62	56	69	62	56	51	49	45	41	37	34	32	25	24	22
4	71	61	53	48	63	55	48	44	43	39	35	33	30	27	23	21	20
5	65	54	47	41	58	49	42	37	39	34	30	29	26	24	21	19	17
6	60	49	41	35	54	44	37	32	35	30	27	27	23	21	19	17	15
7	55	44	36	31	49	40	33	28	32	27	23	24	21	18	17	15	14
8	51	40	32	27	46	36	30	25	29	24	21	22	19	16	16	14	12
9	48	36	29	24	43	33	27	22	26	22	19	20	17	15	15	13	11
10	45	33	26	22	40	30	24	20	24	20	17	19	16	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1097	1097	1097
5°	1098	1079	1086
10°	1088	1058	1051
15°	1073	1023	996
20°	1053	975	929
25°	1033	921	864
30°	1006	866	782
35°	979	806	710
40°	952	745	628
45°	921	676	553
50°	888	608	479
55°	854	534	409
60°	815	457	337
65°	770	378	303
70°	715	305	274
75°	646	269	250
80°	547	226	217
85°	383	151	163

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1390 cd/sqm

TEST NUMBER: P929162

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US940-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	1.3
10°-20°	379.4	3.5
20°-30°	532.7	4.9
30°-40°	580.6	5.3
40°-50°	533.7	4.9
50°-60°	419.1	3.8
60°-70°	272.8	2.5
70°-80°	140.4	1.3
80°-90°	40.6	0.4
90°-100°	89.3	0.8
100°-110°	333.0	3.0
110°-120°	883.3	8.0
120°-130°	1465.0	13.3
130°-140°	1556.2	14.2
140°-150°	1446.3	13.2
150°-160°	1162.8	10.6
160°-170°	749.2	6.8
170°-180°	257.9	2.3
0°-30°	1050.3	9.6
0°-40°	1630.9	14.9
0°-60°	2583.7	23.5
0°-90°	3037.6	27.7
90°-120°	1305.7	11.9
90°-150°	5773.1	52.6
90°-180°	7943.0	72.3
0°-180°	10980.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1475	1475	1475	1475	1475	
5°	1475	1468	1451	1463	1459	140
15°	1403	1388	1342	1317	1304	395
25°	1273	1230	1142	1088	1068	586
35°	1097	1029	912	827	798	687
45°	897	807	667	572	540	693
55°	682	578	434	354	328	609
65°	460	352	232	187	183	457
75°	246	152	107	97	96	260
85°	57	29	25	25	25	66
90°	2	24	39	49	53	10
95°	127	63	76	86	84	151
105°	596	655	120	141	149	637
115°	1127	1160	1210	302	161	1110
125°	1594	1619	1657	1670	1676	1421
135°	1972	2004	2021	2041	2037	1524
145°	2288	2286	2319	2333	2323	1431
155°	2519	2502	2525	2537	2521	1161
165°	2654	2643	2649	2662	2649	750
175°	2715	2701	2705	2719	2700	258
180°	2709	2709	2709	2709	2709	

TEST NUMBER: P929162

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.7	1474.7	1474.7	1474.7	1474.7
2.5°	1481.3	1474.7	1459.9	1473.4	1470.6
5°	1474.7	1468.0	1450.6	1462.6	1458.7
7.5°	1462.6	1454.7	1436.0	1441.2	1434.6
10°	1446.6	1437.3	1410.6	1406.5	1398.7
12.5°	1426.7	1414.6	1378.5	1370.6	1355.8
15°	1402.6	1387.9	1342.5	1317.2	1303.9
17.5°	1374.6	1353.2	1297.1	1267.8	1246.4
20°	1342.5	1315.8	1249.1	1215.8	1186.4
22.5°	1307.9	1277.2	1199.7	1154.3	1134.4
25°	1273.2	1230.4	1142.3	1087.7	1067.5
27.5°	1231.9	1186.4	1089.0	1026.2	995.5
30°	1187.8	1136.9	1030.2	962.2	926.2
32.5°	1145.1	1083.6	974.2	894.1	860.7
35°	1097.1	1028.9	911.5	827.4	798.0
37.5°	1050.3	976.8	852.8	760.6	727.3
40°	1000.9	920.9	791.4	696.7	662.0
42.5°	950.2	864.8	730.0	631.2	597.9
45°	896.8	807.3	667.3	572.5	540.5
47.5°	846.2	751.4	607.3	512.5	483.1
50°	790.0	695.3	548.5	456.3	428.4
52.5°	735.3	635.2	492.5	404.3	379.0
55°	681.9	577.8	433.7	353.7	328.3
57.5°	627.3	520.5	381.7	306.9	285.6
60°	571.1	464.4	326.9	258.9	237.6
62.5°	516.6	409.8	280.2	216.2	205.6
65°	460.5	352.3	232.2	186.9	182.8
67.5°	407.1	298.9	186.9	164.1	160.1
70°	351.0	246.9	154.8	141.5	136.0
72.5°	297.7	198.8	129.4	118.8	116.1
75°	245.5	152.1	106.8	97.4	96.2
77.5°	193.6	108.0	84.1	78.8	76.0
80°	145.4	77.4	64.0	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.4	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	1.9	23.5	39.1	49.1	52.8
92.5°	49.1	41.2	47.0	51.0	52.8
95°	127.4	62.6	76.4	86.3	84.3
97.5°	229.3	68.7	99.9	105.9	107.8
100°	347.1	78.5	111.8	127.4	131.3
102.5°	476.3	472.6	115.7	137.1	143.2
105°	595.9	654.9	119.6	141.1	149.0
107.5°	735.2	784.1	123.6	145.0	153.0
110°	868.5	909.6	343.2	147.1	154.9

TEST NUMBER: P929162

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	994.0	1029.2	995.9	150.8	156.9
115°	1127.2	1160.5	1209.6	301.9	160.8
117.5°	1242.9	1282.1	1315.5	1035.1	521.5
120°	1372.3	1401.7	1437.1	1460.6	1195.9
122.5°	1482.1	1513.5	1552.8	1564.4	1566.5
125°	1593.7	1619.3	1656.6	1670.4	1676.2
127.5°	1695.7	1723.2	1752.8	1772.3	1774.2
130°	1791.8	1823.3	1844.7	1866.3	1864.5
132.5°	1889.9	1915.5	1936.9	1954.6	1952.8
135°	1972.3	2003.7	2021.2	2041.0	2037.1
137.5°	2058.5	2081.9	2101.7	2121.3	2115.5
140°	2142.7	2158.6	2180.0	2197.6	2187.9
142.5°	2213.5	2227.2	2252.6	2268.2	2258.5
145°	2288.0	2285.8	2319.2	2332.9	2323.1
147.5°	2352.5	2346.7	2379.9	2389.8	2382.0
150°	2415.4	2401.6	2433.0	2444.6	2434.9
152.5°	2468.2	2452.6	2481.9	2493.8	2480.0
155°	2519.2	2501.7	2525.2	2536.8	2521.2
157.5°	2560.4	2544.8	2562.4	2576.2	2560.4
160°	2595.7	2583.9	2595.7	2607.4	2593.7
162.5°	2626.9	2615.3	2625.1	2638.8	2621.1
165°	2654.4	2642.7	2648.6	2662.4	2648.6
167.5°	2676.1	2664.2	2670.2	2683.9	2666.3
170°	2693.8	2681.9	2685.8	2699.5	2681.9
172.5°	2705.4	2693.8	2697.7	2711.4	2693.8
175°	2715.2	2701.4	2705.4	2719.1	2699.5
177.5°	2719.1	2705.4	2707.5	2721.2	2703.6
180°	2709.4	2709.4	2709.4	2709.4	2709.4

TEST NUMBER: P929162

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US940-RLONL

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	4.90	5.58	6.04	6.70	8.26	0.88	1.55	2.01	2.67	4.23
	3H	6.57	7.18	7.71	8.30	9.88	2.06	2.66	3.20	3.79	5.36
	4H	7.17	7.75	8.32	8.88	10.46	2.50	3.07	3.65	4.20	5.78
	6H	7.59	8.12	8.75	9.25	10.84	2.81	3.34	3.97	4.47	6.07
	8H	7.71	8.21	8.87	9.36	10.94	2.90	3.40	4.06	4.55	6.13
	12H	7.77	8.24	8.93	9.38	10.99	2.94	3.42	4.10	4.56	6.16
4H	2H	4.90	5.48	6.06	6.61	8.19	1.45	2.03	2.61	3.16	4.74
	3H	6.72	7.20	7.88	8.35	9.95	2.79	3.27	3.95	4.42	6.02
	4H	7.41	7.85	8.57	8.99	10.60	3.34	3.77	4.50	4.92	6.53
	6H	7.91	8.29	9.08	9.46	11.06	3.75	4.12	4.92	5.29	6.89
	8H	8.09	8.44	9.26	9.60	11.22	3.88	4.23	5.04	5.38	7.00
	12H	8.18	8.49	9.36	9.66	11.29	3.93	4.25	5.12	5.42	7.04
8H	4H	7.36	7.71	8.53	8.87	10.49	3.60	3.96	4.77	5.11	6.73
	6H	7.93	8.21	9.11	9.41	11.03	4.12	4.41	5.31	5.61	7.23
	8H	8.14	8.39	9.34	9.57	11.21	4.31	4.56	5.51	5.74	7.38
	12H	8.27	8.50	9.47	9.67	11.34	4.43	4.65	5.62	5.82	7.49
12H	4H	7.31	7.63	8.49	8.80	10.42	3.60	3.92	4.79	5.09	6.71
	6H	7.90	8.15	9.09	9.33	10.97	4.17	4.42	5.36	5.60	7.24
	8H	8.12	8.34	9.31	9.51	11.18	4.37	4.60	5.57	5.77	7.44

END OF REPORT