

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: P927542

Luminaire Tested: DFN2DIP-HX4F0-040D090US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927542
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-HX4F0-040D090US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

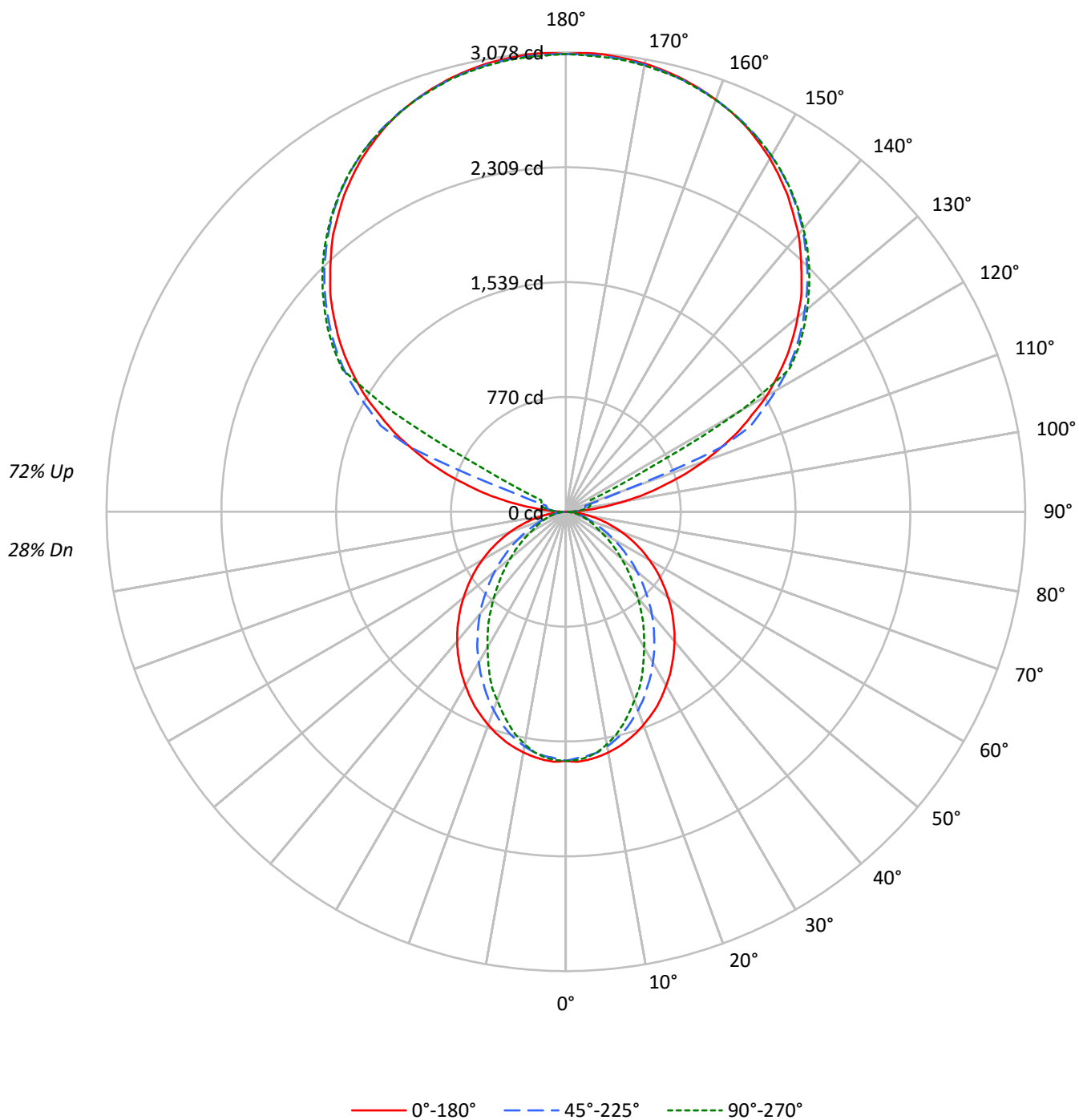
Lumens per Lamp: N/A
Luminaire Lumens: 12430.7 lumens
Efficiency: N/A
Efficacy: 122.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

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: P927542

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US840-RLLONL

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	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°	1241	1241	1241
5°	1243	1222	1229
10°	1231	1198	1190
15°	1214	1158	1128
20°	1192	1104	1052
25°	1169	1043	979
30°	1138	980	886
35°	1108	913	804
40°	1078	843	711
45°	1042	766	626
50°	1005	688	543
55°	967	604	463
60°	922	517	381
65°	871	428	343
70°	810	346	311
75°	732	305	283
80°	619	256	245
85°	433	172	185

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1574 cd/sqm

TEST NUMBER: P927542

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US840-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	156.5	1.3
10°-20°	429.5	3.5
20°-30°	603.0	4.9
30°-40°	657.3	5.3
40°-50°	604.2	4.9
50°-60°	474.5	3.8
60°-70°	308.9	2.5
70°-80°	159.0	1.3
80°-90°	46.0	0.4
90°-100°	101.1	0.8
100°-110°	377.0	3.0
110°-120°	999.9	8.0
120°-130°	1658.4	13.3
130°-140°	1761.7	14.2
140°-150°	1637.3	13.2
150°-160°	1316.3	10.6
160°-170°	848.2	6.8
170°-180°	291.9	2.3
0°-30°	1189.0	9.6
0°-40°	1846.3	14.9
0°-60°	2924.9	23.5
0°-90°	3438.7	27.7
90°-120°	1478.1	11.9
90°-150°	6535.5	52.6
90°-180°	8992.0	72.3
0°-180°	12430.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1669	1669	1669	1669	1669	
5°	1669	1662	1642	1656	1651	158
15°	1588	1571	1520	1491	1476	447
25°	1441	1393	1293	1231	1208	663
35°	1242	1165	1032	937	903	777
45°	1015	914	755	648	612	784
55°	772	654	491	400	372	690
65°	521	399	263	212	207	517
75°	278	172	121	110	109	294
85°	65	33	29	29	29	75
90°	2	27	44	56	60	12
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1369	342	182	1256
125°	1804	1833	1875	1891	1898	1609
135°	2233	2268	2288	2310	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2998	3014	2998	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	

TEST NUMBER: P927542

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1669.4	1669.4	1669.4	1669.4	1669.4
2.5°	1677.0	1669.4	1652.7	1668.0	1664.9
5°	1669.4	1661.8	1642.1	1655.8	1651.3
7.5°	1655.8	1646.8	1625.7	1631.5	1624.1
10°	1637.7	1627.1	1596.9	1592.3	1583.4
12.5°	1615.1	1601.4	1560.5	1551.6	1534.9
15°	1587.8	1571.1	1519.8	1491.2	1476.1
17.5°	1556.1	1531.9	1468.4	1435.2	1411.0
20°	1519.8	1489.6	1414.0	1376.4	1343.0
22.5°	1480.6	1445.8	1358.1	1306.8	1284.3
25°	1441.3	1392.9	1293.1	1231.4	1208.5
27.5°	1394.5	1343.0	1232.8	1161.8	1126.9
30°	1344.6	1287.1	1166.2	1089.3	1048.5
32.5°	1296.3	1226.7	1102.9	1012.2	974.4
35°	1242.0	1164.8	1031.9	936.7	903.4
37.5°	1189.0	1105.8	965.4	861.1	823.4
40°	1133.1	1042.5	895.9	788.7	749.4
42.5°	1075.6	979.0	826.4	714.5	676.9
45°	1015.3	914.0	755.4	648.1	611.8
47.5°	957.9	850.7	687.5	580.1	546.9
50°	894.4	787.1	620.9	516.6	485.0
52.5°	832.4	719.1	557.5	457.7	429.1
55°	772.0	654.1	491.0	400.4	371.7
57.5°	710.1	589.2	432.1	347.5	323.3
60°	646.6	525.7	370.1	293.1	269.0
62.5°	584.8	463.9	317.2	244.8	232.8
65°	521.3	398.8	262.9	211.6	206.9
67.5°	460.9	338.4	211.6	185.8	181.3
70°	397.4	279.5	175.2	160.2	154.0
72.5°	337.0	225.1	146.5	134.5	131.5
75°	277.9	172.2	120.9	110.3	108.9
77.5°	219.1	122.3	95.2	89.2	86.0
80°	164.6	87.7	72.4	66.5	66.5
82.5°	114.8	59.0	49.9	46.8	46.8
85°	64.9	33.2	28.7	28.7	28.7
87.5°	24.2	12.0	12.0	10.6	10.6
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.7	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.6
102.5°	539.2	535.0	131.0	155.2	162.1
105°	674.6	741.4	135.4	159.8	168.6
107.5°	832.3	887.6	140.0	164.2	173.2
110°	983.2	1029.7	388.5	166.5	175.3

TEST NUMBER: P927542

CATALOG NUMBER: DFN2DIP-HX4F0-040D090US840-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.3	1165.1	1127.4	170.8	177.6
115°	1276.1	1313.7	1369.4	341.8	182.1
117.5°	1407.1	1451.4	1489.3	1171.8	590.3
120°	1553.6	1586.8	1626.9	1653.4	1353.8
122.5°	1677.8	1713.3	1757.9	1771.0	1773.4
125°	1804.2	1833.2	1875.4	1891.0	1897.5
127.5°	1919.6	1950.7	1984.3	2006.4	2008.5
130°	2028.5	2064.1	2088.4	2112.8	2110.8
132.5°	2139.5	2168.4	2192.7	2212.8	2210.7
135°	2232.8	2268.3	2288.1	2310.5	2306.1
137.5°	2330.3	2356.9	2379.3	2401.4	2394.8
140°	2425.6	2443.6	2467.9	2487.8	2476.8
142.5°	2505.8	2521.4	2550.0	2567.7	2556.7
145°	2590.1	2587.7	2625.5	2641.0	2629.9
147.5°	2663.1	2656.6	2694.2	2705.4	2696.6
150°	2734.3	2718.8	2754.3	2767.5	2756.5
152.5°	2794.1	2776.4	2809.7	2823.1	2807.5
155°	2851.9	2832.1	2858.6	2871.9	2854.2
157.5°	2898.5	2880.9	2900.9	2916.4	2898.5
160°	2938.5	2925.1	2938.5	2951.7	2936.2
162.5°	2973.9	2960.6	2971.7	2987.3	2967.3
165°	3005.0	2991.7	2998.4	3014.0	2998.4
167.5°	3029.5	3016.1	3022.8	3038.4	3018.4
170°	3049.5	3036.1	3040.5	3056.1	3036.1
172.5°	3062.7	3049.5	3053.9	3069.5	3049.5
175°	3073.7	3058.2	3062.7	3078.2	3056.1
177.5°	3078.2	3062.7	3065.0	3080.6	3060.6
180°	3067.2	3067.2	3067.2	3067.2	3067.2

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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	5.34	6.01	6.47	7.13	8.69	1.31	1.98	2.44	3.11	4.67
	3H	7.00	7.61	8.14	8.74	10.31	2.49	3.09	3.63	4.22	5.80
	4H	7.60	8.18	8.75	9.31	10.89	2.93	3.51	4.08	4.64	6.22
	6H	8.02	8.55	9.18	9.68	11.27	3.25	3.77	4.40	4.91	6.50
	8H	8.14	8.64	9.30	9.79	11.37	3.33	3.83	4.49	4.98	6.57
	12H	8.20	8.67	9.36	9.81	11.42	3.37	3.85	4.54	4.99	6.60
4H	2H	5.33	5.91	6.49	7.04	8.62	1.89	2.46	3.04	3.59	5.17
	3H	7.15	7.63	8.31	8.78	10.38	3.22	3.70	4.39	4.86	6.45
	4H	7.84	8.28	9.00	9.42	11.03	3.77	4.21	4.93	5.35	6.96
	6H	8.35	8.72	9.52	9.89	11.49	4.18	4.56	5.35	5.72	7.32
	8H	8.52	8.87	9.69	10.03	11.65	4.31	4.66	5.47	5.82	7.43
	12H	8.61	8.92	9.79	10.09	11.72	4.37	4.68	5.55	5.85	7.48
8H	4H	7.79	8.15	8.96	9.30	10.92	4.04	4.39	5.20	5.55	7.16
	6H	8.36	8.65	9.54	9.85	11.46	4.55	4.84	5.74	6.04	7.66
	8H	8.57	8.82	9.77	10.00	11.64	4.74	4.99	5.94	6.17	7.81
	12H	8.71	8.93	9.90	10.10	11.77	4.86	5.08	6.05	6.25	7.92
12H	4H	7.74	8.06	8.92	9.23	10.85	4.03	4.35	5.22	5.52	7.15
	6H	8.33	8.58	9.52	9.76	11.40	4.60	4.85	5.79	6.03	7.67
	8H	8.55	8.77	9.74	9.94	11.61	4.81	5.03	6.00	6.20	7.87

END OF REPORT