

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: P928406

Luminaire Tested: DFN2DIP-HX4F0-100D090US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928406
REPORT IS A COMBINATION OF REPORTS P900922 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D090US927-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

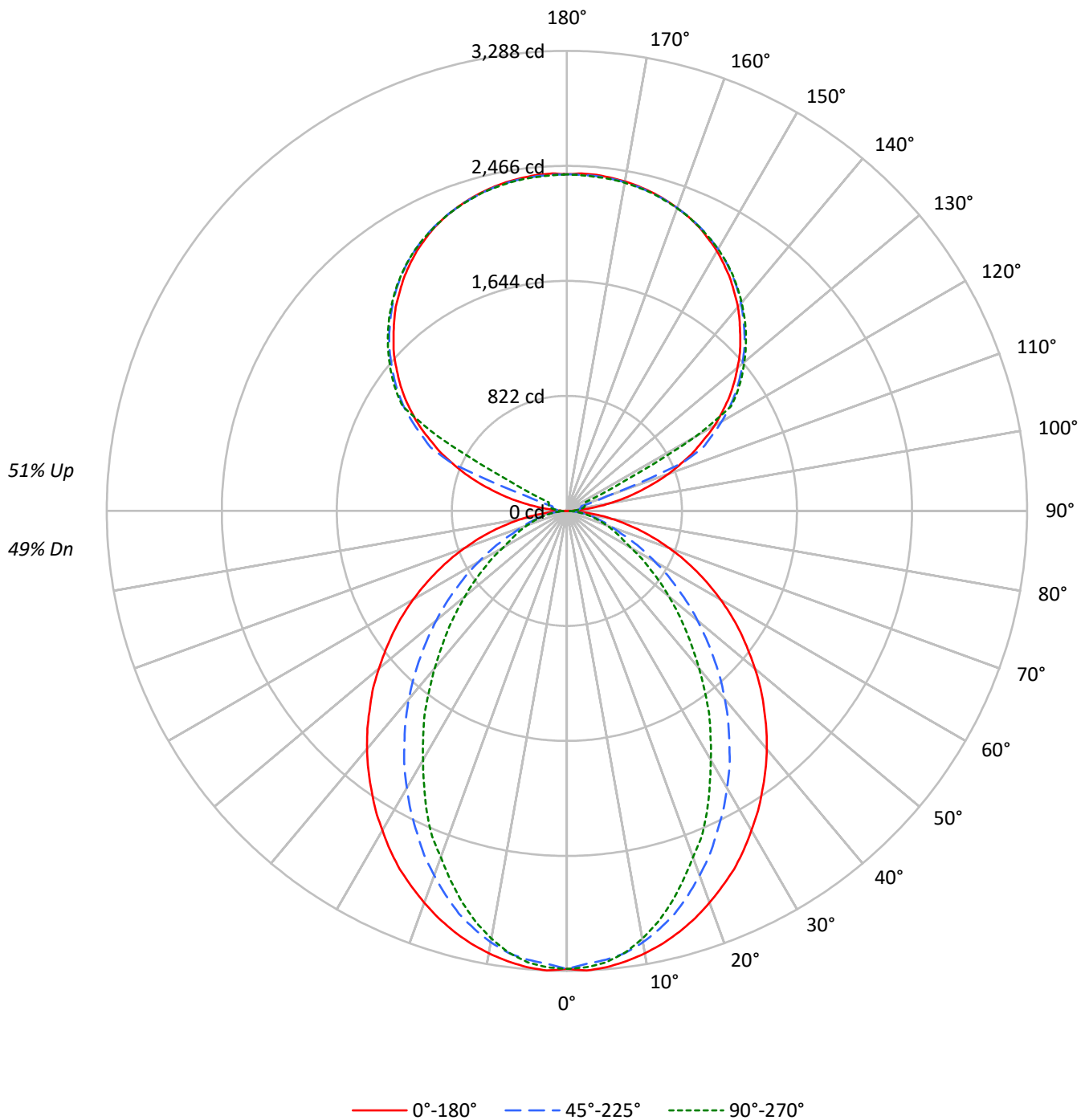
Lumens per Lamp: N/A
Luminaire Lumens: 13788.7 lumens
Efficiency: N/A
Efficacy: 82.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 167.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928406

CATALOG NUMBER: DFN2DIP-HX4F0-100D090US927-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928406

CATALOG NUMBER: DFN2DIP-HX4F0-100D090US927-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	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	83	81	73	71	69	61	59	58	49	48	47
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	56	57	53	49	48	45	42	39	37	35
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	29	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	35	30	51	40	33	29	35	29	26	30	26	22	25	22	19
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2434	2434	2434
5°	2438	2396	2411
10°	2414	2349	2332
15°	2381	2271	2211
20°	2337	2165	2063
25°	2292	2045	1919
30°	2232	1922	1737
35°	2173	1790	1577
40°	2113	1653	1393
45°	2043	1502	1227
50°	1971	1348	1064
55°	1896	1185	908
60°	1809	1014	748
65°	1709	840	673
70°	1587	677	609
75°	1435	598	555
80°	1213	502	481
85°	849	336	362

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2043 cd/sqm

TEST NUMBER: P928406

CATALOG NUMBER: DFN2DIP-HX4F0-100D090US927-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	306.8	2.2
10°-20°	842.2	6.1
20°-30°	1182.4	8.6
30°-40°	1288.9	9.3
40°-50°	1184.6	8.6
50°-60°	930.3	6.7
60°-70°	605.5	4.4
70°-80°	311.7	2.3
80°-90°	83.8	0.6
90°-100°	79.3	0.6
100°-110°	295.7	2.1
110°-120°	784.2	5.7
120°-130°	1300.7	9.4
130°-140°	1381.7	10.0
140°-150°	1284.1	9.3
150°-160°	1032.4	7.5
160°-170°	665.2	4.8
170°-180°	229.0	1.7
0°-30°	2331.3	16.9
0°-40°	3620.2	26.3
0°-60°	5735.1	41.6
0°-90°	6736.2	48.9
90°-120°	1159.3	8.4
90°-150°	5125.8	37.2
90°-180°	7052.0	51.1
0°-180°	13788.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3273	3273	3273	3273	3273	
5°	3273	3258	3220	3247	3238	310
15°	3113	3081	2980	2924	2894	877
25°	2826	2731	2536	2414	2370	1300
35°	2435	2284	2023	1837	1771	1524
45°	1991	1792	1481	1271	1200	1537
55°	1514	1283	963	785	729	1353
65°	1022	782	515	415	406	1013
75°	545	338	237	216	213	576
85°	127	65	56	56	56	146
90°	2	21	35	44	47	13
95°	113	56	68	77	75	134
105°	529	582	106	125	132	565
115°	1001	1030	1074	268	143	985
125°	1415	1438	1471	1483	1488	1262
135°	1751	1779	1795	1812	1809	1353
145°	2032	2030	2059	2071	2063	1271
155°	2237	2221	2242	2252	2239	1031
165°	2357	2346	2352	2364	2352	666
175°	2411	2399	2402	2414	2397	229
180°	2406	2406	2406	2406	2406	

TEST NUMBER: P928406

CATALOG NUMBER: DFN2DIP-HX4F0-100D090US927-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3273.3	3273.3	3273.3	3273.3	3273.3
2.5°	3288.1	3273.3	3240.6	3270.5	3264.5
5°	3273.3	3258.5	3219.9	3246.6	3237.8
7.5°	3246.6	3229.0	3187.5	3199.1	3184.4
10°	3211.1	3190.3	3131.3	3122.1	3104.6
12.5°	3166.8	3140.0	3059.9	3042.3	3009.6
15°	3113.4	3080.6	2980.1	2923.8	2894.3
17.5°	3051.1	3003.7	2879.2	2814.1	2766.7
20°	2980.1	2920.7	2772.6	2698.8	2633.4
22.5°	2903.1	2834.9	2662.9	2562.4	2518.1
25°	2826.1	2731.2	2535.7	2414.3	2369.7
27.5°	2734.3	2633.4	2417.2	2278.0	2209.8
30°	2636.6	2523.7	2286.7	2135.9	2055.8
32.5°	2541.7	2405.2	2162.6	1984.8	1910.5
35°	2435.1	2284.0	2023.4	1836.7	1771.3
37.5°	2331.4	2168.3	1893.0	1688.4	1614.5
40°	2221.7	2044.2	1756.6	1546.3	1469.3
42.5°	2109.2	1919.6	1620.5	1401.1	1327.2
45°	1990.7	1792.1	1481.3	1270.7	1199.6
47.5°	1878.2	1668.0	1348.0	1137.4	1072.4
50°	1753.7	1543.4	1217.5	1013.0	951.0
52.5°	1632.1	1409.9	1093.1	897.6	841.3
55°	1513.6	1282.6	962.7	785.1	728.8
57.5°	1392.3	1155.3	847.4	681.4	633.9
60°	1267.8	1030.9	725.7	574.8	527.4
62.5°	1146.5	909.5	622.0	480.0	456.4
65°	1022.1	781.9	515.4	414.8	405.7
67.5°	903.6	663.5	414.8	364.2	355.4
70°	779.1	548.1	343.5	313.9	302.1
72.5°	660.6	441.2	287.3	263.7	257.7
75°	545.0	337.6	237.0	216.2	213.4
77.5°	429.7	239.8	186.7	174.7	168.8
80°	322.7	171.9	142.1	130.4	130.4
82.5°	225.0	115.6	97.7	91.8	91.8
85°	127.3	65.0	56.2	56.2	56.2
87.5°	47.4	23.6	23.6	20.8	20.8
90°	1.7	20.9	34.7	43.6	46.9
92.5°	43.6	36.6	41.7	45.3	46.9
95°	113.1	55.6	67.8	76.7	74.8
97.5°	203.6	61.0	88.7	94.0	95.7
100°	308.2	69.7	99.2	113.1	116.6
102.5°	422.9	419.6	102.7	121.7	127.1
105°	529.1	581.5	106.2	125.3	132.3
107.5°	652.8	696.2	109.8	128.8	135.8
110°	771.2	807.6	304.7	130.6	137.5

TEST NUMBER: P928406

CATALOG NUMBER: DFN2DIP-HX4F0-100D090US927-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	882.6	913.8	884.3	133.9	139.3
115°	1000.9	1030.4	1074.0	268.1	142.8
117.5°	1103.6	1138.3	1168.0	919.0	463.0
120°	1218.5	1244.5	1276.0	1296.8	1061.8
122.5°	1315.9	1343.8	1378.7	1389.0	1390.9
125°	1415.1	1437.8	1470.9	1483.1	1488.2
127.5°	1505.6	1530.0	1556.3	1573.6	1575.3
130°	1591.0	1618.9	1637.9	1657.1	1655.5
132.5°	1678.0	1700.7	1719.7	1735.5	1733.8
135°	1751.2	1779.1	1794.6	1812.2	1808.7
137.5°	1827.7	1848.5	1866.1	1883.5	1878.3
140°	1902.5	1916.6	1935.6	1951.3	1942.6
142.5°	1965.3	1977.5	2000.0	2013.9	2005.3
145°	2031.5	2029.6	2059.2	2071.4	2062.7
147.5°	2088.7	2083.6	2113.1	2121.8	2115.0
150°	2144.6	2132.4	2160.3	2170.6	2161.9
152.5°	2191.5	2177.6	2203.7	2214.2	2202.0
155°	2236.8	2221.2	2242.1	2252.4	2238.6
157.5°	2273.4	2259.5	2275.2	2287.4	2273.4
160°	2304.7	2294.2	2304.7	2315.1	2302.9
162.5°	2332.4	2322.1	2330.8	2343.0	2327.3
165°	2356.8	2346.5	2351.7	2363.9	2351.7
167.5°	2376.1	2365.5	2370.9	2383.0	2367.4
170°	2391.8	2381.2	2384.7	2396.9	2381.2
172.5°	2402.1	2391.8	2395.2	2407.4	2391.8
175°	2410.8	2398.6	2402.1	2414.3	2396.9
177.5°	2414.3	2402.1	2404.0	2416.2	2400.5
180°	2405.6	2405.6	2405.6	2405.6	2405.6

TEST NUMBER: P928406

CATALOG NUMBER: DFN2DIP-HX4F0-100D090US927-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	10.13	10.95	11.10	11.93	13.22	6.10	6.92	7.08	7.91	9.20
	3H	11.81	12.54	12.79	13.53	14.85	7.29	8.03	8.28	9.02	10.33
	4H	12.42	13.11	13.41	14.11	15.43	7.74	8.44	8.74	9.43	10.75
	6H	12.84	13.48	13.85	14.48	15.81	8.07	8.70	9.07	9.71	11.04
	8H	12.97	13.57	13.98	14.59	15.92	8.16	8.76	9.17	9.78	11.11
	12H	13.03	13.60	14.05	14.61	15.97	8.20	8.78	9.22	9.79	11.14
4H	2H	10.15	10.84	11.15	11.84	13.16	6.70	7.39	7.70	8.39	9.71
	3H	11.98	12.55	12.99	13.58	14.91	8.05	8.63	9.06	9.65	10.98
	4H	12.67	13.20	13.69	14.21	15.57	8.60	9.13	9.62	10.14	11.50
	6H	13.19	13.64	14.22	14.68	16.03	9.02	9.47	10.05	10.51	11.87
	8H	13.36	13.78	14.39	14.82	16.19	9.15	9.57	10.18	10.60	11.97
	12H	13.46	13.84	14.51	14.89	16.26	9.21	9.60	10.26	10.64	12.02
8H	4H	12.64	13.06	13.67	14.09	15.46	8.88	9.30	9.91	10.33	11.70
	6H	13.20	13.55	14.26	14.63	15.99	9.40	9.75	10.45	10.82	12.19
	8H	13.42	13.73	14.48	14.79	16.17	9.59	9.90	10.65	10.96	12.34
	12H	13.56	13.83	14.63	14.88	16.31	9.71	9.98	10.78	11.04	12.46
12H	4H	12.59	12.97	13.64	14.02	15.39	8.88	9.26	9.93	10.31	11.69
	6H	13.18	13.49	14.24	14.55	15.93	9.45	9.75	10.51	10.82	12.20
	8H	13.40	13.67	14.47	14.73	16.15	9.66	9.93	10.73	10.98	12.41