

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: P913737

Luminaire Tested: DFN2DIP-HX4F0-110D100US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913737
REPORT IS A COMBINATION OF REPORTS P899422 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D100US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

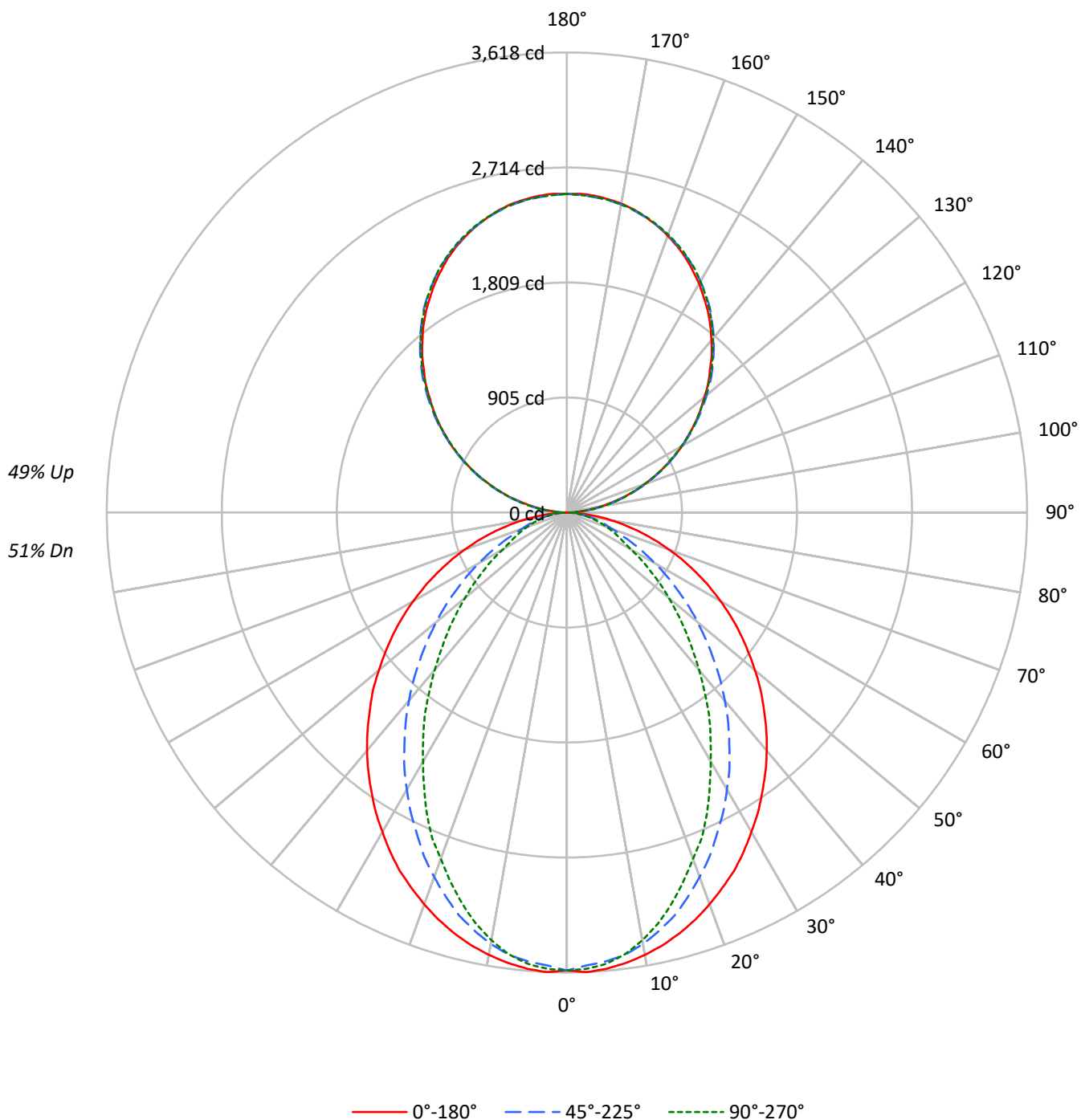
Lumens per Lamp: N/A
Luminaire Lumens: 14417.7 lumens
Efficiency: N/A
Efficacy: 84.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 170
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P913737

CATALOG NUMBER: DFN2DIP-HX4F0-110D100US927-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P913737

CATALOG NUMBER: DFN2DIP-HX4F0-110D100US927-RLLFLL

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	50	30	10
RCR																				
0	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	57	57	57
1	99	94	91	87	91	87	84	81	74	72	70	63	61	59	52	50	49	49	49	44
2	90	83	77	72	83	77	72	68	66	62	59	56	53	50	46	44	42	42	42	38
3	83	73	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37	37	37	33
4	76	65	58	52	70	61	54	49	52	47	43	44	41	37	37	34	32	32	32	28
5	70	58	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28	28	28	25
6	64	53	45	39	59	49	42	37	43	37	33	36	32	29	31	28	25	25	25	22
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	23	23	23	20
8	55	43	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20	20	20	18
9	52	40	32	27	48	37	31	26	33	27	24	28	24	21	24	21	18	18	18	16
10	48	37	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17	17	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2678	2678	2678
5°	2682	2636	2652
10°	2656	2584	2566
15°	2620	2499	2433
20°	2572	2382	2269
25°	2522	2250	2111
30°	2456	2115	1911
35°	2391	1969	1735
40°	2325	1819	1533
45°	2248	1652	1350
50°	2169	1484	1171
55°	2086	1304	999
60°	1990	1115	823
65°	1880	924	741
70°	1746	745	670
75°	1579	658	610
80°	1335	553	530
85°	934	370	399

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2248 cd/sqm

TEST NUMBER: P913737

CATALOG NUMBER: DFN2DIP-HX4F0-110D100US927-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	337.5	2.3
10°-20°	926.6	6.4
20°-30°	1300.9	9.0
30°-40°	1418.1	9.8
40°-50°	1303.4	9.0
50°-60°	1023.6	7.1
60°-70°	666.3	4.6
70°-80°	343.0	2.4
80°-90°	94.7	0.7
90°-100°	155.0	1.1
100°-110°	492.6	3.4
110°-120°	843.0	5.8
120°-130°	1108.6	7.7
130°-140°	1244.4	8.6
140°-150°	1220.3	8.5
150°-160°	1023.6	7.1
160°-170°	678.9	4.7
170°-180°	237.3	1.6
0°-30°	2565.1	17.8
0°-40°	3983.1	27.6
0°-60°	6310.1	43.8
0°-90°	7414.0	51.4
90°-120°	1490.6	10.3
90°-150°	5063.9	35.1
90°-180°	7004.0	48.6
0°-180°	14417.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3602	3602	3602	3602	3602	
5°	3602	3585	3543	3572	3562	341
15°	3426	3390	3279	3217	3184	965
25°	3109	3005	2790	2656	2607	1430
35°	2679	2513	2226	2021	1949	1677
45°	2190	1972	1630	1398	1320	1691
55°	1665	1411	1059	864	802	1488
65°	1124	860	567	456	446	1115
75°	600	371	261	238	235	634
85°	140	72	62	62	62	161
90°	2	27	74	70	72	14
95°	110	131	135	135	131	123
105°	455	461	465	469	469	480
115°	846	858	854	852	846	837
125°	1230	1249	1243	1236	1234	1100
135°	1591	1615	1619	1617	1611	1230
145°	1932	1947	1959	1962	1953	1207
155°	2209	2215	2222	2233	2226	1017
165°	2403	2401	2401	2416	2406	678
175°	2501	2495	2490	2505	2492	238
180°	2505	2505	2505	2505	2505	

TEST NUMBER: P913737

CATALOG NUMBER: DFN2DIP-HX4F0-110D100US927-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3601.5	3601.5	3601.5	3601.5	3601.5
2.5°	3617.7	3601.5	3565.5	3598.4	3591.8
5°	3601.5	3585.3	3542.7	3572.1	3562.4
7.5°	3572.1	3552.7	3507.1	3519.9	3503.6
10°	3533.0	3510.2	3445.2	3435.1	3415.8
12.5°	3484.3	3454.9	3366.7	3347.3	3311.3
15°	3425.5	3389.5	3278.8	3217.0	3184.4
17.5°	3357.0	3304.8	3167.9	3096.2	3044.0
20°	3278.8	3213.5	3050.6	2969.3	2897.4
22.5°	3194.2	3119.1	2930.0	2819.3	2770.5
25°	3109.4	3005.0	2789.9	2656.4	2607.3
27.5°	3008.5	2897.4	2659.5	2506.3	2431.3
30°	2900.9	2776.8	2516.0	2350.0	2261.8
32.5°	2796.5	2646.4	2379.4	2183.7	2102.1
35°	2679.2	2512.9	2226.3	2020.9	1948.9
37.5°	2565.2	2385.7	2082.7	1857.6	1776.4
40°	2444.4	2249.1	1932.7	1701.3	1616.6
42.5°	2320.6	2112.1	1783.0	1541.6	1460.3
45°	2190.3	1971.7	1629.8	1398.0	1319.9
47.5°	2066.5	1835.2	1483.1	1251.4	1179.9
50°	1929.5	1698.2	1339.7	1114.5	1046.4
52.5°	1795.7	1551.2	1202.7	987.6	925.7
55°	1665.3	1411.2	1059.1	863.8	801.9
57.5°	1531.9	1271.1	932.2	749.7	697.4
60°	1395.0	1134.2	798.4	632.5	580.3
62.5°	1261.5	1000.8	684.4	528.1	502.1
65°	1124.5	860.3	567.1	456.5	446.4
67.5°	994.2	730.0	456.5	400.8	391.1
70°	857.2	603.1	377.9	345.5	332.3
72.5°	726.8	485.5	316.1	290.1	283.5
75°	599.6	371.4	260.7	237.9	234.8
77.5°	472.7	263.9	205.4	192.3	185.7
80°	355.1	189.2	156.3	143.5	143.5
82.5°	247.6	127.2	107.6	101.0	101.0
85°	140.1	71.6	61.9	61.9	61.9
87.5°	52.2	25.9	25.9	22.8	22.8
90°	2.3	27.2	74.0	69.5	71.8
92.5°	46.8	63.5	65.8	68.0	68.0
95°	110.3	131.4	135.2	135.2	131.4
97.5°	183.5	203.2	211.5	211.5	211.5
100°	268.2	285.5	291.5	291.5	289.3
102.5°	357.3	370.1	378.4	380.6	378.4
105°	454.7	460.7	465.2	469.1	469.1
107.5°	551.4	560.5	560.5	562.0	551.4
110°	645.1	657.1	657.1	657.1	651.1

TEST NUMBER: P913737

CATALOG NUMBER: DFN2DIP-HX4F0-110D100US927-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	746.2	759.1	756.8	750.8	746.2
115°	846.0	858.0	854.3	852.0	846.0
117.5°	944.9	961.5	950.9	944.9	938.8
120°	1044.6	1061.2	1044.6	1044.6	1037.8
122.5°	1135.2	1156.3	1145.8	1139.8	1135.2
125°	1230.4	1249.3	1243.2	1236.4	1234.2
127.5°	1323.3	1346.7	1338.4	1329.4	1323.3
130°	1410.2	1437.3	1433.6	1429.0	1420.8
132.5°	1507.6	1528.8	1530.3	1519.7	1513.6
135°	1591.4	1614.9	1619.4	1617.2	1611.1
137.5°	1685.1	1704.0	1707.8	1706.3	1697.2
140°	1767.4	1786.3	1796.9	1796.9	1788.6
142.5°	1852.0	1870.9	1876.9	1879.2	1870.9
145°	1932.1	1947.2	1959.3	1961.5	1953.2
147.5°	2003.8	2022.8	2031.8	2035.6	2027.3
150°	2077.9	2090.7	2099.0	2105.8	2099.0
152.5°	2143.6	2156.4	2167.0	2175.3	2167.0
155°	2209.3	2215.3	2222.1	2232.7	2225.9
157.5°	2266.0	2270.5	2274.3	2289.3	2278.8
160°	2316.6	2321.1	2323.3	2336.1	2327.1
162.5°	2363.4	2363.4	2365.6	2379.9	2369.4
165°	2403.4	2401.1	2401.1	2416.2	2405.7
167.5°	2439.7	2432.9	2432.9	2448.0	2437.4
170°	2466.9	2460.8	2458.5	2473.7	2460.8
172.5°	2485.7	2479.7	2477.4	2492.5	2479.7
175°	2500.8	2494.8	2490.3	2505.4	2492.5
177.5°	2509.2	2503.1	2498.5	2511.4	2498.5
180°	2505.4	2505.4	2505.4	2505.4	2505.4

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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	10.70	11.54	11.65	12.51	13.76	6.67	7.52	7.63	8.48	9.73
	3H	12.38	13.13	13.34	14.11	15.38	7.87	8.62	8.83	9.59	10.87
	4H	12.99	13.70	13.97	14.68	15.96	8.32	9.03	9.29	10.01	11.29
	6H	13.41	14.07	14.40	15.05	16.35	8.64	9.30	9.63	10.28	11.57
	8H	13.54	14.16	14.53	15.16	16.46	8.73	9.36	9.73	10.35	11.65
	12H	13.60	14.20	14.60	15.19	16.51	8.78	9.37	9.78	10.36	11.68
4H	2H	10.72	11.43	11.70	12.41	13.69	7.27	7.98	8.25	8.96	10.24
	3H	12.55	13.14	13.54	14.15	15.45	8.62	9.22	9.62	10.22	11.52
	4H	13.25	13.79	14.25	14.78	16.11	9.17	9.71	10.17	10.71	12.04
	6H	13.76	14.23	14.77	15.25	16.57	9.60	10.06	10.61	11.08	12.40
	8H	13.94	14.37	14.95	15.39	16.72	9.73	10.16	10.74	11.18	12.51
	12H	14.04	14.43	15.07	15.46	16.80	9.79	10.18	10.82	11.22	12.55
8H	4H	13.22	13.65	14.23	14.66	16.00	9.46	9.89	10.47	10.90	12.24
	6H	13.78	14.14	14.82	15.20	16.53	9.98	10.34	11.01	11.39	12.72
	8H	14.00	14.32	15.05	15.36	16.71	10.17	10.49	11.22	11.53	12.88
	12H	14.14	14.42	15.19	15.45	16.85	10.29	10.57	11.34	11.61	13.00
12H	4H	13.17	13.56	14.20	14.59	15.93	9.46	9.85	10.49	10.88	12.22
	6H	13.76	14.07	14.80	15.12	16.47	10.03	10.34	11.07	11.39	12.74
	8H	13.98	14.26	15.03	15.29	16.69	10.24	10.52	11.29	11.55	12.95

END OF REPORT