

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: P928596

Luminaire Tested: DFN2DIP-HX4F0-060D120US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928596
REPORT IS A COMBINATION OF REPORTS P900967 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D120US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

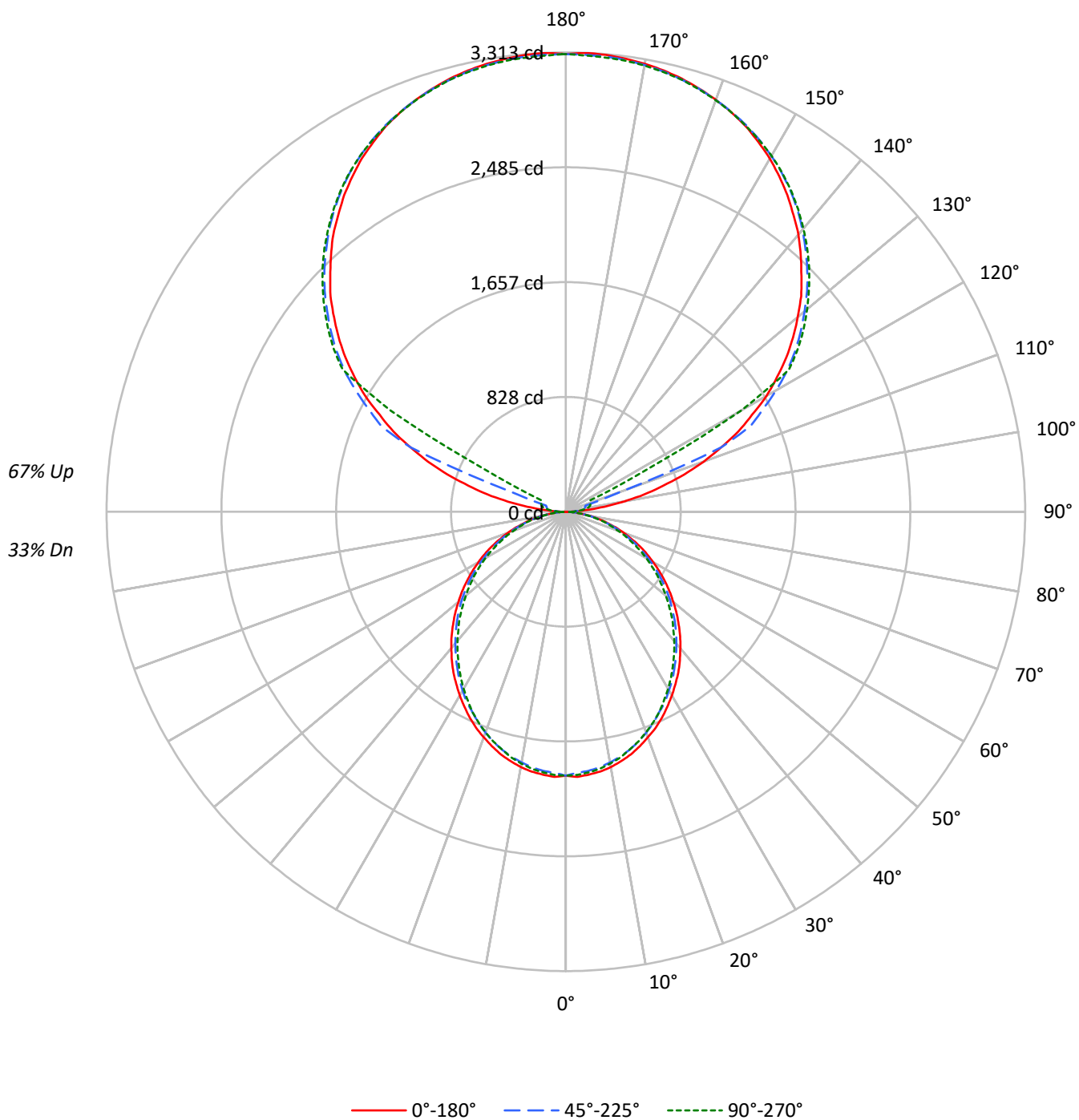
Lumens per Lamp: N/A
Luminaire Lumens: 14523.4 lumens
Efficiency: N/A
Efficacy: 96.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 150.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928596

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US930-FLLONL

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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1415	1415	1415
5°	1417	1395	1405
10°	1406	1377	1386
15°	1385	1354	1356
20°	1357	1323	1326
25°	1330	1285	1291
30°	1295	1250	1246
35°	1262	1209	1199
40°	1222	1167	1154
45°	1181	1126	1108
50°	1137	1082	1054
55°	1091	1031	1005
60°	1039	971	949
65°	982	909	883
70°	910	833	812
75°	809	743	747
80°	688	627	621
85°	499	427	413

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1696 cd/sqm

TEST NUMBER: P928596

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US930-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.2
10°-20°	503.9	3.5
20°-30°	740.5	5.1
30°-40°	860.0	5.9
40°-50°	859.0	5.9
50°-60°	749.0	5.2
60°-70°	553.7	3.8
70°-80°	313.3	2.2
80°-90°	88.5	0.6
90°-100°	108.8	0.7
100°-110°	405.7	2.8
110°-120°	1076.0	7.4
120°-130°	1784.7	12.3
130°-140°	1895.8	13.1
140°-150°	1761.9	12.1
150°-160°	1416.5	9.8
160°-170°	912.8	6.3
170°-180°	314.2	2.2
0°-30°	1423.5	9.8
0°-40°	2283.5	15.7
0°-60°	3891.5	26.8
0°-90°	4846.9	33.4
90°-120°	1590.6	11.0
90°-150°	7033.0	48.4
90°-180°	9676.0	66.6
0°-180°	14523.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1875	1890	1886	181
15°	1811	1800	1776	1784	1775	510
25°	1639	1625	1594	1597	1594	754
35°	1414	1396	1367	1356	1346	883
45°	1151	1138	1110	1091	1083	888
55°	871	860	838	816	807	779
65°	587	576	558	542	532	581
75°	307	304	294	284	287	328
85°	75	73	71	66	64	84
90°	2	29	48	60	64	13
95°	155	76	93	105	103	184
105°	726	798	146	172	182	776
115°	1373	1414	1474	368	196	1352
125°	1942	1973	2018	2035	2042	1732
135°	2403	2441	2462	2486	2482	1856
145°	2787	2785	2825	2842	2830	1743
155°	3069	3048	3076	3090	3072	1414
165°	3234	3220	3227	3243	3227	914
175°	3308	3291	3296	3313	3289	315
180°	3301	3301	3301	3301	3301	

TEST NUMBER: P928596

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1902.7	1902.7	1902.7	1902.7	1902.7
2.5°	1913.8	1904.7	1884.4	1902.7	1899.2
5°	1902.7	1895.5	1875.3	1889.9	1886.4
7.5°	1889.9	1879.1	1858.9	1873.6	1869.9
10°	1869.9	1857.1	1835.1	1849.7	1844.3
12.5°	1842.4	1831.5	1809.5	1818.7	1815.0
15°	1811.3	1800.4	1776.5	1784.0	1774.8
17.5°	1772.9	1762.0	1738.2	1747.2	1738.2
20°	1730.7	1719.9	1694.2	1699.7	1692.5
22.5°	1688.8	1672.3	1648.4	1648.4	1644.8
25°	1639.3	1624.8	1593.7	1597.2	1593.7
27.5°	1584.4	1571.6	1547.8	1542.5	1533.3
30°	1529.7	1514.8	1487.5	1482.1	1474.7
32.5°	1471.0	1460.2	1430.8	1419.7	1412.4
35°	1414.4	1396.1	1366.8	1355.7	1346.5
37.5°	1350.3	1333.7	1304.5	1291.6	1282.5
40°	1284.4	1269.7	1240.4	1224.1	1216.7
42.5°	1220.4	1205.6	1176.5	1158.1	1147.2
45°	1150.9	1138.1	1110.5	1090.6	1083.1
47.5°	1083.1	1070.3	1041.1	1020.9	1009.9
50°	1011.7	1002.6	977.0	951.3	942.2
52.5°	942.2	929.4	905.7	885.6	872.8
55°	871.0	859.9	838.0	816.1	806.9
57.5°	799.6	790.5	766.6	744.7	737.2
60°	728.1	720.9	695.4	675.1	669.7
62.5°	658.6	645.8	627.6	609.3	602.0
65°	587.4	576.4	558.1	541.6	532.4
67.5°	514.2	504.9	488.6	475.8	468.4
70°	446.5	439.1	422.6	409.8	402.6
72.5°	376.9	369.6	360.5	347.7	342.2
75°	307.3	303.8	294.5	283.6	287.3
77.5°	245.2	237.8	234.1	228.7	223.2
80°	183.0	181.1	177.4	172.0	168.3
82.5°	124.5	124.5	122.7	115.3	115.3
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.3	25.6	20.2	18.3
90°	2.3	28.6	47.7	59.8	64.4
92.5°	59.8	50.2	57.3	62.1	64.4
95°	155.1	76.3	93.0	105.2	102.7
97.5°	279.4	83.7	121.7	129.0	131.3
100°	422.8	95.6	136.1	155.1	160.0
102.5°	580.3	575.7	140.9	167.1	174.4
105°	726.0	797.8	145.8	171.9	181.5
107.5°	895.6	955.2	150.6	176.7	186.3
110°	1058.1	1108.1	418.0	179.2	188.6

TEST NUMBER: P928596

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1211.0	1253.8	1213.3	183.8	191.1
115°	1373.2	1413.8	1473.6	367.8	196.0
117.5°	1514.2	1561.9	1602.7	1260.9	635.3
120°	1671.9	1707.6	1750.7	1779.4	1456.9
122.5°	1805.5	1843.8	1891.7	1905.9	1908.4
125°	1941.6	1972.8	2018.2	2034.9	2042.0
127.5°	2065.8	2099.3	2135.3	2159.1	2161.4
130°	2182.9	2221.2	2247.3	2273.7	2271.4
132.5°	2302.3	2333.5	2359.6	2381.2	2378.9
135°	2402.7	2441.0	2462.3	2486.4	2481.6
137.5°	2507.7	2536.3	2560.4	2584.2	2577.1
140°	2610.4	2629.6	2655.7	2677.3	2665.4
142.5°	2696.5	2713.3	2744.2	2763.2	2751.3
145°	2787.3	2784.8	2825.3	2842.1	2830.1
147.5°	2865.9	2858.8	2899.4	2911.3	2901.9
150°	2942.4	2925.7	2964.0	2978.2	2966.3
152.5°	3006.8	2987.8	3023.6	3038.0	3021.3
155°	3068.9	3047.6	3076.3	3090.5	3071.5
157.5°	3119.1	3100.1	3121.7	3138.4	3119.1
160°	3162.2	3147.8	3162.2	3176.4	3159.7
162.5°	3200.3	3186.1	3198.0	3214.7	3193.2
165°	3233.7	3219.5	3226.6	3243.4	3226.6
167.5°	3260.1	3245.6	3253.0	3269.7	3248.2
170°	3281.6	3267.2	3272.0	3288.7	3267.2
172.5°	3295.8	3281.6	3286.5	3303.2	3281.6
175°	3307.7	3291.0	3295.8	3312.6	3288.7
177.5°	3312.6	3295.8	3298.4	3315.1	3293.6
180°	3300.7	3300.7	3300.7	3300.7	3300.7

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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	6.71	7.44	7.79	8.52	10.01	6.27	7.00	7.36	8.09	9.58
	3H	8.36	9.01	9.45	10.11	11.61	7.88	8.54	8.98	9.63	11.14
	4H	8.94	9.56	10.05	10.66	12.17	8.47	9.09	9.57	10.18	11.70
	6H	9.33	9.90	10.45	11.00	12.53	8.86	9.43	9.97	10.53	12.05
	8H	9.43	9.98	10.55	11.09	12.61	8.96	9.50	10.08	10.62	12.14
	12H	9.48	9.99	10.60	11.10	12.65	9.00	9.51	10.12	10.62	12.16
4H	2H	7.15	7.77	8.27	8.87	10.38	6.81	7.43	7.92	8.52	10.04
	3H	9.01	9.52	10.13	10.65	12.17	8.61	9.13	9.73	10.25	11.78
	4H	9.72	10.19	10.84	11.30	12.85	9.31	9.79	10.44	10.90	12.45
	6H	10.22	10.63	11.36	11.77	13.31	9.82	10.22	10.95	11.36	12.90
	8H	10.37	10.75	11.50	11.88	13.43	9.96	10.34	11.09	11.47	13.02
	12H	10.44	10.78	11.59	11.92	13.48	10.02	10.36	11.16	11.50	13.06
8H	4H	9.90	10.28	11.03	11.41	12.97	9.54	9.92	10.67	11.05	12.61
	6H	10.53	10.84	11.68	12.01	13.57	10.17	10.48	11.32	11.65	13.20
	8H	10.75	11.02	11.91	12.17	13.75	10.38	10.66	11.54	11.80	13.38
	12H	10.88	11.12	12.04	12.26	13.87	10.49	10.73	11.65	11.88	13.49
12H	4H	9.88	10.23	11.03	11.37	12.93	9.53	9.88	10.68	11.01	12.57
	6H	10.56	10.83	11.72	11.98	13.55	10.21	10.48	11.37	11.63	13.20
	8H	10.80	11.04	11.96	12.18	13.79	10.44	10.68	11.60	11.83	13.43

END OF REPORT