

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: P916230

Luminaire Tested: DFN2DIP-HX3F0-060D030US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916230
REPORT IS A COMBINATION OF REPORTS P899207 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-060D030US930-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

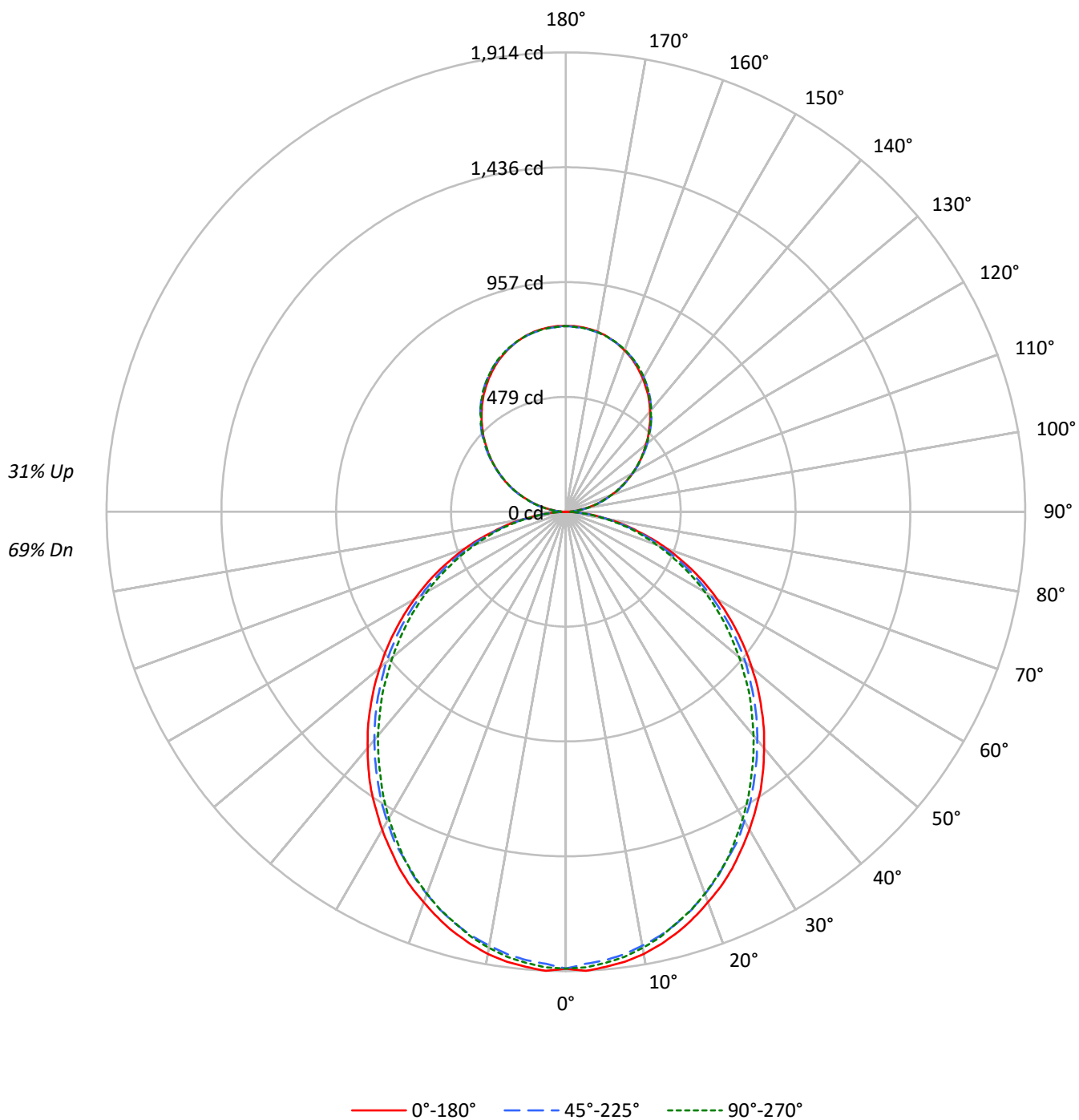
Lumens per Lamp: N/A
Luminaire Lumens: 7007.5 lumens
Efficiency: N/A
Efficacy: 88.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 79.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P916230

CATALOG NUMBER: DFN2DIP-HX3F0-060D030US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P916230

CATALOG NUMBER: DFN2DIP-HX3F0-060D030US930-FLLFL

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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2205	2205	2205
5°	2207	2173	2188
10°	2188	2142	2157
15°	2155	2105	2109
20°	2111	2054	2061
25°	2067	1994	2005
30°	2011	1938	1934
35°	1959	1872	1859
40°	1894	1806	1788
45°	1830	1739	1715
50°	1760	1669	1630
55°	1686	1588	1552
60°	1603	1491	1463
65°	1512	1391	1357
70°	1395	1269	1244
75°	1235	1123	1137
80°	1041	937	936
85°	738	620	607

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1830 cd/sqm

TEST NUMBER: P916230

CATALOG NUMBER: DFN2DIP-HX3F0-060D030US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	2.6
10°-20°	504.1	7.2
20°-30°	740.8	10.6
30°-40°	860.4	12.3
40°-50°	859.3	12.3
50°-60°	749.3	10.7
60°-70°	553.9	7.9
70°-80°	313.4	4.5
80°-90°	84.9	1.2
90°-100°	47.9	0.7
100°-110°	152.1	2.2
110°-120°	260.3	3.7
120°-130°	342.3	4.9
130°-140°	384.2	5.5
140°-150°	376.8	5.4
150°-160°	316.1	4.5
160°-170°	209.6	3.0
170°-180°	73.3	1.0
0°-30°	1424.0	20.3
0°-40°	2284.3	32.6
0°-60°	3892.9	55.6
0°-90°	4845.1	69.1
90°-120°	460.2	6.6
90°-150°	1563.5	22.3
90°-180°	2162.0	30.9
0°-180°	7007.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	1	8	23	21	22	7
95°	34	41	42	42	41	38
105°	140	142	144	145	145	148
115°	261	265	264	263	261	258
125°	380	386	384	382	381	339
135°	491	499	500	499	497	380
145°	597	601	605	606	603	373
155°	682	684	686	689	687	314
165°	742	741	741	746	743	209
175°	772	770	769	774	770	73
180°	774	774	774	774	774	

TEST NUMBER: P916230

CATALOG NUMBER: DFN2DIP-HX3F0-060D030US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	0.7	8.4	22.8	21.4	22.2
92.5°	14.4	19.6	20.3	21.0	21.0
95°	34.1	40.6	41.7	41.7	40.6
97.5°	56.7	62.7	65.3	65.3	65.3
100°	82.8	88.1	90.0	90.0	89.4
102.5°	110.3	114.3	116.8	117.6	116.8
105°	140.4	142.3	143.7	144.8	144.8
107.5°	170.2	173.0	173.0	173.5	170.2
110°	199.2	202.9	202.9	202.9	201.1



TEST NUMBER: P916230

CATALOG NUMBER: DFN2DIP-HX3F0-060D030US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	230.4	234.4	233.7	231.8	230.4
115°	261.2	264.9	263.7	263.1	261.2
117.5°	291.7	296.9	293.6	291.7	289.8
120°	322.5	327.7	322.5	322.5	320.4
122.5°	350.5	357.0	353.8	351.9	350.5
125°	379.9	385.7	383.8	381.7	381.1
127.5°	408.5	415.8	413.3	410.4	408.5
130°	435.4	443.8	442.6	441.2	438.6
132.5°	465.5	472.0	472.5	469.2	467.3
135°	491.4	498.6	500.0	499.3	497.4
137.5°	520.2	526.1	527.3	526.8	524.0
140°	545.7	551.5	554.8	554.8	552.2
142.5°	571.9	577.6	579.5	580.2	577.6
145°	596.6	601.2	605.0	605.6	603.1
147.5°	618.7	624.5	627.3	628.5	625.9
150°	641.6	645.6	648.1	650.2	648.1
152.5°	661.9	665.8	669.0	671.6	669.0
155°	682.2	684.0	686.1	689.3	687.3
157.5°	699.6	701.0	702.2	706.9	703.6
160°	715.3	716.6	717.4	721.3	718.5
162.5°	729.7	729.7	730.4	734.8	731.6
165°	742.1	741.4	741.4	746.0	742.7
167.5°	753.3	751.1	751.1	755.8	752.5
170°	761.7	759.8	759.1	763.8	759.8
172.5°	767.4	765.6	764.9	769.6	765.6
175°	772.2	770.3	768.9	773.6	769.6
177.5°	774.7	772.8	771.4	775.4	771.4
180°	773.6	773.6	773.6	773.6	773.6

TEST NUMBER: P916230

CATALOG NUMBER: DFN2DIP-HX3F0-060D030US930-FLLFLL

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	11.58	12.64	12.35	13.44	14.41	11.15	12.21	11.92	13.01	13.98
	3H	13.25	14.20	14.03	15.01	16.01	12.78	13.73	13.56	14.54	15.54
	4H	13.84	14.74	14.64	15.55	16.56	13.37	14.27	14.17	15.09	16.10
	6H	14.24	15.07	15.06	15.90	16.92	13.77	14.60	14.59	15.43	16.45
	8H	14.35	15.14	15.18	15.98	17.01	13.88	14.67	14.71	15.51	16.54
	12H	14.40	15.16	15.23	15.99	17.04	13.93	14.68	14.76	15.52	16.57
4H	2H	12.06	12.96	12.87	13.78	14.79	11.72	12.62	12.53	13.43	14.44
	3H	13.94	14.69	14.76	15.54	16.56	13.55	14.30	14.37	15.15	16.17
	4H	14.65	15.34	15.49	16.19	17.24	14.25	14.94	15.08	15.78	16.84
	6H	15.17	15.77	16.02	16.64	17.69	14.77	15.36	15.62	16.23	17.29
	8H	15.32	15.88	16.18	16.74	17.81	14.92	15.47	15.77	16.34	17.41
	12H	15.40	15.90	16.28	16.79	17.86	14.99	15.49	15.86	16.37	17.45
8H	4H	14.86	15.42	15.72	16.28	17.35	14.50	15.06	15.36	15.93	17.00
	6H	15.49	15.95	16.37	16.86	17.93	15.13	15.59	16.02	16.50	17.57
	8H	15.71	16.12	16.60	17.02	18.11	15.35	15.75	16.24	16.66	17.74
	12H	15.85	16.21	16.74	17.10	18.24	15.47	15.83	16.36	16.72	17.86
12H	4H	14.86	15.36	15.73	16.24	17.32	14.51	15.01	15.38	15.89	16.97
	6H	15.52	15.93	16.42	16.83	17.92	15.17	15.58	16.07	16.49	17.57
	8H	15.77	16.13	16.66	17.02	18.16	15.42	15.78	16.31	16.67	17.81