

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: P915898

Luminaire Tested: DFN2DIP-4P3F0-060D030US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915898
REPORT IS A COMBINATION OF REPORTS P899047 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D030US930-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

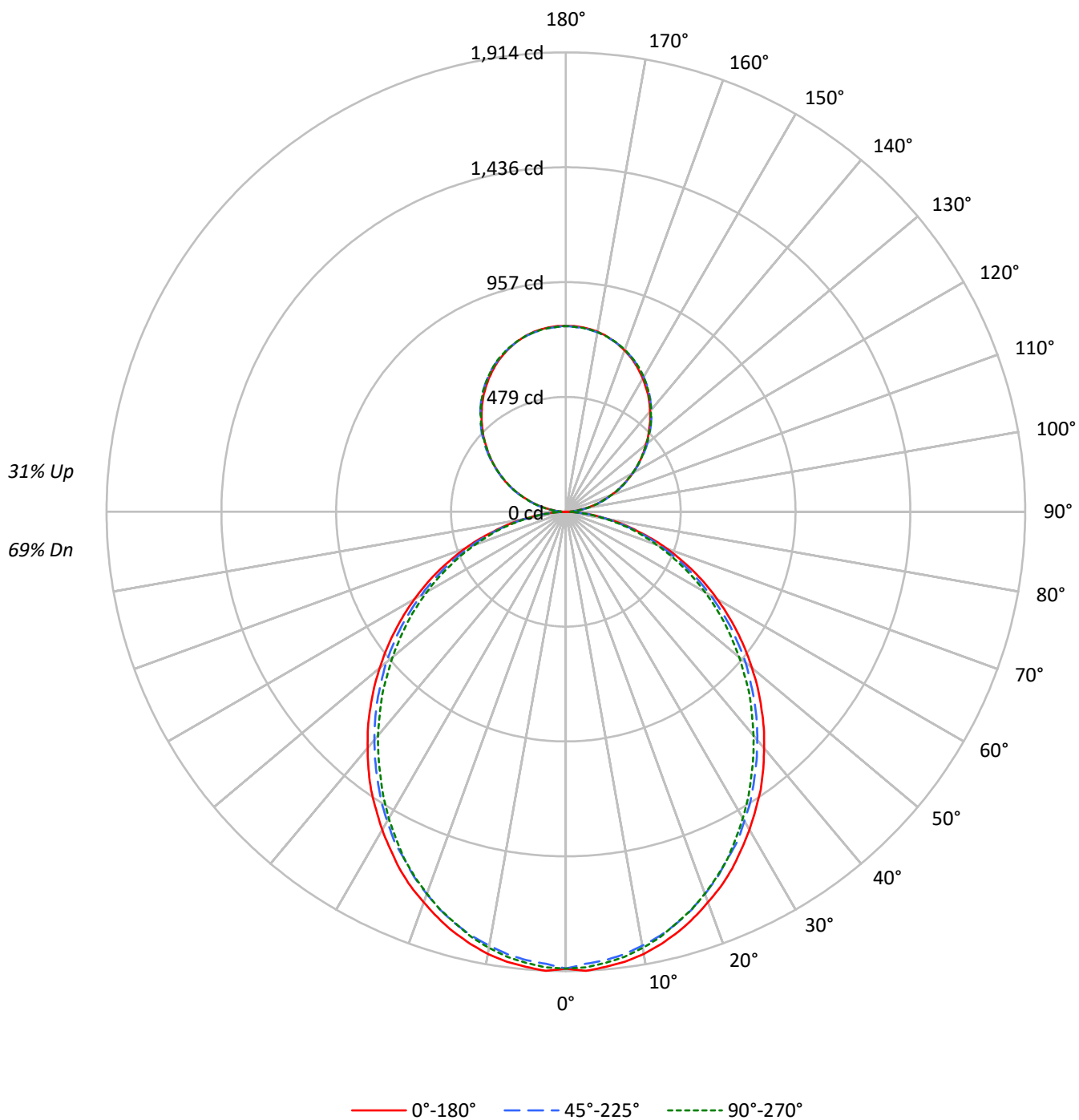
Lumens per Lamp: N/A
Luminaire Lumens: 7007.5 lumens
Efficiency: N/A
Efficacy: 83.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 84.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P915898

CATALOG NUMBER: DFN2DIP-4P3F0-060D030US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P915898

CATALOG NUMBER: DFN2DIP-4P3F0-060D030US930-FLLFLL

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°	2169	2169	2169
5°	2171	2137	2153
10°	2152	2107	2123
15°	2119	2071	2077
20°	2075	2021	2029
25°	2031	1962	1975
30°	1976	1908	1905
35°	1925	1843	1832
40°	1861	1777	1763
45°	1797	1712	1691
50°	1727	1643	1609
55°	1654	1563	1533
60°	1572	1468	1445
65°	1481	1370	1342
70°	1366	1250	1232
75°	1207	1107	1128
80°	1014	924	933
85°	714	612	611

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1797 cd/sqm

TEST NUMBER: P915898

CATALOG NUMBER: DFN2DIP-4P3F0-060D030US930-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: P915898

CATALOG NUMBER: DFN2DIP-4P3F0-060D030US930-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: P915898

CATALOG NUMBER: DFN2DIP-4P3F0-060D030US930-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

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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	11.53	12.60	12.31	13.39	14.36	11.09	12.15	11.86	12.95	13.92
	3H	13.20	14.16	13.99	14.96	15.96	12.71	13.67	13.50	14.47	15.47
	4H	13.80	14.70	14.60	15.51	16.52	13.30	14.21	14.11	15.02	16.03
	6H	14.20	15.04	15.02	15.86	16.88	13.70	14.54	14.52	15.36	16.38
	8H	14.31	15.11	15.14	15.95	16.97	13.81	14.60	14.64	15.45	16.47
	12H	14.37	15.12	15.20	15.96	17.01	13.86	14.61	14.69	15.45	16.50
4H	2H	12.01	12.92	12.82	13.73	14.74	11.66	12.56	12.47	13.37	14.38
	3H	13.89	14.65	14.71	15.49	16.52	13.48	14.24	14.30	15.09	16.11
	4H	14.61	15.30	15.44	16.14	17.20	14.19	14.87	15.02	15.72	16.77
	6H	15.13	15.73	15.98	16.60	17.66	14.70	15.29	15.55	16.16	17.22
	8H	15.28	15.84	16.14	16.71	17.78	14.85	15.40	15.70	16.27	17.34
	12H	15.37	15.87	16.24	16.75	17.83	14.92	15.42	15.79	16.30	17.38
8H	4H	14.82	15.37	15.67	16.24	17.31	14.44	15.00	15.30	15.86	16.93
	6H	15.45	15.91	16.33	16.82	17.89	15.07	15.53	15.95	16.44	17.51
	8H	15.67	16.08	16.56	16.98	18.07	15.28	15.69	16.17	16.59	17.68
	12H	15.81	16.17	16.71	17.06	18.20	15.40	15.76	16.29	16.65	17.79
12H	4H	14.81	15.31	15.69	16.20	17.28	14.44	14.95	15.32	15.83	16.91
	6H	15.48	15.89	16.37	16.79	17.88	15.11	15.52	16.00	16.42	17.51
	8H	15.73	16.09	16.63	16.98	18.13	15.35	15.71	16.25	16.60	17.74