

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: P913171

Luminaire Tested: DFN2DIP-4P3F0-060D030US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913171
REPORT IS A COMBINATION OF REPORTS P900567 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D030US927-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

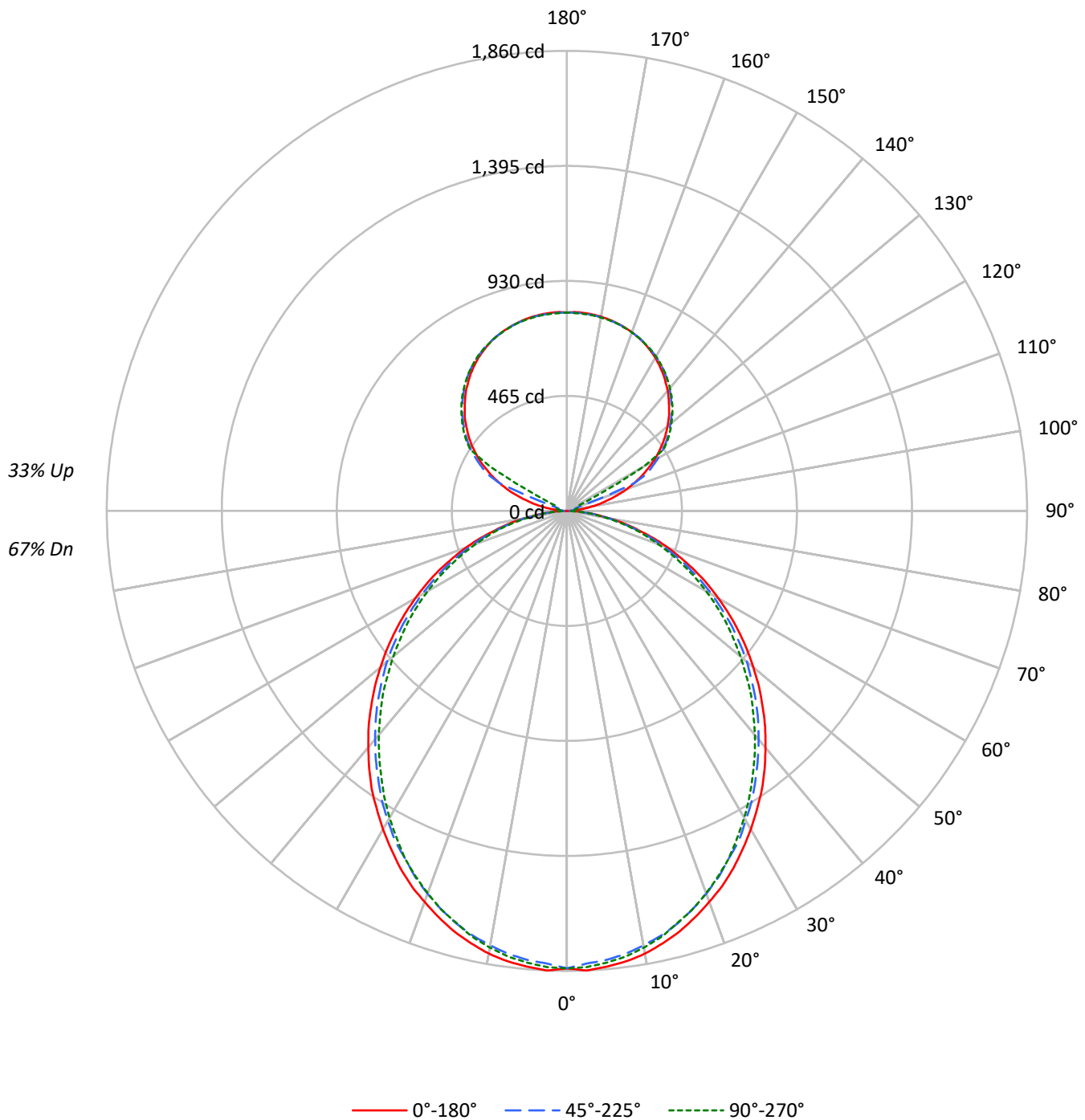
Lumens per Lamp: N/A
Luminaire Lumens: 7058.3 lumens
Efficiency: N/A
Efficacy: 83.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

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

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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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2108	2108	2108
5°	2110	2077	2092
10°	2091	2048	2063
15°	2059	2012	2018
20°	2016	1964	1972
25°	1974	1907	1919
30°	1920	1853	1851
35°	1870	1791	1780
40°	1808	1727	1713
45°	1746	1663	1643
50°	1678	1596	1563
55°	1607	1518	1489
60°	1527	1427	1404
65°	1439	1331	1304
70°	1327	1215	1197
75°	1173	1075	1096
80°	986	898	906
85°	694	595	594

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1746 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.1	2.5
10°-20°	489.8	6.9
20°-30°	719.8	10.2
30°-40°	836.0	11.8
40°-50°	834.9	11.8
50°-60°	728.0	10.3
60°-70°	538.2	7.6
70°-80°	304.5	4.3
80°-90°	81.8	1.2
90°-100°	26.5	0.4
100°-110°	98.6	1.4
110°-120°	261.5	3.7
120°-130°	433.7	6.1
130°-140°	460.7	6.5
140°-150°	428.1	6.1
150°-160°	344.2	4.9
160°-170°	221.8	3.1
170°-180°	76.3	1.1
0°-30°	1383.6	19.6
0°-40°	2219.6	31.4
0°-60°	3782.5	53.6
0°-90°	4707.0	66.7
90°-120°	386.5	5.5
90°-150°	1709.0	24.2
90°-180°	2351.0	33.3
0°-180°	7058.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1849	1849	1849	1849	1849	
5°	1849	1842	1823	1837	1834	176
15°	1760	1750	1727	1734	1725	496
25°	1593	1579	1549	1552	1549	733
35°	1375	1357	1328	1318	1309	858
45°	1119	1106	1079	1060	1053	863
55°	847	836	814	793	784	757
65°	571	560	542	526	518	564
75°	299	295	286	276	279	319
85°	73	71	69	64	62	81
90°	1	7	12	15	16	7
95°	38	18	23	26	25	45
105°	176	194	35	42	44	188
115°	334	344	358	89	48	329
125°	472	479	490	494	496	421
135°	584	593	598	604	603	451
145°	677	677	687	691	688	424
155°	746	741	748	751	746	344
165°	786	782	784	788	784	222
175°	804	800	801	805	799	76
180°	802	802	802	802	802	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1849.4	1849.4	1849.4	1849.4	1849.4
2.5°	1860.2	1851.3	1831.7	1849.4	1846.0
5°	1849.4	1842.5	1822.8	1837.0	1833.6
7.5°	1837.0	1826.5	1806.8	1821.1	1817.6
10°	1817.6	1805.1	1783.8	1797.9	1792.6
12.5°	1790.8	1780.2	1758.9	1767.8	1764.2
15°	1760.5	1750.0	1726.8	1734.0	1725.1
17.5°	1723.2	1712.7	1689.5	1698.3	1689.5
20°	1682.3	1671.7	1646.8	1652.1	1645.1
22.5°	1641.6	1625.5	1602.3	1602.3	1598.7
25°	1593.4	1579.3	1549.0	1552.4	1549.0
27.5°	1540.0	1527.6	1504.5	1499.3	1490.4
30°	1486.8	1472.4	1445.9	1440.6	1433.4
32.5°	1429.8	1419.3	1390.8	1380.0	1372.8
35°	1374.8	1357.0	1328.5	1317.7	1308.8
37.5°	1312.5	1296.4	1268.0	1255.4	1246.6
40°	1248.5	1234.1	1205.7	1189.9	1182.6
42.5°	1186.2	1171.9	1143.6	1125.7	1115.1
45°	1118.7	1106.2	1079.4	1060.0	1052.8
47.5°	1052.8	1040.4	1011.9	992.3	981.7
50°	983.4	974.5	949.7	924.7	915.8
52.5°	915.8	903.4	880.4	860.8	848.3
55°	846.6	835.8	814.5	793.2	784.3
57.5°	777.2	768.3	745.1	723.8	716.6
60°	707.7	700.8	675.9	656.2	650.9
62.5°	640.2	627.7	610.0	592.2	585.1
65°	570.9	560.2	542.5	526.4	517.5
67.5°	499.8	490.8	474.9	462.5	455.3
70°	434.0	426.8	410.7	398.3	391.3
72.5°	366.4	359.3	350.4	337.9	332.6
75°	298.7	295.3	286.2	275.7	279.2
77.5°	238.3	231.2	227.5	222.3	217.0
80°	177.9	176.0	172.5	167.2	163.6
82.5°	121.0	121.0	119.2	112.1	112.1
85°	72.8	71.1	69.4	63.9	62.3
87.5°	32.1	28.5	24.9	19.6	17.7
90°	0.6	7.0	11.6	14.6	15.6
92.5°	14.6	12.2	13.9	15.1	15.6
95°	37.7	18.5	22.6	25.6	25.0
97.5°	67.9	20.4	29.5	31.4	31.9
100°	102.7	23.2	33.1	37.7	38.9
102.5°	141.0	139.9	34.2	40.6	42.4
105°	176.4	193.8	35.4	41.7	44.1
107.5°	217.6	232.1	36.6	42.9	45.3
110°	257.1	269.3	101.6	43.6	45.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	294.3	304.7	294.8	44.7	46.4
115°	333.7	343.6	358.1	89.4	47.6
117.5°	368.0	379.5	389.4	306.4	154.4
120°	406.2	414.9	425.4	432.4	354.0
122.5°	438.7	448.1	459.7	463.1	463.7
125°	471.8	479.3	490.4	494.5	496.2
127.5°	502.0	510.1	518.9	524.7	525.2
130°	530.4	539.8	546.1	552.5	552.0
132.5°	559.4	567.0	573.4	578.6	578.1
135°	583.8	593.2	598.3	604.2	603.0
137.5°	609.3	616.3	622.2	628.0	626.2
140°	634.3	639.0	645.3	650.5	647.7
142.5°	655.3	659.3	666.9	671.5	668.6
145°	677.3	676.7	686.6	690.6	687.7
147.5°	696.4	694.7	704.6	707.4	705.1
150°	715.0	711.0	720.3	723.7	720.8
152.5°	730.6	726.0	734.7	738.2	734.2
155°	745.8	740.6	747.5	751.0	746.4
157.5°	758.0	753.4	758.6	762.6	758.0
160°	768.4	764.9	768.4	771.9	767.8
162.5°	777.7	774.2	777.1	781.2	775.9
165°	785.8	782.4	784.1	788.1	784.1
167.5°	792.2	788.7	790.4	794.6	789.3
170°	797.4	793.9	795.1	799.2	793.9
172.5°	800.9	797.4	798.6	802.6	797.4
175°	803.7	799.7	800.9	804.9	799.2
177.5°	804.9	800.9	801.5	805.6	800.3
180°	802.1	802.1	802.1	802.1	802.1

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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	11.24	12.28	12.04	13.10	14.11	10.80	11.83	11.60	12.65	13.66
	3H	12.91	13.84	13.72	14.67	15.71	12.42	13.35	13.23	14.18	15.22
	4H	13.50	14.38	14.33	15.22	16.27	13.01	13.89	13.84	14.73	15.78
	6H	13.91	14.72	14.75	15.57	16.63	13.41	14.22	14.25	15.06	16.13
	8H	14.02	14.79	14.87	15.65	16.72	13.51	14.29	14.37	15.15	16.22
	12H	14.07	14.80	14.93	15.66	16.75	13.56	14.29	14.42	15.15	16.25
4H	2H	11.72	12.60	12.55	13.44	14.49	11.36	12.24	12.20	13.08	14.13
	3H	13.60	14.33	14.44	15.20	16.27	13.19	13.92	14.03	14.79	15.86
	4H	14.31	14.98	15.17	15.85	16.94	13.89	14.56	14.75	15.43	16.52
	6H	14.83	15.41	15.71	16.31	17.40	14.40	14.98	15.28	15.87	16.97
	8H	14.99	15.53	15.86	16.41	17.52	14.55	15.09	15.43	15.98	17.09
	12H	15.06	15.55	15.96	16.46	17.58	14.62	15.10	15.51	16.01	17.13
8H	4H	14.52	15.06	15.40	15.95	17.06	14.14	14.68	15.02	15.57	16.68
	6H	15.15	15.60	16.06	16.53	17.64	14.77	15.22	15.67	16.15	17.26
	8H	15.37	15.77	16.29	16.69	17.82	14.98	15.37	15.89	16.30	17.43
	12H	15.51	15.86	16.43	16.77	17.95	15.10	15.45	16.02	16.36	17.54
12H	4H	14.51	15.00	15.41	15.91	17.02	14.14	14.63	15.04	15.54	16.65
	6H	15.18	15.58	16.10	16.50	17.63	14.81	15.21	15.72	16.13	17.26
	8H	15.43	15.78	16.35	16.69	17.87	15.05	15.40	15.97	16.31	17.49