

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: P913172

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

Issue Date: 11/21/2024

**Test Information**

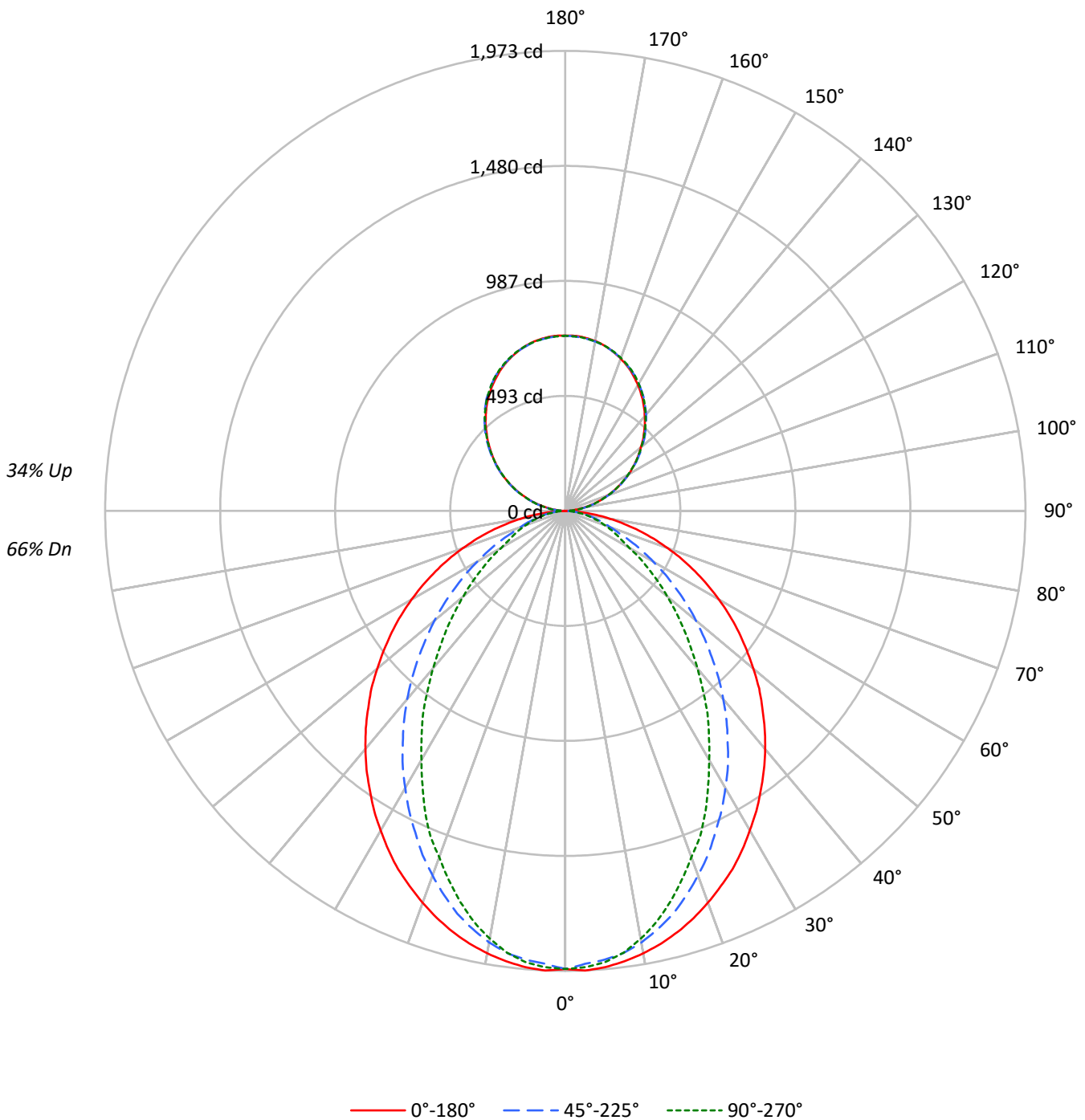
Test Method: LM-79-2019  
Report Number: P913172  
REPORT IS A COMBINATION OF REPORTS P899048 AND P895917  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P3F0-060D030US927-RLLFLL  
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6143.4 lumens  
Efficiency: N/A  
Efficacy: 72.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66				66
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61	57				57
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52	49				49
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45	42				42
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40	36				36
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35	32				32
6	67	55	47	41	63	52	45	40	47	41	37	42	38	34	38	34	31	29				29
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28	26				26
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25	23				23
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23	21				21
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21	19				19

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2239	2239	2239
5°	2241	2202	2216
10°	2217	2157	2144
15°	2185	2084	2031
20°	2143	1985	1894
25°	2101	1873	1762
30°	2044	1759	1593
35°	1988	1637	1446
40°	1931	1510	1277
45°	1865	1370	1124
50°	1796	1228	974
55°	1725	1077	830
60°	1642	919	683
65°	1546	759	614
70°	1430	610	555
75°	1284	534	503
80°	1073	443	434
85°	728	289	321

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1865 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	184.1	3.0
10°-20°	505.4	8.2
20°-30°	709.6	11.6
30°-40°	773.5	12.6
40°-50°	710.9	11.6
50°-60°	558.3	9.1
60°-70°	363.4	5.9
70°-80°	187.1	3.0
80°-90°	49.9	0.8
90°-100°	46.5	0.8
100°-110°	147.8	2.4
110°-120°	252.9	4.1
120°-130°	332.6	5.4
130°-140°	373.3	6.1
140°-150°	366.1	6.0
150°-160°	307.1	5.0
160°-170°	203.7	3.3
170°-180°	71.2	1.2
0°-30°	1399.1	22.8
0°-40°	2172.6	35.4
0°-60°	3441.9	56.0
0°-90°	4042.3	65.8
90°-120°	447.2	7.3
90°-150°	1519.2	24.7
90°-180°	2101.0	34.2
0°-180°	6143.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1964	1964	1964	1964	1964	
5°	1964	1956	1932	1948	1943	186
15°	1868	1849	1788	1755	1737	527
25°	1696	1639	1522	1449	1422	780
35°	1461	1371	1214	1102	1063	915
45°	1195	1076	889	763	720	923
55°	908	770	578	471	437	812
65°	613	469	309	249	244	608
75°	327	203	142	130	128	346
85°	76	39	34	34	34	88
90°	1	8	22	21	22	6
95°	33	40	41	41	40	37
105°	136	138	140	141	141	144
115°	254	257	256	256	254	251
125°	369	375	373	371	370	330
135°	477	484	486	485	483	369
145°	580	584	588	588	586	362
155°	663	665	667	670	668	305
165°	721	720	720	725	722	203
175°	750	748	747	752	748	71
180°	752	752	752	752	752	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1964.5	1964.5	1964.5	1964.5	1964.5
2.5°	1973.3	1964.5	1944.8	1962.7	1959.1
5°	1964.5	1955.6	1932.4	1948.4	1943.1
7.5°	1948.4	1937.8	1913.0	1919.9	1911.1
10°	1927.1	1914.6	1879.2	1873.7	1863.1
12.5°	1900.5	1884.4	1836.4	1825.8	1806.2
15°	1868.4	1848.8	1788.4	1754.7	1736.9
17.5°	1831.1	1802.6	1727.9	1688.9	1660.4
20°	1788.4	1752.8	1664.0	1619.6	1580.4
22.5°	1742.2	1701.3	1598.1	1537.8	1511.2
25°	1696.1	1639.1	1521.8	1449.0	1422.2
27.5°	1641.0	1580.4	1450.6	1367.1	1326.2
30°	1582.3	1514.6	1372.4	1281.8	1233.7
32.5°	1525.3	1443.5	1297.9	1191.1	1146.6
35°	1461.4	1370.7	1214.3	1102.2	1063.0
37.5°	1399.2	1301.2	1136.1	1013.3	968.9
40°	1333.3	1226.8	1054.2	928.0	881.8
42.5°	1265.8	1152.1	972.5	840.8	796.5
45°	1194.7	1075.5	889.0	762.6	719.9
47.5°	1127.2	1001.0	809.0	682.6	643.6
50°	1052.5	926.3	730.7	607.9	570.8
52.5°	979.5	846.1	656.0	538.7	504.9
55°	908.4	769.8	577.7	471.2	437.4
57.5°	835.6	693.3	508.5	408.9	380.4
60°	760.9	618.7	435.5	345.0	316.5
62.5°	688.1	545.9	373.3	288.0	273.9
65°	613.4	469.3	309.3	249.0	243.5
67.5°	542.2	398.2	249.0	218.6	213.3
70°	467.5	328.9	206.1	188.5	181.3
72.5°	396.5	264.8	172.4	158.3	154.6
75°	327.1	202.6	142.2	129.8	128.1
77.5°	257.9	143.9	112.0	104.9	101.3
80°	193.7	103.1	85.2	78.3	78.3
82.5°	135.1	69.4	58.6	55.1	55.1
85°	76.4	39.1	33.7	33.7	33.7
87.5°	28.5	14.2	14.2	12.4	12.4
90°	0.7	8.2	22.2	20.8	21.5
92.5°	14.0	19.0	19.7	20.4	20.4
95°	33.1	39.5	40.6	40.6	39.5
97.5°	55.1	60.9	63.5	63.5	63.5
100°	80.4	85.6	87.5	87.5	86.8
102.5°	107.2	111.1	113.5	114.2	113.5
105°	136.4	138.2	139.6	140.7	140.7
107.5°	165.4	168.1	168.1	168.6	165.4
110°	193.5	197.2	197.2	197.2	195.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	223.9	227.8	227.0	225.2	223.9
115°	253.8	257.4	256.3	255.6	253.8
117.5°	283.4	288.4	285.3	283.4	281.6
120°	313.4	318.4	313.4	313.4	311.3
122.5°	340.6	346.9	343.7	341.9	340.6
125°	369.2	374.8	373.0	370.9	370.3
127.5°	397.0	404.0	401.6	398.8	397.0
130°	423.0	431.2	430.1	428.7	426.2
132.5°	452.3	458.6	459.1	455.9	454.1
135°	477.4	484.4	485.8	485.1	483.3
137.5°	505.5	511.2	512.3	511.9	509.1
140°	530.2	535.9	539.1	539.1	536.5
142.5°	555.6	561.3	563.1	563.8	561.3
145°	579.6	584.2	587.8	588.4	586.0
147.5°	601.2	606.8	609.5	610.7	608.2
150°	623.4	627.2	629.7	631.8	629.7
152.5°	643.1	646.9	650.1	652.6	650.1
155°	662.8	664.6	666.6	669.8	667.8
157.5°	679.8	681.1	682.3	686.8	683.7
160°	695.0	696.3	697.0	700.8	698.1
162.5°	709.0	709.0	709.7	714.0	710.8
165°	721.0	720.3	720.3	724.8	721.7
167.5°	731.9	729.8	729.8	734.4	731.2
170°	740.1	738.2	737.6	742.1	738.2
172.5°	745.7	743.9	743.2	747.7	743.9
175°	750.3	748.5	747.1	751.6	747.7
177.5°	752.7	750.9	749.6	753.4	749.6
180°	751.6	751.6	751.6	751.6	751.6



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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	11.27	12.25	12.09	13.08	14.11	7.23	8.21	8.05	9.05	10.07
	3H	12.96	13.83	13.79	14.68	15.73	8.43	9.30	9.26	10.15	11.20
	4H	13.57	14.40	14.42	15.25	16.31	8.88	9.71	9.73	10.56	11.62
	6H	14.00	14.76	14.85	15.61	16.70	9.20	9.96	10.06	10.82	11.90
	8H	14.12	14.85	14.99	15.72	16.80	9.30	10.02	10.16	10.89	11.98
	12H	14.19	14.88	15.06	15.75	16.85	9.34	10.03	10.21	10.90	12.00
4H	2H	11.31	12.13	12.16	12.98	14.05	7.85	8.67	8.70	9.52	10.59
	3H	13.15	13.83	14.01	14.71	15.80	9.20	9.89	10.06	10.77	11.85
	4H	13.84	14.46	14.71	15.34	16.45	9.75	10.37	10.62	11.25	12.36
	6H	14.36	14.90	15.25	15.80	16.91	10.17	10.71	11.06	11.61	12.73
	8H	14.53	15.04	15.43	15.93	17.06	10.30	10.80	11.19	11.70	12.83
	12H	14.63	15.08	15.54	16.00	17.13	10.37	10.82	11.28	11.74	12.87
8H	4H	13.82	14.32	14.71	15.22	16.34	10.04	10.54	10.93	11.44	12.57
	6H	14.38	14.80	15.30	15.74	16.86	10.55	10.97	11.47	11.91	13.04
	8H	14.60	14.96	15.53	15.90	17.04	10.74	11.11	11.67	12.04	13.18
	12H	14.74	15.06	15.67	15.99	17.18	10.86	11.18	11.79	12.11	13.30
12H	4H	13.77	14.23	14.69	15.14	16.28	10.05	10.50	10.96	11.42	12.55
	6H	14.36	14.73	15.29	15.66	16.80	10.60	10.97	11.53	11.90	13.05
	8H	14.58	14.90	15.51	15.83	17.03	10.81	11.14	11.74	12.06	13.26