

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: P913168

Luminaire Tested: DFN2DIP-4P3F0-060D020US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913168
REPORT IS A COMBINATION OF REPORTS P899038 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D020US927-RLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

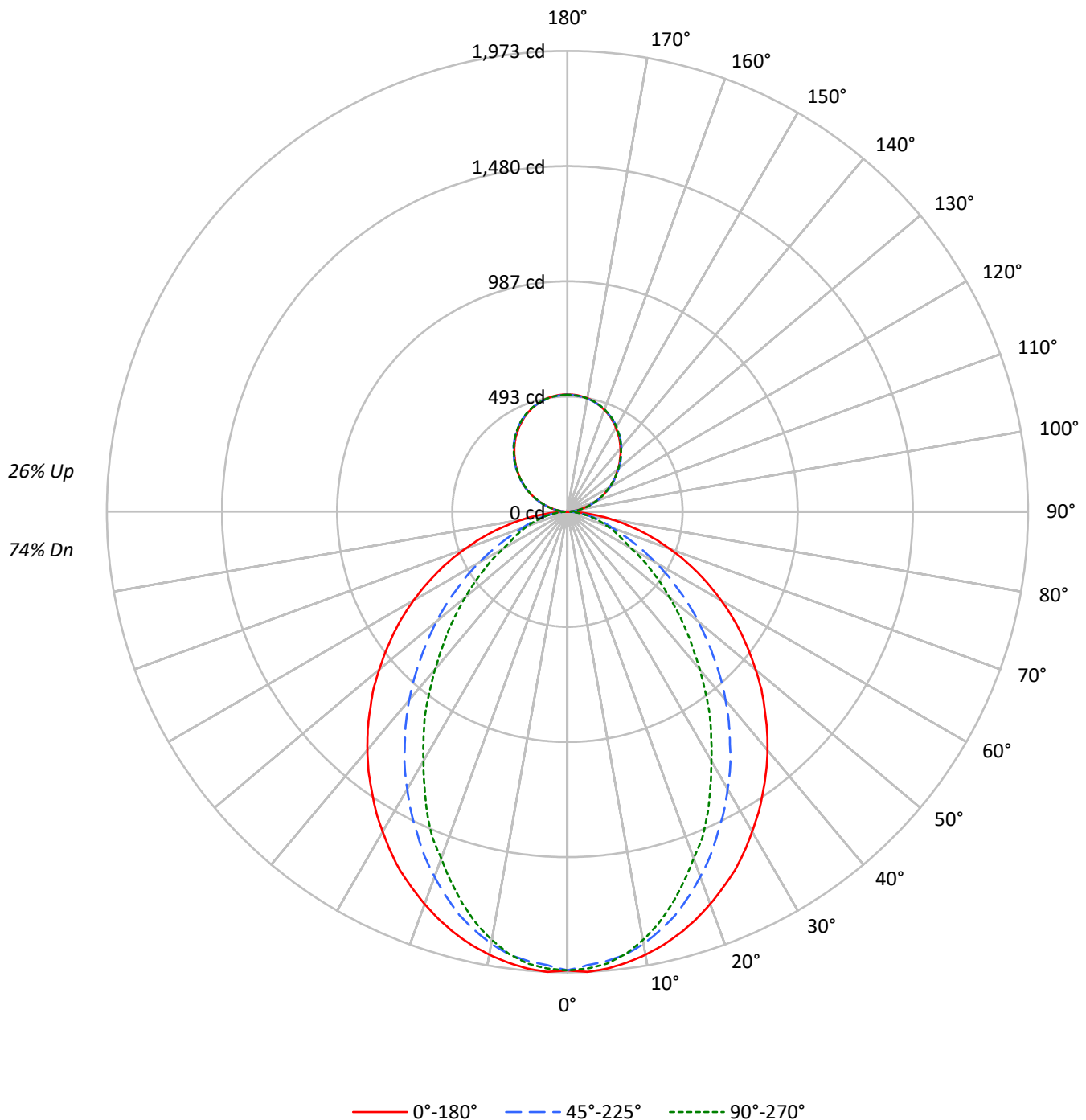
Lumens per Lamp: N/A
Luminaire Lumens: 5442.3 lumens
Efficiency: N/A
Efficacy: 70.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 77.4
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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78
1	104	100	96	93	99	95	92	89	86	84	81	78	76	74	70	69	68
2	95	88	82	77	90	84	79	74	76	72	68	69	66	63	63	60	58
3	87	78	71	65	83	75	68	63	68	63	58	62	58	54	56	53	50
4	80	70	62	56	76	67	60	54	61	55	51	56	51	47	51	47	44
5	74	63	54	48	70	60	53	47	55	49	44	51	45	42	46	42	39
6	69	57	48	43	65	54	47	41	50	44	39	46	41	37	42	38	35
7	64	51	43	38	61	49	42	37	46	39	35	42	37	33	39	34	31
8	59	47	39	34	57	45	38	33	42	36	31	39	34	30	36	31	28
9	56	43	36	31	53	42	35	30	39	33	28	36	31	27	33	29	26
10	52	40	33	28	50	39	32	27	36	30	26	33	28	25	31	27	23

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	3.4
10°-20°	505.4	9.3
20°-30°	709.6	13.0
30°-40°	773.5	14.2
40°-50°	710.9	13.1
50°-60°	558.3	10.3
60°-70°	363.4	6.7
70°-80°	187.1	3.4
80°-90°	49.2	0.9
90°-100°	31.0	0.6
100°-110°	98.5	1.8
110°-120°	168.6	3.1
120°-130°	221.7	4.1
130°-140°	248.9	4.6
140°-150°	244.1	4.5
150°-160°	204.7	3.8
160°-170°	135.8	2.5
170°-180°	47.5	0.9
0°-30°	1399.1	25.7
0°-40°	2172.6	39.9
0°-60°	3441.9	63.2
0°-90°	4041.5	74.3
90°-120°	298.1	5.5
90°-150°	1012.8	18.6
90°-180°	1401.0	25.7
0°-180°	5442.3	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°	0	6	15	14	14	5
95°	22	26	27	27	26	25
105°	91	92	93	94	94	96
115°	169	172	171	170	169	167
125°	246	250	249	247	247	220
135°	318	323	324	323	322	246
145°	386	389	392	392	391	241
155°	442	443	444	447	445	203
165°	481	480	480	483	481	136
175°	500	499	498	501	498	48
180°	501	501	501	501	501	

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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°	0.5	5.5	14.8	13.9	14.3
92.5°	9.3	12.7	13.2	13.6	13.6
95°	22.0	26.3	27.0	27.0	26.3
97.5°	36.7	40.6	42.3	42.3	42.3
100°	53.6	57.1	58.3	58.3	57.8
102.5°	71.5	74.0	75.7	76.1	75.7
105°	90.9	92.1	93.1	93.8	93.8
107.5°	110.3	112.1	112.1	112.4	110.3
110°	129.0	131.4	131.4	131.4	130.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	149.2	151.8	151.4	150.1	149.2
115°	169.2	171.6	170.9	170.4	169.2
117.5°	189.0	192.3	190.2	189.0	187.7
120°	208.9	212.2	208.9	208.9	207.6
122.5°	227.0	231.2	229.2	228.0	227.0
125°	246.1	249.9	248.7	247.3	246.8
127.5°	264.7	269.3	267.7	265.9	264.7
130°	282.0	287.5	286.7	285.8	284.2
132.5°	301.5	305.8	306.0	304.0	302.7
135°	318.3	323.0	323.8	323.4	322.2
137.5°	337.0	340.8	341.6	341.3	339.4
140°	353.5	357.3	359.4	359.4	357.7
142.5°	370.4	374.1	375.4	375.8	374.1
145°	386.4	389.4	391.9	392.3	390.6
147.5°	400.8	404.6	406.4	407.1	405.4
150°	415.6	418.1	419.8	421.1	419.8
152.5°	428.7	431.3	433.4	435.1	433.4
155°	441.9	443.1	444.4	446.6	445.2
157.5°	453.2	454.1	454.9	457.9	455.7
160°	463.3	464.2	464.7	467.2	465.4
162.5°	472.7	472.7	473.1	476.0	473.9
165°	480.7	480.2	480.2	483.2	481.2
167.5°	487.9	486.6	486.6	489.6	487.5
170°	493.4	492.2	491.7	494.7	492.2
172.5°	497.2	495.9	495.5	498.5	495.9
175°	500.2	499.0	498.0	501.1	498.5
177.5°	501.8	500.7	499.7	502.2	499.7
180°	501.1	501.1	501.1	501.1	501.1

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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	11.93	13.01	12.66	13.75	14.63	7.89	8.97	8.62	9.71	10.59
	3H	13.62	14.59	14.36	15.34	16.25	9.09	10.06	9.83	10.81	11.72
	4H	14.24	15.15	15.00	15.91	16.83	9.55	10.46	10.31	11.22	12.14
	6H	14.67	15.51	15.44	16.28	17.21	9.88	10.72	10.65	11.48	12.42
	8H	14.80	15.60	15.58	16.39	17.33	9.97	10.77	10.75	11.56	12.50
	12H	14.87	15.63	15.66	16.41	17.38	10.02	10.78	10.81	11.56	12.53
4H	2H	11.98	12.89	12.74	13.65	14.57	8.52	9.42	9.28	10.18	11.11
	3H	13.83	14.58	14.60	15.37	16.31	9.88	10.64	10.65	11.43	12.37
	4H	14.52	15.21	15.31	16.00	16.97	10.43	11.12	11.22	11.91	12.88
	6H	15.05	15.64	15.85	16.46	17.43	10.86	11.45	11.66	12.27	13.25
	8H	15.22	15.78	16.03	16.59	17.58	10.99	11.54	11.80	12.36	13.34
	12H	15.33	15.82	16.16	16.66	17.65	11.06	11.56	11.89	12.39	13.39
8H	4H	14.51	15.06	15.32	15.87	16.86	10.73	11.28	11.54	12.10	13.08
	6H	15.08	15.53	15.91	16.39	17.38	11.25	11.70	12.08	12.56	13.55
	8H	15.29	15.70	16.14	16.55	17.56	11.44	11.84	12.28	12.70	13.70
	12H	15.44	15.79	16.29	16.64	17.70	11.56	11.92	12.41	12.76	13.82
12H	4H	14.47	14.97	15.30	15.80	16.80	10.74	11.24	11.57	12.08	13.07
	6H	15.05	15.46	15.90	16.31	17.32	11.30	11.70	12.14	12.56	13.56
	8H	15.28	15.64	16.13	16.48	17.54	11.51	11.87	12.36	12.71	13.78