

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: P918766

Luminaire Tested: DFN2DIP-4P4F0-080D040US935-FLLFLL

Issue Date: 11/21/2024

**Test Information**

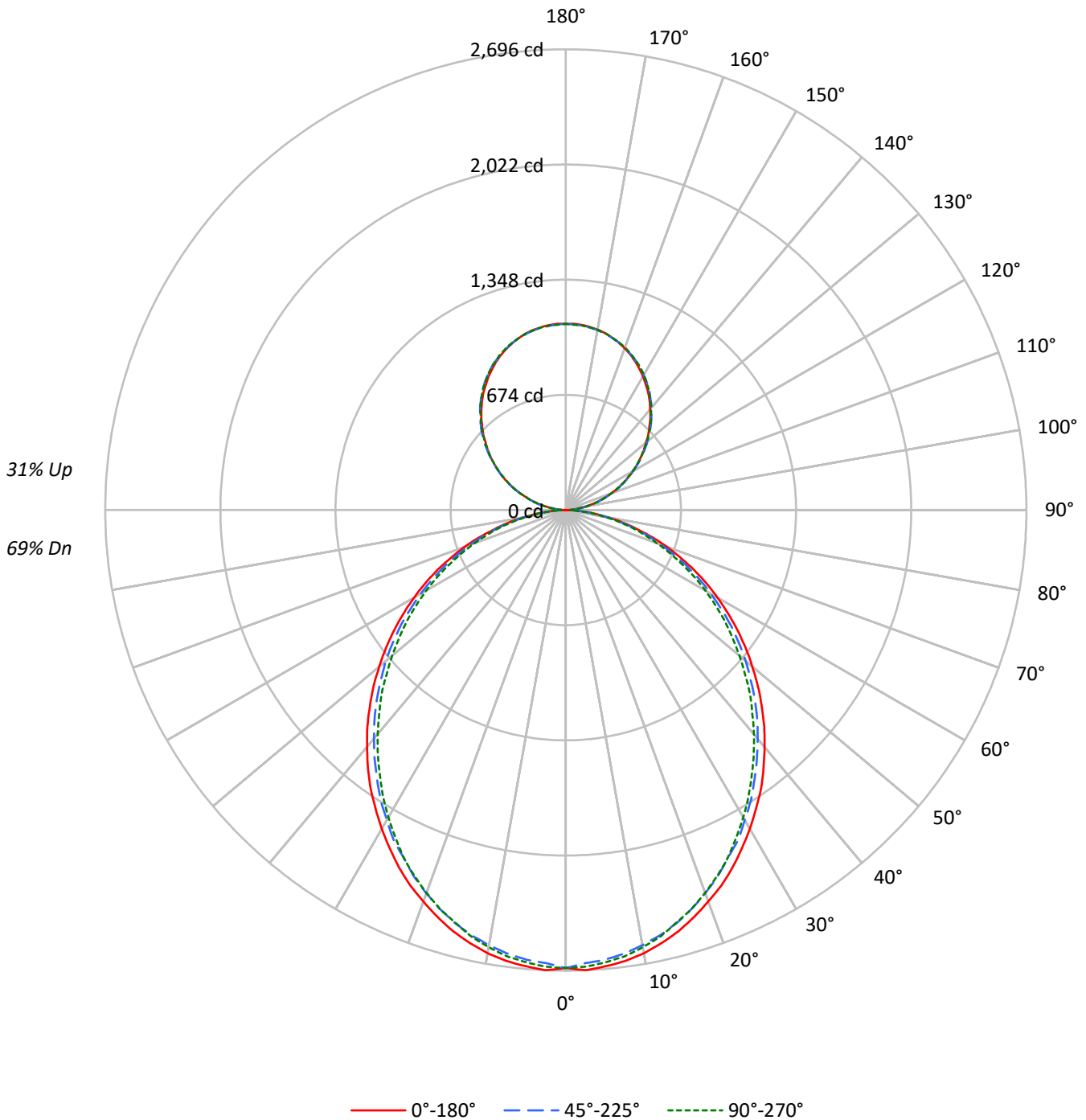
Test Method: LM-79-2019  
Report Number: P918766  
REPORT IS A COMBINATION OF REPORTS P899101 AND P895967  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-080D040US935-FLLFLL  
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9867.0 lumens  
Efficiency: N/A  
Efficacy: 84.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 116.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
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			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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58			
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49			
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41			
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35			
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31			
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27			
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26	24			
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22			
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19			
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18			

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

	0°	45°	90°
0°	1739	1739	1739
5°	1742	1715	1727
10°	1728	1693	1704
15°	1702	1665	1668
20°	1668	1627	1631
25°	1634	1581	1589
30°	1591	1539	1534
35°	1551	1489	1477
40°	1501	1438	1422
45°	1452	1387	1366
50°	1397	1334	1301
55°	1341	1272	1242
60°	1276	1199	1174
65°	1207	1123	1094
70°	1118	1031	1008
75°	994	920	929
80°	846	780	777
85°	614	537	524

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1452 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	252.3	2.6
10°-20°	709.8	7.2
20°-30°	1043.1	10.6
30°-40°	1211.4	12.3
40°-50°	1209.9	12.3
50°-60°	1055.0	10.7
60°-70°	779.9	7.9
70°-80°	441.2	4.5
80°-90°	119.6	1.2
90°-100°	67.4	0.7
100°-110°	214.2	2.2
110°-120°	366.5	3.7
120°-130°	482.0	4.9
130°-140°	541.0	5.5
140°-150°	530.5	5.4
150°-160°	445.0	4.5
160°-170°	295.1	3.0
170°-180°	103.2	1.0
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0°-30°	2005.1	20.3
0°-40°	3216.5	32.6
0°-60°	5481.5	55.6
0°-90°	6822.2	69.1
90°-120°	648.0	6.6
90°-150°	2201.5	22.3
90°-180°	3045.0	30.9
0°-180°	9867.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2680	2680	2680	2680	2680	
5°	2680	2670	2642	2662	2657	254
15°	2551	2536	2502	2513	2500	719
25°	2309	2289	2245	2250	2245	1063
35°	1992	1966	1925	1910	1897	1244
45°	1621	1603	1564	1536	1526	1251
55°	1227	1211	1180	1150	1137	1097
65°	827	812	786	763	750	818
75°	433	428	415	400	405	462
85°	106	103	101	93	90	118
90°	1	12	32	30	31	9
95°	48	57	59	59	57	53
105°	198	200	202	204	204	209
115°	368	373	371	370	368	364
125°	535	543	540	538	537	478
135°	692	702	704	703	700	535
145°	840	846	852	853	849	525
155°	960	963	966	971	968	442
165°	1045	1044	1044	1050	1046	295
175°	1087	1085	1083	1089	1084	103
180°	1089	1089	1089	1089	1089	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2680.1	2680.1	2680.1	2680.1	2680.1
2.5°	2695.7	2682.9	2654.5	2680.1	2675.2
5°	2680.1	2670.0	2641.6	2662.1	2657.2
7.5°	2662.1	2646.8	2618.4	2639.1	2634.0
10°	2634.0	2615.9	2585.0	2605.5	2597.9
12.5°	2595.1	2579.8	2548.9	2561.7	2556.6
15°	2551.4	2536.1	2502.4	2512.8	2500.0
17.5°	2497.2	2481.9	2448.2	2461.2	2448.2
20°	2437.9	2422.6	2386.5	2394.2	2384.0
22.5°	2378.9	2355.6	2321.9	2321.9	2316.8
25°	2309.1	2288.6	2244.9	2249.8	2244.9
27.5°	2231.7	2213.7	2180.3	2172.6	2159.8
30°	2154.6	2133.8	2095.3	2087.7	2077.2
32.5°	2072.1	2056.8	2015.4	1999.8	1989.5
35°	1992.2	1966.5	1925.2	1909.6	1896.8
37.5°	1901.9	1878.7	1837.5	1819.4	1806.5
40°	1809.3	1788.5	1747.2	1724.2	1713.8
42.5°	1719.1	1698.2	1657.2	1631.2	1616.0
45°	1621.2	1603.1	1564.3	1536.1	1525.8
47.5°	1525.8	1507.7	1466.4	1438.0	1422.6
50°	1425.1	1412.3	1376.1	1340.1	1327.2
52.5°	1327.2	1309.1	1275.8	1247.4	1229.3
55°	1226.8	1211.3	1180.4	1149.5	1136.6
57.5°	1126.3	1113.4	1079.8	1048.9	1038.4
60°	1025.6	1015.5	979.4	951.0	943.3
62.5°	927.7	909.7	884.0	858.3	847.9
65°	827.4	811.8	786.1	762.8	750.0
67.5°	724.3	711.2	688.2	670.2	659.8
70°	628.9	618.5	595.3	577.2	567.1
72.5°	531.0	520.6	507.7	489.7	482.1
75°	432.8	427.9	414.8	399.5	404.7
77.5°	345.3	334.9	329.8	322.1	314.4
80°	257.9	255.1	249.9	242.3	237.0
82.5°	175.3	175.3	172.8	162.4	162.4
85°	105.6	103.1	100.7	92.7	90.2
87.5°	46.5	41.3	36.1	28.4	25.7
90°	0.9	11.8	32.2	30.2	31.2
92.5°	20.3	27.6	28.6	29.5	29.5
95°	48.0	57.2	58.8	58.8	57.2
97.5°	79.8	88.3	92.0	92.0	92.0
100°	116.6	124.2	126.7	126.7	125.8
102.5°	155.3	160.9	164.5	165.5	164.5
105°	197.7	200.3	202.2	203.9	203.9
107.5°	239.7	243.7	243.7	244.3	239.7
110°	280.4	285.7	285.7	285.7	283.1



TEST NUMBER: P918766

CATALOG NUMBER: DFN2DIP-4P4F0-080D040US935-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	324.4	330.0	329.0	326.4	324.4
115°	367.7	373.1	371.3	370.4	367.7
117.5°	410.8	418.0	413.5	410.8	408.2
120°	454.2	461.3	454.2	454.2	451.2
122.5°	493.5	502.7	498.2	495.5	493.5
125°	534.9	543.1	540.5	537.5	536.6
127.5°	575.3	585.5	581.9	577.9	575.3
130°	613.0	624.9	623.3	621.3	617.7
132.5°	655.4	664.6	665.3	660.6	658.1
135°	691.9	702.1	704.0	703.0	700.4
137.5°	732.6	740.8	742.4	741.7	737.9
140°	768.4	776.6	781.2	781.2	777.6
142.5°	805.2	813.4	816.0	817.0	813.4
145°	840.0	846.5	851.8	852.8	849.2
147.5°	871.2	879.3	883.3	884.9	881.3
150°	903.4	909.0	912.6	915.5	912.6
152.5°	931.9	937.5	942.1	945.7	942.1
155°	960.4	963.1	966.0	970.7	967.7
157.5°	985.2	987.0	988.7	995.3	990.7
160°	1007.1	1009.1	1010.0	1015.6	1011.7
162.5°	1027.4	1027.4	1028.5	1034.7	1030.1
165°	1044.9	1043.9	1043.9	1050.4	1045.9
167.5°	1060.7	1057.6	1057.6	1064.3	1059.6
170°	1072.5	1069.8	1068.8	1075.4	1069.8
172.5°	1080.6	1078.1	1077.0	1083.7	1078.1
175°	1087.3	1084.6	1082.6	1089.2	1083.7
177.5°	1090.9	1088.2	1086.2	1091.8	1086.2
180°	1089.2	1089.2	1089.2	1089.2	1089.2



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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	10.82	11.88	11.59	12.68	13.64	10.37	11.44	11.14	12.23	13.20
	3H	12.50	13.45	13.28	14.26	15.26	12.01	12.96	12.79	13.77	14.77
	4H	13.10	14.00	13.90	14.81	15.82	12.60	13.51	13.41	14.32	15.33
	6H	13.51	14.34	14.33	15.17	16.19	13.01	13.84	13.83	14.67	15.69
	8H	13.62	14.42	14.45	15.26	16.28	13.12	13.92	13.95	14.76	15.78
	12H	13.68	14.44	14.51	15.27	16.32	13.17	13.93	14.00	14.76	15.81
4H	2H	11.30	12.20	12.11	13.02	14.03	10.95	11.85	11.76	12.66	13.67
	3H	13.19	13.95	14.01	14.79	15.82	12.78	13.54	13.60	14.39	15.41
	4H	13.92	14.61	14.75	15.45	16.51	13.50	14.18	14.33	15.03	16.08
	6H	14.45	15.04	15.30	15.92	16.97	14.02	14.61	14.87	15.48	16.54
	8H	14.61	15.16	15.46	16.03	17.10	14.17	14.73	15.02	15.59	16.66
	12H	14.69	15.19	15.57	16.08	17.16	14.24	14.74	15.12	15.63	16.71
8H	4H	14.13	14.69	14.99	15.55	16.62	13.76	14.31	14.61	15.18	16.25
	6H	14.78	15.24	15.66	16.15	17.22	14.40	14.86	15.28	15.76	16.83
	8H	15.01	15.41	15.90	16.32	17.40	14.61	15.02	15.51	15.92	17.01
	12H	15.15	15.51	16.05	16.40	17.54	14.74	15.10	15.63	15.99	17.13
12H	4H	14.13	14.63	15.00	15.51	16.59	13.76	14.26	14.63	15.15	16.22
	6H	14.81	15.22	15.70	16.12	17.21	14.44	14.85	15.33	15.75	16.84
	8H	15.07	15.43	15.96	16.32	17.46	14.69	15.05	15.58	15.94	17.08