

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: P918663

Luminaire Tested: DFN2DIP-4P4F0-030D080US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918663
REPORT IS A COMBINATION OF REPORTS P900659 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D080US935-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

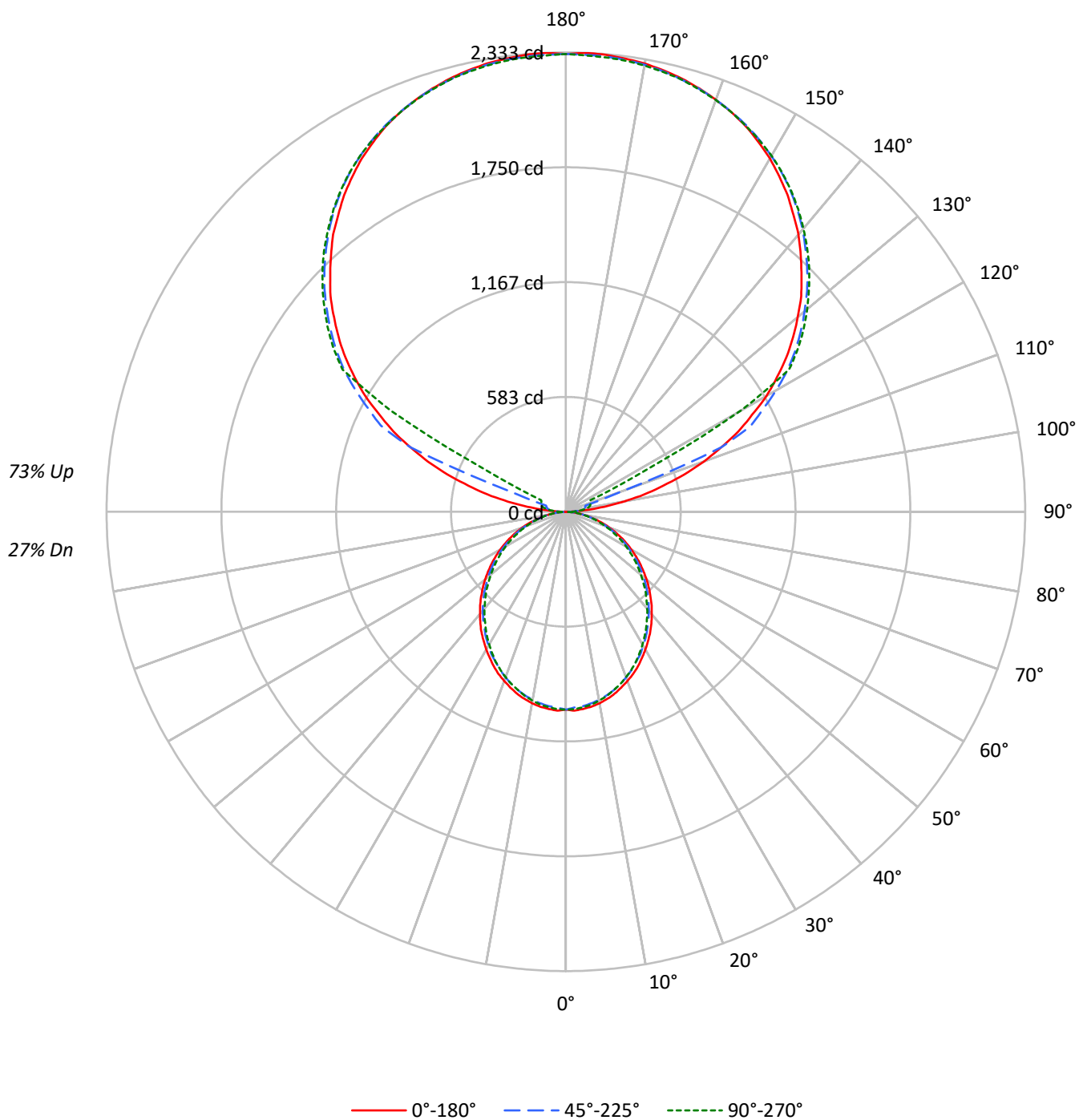
Lumens per Lamp: N/A
Luminaire Lumens: 9376.3 lumens
Efficiency: N/A
Efficacy: 92.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918663

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US935-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918663

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US935-FLLONL

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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	89	85	81	83	79	76	73	62	60	58	46	45	43	31	30	30
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25
3	77	68	61	55	68	61	55	50	48	44	40	36	33	31	24	23	21
4	70	60	52	47	63	54	47	42	42	38	34	32	29	26	22	20	18
5	64	53	45	40	57	48	41	36	38	33	29	28	25	23	19	18	16
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	12	10
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	652	652	652
5°	653	643	647
10°	648	635	639
15°	638	624	626
20°	626	610	612
25°	613	593	596
30°	597	577	575
35°	582	558	554
40°	563	539	533
45°	544	520	512
50°	524	500	488
55°	503	477	466
60°	479	450	440
65°	453	421	410
70°	419	387	378
75°	373	345	349
80°	317	292	292
85°	230	201	196

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1200 cd/sqm

TEST NUMBER: P918663

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	94.6	1.0
10°-20°	266.2	2.8
20°-30°	391.1	4.2
30°-40°	454.3	4.8
40°-50°	453.7	4.8
50°-60°	395.6	4.2
60°-70°	292.5	3.1
70°-80°	165.5	1.8
80°-90°	47.8	0.5
90°-100°	76.7	0.8
100°-110°	285.7	3.0
110°-120°	757.9	8.1
120°-130°	1256.9	13.4
130°-140°	1335.2	14.2
140°-150°	1240.9	13.2
150°-160°	997.6	10.6
160°-170°	642.8	6.9
170°-180°	221.3	2.4
0°-30°	751.9	8.0
0°-40°	1206.2	12.9
0°-60°	2055.6	21.9
0°-90°	2561.3	27.3
90°-120°	1120.2	11.9
90°-150°	4953.3	52.8
90°-180°	6815.0	72.7
0°-180°	9376.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1005	1005	1005	1005	1005	
5°	1005	1001	991	998	996	95
15°	957	951	938	942	938	269
25°	866	858	842	844	842	398
35°	747	737	722	716	711	467
45°	608	601	587	576	572	469
55°	460	454	443	431	426	411
65°	310	304	295	286	281	307
75°	162	160	156	150	152	173
85°	40	39	38	35	34	44
90°	2	20	34	42	45	9
95°	109	54	66	74	72	129
105°	511	562	103	121	128	546
115°	967	996	1038	259	138	952
125°	1367	1389	1421	1433	1438	1220
135°	1692	1719	1734	1751	1748	1307
145°	1963	1961	1990	2002	1993	1228
155°	2161	2146	2167	2177	2163	996
165°	2278	2268	2272	2284	2272	643
175°	2330	2318	2321	2333	2316	222
180°	2325	2325	2325	2325	2325	

TEST NUMBER: P918663

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1005.0	1005.0	1005.0	1005.0	1005.0
2.5°	1010.9	1006.1	995.4	1005.0	1003.2
5°	1005.0	1001.3	990.6	998.3	996.4
7.5°	998.3	992.6	981.9	989.7	987.7
10°	987.7	980.9	969.4	977.1	974.2
12.5°	973.2	967.4	955.9	960.6	958.7
15°	956.7	951.1	938.4	942.3	937.5
17.5°	936.4	930.7	918.1	922.9	918.1
20°	914.2	908.4	894.9	897.8	894.0
22.5°	892.1	883.4	870.7	870.7	868.7
25°	865.9	858.2	841.8	843.7	841.8
27.5°	836.9	830.1	817.6	814.8	809.9
30°	808.0	800.2	785.7	782.8	778.9
32.5°	777.1	771.3	755.8	749.9	746.1
35°	747.1	737.4	721.9	716.1	711.3
37.5°	713.3	704.6	689.1	682.3	677.4
40°	678.5	670.7	655.2	646.6	642.7
42.5°	644.6	636.9	621.5	611.7	606.0
45°	608.0	601.1	586.6	576.0	572.1
47.5°	572.1	565.4	549.9	539.2	533.5
50°	534.4	529.6	516.1	502.6	497.7
52.5°	497.7	490.9	478.5	467.8	461.0
55°	460.1	454.3	442.6	431.1	426.3
57.5°	422.3	417.5	404.9	393.3	389.4
60°	384.6	380.8	367.3	356.6	353.8
62.5°	347.9	341.1	331.5	321.8	318.0
65°	310.3	304.4	294.8	286.1	281.3
67.5°	271.6	266.7	258.0	251.3	247.5
70°	235.8	232.0	223.3	216.5	212.7
72.5°	199.1	195.2	190.4	183.7	180.8
75°	162.3	160.5	155.6	149.8	151.8
77.5°	129.5	125.6	123.6	120.8	118.0
80°	96.7	95.7	93.7	90.8	88.9
82.5°	65.7	65.7	64.8	60.9	60.9
85°	39.6	38.7	37.7	34.8	33.8
87.5°	17.4	15.5	13.5	10.7	9.6
90°	1.6	20.1	33.6	42.1	45.4
92.5°	42.1	35.4	40.4	43.7	45.4
95°	109.3	53.7	65.5	74.1	72.3
97.5°	196.7	58.9	85.7	90.9	92.5
100°	297.8	67.3	95.9	109.3	112.6
102.5°	408.7	405.4	99.3	117.6	122.9
105°	511.3	561.9	102.6	121.1	127.9
107.5°	630.8	672.7	106.1	124.4	131.2
110°	745.3	780.4	294.5	126.2	132.9

TEST NUMBER: P918663

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	852.9	883.0	854.5	129.4	134.7
115°	967.2	995.7	1037.8	259.1	138.0
117.5°	1066.4	1100.0	1128.8	888.0	447.5
120°	1177.5	1202.6	1233.0	1253.2	1026.1
122.5°	1271.5	1298.6	1332.3	1342.3	1344.1
125°	1367.4	1389.4	1421.3	1433.1	1438.1
127.5°	1454.9	1478.5	1503.9	1520.6	1522.2
130°	1537.4	1564.3	1582.8	1601.4	1599.7
132.5°	1621.5	1643.5	1661.9	1677.1	1675.4
135°	1692.2	1719.2	1734.1	1751.2	1747.7
137.5°	1766.2	1786.3	1803.3	1820.1	1815.1
140°	1838.4	1852.0	1870.4	1885.6	1877.1
142.5°	1899.2	1910.9	1932.7	1946.1	1937.7
145°	1963.1	1961.3	1989.9	2001.6	1993.2
147.5°	2018.4	2013.4	2041.9	2050.4	2043.8
150°	2072.3	2060.5	2087.5	2097.5	2089.1
152.5°	2117.7	2104.3	2129.4	2139.7	2127.9
155°	2161.4	2146.5	2166.6	2176.6	2163.3
157.5°	2196.7	2183.4	2198.6	2210.4	2196.7
160°	2227.1	2217.0	2227.1	2237.1	2225.3
162.5°	2253.9	2243.9	2252.3	2264.1	2248.9
165°	2277.5	2267.5	2272.5	2284.2	2272.5
167.5°	2296.0	2285.9	2291.0	2302.8	2287.7
170°	2311.3	2301.0	2304.5	2316.3	2301.0
172.5°	2321.3	2311.3	2314.6	2326.4	2311.3
175°	2329.6	2317.8	2321.3	2333.0	2316.3
177.5°	2333.0	2321.3	2323.0	2334.8	2319.6
180°	2324.6	2324.6	2324.6	2324.6	2324.6

TEST NUMBER: P918663

CATALOG NUMBER: DFN2DIP-4P4F0-030D080US935-FLONL

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	3.21	3.90	4.34	5.02	6.58	2.77	3.45	3.90	4.58	6.14
	3H	4.86	5.48	6.00	6.61	8.19	4.37	4.99	5.51	6.12	7.70
	4H	5.45	6.03	6.59	7.16	8.75	4.95	5.54	6.10	6.67	8.25
	6H	5.84	6.38	7.00	7.51	9.11	5.34	5.88	6.50	7.01	8.61
	8H	5.94	6.46	7.10	7.60	9.19	5.44	5.96	6.60	7.10	8.69
	12H	5.99	6.48	7.15	7.62	9.23	5.48	5.97	6.64	7.11	8.72
4H	2H	3.65	4.24	4.81	5.37	6.95	3.30	3.88	4.45	5.01	6.60
	3H	5.51	6.00	6.67	7.15	8.75	5.10	5.59	6.26	6.75	8.34
	4H	6.22	6.67	7.38	7.81	9.43	5.80	6.25	6.96	7.39	9.00
	6H	6.73	7.11	7.90	8.28	9.89	6.30	6.68	7.47	7.85	9.46
	8H	6.88	7.24	8.05	8.40	10.02	6.44	6.80	7.61	7.96	9.58
	12H	6.95	7.27	8.13	8.44	10.07	6.50	6.82	7.68	7.99	9.62
8H	4H	6.40	6.76	7.57	7.92	9.54	6.03	6.39	7.19	7.55	9.17
	6H	7.03	7.33	8.22	8.53	10.15	6.65	6.95	7.84	8.15	9.77
	8H	7.26	7.51	8.45	8.69	10.33	6.86	7.12	8.06	8.30	9.94
	12H	7.38	7.61	8.58	8.79	10.46	6.97	7.20	8.17	8.38	10.05
12H	4H	6.38	6.71	7.56	7.88	9.50	6.01	6.34	7.20	7.51	9.14
	6H	7.06	7.32	8.25	8.50	10.14	6.69	6.95	7.88	8.13	9.77
	8H	7.30	7.53	8.50	8.70	10.37	6.92	7.15	8.12	8.32	10.00