

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: P924086

Luminaire Tested: DFN2DIP-4P3F0-060D040US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924086
REPORT IS A COMBINATION OF REPORTS P899057 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D040US950-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

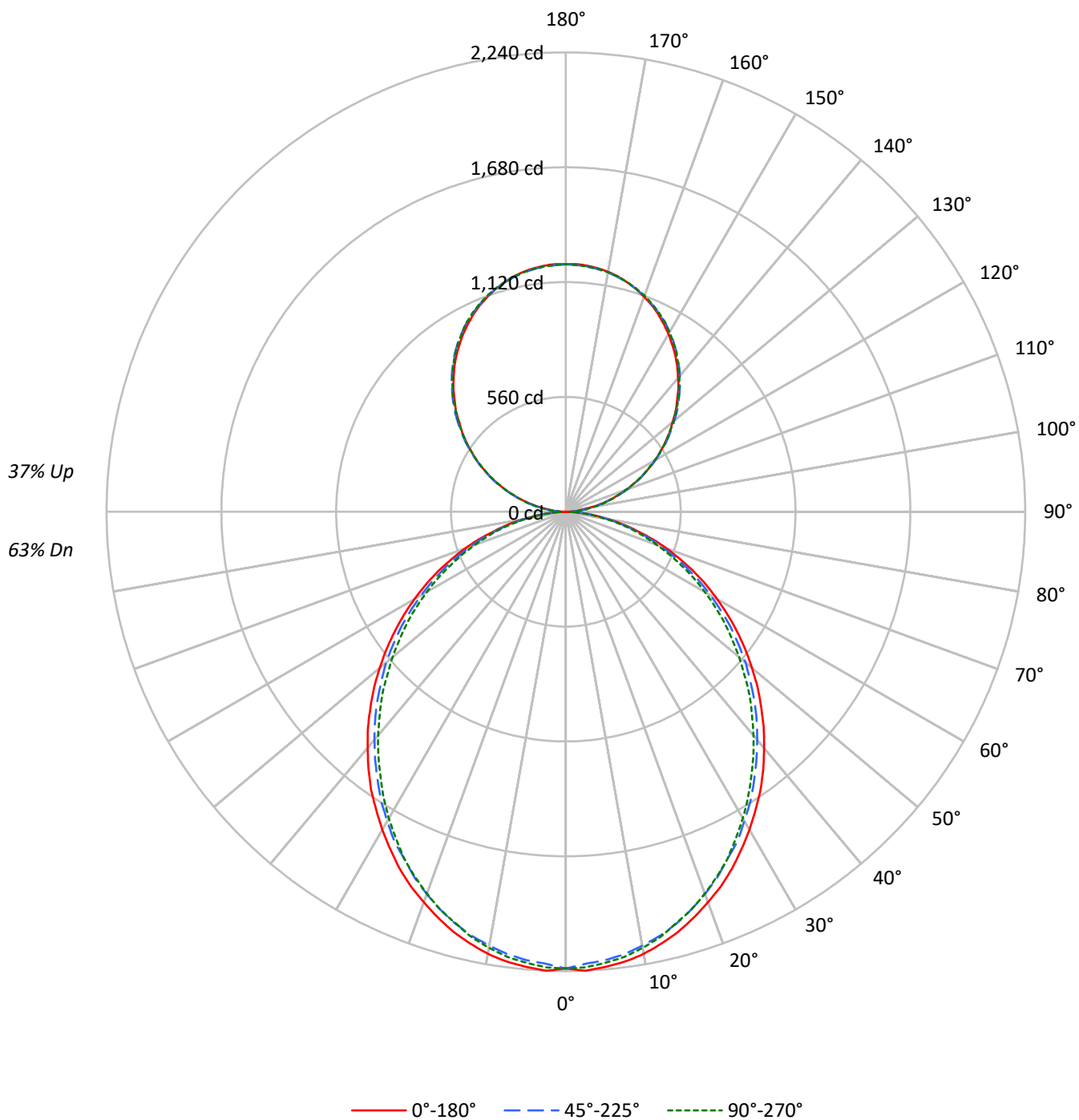
Lumens per Lamp: N/A
Luminaire Lumens: 9043.9 lumens
Efficiency: N/A
Efficacy: 98.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 91.8
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

TEST NUMBER: P924086

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-FLLFLL

Luminous Intensity Polar Plot



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CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-FLLFLL

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	110	110	110	110	103	103	103	103	90	90	90	79	79	79	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	66	60	59	57
2	92	84	78	72	86	79	73	69	70	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	58	61	56	52	54	50	46	47	44	41
4	77	66	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2538	2538	2538
5°	2541	2501	2519
10°	2518	2466	2484
15°	2480	2424	2430
20°	2428	2365	2375
25°	2377	2296	2311
30°	2313	2232	2230
35°	2252	2156	2144
40°	2177	2080	2062
45°	2103	2003	1979
50°	2021	1922	1882
55°	1936	1829	1793
60°	1839	1718	1691
65°	1733	1603	1571
70°	1598	1463	1441
75°	1412	1295	1320
80°	1187	1081	1091
85°	836	716	715

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2103 cd/sqm

TEST NUMBER: P924086

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.6	2.3
10°-20°	589.8	6.5
20°-30°	866.8	9.6
30°-40°	1006.7	11.1
40°-50°	1005.5	11.1
50°-60°	876.7	9.7
60°-70°	648.1	7.2
70°-80°	366.7	4.1
80°-90°	100.2	1.1
90°-100°	74.7	0.8
100°-110°	237.3	2.6
110°-120°	406.1	4.5
120°-130°	534.0	5.9
130°-140°	599.4	6.6
140°-150°	587.8	6.5
150°-160°	493.1	5.5
160°-170°	327.0	3.6
170°-180°	114.3	1.3
0°-30°	1666.2	18.4
0°-40°	2673.0	29.6
0°-60°	4555.2	50.4
0°-90°	5670.2	62.7
90°-120°	718.0	7.9
90°-150°	2439.3	27.0
90°-180°	3374.0	37.3
0°-180°	9043.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2227	2227	2227	2227	2227	
5°	2227	2219	2195	2212	2208	211
15°	2120	2108	2080	2088	2078	597
25°	1919	1902	1866	1870	1866	883
35°	1656	1634	1600	1587	1576	1034
45°	1347	1332	1300	1276	1268	1040
55°	1020	1007	981	955	945	912
65°	688	675	653	634	623	680
75°	360	356	345	332	336	384
85°	88	86	84	77	75	98
90°	1	13	36	34	34	9
95°	53	63	65	65	63	59
105°	219	222	224	226	226	231
115°	408	413	412	410	408	403
125°	593	602	599	596	594	530
135°	767	778	780	779	776	593
145°	931	938	944	945	941	582
155°	1064	1067	1070	1076	1072	490
165°	1158	1157	1157	1164	1159	327
175°	1205	1202	1200	1207	1201	114
180°	1207	1207	1207	1207	1207	

TEST NUMBER: P924086

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2227.2	2227.2	2227.2	2227.2	2227.2
2.5°	2240.2	2229.5	2205.8	2227.2	2223.1
5°	2227.2	2218.8	2195.2	2212.2	2208.1
7.5°	2212.2	2199.5	2175.9	2193.2	2188.9
10°	2188.9	2173.9	2148.1	2165.2	2158.8
12.5°	2156.6	2143.8	2118.2	2128.9	2124.6
15°	2120.2	2107.5	2079.5	2088.2	2077.5
17.5°	2075.2	2062.5	2034.6	2045.2	2034.6
20°	2025.9	2013.2	1983.2	1989.6	1981.2
22.5°	1976.9	1957.5	1929.6	1929.6	1925.3
25°	1918.9	1901.9	1865.5	1869.6	1865.5
27.5°	1854.6	1839.6	1811.8	1805.5	1794.9
30°	1790.6	1773.2	1741.2	1734.8	1726.2
32.5°	1721.9	1709.2	1674.8	1661.9	1653.3
35°	1655.6	1634.2	1599.9	1586.9	1576.2
37.5°	1580.6	1561.2	1527.0	1511.9	1501.2
40°	1503.5	1486.2	1452.0	1432.9	1424.2
42.5°	1428.5	1411.3	1377.2	1355.6	1342.9
45°	1347.2	1332.2	1299.9	1276.5	1267.9
47.5°	1267.9	1252.9	1218.6	1195.0	1182.2
50°	1184.3	1173.6	1143.7	1113.6	1102.9
52.5°	1102.9	1087.9	1060.2	1036.6	1021.6
55°	1019.5	1006.6	980.9	955.2	944.6
57.5°	936.0	925.3	897.3	871.7	863.0
60°	852.3	843.9	814.0	790.3	783.9
62.5°	770.9	755.9	734.6	713.2	704.6
65°	687.5	674.7	653.3	633.9	623.2
67.5°	601.9	591.0	571.9	556.9	548.3
70°	522.6	514.0	494.6	479.7	471.3
72.5°	441.2	432.6	422.0	407.0	400.6
75°	359.7	355.7	344.7	332.0	336.3
77.5°	287.0	278.4	274.0	267.7	261.3
80°	214.3	212.0	207.7	201.3	197.0
82.5°	145.7	145.7	143.6	135.0	135.0
85°	87.7	85.7	83.6	77.0	75.0
87.5°	38.6	34.3	30.0	23.7	21.4
90°	1.0	13.1	35.7	33.5	34.5
92.5°	22.5	30.5	31.7	32.7	32.7
95°	53.1	63.3	65.2	65.2	63.3
97.5°	88.4	97.9	101.9	101.9	101.9
100°	129.2	137.6	140.4	140.4	139.4
102.5°	172.1	178.3	182.3	183.4	182.3
105°	219.0	221.9	224.1	225.9	225.9
107.5°	265.6	270.0	270.0	270.6	265.6
110°	310.7	316.5	316.5	316.5	313.7



TEST NUMBER: P924086

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	359.5	365.7	364.5	361.7	359.5
115°	407.5	413.4	411.5	410.4	407.5
117.5°	455.2	463.2	458.1	455.2	452.3
120°	503.2	511.2	503.2	503.2	499.9
122.5°	546.8	557.0	552.0	549.0	546.8
125°	592.7	601.8	598.9	595.6	594.5
127.5°	637.5	648.7	644.7	640.3	637.5
130°	679.2	692.4	690.6	688.4	684.4
132.5°	726.2	736.4	737.2	732.0	729.1
135°	766.6	777.9	780.1	778.9	776.1
137.5°	811.8	820.8	822.6	821.9	817.6
140°	851.3	860.5	865.6	865.6	861.6
142.5°	892.2	901.2	904.1	905.3	901.2
145°	930.7	938.0	943.8	944.9	940.9
147.5°	965.3	974.3	978.7	980.5	976.5
150°	1000.9	1007.1	1011.1	1014.4	1011.1
152.5°	1032.6	1038.7	1043.9	1047.9	1043.9
155°	1064.2	1067.1	1070.4	1075.5	1072.2
157.5°	1091.6	1093.7	1095.5	1102.8	1097.7
160°	1115.9	1118.1	1119.1	1125.3	1121.0
162.5°	1138.4	1138.4	1139.6	1146.4	1141.4
165°	1157.8	1156.6	1156.6	1163.9	1158.8
167.5°	1175.2	1171.9	1171.9	1179.2	1174.1
170°	1188.3	1185.3	1184.3	1191.5	1185.3
172.5°	1197.4	1194.5	1193.4	1200.7	1194.5
175°	1204.7	1201.8	1199.6	1206.8	1200.7
177.5°	1208.7	1205.8	1203.6	1209.8	1203.6
180°	1206.8	1206.8	1206.8	1206.8	1206.8

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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	11.57	12.56	12.41	13.42	14.50	11.13	12.11	11.96	12.98	14.05
	3H	13.23	14.12	14.09	14.99	16.10	12.74	13.63	13.60	14.50	15.61
	4H	13.83	14.66	14.69	15.54	16.66	13.33	14.17	14.20	15.05	16.16
	6H	14.23	15.00	15.11	15.89	17.02	13.73	14.50	14.61	15.39	16.52
	8H	14.33	15.07	15.22	15.98	17.10	13.83	14.57	14.72	15.47	16.60
	12H	14.39	15.09	15.28	15.98	17.14	13.88	14.58	14.77	15.48	16.63
4H	2H	12.04	12.88	12.92	13.76	14.87	11.69	12.53	12.56	13.40	14.52
	3H	13.91	14.61	14.80	15.52	16.65	13.51	14.21	14.39	15.12	16.25
	4H	14.63	15.27	15.53	16.17	17.33	14.21	14.84	15.10	15.75	16.91
	6H	15.15	15.70	16.06	16.63	17.79	14.72	15.27	15.63	16.20	17.36
	8H	15.30	15.81	16.21	16.74	17.91	14.86	15.38	15.77	16.30	17.47
	12H	15.38	15.84	16.31	16.78	17.96	14.93	15.39	15.86	16.33	17.51
8H	4H	14.83	15.35	15.75	16.27	17.44	14.46	14.97	15.37	15.90	17.07
	6H	15.46	15.89	16.40	16.86	18.03	15.08	15.51	16.02	16.47	17.64
	8H	15.68	16.06	16.63	17.02	18.21	15.29	15.67	16.24	16.62	17.81
	12H	15.82	16.15	16.77	17.10	18.34	15.41	15.74	16.36	16.69	17.93
12H	4H	14.82	15.29	15.76	16.23	17.41	14.45	14.92	15.39	15.86	17.04
	6H	15.49	15.87	16.44	16.83	18.02	15.12	15.50	16.07	16.46	17.64
	8H	15.74	16.07	16.69	17.02	18.26	15.36	15.69	16.31	16.64	17.88