

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: P921360

Luminaire Tested: DFN2DIP-4P3F0-060D040US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921360
REPORT IS A COMBINATION OF REPORTS P899058 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D040US940-RLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

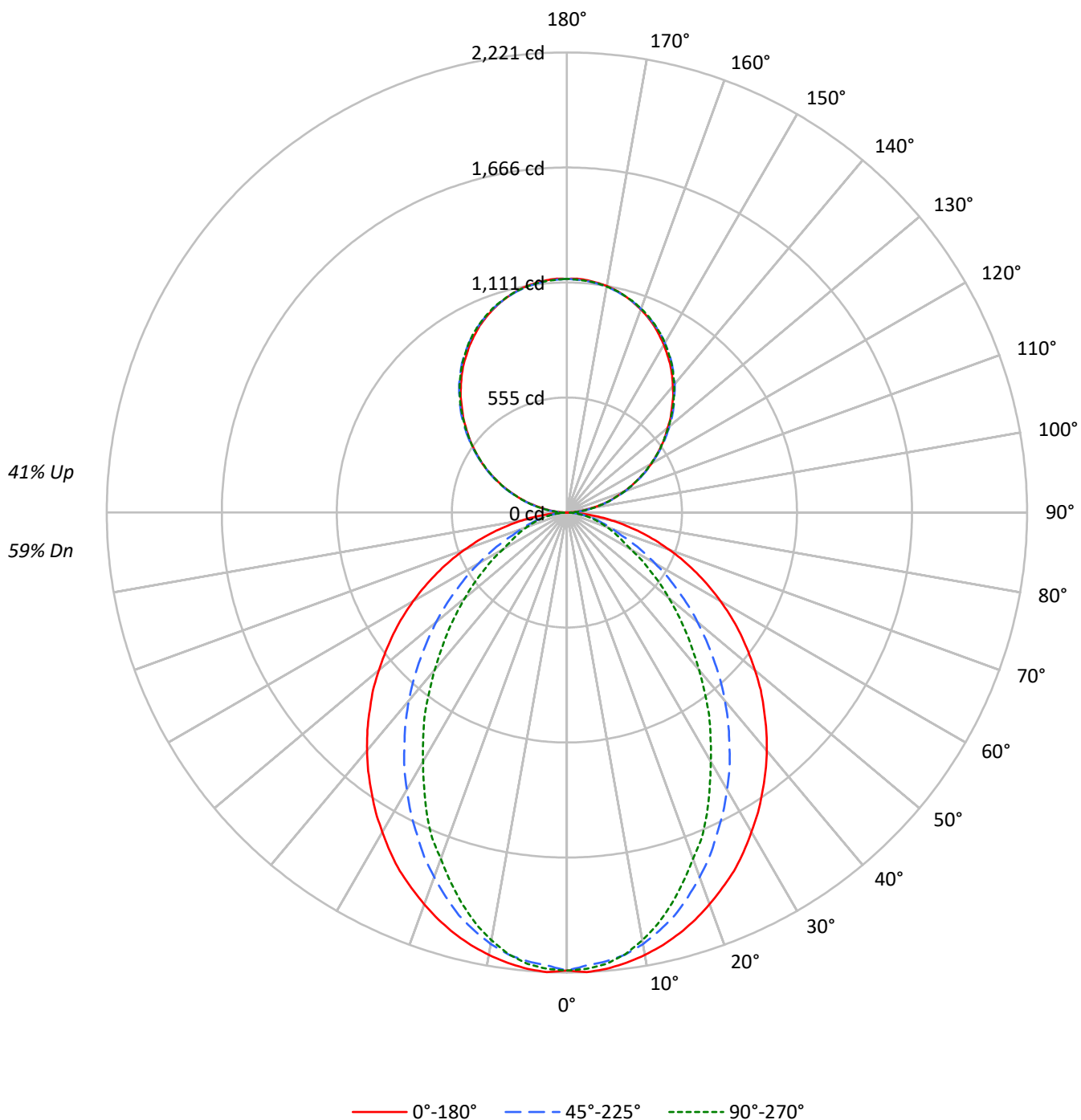
Lumens per Lamp: N/A
Luminaire Lumens: 7704.4 lumens
Efficiency: N/A
Efficacy: 83.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

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: P921360

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US940-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P921360

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US940-RLLFLL

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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	52	50	48
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	44	41
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32
6	66	54	46	40	61	51	44	39	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2520	2520	2520
5°	2522	2478	2495
10°	2496	2428	2413
15°	2460	2346	2287
20°	2413	2234	2132
25°	2365	2109	1983
30°	2301	1980	1794
35°	2238	1842	1628
40°	2173	1700	1437
45°	2099	1542	1265
50°	2022	1382	1097
55°	1941	1212	935
60°	1848	1035	769
65°	1740	855	691
70°	1610	686	624
75°	1446	602	566
80°	1208	499	488
85°	820	326	362

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2099 cd/sqm

TEST NUMBER: P921360

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US940-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.2	2.7
10°-20°	568.9	7.4
20°-30°	798.7	10.4
30°-40°	870.7	11.3
40°-50°	800.3	10.4
50°-60°	628.5	8.2
60°-70°	409.1	5.3
70°-80°	210.6	2.7
80°-90°	57.0	0.7
90°-100°	69.8	0.9
100°-110°	221.8	2.9
110°-120°	379.5	4.9
120°-130°	499.2	6.5
130°-140°	560.3	7.3
140°-150°	549.4	7.1
150°-160°	460.9	6.0
160°-170°	305.7	4.0
170°-180°	106.8	1.4
0°-30°	1574.9	20.4
0°-40°	2445.6	31.7
0°-60°	3874.3	50.3
0°-90°	4550.9	59.1
90°-120°	671.2	8.7
90°-150°	2280.1	29.6
90°-180°	3153.0	40.9
0°-180°	7704.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2211	2211	2211	2211	2211	
5°	2211	2201	2175	2193	2187	210
15°	2103	2081	2013	1975	1955	593
25°	1909	1845	1713	1631	1601	878
35°	1645	1543	1367	1241	1197	1030
45°	1345	1211	1001	858	810	1039
55°	1022	866	650	530	492	914
65°	690	528	348	280	274	685
75°	368	228	160	146	144	389
85°	86	44	38	38	38	99
90°	1	12	33	31	32	8
95°	50	59	61	61	59	55
105°	205	207	210	211	211	216
115°	381	386	385	384	381	377
125°	554	562	560	557	556	495
135°	717	727	729	728	725	554
145°	870	877	882	883	880	544
155°	995	998	1000	1005	1002	458
165°	1082	1081	1081	1088	1083	305
175°	1126	1123	1121	1128	1122	107
180°	1128	1128	1128	1128	1128	

TEST NUMBER: P921360

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US940-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2211.3	2211.3	2211.3	2211.3	2211.3
2.5°	2221.3	2211.3	2189.1	2209.3	2205.3
5°	2211.3	2201.3	2175.1	2193.3	2187.3
7.5°	2193.3	2181.3	2153.3	2161.1	2151.2
10°	2169.2	2155.2	2115.3	2109.2	2097.2
12.5°	2139.3	2121.2	2067.1	2055.2	2033.1
15°	2103.2	2081.1	2013.1	1975.1	1955.2
17.5°	2061.2	2029.1	1945.0	1901.0	1869.0
20°	2013.1	1973.0	1873.0	1823.1	1779.0
22.5°	1961.1	1915.0	1798.9	1731.0	1701.0
25°	1909.2	1845.0	1713.0	1631.0	1600.9
27.5°	1847.2	1779.0	1632.9	1538.8	1492.8
30°	1781.1	1704.9	1544.8	1442.9	1388.7
32.5°	1717.0	1624.9	1461.0	1340.8	1290.7
35°	1645.0	1542.9	1366.9	1240.7	1196.6
37.5°	1574.9	1464.7	1278.8	1140.6	1090.7
40°	1500.8	1380.9	1186.6	1044.5	992.6
42.5°	1424.9	1296.8	1094.7	946.5	896.6
45°	1344.8	1210.6	1000.7	858.4	810.4
47.5°	1268.8	1126.8	910.6	768.4	724.4
50°	1184.7	1042.7	822.5	684.3	642.5
52.5°	1102.5	952.4	738.4	606.4	568.4
55°	1022.5	866.5	650.3	530.4	492.3
57.5°	940.6	780.4	572.4	460.3	428.2
60°	856.5	696.4	490.3	388.3	356.2
62.5°	774.5	614.5	420.2	324.2	308.3
65°	690.5	528.2	348.2	280.3	274.1
67.5°	610.4	448.2	280.3	246.1	240.1
70°	526.3	370.2	232.0	212.1	204.0
72.5°	446.3	298.1	194.0	178.2	174.1
75°	368.2	228.0	160.1	146.1	144.2
77.5°	290.3	162.0	126.1	118.1	114.0
80°	218.0	116.1	95.9	88.1	88.1
82.5°	152.0	78.1	66.0	62.0	62.0
85°	86.0	44.0	38.0	38.0	38.0
87.5°	32.1	16.0	16.0	14.0	14.0
90°	1.0	12.2	33.3	31.3	32.3
92.5°	21.0	28.5	29.6	30.6	30.6
95°	49.7	59.2	60.9	60.9	59.2
97.5°	82.7	91.5	95.2	95.2	95.2
100°	120.7	128.6	131.3	131.3	130.3
102.5°	160.9	166.7	170.4	171.4	170.4
105°	204.7	207.4	209.5	211.2	211.2
107.5°	248.3	252.4	252.4	253.0	248.3
110°	290.4	295.9	295.9	295.9	293.2

TEST NUMBER: P921360

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US940-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	336.0	341.8	340.7	338.0	336.0
115°	380.8	386.4	384.6	383.6	380.8
117.5°	425.4	432.9	428.2	425.4	422.8
120°	470.4	477.8	470.4	470.4	467.3
122.5°	511.1	520.7	515.9	513.2	511.1
125°	554.0	562.5	559.8	556.7	555.7
127.5°	595.8	606.4	602.6	598.5	595.8
130°	634.9	647.2	645.5	643.5	639.7
132.5°	678.8	688.3	689.0	684.2	681.5
135°	716.6	727.1	729.2	728.1	725.4
137.5°	758.8	767.2	768.9	768.2	764.2
140°	795.8	804.3	809.0	809.0	805.3
142.5°	833.9	842.4	845.1	846.1	842.4
145°	870.0	876.7	882.2	883.2	879.5
147.5°	902.2	910.7	914.8	916.5	912.8
150°	935.6	941.4	945.1	948.2	945.1
152.5°	965.2	970.9	975.7	979.5	975.7
155°	994.7	997.5	1000.5	1005.3	1002.2
157.5°	1020.3	1022.3	1024.0	1030.8	1026.0
160°	1043.0	1045.1	1046.1	1051.9	1047.8
162.5°	1064.1	1064.1	1065.1	1071.6	1066.8
165°	1082.2	1081.1	1081.1	1087.9	1083.2
167.5°	1098.5	1095.4	1095.4	1102.2	1097.4
170°	1110.7	1108.0	1107.0	1113.7	1108.0
172.5°	1119.2	1116.5	1115.4	1122.3	1116.5
175°	1126.1	1123.3	1121.2	1128.0	1122.3
177.5°	1129.8	1127.0	1125.0	1130.8	1125.0
180°	1128.0	1128.0	1128.0	1128.0	1128.0

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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	11.13	12.04	12.01	12.94	14.08	7.09	8.00	7.97	8.90	10.04
	3H	12.81	13.62	13.70	14.53	15.70	8.28	9.09	9.17	10.00	11.17
	4H	13.42	14.19	14.33	15.10	16.27	8.73	9.50	9.64	10.41	11.59
	6H	13.84	14.55	14.76	15.47	16.65	9.05	9.76	9.97	10.68	11.86
	8H	13.97	14.64	14.90	15.58	16.76	9.14	9.81	10.07	10.75	11.93
	12H	14.03	14.67	14.96	15.60	16.81	9.18	9.82	10.12	10.75	11.96
4H	2H	11.16	11.93	12.07	12.84	14.01	7.69	8.46	8.61	9.38	10.55
	3H	12.99	13.63	13.91	14.57	15.76	9.04	9.68	9.97	10.63	11.82
	4H	13.68	14.26	14.62	15.20	16.41	9.59	10.17	10.53	11.11	12.33
	6H	14.19	14.70	15.14	15.66	16.87	10.01	10.51	10.96	11.47	12.69
	8H	14.37	14.84	15.32	15.79	17.02	10.13	10.60	11.09	11.56	12.79
	12H	14.46	14.89	15.43	15.86	17.09	10.20	10.62	11.17	11.59	12.83
8H	4H	13.65	14.12	14.60	15.08	16.30	9.87	10.34	10.83	11.30	12.53
	6H	14.22	14.60	15.19	15.60	16.83	10.39	10.77	11.36	11.77	13.00
	8H	14.43	14.77	15.42	15.76	17.00	10.57	10.91	11.56	11.90	13.15
	12H	14.57	14.87	15.56	15.85	17.14	10.69	10.99	11.68	11.97	13.26
12H	4H	13.61	14.03	14.58	15.00	16.24	9.88	10.30	10.85	11.28	12.51
	6H	14.19	14.53	15.18	15.52	16.76	10.43	10.78	11.42	11.76	13.01
	8H	14.41	14.71	15.40	15.69	16.98	10.64	10.94	11.63	11.92	13.22