

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: P917636

Luminaire Tested: DFN2DIP-SQ4F0-070D120US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917636
REPORT IS A COMBINATION OF REPORTS P900169 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D120US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

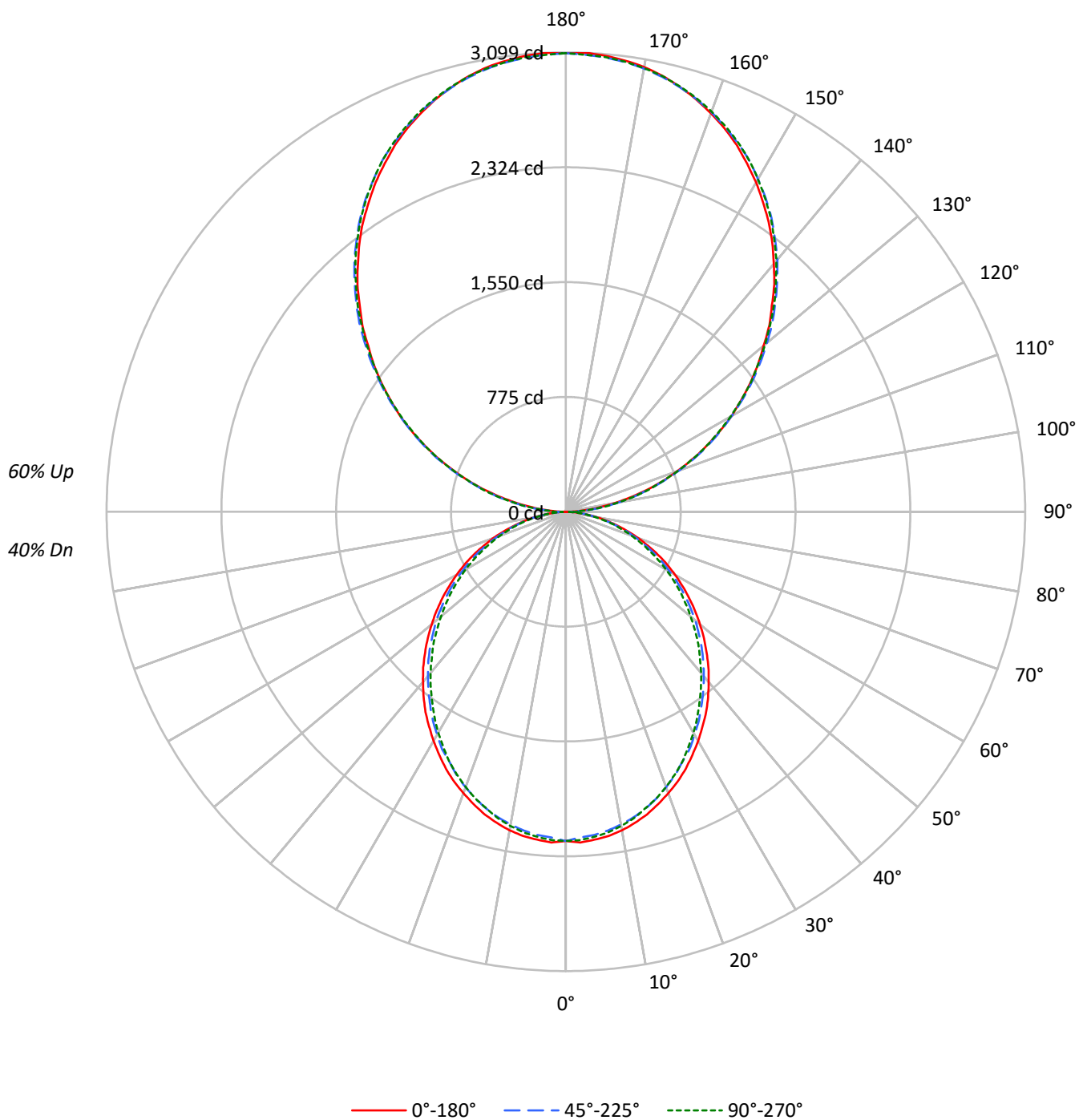
Lumens per Lamp: N/A
Luminaire Lumens: 14308.5 lumens
Efficiency: N/A
Efficacy: 94.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 151.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917636

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P917636

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US930-FLLFL

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	105	105	105	105	95	95	95	95	78	78	78	61	61	61	47	47	47
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39
2	87	80	74	68	79	73	67	63	59	56	53	47	45	43	36	35	33
3	79	70	63	57	72	64	58	53	52	48	44	42	39	36	32	30	28
4	72	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	66	55	47	41	60	50	43	38	42	36	32	33	30	27	26	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	21	19
7	56	44	37	31	51	41	34	29	34	29	25	27	24	21	21	19	16
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	16	18	15	13
10	45	34	27	22	41	31	25	20	26	21	18	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1558	1558	1558
5°	1561	1537	1547
10°	1548	1516	1527
15°	1525	1492	1494
20°	1494	1457	1461
25°	1464	1416	1423
30°	1425	1378	1374
35°	1389	1333	1323
40°	1344	1287	1273
45°	1300	1241	1223
50°	1251	1193	1165
55°	1200	1138	1112
60°	1142	1072	1050
65°	1079	1004	978
70°	999	921	901
75°	888	821	830
80°	754	695	693
85°	545	475	466

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2435 cd/sqm

TEST NUMBER: P917636

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.0	1.5
10°-20°	588.1	4.1
20°-30°	864.2	6.0
30°-40°	1003.7	7.0
40°-50°	1002.5	7.0
50°-60°	874.2	6.1
60°-70°	646.2	4.5
70°-80°	365.6	2.6
80°-90°	105.3	0.7
90°-100°	191.5	1.3
100°-110°	608.3	4.3
110°-120°	1041.1	7.3
120°-130°	1369.2	9.6
130°-140°	1536.9	10.7
140°-150°	1507.1	10.5
150°-160°	1264.2	8.8
160°-170°	838.4	5.9
170°-180°	293.0	2.0
0°-30°	1661.3	11.6
0°-40°	2665.1	18.6
0°-60°	4541.7	31.7
0°-90°	5658.8	39.5
90°-120°	1840.9	12.9
90°-150°	6254.0	43.7
90°-180°	8650.0	60.5
0°-180°	14308.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2221	2221	2221	2221	2221	
5°	2221	2212	2189	2206	2202	211
15°	2114	2101	2073	2082	2071	595
25°	1913	1896	1860	1864	1860	880
35°	1651	1629	1595	1582	1572	1031
45°	1343	1328	1296	1273	1264	1037
55°	1016	1004	978	952	942	909
65°	686	673	651	632	621	678
75°	359	355	344	331	335	383
85°	88	85	83	77	75	98
90°	3	34	91	86	89	14
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	

TEST NUMBER: P917636

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2220.6	2220.6	2220.6	2220.6	2220.6
2.5°	2233.6	2222.9	2199.3	2220.6	2216.6
5°	2220.6	2212.3	2188.7	2205.7	2201.6
7.5°	2205.7	2193.0	2169.4	2186.7	2182.4
10°	2182.4	2167.4	2141.8	2158.8	2152.5
12.5°	2150.2	2137.5	2111.9	2122.5	2118.2
15°	2114.0	2101.3	2073.4	2082.0	2071.3
17.5°	2069.1	2056.4	2028.5	2039.2	2028.5
20°	2019.9	2007.3	1977.3	1983.7	1975.3
22.5°	1971.0	1951.7	1923.9	1923.9	1919.5
25°	1913.3	1896.2	1860.0	1864.1	1860.0
27.5°	1849.1	1834.2	1806.5	1800.2	1789.5
30°	1785.3	1768.0	1736.1	1729.7	1721.1
32.5°	1716.8	1704.1	1669.9	1657.0	1648.4
35°	1650.7	1629.4	1595.1	1582.2	1571.6
37.5°	1575.9	1556.6	1522.4	1507.5	1496.8
40°	1499.1	1481.9	1447.6	1428.6	1420.0
42.5°	1424.3	1407.1	1373.1	1351.6	1338.9
45°	1343.2	1328.3	1296.1	1272.8	1264.1
47.5°	1264.1	1249.2	1215.0	1191.4	1178.8
50°	1180.8	1170.1	1140.2	1110.4	1099.7
52.5°	1099.7	1084.8	1057.1	1033.6	1018.6
55°	1016.5	1003.6	978.0	952.4	941.8
57.5°	933.2	922.5	894.6	869.0	860.5
60°	849.8	841.4	811.5	788.0	781.6
62.5°	768.7	753.7	732.5	711.2	702.5
65°	685.6	672.6	651.3	632.1	621.4
67.5°	600.1	589.3	570.2	555.3	546.7
70°	521.1	512.5	493.2	478.3	469.9
72.5°	439.9	431.4	420.7	405.8	399.4
75°	358.6	354.6	343.6	331.0	335.3
77.5°	286.2	277.5	273.2	266.8	260.6
80°	213.6	211.4	207.1	200.7	196.4
82.5°	145.2	145.2	143.2	134.6	134.6
85°	87.5	85.4	83.4	76.8	74.8
87.5°	38.5	34.2	29.9	23.6	21.3
90°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1

TEST NUMBER: P917636

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US930-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1

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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	7.77	8.55	8.81	9.59	11.01	7.33	8.10	8.37	9.15	10.56
	3H	9.43	10.13	10.48	11.18	12.61	8.94	9.63	9.99	10.69	12.12
	4H	10.02	10.68	11.08	11.73	13.17	9.52	10.18	10.59	11.24	12.68
	6H	10.42	11.02	11.49	12.08	13.54	9.92	10.52	10.99	11.58	13.04
	8H	10.52	11.10	11.60	12.18	13.62	10.02	10.60	11.10	11.67	13.12
	12H	10.57	11.12	11.65	12.19	13.66	10.06	10.61	11.14	11.68	13.15
4H	2H	8.22	8.88	9.29	9.94	11.38	7.87	8.53	8.94	9.59	11.02
	3H	10.09	10.64	11.16	11.72	13.17	9.68	10.23	10.76	11.31	12.77
	4H	10.80	11.30	11.88	12.38	13.85	10.38	10.88	11.46	11.96	13.43
	6H	11.31	11.75	12.41	12.85	14.31	10.88	11.32	11.97	12.42	13.88
	8H	11.46	11.87	12.56	12.96	14.44	11.03	11.43	12.12	12.52	14.01
	12H	11.54	11.90	12.65	13.01	14.49	11.09	11.45	12.20	12.56	14.05
8H	4H	10.99	11.39	12.08	12.49	13.97	10.61	11.02	11.71	12.11	13.59
	6H	11.62	11.96	12.74	13.09	14.57	11.24	11.57	12.35	12.71	14.19
	8H	11.85	12.14	12.97	13.25	14.75	11.45	11.75	12.57	12.86	14.36
	12H	11.98	12.23	13.10	13.35	14.88	11.57	11.82	12.69	12.93	14.47
12H	4H	10.97	11.34	12.08	12.44	13.93	10.60	10.97	11.71	12.07	13.56
	6H	11.65	11.95	12.77	13.06	14.56	11.28	11.57	12.40	12.69	14.19
	8H	11.89	12.15	13.02	13.26	14.80	11.51	11.77	12.64	12.88	14.42

END OF REPORT