

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: P917600

Luminaire Tested: DFN2DIP-SQ4F0-060D120US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917600
REPORT IS A COMBINATION OF REPORTS P900167 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D120US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

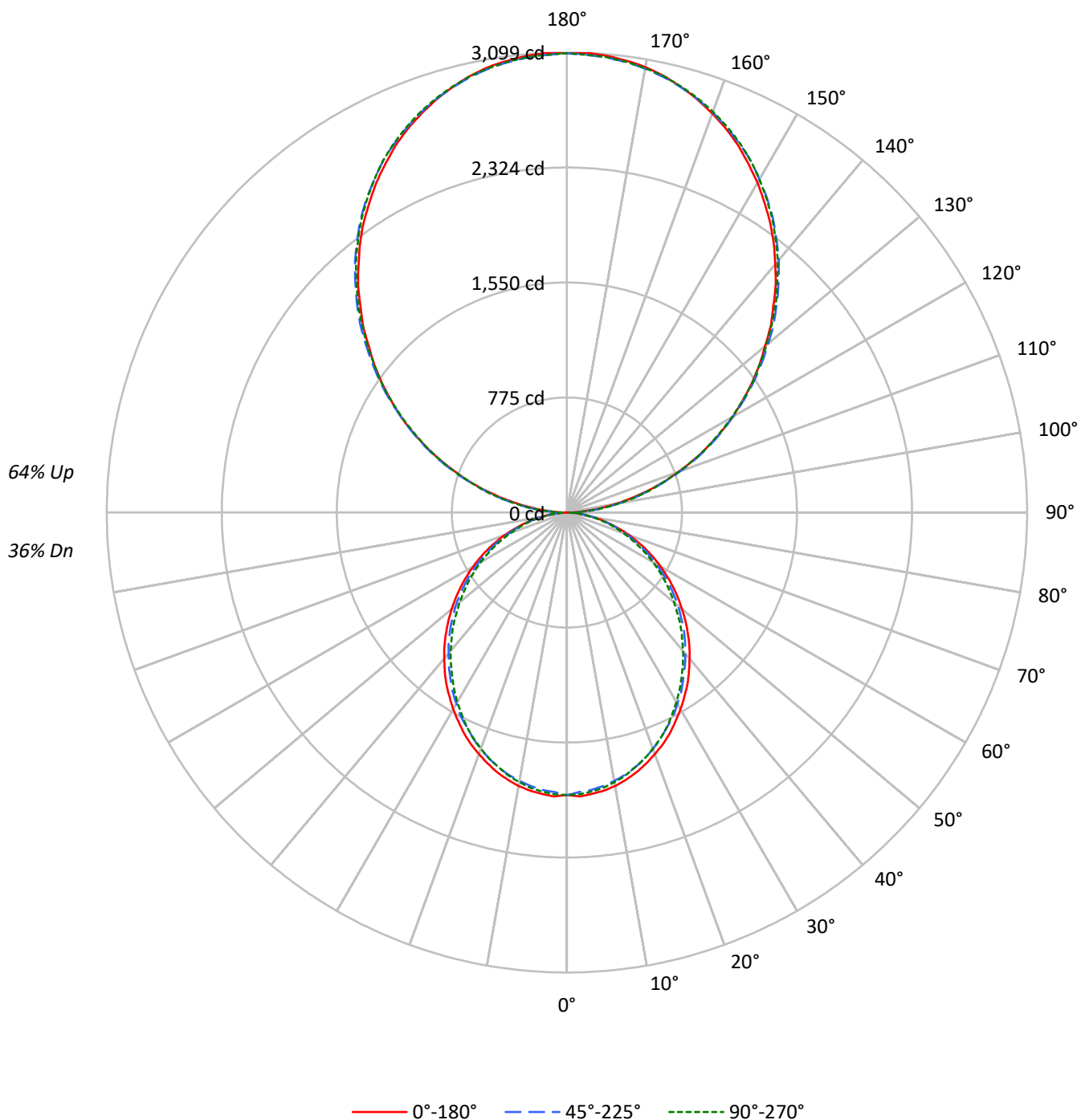
Lumens per Lamp: N/A
Luminaire Lumens: 13501.3 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 140.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917600

CATALOG NUMBER: DFN2DIP-SQ4F0-060D120US930-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P917600

CATALOG NUMBER: DFN2DIP-SQ4F0-060D120US930-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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1336	1336	1336
5°	1338	1317	1326
10°	1327	1300	1309
15°	1307	1279	1281
20°	1281	1249	1253
25°	1255	1214	1220
30°	1222	1181	1178
35°	1191	1142	1134
40°	1152	1103	1092
45°	1114	1064	1048
50°	1072	1023	999
55°	1028	975	953
60°	979	919	900
65°	925	860	838
70°	856	789	772
75°	761	704	711
80°	646	595	594
85°	467	407	399

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2435 cd/sqm

TEST NUMBER: P917600

CATALOG NUMBER: DFN2DIP-SQ4F0-060D120US930-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.3
10°-20°	504.1	3.7
20°-30°	740.8	5.5
30°-40°	860.4	6.4
40°-50°	859.3	6.4
50°-60°	749.3	5.5
60°-70°	553.9	4.1
70°-80°	313.4	2.3
80°-90°	91.5	0.7
90°-100°	191.5	1.4
100°-110°	608.3	4.5
110°-120°	1041.1	7.7
120°-130°	1369.2	10.1
130°-140°	1536.9	11.4
140°-150°	1507.1	11.2
150°-160°	1264.2	9.4
160°-170°	838.4	6.2
170°-180°	293.0	2.2
0°-30°	1424.0	10.5
0°-40°	2284.3	16.9
0°-60°	3892.9	28.8
0°-90°	4851.7	35.9
90°-120°	1840.9	13.6
90°-150°	6254.0	46.3
90°-180°	8650.0	64.1
0°-180°	13501.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	3	34	91	86	89	13
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: P917600

CATALOG NUMBER: DFN2DIP-SQ4F0-060D120US930-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
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: P917600

CATALOG NUMBER: DFN2DIP-SQ4F0-060D120US930-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	6.83	7.57	7.90	8.64	10.10	6.38	7.13	7.45	8.20	9.66
	3H	8.48	9.15	9.56	10.23	11.71	7.99	8.66	9.07	9.74	11.22
	4H	9.07	9.70	10.16	10.78	12.27	8.57	9.21	9.66	10.29	11.77
	6H	9.46	10.05	10.56	11.13	12.63	8.96	9.55	10.06	10.63	12.13
	8H	9.57	10.12	10.67	11.22	12.71	9.07	9.62	10.17	10.72	12.21
	12H	9.61	10.14	10.72	11.24	12.75	9.10	9.63	10.21	10.73	12.24
4H	2H	7.27	7.91	8.37	8.99	10.47	6.92	7.55	8.01	8.64	10.12
	3H	9.13	9.66	10.24	10.77	12.27	8.73	9.26	9.83	10.36	11.86
	4H	9.85	10.33	10.95	11.43	12.95	9.42	9.91	10.53	11.01	12.52
	6H	10.36	10.78	11.47	11.90	13.41	9.93	10.34	11.04	11.47	12.98
	8H	10.51	10.90	11.62	12.01	13.54	10.07	10.46	11.19	11.57	13.10
	12H	10.58	10.93	11.71	12.06	13.59	10.13	10.48	11.26	11.61	13.14
8H	4H	10.03	10.42	11.15	11.54	13.06	9.66	10.05	10.77	11.16	12.69
	6H	10.67	10.99	11.80	12.14	13.67	10.28	10.60	11.42	11.76	13.28
	8H	10.89	11.17	12.03	12.31	13.85	10.50	10.78	11.64	11.91	13.46
	12H	11.02	11.27	12.16	12.40	13.98	10.61	10.85	11.75	11.99	13.56
12H	4H	10.01	10.37	11.15	11.49	13.02	9.65	10.00	10.78	11.13	12.66
	6H	10.69	10.98	11.84	12.11	13.65	10.32	10.61	11.47	11.74	13.28
	8H	10.93	11.18	12.08	12.31	13.89	10.55	10.80	11.70	11.93	13.51

END OF REPORT