

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: P917321

Luminaire Tested: DFN2DIP-SQ3F0-050D120US930-FLLONL

Issue Date: 11/21/2024

**Test Information**

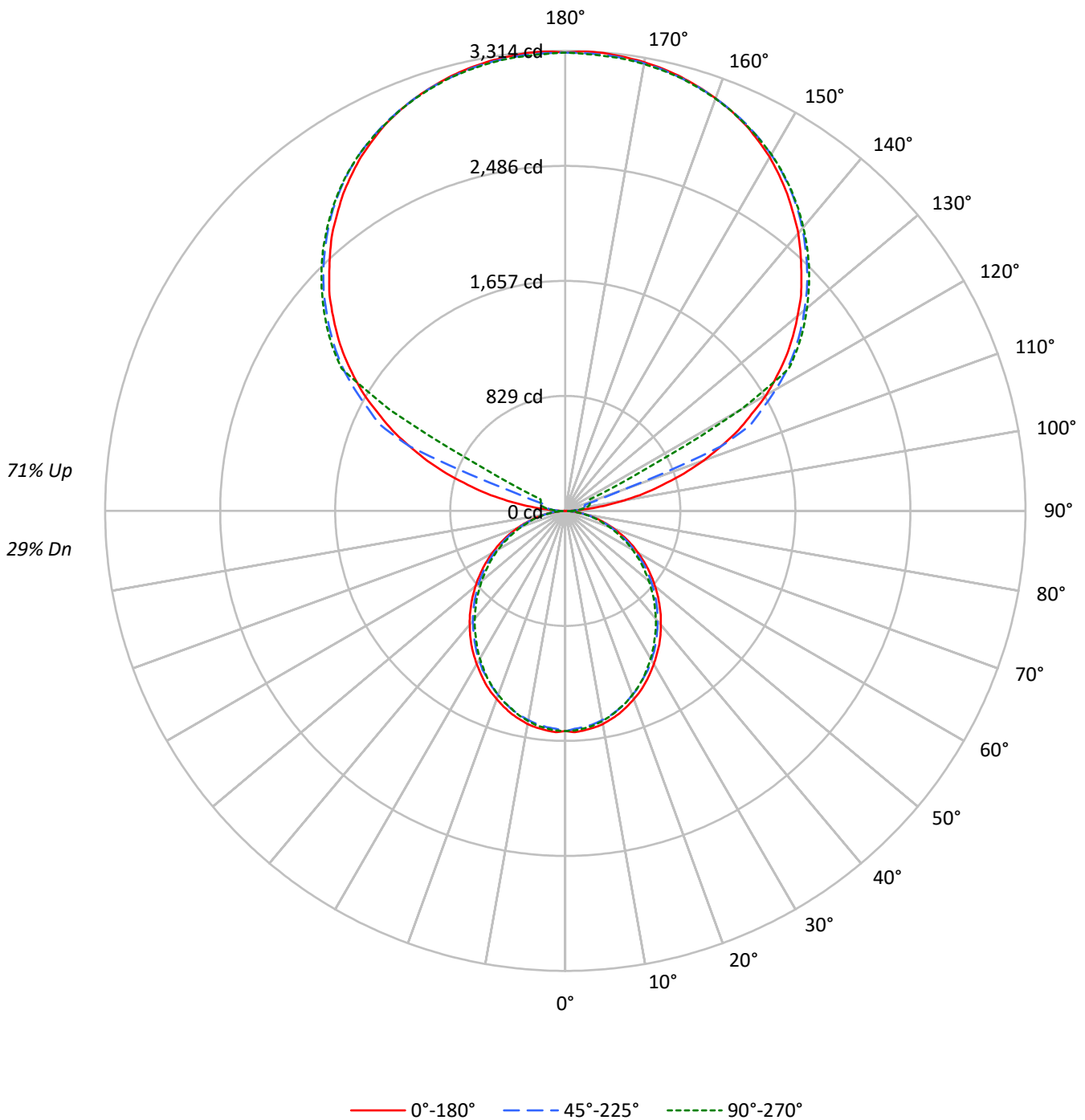
Test Method: LM-79-2019  
Report Number: P917321  
REPORT IS A COMBINATION OF REPORTS P901527 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-050D120US930-FLLONL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13721.4 lumens  
Efficiency: N/A  
Efficacy: 100.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 136.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37	29			
1	93	89	85	82	83	80	77	74	63	61	59	47	46	45	33	32	31	25			
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	29	28	26	21			
3	77	68	61	56	69	61	55	51	49	44	41	37	34	32	26	24	22	18			
4	71	60	53	47	63	54	48	43	43	38	35	33	29	27	23	21	19	15			
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	21	19	17	13			
6	60	48	40	34	53	43	36	32	35	30	26	26	23	20	19	16	15	12			
7	55	43	35	30	49	39	32	28	31	26	23	24	20	18	17	15	13	10			
8	51	39	32	26	46	35	29	24	28	23	20	22	18	16	16	13	12	9			
9	47	35	28	23	42	32	26	22	26	21	18	20	17	14	14	12	11	8			
10	44	32	25	21	40	29	23	19	24	19	16	18	15	13	13	11	10	8			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1817	1817	1817
5°	1819	1791	1804
10°	1803	1766	1779
15°	1776	1735	1740
20°	1739	1694	1700
25°	1702	1644	1654
30°	1656	1598	1596
35°	1612	1544	1535
40°	1559	1489	1477
45°	1506	1434	1417
50°	1447	1376	1348
55°	1386	1309	1284
60°	1317	1230	1211
65°	1241	1148	1125
70°	1144	1047	1032
75°	1011	927	945
80°	850	773	781
85°	598	512	511

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2262 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	149.3	1.1
10°-20°	420.0	3.1
20°-30°	617.3	4.5
30°-40°	717.0	5.2
40°-50°	716.1	5.2
50°-60°	624.4	4.6
60°-70°	461.6	3.4
70°-80°	261.1	1.9
80°-90°	74.7	0.5
90°-100°	108.9	0.8
100°-110°	405.9	3.0
110°-120°	1076.4	7.8
120°-130°	1785.3	13.0
130°-140°	1896.5	13.8
140°-150°	1762.5	12.8
150°-160°	1417.0	10.3
160°-170°	913.1	6.7
170°-180°	314.3	2.3
0°-30°	1186.6	8.6
0°-40°	1903.6	13.9
0°-60°	3244.1	23.6
0°-90°	4041.5	29.5
90°-120°	1591.2	11.6
90°-150°	7035.5	51.3
90°-180°	9680.0	70.5
0°-180°	13721.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1586	1586	1586	1586	1586	
5°	1586	1580	1563	1576	1573	151
15°	1510	1501	1481	1487	1480	425
25°	1367	1354	1328	1332	1328	629
35°	1179	1164	1139	1130	1123	736
45°	959	949	926	909	903	740
55°	726	717	698	680	673	649
65°	490	480	465	452	444	484
75°	256	253	246	236	240	273
85°	62	61	60	55	53	70
90°	2	29	48	60	64	13
95°	155	76	93	105	103	184
105°	726	798	146	172	182	776
115°	1374	1414	1474	368	196	1352
125°	1942	1974	2019	2036	2043	1732
135°	2404	2442	2463	2487	2482	1857
145°	2788	2786	2826	2843	2831	1744
155°	3070	3049	3077	3092	3073	1415
165°	3235	3221	3228	3245	3228	914
175°	3309	3292	3297	3314	3290	315
180°	3302	3302	3302	3302	3302	



TEST NUMBER: P917321

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1586.2	1586.2	1586.2	1586.2	1586.2
2.5°	1595.4	1587.8	1571.0	1586.2	1583.3
5°	1586.2	1580.2	1563.3	1575.5	1572.6
7.5°	1575.5	1566.4	1549.6	1561.9	1558.9
10°	1558.9	1548.2	1529.9	1542.0	1537.5
12.5°	1535.9	1526.8	1508.5	1516.1	1513.0
15°	1509.9	1500.9	1481.0	1487.2	1479.5
17.5°	1477.9	1468.8	1448.9	1456.5	1448.9
20°	1442.8	1433.8	1412.4	1416.9	1411.0
22.5°	1407.9	1394.1	1374.2	1374.2	1371.1
25°	1366.6	1354.5	1328.5	1331.5	1328.5
27.5°	1320.8	1310.1	1290.4	1285.8	1278.2
30°	1275.1	1262.9	1240.1	1235.5	1229.4
32.5°	1226.3	1217.2	1192.8	1183.6	1177.5
35°	1179.0	1163.8	1139.4	1130.2	1122.6
37.5°	1125.6	1111.9	1087.4	1076.8	1069.2
40°	1070.8	1058.5	1034.0	1020.4	1014.3
42.5°	1017.4	1005.1	980.8	965.4	956.3
45°	959.4	948.8	925.8	909.1	902.9
47.5°	902.9	892.3	867.9	851.0	842.0
50°	843.4	835.8	814.5	793.1	785.5
52.5°	785.5	774.8	755.0	738.3	727.6
55°	726.1	716.9	698.5	680.3	672.7
57.5°	666.5	658.9	639.0	620.8	614.6
60°	607.0	601.0	579.7	562.8	558.3
62.5°	549.1	538.4	523.2	507.9	501.8
65°	489.7	480.5	465.2	451.5	443.8
67.5°	428.7	420.9	407.3	396.6	390.4
70°	372.2	366.1	352.3	341.6	335.7
72.5°	314.3	308.1	300.5	289.8	285.3
75°	256.2	253.2	245.5	236.4	239.5
77.5°	204.4	198.2	195.2	190.6	186.1
80°	152.6	151.0	147.9	143.4	140.3
82.5°	103.7	103.7	102.2	96.1	96.1
85°	62.5	61.0	59.5	54.9	53.4
87.5°	27.5	24.5	21.4	16.8	15.2
90°	2.3	28.6	47.7	59.8	64.4
92.5°	59.8	50.2	57.3	62.1	64.4
95°	155.2	76.3	93.0	105.3	102.7
97.5°	279.5	83.7	121.7	129.1	131.3
100°	423.0	95.6	136.2	155.2	160.0
102.5°	580.5	575.9	141.0	167.1	174.5
105°	726.3	798.1	145.9	171.9	181.6
107.5°	895.9	955.5	150.7	176.8	186.4
110°	1058.5	1108.5	418.2	179.3	188.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1211.5	1254.3	1213.7	183.8	191.2
115°	1373.7	1414.3	1474.1	367.9	196.1
117.5°	1514.7	1562.4	1603.3	1261.3	635.5
120°	1672.5	1708.2	1751.3	1780.0	1457.4
122.5°	1806.1	1844.4	1892.4	1906.6	1909.1
125°	1942.3	1973.5	2018.9	2035.6	2042.7
127.5°	2066.5	2100.0	2136.1	2159.9	2162.2
130°	2183.7	2222.0	2248.1	2274.5	2272.2
132.5°	2303.1	2334.4	2360.5	2382.1	2379.8
135°	2403.6	2441.9	2463.2	2487.3	2482.5
137.5°	2508.6	2537.2	2561.3	2585.1	2578.1
140°	2611.3	2630.6	2656.6	2678.3	2666.4
142.5°	2697.5	2714.3	2745.2	2764.2	2752.3
145°	2788.3	2785.8	2826.3	2843.1	2831.1
147.5°	2866.9	2859.8	2900.4	2912.3	2903.0
150°	2943.5	2926.8	2965.1	2979.3	2967.4
152.5°	3007.9	2988.9	3024.7	3039.1	3022.4
155°	3070.0	3048.7	3077.4	3091.6	3072.6
157.5°	3120.2	3101.2	3122.8	3139.6	3120.2
160°	3163.4	3148.9	3163.4	3177.5	3160.8
162.5°	3201.4	3187.2	3199.1	3215.9	3194.3
165°	3234.9	3220.7	3227.8	3244.6	3227.8
167.5°	3261.3	3246.8	3254.2	3270.9	3249.4
170°	3282.8	3268.4	3273.2	3289.9	3268.4
172.5°	3297.0	3282.8	3287.7	3304.4	3282.8
175°	3308.9	3292.2	3297.0	3313.8	3289.9
177.5°	3313.8	3297.0	3299.6	3316.3	3294.8
180°	3301.9	3301.9	3301.9	3301.9	3301.9



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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	7.02	7.73	8.14	8.84	10.37	6.58	7.28	7.70	8.39	9.93
	3H	8.67	9.30	9.79	10.42	11.97	8.18	8.81	9.30	9.93	11.48
	4H	9.25	9.84	10.38	10.96	12.52	8.75	9.35	9.89	10.47	12.03
	6H	9.63	10.18	10.78	11.31	12.88	9.13	9.68	10.28	10.81	12.38
	8H	9.73	10.26	10.88	11.39	12.96	9.23	9.75	10.38	10.89	12.45
	12H	9.77	10.27	10.92	11.40	12.99	9.26	9.76	10.41	10.89	12.48
4H	2H	7.46	8.06	8.60	9.18	10.74	7.11	7.71	8.25	8.82	10.38
	3H	9.31	9.81	10.45	10.95	12.52	8.90	9.40	10.05	10.54	12.12
	4H	10.01	10.47	11.16	11.60	13.20	9.59	10.05	10.74	11.18	12.77
	6H	10.51	10.91	11.67	12.06	13.64	10.08	10.47	11.24	11.63	13.21
	8H	10.66	11.02	11.81	12.17	13.77	10.22	10.59	11.37	11.74	13.33
	12H	10.72	11.05	11.89	12.21	13.82	10.27	10.60	11.44	11.76	13.37
8H	4H	10.19	10.56	11.35	11.71	13.31	9.81	10.18	10.97	11.33	12.93
	6H	10.81	11.11	11.99	12.30	13.90	10.43	10.73	11.60	11.92	13.51
	8H	11.03	11.29	12.21	12.46	14.07	10.63	10.90	11.81	12.07	13.68
	12H	11.15	11.38	12.33	12.55	14.19	10.74	10.97	11.92	12.13	13.78
12H	4H	10.17	10.50	11.34	11.66	13.26	9.80	10.13	10.97	11.29	12.90
	6H	10.84	11.10	12.02	12.27	13.89	10.46	10.73	11.64	11.90	13.51
	8H	11.07	11.30	12.25	12.47	14.11	10.69	10.92	11.87	12.08	13.73