

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: P920166

Luminaire Tested: DFN2DIP-SQ3F0-090D050US935-RLLFLL

Issue Date: 11/21/2024

**Test Information**

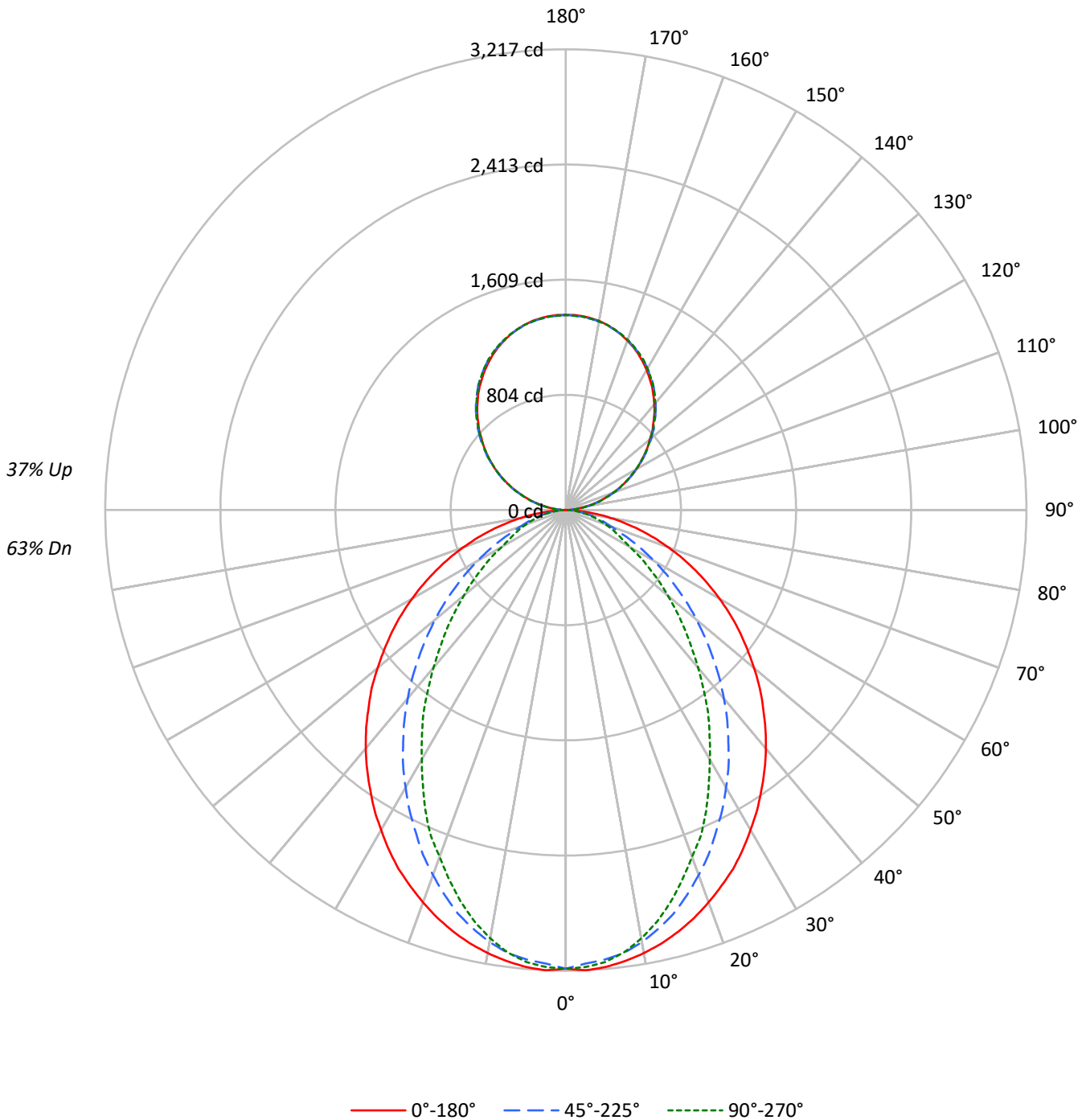
Test Method: LM-79-2019  
Report Number: P920166  
REPORT IS A COMBINATION OF REPORTS P899890 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-090D050US935-RLLFLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10396.5 lumens  
Efficiency: N/A  
Efficacy: 83.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 124.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.996  
Total Harmonic Distortion (THDi): 0.064  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P920166  
CATALOG NUMBER: DFN2DIP-SQ3F0-090D050US935-RLFL

### Luminous Intensity Polar Plot





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

RF	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	110	110	110	110	104	104	104	104	91	91	91	79	79	79	68	68	68	63	63	63	63
1	101	97	93	90	95	91	88	85	81	78	76	71	69	67	61	60	59	55	55	55	55
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	53	51	47	47	47	47
3	85	76	69	63	80	72	65	60	64	59	54	56	52	49	49	46	44	40	40	40	40
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38	35	35	35	35
5	72	61	53	47	68	57	50	45	51	45	41	46	41	37	40	37	34	31	31	31	31
6	67	55	47	41	62	52	45	39	47	41	36	41	37	33	37	33	30	27	27	27	27
7	62	50	42	36	58	47	40	35	42	37	32	38	33	30	34	30	27	25	25	25	25
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24	22	22	22	22
9	54	42	34	29	51	40	33	28	36	30	26	32	28	24	29	25	22	20	20	20	20
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20	18	18	18	18

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

	0°	45°	90°
0°	3670	3670	3670
5°	3673	3609	3633
10°	3635	3536	3514
15°	3582	3417	3330
20°	3514	3253	3105
25°	3443	3071	2887
30°	3350	2883	2612
35°	3258	2682	2370
40°	3165	2475	2093
45°	3056	2245	1842
50°	2944	2013	1597
55°	2827	1765	1361
60°	2690	1507	1119
65°	2534	1244	1006
70°	2344	999	909
75°	2104	876	824
80°	1758	727	710
85°	1192	473	527

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3056 cd/sqm



TEST NUMBER: P920166

CATALOG NUMBER: DFN2DIP-SQ3F0-090D050US935-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	300.2	2.9
10°-20°	824.0	7.9
20°-30°	1156.9	11.1
30°-40°	1261.0	12.1
40°-50°	1159.0	11.1
50°-60°	910.3	8.8
60°-70°	592.5	5.7
70°-80°	305.0	2.9
80°-90°	81.7	0.8
90°-100°	84.2	0.8
100°-110°	267.7	2.6
110°-120°	458.1	4.4
120°-130°	602.5	5.8
130°-140°	676.3	6.5
140°-150°	663.1	6.4
150°-160°	556.3	5.4
160°-170°	368.9	3.5
170°-180°	128.9	1.2
0°-30°	2281.0	21.9
0°-40°	3542.0	34.1
0°-60°	5611.3	54.0
0°-90°	6590.5	63.4
90°-120°	810.0	7.8
90°-150°	2751.9	26.5
90°-180°	3806.0	36.6
0°-180°	10396.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3203	3203	3203	3203	3203	
5°	3203	3188	3150	3176	3168	304
15°	3046	3014	2916	2861	2832	858
25°	2765	2672	2481	2362	2319	1272
35°	2383	2235	1980	1797	1733	1491
45°	1948	1753	1449	1243	1174	1504
55°	1481	1255	942	768	713	1323
65°	1000	765	504	406	397	991
75°	533	330	232	212	209	564
85°	124	64	55	55	55	143
90°	1	15	40	38	39	10
95°	60	72	73	73	72	67
105°	247	250	253	255	255	261
115°	460	466	464	463	460	455
125°	669	679	676	672	671	598
135°	865	878	880	879	876	669
145°	1050	1058	1065	1066	1061	656
155°	1201	1204	1208	1213	1210	553
165°	1306	1305	1305	1313	1307	368
175°	1359	1356	1353	1362	1354	129
180°	1362	1362	1362	1362	1362	



TEST NUMBER: P920166

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3202.7	3202.7	3202.7	3202.7	3202.7
2.5°	3217.1	3202.7	3170.6	3199.9	3194.0
5°	3202.7	3188.2	3150.4	3176.5	3167.9
7.5°	3176.5	3159.3	3118.7	3130.1	3115.6
10°	3141.8	3121.5	3063.7	3054.7	3037.5
12.5°	3098.4	3072.3	2993.9	2976.6	2944.6
15°	3046.1	3014.2	2915.8	2860.7	2831.8
17.5°	2985.3	2938.8	2817.0	2753.4	2707.0
20°	2915.8	2857.7	2712.7	2640.5	2576.5
22.5°	2840.4	2773.7	2605.5	2507.1	2463.7
25°	2765.1	2672.2	2481.0	2362.2	2318.6
27.5°	2675.3	2576.5	2365.0	2228.8	2162.1
30°	2579.6	2469.3	2237.4	2089.8	2011.4
32.5°	2486.7	2353.3	2115.9	1941.9	1869.3
35°	2382.6	2234.6	1979.7	1797.1	1733.1
37.5°	2281.0	2121.5	1852.1	1651.9	1579.7
40°	2173.8	2000.0	1718.6	1512.9	1437.6
42.5°	2063.6	1878.3	1585.4	1370.9	1298.6
45°	1947.7	1753.4	1449.2	1243.2	1173.7
47.5°	1837.6	1631.9	1318.9	1112.8	1049.2
50°	1715.9	1510.1	1191.3	991.1	930.5
52.5°	1596.9	1379.5	1069.5	878.2	823.2
55°	1480.9	1254.9	941.8	768.2	713.1
57.5°	1362.3	1130.4	829.1	666.7	620.3
60°	1240.4	1008.6	710.1	562.4	516.0
62.5°	1121.8	889.9	608.6	469.6	446.5
65°	1000.0	765.1	504.3	405.9	397.0
67.5°	884.1	649.1	405.9	356.4	347.8
70°	762.3	536.3	336.1	307.2	295.5
72.5°	646.4	431.7	281.0	258.0	252.2
75°	533.2	330.3	231.9	211.5	208.8
77.5°	420.3	234.6	182.6	171.0	165.1
80°	315.8	168.2	139.0	127.6	127.6
82.5°	220.2	113.1	95.7	89.8	89.8
85°	124.5	63.6	55.0	55.0	55.0
87.5°	46.4	23.1	23.1	20.3	20.3
90°	1.2	14.8	40.2	37.8	39.0
92.5°	25.5	34.4	35.7	36.9	36.9
95°	59.9	71.5	73.4	73.4	71.5
97.5°	99.7	110.4	114.9	114.9	114.9
100°	145.7	155.2	158.4	158.4	157.2
102.5°	194.2	201.1	205.6	206.9	205.6
105°	247.1	250.4	252.9	254.9	254.9
107.5°	299.6	304.5	304.5	305.4	299.6
110°	350.5	357.1	357.1	357.1	353.8



TEST NUMBER: P920166

CATALOG NUMBER: DFN2DIP-SQ3F0-090D050US935-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	405.5	412.5	411.3	408.0	405.5
115°	459.7	466.3	464.3	463.0	459.7
117.5°	513.5	522.5	516.8	513.5	510.2
120°	567.7	576.7	567.7	567.7	564.0
122.5°	616.9	628.4	622.7	619.4	616.9
125°	668.7	678.9	675.6	671.9	670.7
127.5°	719.1	731.8	727.4	722.4	719.1
130°	766.4	781.1	779.0	776.6	772.1
132.5°	819.3	830.8	831.6	825.9	822.6
135°	864.9	877.5	880.0	878.8	875.5
137.5°	915.8	926.0	928.1	927.2	922.3
140°	960.4	970.8	976.5	976.5	972.0
142.5°	1006.4	1016.8	1020.0	1021.2	1016.8
145°	1050.0	1058.2	1064.7	1066.0	1061.4
147.5°	1089.0	1099.2	1104.1	1106.2	1101.6
150°	1129.2	1136.2	1140.6	1144.4	1140.6
152.5°	1164.9	1171.9	1177.6	1182.2	1177.6
155°	1200.6	1203.8	1207.5	1213.3	1209.6
157.5°	1231.4	1233.8	1235.9	1244.1	1238.4
160°	1258.9	1261.4	1262.6	1269.5	1264.6
162.5°	1284.4	1284.4	1285.6	1293.4	1287.6
165°	1306.1	1304.8	1304.8	1313.1	1307.3
167.5°	1325.8	1322.1	1322.1	1330.3	1324.6
170°	1340.6	1337.3	1336.1	1344.3	1337.3
172.5°	1350.8	1347.5	1346.3	1354.5	1347.5
175°	1359.1	1355.7	1353.3	1361.5	1354.5
177.5°	1363.6	1360.3	1357.8	1364.8	1357.8
180°	1361.5	1361.5	1361.5	1361.5	1361.5



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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	12.80	13.75	13.64	14.61	15.67	8.76	9.71	9.60	10.57	11.64
	3H	14.48	15.33	15.33	16.20	17.29	9.95	10.80	10.80	11.67	12.76
	4H	15.09	15.89	15.96	16.77	17.87	10.40	11.20	11.27	12.08	13.18
	6H	15.51	16.25	16.39	17.13	18.25	10.72	11.46	11.60	12.34	13.46
	8H	15.64	16.35	16.53	17.24	18.36	10.81	11.52	11.70	12.41	13.53
	12H	15.70	16.38	16.60	17.27	18.41	10.86	11.53	11.75	12.42	13.56
4H	2H	12.83	13.63	13.70	14.50	15.61	9.36	10.17	10.24	11.04	12.15
	3H	14.66	15.33	15.55	16.24	17.36	10.72	11.39	11.60	12.29	13.41
	4H	15.36	15.96	16.25	16.86	18.01	11.27	11.87	12.16	12.78	13.92
	6H	15.87	16.40	16.78	17.32	18.47	11.68	12.21	12.60	13.13	14.29
	8H	16.05	16.54	16.96	17.46	18.62	11.81	12.30	12.73	13.22	14.38
	12H	16.14	16.58	17.08	17.52	18.69	11.88	12.32	12.81	13.26	14.43
8H	4H	15.33	15.82	16.24	16.74	17.90	11.55	12.04	12.47	12.96	14.12
	6H	15.90	16.30	16.84	17.26	18.42	12.07	12.47	13.01	13.43	14.59
	8H	16.11	16.47	17.06	17.42	18.60	12.25	12.61	13.20	13.56	14.74
	12H	16.25	16.56	17.20	17.51	18.74	12.37	12.69	13.32	13.63	14.86
12H	4H	15.29	15.73	16.22	16.67	17.84	11.56	12.00	12.49	12.94	14.11
	6H	15.87	16.23	16.82	17.18	18.36	12.11	12.47	13.06	13.43	14.61
	8H	16.09	16.41	17.05	17.35	18.58	12.32	12.64	13.28	13.59	14.82