

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: P922736

Luminaire Tested: DFN2DIP-SQ3F0-040D110US940-FLLFLL

Issue Date: 11/21/2024

**Test Information**

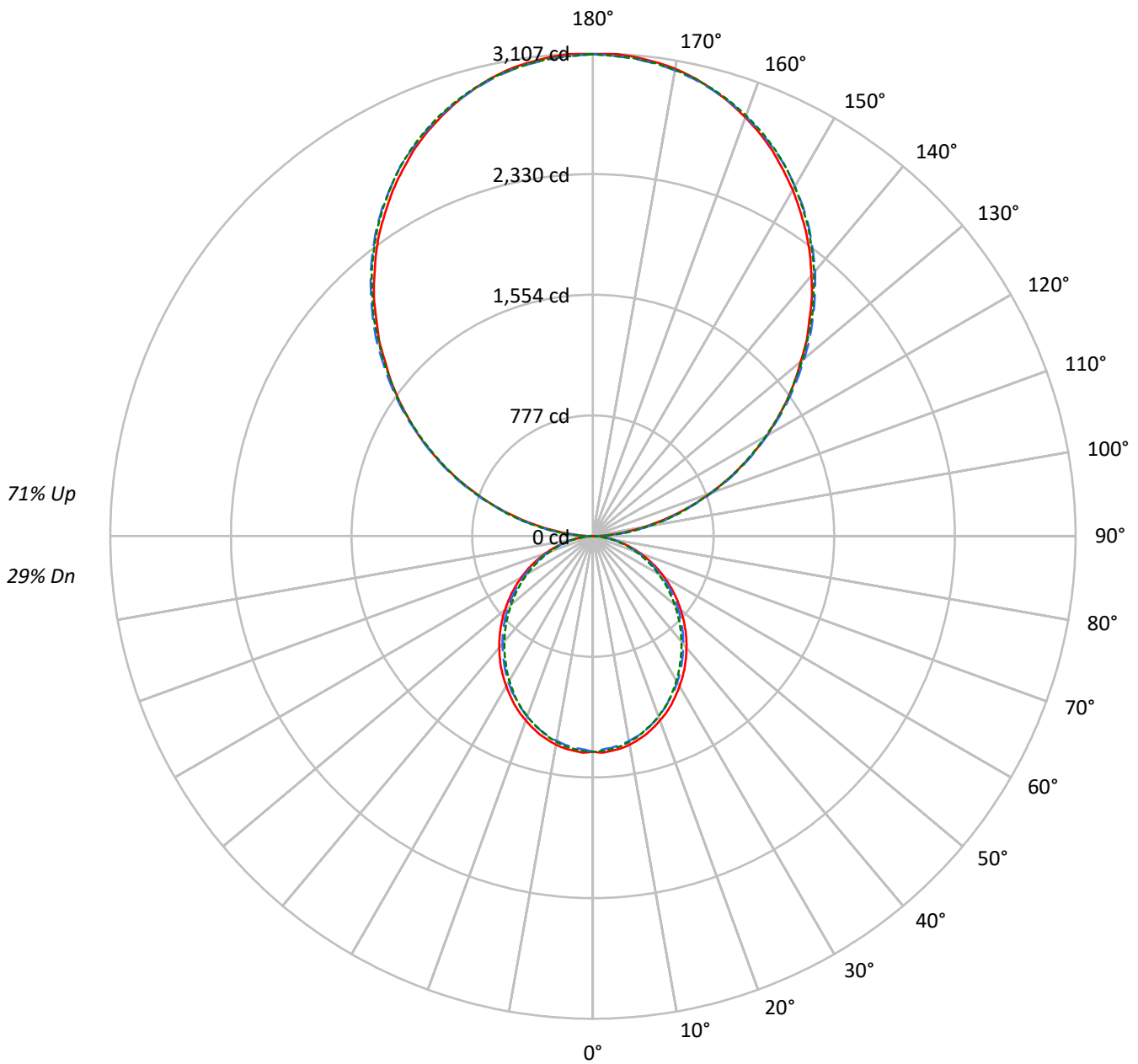
Test Method: LM-79-2019  
Report Number: P922736  
REPORT IS A COMBINATION OF REPORTS P899987 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-040D110US940-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12212.0 lumens  
Efficiency: N/A  
Efficacy: 103.3 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): 118.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
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



— 0°-180°    - - 45°-225°    ···· 90°-270°



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

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

	0°	45°	90°
0°	1590	1590	1590
5°	1592	1567	1578
10°	1578	1545	1556
15°	1554	1518	1522
20°	1521	1482	1488
25°	1489	1439	1448
30°	1449	1398	1397
35°	1411	1351	1343
40°	1364	1303	1292
45°	1317	1255	1240
50°	1266	1204	1179
55°	1213	1146	1123
60°	1152	1076	1060
65°	1086	1004	984
70°	1001	917	903
75°	885	811	827
80°	743	677	684
85°	524	448	447

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 3119 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	130.6	1.1
10°-20°	367.5	3.0
20°-30°	540.1	4.4
30°-40°	627.3	5.1
40°-50°	626.6	5.1
50°-60°	546.3	4.5
60°-70°	403.9	3.3
70°-80°	228.5	1.9
80°-90°	69.1	0.6
90°-100°	192.0	1.6
100°-110°	609.9	5.0
110°-120°	1043.8	8.5
120°-130°	1372.7	11.2
130°-140°	1540.8	12.6
140°-150°	1511.0	12.4
150°-160°	1267.5	10.4
160°-170°	840.6	6.9
170°-180°	293.8	2.4
0°-30°	1038.3	8.5
0°-40°	1665.6	13.6
0°-60°	2838.5	23.2
0°-90°	3540.0	29.0
90°-120°	1845.7	15.1
90°-150°	6270.1	51.3
90°-180°	8672.0	71.0
0°-180°	12212.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1378	1376	132
15°	1321	1313	1296	1301	1295	372
25°	1196	1185	1162	1165	1162	550
35°	1032	1018	997	989	982	644
45°	840	830	810	796	790	648
55°	635	627	611	595	589	568
65°	428	420	407	395	388	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	3	34	92	86	89	12
95°	136	163	167	167	163	152
105°	563	570	576	581	581	594
115°	1048	1062	1058	1055	1048	1036
125°	1524	1547	1539	1531	1528	1361
135°	1970	2000	2005	2002	1995	1523
145°	2392	2411	2426	2429	2418	1495
155°	2736	2743	2752	2765	2756	1259
165°	2976	2973	2973	2992	2979	840
175°	3097	3089	3083	3102	3086	294
180°	3102	3102	3102	3102	3102	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1387.9	1387.9	1387.9	1387.9	1387.9
2.5°	1396.0	1389.3	1374.6	1387.9	1385.4
5°	1387.9	1382.6	1367.9	1378.5	1376.0
7.5°	1378.5	1370.6	1355.8	1366.6	1364.0
10°	1364.0	1354.6	1338.6	1349.2	1345.2
12.5°	1343.8	1335.9	1319.9	1326.6	1323.8
15°	1321.2	1313.2	1295.8	1301.2	1294.6
17.5°	1293.2	1285.2	1267.8	1274.4	1267.8
20°	1262.4	1254.5	1235.8	1239.7	1234.6
22.5°	1231.8	1219.8	1202.4	1202.4	1199.7
25°	1195.7	1185.1	1162.4	1165.0	1162.4
27.5°	1155.7	1146.3	1129.1	1125.1	1118.5
30°	1115.7	1105.0	1085.0	1081.0	1075.7
32.5°	1073.0	1065.1	1043.7	1035.6	1030.2
35°	1031.6	1018.3	996.9	988.9	982.2
37.5°	984.9	972.9	951.5	942.2	935.5
40°	936.9	926.1	904.7	892.9	887.5
42.5°	890.2	879.4	858.2	844.7	836.8
45°	839.5	830.2	810.0	795.5	790.1
47.5°	790.1	780.7	759.4	744.7	736.7
50°	738.0	731.3	712.7	693.9	687.2
52.5°	687.2	678.0	660.7	646.0	636.6
55°	635.3	627.2	611.3	595.2	588.6
57.5°	583.2	576.6	559.1	543.1	537.8
60°	531.1	525.8	507.2	492.5	488.5
62.5°	480.5	471.1	457.8	444.4	439.1
65°	428.5	420.4	407.1	395.0	388.4
67.5°	375.1	368.3	356.4	347.1	341.7
70°	325.7	320.3	308.3	298.9	293.6
72.5°	275.0	269.6	263.0	253.6	249.6
75°	224.2	221.6	214.8	206.9	209.6
77.5°	178.8	173.4	170.8	166.7	162.8
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.5	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	2.8	33.7	91.7	86.1	88.8
92.5°	58.0	78.6	81.3	84.2	84.2
95°	136.5	162.7	167.4	167.4	162.7
97.5°	227.3	251.6	261.9	261.9	261.9
100°	332.0	353.5	361.0	361.0	358.2
102.5°	442.4	458.2	468.6	471.4	468.6
105°	563.0	570.5	576.1	580.8	580.8
107.5°	682.7	693.9	693.9	695.8	682.7
110°	798.7	813.7	813.7	813.7	806.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	924.0	939.9	937.1	929.6	924.0
115°	1047.5	1062.4	1057.7	1055.0	1047.5
117.5°	1170.0	1190.5	1177.4	1170.0	1162.5
120°	1293.4	1314.0	1293.4	1293.4	1285.0
122.5°	1405.7	1431.8	1418.7	1411.2	1405.7
125°	1523.5	1546.8	1539.4	1531.0	1528.1
127.5°	1638.5	1667.5	1657.2	1646.0	1638.5
130°	1746.1	1779.8	1775.0	1769.4	1759.2
132.5°	1866.7	1892.9	1894.8	1881.7	1874.2
135°	1970.5	1999.5	2005.1	2002.3	1994.8
137.5°	2086.5	2109.9	2114.5	2112.6	2101.5
140°	2188.4	2211.8	2224.9	2224.9	2214.7
142.5°	2293.2	2316.6	2324.1	2326.8	2316.6
145°	2392.3	2411.0	2426.0	2428.8	2418.5
147.5°	2481.2	2504.5	2515.8	2520.4	2510.2
150°	2572.9	2588.7	2599.0	2607.5	2599.0
152.5°	2654.2	2670.0	2683.2	2693.5	2683.2
155°	2735.6	2743.0	2751.5	2764.6	2756.1
157.5°	2805.7	2811.3	2815.9	2834.7	2821.5
160°	2868.4	2874.0	2876.7	2892.7	2881.5
162.5°	2926.3	2926.3	2929.2	2946.9	2933.8
165°	2975.9	2973.1	2973.1	2991.8	2978.7
167.5°	3020.8	3012.4	3012.4	3031.1	3018.0
170°	3054.5	3047.0	3044.2	3062.8	3047.0
172.5°	3077.8	3070.3	3067.6	3086.3	3070.3
175°	3096.6	3089.1	3083.4	3102.2	3086.3
177.5°	3106.8	3099.3	3093.7	3109.7	3093.7
180°	3102.2	3102.2	3102.2	3102.2	3102.2



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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	6.49	7.19	7.61	8.30	9.85	6.05	6.75	7.17	7.86	9.40
	3H	8.14	8.76	9.26	9.88	11.44	7.65	8.27	8.77	9.39	10.95
	4H	8.71	9.31	9.85	10.43	11.99	8.22	8.81	9.36	9.94	11.50
	6H	9.10	9.65	10.25	10.77	12.35	8.60	9.15	9.75	10.27	11.85
	8H	9.20	9.72	10.35	10.86	12.43	8.70	9.22	9.84	10.36	11.93
	12H	9.24	9.73	10.39	10.87	12.46	8.73	9.22	9.88	10.36	11.95
4H	2H	6.93	7.53	8.07	8.65	10.21	6.57	7.17	7.72	8.29	9.86
	3H	8.78	9.27	9.92	10.42	12.00	8.37	8.86	9.52	10.01	11.59
	4H	9.48	9.94	10.63	11.07	12.67	9.05	9.51	10.21	10.65	12.24
	6H	9.98	10.37	11.14	11.53	13.12	9.55	9.94	10.71	11.10	12.68
	8H	10.12	10.49	11.28	11.64	13.24	9.69	10.05	10.84	11.20	12.81
	12H	10.19	10.52	11.36	11.68	13.29	9.74	10.07	10.91	11.23	12.84
8H	4H	9.66	10.02	10.82	11.17	12.78	9.28	9.65	10.44	10.80	12.40
	6H	10.28	10.58	11.45	11.77	13.37	9.89	10.19	11.07	11.39	12.99
	8H	10.49	10.76	11.68	11.93	13.55	10.10	10.36	11.28	11.53	13.15
	12H	10.61	10.84	11.80	12.01	13.67	10.20	10.43	11.39	11.60	13.26
12H	4H	9.63	9.97	10.81	11.13	12.74	9.27	9.60	10.44	10.76	12.37
	6H	10.30	10.57	11.49	11.74	13.36	9.93	10.19	11.11	11.37	12.99
	8H	10.53	10.76	11.72	11.93	13.59	10.15	10.38	11.34	11.55	13.21