

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: P922731

Luminaire Tested: DFN2DIP-SQ3F0-040D090US940-RLLONL

Issue Date: 11/21/2024

**Test Information**

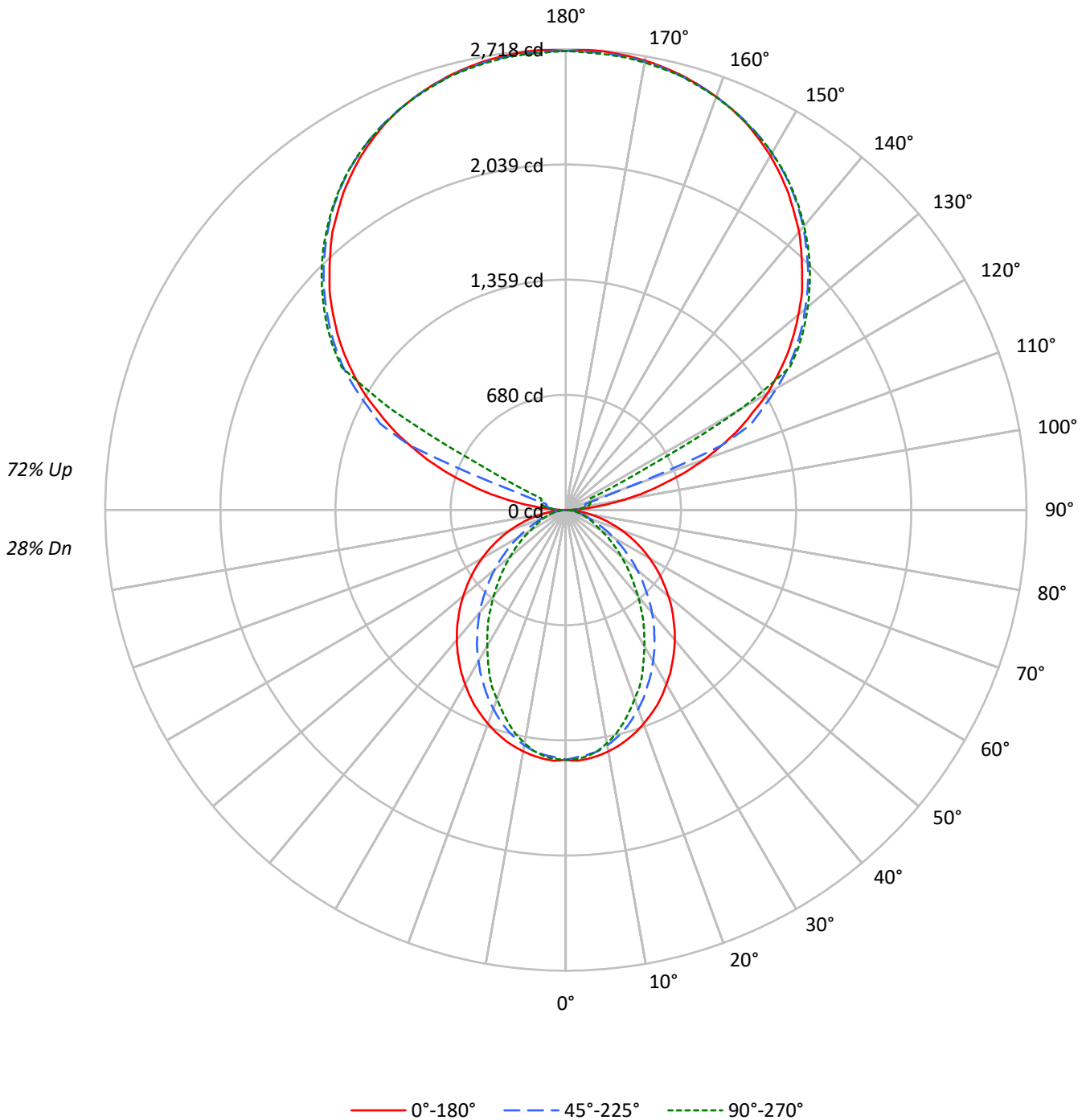
Test Method: LM-79-2019  
Report Number: P922731  
REPORT IS A COMBINATION OF REPORTS P901472 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-040D090US940-RLLONL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10976.9 lumens  
Efficiency: N/A  
Efficacy: 108.9 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-Indirect  
  
Input Watts (W): 100.8  
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





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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	91	91	91	91	71	71	71	53	53	53	36	36	36	36	36	36	28
1	93	89	85	82	83	80	77	74	62	60	59	46	45	44	32	31	31	31	31	31	24
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	28	27	26	26	26	26	20
3	78	69	62	56	69	62	56	51	49	45	41	37	34	32	25	24	22	22	22	22	18
4	71	61	53	48	63	55	48	44	43	39	35	33	30	27	23	21	20	20	20	20	15
5	65	54	47	41	58	49	42	37	39	34	30	29	26	24	21	19	17	17	17	17	13
6	60	49	41	35	54	44	37	32	35	30	27	27	23	21	19	17	15	15	15	15	12
7	55	44	36	31	49	40	33	28	32	27	23	24	21	18	17	15	14	14	14	14	11
8	51	40	32	27	46	36	30	25	29	24	21	22	19	16	16	14	12	12	12	12	10
9	48	36	29	24	43	33	27	22	26	22	19	20	17	15	15	13	11	11	11	11	9
10	45	33	26	22	40	30	24	20	24	20	17	19	16	13	14	12	10	10	10	10	8

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

	0°	45°	90°
0°	1689	1689	1689
5°	1691	1661	1672
10°	1673	1627	1617
15°	1649	1573	1533
20°	1617	1497	1429
25°	1585	1413	1329
30°	1542	1327	1202
35°	1500	1235	1091
40°	1457	1139	963
45°	1407	1033	848
50°	1355	926	735
55°	1301	812	626
60°	1239	693	515
65°	1166	573	463
70°	1079	460	418
75°	968	403	379
80°	809	334	327
85°	549	218	242

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1854 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	138.2	1.3
10°-20°	379.3	3.5
20°-30°	532.5	4.9
30°-40°	580.5	5.3
40°-50°	533.5	4.9
50°-60°	419.0	3.8
60°-70°	272.7	2.5
70°-80°	140.4	1.3
80°-90°	40.6	0.4
90°-100°	89.3	0.8
100°-110°	332.9	3.0
110°-120°	883.0	8.0
120°-130°	1464.5	13.3
130°-140°	1555.6	14.2
140°-150°	1445.8	13.2
150°-160°	1162.4	10.6
160°-170°	749.0	6.8
170°-180°	257.8	2.3
0°-30°	1049.9	9.6
0°-40°	1630.4	14.9
0°-60°	2582.9	23.5
0°-90°	3036.6	27.7
90°-120°	1305.2	11.9
90°-150°	5771.2	52.6
90°-180°	7940.0	72.3
0°-180°	10976.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1474	1474	1474	1474	1474	
5°	1474	1468	1450	1462	1458	140
15°	1402	1387	1342	1317	1304	395
25°	1273	1230	1142	1087	1067	585
35°	1097	1029	911	827	798	686
45°	896	807	667	572	540	692
55°	682	578	434	354	328	609
65°	460	352	232	187	183	456
75°	245	152	107	97	96	260
85°	57	29	25	25	25	66
90°	2	24	39	49	53	10
95°	127	63	76	86	84	151
105°	596	655	120	141	149	637
115°	1127	1160	1209	302	161	1109
125°	1593	1619	1656	1670	1676	1421
135°	1972	2003	2020	2040	2036	1523
145°	2287	2285	2318	2332	2322	1431
155°	2518	2501	2524	2536	2520	1161
165°	2654	2642	2648	2662	2648	750
175°	2714	2700	2705	2718	2699	258
180°	2708	2708	2708	2708	2708	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1474.2	1474.2	1474.2	1474.2	1474.2
2.5°	1480.9	1474.2	1459.5	1472.9	1470.2
5°	1474.2	1467.5	1450.1	1462.1	1458.2
7.5°	1462.1	1454.2	1435.6	1440.7	1434.1
10°	1446.2	1436.8	1410.2	1406.0	1398.2
12.5°	1426.2	1414.2	1378.0	1370.1	1355.4
15°	1402.1	1387.4	1342.1	1316.8	1303.5
17.5°	1374.1	1352.7	1296.6	1267.4	1246.0
20°	1342.1	1315.4	1248.7	1215.4	1186.0
22.5°	1307.4	1276.8	1199.3	1154.0	1134.1
25°	1272.7	1230.0	1141.9	1087.4	1067.2
27.5°	1231.5	1186.0	1088.6	1025.9	995.1
30°	1187.4	1136.6	1029.8	961.9	925.9
32.5°	1144.7	1083.2	973.9	893.9	860.4
35°	1096.7	1028.6	911.2	827.2	797.7
37.5°	1050.0	976.5	852.5	760.4	727.1
40°	1000.6	920.6	791.1	696.4	661.7
42.5°	949.8	864.5	729.8	631.0	597.7
45°	896.5	807.1	667.1	572.3	540.3
47.5°	845.9	751.2	607.1	512.3	483.0
50°	789.8	695.1	548.3	456.2	428.3
52.5°	735.0	635.0	492.3	404.2	378.9
55°	681.7	577.6	433.5	353.6	328.2
57.5°	627.1	520.3	381.6	306.8	285.5
60°	571.0	464.2	326.8	258.9	237.6
62.5°	516.4	409.7	280.1	216.2	205.5
65°	460.3	352.1	232.1	186.8	182.7
67.5°	407.0	298.8	186.8	164.1	160.1
70°	350.9	246.8	154.7	141.4	136.0
72.5°	297.6	198.8	129.4	118.8	116.1
75°	245.4	152.0	106.7	97.4	96.1
77.5°	193.5	108.0	84.1	78.7	76.0
80°	145.3	77.4	63.9	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.3	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	1.9	23.5	39.1	49.1	52.8
92.5°	49.1	41.2	47.0	51.0	52.8
95°	127.3	62.6	76.3	86.3	84.3
97.5°	229.3	68.7	99.9	105.8	107.7
100°	347.0	78.5	111.7	127.3	131.3
102.5°	476.2	472.4	115.7	137.1	143.1
105°	595.8	654.7	119.6	141.1	148.9
107.5°	734.9	783.8	123.6	145.0	152.9
110°	868.3	909.3	343.0	147.0	154.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	993.7	1028.9	995.6	150.8	156.9
115°	1126.9	1160.1	1209.2	301.8	160.8
117.5°	1242.5	1281.7	1315.1	1034.7	521.3
120°	1371.9	1401.2	1436.6	1460.1	1195.5
122.5°	1481.6	1513.0	1552.3	1563.9	1566.0
125°	1593.2	1618.8	1656.1	1669.8	1675.6
127.5°	1695.1	1722.6	1752.2	1771.7	1773.6
130°	1791.3	1822.7	1844.1	1865.7	1863.9
132.5°	1889.3	1914.9	1936.3	1954.0	1952.1
135°	1971.7	2003.0	2020.5	2040.3	2036.4
137.5°	2057.8	2081.3	2101.0	2120.6	2114.8
140°	2142.0	2157.8	2179.3	2196.9	2187.2
142.5°	2212.8	2226.5	2251.8	2267.4	2257.7
145°	2287.2	2285.1	2318.4	2332.2	2322.4
147.5°	2351.7	2345.9	2379.2	2389.0	2381.2
150°	2414.6	2400.8	2432.2	2443.8	2434.1
152.5°	2467.4	2451.8	2481.1	2493.0	2479.2
155°	2518.4	2500.9	2524.3	2536.0	2520.4
157.5°	2559.6	2544.0	2561.6	2575.3	2559.6
160°	2594.9	2583.0	2594.9	2606.6	2592.8
162.5°	2626.1	2614.4	2624.2	2637.9	2620.3
165°	2653.6	2641.9	2647.8	2661.5	2647.8
167.5°	2675.2	2663.4	2669.3	2683.1	2665.4
170°	2692.9	2681.0	2684.9	2698.7	2681.0
172.5°	2704.6	2692.9	2696.8	2710.5	2692.9
175°	2714.3	2700.5	2704.6	2718.2	2698.7
177.5°	2718.2	2704.6	2706.6	2720.3	2702.7
180°	2708.5	2708.5	2708.5	2708.5	2708.5



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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	6.37	7.05	7.50	8.17	9.73	2.33	3.01	3.46	4.13	5.69
	3H	8.03	8.64	9.17	9.77	11.34	3.50	4.11	4.64	5.23	6.81
	4H	8.63	9.20	9.78	10.33	11.91	3.94	4.51	5.09	5.64	7.22
	6H	9.04	9.57	10.20	10.70	12.29	4.25	4.77	5.40	5.91	7.50
	8H	9.16	9.66	10.32	10.81	12.39	4.33	4.83	5.49	5.98	7.56
	12H	9.21	9.69	10.38	10.83	12.44	4.37	4.84	5.53	5.98	7.59
4H	2H	6.37	6.94	7.53	8.07	9.65	2.90	3.48	4.06	4.61	6.19
	3H	8.18	8.66	9.34	9.81	11.40	4.23	4.71	5.40	5.87	7.46
	4H	8.86	9.30	10.02	10.44	12.06	4.77	5.21	5.93	6.35	7.97
	6H	9.36	9.74	10.53	10.90	12.51	5.17	5.55	6.34	6.72	8.32
	8H	9.53	9.88	10.70	11.04	12.66	5.30	5.65	6.46	6.81	8.42
	12H	9.62	9.93	10.80	11.10	12.73	5.35	5.67	6.53	6.84	8.46
8H	4H	8.81	9.17	9.98	10.32	11.94	5.04	5.39	6.20	6.54	8.16
	6H	9.37	9.66	10.56	10.86	12.47	5.54	5.83	6.73	7.03	8.65
	8H	9.58	9.83	10.78	11.01	12.65	5.73	5.98	6.92	7.16	8.79
	12H	9.71	9.93	10.91	11.11	12.78	5.83	6.05	7.03	7.23	8.90
12H	4H	8.76	9.08	9.94	10.25	11.87	5.03	5.35	6.22	6.52	8.14
	6H	9.34	9.60	10.54	10.77	12.41	5.59	5.84	6.78	7.02	8.65
	8H	9.55	9.78	10.75	10.95	12.62	5.79	6.01	6.98	7.18	8.85