

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: P913899

Luminaire Tested: DFN2DIP-PN3F0-040D050US927-RLLONL

Issue Date: 11/21/2024

**Test Information**

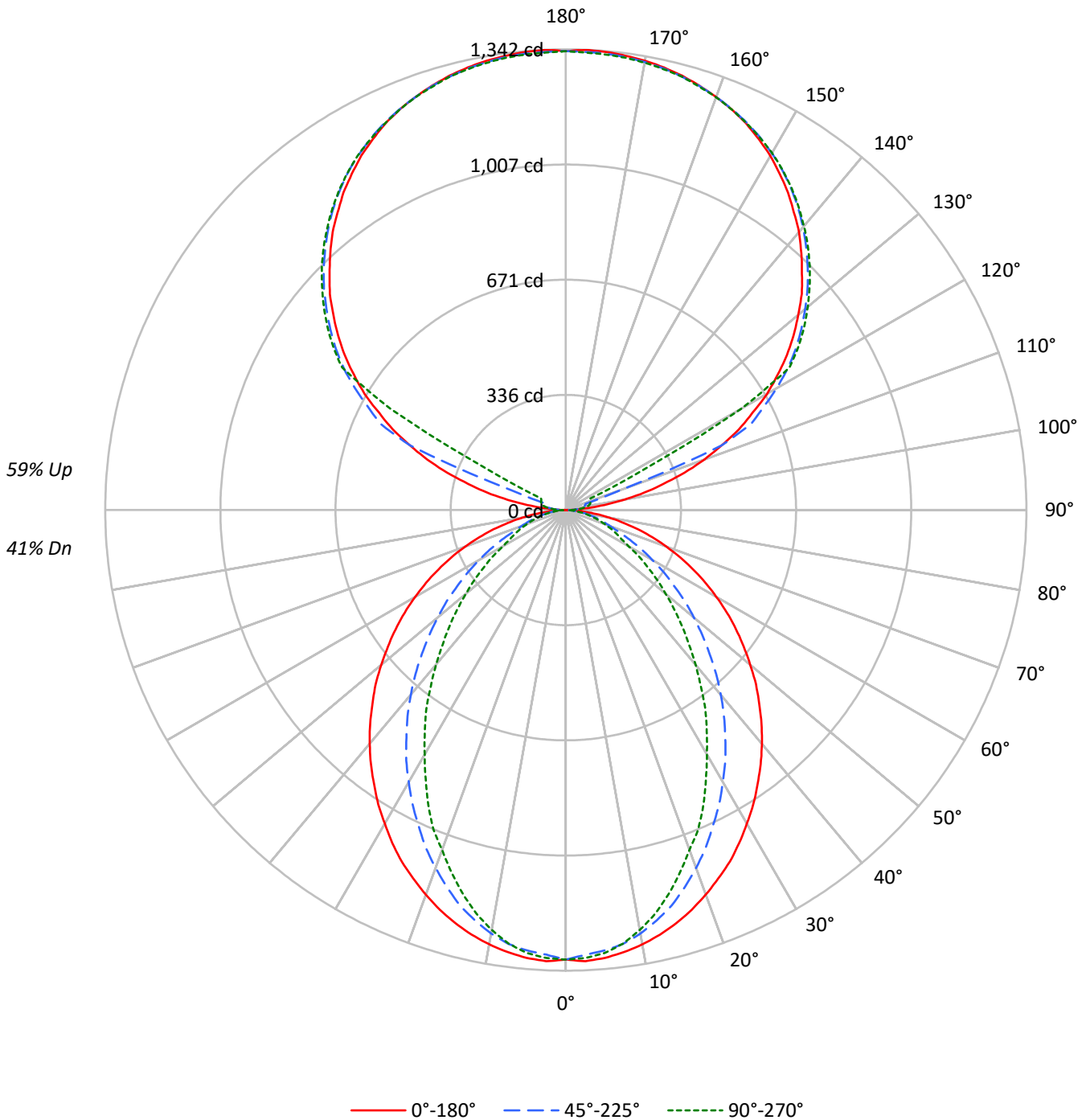
Test Method: LM-79-2019  
Report Number: P913899  
REPORT IS A COMBINATION OF REPORTS P901062 AND P897955  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-040D050US927-RLONL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6614.7 lumens  
Efficiency: N/A  
Efficacy: 91.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 72.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9972  
Total Harmonic Distortion (THDi): 0.128  
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				
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	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	48	48	48	41
1	96	92	88	85	87	84	81	78	69	67	65	55	54	53	43	42	41	41	41	41	35
2	88	81	75	70	80	74	69	65	61	57	54	49	47	44	38	36	35	35	35	35	30
3	80	71	64	59	73	65	59	54	54	50	46	44	41	38	34	32	30	30	30	30	26
4	74	63	56	50	67	58	52	46	48	43	40	39	36	33	31	28	26	26	26	26	23
5	68	57	49	43	62	52	45	40	43	38	34	35	32	29	28	25	23	23	23	23	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	21	21	21	21	18
7	58	46	38	33	53	42	36	31	36	30	27	29	25	23	23	21	19	19	19	19	16
8	54	42	34	29	49	39	32	27	33	27	24	27	23	20	21	19	17	17	17	17	14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	15	15	15	13
10	47	35	28	23	43	32	26	22	28	23	19	23	19	17	18	16	14	14	14	14	12

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

	0°	45°	90°
0°	1531	1531	1531
5°	1532	1505	1516
10°	1516	1475	1466
15°	1495	1425	1389
20°	1466	1357	1295
25°	1437	1281	1204
30°	1398	1203	1089
35°	1360	1119	988
40°	1321	1032	872
45°	1276	936	768
50°	1229	839	665
55°	1180	736	567
60°	1123	628	466
65°	1058	519	419
70°	979	416	378
75°	879	365	343
80°	735	302	295
85°	499	197	218

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1276 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	122.7	1.9
10°-20°	336.9	5.1
20°-30°	473.1	7.2
30°-40°	515.7	7.8
40°-50°	473.9	7.2
50°-60°	372.2	5.6
60°-70°	242.3	3.7
70°-80°	124.7	1.9
80°-90°	34.2	0.5
90°-100°	44.1	0.7
100°-110°	164.3	2.5
110°-120°	435.8	6.6
120°-130°	722.8	10.9
130°-140°	767.8	11.6
140°-150°	713.6	10.8
150°-160°	573.7	8.7
160°-170°	369.7	5.6
170°-180°	127.2	1.9
0°-30°	932.7	14.1
0°-40°	1448.4	21.9
0°-60°	2294.6	34.7
0°-90°	2695.7	40.8
90°-120°	644.2	9.7
90°-150°	2848.4	43.1
90°-180°	3919.0	59.2
0°-180°	6614.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1310	1310	1310	1310	1310	
5°	1310	1304	1288	1299	1296	124
15°	1246	1233	1192	1170	1158	351
25°	1131	1093	1014	966	948	520
35°	974	914	810	735	709	610
45°	796	717	593	508	480	615
55°	606	513	385	314	292	541
65°	409	313	206	166	162	405
75°	218	135	95	86	85	231
85°	51	26	22	22	22	58
90°	1	12	19	24	26	6
95°	63	31	38	43	42	74
105°	294	323	59	70	74	314
115°	556	573	597	149	79	548
125°	786	799	817	824	827	701
135°	973	989	997	1007	1005	752
145°	1129	1128	1144	1151	1146	706
155°	1243	1234	1246	1252	1244	573
165°	1310	1304	1307	1314	1307	370
175°	1340	1333	1335	1342	1332	127
180°	1337	1337	1337	1337	1337	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1309.6	1309.6	1309.6	1309.6	1309.6
2.5°	1315.6	1309.6	1296.6	1308.5	1306.1
5°	1309.6	1303.7	1288.2	1298.9	1295.5
7.5°	1298.9	1291.9	1275.3	1279.9	1274.1
10°	1284.8	1276.4	1252.8	1249.1	1242.1
12.5°	1267.0	1256.3	1224.2	1217.2	1204.1
15°	1245.6	1232.6	1192.3	1169.8	1158.0
17.5°	1220.8	1201.7	1151.9	1125.9	1106.9
20°	1192.3	1168.5	1109.3	1079.7	1053.6
22.5°	1161.5	1134.2	1065.4	1025.2	1007.5
25°	1130.7	1092.7	1014.5	966.0	948.1
27.5°	1094.0	1053.6	967.1	911.4	884.1
30°	1054.9	1009.7	914.9	854.5	822.5
32.5°	1016.9	962.3	865.2	794.1	764.4
35°	974.3	913.8	809.5	734.8	708.7
37.5°	932.8	867.5	757.3	675.5	645.9
40°	888.9	817.8	702.8	618.7	587.9
42.5°	843.8	768.0	648.3	560.5	531.0
45°	796.5	717.0	592.6	508.4	480.0
47.5°	751.5	667.3	539.3	455.1	429.0
50°	701.6	617.5	487.1	405.3	380.5
52.5°	653.0	564.1	437.4	359.1	336.6
55°	605.6	513.2	385.2	314.1	291.6
57.5°	557.1	462.2	339.0	272.6	253.7
60°	507.2	412.4	290.3	230.0	211.0
62.5°	458.8	363.9	248.8	192.0	182.6
65°	408.9	312.8	206.2	166.0	162.3
67.5°	361.6	265.5	166.0	145.8	142.2
70°	311.7	219.3	137.4	125.6	120.8
72.5°	264.4	176.6	114.9	105.5	103.1
75°	218.0	135.1	94.8	86.5	85.4
77.5°	171.9	95.9	74.7	69.9	67.5
80°	129.1	68.8	56.8	52.2	52.2
82.5°	90.1	46.3	39.1	36.7	36.7
85°	50.9	26.1	22.5	22.5	22.5
87.5°	19.0	9.4	9.4	8.3	8.3
90°	1.0	11.6	19.3	24.2	26.1
92.5°	24.2	20.4	23.2	25.2	26.1
95°	62.8	30.9	37.7	42.6	41.6
97.5°	113.1	33.9	49.3	52.3	53.2
100°	171.3	38.7	55.1	62.8	64.8
102.5°	235.0	233.1	57.1	67.7	70.7
105°	294.1	323.1	59.0	69.6	73.5
107.5°	362.7	386.8	61.0	71.5	75.5
110°	428.6	448.8	169.3	72.6	76.4



TEST NUMBER: P913899

CATALOG NUMBER: DFN2DIP-PN3F0-040D050US927-RLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	490.4	507.8	491.4	74.5	77.4
115°	556.2	572.6	596.8	149.0	79.4
117.5°	613.2	632.6	649.1	510.6	257.3
120°	677.1	691.6	709.0	720.6	590.0
122.5°	731.2	746.7	766.1	771.9	772.9
125°	786.3	799.0	817.4	824.1	827.0
127.5°	836.6	850.2	864.8	874.4	875.4
130°	884.1	899.6	910.1	920.8	920.0
132.5°	932.5	945.1	955.6	964.4	963.5
135°	973.1	988.6	997.2	1007.0	1005.0
137.5°	1015.6	1027.2	1037.0	1046.6	1043.8
140°	1057.2	1065.0	1075.5	1084.3	1079.5
142.5°	1092.1	1098.9	1111.4	1119.1	1114.3
145°	1128.9	1127.8	1144.2	1151.0	1146.2
147.5°	1160.7	1157.8	1174.3	1179.1	1175.3
150°	1191.7	1184.9	1200.4	1206.2	1201.3
152.5°	1217.7	1210.1	1224.6	1230.4	1223.6
155°	1242.9	1234.3	1245.9	1251.6	1244.0
157.5°	1263.2	1255.5	1264.2	1271.1	1263.2
160°	1280.7	1274.9	1280.7	1286.4	1279.7
162.5°	1296.1	1290.4	1295.1	1301.9	1293.2
165°	1309.6	1303.9	1306.8	1313.5	1306.8
167.5°	1320.3	1314.5	1317.5	1324.2	1315.5
170°	1329.0	1323.2	1325.2	1331.9	1323.2
172.5°	1334.8	1329.0	1331.0	1337.8	1329.0
175°	1339.7	1332.8	1334.8	1341.6	1331.9
177.5°	1341.6	1334.8	1335.9	1342.6	1333.9
180°	1336.7	1336.7	1336.7	1336.7	1336.7



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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	7.66	8.42	8.70	9.46	10.86	3.63	4.39	4.66	5.43	6.83
	3H	9.33	10.00	10.37	11.05	12.47	4.80	5.48	5.85	6.53	7.95
	4H	9.93	10.57	10.99	11.62	13.05	5.25	5.89	6.31	6.94	8.37
	6H	10.34	10.93	11.41	11.99	13.43	5.56	6.15	6.63	7.21	8.64
	8H	10.46	11.02	11.54	12.10	13.53	5.64	6.21	6.72	7.28	8.71
	12H	10.52	11.05	11.60	12.12	13.57	5.68	6.22	6.76	7.28	8.74
4H	2H	7.67	8.31	8.73	9.36	10.79	4.21	4.85	5.28	5.90	7.33
	3H	9.48	10.02	10.56	11.10	12.54	5.55	6.08	6.62	7.16	8.60
	4H	10.17	10.66	11.25	11.73	13.19	6.09	6.58	7.17	7.65	9.11
	6H	10.67	11.09	11.76	12.19	13.64	6.49	6.91	7.58	8.01	9.46
	8H	10.84	11.24	11.93	12.32	13.79	6.62	7.01	7.71	8.10	9.57
	12H	10.93	11.29	12.04	12.39	13.86	6.68	7.03	7.78	8.13	9.61
8H	4H	10.13	10.52	11.22	11.61	13.08	6.36	6.75	7.45	7.83	9.30
	6H	10.69	11.01	11.80	12.14	13.60	6.86	7.19	7.97	8.32	9.78
	8H	10.90	11.18	12.02	12.29	13.78	7.05	7.33	8.17	8.44	9.93
	12H	11.03	11.28	12.15	12.38	13.91	7.16	7.41	8.28	8.52	10.04
12H	4H	10.08	10.43	11.18	11.53	13.01	6.36	6.71	7.46	7.81	9.29
	6H	10.66	10.94	11.78	12.05	13.54	6.91	7.20	8.03	8.31	9.79
	8H	10.87	11.12	11.99	12.23	13.75	7.11	7.36	8.23	8.47	9.99