

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: P913893

Luminaire Tested: DFN2DIP-PN3F0-040D040US927-FLLONL

Issue Date: 11/21/2024

**Test Information**

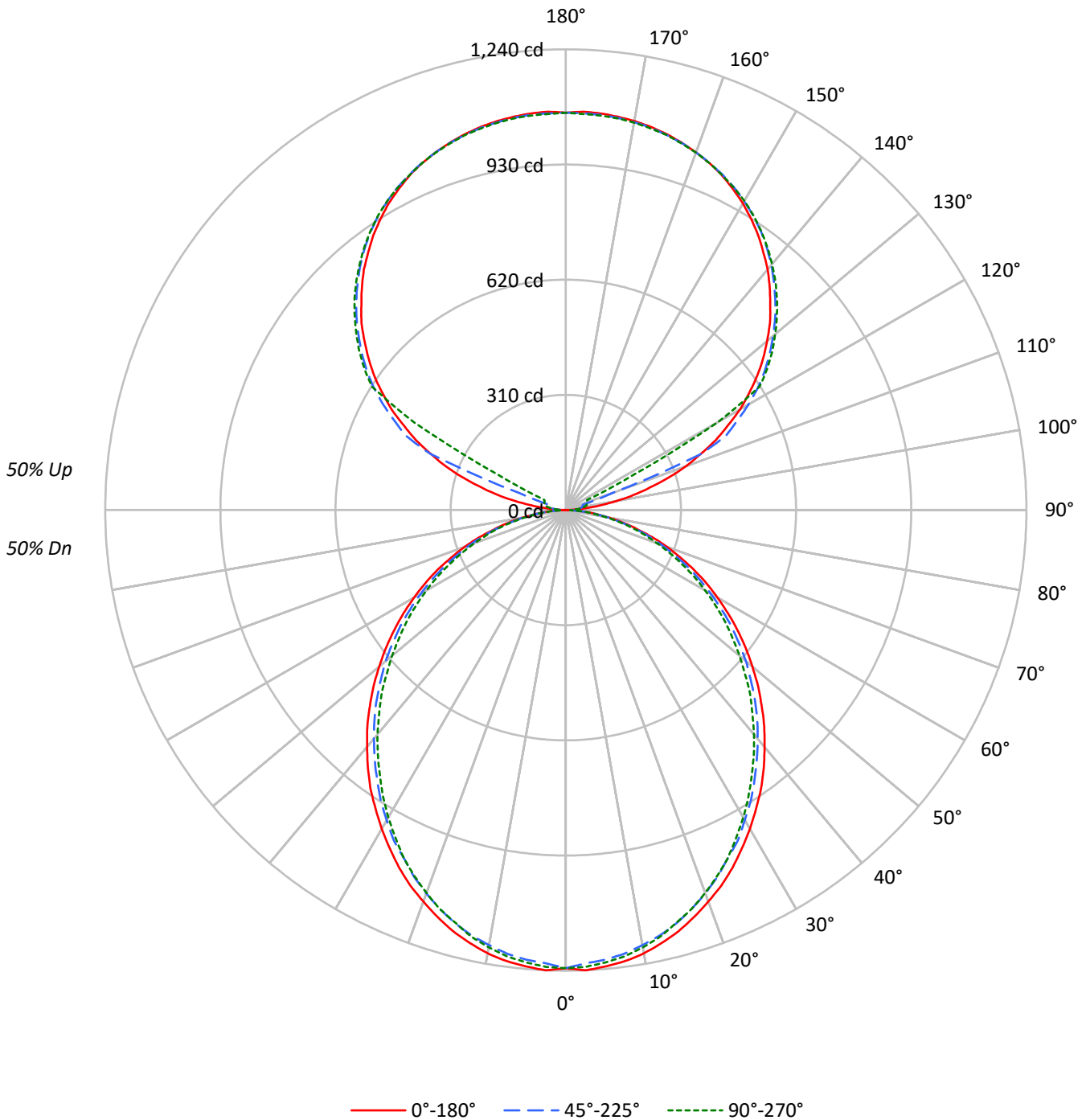
Test Method: LM-79-2019  
Report Number: P913893  
REPORT IS A COMBINATION OF REPORTS P901047 AND P897955  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-040D040US927-FLLONL  
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6274.0 lumens  
Efficiency: N/A  
Efficacy: 97.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 64.7  
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
RCR																				
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47	47	47	42
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40	40	40	35
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34	34	34	30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29	29	29	26
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26	26	26	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23	23	23	20
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20	20	20	17
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18	18	18	16
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16	16	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	15	15	13

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

	0°	45°	90°
0°	1441	1441	1441
5°	1443	1420	1430
10°	1430	1400	1410
15°	1408	1376	1379
20°	1379	1343	1348
25°	1350	1304	1311
30°	1314	1267	1265
35°	1279	1224	1216
40°	1237	1180	1170
45°	1195	1137	1122
50°	1148	1091	1067
55°	1100	1038	1017
60°	1045	975	959
65°	985	909	890
70°	909	830	816
75°	803	734	747
80°	675	612	616
85°	477	405	402

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1195 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	116.0	1.8
10°-20°	326.5	5.2
20°-30°	479.8	7.6
30°-40°	557.3	8.9
40°-50°	556.6	8.9
50°-60°	485.3	7.7
60°-70°	358.8	5.7
70°-80°	203.0	3.2
80°-90°	55.5	0.9
90°-100°	35.2	0.6
100°-110°	131.5	2.1
110°-120°	348.6	5.6
120°-130°	578.2	9.2
130°-140°	614.2	9.8
140°-150°	570.9	9.1
150°-160°	458.9	7.3
160°-170°	295.7	4.7
170°-180°	101.8	1.6
0°-30°	922.4	14.7
0°-40°	1479.7	23.6
0°-60°	2521.7	40.2
0°-90°	3138.9	50.0
90°-120°	515.3	8.2
90°-150°	2278.7	36.3
90°-180°	3135.0	50.0
0°-180°	6274.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1233	1233	1233	1233	1233	
5°	1233	1228	1215	1225	1222	117
15°	1174	1167	1151	1156	1150	331
25°	1062	1053	1033	1035	1033	489
35°	916	905	886	878	873	572
45°	746	738	720	707	702	576
55°	564	557	543	529	523	505
65°	381	373	362	351	345	376
75°	199	197	191	184	186	213
85°	49	48	46	43	42	54
90°	1	9	15	19	21	6
95°	50	25	30	34	33	60
105°	235	258	47	56	59	251
115°	445	458	477	119	64	438
125°	629	639	654	659	662	561
135°	778	791	798	806	804	601
145°	903	902	915	921	917	565
155°	994	988	997	1001	995	458
165°	1048	1043	1045	1051	1045	296
175°	1072	1066	1068	1073	1066	102
180°	1069	1069	1069	1069	1069	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1233.0	1233.0	1233.0	1233.0	1233.0
2.5°	1240.2	1234.2	1221.1	1233.0	1230.7
5°	1233.0	1228.3	1215.2	1224.6	1222.4
7.5°	1224.6	1217.6	1204.5	1214.1	1211.7
10°	1211.7	1203.4	1189.2	1198.6	1195.1
12.5°	1193.8	1186.8	1172.6	1178.5	1176.1
15°	1173.7	1166.6	1151.2	1156.0	1150.1
17.5°	1148.8	1141.8	1126.3	1132.2	1126.3
20°	1121.5	1114.4	1097.9	1101.4	1096.8
22.5°	1094.3	1083.6	1068.2	1068.2	1065.8
25°	1062.2	1052.8	1032.7	1035.0	1032.7
27.5°	1026.7	1018.3	1003.1	999.5	993.6
30°	991.2	981.7	963.9	960.4	955.6
32.5°	953.2	946.2	927.2	920.0	915.2
35°	916.5	904.7	885.7	878.5	872.6
37.5°	875.0	864.3	845.3	837.0	831.1
40°	832.3	822.8	803.7	793.2	788.5
42.5°	790.8	781.2	762.4	750.4	743.4
45°	745.8	737.5	719.6	706.7	701.9
47.5°	701.9	693.6	674.6	661.6	654.5
50°	655.6	649.7	633.1	616.5	610.5
52.5°	610.5	602.3	586.9	573.9	565.5
55°	564.4	557.2	543.0	528.8	522.9
57.5°	518.1	512.2	496.7	482.5	477.8
60°	471.8	467.1	450.6	437.5	434.0
62.5°	426.8	418.5	406.7	394.8	390.1
65°	380.6	373.4	361.6	350.9	345.1
67.5°	333.2	327.2	316.6	308.3	303.6
70°	289.3	284.6	273.9	265.5	260.9
72.5°	244.3	239.5	233.6	225.3	221.7
75°	199.2	196.9	190.8	183.8	186.2
77.5°	158.8	154.1	151.7	148.1	144.7
80°	118.6	117.3	114.9	111.5	109.1
82.5°	80.6	80.6	79.5	74.7	74.7
85°	48.6	47.5	46.3	42.6	41.5
87.5°	21.4	19.0	16.6	13.1	11.8
90°	0.7	9.3	15.4	19.4	20.8
92.5°	19.4	16.2	18.5	20.1	20.8
95°	50.2	24.7	30.1	34.1	33.3
97.5°	90.5	27.1	39.5	41.8	42.5
100°	137.0	31.0	44.1	50.2	51.8
102.5°	188.0	186.6	45.6	54.1	56.5
105°	235.2	258.5	47.2	55.7	58.8
107.5°	290.2	309.5	48.8	57.3	60.4
110°	342.9	359.0	135.5	58.1	61.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	392.4	406.2	393.1	59.6	61.9
115°	444.9	458.0	477.4	119.1	63.5
117.5°	490.6	506.0	519.3	408.5	205.8
120°	541.7	553.3	567.2	576.5	472.1
122.5°	584.9	597.4	612.9	617.5	618.3
125°	629.1	639.2	653.9	659.3	661.6
127.5°	669.3	680.2	691.8	699.6	700.3
130°	707.3	719.7	728.1	736.6	735.9
132.5°	745.9	756.1	764.5	771.5	770.8
135°	778.5	790.9	797.8	805.6	804.1
137.5°	812.5	821.7	829.6	837.3	835.0
140°	845.7	852.0	860.5	867.4	863.6
142.5°	873.7	879.1	889.1	895.2	891.4
145°	903.1	902.3	915.4	920.8	916.9
147.5°	928.5	926.2	939.4	943.3	940.2
150°	953.3	947.9	960.4	965.0	961.1
152.5°	974.2	968.0	979.6	984.3	978.9
155°	994.3	987.5	996.7	1001.3	995.1
157.5°	1010.6	1004.4	1011.5	1016.8	1010.6
160°	1024.5	1019.9	1024.5	1029.1	1023.7
162.5°	1036.9	1032.3	1036.2	1041.6	1034.6
165°	1047.7	1043.1	1045.4	1050.8	1045.4
167.5°	1056.3	1051.5	1054.0	1059.4	1052.4
170°	1063.3	1058.6	1060.1	1065.6	1058.6
172.5°	1067.9	1063.3	1064.8	1070.2	1063.3
175°	1071.7	1066.3	1067.9	1073.2	1065.6
177.5°	1073.2	1067.9	1068.7	1074.1	1067.1
180°	1069.4	1069.4	1069.4	1069.4	1069.4



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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	8.51	9.37	9.46	10.34	11.61	8.07	8.93	9.02	9.90	11.17
	3H	10.16	10.93	11.13	11.91	13.21	9.68	10.45	10.65	11.43	12.73
	4H	10.74	11.48	11.73	12.46	13.76	10.26	10.99	11.24	11.98	13.28
	6H	11.14	11.81	12.13	12.80	14.12	10.65	11.32	11.64	12.31	13.63
	8H	11.24	11.88	12.24	12.89	14.20	10.75	11.39	11.75	12.40	13.71
	12H	11.29	11.90	12.29	12.90	14.24	10.79	11.40	11.80	12.40	13.74
4H	2H	8.96	9.69	9.95	10.68	11.98	8.61	9.34	9.60	10.33	11.63
	3H	10.82	11.43	11.82	12.45	13.76	10.42	11.03	11.42	12.05	13.36
	4H	11.53	12.09	12.54	13.10	14.44	11.12	11.67	12.12	12.68	14.02
	6H	12.04	12.52	13.06	13.55	14.89	11.62	12.10	12.64	13.13	14.47
	8H	12.19	12.64	13.21	13.66	15.01	11.76	12.21	12.78	13.23	14.59
	12H	12.26	12.66	13.30	13.70	15.06	11.82	12.23	12.86	13.27	14.62
8H	4H	11.73	12.17	12.74	13.20	14.55	11.35	11.80	12.37	12.83	14.18
	6H	12.35	12.72	13.39	13.79	15.13	11.97	12.34	13.02	13.41	14.76
	8H	12.56	12.89	13.61	13.94	15.31	12.18	12.51	13.23	13.56	14.93
	12H	12.69	12.98	13.75	14.03	15.44	12.29	12.58	13.35	13.63	15.04
12H	4H	11.71	12.12	12.75	13.15	14.51	11.35	11.75	12.38	12.79	14.15
	6H	12.38	12.70	13.43	13.76	15.12	12.01	12.34	13.06	13.39	14.76
	8H	12.61	12.90	13.67	13.95	15.36	12.24	12.53	13.30	13.58	14.99