

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: P918671

Luminaire Tested: DFN2DIP-4P4F0-040D040US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918671
REPORT IS A COMBINATION OF REPORTS P900613 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D040US935-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

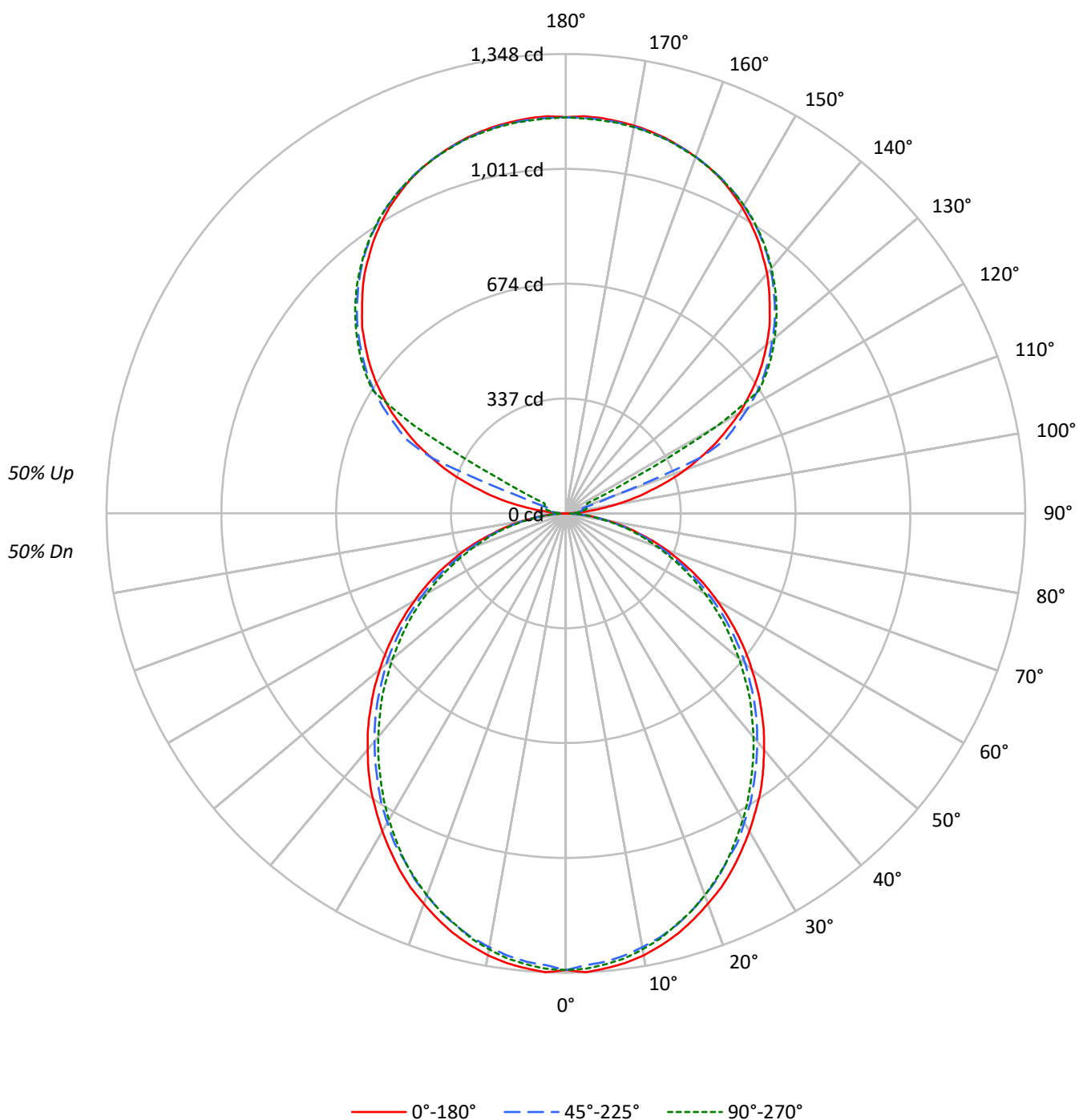
Lumens per Lamp: N/A
Luminaire Lumens: 6819.0 lumens
Efficiency: N/A
Efficacy: 98.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 69.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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
RW	70	50	30	10	70	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
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	869	869	869
5°	871	858	863
10°	864	846	852
15°	851	833	834
20°	834	814	816
25°	817	791	794
30°	796	769	767
35°	776	744	738
40°	751	719	711
45°	726	693	683
50°	699	667	651
55°	670	636	621
60°	638	599	587
65°	603	561	547
70°	559	515	504
75°	497	460	465
80°	423	390	389
85°	307	268	262

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 726 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.1	1.8
10°-20°	354.9	5.2
20°-30°	521.5	7.6
30°-40°	605.7	8.9
40°-50°	605.0	8.9
50°-60°	527.5	7.7
60°-70°	389.9	5.7
70°-80°	220.6	3.2
80°-90°	60.3	0.9
90°-100°	38.3	0.6
100°-110°	142.9	2.1
110°-120°	378.9	5.6
120°-130°	628.5	9.2
130°-140°	667.6	9.8
140°-150°	620.4	9.1
150°-160°	498.8	7.3
160°-170°	321.4	4.7
170°-180°	110.6	1.6
0°-30°	1002.5	14.7
0°-40°	1608.3	23.6
0°-60°	2740.7	40.2
0°-90°	3411.6	50.0
90°-120°	560.1	8.2
90°-150°	2476.6	36.3
90°-180°	3407.0	50.0
0°-180°	6819.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1340	1340	1340	1340	1340	
5°	1340	1335	1321	1331	1329	127
15°	1276	1268	1251	1256	1250	359
25°	1154	1144	1122	1125	1122	531
35°	996	983	963	955	948	622
45°	810	802	782	768	763	626
55°	614	606	590	575	568	548
65°	414	406	393	381	375	409
75°	216	214	207	200	202	231
85°	53	52	50	46	45	59
90°	1	10	17	21	23	6
95°	55	27	33	37	36	65
105°	256	281	51	60	64	273
115°	484	498	519	130	69	476
125°	684	695	711	717	719	610
135°	846	860	867	876	874	654
145°	982	981	995	1001	997	614
155°	1081	1073	1083	1088	1082	498
165°	1139	1134	1136	1142	1136	322
175°	1165	1159	1161	1166	1158	111
180°	1162	1162	1162	1162	1162	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1340.1	1340.1	1340.1	1340.1	1340.1
2.5°	1347.9	1341.4	1327.2	1340.1	1337.6
5°	1340.1	1335.0	1320.8	1331.0	1328.6
7.5°	1331.0	1323.4	1309.1	1319.6	1317.0
10°	1317.0	1307.9	1292.5	1302.8	1298.9
12.5°	1297.5	1289.9	1274.4	1280.9	1278.2
15°	1275.7	1268.0	1251.2	1256.4	1250.0
17.5°	1248.6	1241.0	1224.2	1230.5	1224.2
20°	1218.9	1211.3	1193.3	1197.0	1192.1
22.5°	1189.4	1177.8	1161.0	1161.0	1158.4
25°	1154.5	1144.3	1122.4	1124.9	1122.4
27.5°	1115.9	1106.8	1090.2	1086.3	1079.9
30°	1077.3	1066.9	1047.7	1043.8	1038.6
32.5°	1036.0	1028.4	1007.7	1000.0	994.7
35°	996.1	983.3	962.6	954.8	948.4
37.5°	951.0	939.3	918.7	909.7	903.3
40°	904.7	894.2	873.6	862.1	857.0
42.5°	859.5	849.1	828.6	815.6	808.0
45°	810.5	801.6	782.1	768.1	762.8
47.5°	762.8	753.8	733.2	719.0	711.4
50°	712.6	706.1	688.1	670.0	663.6
52.5°	663.6	654.6	637.9	623.7	614.7
55°	613.5	605.6	590.2	574.7	568.3
57.5°	563.1	556.7	539.8	524.4	519.3
60°	512.8	507.7	489.7	475.5	471.7
62.5°	463.9	454.9	442.0	429.1	424.0
65°	413.7	405.9	393.0	381.4	375.1
67.5°	362.1	355.6	344.1	335.1	329.9
70°	314.4	309.3	297.6	288.6	283.5
72.5°	265.5	260.3	253.9	244.9	241.0
75°	216.5	214.0	207.4	199.8	202.3
77.5°	172.6	167.5	164.9	161.0	157.2
80°	128.9	127.5	124.9	121.1	118.6
82.5°	87.6	87.6	86.4	81.2	81.2
85°	52.8	51.6	50.3	46.3	45.1
87.5°	23.2	20.7	18.1	14.2	12.8
90°	0.8	10.1	16.8	21.1	22.6
92.5°	21.1	17.7	20.1	21.9	22.6
95°	54.6	26.9	32.7	37.0	36.2
97.5°	98.4	29.4	42.9	45.5	46.2
100°	148.9	33.7	48.0	54.6	56.3
102.5°	204.3	202.8	49.6	58.8	61.4
105°	255.6	280.9	51.3	60.5	63.9
107.5°	315.4	336.4	53.0	62.3	65.6
110°	372.6	390.2	147.2	63.1	66.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	426.5	441.5	427.2	64.7	67.3
115°	483.5	497.8	518.9	129.5	69.1
117.5°	533.2	550.0	564.4	444.0	223.7
120°	588.8	601.3	616.5	626.6	513.1
122.5°	635.8	649.3	666.2	671.1	672.0
125°	683.7	694.7	710.7	716.6	719.1
127.5°	727.5	739.3	751.9	760.3	761.1
130°	768.7	782.2	791.3	800.6	799.9
132.5°	810.7	821.7	830.9	838.5	837.8
135°	846.1	859.6	867.1	875.5	873.9
137.5°	883.0	893.1	901.6	910.0	907.5
140°	919.2	926.0	935.2	942.8	938.6
142.5°	949.6	955.4	966.4	973.0	968.9
145°	981.5	980.7	994.9	1000.8	996.6
147.5°	1009.2	1006.7	1021.0	1025.2	1021.9
150°	1036.1	1030.3	1043.8	1048.8	1044.6
152.5°	1058.9	1052.1	1064.7	1069.8	1063.9
155°	1080.7	1073.2	1083.3	1088.3	1081.6
157.5°	1098.4	1091.7	1099.3	1105.2	1098.4
160°	1113.5	1108.4	1113.5	1118.5	1112.7
162.5°	1127.0	1122.0	1126.2	1132.0	1124.5
165°	1138.8	1133.8	1136.3	1142.1	1136.3
167.5°	1148.1	1142.9	1145.6	1151.4	1143.8
170°	1155.6	1150.6	1152.2	1158.1	1150.6
172.5°	1160.6	1155.6	1157.4	1163.2	1155.6
175°	1164.8	1158.9	1160.6	1166.5	1158.1
177.5°	1166.5	1160.6	1161.5	1167.4	1159.9
180°	1162.3	1162.3	1162.3	1162.3	1162.3

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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	6.81	7.67	7.76	8.64	9.91	6.36	7.22	7.32	8.20	9.47
	3H	8.47	9.25	9.44	10.23	11.52	7.98	8.76	8.95	9.74	11.03
	4H	9.06	9.80	10.05	10.78	12.08	8.57	9.30	9.55	10.29	11.59
	6H	9.47	10.14	10.46	11.13	12.45	8.97	9.64	9.96	10.63	11.95
	8H	9.58	10.22	10.58	11.23	12.54	9.07	9.72	10.07	10.72	12.03
	12H	9.63	10.24	10.63	11.24	12.57	9.12	9.73	10.12	10.73	12.06
4H	2H	7.27	8.00	8.26	8.99	10.29	6.91	7.65	7.90	8.63	9.93
	3H	9.14	9.75	10.14	10.77	12.08	8.73	9.34	9.73	10.36	11.67
	4H	9.86	10.42	10.87	11.43	12.77	9.44	10.00	10.44	11.00	12.34
	6H	10.38	10.86	11.40	11.89	13.23	9.95	10.43	10.97	11.46	12.80
	8H	10.53	10.98	11.55	12.01	13.36	10.10	10.55	11.11	11.57	12.92
	12H	10.61	11.02	11.65	12.05	13.41	10.16	10.57	11.20	11.60	12.96
8H	4H	10.06	10.51	11.08	11.53	12.88	9.68	10.13	10.70	11.15	12.51
	6H	10.70	11.07	11.74	12.13	13.48	10.31	10.68	11.35	11.75	13.10
	8H	10.92	11.25	11.97	12.30	13.67	10.53	10.85	11.58	11.91	13.27
	12H	11.06	11.34	12.11	12.39	13.80	10.64	10.93	11.70	11.98	13.39
12H	4H	10.04	10.45	11.08	11.49	12.85	9.68	10.08	10.71	11.12	12.48
	6H	10.73	11.05	11.78	12.10	13.47	10.35	10.68	11.40	11.73	13.10
	8H	10.97	11.26	12.03	12.31	13.72	10.59	10.88	11.65	11.93	13.34