

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: P902299

Luminaire Tested: DFN2DIP-4P4F0-040D030US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902299
REPORT IS A COMBINATION OF REPORTS P900601 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D030US830-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

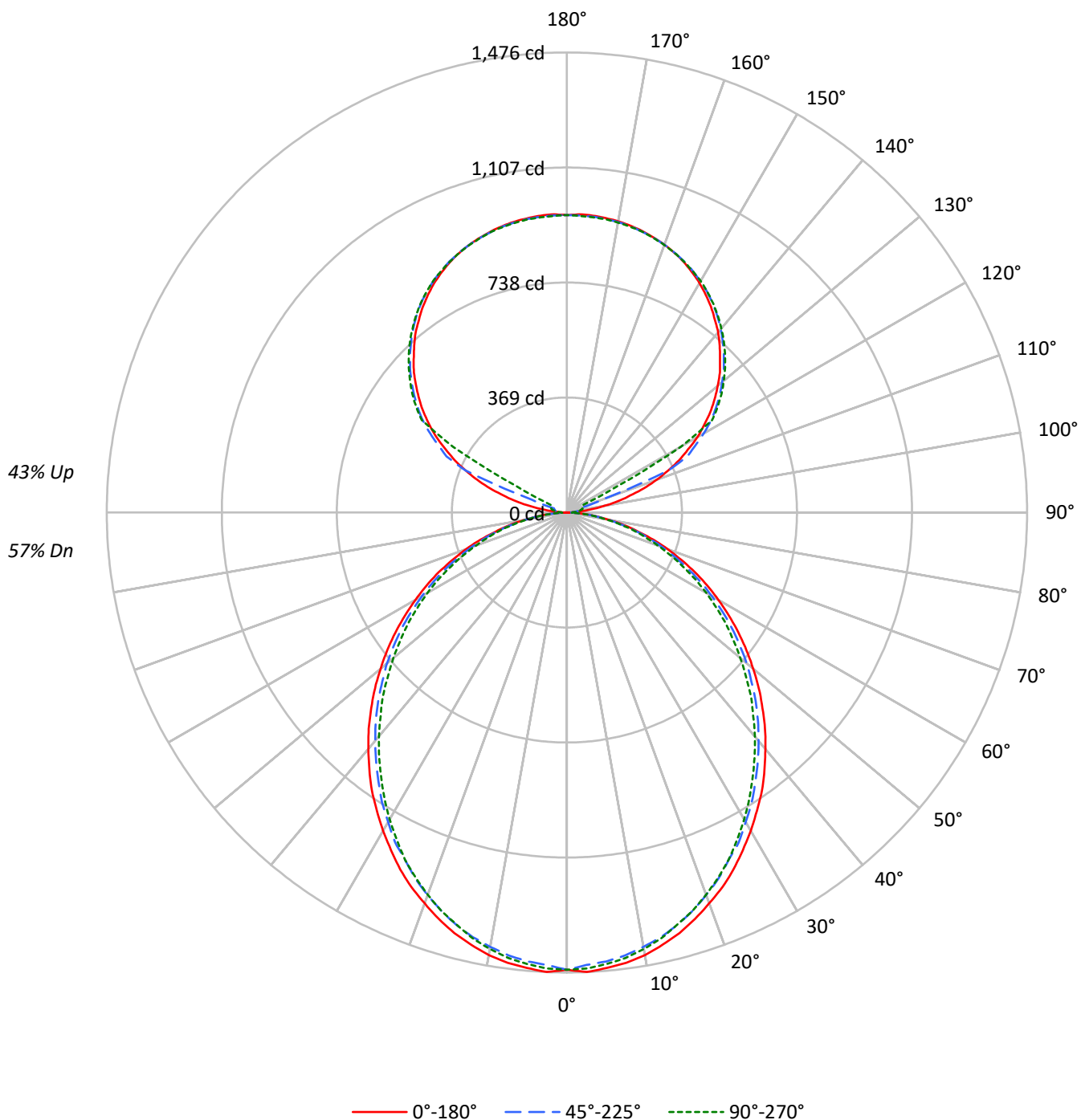
Lumens per Lamp: N/A
Luminaire Lumens: 6531.8 lumens
Efficiency: N/A
Efficacy: 105.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 61.8
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	55	54	53
2	91	83	77	72	84	77	72	67	67	63	59	58	55	52	49	47	45
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	40	38
4	76	65	57	50	70	61	53	48	53	47	43	45	41	38	39	35	33
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25
7	59	47	39	33	55	44	37	31	39	33	28	34	29	25	29	25	22
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18
10	48	36	28	24	45	34	27	22	30	24	20	26	22	18	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	952	952	952
5°	953	939	945
10°	946	926	933
15°	932	911	913
20°	913	891	893
25°	894	865	870
30°	871	842	840
35°	849	815	808
40°	822	787	778
45°	795	759	748
50°	765	730	712
55°	734	696	680
60°	699	656	643
65°	660	615	599
70°	612	564	552
75°	544	504	509
80°	463	427	426
85°	336	293	287

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 795 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	2.1
10°-20°	388.5	5.9
20°-30°	570.9	8.7
30°-40°	663.1	10.2
40°-50°	662.3	10.1
50°-60°	577.5	8.8
60°-70°	426.9	6.5
70°-80°	241.5	3.7
80°-90°	65.4	1.0
90°-100°	31.5	0.5
100°-110°	117.3	1.8
110°-120°	311.1	4.8
120°-130°	516.0	7.9
130°-140°	548.1	8.4
140°-150°	509.4	7.8
150°-160°	409.6	6.3
160°-170°	263.9	4.0
170°-180°	90.8	1.4
0°-30°	1097.5	16.8
0°-40°	1760.6	27.0
0°-60°	3000.3	45.9
0°-90°	3734.1	57.2
90°-120°	459.9	7.0
90°-150°	2033.4	31.1
90°-180°	2798.0	42.8
0°-180°	6531.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	1	8	14	17	19	6
95°	45	22	27	30	30	53
105°	210	231	42	50	52	224
115°	397	409	426	106	57	391
125°	561	570	584	588	590	501
135°	695	706	712	719	718	537
145°	806	805	817	822	818	504
155°	887	881	889	894	888	409
165°	935	931	933	938	933	264
175°	956	952	953	958	951	91
180°	954	954	954	954	954	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	0.7	8.3	13.8	17.3	18.6
92.5°	17.3	14.5	16.6	18.0	18.6
95°	44.9	22.1	26.9	30.4	29.7
97.5°	80.8	24.2	35.2	37.3	38.0
100°	122.2	27.6	39.4	44.9	46.3
102.5°	167.8	166.5	40.7	48.3	50.4
105°	209.9	230.6	42.1	49.7	52.5
107.5°	258.9	276.2	43.5	51.1	53.9
110°	305.9	320.4	120.8	51.8	54.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	350.2	362.5	350.8	53.2	55.2
115°	397.0	408.8	426.0	106.3	56.6
117.5°	437.8	451.6	463.4	364.6	183.7
120°	483.3	493.7	506.1	514.4	421.2
122.5°	522.0	533.1	547.0	551.0	551.8
125°	561.4	570.3	583.5	588.3	590.4
127.5°	597.3	606.9	617.4	624.2	624.9
130°	631.1	642.2	649.8	657.3	656.8
132.5°	665.6	674.7	682.2	688.4	687.8
135°	694.7	705.8	711.9	718.9	717.5
137.5°	725.0	733.3	740.3	747.2	745.1
140°	754.7	760.3	767.8	774.0	770.6
142.5°	779.7	784.5	793.4	798.9	795.5
145°	805.9	805.1	816.9	821.7	818.2
147.5°	828.6	826.5	838.3	841.7	839.0
150°	850.7	845.9	857.0	861.0	857.6
152.5°	869.3	863.8	874.2	878.4	873.5
155°	887.3	881.2	889.4	893.5	888.1
157.5°	901.8	896.4	902.6	907.4	901.8
160°	914.3	910.1	914.3	918.4	913.5
162.5°	925.3	921.1	924.6	929.4	923.2
165°	934.9	930.9	932.9	937.7	932.9
167.5°	942.5	938.4	940.5	945.4	939.1
170°	948.8	944.6	946.0	950.8	944.6
172.5°	952.9	948.8	950.2	955.0	948.8
175°	956.3	951.5	952.9	957.7	950.8
177.5°	957.7	952.9	953.7	958.5	952.3
180°	954.3	954.3	954.3	954.3	954.3

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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	7.76	8.68	8.65	9.60	10.76	7.31	8.24	8.20	9.15	10.32
	3H	9.43	10.26	10.33	11.18	12.37	8.94	9.77	9.84	10.69	11.88
	4H	10.02	10.81	10.94	11.74	12.94	9.53	10.32	10.45	11.24	12.44
	6H	10.43	11.16	11.36	12.09	13.30	9.93	10.66	10.86	11.59	12.80
	8H	10.54	11.23	11.48	12.18	13.39	10.04	10.73	10.98	11.68	12.89
	12H	10.59	11.25	11.54	12.20	13.43	10.08	10.74	11.03	11.69	12.92
4H	2H	8.23	9.01	9.15	9.94	11.14	7.87	8.66	8.80	9.59	10.79
	3H	10.10	10.76	11.04	11.72	12.94	9.70	10.36	10.63	11.31	12.53
	4H	10.83	11.43	11.77	12.38	13.62	10.40	11.00	11.35	11.96	13.20
	6H	11.35	11.87	12.31	12.85	14.08	10.92	11.44	11.88	12.41	13.65
	8H	11.50	11.99	12.47	12.96	14.21	11.07	11.55	12.03	12.52	13.78
	12H	11.58	12.02	12.57	13.01	14.27	11.13	11.57	12.12	12.56	13.82
8H	4H	11.03	11.51	11.99	12.48	13.74	10.65	11.14	11.61	12.11	13.36
	6H	11.67	12.07	12.66	13.08	14.33	11.29	11.69	12.27	12.70	13.95
	8H	11.90	12.25	12.89	13.25	14.52	11.50	11.86	12.50	12.86	14.13
	12H	12.03	12.35	13.03	13.34	14.66	11.62	11.93	12.62	12.93	14.25
12H	4H	11.02	11.46	12.00	12.44	13.70	10.65	11.09	11.63	12.08	13.33
	6H	11.70	12.06	12.70	13.06	14.33	11.33	11.68	12.33	12.68	13.95
	8H	11.95	12.26	12.95	13.26	14.57	11.57	11.88	12.57	12.88	14.19