

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: P924023

Luminaire Tested: DFN2DIP-4P3F0-030D030US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924023
REPORT IS A COMBINATION OF REPORTS P900561 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-030D030US950-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

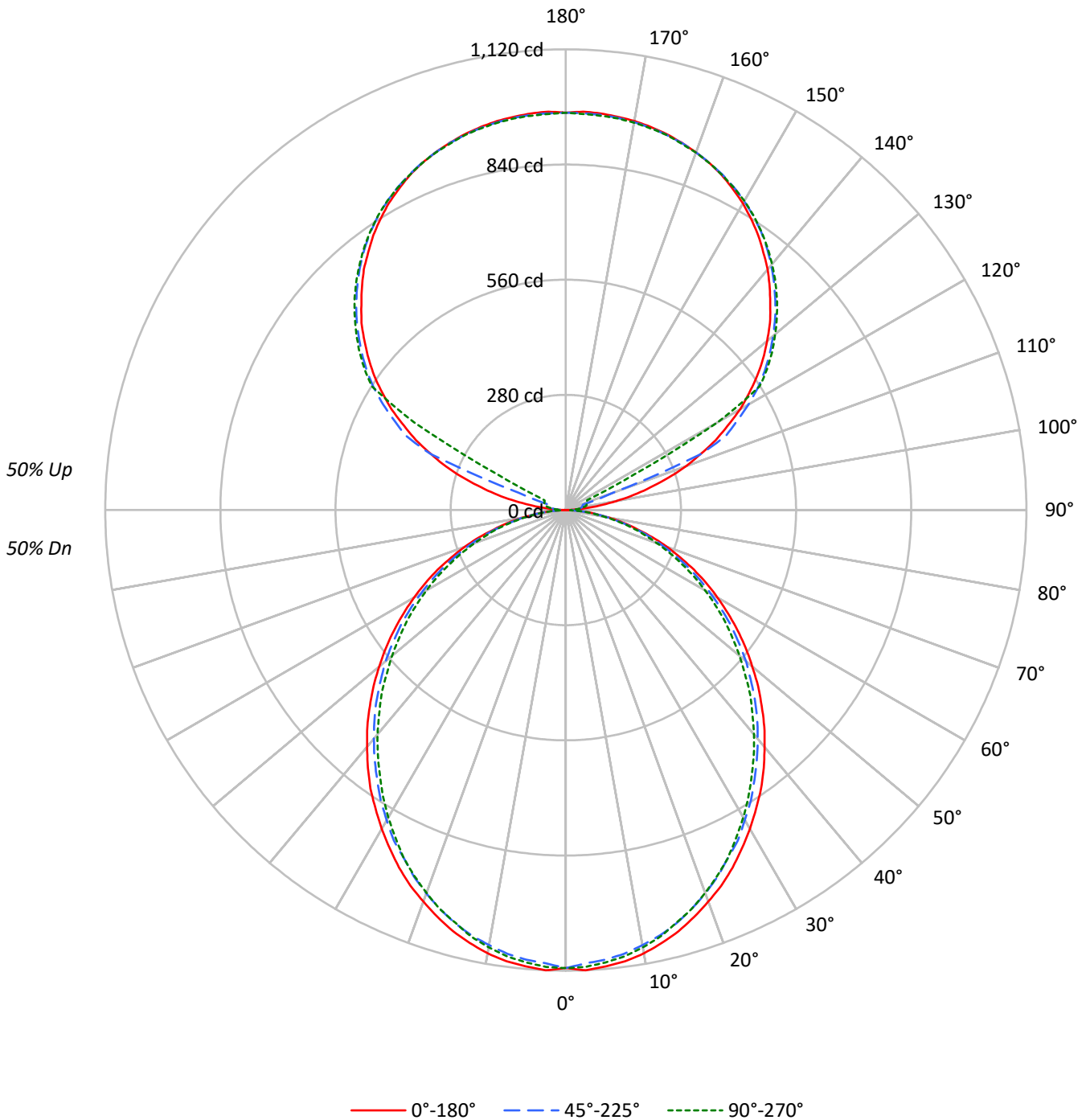
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5666.8 lumens
Efficiency: N/A
Efficacy: 117.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 48.2
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				
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	56	50
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47	50	48	47	42
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40	44	42	40	35
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34	39	36	34	30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29	35	32	29	26
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26	31	28	26	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23	28	25	23	20
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20	26	23	20	17
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18	24	20	18	16
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16	22	19	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	20	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1269	1269	1269
5°	1270	1251	1259
10°	1259	1233	1242
15°	1240	1212	1215
20°	1214	1183	1187
25°	1188	1148	1155
30°	1156	1116	1115
35°	1126	1078	1072
40°	1089	1040	1031
45°	1051	1001	989
50°	1011	961	941
55°	968	914	897
60°	920	859	846
65°	867	802	786
70°	799	732	721
75°	706	648	660
80°	593	540	546
85°	418	358	357

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1051 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.8	1.8
10°-20°	294.9	5.2
20°-30°	433.4	7.6
30°-40°	503.4	8.9
40°-50°	502.7	8.9
50°-60°	438.4	7.7
60°-70°	324.1	5.7
70°-80°	183.3	3.2
80°-90°	50.1	0.9
90°-100°	31.9	0.6
100°-110°	118.7	2.1
110°-120°	314.9	5.6
120°-130°	522.3	9.2
130°-140°	554.8	9.8
140°-150°	515.6	9.1
150°-160°	414.5	7.3
160°-170°	267.1	4.7
170°-180°	91.9	1.6
0°-30°	833.1	14.7
0°-40°	1336.5	23.6
0°-60°	2277.6	40.2
0°-90°	2835.1	50.0
90°-120°	465.5	8.2
90°-150°	2058.1	36.3
90°-180°	2832.0	50.0
0°-180°	5666.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1114	1114	1114	1114	1114	
5°	1114	1109	1098	1106	1104	106
15°	1060	1054	1040	1044	1039	299
25°	959	951	933	935	933	441
35°	828	817	800	793	788	517
45°	674	666	650	638	634	520
55°	510	503	490	478	472	456
65°	344	337	327	317	312	340
75°	180	178	172	166	168	192
85°	44	43	42	38	38	49
90°	1	8	14	18	19	5
95°	45	22	27	31	30	54
105°	212	233	43	50	53	227
115°	402	414	431	108	57	396
125°	568	577	591	596	598	507
135°	703	714	721	728	726	543
145°	816	815	827	832	828	510
155°	898	892	900	904	899	414
165°	946	942	944	949	944	267
175°	968	963	964	969	962	92
180°	966	966	966	966	966	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1113.6	1113.6	1113.6	1113.6	1113.6
2.5°	1120.1	1114.7	1102.9	1113.6	1111.6
5°	1113.6	1109.4	1097.6	1106.2	1104.1
7.5°	1106.2	1099.8	1087.9	1096.6	1094.4
10°	1094.4	1086.9	1074.1	1082.6	1079.5
12.5°	1078.3	1071.9	1059.1	1064.4	1062.3
15°	1060.1	1053.8	1039.8	1044.1	1038.7
17.5°	1037.6	1031.3	1017.3	1022.6	1017.3
20°	1013.0	1006.6	991.6	994.7	990.5
22.5°	988.4	978.8	964.8	964.8	962.6
25°	959.4	950.9	932.7	934.8	932.7
27.5°	927.3	919.8	905.9	902.8	897.4
30°	895.2	886.6	870.6	867.4	863.1
32.5°	861.0	854.6	837.4	830.9	826.6
35°	827.8	817.1	799.9	793.4	788.1
37.5°	790.3	780.7	763.5	755.9	750.6
40°	751.8	743.2	726.0	716.5	712.2
42.5°	714.3	705.7	688.6	677.8	671.4
45°	673.6	666.1	650.0	638.2	633.9
47.5°	633.9	626.5	609.3	597.5	591.1
50°	592.1	586.8	571.8	556.8	551.5
52.5°	551.5	544.0	530.1	518.3	510.8
55°	509.8	503.3	490.5	477.7	472.3
57.5°	467.9	462.6	448.7	435.8	431.5
60°	426.2	422.0	407.0	395.1	392.0
62.5°	385.5	378.0	367.3	356.6	352.3
65°	343.8	337.3	326.6	317.0	311.7
67.5°	301.0	295.5	285.9	278.5	274.2
70°	261.3	257.0	247.4	239.8	235.6
72.5°	220.7	216.3	210.9	203.5	200.3
75°	179.8	177.8	172.4	166.0	168.2
77.5°	143.5	139.2	137.0	133.8	130.7
80°	107.1	106.0	103.8	100.6	98.5
82.5°	72.8	72.8	71.8	67.4	67.4
85°	43.9	42.8	41.8	38.5	37.5
87.5°	19.3	17.2	15.0	11.8	10.7
90°	0.7	8.4	13.9	17.6	18.8
92.5°	17.6	14.7	16.8	18.2	18.8
95°	45.4	22.3	27.2	30.8	30.1
97.5°	81.8	24.5	35.6	37.8	38.4
100°	123.7	28.0	39.9	45.4	46.8
102.5°	169.8	168.5	41.2	48.8	51.0
105°	212.5	233.4	42.6	50.3	53.1
107.5°	262.1	279.5	44.1	51.7	54.6
110°	309.7	324.3	122.3	52.5	55.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	354.4	366.9	355.1	53.8	55.9
115°	401.8	413.7	431.2	107.6	57.3
117.5°	443.1	457.1	469.0	369.0	185.9
120°	489.2	499.7	512.3	520.7	426.3
122.5°	528.3	539.6	553.6	557.7	558.5
125°	568.2	577.3	590.6	595.5	597.6
127.5°	604.5	614.3	624.9	631.8	632.5
130°	638.8	650.1	657.7	665.3	664.7
132.5°	673.7	682.9	690.5	696.8	696.1
135°	703.1	714.4	720.6	727.6	726.2
137.5°	733.8	742.2	749.3	756.2	754.1
140°	763.9	769.5	777.1	783.4	780.0
142.5°	789.1	794.0	803.1	808.6	805.2
145°	815.7	814.9	826.8	831.7	828.2
147.5°	838.7	836.6	848.5	851.9	849.2
150°	861.1	856.2	867.4	871.5	868.0
152.5°	879.9	874.3	884.8	889.0	884.2
155°	898.1	891.9	900.2	904.4	898.9
157.5°	912.8	907.3	913.6	918.4	912.8
160°	925.4	921.2	925.4	929.6	924.6
162.5°	936.5	932.3	935.9	940.7	934.4
165°	946.3	942.2	944.3	949.1	944.3
167.5°	954.0	949.8	951.9	956.9	950.6
170°	960.3	956.1	957.5	962.4	956.1
172.5°	964.5	960.3	961.7	966.6	960.3
175°	967.9	963.1	964.5	969.4	962.4
177.5°	969.4	964.5	965.3	970.1	963.8
180°	965.9	965.9	965.9	965.9	965.9



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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	8.07	8.93	9.03	9.90	11.17	7.62	8.49	8.58	9.46	10.73
	3H	9.73	10.50	10.69	11.48	12.77	9.24	10.01	10.20	10.99	12.28
	4H	10.31	11.04	11.29	12.03	13.33	9.82	10.55	10.80	11.53	12.83
	6H	10.71	11.38	11.70	12.37	13.69	10.21	10.88	11.20	11.87	13.19
	8H	10.81	11.45	11.81	12.46	13.77	10.31	10.95	11.31	11.96	13.27
	12H	10.86	11.47	11.86	12.47	13.80	10.35	10.96	11.35	11.96	13.29
4H	2H	8.53	9.26	9.51	10.24	11.54	8.17	8.90	9.16	9.89	11.19
	3H	10.39	11.00	11.38	12.01	13.33	9.98	10.59	10.98	11.60	12.92
	4H	11.10	11.66	12.10	12.66	14.00	10.67	11.23	11.68	12.24	13.58
	6H	11.61	12.09	12.63	13.12	14.46	11.18	11.66	12.19	12.69	14.02
	8H	11.76	12.21	12.77	13.23	14.58	11.32	11.77	12.34	12.79	14.14
	12H	11.83	12.23	12.86	13.27	14.63	11.38	11.78	12.41	12.82	14.18
8H	4H	11.29	11.74	12.31	12.76	14.11	10.91	11.36	11.93	12.39	13.74
	6H	11.92	12.29	12.96	13.35	14.70	11.53	11.90	12.57	12.97	14.32
	8H	12.13	12.46	13.18	13.51	14.88	11.74	12.07	12.79	13.12	14.49
	12H	12.26	12.55	13.32	13.59	15.01	11.85	12.14	12.90	13.18	14.59
12H	4H	11.27	11.68	12.31	12.72	14.08	10.91	11.31	11.94	12.35	13.71
	6H	11.94	12.27	12.99	13.32	14.69	11.57	11.90	12.62	12.95	14.32
	8H	12.18	12.47	13.24	13.52	14.93	11.80	12.09	12.85	13.13	14.54