

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: P902180

Luminaire Tested: DFN2DIP-4P3F0-020D030US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902180
REPORT IS A COMBINATION OF REPORTS P899040 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D030US830-RLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

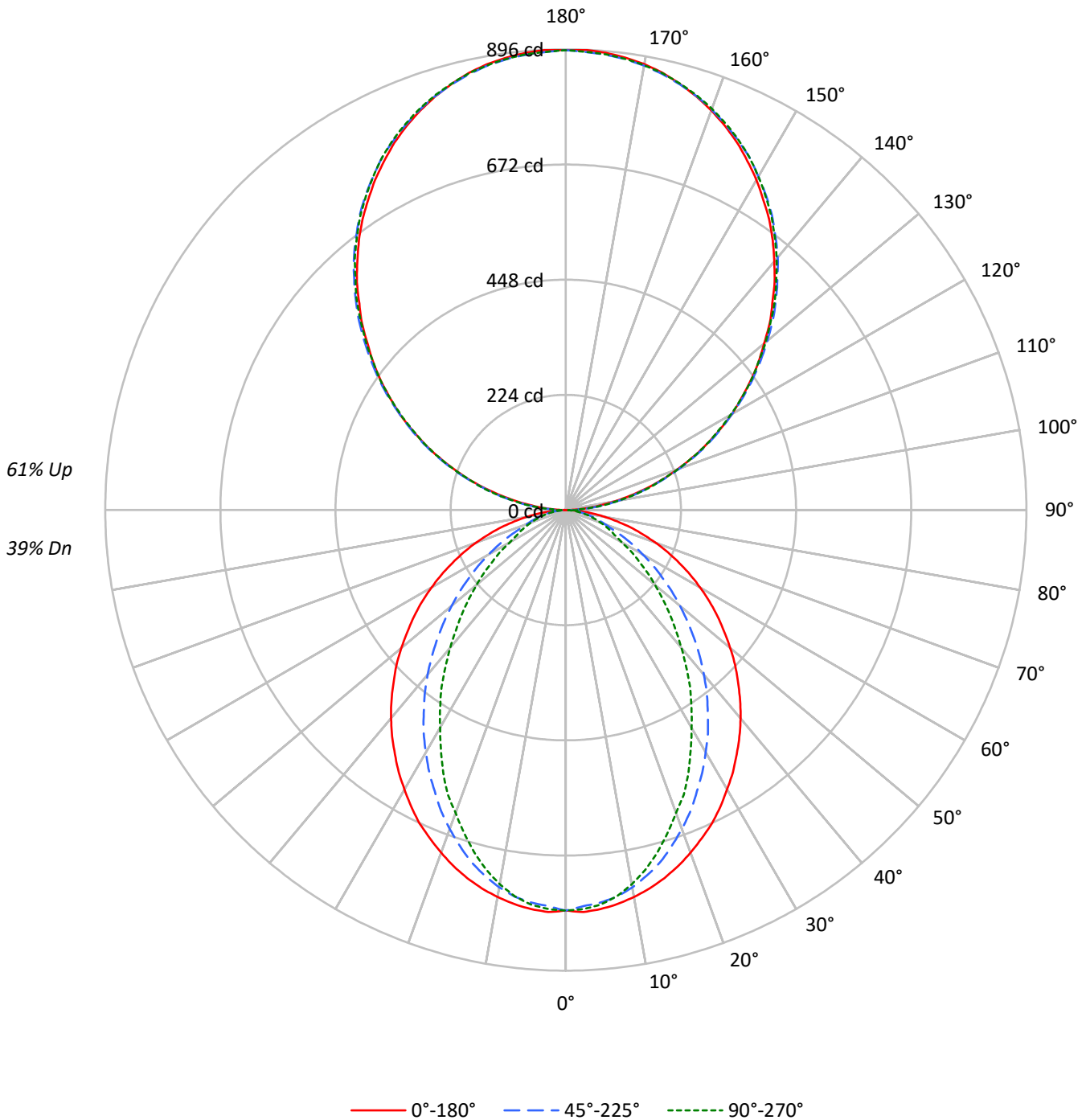
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4104.8 lumens
Efficiency: N/A
Efficacy: 108.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 37.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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				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	95	95	95	95	77	77	77	61	61	61	46	46	46	39				39
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40	34				34
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34	29				29
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29	25				25
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26	22				22
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22	19				19
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20	17				17
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18	15				15
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16	14				14
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15	12				12
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11				11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	888	888	888
5°	889	873	879
10°	879	856	850
15°	867	827	806
20°	850	787	751
25°	833	743	699
30°	810	698	632
35°	788	649	573
40°	766	599	506
45°	740	543	446
50°	713	487	386
55°	684	427	329
60°	651	365	271
65°	613	301	243
70°	567	242	220
75°	509	212	199
80°	425	176	172
85°	289	115	128

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 897 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.0	1.8
10°-20°	200.4	4.9
20°-30°	281.4	6.9
30°-40°	306.8	7.5
40°-50°	282.0	6.9
50°-60°	221.4	5.4
60°-70°	144.1	3.5
70°-80°	74.2	1.8
80°-90°	21.5	0.5
90°-100°	55.3	1.3
100°-110°	175.8	4.3
110°-120°	300.9	7.3
120°-130°	395.7	9.6
130°-140°	444.2	10.8
140°-150°	435.6	10.6
150°-160°	365.4	8.9
160°-170°	242.3	5.9
170°-180°	84.7	2.1
0°-30°	554.9	13.5
0°-40°	861.7	21.0
0°-60°	1365.1	33.3
0°-90°	1604.9	39.1
90°-120°	532.1	13.0
90°-150°	1807.5	44.0
90°-180°	2500.0	60.9
0°-180°	4104.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	779	779	779	779	779	
5°	779	776	766	773	771	74
15°	741	733	709	696	689	209
25°	673	650	604	575	564	309
35°	580	544	482	437	422	363
45°	474	426	353	302	286	366
55°	360	305	229	187	173	322
65°	243	186	123	99	97	241
75°	130	80	56	52	51	137
85°	30	16	13	13	13	35
90°	1	10	26	25	26	4
95°	39	47	48	48	47	44
105°	162	164	166	167	167	171
115°	302	306	305	304	302	299
125°	439	446	444	441	440	392
135°	568	576	578	577	575	439
145°	690	695	699	700	697	431
155°	789	791	793	797	795	363
165°	858	857	857	862	859	242
175°	893	890	889	894	890	85
180°	894	894	894	894	894	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	779.1	779.1	779.1	779.1	779.1
2.5°	782.6	779.1	771.3	778.4	777.0
5°	779.1	775.6	766.4	772.8	770.6
7.5°	772.8	768.5	758.7	761.5	757.9
10°	764.3	759.3	745.3	743.1	739.0
12.5°	753.8	747.3	728.3	724.2	716.3
15°	741.0	733.2	709.3	695.9	688.9
17.5°	726.2	714.9	685.3	669.8	658.6
20°	709.3	695.1	660.0	642.3	626.8
22.5°	691.0	674.8	633.9	609.9	599.4
25°	672.7	650.1	603.5	574.7	564.0
27.5°	650.8	626.8	575.3	542.2	525.9
30°	627.5	600.7	544.3	508.4	489.3
32.5°	604.9	572.5	514.7	472.4	454.8
35°	579.6	543.7	481.6	437.2	421.6
37.5°	554.9	516.0	450.5	401.9	384.3
40°	528.8	486.5	418.1	368.1	349.7
42.5°	502.0	456.9	385.7	333.5	315.9
45°	473.8	426.5	352.6	302.5	285.5
47.5°	447.0	397.0	320.8	270.7	255.2
50°	417.5	367.4	289.8	241.1	226.4
52.5°	388.4	335.5	260.1	213.7	200.3
55°	360.2	305.3	229.1	186.9	173.4
57.5°	331.4	274.9	201.7	162.2	150.9
60°	301.8	245.3	172.8	136.9	125.5
62.5°	272.9	216.5	148.1	114.2	108.6
65°	243.3	186.2	122.7	98.8	96.6
67.5°	215.1	157.9	98.8	86.7	84.6
70°	185.4	130.4	81.7	74.7	71.9
72.5°	157.2	105.0	68.3	62.8	61.4
75°	129.7	80.3	56.4	51.5	50.8
77.5°	102.3	57.1	44.4	41.6	40.2
80°	76.8	40.9	33.8	31.0	31.0
82.5°	53.5	27.5	23.3	21.9	21.9
85°	30.3	15.5	13.4	13.4	13.4
87.5°	11.3	5.7	5.7	4.9	4.9
90°	0.8	9.7	26.4	24.8	25.6
92.5°	16.7	22.6	23.5	24.2	24.2
95°	39.4	46.9	48.3	48.3	46.9
97.5°	65.5	72.5	75.5	75.5	75.5
100°	95.7	101.9	104.1	104.1	103.3
102.5°	127.5	132.1	135.1	135.9	135.1
105°	162.3	164.5	166.1	167.4	167.4
107.5°	196.8	200.0	200.0	200.6	196.8
110°	230.3	234.6	234.6	234.6	232.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	266.4	271.0	270.1	268.0	266.4
115°	302.0	306.2	304.9	304.2	302.0
117.5°	337.2	343.2	339.4	337.2	335.1
120°	372.9	378.8	372.9	372.9	370.4
122.5°	405.2	412.7	409.0	406.8	405.2
125°	439.2	445.9	443.7	441.3	440.5
127.5°	472.3	480.7	477.8	474.5	472.3
130°	503.3	513.0	511.7	510.1	507.1
132.5°	538.1	545.6	546.2	542.4	540.3
135°	568.1	576.4	578.1	577.2	575.0
137.5°	601.4	608.2	609.5	609.1	605.8
140°	630.8	637.6	641.4	641.4	638.4
142.5°	661.1	667.8	670.0	670.8	667.8
145°	689.7	695.0	699.4	700.1	697.2
147.5°	715.3	722.0	725.2	726.6	723.6
150°	741.7	746.3	749.2	751.7	749.2
152.5°	765.2	769.7	773.5	776.5	773.5
155°	788.6	790.7	793.1	796.9	794.6
157.5°	808.8	810.4	811.8	817.2	813.4
160°	826.9	828.5	829.3	833.9	830.7
162.5°	843.6	843.6	844.4	849.5	845.7
165°	857.9	857.1	857.1	862.4	858.7
167.5°	870.8	868.4	868.4	873.7	870.0
170°	880.5	878.4	877.6	883.0	878.4
172.5°	887.2	885.1	884.3	889.7	885.1
175°	892.7	890.5	888.9	894.3	889.7
177.5°	895.6	893.4	891.8	896.5	891.8
180°	894.3	894.3	894.3	894.3	894.3



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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	5.59	6.33	6.64	7.39	8.81	1.55	2.30	2.60	3.35	4.77
	3H	7.25	7.92	8.31	8.98	10.42	2.72	3.39	3.79	4.45	5.89
	4H	7.85	8.49	8.93	9.55	11.00	3.17	3.80	4.24	4.86	6.31
	6H	8.27	8.85	9.35	9.92	11.38	3.48	4.06	4.56	5.13	6.59
	8H	8.39	8.95	9.48	10.03	11.48	3.56	4.12	4.65	5.20	6.65
	12H	8.45	8.97	9.54	10.05	11.53	3.60	4.13	4.69	5.20	6.68
4H	2H	5.59	6.23	6.67	7.29	8.74	2.13	2.77	3.21	3.83	5.28
	3H	7.41	7.94	8.49	9.03	10.49	3.47	3.99	4.55	5.08	6.54
	4H	8.09	8.58	9.18	9.66	11.14	4.01	4.49	5.10	5.57	7.05
	6H	8.60	9.01	9.70	10.12	11.59	4.41	4.83	5.51	5.93	7.41
	8H	8.77	9.16	9.87	10.25	11.74	4.54	4.93	5.64	6.02	7.51
	12H	8.86	9.21	9.98	10.32	11.81	4.60	4.95	5.71	6.05	7.55
8H	4H	8.05	8.44	9.15	9.54	11.03	4.28	4.66	5.38	5.76	7.25
	6H	8.61	8.93	9.73	10.07	11.56	4.78	5.10	5.90	6.24	7.73
	8H	8.83	9.10	9.95	10.22	11.73	4.97	5.25	6.10	6.37	7.88
	12H	8.96	9.20	10.09	10.32	11.86	5.08	5.33	6.21	6.44	7.99
12H	4H	8.00	8.35	9.12	9.46	10.96	4.28	4.63	5.39	5.74	7.23
	6H	8.59	8.87	9.71	9.99	11.49	4.83	5.11	5.96	6.23	7.74
	8H	8.80	9.05	9.93	10.16	11.71	5.03	5.28	6.16	6.39	7.94