

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: P923977

Luminaire Tested: DFN2DIP-4P2F0-030D020US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923977
REPORT IS A COMBINATION OF REPORTS P900534 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-030D020US950-RLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

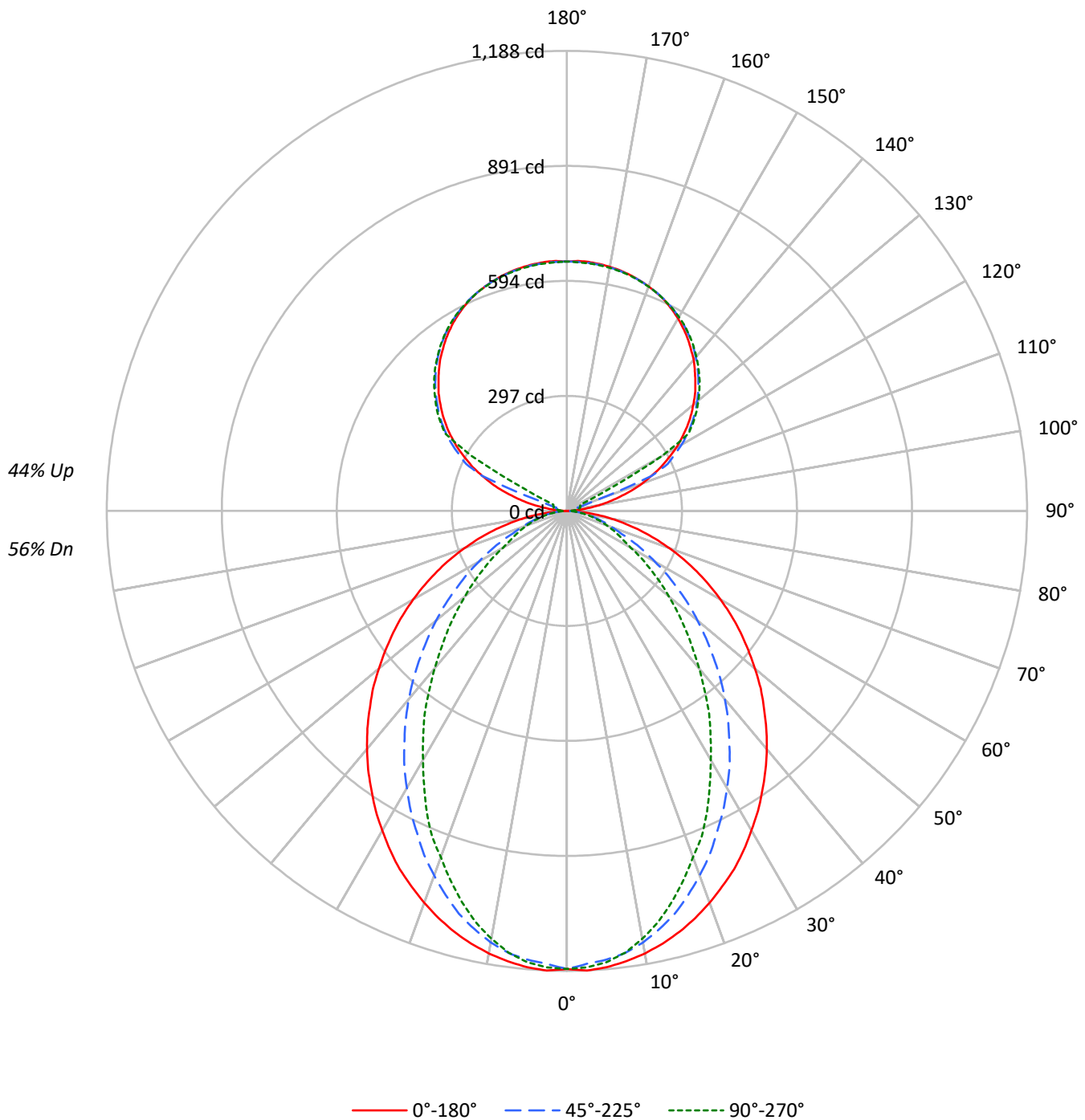
Lumens per Lamp: N/A
Luminaire Lumens: 4321.6 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 43.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	56	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	50	48	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	31
6	65	54	46	40	61	50	43	38	44	39	34	39	34	31	33	30	27
7	61	49	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2962	2962	2962
5°	2961	2907	2928
10°	2926	2843	2829
15°	2879	2742	2677
20°	2820	2605	2492
25°	2760	2454	2314
30°	2680	2299	2090
35°	2602	2133	1893
40°	2522	1963	1668
45°	2430	1775	1464
50°	2334	1585	1266
55°	2234	1384	1076
60°	2117	1175	881
65°	1983	962	787
70°	1820	765	705
75°	1614	661	632
80°	1321	533	533
85°	852	328	376

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2430 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	110.9	2.6
10°-20°	304.3	7.0
20°-30°	427.3	9.9
30°-40°	465.7	10.8
40°-50°	428.1	9.9
50°-60°	336.2	7.8
60°-70°	218.8	5.1
70°-80°	112.6	2.6
80°-90°	29.9	0.7
90°-100°	21.2	0.5
100°-110°	79.1	1.8
110°-120°	209.9	4.9
120°-130°	348.2	8.1
130°-140°	369.8	8.6
140°-150°	343.7	8.0
150°-160°	276.4	6.4
160°-170°	178.1	4.1
170°-180°	61.3	1.4
0°-30°	842.5	19.5
0°-40°	1308.2	30.3
0°-60°	2072.5	48.0
0°-90°	2433.8	56.3
90°-120°	310.3	7.2
90°-150°	1372.0	31.7
90°-180°	1888.0	43.7
0°-180°	4321.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1183	1183	1183	1183	1183	
5°	1183	1178	1164	1173	1170	112
15°	1125	1113	1077	1057	1046	317
25°	1021	987	916	872	856	470
35°	880	825	731	664	640	551
45°	719	648	535	459	434	556
55°	547	464	348	284	263	489
65°	369	283	186	150	147	366
75°	197	122	86	78	77	208
85°	46	24	20	20	20	53
90°	0	6	9	12	13	4
95°	30	15	18	20	20	36
105°	142	156	28	34	35	151
115°	268	276	288	72	38	264
125°	379	385	394	397	398	338
135°	469	476	480	485	484	362
145°	544	543	551	554	552	340
155°	599	594	600	603	599	276
165°	631	628	629	633	629	178
175°	645	642	643	646	642	61
180°	644	644	644	644	644	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1182.9	1182.9	1182.9	1182.9	1182.9
2.5°	1188.2	1182.9	1171.0	1181.8	1179.7
5°	1182.9	1177.5	1163.6	1173.2	1170.0
7.5°	1173.2	1166.8	1151.9	1156.1	1150.7
10°	1160.4	1152.9	1131.5	1128.2	1121.9
12.5°	1144.3	1134.7	1105.8	1099.4	1087.6
15°	1125.1	1113.2	1076.9	1056.6	1045.9
17.5°	1102.5	1085.5	1040.4	1017.0	999.8
20°	1076.9	1055.4	1001.9	975.3	951.6
22.5°	1049.1	1024.4	962.3	926.0	909.9
25°	1021.3	986.9	916.3	872.4	856.3
27.5°	988.1	951.6	873.5	823.2	798.5
30°	952.8	912.0	826.4	771.9	742.9
32.5°	918.4	869.2	781.5	717.2	690.4
35°	880.0	825.3	731.1	663.7	640.1
37.5°	842.5	783.5	684.0	610.1	583.5
40°	802.9	738.7	634.8	558.8	531.0
42.5°	762.2	693.7	585.6	506.3	479.6
45°	719.4	647.6	535.3	459.2	433.5
47.5°	678.7	602.7	487.1	411.0	387.5
50°	633.7	557.7	440.0	366.0	343.6
52.5°	589.8	509.5	395.1	324.4	304.0
55°	546.9	463.5	347.8	283.7	263.4
57.5°	503.1	417.5	306.2	246.2	229.1
60°	458.1	372.5	262.3	207.7	190.6
62.5°	414.3	328.7	224.8	173.4	164.9
65°	369.3	282.6	186.2	149.9	146.6
67.5°	326.6	239.7	149.9	131.7	128.4
70°	281.5	198.1	124.1	113.4	109.1
72.5°	238.7	159.4	103.8	95.3	93.1
75°	196.9	122.0	85.7	78.1	77.1
77.5°	155.2	86.6	67.4	63.2	61.0
80°	116.7	62.1	51.3	47.1	47.1
82.5°	81.3	41.8	35.3	33.2	33.2
85°	46.0	23.5	20.3	20.3	20.3
87.5°	17.2	8.5	8.5	7.5	7.5
90°	0.5	5.6	9.3	11.6	12.6
92.5°	11.6	9.8	11.2	12.1	12.6
95°	30.2	14.9	18.1	20.5	20.0
97.5°	54.5	16.3	23.8	25.2	25.7
100°	82.5	18.6	26.5	30.2	31.2
102.5°	113.2	112.3	27.5	32.6	34.1
105°	141.7	155.6	28.4	33.5	35.4
107.5°	174.8	186.3	29.4	34.4	36.3
110°	206.4	216.2	81.6	35.0	36.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	236.2	244.6	236.7	35.9	37.3
115°	267.9	275.8	287.5	71.7	38.3
117.5°	295.4	304.7	312.6	246.0	123.9
120°	326.2	333.1	341.5	347.2	284.2
122.5°	352.2	359.7	369.0	371.8	372.3
125°	378.8	384.8	393.7	397.0	398.4
127.5°	403.1	409.6	416.6	421.2	421.7
130°	425.9	433.3	438.5	443.6	443.1
132.5°	449.1	455.2	460.3	464.5	464.1
135°	468.8	476.2	480.3	485.1	484.2
137.5°	489.2	494.8	499.5	504.2	502.8
140°	509.2	513.1	518.1	522.3	520.0
142.5°	526.0	529.4	535.4	539.1	536.7
145°	543.8	543.3	551.2	554.5	552.2
147.5°	559.1	557.7	565.6	567.9	566.1
150°	574.0	570.8	578.2	581.0	578.7
152.5°	586.6	582.9	589.9	592.7	589.4
155°	598.7	594.5	600.2	602.9	599.2
157.5°	608.6	604.8	609.0	612.3	608.6
160°	617.0	614.1	617.0	619.7	616.5
162.5°	624.3	621.5	623.9	627.2	623.0
165°	630.9	628.1	629.4	632.8	629.4
167.5°	636.0	633.2	634.6	637.9	633.6
170°	640.2	637.4	638.3	641.6	637.4
172.5°	643.0	640.2	641.2	644.4	640.2
175°	645.3	642.0	643.0	646.2	641.6
177.5°	646.2	643.0	643.5	646.7	642.5
180°	643.9	643.9	643.9	643.9	643.9

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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	11.36	12.24	12.26	13.16	14.34	7.32	8.20	8.22	9.12	10.30
	3H	13.01	13.81	13.93	14.74	15.94	8.49	9.28	9.41	10.21	11.42
	4H	13.61	14.36	14.55	15.29	16.51	8.93	9.67	9.86	10.61	11.82
	6H	14.02	14.70	14.96	15.65	16.87	9.23	9.92	10.18	10.86	12.09
	8H	14.13	14.79	15.09	15.75	16.97	9.31	9.97	10.27	10.93	12.15
	12H	14.19	14.81	15.15	15.76	17.01	9.35	9.97	10.31	10.92	12.18
4H	2H	11.38	12.12	12.32	13.06	14.27	7.91	8.65	8.85	9.59	10.80
	3H	13.18	13.80	14.13	14.77	16.00	9.24	9.86	10.19	10.82	12.05
	4H	13.86	14.43	14.82	15.39	16.64	9.77	10.33	10.73	11.30	12.55
	6H	14.36	14.84	15.33	15.83	17.08	10.17	10.66	11.14	11.64	12.89
	8H	14.52	14.97	15.49	15.95	17.22	10.29	10.74	11.26	11.72	12.99
	12H	14.60	15.01	15.60	16.01	17.28	10.34	10.75	11.33	11.75	13.02
8H	4H	13.83	14.28	14.80	15.26	16.53	10.04	10.49	11.01	11.47	12.74
	6H	14.37	14.74	15.37	15.76	17.03	10.53	10.91	11.53	11.93	13.19
	8H	14.57	14.90	15.58	15.91	17.19	10.71	11.04	11.71	12.05	13.33
	12H	14.69	14.99	15.71	15.99	17.32	10.81	11.10	11.82	12.10	13.43
12H	4H	13.78	14.19	14.77	15.18	16.46	10.04	10.45	11.04	11.45	12.72
	6H	14.34	14.67	15.35	15.68	16.97	10.57	10.91	11.58	11.91	13.20
	8H	14.55	14.84	15.56	15.84	17.17	10.77	11.06	11.78	12.06	13.39