

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: P917909

Luminaire Tested: DFN2DIP-TR2F0-020D040US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917909
REPORT IS A COMBINATION OF REPORTS P901761 AND P897145
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR2F0-020D040US930-FLLONL
Description: 2 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

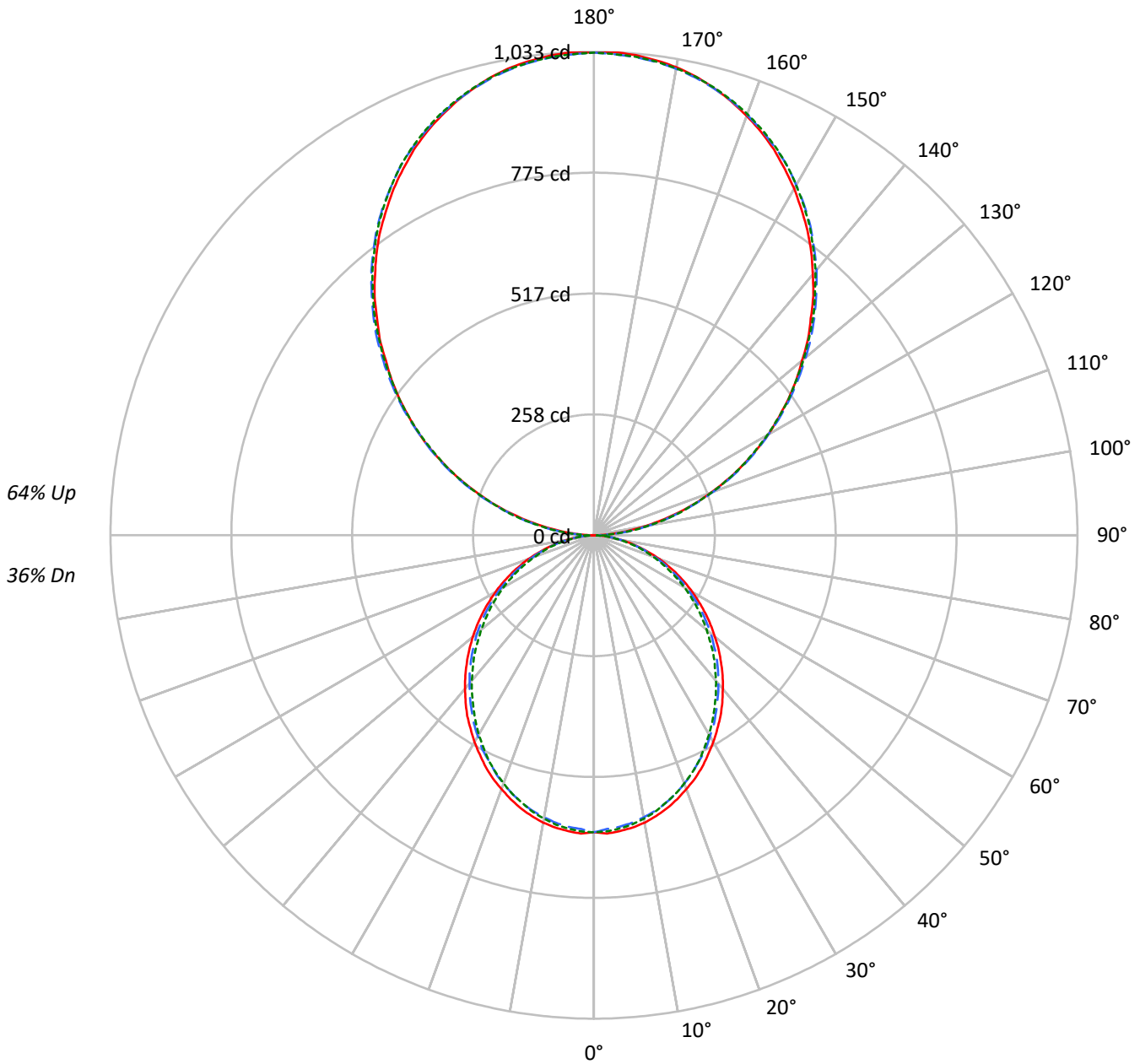
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4500.4 lumens
Efficiency: N/A
Efficacy: 100.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.04' x L: 2.36' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 44.6
Input Voltage (V): 120
Input Current (A_{in}): 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



— 0°-180° - - 45°-225° - - - 90°-270°



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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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43	36			36
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36	30			30
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31	25			25
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26	21			21
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22	18			18
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20	16			16
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17	14			14
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15	12			12
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14	11			11
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12	10			10
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11	9			9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1415	1415	1415
5°	1415	1392	1402
10°	1402	1370	1381
15°	1379	1345	1349
20°	1349	1310	1316
25°	1319	1270	1279
30°	1282	1232	1232
35°	1247	1187	1182
40°	1204	1142	1135
45°	1161	1097	1086
50°	1114	1050	1030
55°	1065	995	978
60°	1009	930	918
65°	947	863	848
70°	870	780	772
75°	763	682	698
80°	633	557	564
85°	429	350	351

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1345 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.7	1.3
10°-20°	168.0	3.7
20°-30°	246.9	5.5
30°-40°	286.8	6.4
40°-50°	286.4	6.4
50°-60°	249.7	5.5
60°-70°	184.6	4.1
70°-80°	104.5	2.3
80°-90°	30.5	0.7
90°-100°	63.8	1.4
100°-110°	202.8	4.5
110°-120°	347.0	7.7
120°-130°	456.4	10.1
130°-140°	512.3	11.4
140°-150°	502.4	11.2
150°-160°	421.4	9.4
160°-170°	279.5	6.2
170°-180°	97.7	2.2
0°-30°	474.7	10.5
0°-40°	761.5	16.9
0°-60°	1297.6	28.8
0°-90°	1617.2	35.9
90°-120°	613.6	13.6
90°-150°	2084.7	46.3
90°-180°	2883.0	64.1
0°-180°	4500.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	634	634	634	634	634	
5°	634	632	625	630	629	60
15°	604	600	592	595	592	170
25°	547	542	531	533	531	252
35°	472	466	456	452	449	295
45°	384	380	370	364	361	296
55°	290	287	279	272	269	260
65°	196	192	186	181	178	194
75°	102	101	98	95	96	109
85°	25	24	24	22	21	28
90°	1	11	30	29	30	4
95°	45	54	56	56	54	51
105°	187	190	192	193	193	198
115°	348	353	352	351	348	344
125°	506	514	512	509	508	453
135°	655	665	667	666	663	506
145°	795	802	807	808	804	497
155°	910	912	915	919	916	419
165°	989	988	988	995	990	279
175°	1030	1027	1025	1031	1026	98
180°	1031	1031	1031	1031	1031	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	634.5	634.5	634.5	634.5	634.5
2.5°	638.1	635.1	628.4	634.5	633.3
5°	634.5	632.1	625.3	630.2	629.0
7.5°	630.2	626.6	619.9	624.8	623.5
10°	623.5	619.3	612.0	616.8	615.0
12.5°	614.3	610.7	603.4	606.4	605.2
15°	604.0	600.4	592.4	594.8	591.8
17.5°	591.2	587.6	579.6	582.6	579.6
20°	577.1	573.5	564.9	566.8	564.3
22.5°	563.1	557.7	549.7	549.7	548.5
25°	546.7	541.8	531.4	532.6	531.4
27.5°	528.3	524.1	516.2	514.4	511.3
30°	510.1	505.2	496.0	494.2	491.7
32.5°	490.5	486.9	477.1	473.4	471.0
35°	471.7	465.5	455.8	452.1	449.0
37.5°	450.3	444.7	435.0	430.7	427.6
40°	428.3	423.4	413.6	408.2	405.7
42.5°	406.9	402.0	392.3	386.2	382.5
45°	383.8	379.5	370.3	363.6	361.2
47.5°	361.2	356.9	347.2	340.4	336.8
50°	337.4	334.4	325.8	317.2	314.2
52.5°	314.2	309.9	302.0	295.3	291.1
55°	290.4	286.7	279.4	272.1	269.0
57.5°	266.6	263.6	255.6	248.3	245.8
60°	242.8	240.4	231.9	225.1	223.3
62.5°	219.6	215.3	209.3	203.2	200.7
65°	195.8	192.2	186.1	180.6	177.6
67.5°	171.5	168.4	162.9	158.7	156.2
70°	148.9	146.4	140.9	136.6	134.3
72.5°	125.7	123.3	120.2	115.9	114.1
75°	102.5	101.3	98.2	94.6	95.8
77.5°	81.8	79.3	78.0	76.2	74.4
80°	61.1	60.4	59.2	57.3	56.1
82.5°	41.5	41.5	40.9	38.5	38.5
85°	24.9	24.4	23.8	21.9	21.4
87.5°	11.0	9.8	8.6	6.8	6.1
90°	0.9	11.2	30.5	28.6	29.5
92.5°	19.2	26.1	27.1	28.0	28.0
95°	45.4	54.1	55.7	55.7	54.1
97.5°	75.6	83.6	87.1	87.1	87.1
100°	110.4	117.6	120.0	120.0	119.1
102.5°	147.1	152.4	155.8	156.7	155.8
105°	187.2	189.6	191.5	193.1	193.1
107.5°	227.0	230.7	230.7	231.3	227.0
110°	265.5	270.5	270.5	270.5	268.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	307.2	312.5	311.5	309.1	307.2
115°	348.2	353.3	351.6	350.7	348.2
117.5°	389.0	395.8	391.5	389.0	386.5
120°	430.1	436.8	430.1	430.1	427.2
122.5°	467.3	476.1	471.7	469.2	467.3
125°	506.5	514.3	511.8	509.0	508.1
127.5°	544.8	554.4	551.0	547.2	544.8
130°	580.5	591.7	590.2	588.3	584.9
132.5°	620.6	629.3	630.0	625.6	623.1
135°	655.2	664.8	666.7	665.7	663.2
137.5°	693.7	701.5	703.0	702.4	698.7
140°	727.6	735.4	739.7	739.7	736.3
142.5°	762.5	770.2	772.7	773.6	770.2
145°	795.4	801.6	806.6	807.6	804.1
147.5°	824.9	832.7	836.4	838.0	834.5
150°	855.4	860.7	864.1	866.9	864.1
152.5°	882.5	887.7	892.1	895.5	892.1
155°	909.5	912.0	914.8	919.2	916.3
157.5°	932.9	934.7	936.2	942.5	938.1
160°	953.7	955.5	956.4	961.7	958.0
162.5°	972.9	972.9	973.9	979.7	975.4
165°	989.4	988.5	988.5	994.7	990.3
167.5°	1004.4	1001.5	1001.5	1007.8	1003.4
170°	1015.5	1013.0	1012.1	1018.3	1013.0
172.5°	1023.3	1020.8	1019.9	1026.1	1020.8
175°	1029.6	1027.0	1025.2	1031.4	1026.1
177.5°	1033.0	1030.5	1028.6	1033.9	1028.6
180°	1031.4	1031.4	1031.4	1031.4	1031.4



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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	6.89	7.63	7.96	8.70	10.16	6.46	7.21	7.53	8.28	9.74
	3H	8.51	9.18	9.59	10.26	11.74	8.05	8.72	9.13	9.80	11.28
	4H	9.08	9.72	10.17	10.80	12.28	8.62	9.26	9.71	10.34	11.82
	6H	9.46	10.04	10.56	11.13	12.62	9.00	9.58	10.09	10.66	12.16
	8H	9.55	10.11	10.65	11.21	12.70	9.09	9.65	10.19	10.75	12.24
	12H	9.59	10.11	10.69	11.21	12.72	9.12	9.65	10.23	10.74	12.26
4H	2H	7.32	7.96	8.42	9.04	10.52	6.98	7.62	8.08	8.70	10.18
	3H	9.15	9.68	10.26	10.79	12.29	8.77	9.30	9.87	10.41	11.90
	4H	9.84	10.33	10.95	11.43	12.95	9.45	9.94	10.56	11.03	12.55
	6H	10.33	10.75	11.45	11.87	13.38	9.93	10.35	11.05	11.47	12.98
	8H	10.47	10.86	11.58	11.97	13.49	10.07	10.46	11.18	11.57	13.10
	12H	10.52	10.88	11.65	12.00	13.53	10.12	10.47	11.25	11.60	13.13
8H	4H	10.02	10.41	11.14	11.52	13.05	9.67	10.06	10.78	11.17	12.70
	6H	10.62	10.94	11.76	12.10	13.62	10.27	10.59	11.40	11.74	13.27
	8H	10.82	11.11	11.97	12.24	13.78	10.47	10.75	11.61	11.88	13.43
	12H	10.93	11.18	12.08	12.31	13.89	10.56	10.81	11.71	11.94	13.52
12H	4H	10.00	10.35	11.13	11.48	13.01	9.65	10.01	10.79	11.13	12.66
	6H	10.64	10.93	11.79	12.06	13.60	10.30	10.58	11.44	11.72	13.26
	8H	10.86	11.11	12.01	12.24	13.82	10.52	10.76	11.66	11.90	13.47