

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: P918543

Luminaire Tested: DFN2DIP-4P3F0-020D020US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918543
REPORT IS A COMBINATION OF REPORTS P900549 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D020US935-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

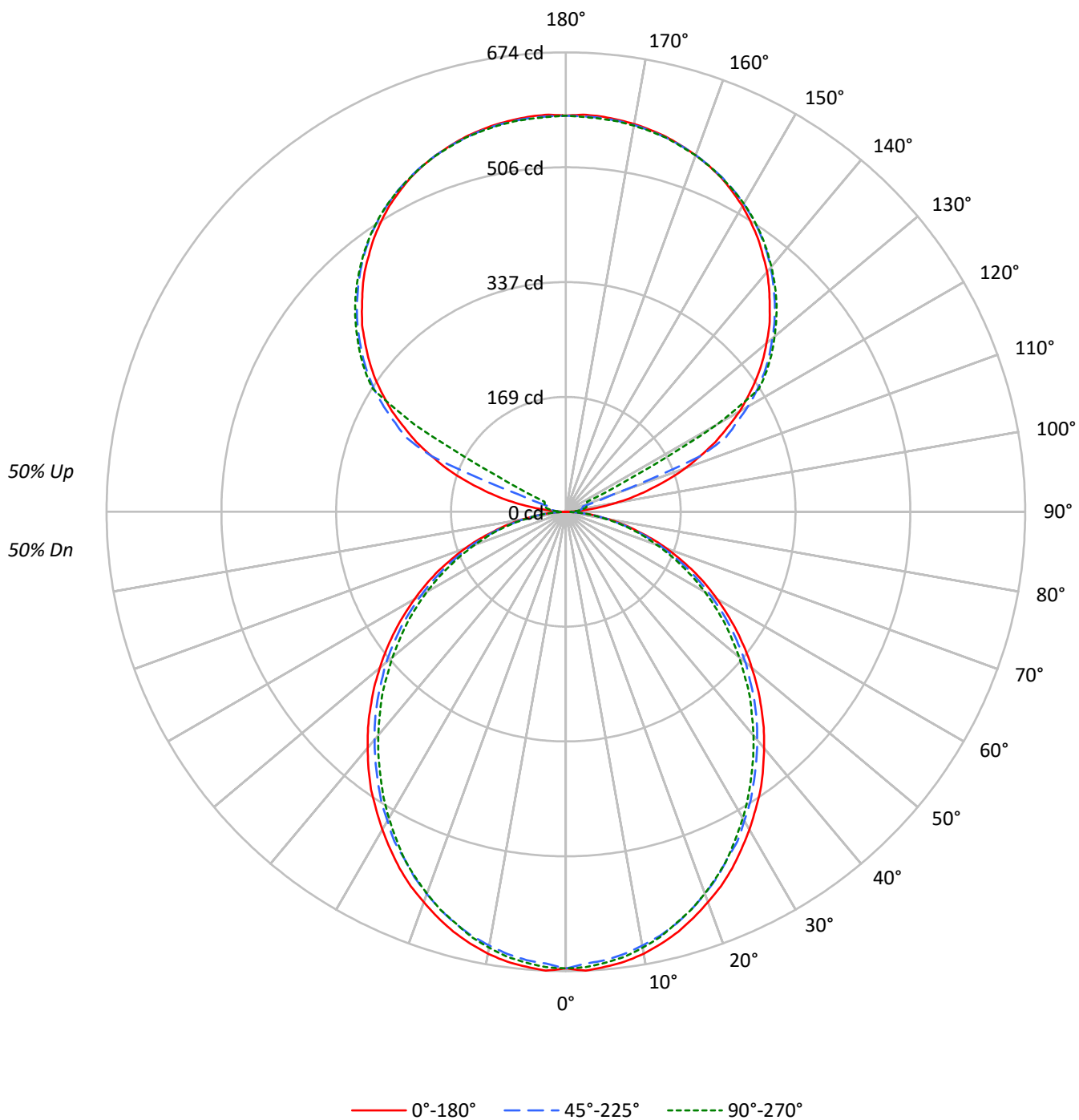
Lumens per Lamp: N/A
Luminaire Lumens: 3409.5 lumens
Efficiency: N/A
Efficacy: 110.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	764	764	764
5°	764	752	758
10°	758	742	747
15°	746	729	731
20°	731	712	714
25°	715	691	695
30°	696	671	671
35°	678	649	645
40°	655	626	620
45°	633	603	595
50°	608	578	566
55°	582	550	539
60°	553	517	509
65°	521	483	473
70°	481	440	434
75°	425	390	397
80°	357	325	328
85°	251	215	215

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 633 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.1	1.8
10°-20°	177.4	5.2
20°-30°	260.8	7.6
30°-40°	302.9	8.9
40°-50°	302.5	8.9
50°-60°	263.8	7.7
60°-70°	195.0	5.7
70°-80°	110.3	3.2
80°-90°	30.1	0.9
90°-100°	19.2	0.6
100°-110°	71.4	2.1
110°-120°	189.5	5.6
120°-130°	314.2	9.2
130°-140°	333.8	9.8
140°-150°	310.2	9.1
150°-160°	249.4	7.3
160°-170°	160.7	4.7
170°-180°	55.3	1.6
0°-30°	501.3	14.7
0°-40°	804.1	23.6
0°-60°	1370.4	40.2
0°-90°	1705.8	50.0
90°-120°	280.0	8.2
90°-150°	1238.3	36.3
90°-180°	1704.0	50.0
0°-180°	3409.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	670	670	670	670	670	
5°	670	668	660	666	664	64
15°	638	634	626	628	625	180
25°	577	572	561	562	561	266
35°	498	492	481	477	474	311
45°	405	401	391	384	381	313
55°	307	303	295	287	284	274
65°	207	203	197	191	188	205
75°	108	107	104	100	101	116
85°	26	26	25	23	23	29
90°	0	5	8	10	11	3
95°	27	13	16	18	18	32
105°	128	140	26	30	32	137
115°	242	249	260	65	34	238
125°	342	347	355	358	360	305
135°	423	430	434	438	437	327
145°	491	490	498	500	498	307
155°	540	537	542	544	541	249
165°	569	567	568	571	568	161
175°	582	580	580	583	579	55
180°	581	581	581	581	581	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	670.0	670.0	670.0	670.0	670.0
2.5°	673.9	670.7	663.6	670.0	668.8
5°	670.0	667.5	660.4	665.6	664.3
7.5°	665.6	661.7	654.6	659.8	658.5
10°	658.5	654.0	646.3	651.3	649.5
12.5°	648.8	645.0	637.2	640.4	639.1
15°	637.8	634.0	625.6	628.2	625.0
17.5°	624.3	620.5	612.1	615.3	612.1
20°	609.5	605.6	596.6	598.6	596.0
22.5°	594.7	588.9	580.5	580.5	579.2
25°	577.3	572.1	561.2	562.4	561.2
27.5°	557.9	553.4	545.1	543.2	539.9
30°	538.6	533.5	523.8	521.9	519.3
32.5°	518.0	514.2	503.9	500.0	497.4
35°	498.1	491.6	481.3	477.4	474.2
37.5°	475.5	469.7	459.3	454.9	451.6
40°	452.3	447.1	436.8	431.1	428.4
42.5°	429.7	424.6	414.3	407.9	404.0
45°	405.3	400.8	391.1	384.0	381.4
47.5°	381.4	376.9	366.6	359.5	355.7
50°	356.3	353.1	344.1	335.0	331.8
52.5°	331.8	327.3	318.9	311.9	307.4
55°	306.7	302.8	295.1	287.4	284.1
57.5°	281.5	278.4	269.9	262.3	259.6
60°	256.4	253.9	244.9	237.7	235.8
62.5°	232.0	227.4	221.0	214.6	212.0
65°	206.8	202.9	196.6	190.7	187.5
67.5°	181.1	177.8	172.0	167.6	165.0
70°	157.2	154.6	148.8	144.3	141.8
72.5°	132.8	130.2	126.9	122.4	120.5
75°	108.2	107.0	103.7	99.9	101.2
77.5°	86.4	83.8	82.4	80.5	78.6
80°	64.5	63.8	62.5	60.5	59.2
82.5°	43.8	43.8	43.2	40.6	40.6
85°	26.3	25.7	25.1	23.2	22.6
87.5°	11.6	10.3	9.0	7.1	6.5
90°	0.4	5.1	8.4	10.5	11.4
92.5°	10.5	8.9	10.1	10.9	11.4
95°	27.3	13.4	16.4	18.5	18.1
97.5°	49.2	14.7	21.4	22.7	23.2
100°	74.5	16.8	23.9	27.3	28.2
102.5°	102.2	101.3	24.8	29.4	30.7
105°	127.9	140.4	25.7	30.2	31.9
107.5°	157.7	168.2	26.5	31.1	32.8
110°	186.3	195.1	73.6	31.6	33.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	213.2	220.8	213.6	32.4	33.7
115°	241.8	248.9	259.5	64.7	34.5
117.5°	266.6	275.0	282.1	222.1	111.8
120°	294.4	300.7	308.2	313.3	256.5
122.5°	317.9	324.6	333.0	335.5	336.0
125°	341.9	347.3	355.3	358.3	359.6
127.5°	363.8	369.6	376.0	380.1	380.6
130°	384.3	391.1	395.7	400.4	399.9
132.5°	405.4	410.9	415.4	419.2	418.9
135°	423.1	429.8	433.5	437.8	437.0
137.5°	441.5	446.6	450.8	455.0	453.7
140°	459.6	463.0	467.6	471.4	469.3
142.5°	474.8	477.8	483.2	486.5	484.4
145°	490.8	490.3	497.5	500.4	498.3
147.5°	504.6	503.3	510.5	512.6	510.9
150°	518.1	515.1	521.9	524.3	522.3
152.5°	529.4	526.1	532.4	534.9	531.9
155°	540.4	536.6	541.7	544.2	540.8
157.5°	549.2	545.9	549.7	552.6	549.2
160°	556.8	554.2	556.8	559.3	556.4
162.5°	563.4	560.9	563.1	566.0	562.2
165°	569.4	566.9	568.1	571.1	568.1
167.5°	574.0	571.4	572.7	575.7	571.9
170°	577.8	575.2	576.1	579.0	575.2
172.5°	580.3	577.8	578.7	581.6	577.8
175°	582.4	579.5	580.3	583.2	579.0
177.5°	583.2	580.3	580.7	583.7	579.9
180°	581.2	581.2	581.2	581.2	581.2

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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	6.30	7.17	7.26	8.14	9.41	5.86	6.72	6.82	7.70	8.97
	3H	7.96	8.73	8.93	9.71	11.01	7.47	8.24	8.44	9.23	10.52
	4H	8.55	9.28	9.53	10.26	11.56	8.05	8.78	9.03	9.77	11.07
	6H	8.94	9.62	9.94	10.61	11.92	8.44	9.12	9.43	10.11	11.42
	8H	9.05	9.69	10.04	10.69	12.01	8.54	9.19	9.54	10.19	11.50
	12H	9.09	9.70	10.10	10.70	12.04	8.58	9.19	9.59	10.19	11.53
4H	2H	6.76	7.49	7.75	8.48	9.78	6.41	7.14	7.40	8.13	9.43
	3H	8.62	9.23	9.62	10.25	11.56	8.22	8.83	9.21	9.84	11.16
	4H	9.33	9.89	10.34	10.90	12.24	8.91	9.47	9.92	10.48	11.81
	6H	9.84	10.33	10.86	11.36	12.69	9.41	9.89	10.43	10.92	12.26
	8H	9.99	10.44	11.01	11.47	12.82	9.55	10.00	10.57	11.03	12.38
	12H	10.06	10.47	11.10	11.51	12.86	9.61	10.02	10.65	11.06	12.41
8H	4H	9.53	9.97	10.54	11.00	12.35	9.15	9.60	10.17	10.62	11.97
	6H	10.15	10.52	11.19	11.59	12.94	9.77	10.14	10.81	11.20	12.55
	8H	10.37	10.70	11.42	11.75	13.11	9.98	10.30	11.03	11.35	12.72
	12H	10.50	10.78	11.55	11.83	13.24	10.09	10.37	11.14	11.42	12.83
12H	4H	9.51	9.92	10.55	10.96	12.31	9.14	9.55	10.18	10.59	11.94
	6H	10.18	10.51	11.23	11.56	12.93	9.81	10.13	10.86	11.19	12.55
	8H	10.42	10.71	11.47	11.75	13.16	10.04	10.32	11.09	11.37	12.78

END OF REPORT