

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: P913094

Luminaire Tested: DFN2DIP-4P3F0-020D040US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913094
REPORT IS A COMBINATION OF REPORTS P899049 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D040US927-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

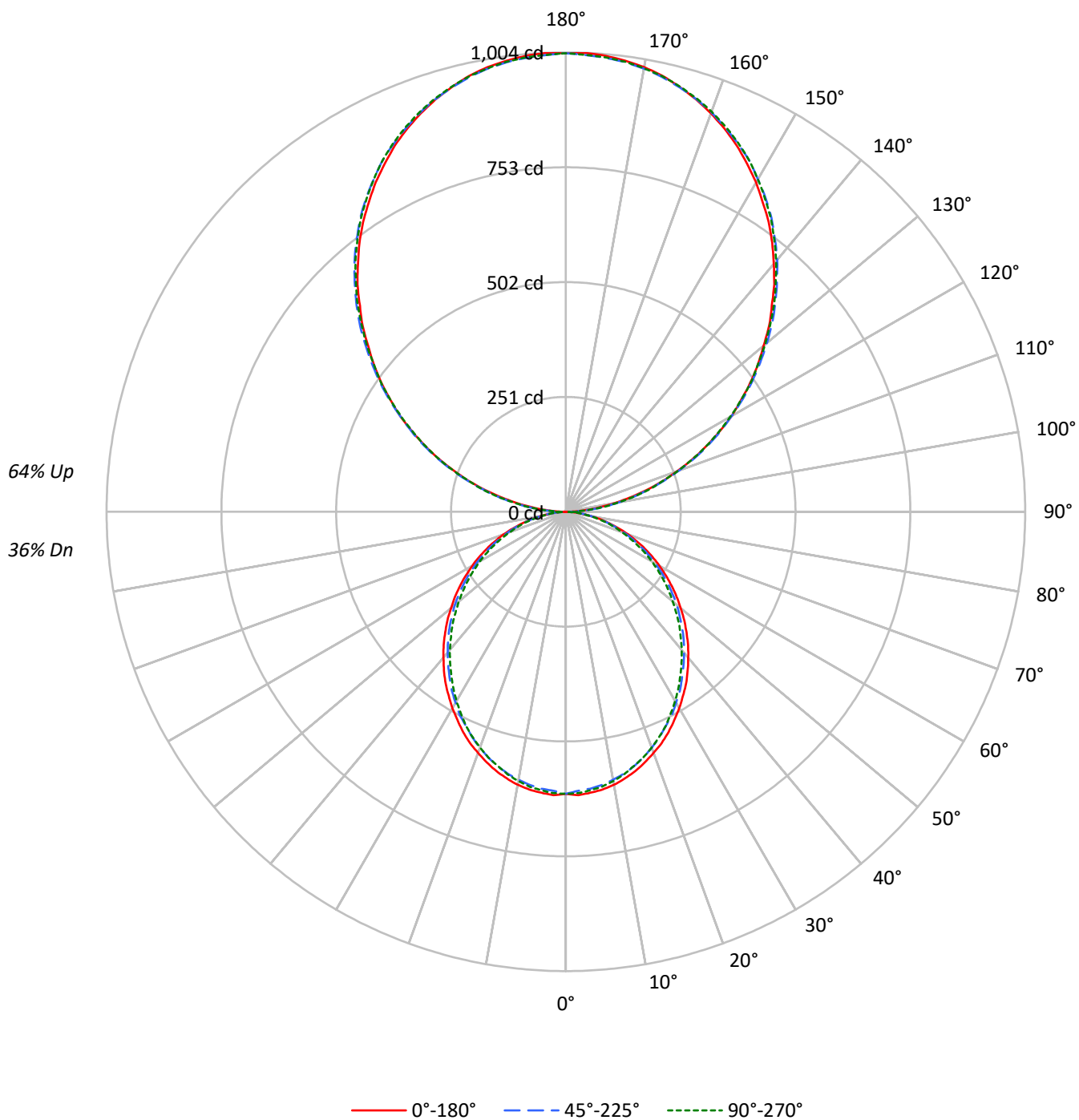
Lumens per Lamp: N/A
Luminaire Lumens: 4372.9 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 45.4
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	703	703	703
5°	703	692	697
10°	697	683	687
15°	686	671	673
20°	672	655	657
25°	658	636	639
30°	640	618	617
35°	623	597	593
40°	603	576	571
45°	582	554	548
50°	559	532	521
55°	536	506	496
60°	509	476	468
65°	480	444	435
70°	443	405	399
75°	391	358	366
80°	329	299	302
85°	231	198	198

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1005 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.0	1.3
10°-20°	163.3	3.7
20°-30°	239.9	5.5
30°-40°	278.7	6.4
40°-50°	278.3	6.4
50°-60°	242.7	5.5
60°-70°	179.4	4.1
70°-80°	101.5	2.3
80°-90°	29.6	0.7
90°-100°	62.0	1.4
100°-110°	197.0	4.5
110°-120°	337.2	7.7
120°-130°	443.5	10.1
130°-140°	497.8	11.4
140°-150°	488.1	11.2
150°-160°	409.5	9.4
160°-170°	271.5	6.2
170°-180°	94.9	2.2
0°-30°	461.2	10.5
0°-40°	739.9	16.9
0°-60°	1260.8	28.8
0°-90°	1571.4	35.9
90°-120°	596.2	13.6
90°-150°	2025.6	46.3
90°-180°	2801.0	64.1
0°-180°	4372.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	616	616	616	616	616	
5°	616	614	608	612	611	59
15°	587	583	576	578	575	165
25°	531	526	516	518	516	244
35°	458	452	443	439	436	286
45°	373	369	360	353	351	288
55°	282	279	272	264	261	252
65°	190	187	181	176	172	188
75°	100	98	95	92	93	106
85°	24	24	23	21	21	27
90°	1	11	30	28	29	4
95°	44	53	54	54	53	49
105°	182	184	186	188	188	192
115°	338	343	342	341	338	335
125°	492	500	497	495	494	440
135°	637	646	648	647	644	492
145°	773	779	784	785	781	483
155°	884	886	889	893	890	407
165°	961	960	960	966	962	271
175°	1000	998	996	1002	997	95
180°	1002	1002	1002	1002	1002	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	616.5	616.5	616.5	616.5	616.5
2.5°	620.0	617.1	610.5	616.5	615.4
5°	616.5	614.2	607.6	612.4	611.2
7.5°	612.4	608.8	602.3	607.0	605.9
10°	605.9	601.7	594.6	599.3	597.5
12.5°	596.9	593.4	586.3	589.2	588.0
15°	586.8	583.4	575.6	578.0	575.0
17.5°	574.4	570.9	563.2	566.1	563.2
20°	560.8	557.2	548.9	550.7	548.3
22.5°	547.2	541.9	534.1	534.1	532.9
25°	531.2	526.4	516.3	517.5	516.3
27.5°	513.3	509.2	501.5	499.8	496.8
30°	495.6	490.8	482.0	480.2	477.8
32.5°	476.6	473.1	463.6	460.0	457.6
35°	458.3	452.3	442.8	439.3	436.3
37.5°	437.5	432.1	422.6	418.5	415.5
40°	416.1	411.4	401.9	396.6	394.2
42.5°	395.4	390.6	381.2	375.3	371.7
45°	372.9	368.8	359.8	353.3	350.9
47.5°	350.9	346.8	337.3	330.7	327.3
50°	327.8	324.9	316.6	308.2	305.3
52.5°	305.3	301.1	293.4	286.9	282.8
55°	282.2	278.6	271.5	264.4	261.4
57.5°	259.0	256.1	248.3	241.3	238.8
60°	235.9	233.6	225.3	218.7	217.0
62.5°	213.4	209.2	203.4	197.4	195.0
65°	190.3	186.7	180.9	175.5	172.5
67.5°	166.6	163.6	158.3	154.2	151.8
70°	144.7	142.3	136.9	132.8	130.5
72.5°	122.2	119.8	116.8	112.6	110.9
75°	99.6	98.5	95.4	91.9	93.1
77.5°	79.5	77.1	75.8	74.1	72.3
80°	59.3	58.7	57.5	55.7	54.5
82.5°	40.3	40.3	39.8	37.4	37.4
85°	24.2	23.7	23.1	21.3	20.8
87.5°	10.7	9.5	8.3	6.6	5.9
90°	0.9	10.9	29.6	27.8	28.7
92.5°	18.7	25.3	26.3	27.2	27.2
95°	44.1	52.6	54.1	54.1	52.6
97.5°	73.4	81.3	84.6	84.6	84.6
100°	107.3	114.2	116.6	116.6	115.7
102.5°	142.9	148.1	151.4	152.3	151.4
105°	181.9	184.3	186.1	187.6	187.6
107.5°	220.5	224.2	224.2	224.7	220.5
110°	258.0	262.8	262.8	262.8	260.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	298.5	303.6	302.7	300.3	298.5
115°	338.3	343.3	341.7	340.8	338.3
117.5°	377.9	384.6	380.4	377.9	375.6
120°	417.9	424.5	417.9	417.9	415.1
122.5°	454.1	462.6	458.4	455.9	454.1
125°	492.2	499.7	497.3	494.6	493.7
127.5°	529.3	538.7	535.4	531.7	529.3
130°	564.0	575.0	573.5	571.6	568.3
132.5°	603.0	611.5	612.1	607.8	605.5
135°	636.6	645.9	647.8	646.8	644.4
137.5°	674.1	681.6	683.1	682.5	678.9
140°	706.9	714.5	718.7	718.7	715.4
142.5°	740.8	748.4	750.8	751.7	748.4
145°	772.9	778.9	783.7	784.7	781.3
147.5°	801.5	809.1	812.7	814.2	810.9
150°	831.2	836.3	839.6	842.3	839.6
152.5°	857.5	862.5	866.8	870.1	866.8
155°	883.7	886.1	888.8	893.1	890.3
157.5°	906.4	908.2	909.7	915.8	911.5
160°	926.6	928.4	929.3	934.5	930.8
162.5°	945.3	945.3	946.3	952.0	947.8
165°	961.4	960.4	960.4	966.5	962.3
167.5°	975.9	973.1	973.1	979.2	974.9
170°	986.7	984.3	983.4	989.4	984.3
172.5°	994.3	991.9	990.9	997.0	991.9
175°	1000.4	997.9	996.1	1002.1	997.0
177.5°	1003.7	1001.2	999.4	1004.6	999.4
180°	1002.1	1002.1	1002.1	1002.1	1002.1

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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	4.55	5.30	5.62	6.37	7.82	4.10	4.85	5.17	5.92	7.38
	3H	6.20	6.87	7.27	7.94	9.42	5.71	6.38	6.78	7.46	8.93
	4H	6.77	7.41	7.86	8.49	9.97	6.28	6.92	7.37	8.00	9.48
	6H	7.17	7.75	8.26	8.84	10.33	6.67	7.25	7.76	8.33	9.83
	8H	7.27	7.82	8.37	8.92	10.41	6.76	7.32	7.87	8.42	9.91
	12H	7.31	7.84	8.42	8.93	10.44	6.80	7.33	7.91	8.42	9.93
4H	2H	4.99	5.63	6.09	6.71	8.19	4.64	5.27	5.73	6.35	7.84
	3H	6.84	7.37	7.94	8.48	9.98	6.43	6.96	7.54	8.07	9.57
	4H	7.55	8.04	8.66	9.13	10.65	7.12	7.61	8.23	8.71	10.23
	6H	8.05	8.47	9.17	9.59	11.10	7.62	8.04	8.73	9.16	10.67
	8H	8.20	8.59	9.31	9.70	11.23	7.76	8.15	8.87	9.26	10.79
	12H	8.26	8.62	9.39	9.74	11.27	7.81	8.17	8.95	9.29	10.82
8H	4H	7.73	8.12	8.85	9.23	10.76	7.35	7.74	8.47	8.86	10.38
	6H	8.35	8.67	9.49	9.83	11.35	7.97	8.29	9.10	9.44	10.97
	8H	8.57	8.85	9.71	9.99	11.53	8.17	8.46	9.32	9.59	11.13
	12H	8.69	8.94	9.84	10.07	11.65	8.28	8.53	9.43	9.66	11.24
12H	4H	7.71	8.06	8.84	9.19	10.72	7.34	7.70	8.47	8.82	10.35
	6H	8.38	8.66	9.52	9.80	11.34	8.01	8.29	9.15	9.42	10.97
	8H	8.61	8.86	9.76	9.99	11.57	8.23	8.48	9.38	9.61	11.19