

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: P915781

Luminaire Tested: DFN2DIP-4P2F0-020D020US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915781
REPORT IS A COMBINATION OF REPORTS P900532 AND P897455
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P2F0-020D020US930-RLLONL
Description: 2 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

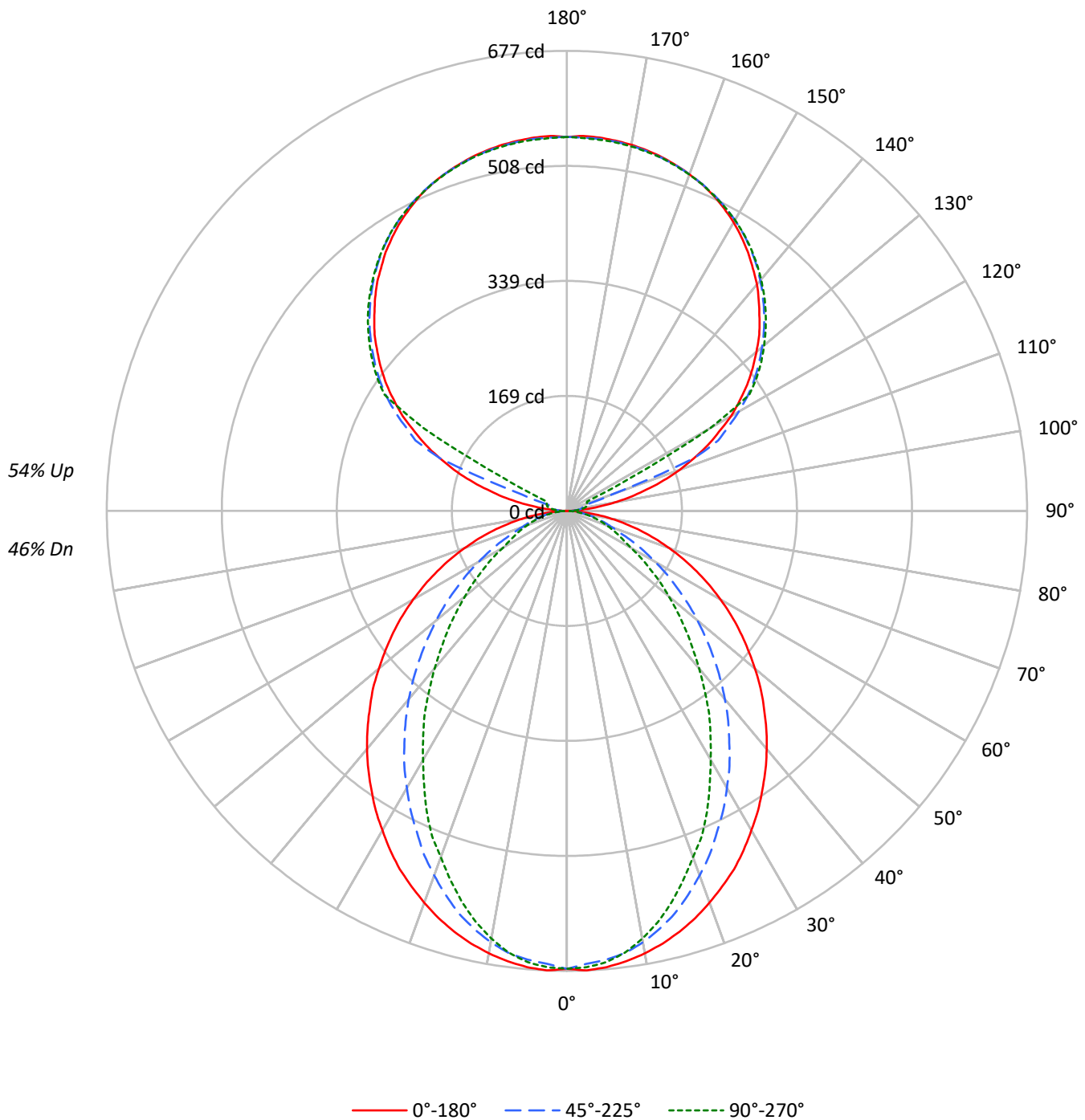
Lumens per Lamp: N/A
Luminaire Lumens: 3000.3 lumens
Efficiency: N/A
Efficacy: 92.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 32.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P915781

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US930-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P915781

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US930-RLLONL

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	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1687	1687	1687
5°	1687	1656	1668
10°	1667	1620	1612
15°	1640	1562	1525
20°	1607	1484	1420
25°	1572	1398	1318
30°	1527	1310	1190
35°	1482	1215	1078
40°	1437	1118	950
45°	1385	1011	834
50°	1330	903	721
55°	1273	788	613
60°	1207	669	502
65°	1130	549	449
70°	1037	436	402
75°	920	376	360
80°	752	305	303
85°	485	187	215

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1385 cd/sqm

TEST NUMBER: P915781

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.2	2.1
10°-20°	173.4	5.8
20°-30°	243.4	8.1
30°-40°	265.4	8.8
40°-50°	243.9	8.1
50°-60°	191.5	6.4
60°-70°	124.7	4.2
70°-80°	64.2	2.1
80°-90°	17.3	0.6
90°-100°	18.1	0.6
100°-110°	67.6	2.3
110°-120°	179.4	6.0
120°-130°	297.6	9.9
130°-140°	316.1	10.5
140°-150°	293.8	9.8
150°-160°	236.2	7.9
160°-170°	152.2	5.1
170°-180°	52.4	1.7
0°-30°	480.0	16.0
0°-40°	745.3	24.8
0°-60°	1180.8	39.4
0°-90°	1387.0	46.2
90°-120°	265.2	8.8
90°-150°	1172.6	39.1
90°-180°	1613.0	53.8
0°-180°	3000.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	674	674	674	674	674	
5°	674	671	663	668	667	64
15°	641	634	614	602	596	181
25°	582	562	522	497	488	268
35°	501	470	417	378	365	314
45°	410	369	305	262	247	317
55°	312	264	198	162	150	278
65°	210	161	106	85	84	209
75°	112	70	49	44	44	119
85°	26	13	12	12	12	30
90°	0	5	8	10	11	3
95°	26	13	16	18	17	31
105°	121	133	24	29	30	129
115°	229	236	246	61	33	225
125°	324	329	336	339	340	289
135°	401	407	410	415	414	309
145°	465	464	471	474	472	291
155°	512	508	513	515	512	236
165°	539	537	538	541	538	152
175°	552	549	550	552	548	52
180°	550	550	550	550	550	

TEST NUMBER: P915781

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	673.9	673.9	673.9	673.9	673.9
2.5°	676.9	673.9	667.2	673.4	672.1
5°	673.9	670.9	662.9	668.5	666.6
7.5°	668.5	664.8	656.2	658.7	655.6
10°	661.1	656.8	644.7	642.8	639.2
12.5°	652.0	646.4	630.0	626.4	619.6
15°	641.0	634.2	613.5	601.9	595.9
17.5°	628.2	618.4	592.8	579.4	569.6
20°	613.5	601.3	570.9	555.6	542.2
22.5°	597.7	583.7	548.3	527.6	518.4
25°	581.9	562.3	522.0	497.1	487.9
27.5°	563.0	542.2	497.7	469.0	454.9
30°	542.8	519.6	470.8	439.8	423.2
32.5°	523.3	495.2	445.2	408.6	393.4
35°	501.3	470.3	416.6	378.1	364.7
37.5°	480.0	446.4	389.7	347.6	332.4
40°	457.4	420.9	361.7	318.4	302.5
42.5°	434.2	395.3	333.6	288.5	273.3
45°	409.9	368.9	305.0	261.6	247.0
47.5°	386.7	343.4	277.5	234.2	220.8
50°	361.1	317.8	250.7	208.6	195.8
52.5°	336.0	290.2	225.0	184.8	173.3
55°	311.6	264.1	198.2	161.7	150.0
57.5°	286.7	237.8	174.5	140.3	130.5
60°	261.1	212.2	149.4	118.4	108.6
62.5°	236.0	187.3	128.1	98.8	93.9
65°	210.4	161.0	106.2	85.4	83.6
67.5°	186.1	136.6	85.4	75.0	73.2
70°	160.4	112.8	70.7	64.7	62.2
72.5°	136.0	90.8	59.1	54.3	53.1
75°	112.2	69.5	48.8	44.5	43.9
77.5°	88.5	49.4	38.4	36.0	34.7
80°	66.4	35.4	29.3	26.8	26.8
82.5°	46.3	23.8	20.1	18.9	18.9
85°	26.2	13.4	11.6	11.6	11.6
87.5°	9.8	4.9	4.9	4.2	4.2
90°	0.4	4.8	7.9	9.9	10.8
92.5°	9.9	8.4	9.5	10.4	10.8
95°	25.8	12.7	15.5	17.5	17.1
97.5°	46.6	13.9	20.3	21.5	21.9
100°	70.5	15.9	22.7	25.8	26.7
102.5°	96.8	96.0	23.5	27.9	29.1
105°	121.1	133.0	24.3	28.6	30.2
107.5°	149.4	159.2	25.1	29.4	31.1
110°	176.4	184.7	69.7	29.9	31.5



TEST NUMBER: P915781

CATALOG NUMBER: DFN2DIP-4P2F0-020D020US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	201.9	209.0	202.3	30.7	31.9
115°	228.9	235.7	245.7	61.3	32.7
117.5°	252.4	260.4	267.2	210.3	105.9
120°	278.8	284.7	291.9	296.7	242.9
122.5°	301.0	307.4	315.4	317.7	318.2
125°	323.8	328.9	336.5	339.2	340.5
127.5°	344.5	350.0	356.0	360.0	360.4
130°	363.9	370.3	374.7	379.1	378.7
132.5°	383.8	389.1	393.4	397.0	396.6
135°	400.6	407.0	410.5	414.6	413.8
137.5°	418.1	422.9	426.9	430.9	429.7
140°	435.2	438.5	442.8	446.4	444.4
142.5°	449.6	452.4	457.5	460.7	458.7
145°	464.7	464.3	471.1	473.9	471.9
147.5°	477.8	476.6	483.4	485.3	483.8
150°	490.6	487.8	494.2	496.5	494.6
152.5°	501.3	498.1	504.1	506.5	503.7
155°	511.7	508.1	512.9	515.3	512.1
157.5°	520.1	516.9	520.5	523.3	520.1
160°	527.3	524.8	527.3	529.6	526.8
162.5°	533.5	531.2	533.2	536.0	532.4
165°	539.2	536.8	537.9	540.8	537.9
167.5°	543.6	541.1	542.3	545.2	541.5
170°	547.1	544.7	545.5	548.3	544.7
172.5°	549.5	547.1	548.0	550.7	547.1
175°	551.5	548.7	549.5	552.3	548.3
177.5°	552.3	549.5	549.9	552.7	549.1
180°	550.3	550.3	550.3	550.3	550.3

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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	8.47	9.27	9.46	10.27	11.60	4.43	5.23	5.42	6.23	7.56
	3H	10.12	10.83	11.13	11.85	13.19	5.59	6.31	6.60	7.32	8.67
	4H	10.71	11.39	11.73	12.40	13.76	6.03	6.71	7.05	7.72	9.08
	6H	11.11	11.74	12.14	12.75	14.12	6.33	6.95	7.36	7.97	9.34
	8H	11.23	11.82	12.26	12.86	14.22	6.41	7.00	7.44	8.04	9.40
	12H	11.28	11.84	12.32	12.87	14.26	6.44	7.00	7.48	8.03	9.42
4H	2H	8.48	9.15	9.50	10.17	11.52	5.01	5.69	6.03	6.70	8.06
	3H	10.28	10.84	11.31	11.88	13.25	6.33	6.90	7.37	7.94	9.31
	4H	10.95	11.46	11.99	12.50	13.89	6.86	7.38	7.90	8.41	9.80
	6H	11.44	11.88	12.49	12.94	14.33	7.25	7.70	8.31	8.75	10.14
	8H	11.60	12.01	12.65	13.07	14.47	7.37	7.78	8.42	8.83	10.24
	12H	11.68	12.06	12.75	13.12	14.53	7.42	7.80	8.49	8.86	10.27
8H	4H	10.91	11.32	11.96	12.37	13.78	7.12	7.54	8.18	8.59	9.99
	6H	11.45	11.79	12.52	12.88	14.28	7.61	7.95	8.69	9.05	10.45
	8H	11.65	11.95	12.73	13.03	14.45	7.79	8.09	8.87	9.16	10.58
	12H	11.77	12.03	12.86	13.11	14.57	7.89	8.15	8.97	9.22	10.68
12H	4H	10.86	11.23	11.93	12.30	13.70	7.12	7.50	8.19	8.56	9.97
	6H	11.42	11.72	12.50	12.80	14.22	7.66	7.95	8.74	9.03	10.45
	8H	11.63	11.89	12.71	12.96	14.42	7.85	8.11	8.93	9.18	10.64