

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: P923031

Luminaire Tested: DFN2DIP-SQ3F0-120D120US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923031
REPORT IS A COMBINATION OF REPORTS P901542 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D120US940-RLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

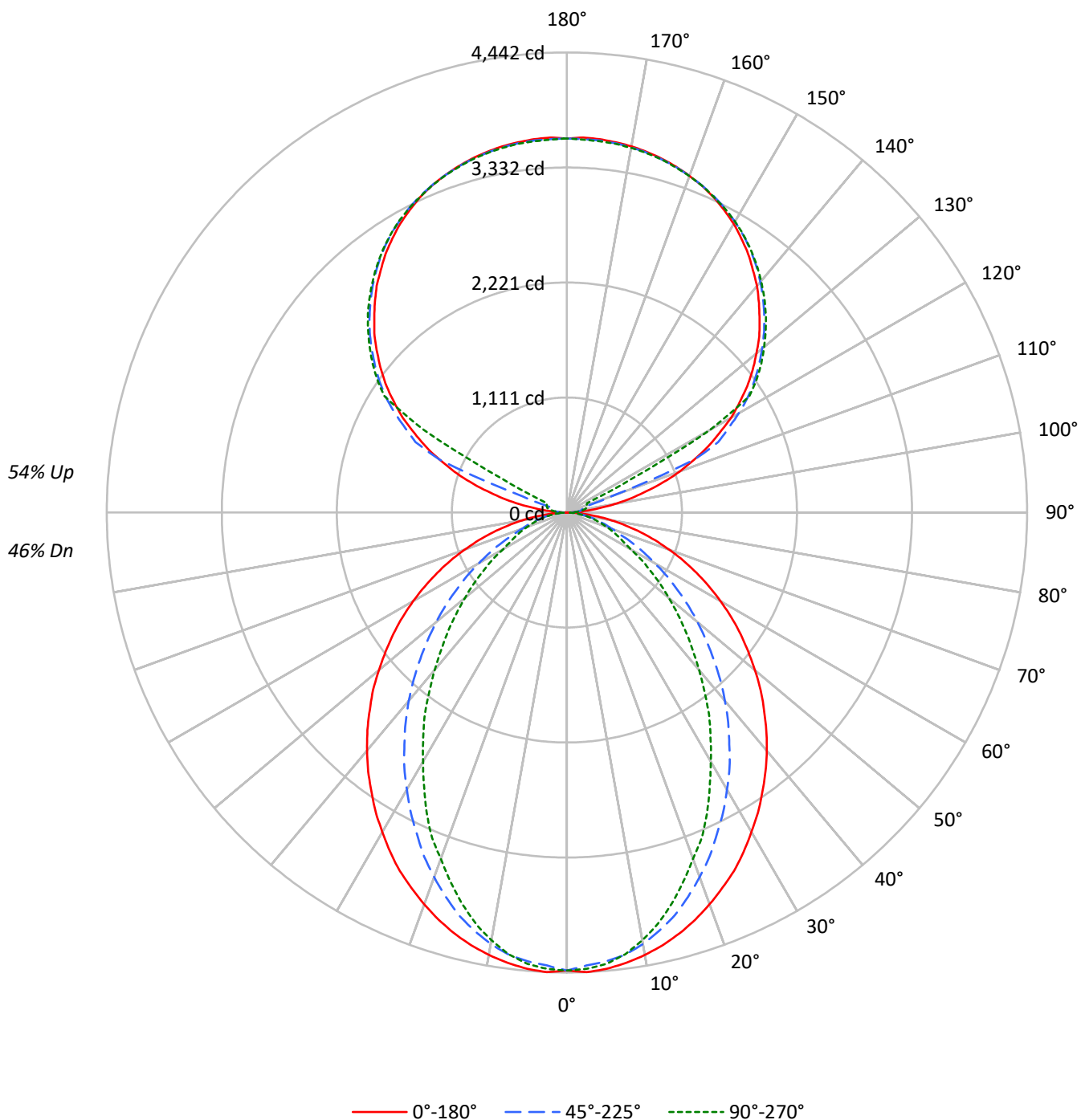
Lumens per Lamp: N/A
Luminaire Lumens: 19689.0 lumens
Efficiency: N/A
Efficacy: 89.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 219.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5067	5067	5067
5°	5072	4984	5017
10°	5019	4882	4852
15°	4946	4718	4598
20°	4852	4492	4287
25°	4755	4240	3987
30°	4626	3982	3607
35°	4499	3704	3273
40°	4370	3418	2890
45°	4221	3100	2543
50°	4066	2779	2205
55°	3903	2438	1880
60°	3716	2080	1546
65°	3499	1718	1389
70°	3237	1380	1254
75°	2906	1209	1138
80°	2428	1004	981
85°	1647	654	728

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 4221 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.5	2.1
10°-20°	1137.8	5.8
20°-30°	1597.5	8.1
30°-40°	1741.4	8.8
40°-50°	1600.5	8.1
50°-60°	1256.9	6.4
60°-70°	818.2	4.2
70°-80°	421.2	2.1
80°-90°	113.9	0.6
90°-100°	119.1	0.6
100°-110°	443.9	2.3
110°-120°	1177.3	6.0
120°-130°	1952.7	9.9
130°-140°	2074.2	10.5
140°-150°	1927.7	9.8
150°-160°	1549.8	7.9
160°-170°	998.7	5.1
170°-180°	343.7	1.7
0°-30°	3149.8	16.0
0°-40°	4891.2	24.8
0°-60°	7748.6	39.4
0°-90°	9101.8	46.2
90°-120°	1740.3	8.8
90°-150°	7694.9	39.1
90°-180°	10587.0	53.8
0°-180°	19689.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4422	4422	4422	4422	4422	
5°	4422	4403	4350	4386	4375	419
15°	4206	4162	4026	3950	3910	1185
25°	3818	3690	3426	3262	3202	1756
35°	3290	3086	2734	2482	2393	2059
45°	2690	2421	2001	1717	1621	2077
55°	2045	1733	1301	1061	985	1827
65°	1381	1056	696	560	548	1369
75°	736	456	320	292	288	779
85°	172	88	76	76	76	197
90°	2	31	52	66	70	18
95°	170	84	102	115	112	201
105°	794	873	160	188	199	849
115°	1502	1547	1612	402	214	1479
125°	2124	2158	2208	2226	2234	1895
135°	2629	2671	2694	2720	2715	2031
145°	3050	3047	3091	3110	3096	1907
155°	3358	3334	3366	3381	3361	1547
165°	3538	3522	3530	3549	3530	1000
175°	3619	3601	3606	3624	3598	344
180°	3611	3611	3611	3611	3611	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4422.5	4422.5	4422.5	4422.5	4422.5
2.5°	4442.5	4422.5	4378.4	4418.7	4410.6
5°	4422.5	4402.6	4350.3	4386.4	4374.6
7.5°	4386.4	4362.6	4306.6	4322.3	4302.3
10°	4338.4	4310.4	4230.5	4218.2	4194.5
12.5°	4278.5	4242.5	4134.1	4110.4	4066.3
15°	4206.4	4162.2	4026.3	3950.3	3910.4
17.5°	4122.3	4058.2	3890.0	3802.2	3738.0
20°	4026.3	3946.1	3746.1	3646.3	3557.9
22.5°	3922.3	3830.2	3597.9	3462.0	3402.1
25°	3818.3	3690.0	3425.9	3262.0	3201.7
27.5°	3694.3	3557.9	3265.8	3077.7	2985.5
30°	3562.2	3409.8	3089.6	2885.8	2777.5
32.5°	3434.0	3249.7	2921.9	2681.6	2581.3
35°	3290.1	3085.8	2733.7	2481.5	2393.2
37.5°	3149.9	2929.5	2557.5	2281.1	2181.3
40°	3001.7	2761.8	2373.3	2089.2	1985.1
42.5°	2849.6	2593.6	2189.4	1893.0	1793.2
45°	2689.6	2421.3	2001.3	1716.8	1620.8
47.5°	2537.5	2253.5	1821.2	1536.8	1448.9
50°	2369.5	2085.4	1645.0	1368.6	1285.0
52.5°	2205.1	1904.9	1476.9	1212.7	1136.8
55°	2045.0	1732.9	1300.6	1060.7	984.7
57.5°	1881.1	1560.9	1144.8	920.6	856.5
60°	1713.0	1392.8	980.4	776.7	712.6
62.5°	1549.1	1228.9	840.3	648.5	616.5
65°	1380.9	1056.5	696.4	560.5	548.2
67.5°	1220.8	896.3	560.5	492.1	480.3
70°	1052.7	740.6	464.1	424.2	408.0
72.5°	892.6	596.2	388.1	356.2	348.2
75°	736.3	456.0	320.2	292.1	288.3
77.5°	580.5	324.0	252.3	236.1	228.0
80°	436.1	232.3	191.9	176.2	176.2
82.5°	304.1	156.2	132.1	123.9	123.9
85°	172.0	87.9	76.0	76.0	76.0
87.5°	64.1	31.8	31.8	28.0	28.0
90°	2.5	31.3	52.2	65.5	70.4
92.5°	65.5	54.9	62.7	67.9	70.4
95°	169.7	83.5	101.7	115.1	112.4
97.5°	305.7	91.6	133.1	141.2	143.7
100°	462.6	104.6	148.9	169.7	175.0
102.5°	634.9	629.9	154.2	182.8	190.8
105°	794.3	872.9	159.5	188.1	198.6
107.5°	979.9	1045.1	164.8	193.3	203.8
110°	1157.7	1212.4	457.4	196.1	206.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.0	1371.8	1327.5	201.1	209.1
115°	1502.4	1546.8	1612.3	402.4	214.5
117.5°	1656.7	1708.9	1753.5	1379.6	695.1
120°	1829.3	1868.3	1915.5	1946.9	1594.0
122.5°	1975.4	2017.3	2069.7	2085.3	2088.0
125°	2124.3	2158.5	2208.1	2226.4	2234.2
127.5°	2260.2	2296.9	2336.3	2362.3	2364.8
130°	2388.4	2430.3	2458.8	2487.7	2485.2
132.5°	2519.0	2553.1	2581.7	2605.3	2602.8
135°	2628.9	2670.8	2694.0	2720.4	2715.2
137.5°	2743.7	2775.0	2801.4	2827.4	2819.7
140°	2856.1	2877.1	2905.6	2929.3	2916.2
142.5°	2950.3	2968.7	3002.5	3023.3	3010.2
145°	3049.6	3046.9	3091.2	3109.6	3096.5
147.5°	3135.6	3127.9	3172.3	3185.3	3175.0
150°	3219.3	3201.1	3243.0	3258.5	3245.5
152.5°	3289.8	3269.0	3308.2	3323.9	3305.7
155°	3357.7	3334.5	3365.8	3381.4	3360.6
157.5°	3412.7	3391.9	3415.5	3433.8	3412.7
160°	3459.8	3444.1	3459.8	3475.4	3457.1
162.5°	3501.5	3486.0	3499.0	3517.3	3493.7
165°	3538.0	3522.5	3530.3	3548.7	3530.3
167.5°	3566.9	3551.1	3559.2	3577.5	3553.9
170°	3590.5	3574.7	3579.9	3598.2	3574.7
172.5°	3606.0	3590.5	3595.8	3614.1	3590.5
175°	3619.0	3600.7	3606.0	3624.4	3598.2
177.5°	3624.4	3606.0	3608.8	3627.1	3603.6
180°	3611.3	3611.3	3611.3	3611.3	3611.3

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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	12.39	13.19	13.38	14.19	15.52	8.35	9.15	9.34	10.15	11.48
	3H	14.06	14.77	15.06	15.79	17.13	9.53	10.24	10.53	11.26	12.60
	4H	14.66	15.34	15.68	16.35	17.71	9.97	10.65	10.99	11.66	13.02
	6H	15.08	15.70	16.11	16.72	18.09	10.29	10.91	11.32	11.93	13.30
	8H	15.20	15.80	16.24	16.83	18.19	10.37	10.97	11.41	12.00	13.36
	12H	15.26	15.82	16.30	16.85	18.24	10.41	10.98	11.45	12.00	13.39
4H	2H	12.40	13.08	13.43	14.09	15.45	8.94	9.62	9.96	10.63	11.99
	3H	14.22	14.78	15.26	15.83	17.20	10.28	10.84	11.31	11.88	13.25
	4H	14.91	15.42	15.95	16.46	17.85	10.82	11.33	11.86	12.37	13.76
	6H	15.42	15.86	16.47	16.92	18.31	11.23	11.67	12.28	12.73	14.12
	8H	15.59	16.00	16.64	17.05	18.46	11.35	11.77	12.41	12.82	14.22
	12H	15.68	16.05	16.75	17.12	18.53	11.41	11.79	12.48	12.85	14.26
8H	4H	14.87	15.29	15.92	16.34	17.74	11.09	11.51	12.15	12.56	13.96
	6H	15.43	15.77	16.51	16.87	18.27	11.60	11.94	12.68	13.04	14.44
	8H	15.65	15.94	16.73	17.02	18.44	11.79	12.09	12.87	13.16	14.58
	12H	15.78	16.04	16.86	17.11	18.57	11.90	12.16	12.99	13.24	14.70
12H	4H	14.82	15.20	15.89	16.26	17.67	11.10	11.47	12.17	12.54	13.94
	6H	15.41	15.71	16.49	16.78	18.20	11.65	11.95	12.73	13.03	14.45
	8H	15.62	15.89	16.71	16.96	18.42	11.85	12.12	12.94	13.19	14.65

END OF REPORT