

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: P920337

Luminaire Tested: DFN2DIP-SQ4F0-060D160US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920337
REPORT IS A COMBINATION OF REPORTS P901723 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D160US935-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

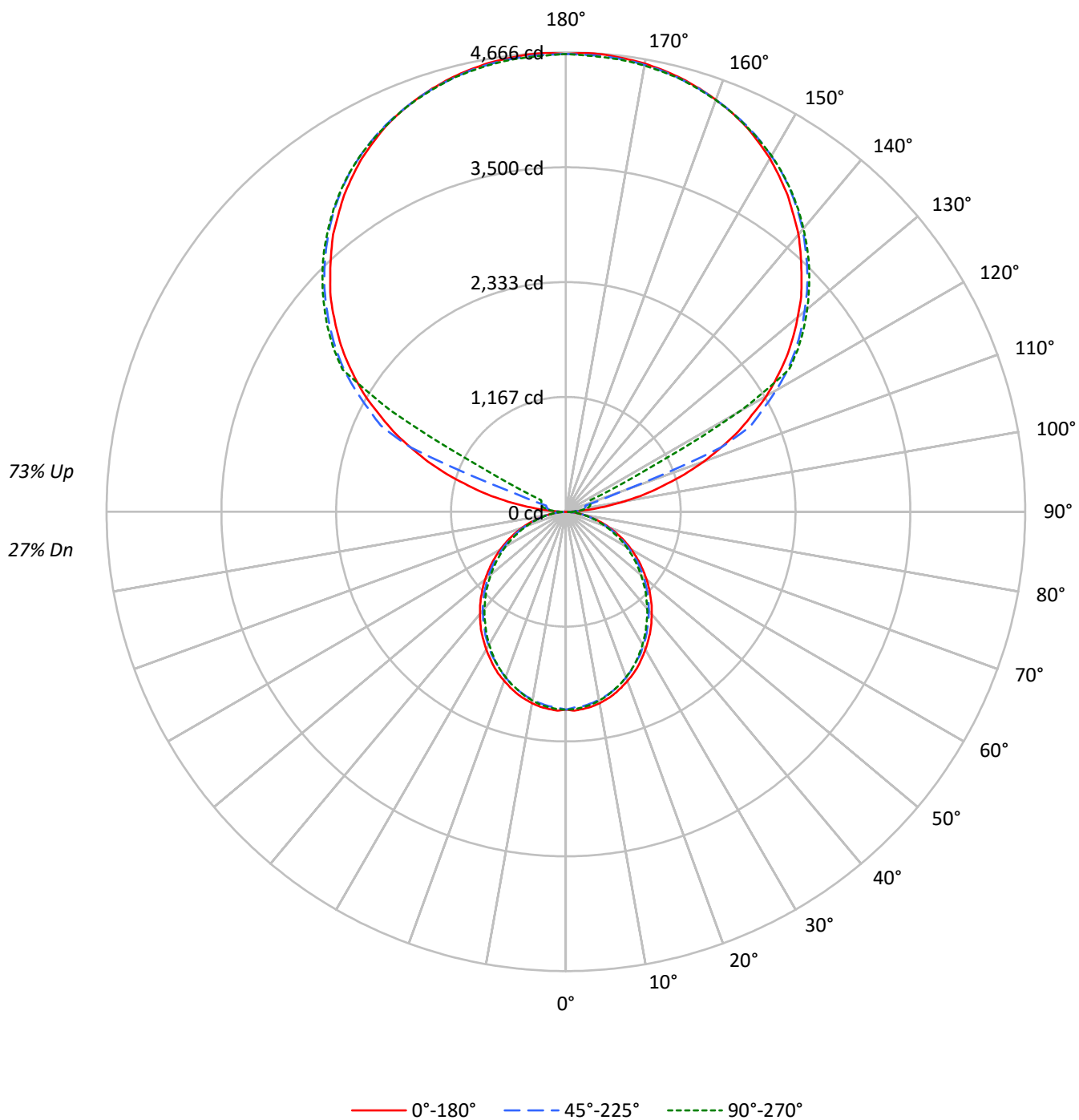
Lumens per Lamp: N/A
Luminaire Lumens: 18752.5 lumens
Efficiency: N/A
Efficacy: 109.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 172.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	89	85	81	83	79	76	73	62	60	58	46	45	43	31	30	30
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25
3	77	68	61	55	68	61	55	50	48	44	40	36	33	31	24	23	21
4	70	60	52	47	63	54	47	42	42	38	34	32	29	26	22	20	18
5	64	53	45	40	57	48	41	36	38	33	29	28	25	23	19	18	16
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	12	10
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1410	1410	1410
5°	1413	1391	1401
10°	1401	1373	1382
15°	1381	1350	1353
20°	1353	1319	1323
25°	1325	1282	1288
30°	1290	1247	1244
35°	1257	1206	1197
40°	1217	1165	1153
45°	1177	1124	1107
50°	1132	1080	1055
55°	1086	1030	1006
60°	1034	970	951
65°	977	909	885
70°	904	833	815
75°	803	743	751
80°	683	629	628
85°	493	430	422

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2493 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	1.0
10°-20°	532.3	2.8
20°-30°	782.3	4.2
30°-40°	908.6	4.8
40°-50°	907.5	4.8
50°-60°	791.3	4.2
60°-70°	584.9	3.1
70°-80°	330.9	1.8
80°-90°	95.5	0.5
90°-100°	153.3	0.8
100°-110°	571.5	3.0
110°-120°	1515.7	8.1
120°-130°	2513.9	13.4
130°-140°	2670.3	14.2
140°-150°	2481.8	13.2
150°-160°	1995.3	10.6
160°-170°	1285.7	6.9
170°-180°	442.5	2.4
0°-30°	1503.8	8.0
0°-40°	2412.4	12.9
0°-60°	4111.1	21.9
0°-90°	5122.5	27.3
90°-120°	2240.5	11.9
90°-150°	9906.5	52.8
90°-180°	13630.0	72.7
0°-180°	18752.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2010	2010	2010	2010	2010	
5°	2010	2002	1981	1997	1993	191
15°	1914	1902	1877	1885	1875	539
25°	1732	1716	1684	1687	1684	797
35°	1494	1475	1444	1432	1422	933
45°	1216	1202	1173	1152	1144	938
55°	920	908	885	862	852	823
65°	620	609	590	572	562	614
75°	325	321	311	300	304	347
85°	79	77	75	70	68	88
90°	3	40	67	84	91	17
95°	218	108	131	148	145	259
105°	1023	1124	205	242	256	1093
115°	1934	1991	2076	518	276	1904
125°	2735	2779	2843	2866	2876	2439
135°	3384	3438	3468	3502	3496	2614
145°	3926	3922	3980	4003	3986	2456
155°	4323	4293	4333	4353	4326	1992
165°	4555	4535	4545	4568	4545	1287
175°	4659	4636	4642	4666	4632	443
180°	4649	4649	4649	4649	4649	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2010.1	2010.1	2010.1	2010.1	2010.1
2.5°	2021.8	2012.2	1990.8	2010.1	2006.4
5°	2010.1	2002.5	1981.2	1996.6	1992.9
7.5°	1996.6	1985.1	1963.8	1979.3	1975.5
10°	1975.5	1962.0	1938.7	1954.1	1948.4
12.5°	1946.4	1934.8	1911.7	1921.3	1917.4
15°	1913.5	1902.0	1876.8	1884.6	1875.0
17.5°	1872.9	1861.5	1836.3	1845.8	1836.3
20°	1828.4	1817.0	1789.8	1795.6	1788.0
22.5°	1784.2	1766.7	1741.5	1741.5	1737.6
25°	1731.8	1716.5	1683.6	1687.3	1683.6
27.5°	1673.8	1660.3	1635.2	1629.5	1619.9
30°	1616.0	1600.3	1571.5	1565.7	1557.9
32.5°	1554.0	1542.6	1511.6	1499.9	1492.1
35°	1494.2	1474.9	1443.9	1432.2	1422.5
37.5°	1426.5	1409.0	1378.1	1364.5	1354.9
40°	1356.9	1341.3	1310.4	1293.2	1285.4
42.5°	1289.3	1273.7	1242.9	1223.5	1211.9
45°	1215.9	1202.3	1173.2	1152.1	1144.3
47.5°	1144.3	1130.7	1099.8	1078.5	1066.9
50°	1068.8	1059.2	1032.2	1005.0	995.4
52.5°	995.4	981.9	956.8	935.6	922.0
55°	920.1	908.4	885.3	862.1	852.5
57.5°	844.7	835.1	809.9	786.7	778.9
60°	769.2	761.6	734.6	713.3	707.5
62.5°	695.8	682.3	663.0	643.7	635.9
65°	620.5	608.9	589.6	572.1	562.5
67.5°	543.2	533.4	516.2	502.7	494.8
70°	471.7	463.9	446.4	432.9	425.3
72.5°	398.2	390.5	380.8	367.3	361.5
75°	324.6	321.0	311.1	299.6	303.5
77.5°	259.0	251.2	247.3	241.6	235.8
80°	193.4	191.3	187.4	181.7	177.8
82.5°	131.5	131.5	129.6	121.8	121.8
85°	79.1	77.3	75.4	69.5	67.7
87.5°	34.9	31.0	27.0	21.4	19.3
90°	3.2	40.4	67.1	84.3	90.7
92.5°	84.3	70.7	80.7	87.5	90.7
95°	218.5	107.5	131.0	148.2	144.6
97.5°	393.5	117.9	171.3	181.8	184.9
100°	595.6	134.7	191.7	218.5	225.3
102.5°	817.3	811.0	198.5	235.3	245.6
105°	1022.7	1123.8	205.3	242.1	255.6
107.5°	1261.5	1345.5	212.1	248.9	262.4
110°	1490.5	1560.8	588.8	252.4	265.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1705.8	1766.2	1709.0	258.9	269.2
115°	1934.3	1991.4	2075.7	518.1	276.0
117.5°	2132.9	2199.9	2257.5	1776.2	894.8
120°	2355.0	2405.3	2466.0	2506.4	2052.2
122.5°	2543.1	2597.0	2664.5	2684.5	2688.1
125°	2734.9	2778.8	2842.8	2866.3	2876.3
127.5°	2909.8	2957.0	3007.7	3041.3	3044.5
130°	3074.9	3128.8	3165.5	3202.7	3199.5
132.5°	3243.0	3286.9	3323.7	3354.1	3350.9
135°	3384.4	3438.4	3468.4	3502.3	3495.5
137.5°	3532.2	3572.6	3606.5	3640.1	3630.1
140°	3676.9	3704.0	3740.8	3771.2	3754.4
142.5°	3798.3	3821.9	3865.4	3892.2	3875.4
145°	3926.2	3922.5	3979.7	4003.2	3986.5
147.5°	4036.8	4026.8	4084.0	4100.8	4087.5
150°	4144.7	4121.1	4175.1	4195.0	4178.3
152.5°	4235.3	4208.6	4258.9	4279.3	4255.7
155°	4322.8	4292.8	4333.2	4353.2	4326.4
157.5°	4393.6	4366.8	4397.1	4420.7	4393.6
160°	4454.3	4433.9	4454.3	4474.3	4450.7
162.5°	4507.8	4487.9	4504.6	4528.2	4497.9
165°	4554.9	4535.0	4544.9	4568.5	4544.9
167.5°	4592.1	4571.7	4582.1	4605.6	4575.3
170°	4622.4	4602.1	4608.8	4632.4	4602.1
172.5°	4642.4	4622.4	4629.2	4652.8	4622.4
175°	4659.2	4635.6	4642.4	4666.0	4632.4
177.5°	4666.0	4642.4	4646.0	4669.6	4639.2
180°	4649.2	4649.2	4649.2	4649.2	4649.2

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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	5.89	6.57	7.02	7.70	9.26	5.44	6.13	6.57	7.25	8.81
	3H	7.54	8.15	8.67	9.28	10.86	7.05	7.66	8.18	8.79	10.37
	4H	8.12	8.70	9.27	9.84	11.42	7.62	8.21	8.77	9.34	10.92
	6H	8.51	9.05	9.67	10.19	11.78	8.01	8.55	9.17	9.68	11.28
	8H	8.61	9.13	9.77	10.28	11.86	8.11	8.63	9.27	9.77	11.36
	12H	8.66	9.15	9.82	10.29	11.90	8.15	8.64	9.31	9.78	11.39
4H	2H	6.33	6.91	7.48	8.04	9.62	5.97	6.56	7.13	7.69	9.27
	3H	8.18	8.67	9.34	9.83	11.42	7.77	8.26	8.93	9.42	11.01
	4H	8.89	9.34	10.05	10.49	12.10	8.47	8.92	9.63	10.06	11.68
	6H	9.40	9.78	10.57	10.95	12.56	8.97	9.35	10.14	10.52	12.12
	8H	9.55	9.91	10.71	11.07	12.69	9.11	9.47	10.28	10.63	12.25
	12H	9.61	9.94	10.80	11.11	12.74	9.16	9.49	10.35	10.66	12.29
8H	4H	9.07	9.43	10.24	10.59	12.21	8.70	9.06	9.86	10.22	11.84
	6H	9.70	10.00	10.89	11.20	12.82	9.32	9.62	10.51	10.82	12.43
	8H	9.92	10.18	11.12	11.36	13.00	9.53	9.79	10.72	10.97	12.61
	12H	10.05	10.28	11.25	11.45	13.13	9.64	9.87	10.84	11.04	12.71
12H	4H	9.05	9.38	10.23	10.55	12.17	8.68	9.01	9.87	10.18	11.81
	6H	9.73	9.99	10.92	11.17	12.81	9.36	9.62	10.55	10.80	12.44
	8H	9.97	10.19	11.16	11.37	13.04	9.59	9.81	10.78	10.99	12.66

END OF REPORT