

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: P917611

Luminaire Tested: DFN2DIP-SQ4F0-060D160US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917611
REPORT IS A COMBINATION OF REPORTS P901724 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D160US930-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

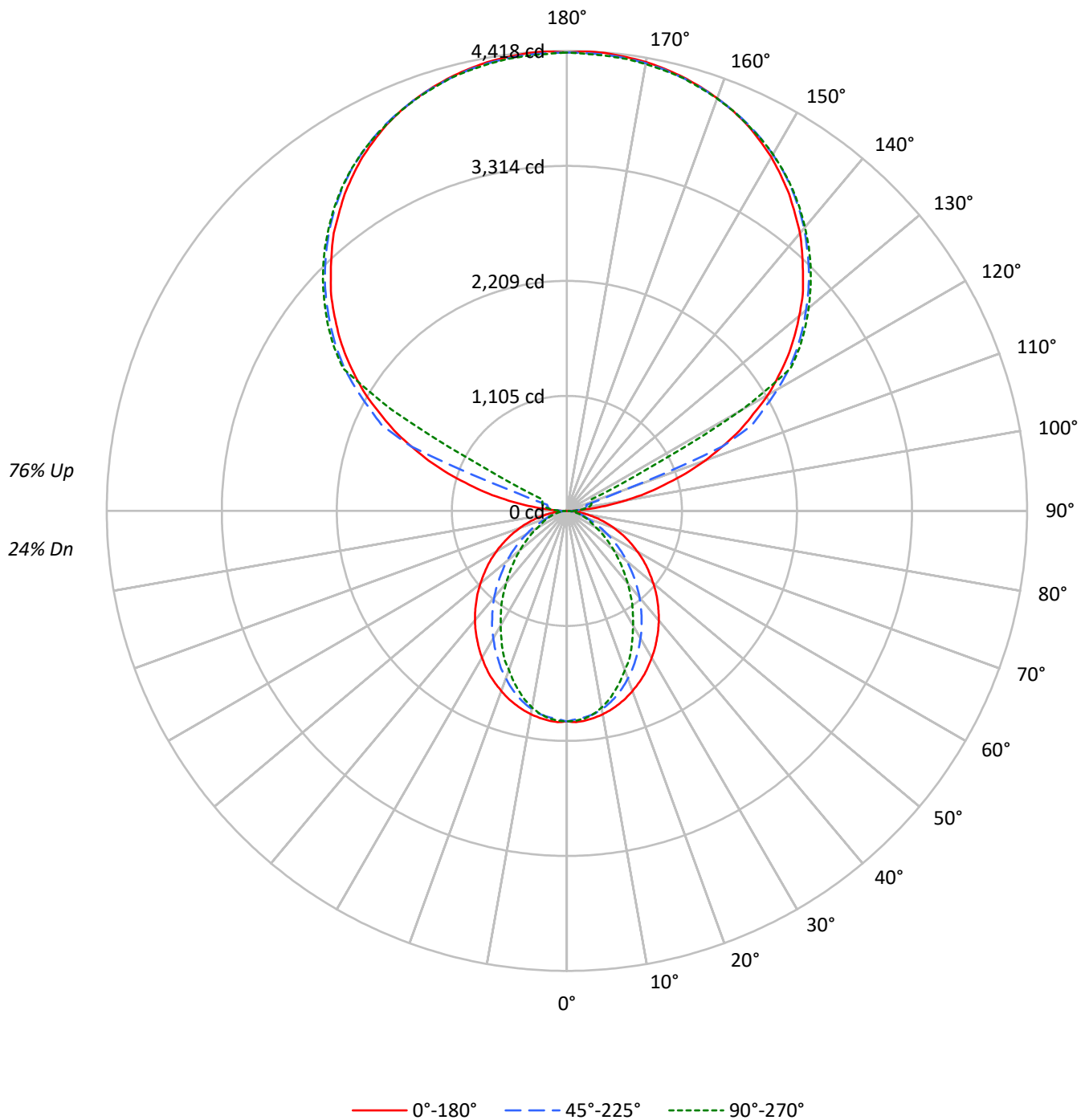
Lumens per Lamp: N/A
Luminaire Lumens: 17072.3 lumens
Efficiency: N/A
Efficacy: 99.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	33	33	33
1	92	88	85	81	82	79	76	73	61	59	57	44	43	42	29	28	28
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	26	25	24
3	77	68	61	56	68	61	55	50	47	43	40	35	32	30	23	22	21
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	21	19	18
5	65	54	46	40	57	48	42	37	38	33	30	28	25	23	19	17	16
6	59	48	40	35	53	43	37	32	34	29	26	25	22	20	17	15	14
7	55	43	36	30	49	39	32	28	31	26	23	23	20	17	16	14	12
8	51	39	32	27	45	35	29	25	28	23	20	21	18	16	14	13	11
9	47	36	29	24	42	32	26	22	25	21	18	19	16	14	13	11	10
10	44	33	26	21	39	29	23	19	23	19	16	18	15	13	12	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1419	1419	1419
5°	1421	1396	1405
10°	1407	1369	1360
15°	1387	1324	1290
20°	1362	1262	1203
25°	1336	1192	1120
30°	1300	1121	1014
35°	1266	1044	921
40°	1231	965	814
45°	1190	876	717
50°	1148	787	622
55°	1103	692	531
60°	1052	592	438
65°	994	491	394
70°	923	396	358
75°	833	350	326
80°	703	294	284
85°	490	198	216

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2361 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.5	1.1
10°-20°	520.2	3.0
20°-30°	730.3	4.3
30°-40°	796.1	4.7
40°-50°	731.7	4.3
50°-60°	574.6	3.4
60°-70°	374.0	2.2
70°-80°	192.5	1.1
80°-90°	56.9	0.3
90°-100°	145.1	0.9
100°-110°	541.2	3.2
110°-120°	1435.3	8.4
120°-130°	2380.5	13.9
130°-140°	2528.6	14.8
140°-150°	2350.1	13.8
150°-160°	1889.4	11.1
160°-170°	1217.5	7.1
170°-180°	419.0	2.5
0°-30°	1439.9	8.4
0°-40°	2236.0	13.1
0°-60°	3542.3	20.7
0°-90°	4165.7	24.4
90°-120°	2121.6	12.4
90°-150°	9380.7	54.9
90°-180°	12907.0	75.6
0°-180°	17072.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2022	2022	2022	2022	2022	
5°	2022	2013	1989	2005	2000	192
15°	1923	1903	1841	1806	1788	542
25°	1746	1687	1566	1491	1464	803
35°	1504	1411	1250	1134	1094	941
45°	1230	1107	915	785	741	950
55°	935	792	595	485	450	835
65°	631	483	318	256	251	626
75°	337	208	146	134	132	356
85°	79	40	35	35	35	90
90°	3	38	64	80	86	16
95°	207	102	124	140	137	245
105°	968	1064	194	229	242	1035
115°	1832	1886	1966	491	261	1803
125°	2590	2631	2692	2714	2724	2310
135°	3205	3256	3284	3316	3310	2476
145°	3718	3714	3768	3791	3775	2325
155°	4093	4065	4103	4122	4097	1886
165°	4313	4294	4304	4326	4304	1219
175°	4412	4390	4396	4418	4386	420
180°	4402	4402	4402	4402	4402	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2021.8	2021.8	2021.8	2021.8	2021.8
2.5°	2030.9	2021.8	2001.6	2020.0	2016.3
5°	2021.8	2012.6	1988.8	2005.3	1999.8
7.5°	2005.3	1994.4	1968.8	1976.0	1966.8
10°	1983.3	1970.5	1934.1	1928.4	1917.5
12.5°	1956.0	1939.4	1889.9	1879.1	1858.9
15°	1923.0	1902.7	1840.6	1805.9	1787.6
17.5°	1884.6	1855.2	1778.3	1738.1	1708.9
20°	1840.6	1803.9	1712.5	1666.9	1626.5
22.5°	1793.1	1750.9	1644.8	1582.7	1555.3
25°	1745.6	1686.9	1566.2	1491.3	1463.7
27.5°	1688.9	1626.5	1493.0	1407.0	1364.9
30°	1628.5	1558.8	1412.4	1319.2	1269.7
32.5°	1569.9	1485.6	1335.8	1225.9	1180.1
35°	1504.1	1410.7	1249.8	1134.4	1094.0
37.5°	1440.0	1339.2	1169.2	1042.8	997.2
40°	1372.2	1262.6	1084.9	955.0	907.5
42.5°	1302.8	1185.7	1000.9	865.4	819.8
45°	1229.6	1106.8	914.9	784.8	740.9
47.5°	1160.1	1030.2	832.6	702.5	662.3
50°	1083.2	953.3	752.0	625.7	587.4
52.5°	1008.0	870.8	675.1	554.4	519.7
55°	934.9	792.2	594.6	484.9	450.1
57.5°	860.0	713.5	523.3	420.9	391.5
60°	783.1	636.7	448.3	355.1	325.7
62.5°	708.2	561.8	384.2	296.4	281.8
65°	631.3	483.0	318.4	256.2	250.6
67.5°	558.1	409.8	256.2	225.0	219.6
70°	481.2	338.5	212.1	194.0	186.5
72.5°	408.1	272.6	177.4	162.9	159.1
75°	336.6	208.5	146.3	133.5	131.8
77.5°	265.4	148.1	115.3	107.9	104.3
80°	199.3	106.2	87.7	80.6	80.6
82.5°	139.0	71.4	60.3	56.7	56.7
85°	78.6	40.2	34.7	34.7	34.7
87.5°	29.4	14.6	14.6	12.8	12.8
90°	3.0	38.2	63.5	79.8	85.9
92.5°	79.8	66.9	76.4	82.8	85.9
95°	206.9	101.7	124.1	140.3	137.0
97.5°	372.6	111.6	162.2	172.1	175.1
100°	564.0	127.5	181.6	206.9	213.4
102.5°	774.0	767.9	188.0	222.8	232.6
105°	968.4	1064.1	194.4	229.3	242.1
107.5°	1194.6	1274.1	200.9	235.7	248.5
110°	1411.4	1478.0	557.6	239.0	251.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1615.3	1672.4	1618.3	245.2	254.9
115°	1831.6	1885.7	1965.5	490.6	261.4
117.5°	2019.7	2083.2	2137.7	1681.9	847.3
120°	2230.0	2277.6	2335.1	2373.3	1943.3
122.5°	2408.1	2459.2	2523.1	2542.0	2545.4
125°	2589.7	2631.3	2691.9	2714.2	2723.7
127.5°	2755.4	2800.1	2848.1	2879.9	2882.9
130°	2911.7	2962.7	2997.5	3032.7	3029.6
132.5°	3070.9	3112.5	3147.3	3176.1	3173.1
135°	3204.8	3255.9	3284.3	3316.4	3309.9
137.5°	3344.8	3383.0	3415.1	3446.9	3437.5
140°	3481.7	3507.4	3542.2	3571.0	3555.1
142.5°	3596.7	3619.0	3660.3	3685.6	3669.7
145°	3717.8	3714.3	3768.5	3790.7	3774.9
147.5°	3822.5	3813.1	3867.2	3883.1	3870.5
150°	3924.7	3902.3	3953.5	3972.4	3956.5
152.5°	4010.5	3985.2	4032.9	4052.2	4029.9
155°	4093.4	4065.0	4103.2	4122.1	4096.8
157.5°	4160.4	4135.0	4163.7	4186.1	4160.4
160°	4217.9	4198.5	4217.9	4236.8	4214.4
162.5°	4268.6	4249.7	4265.5	4287.8	4259.1
165°	4313.2	4294.3	4303.7	4326.1	4303.7
167.5°	4348.4	4329.1	4338.9	4361.2	4332.5
170°	4377.1	4357.9	4364.2	4386.5	4357.9
172.5°	4396.0	4377.1	4383.5	4405.9	4377.1
175°	4411.9	4389.6	4396.0	4418.3	4386.5
177.5°	4418.3	4396.0	4399.4	4421.8	4393.0
180°	4402.4	4402.4	4402.4	4402.4	4402.4

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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	5.31	5.96	6.46	7.10	8.70	1.27	1.92	2.42	3.06	4.66
	3H	6.97	7.56	8.14	8.71	10.32	2.44	3.03	3.60	4.18	5.79
	4H	7.58	8.14	8.75	9.28	10.90	2.89	3.44	4.06	4.59	6.21
	6H	7.99	8.51	9.17	9.66	11.28	3.20	3.71	4.38	4.86	6.49
	8H	8.12	8.61	9.30	9.77	11.39	3.28	3.77	4.46	4.94	6.56
	12H	8.18	8.64	9.36	9.80	11.44	3.32	3.79	4.51	4.94	6.58
4H	2H	5.30	5.86	6.48	7.01	8.62	1.84	2.40	3.02	3.55	5.17
	3H	7.12	7.59	8.30	8.76	10.39	3.18	3.64	4.36	4.82	6.44
	4H	7.81	8.24	8.99	9.40	11.04	3.72	4.15	4.90	5.31	6.96
	6H	8.32	8.68	9.51	9.87	11.50	4.13	4.50	5.32	5.68	7.32
	8H	8.49	8.83	9.68	10.01	11.66	4.26	4.60	5.44	5.77	7.43
	12H	8.58	8.89	9.79	10.08	11.74	4.31	4.62	5.52	5.81	7.47
8H	4H	7.76	8.11	8.95	9.28	10.93	3.99	4.33	5.18	5.51	7.16
	6H	8.33	8.61	9.53	9.83	11.48	4.50	4.78	5.71	6.00	7.65
	8H	8.55	8.79	9.76	9.99	11.66	4.70	4.94	5.91	6.13	7.80
	12H	8.68	8.90	9.90	10.09	11.79	4.81	5.02	6.02	6.21	7.92
12H	4H	7.71	8.02	8.91	9.20	10.86	3.99	4.30	5.19	5.48	7.14
	6H	8.30	8.55	9.51	9.74	11.41	4.55	4.80	5.76	5.99	7.66
	8H	8.52	8.73	9.73	9.93	11.63	4.76	4.97	5.97	6.16	7.87

END OF REPORT