

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: P914882

Luminaire Tested: DFN2DIP-SQ4F0-060D160US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914882
REPORT IS A COMBINATION OF REPORTS P900204 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D160US927-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

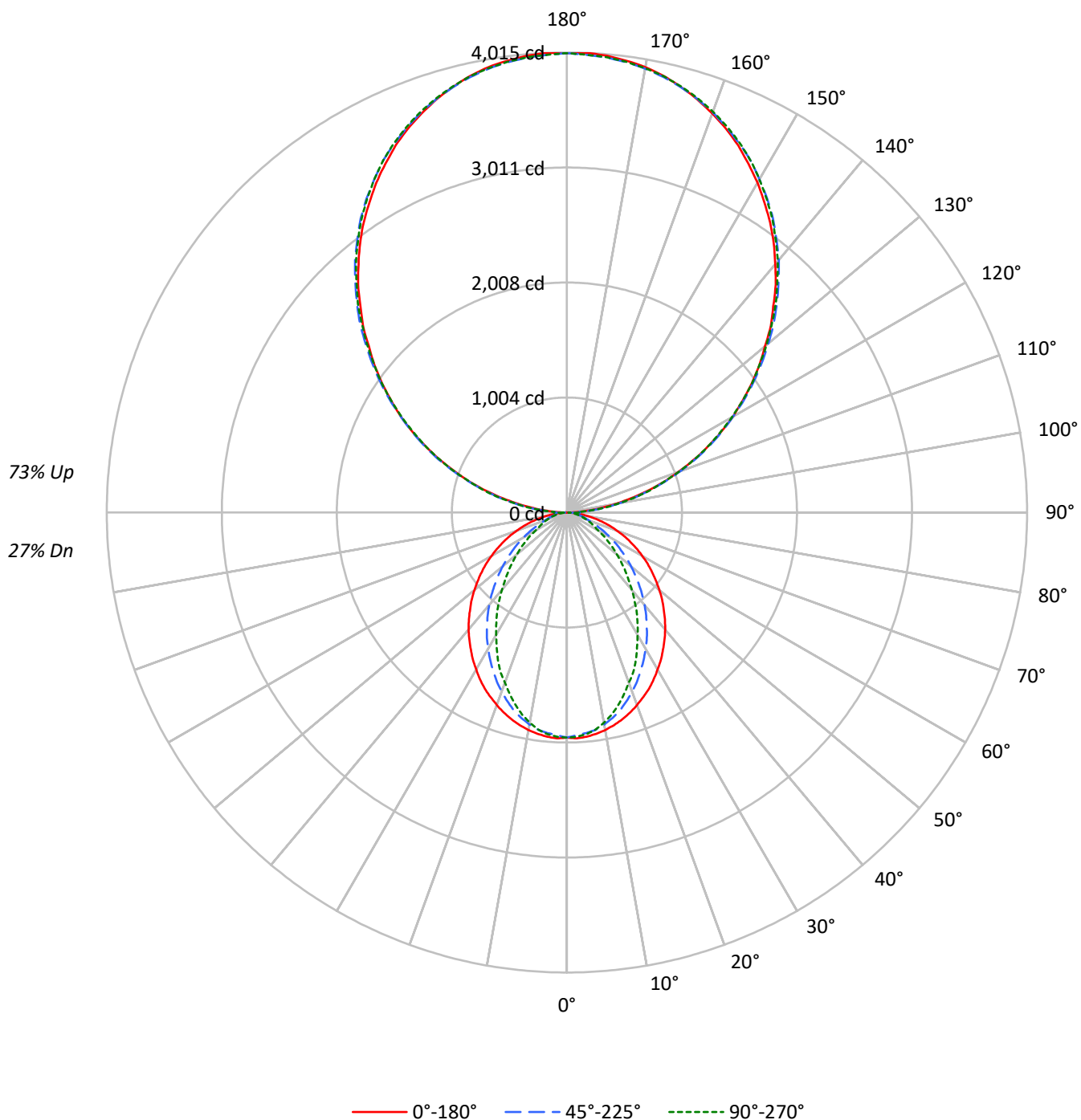
Lumens per Lamp: N/A
Luminaire Lumens: 15258.2 lumens
Efficiency: N/A
Efficacy: 88.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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	102	102	102	102	91	91	91	91	70	70	70	52	52	52	35	35	35
1	93	89	85	82	83	79	76	74	62	60	58	46	44	43	31	30	30
2	85	78	72	67	75	70	65	61	54	51	48	40	38	37	27	26	25
3	77	68	62	56	69	61	56	51	48	44	41	36	33	31	25	23	22
4	71	61	53	48	63	54	48	43	43	38	35	32	29	27	22	20	19
5	65	54	46	41	58	49	42	37	38	34	30	29	26	23	20	18	17
6	60	48	41	35	53	44	37	32	35	30	26	26	23	20	18	16	15
7	55	44	36	31	49	39	33	28	31	27	23	24	21	18	17	15	13
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12
9	48	36	29	24	42	33	26	22	26	21	18	20	17	14	14	12	11
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1378	1378	1378
5°	1381	1357	1366
10°	1367	1330	1322
15°	1348	1287	1253
20°	1323	1226	1169
25°	1298	1159	1088
30°	1263	1089	985
35°	1230	1015	895
40°	1196	937	791
45°	1156	851	697
50°	1115	765	605
55°	1072	672	516
60°	1023	575	425
65°	966	477	383
70°	896	385	348
75°	810	340	317
80°	684	286	276
85°	476	192	210

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3155 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.1	1.2
10°-20°	505.4	3.3
20°-30°	709.6	4.7
30°-40°	773.5	5.1
40°-50°	710.9	4.7
50°-60°	558.3	3.7
60°-70°	363.4	2.4
70°-80°	187.1	1.2
80°-90°	59.1	0.4
90°-100°	248.1	1.6
100°-110°	788.2	5.2
110°-120°	1348.9	8.8
120°-130°	1774.0	11.6
130°-140°	1991.2	13.0
140°-150°	1952.6	12.8
150°-160°	1637.9	10.7
160°-170°	1086.2	7.1
170°-180°	379.7	2.5
0°-30°	1399.1	9.2
0°-40°	2172.6	14.2
0°-60°	3441.9	22.6
0°-90°	4051.5	26.6
90°-120°	2385.1	15.6
90°-150°	8102.8	53.1
90°-180°	11207.0	73.4
0°-180°	15258.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1964	1964	1964	1964	1964	
5°	1964	1956	1932	1948	1943	186
15°	1868	1849	1788	1755	1737	527
25°	1696	1639	1522	1449	1422	780
35°	1461	1371	1214	1102	1063	915
45°	1195	1076	889	763	720	923
55°	908	770	578	471	437	812
65°	613	469	309	249	244	608
75°	327	203	142	130	128	346
85°	76	39	34	34	34	88
90°	4	44	118	111	115	15
95°	176	210	216	216	210	196
105°	728	737	744	750	750	768
115°	1354	1373	1367	1363	1354	1339
125°	1969	1999	1989	1978	1975	1759
135°	2546	2584	2591	2588	2578	1968
145°	3092	3116	3135	3139	3125	1932
155°	3535	3545	3556	3573	3562	1627
165°	3846	3842	3842	3866	3849	1085
175°	4002	3992	3985	4009	3988	380
180°	4009	4009	4009	4009	4009	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.5	1964.5	1964.5	1964.5	1964.5
2.5°	1973.3	1964.5	1944.8	1962.7	1959.1
5°	1964.5	1955.6	1932.4	1948.4	1943.1
7.5°	1948.4	1937.8	1913.0	1919.9	1911.1
10°	1927.1	1914.6	1879.2	1873.7	1863.1
12.5°	1900.5	1884.4	1836.4	1825.8	1806.2
15°	1868.4	1848.8	1788.4	1754.7	1736.9
17.5°	1831.1	1802.6	1727.9	1688.9	1660.4
20°	1788.4	1752.8	1664.0	1619.6	1580.4
22.5°	1742.2	1701.3	1598.1	1537.8	1511.2
25°	1696.1	1639.1	1521.8	1449.0	1422.2
27.5°	1641.0	1580.4	1450.6	1367.1	1326.2
30°	1582.3	1514.6	1372.4	1281.8	1233.7
32.5°	1525.3	1443.5	1297.9	1191.1	1146.6
35°	1461.4	1370.7	1214.3	1102.2	1063.0
37.5°	1399.2	1301.2	1136.1	1013.3	968.9
40°	1333.3	1226.8	1054.2	928.0	881.8
42.5°	1265.8	1152.1	972.5	840.8	796.5
45°	1194.7	1075.5	889.0	762.6	719.9
47.5°	1127.2	1001.0	809.0	682.6	643.6
50°	1052.5	926.3	730.7	607.9	570.8
52.5°	979.5	846.1	656.0	538.7	504.9
55°	908.4	769.8	577.7	471.2	437.4
57.5°	835.6	693.3	508.5	408.9	380.4
60°	760.9	618.7	435.5	345.0	316.5
62.5°	688.1	545.9	373.3	288.0	273.9
65°	613.4	469.3	309.3	249.0	243.5
67.5°	542.2	398.2	249.0	218.6	213.3
70°	467.5	328.9	206.1	188.5	181.3
72.5°	396.5	264.8	172.4	158.3	154.6
75°	327.1	202.6	142.2	129.8	128.1
77.5°	257.9	143.9	112.0	104.9	101.3
80°	193.7	103.1	85.2	78.3	78.3
82.5°	135.1	69.4	58.6	55.1	55.1
85°	76.4	39.1	33.7	33.7	33.7
87.5°	28.5	14.2	14.2	12.4	12.4
90°	3.6	43.5	118.4	111.2	114.8
92.5°	74.9	101.6	105.1	108.8	108.8
95°	176.4	210.3	216.3	216.3	210.3
97.5°	293.7	325.1	338.4	338.4	338.4
100°	429.0	456.9	466.5	466.5	462.9
102.5°	571.6	592.2	605.5	609.1	605.5
105°	727.5	737.2	744.5	750.5	750.5
107.5°	882.3	896.7	896.7	899.2	882.3
110°	1032.1	1051.5	1051.5	1051.5	1041.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1194.1	1214.7	1211.0	1201.3	1194.1
115°	1353.6	1372.9	1366.9	1363.3	1353.6
117.5°	1512.0	1538.5	1521.6	1512.0	1502.3
120°	1671.5	1698.0	1671.5	1671.5	1660.6
122.5°	1816.5	1850.4	1833.4	1823.8	1816.5
125°	1968.8	1999.0	1989.3	1978.5	1974.8
127.5°	2117.4	2154.9	2141.6	2127.1	2117.4
130°	2256.4	2299.9	2293.9	2286.6	2273.3
132.5°	2412.4	2446.2	2448.6	2431.7	2422.0
135°	2546.5	2583.9	2591.2	2587.6	2577.9
137.5°	2696.3	2726.5	2732.6	2730.2	2715.7
140°	2828.1	2858.3	2875.2	2875.2	2861.9
142.5°	2963.5	2993.7	3003.3	3007.0	2993.7
145°	3091.6	3115.7	3135.1	3138.7	3125.4
147.5°	3206.4	3236.6	3251.1	3257.1	3243.8
150°	3324.8	3345.4	3358.7	3369.5	3358.7
152.5°	3430.0	3450.5	3467.5	3480.7	3467.5
155°	3535.1	3544.8	3555.6	3572.6	3561.7
157.5°	3625.7	3633.0	3639.0	3663.2	3646.3
160°	3706.7	3714.0	3717.6	3738.1	3723.6
162.5°	3781.6	3781.6	3785.3	3808.3	3791.3
165°	3845.7	3842.1	3842.1	3866.2	3849.4
167.5°	3903.7	3892.9	3892.9	3917.0	3900.1
170°	3947.2	3937.5	3934.0	3958.1	3937.5
172.5°	3977.5	3967.8	3964.2	3988.3	3967.8
175°	4001.6	3992.0	3984.7	4008.9	3988.3
177.5°	4014.9	4005.3	3998.0	4018.6	3998.0
180°	4008.9	4008.9	4008.9	4008.9	4008.9

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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	5.54	6.21	6.68	7.34	8.91	1.50	2.17	2.64	3.30	4.87
	3H	7.21	7.81	8.36	8.94	10.53	2.68	3.28	3.83	4.41	6.00
	4H	7.81	8.38	8.97	9.52	11.11	3.12	3.69	4.28	4.83	6.42
	6H	8.23	8.75	9.40	9.89	11.50	3.44	3.96	4.60	5.10	6.70
	8H	8.36	8.85	9.52	10.01	11.60	3.52	4.02	4.69	5.17	6.77
	12H	8.41	8.89	9.58	10.03	11.65	3.56	4.03	4.73	5.18	6.80
4H	2H	5.54	6.11	6.70	7.24	8.84	2.08	2.65	3.24	3.78	5.38
	3H	7.36	7.83	8.53	8.99	10.60	3.42	3.89	4.58	5.05	6.66
	4H	8.05	8.48	9.22	9.63	11.26	3.96	4.39	5.13	5.54	7.17
	6H	8.56	8.93	9.73	10.10	11.72	4.37	4.74	5.55	5.91	7.53
	8H	8.73	9.08	9.91	10.24	11.87	4.50	4.84	5.67	6.01	7.64
	12H	8.82	9.14	10.01	10.31	11.95	4.55	4.87	5.74	6.04	7.68
8H	4H	8.00	8.35	9.18	9.51	11.15	4.23	4.58	5.40	5.74	7.37
	6H	8.57	8.85	9.76	10.06	11.69	4.74	5.03	5.94	6.24	7.86
	8H	8.79	9.04	9.99	10.22	11.87	4.93	5.18	6.13	6.37	8.02
	12H	8.92	9.14	10.12	10.32	12.00	5.05	5.27	6.25	6.45	8.13
12H	4H	7.95	8.26	9.14	9.44	11.07	4.23	4.54	5.42	5.72	7.35
	6H	8.54	8.79	9.74	9.98	11.62	4.79	5.04	5.99	6.23	7.87
	8H	8.76	8.98	9.96	10.16	11.84	5.00	5.22	6.20	6.40	8.08

END OF REPORT