

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: P914952

Luminaire Tested: DFN2DIP-SQ4F0-080D160US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914952
REPORT IS A COMBINATION OF REPORTS P900207 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D160US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

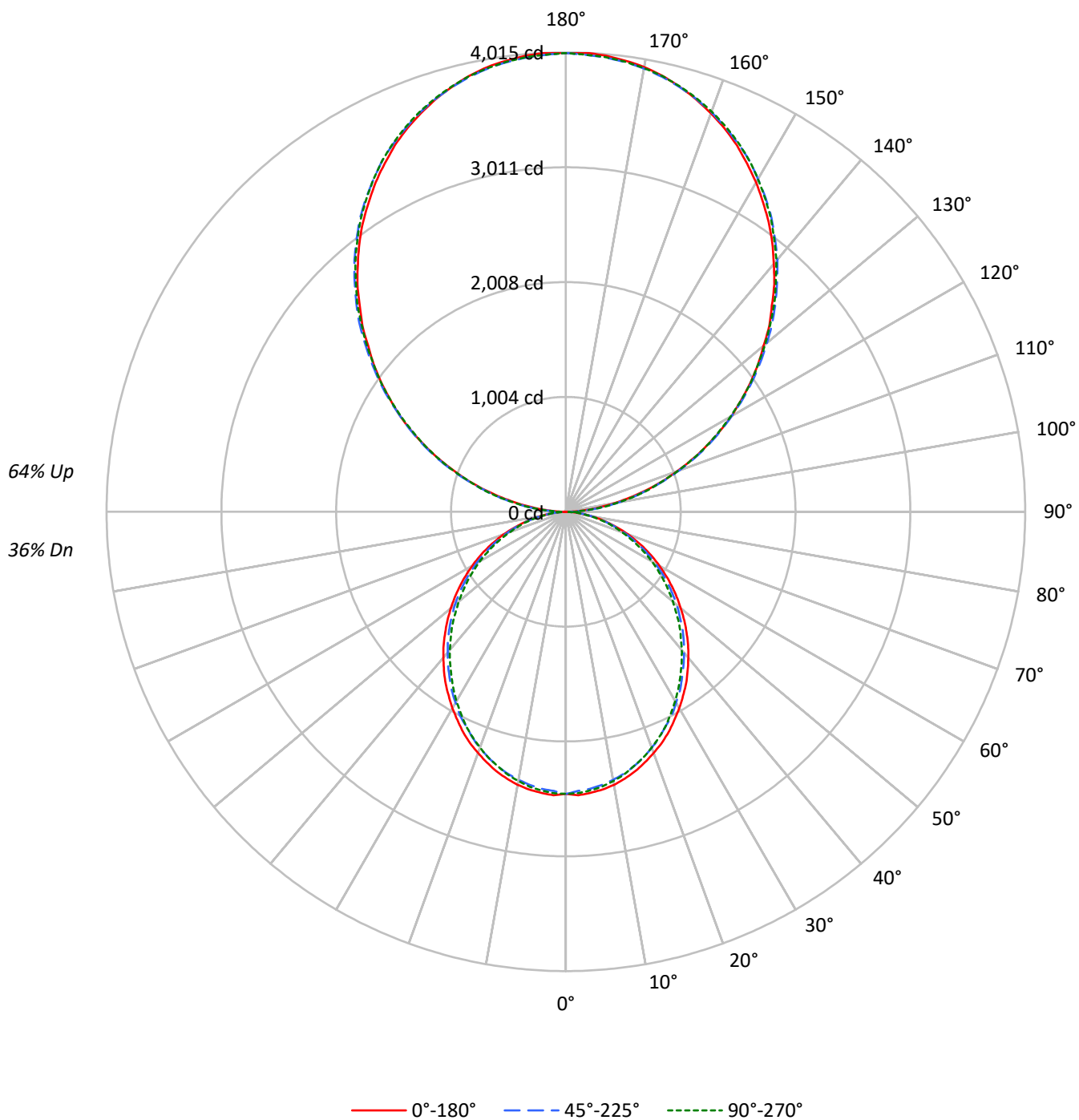
Lumens per Lamp: N/A
Luminaire Lumens: 17492.1 lumens
Efficiency: N/A
Efficacy: 90.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 193.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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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CATALOG NUMBER: DFN2DIP-SQ4F0-080D160US927-FLLFL

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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1730	1730	1730
5°	1733	1707	1718
10°	1719	1684	1695
15°	1694	1657	1660
20°	1660	1618	1623
25°	1626	1573	1580
30°	1583	1530	1526
35°	1542	1480	1469
40°	1493	1429	1414
45°	1443	1378	1358
50°	1389	1325	1294
55°	1332	1264	1234
60°	1268	1190	1166
65°	1198	1115	1086
70°	1109	1022	1000
75°	986	912	922
80°	838	771	770
85°	605	528	517

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°	232.1	1.3
10°-20°	653.0	3.7
20°-30°	959.7	5.5
30°-40°	1114.6	6.4
40°-50°	1113.2	6.4
50°-60°	970.7	5.5
60°-70°	717.6	4.1
70°-80°	406.0	2.3
80°-90°	118.5	0.7
90°-100°	248.1	1.4
100°-110°	788.2	4.5
110°-120°	1348.9	7.7
120°-130°	1774.0	10.1
130°-140°	1991.2	11.4
140°-150°	1952.6	11.2
150°-160°	1637.9	9.4
160°-170°	1086.2	6.2
170°-180°	379.7	2.2
0°-30°	1844.8	10.5
0°-40°	2959.4	16.9
0°-60°	5043.4	28.8
0°-90°	6285.4	35.9
90°-120°	2385.1	13.6
90°-150°	8102.8	46.3
90°-180°	11207.0	64.1
0°-180°	17492.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2466	2466	2466	2466	2466	
5°	2466	2457	2430	2449	2445	234
15°	2348	2333	2302	2312	2300	661
25°	2125	2106	2066	2070	2066	978
35°	1833	1809	1771	1757	1745	1145
45°	1492	1475	1439	1413	1404	1151
55°	1129	1114	1086	1058	1046	1009
65°	761	747	723	702	690	753
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	4	44	118	111	115	17
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°	2465.9	2465.9	2465.9	2465.9	2465.9
2.5°	2480.2	2468.4	2442.3	2465.9	2461.4
5°	2465.9	2456.6	2430.5	2449.3	2444.8
7.5°	2449.3	2435.2	2409.1	2428.2	2423.4
10°	2423.4	2406.8	2378.4	2397.2	2390.2
12.5°	2387.7	2373.6	2345.2	2357.0	2352.2
15°	2347.5	2333.4	2302.4	2312.0	2300.2
17.5°	2297.6	2283.5	2252.6	2264.4	2252.6
20°	2243.1	2229.0	2195.8	2202.8	2193.5
22.5°	2188.7	2167.3	2136.4	2136.4	2131.6
25°	2124.6	2105.7	2065.5	2070.0	2065.5
27.5°	2053.3	2036.8	2006.0	1999.0	1987.2
30°	1982.4	1963.3	1927.9	1920.8	1911.2
32.5°	1906.5	1892.4	1854.3	1840.0	1830.5
35°	1832.9	1809.3	1771.3	1757.0	1745.2
37.5°	1749.9	1728.5	1690.6	1674.0	1662.2
40°	1664.7	1645.5	1607.6	1586.4	1576.8
42.5°	1581.7	1562.5	1524.8	1500.9	1486.8
45°	1491.6	1475.0	1439.2	1413.3	1403.8
47.5°	1403.8	1387.2	1349.2	1323.0	1308.9
50°	1311.2	1299.4	1266.1	1233.0	1221.1
52.5°	1221.1	1204.5	1173.9	1147.7	1131.1
55°	1128.8	1114.4	1086.1	1057.6	1045.8
57.5°	1036.3	1024.4	993.5	965.0	955.4
60°	943.6	934.4	901.1	875.0	867.9
62.5°	853.6	837.0	813.3	789.7	780.1
65°	761.3	746.9	723.3	701.9	690.1
67.5°	666.4	654.3	633.2	616.6	607.0
70°	578.6	569.0	547.7	531.1	521.7
72.5°	488.5	479.0	467.1	450.6	443.5
75°	398.2	393.7	381.7	367.6	372.3
77.5°	317.7	308.2	303.4	296.4	289.3
80°	237.3	234.7	230.0	222.9	218.1
82.5°	161.3	161.3	159.0	149.4	149.4
85°	97.1	94.8	92.6	85.3	83.0
87.5°	42.8	38.0	33.2	26.1	23.7
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	7.72	8.47	8.79	9.54	11.00	7.28	8.03	8.35	9.10	10.56
	3H	9.38	10.05	10.46	11.13	12.61	8.89	9.56	9.97	10.64	12.12
	4H	9.97	10.60	11.06	11.68	13.17	9.47	10.11	10.56	11.19	12.67
	6H	10.36	10.95	11.46	12.03	13.53	9.86	10.45	10.96	11.53	13.03
	8H	10.47	11.02	11.57	12.12	13.61	9.96	10.52	11.07	11.62	13.11
	12H	10.51	11.04	11.62	12.14	13.65	10.00	10.53	11.11	11.63	13.14
4H	2H	8.17	8.81	9.27	9.89	11.37	7.82	8.45	8.91	9.53	11.02
	3H	10.03	10.56	11.14	11.67	13.17	9.62	10.16	10.73	11.26	12.76
	4H	10.75	11.23	11.85	12.33	13.85	10.32	10.81	11.43	11.91	13.42
	6H	11.26	11.68	12.37	12.80	14.31	10.83	11.24	11.94	12.37	13.87
	8H	11.41	11.80	12.52	12.91	14.44	10.97	11.36	12.09	12.47	14.00
	12H	11.48	11.83	12.61	12.96	14.49	11.03	11.38	12.16	12.51	14.04
8H	4H	10.93	11.32	12.05	12.44	13.96	10.56	10.95	11.67	12.06	13.59
	6H	11.56	11.89	12.70	13.04	14.56	11.18	11.50	12.32	12.66	14.18
	8H	11.79	12.07	12.93	13.20	14.75	11.39	11.68	12.54	12.81	14.35
	12H	11.92	12.16	13.06	13.30	14.87	11.51	11.75	12.65	12.89	14.46
12H	4H	10.91	11.27	12.05	12.39	13.92	10.55	10.90	11.68	12.02	13.56
	6H	11.59	11.88	12.74	13.01	14.55	11.22	11.50	12.37	12.64	14.18
	8H	11.83	12.08	12.98	13.21	14.79	11.45	11.70	12.60	12.83	14.41