

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: P926051

Luminaire Tested: DFN2DIP-SQ4F0-160D060US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926051
REPORT IS A COMBINATION OF REPORTS P901596 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D060US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

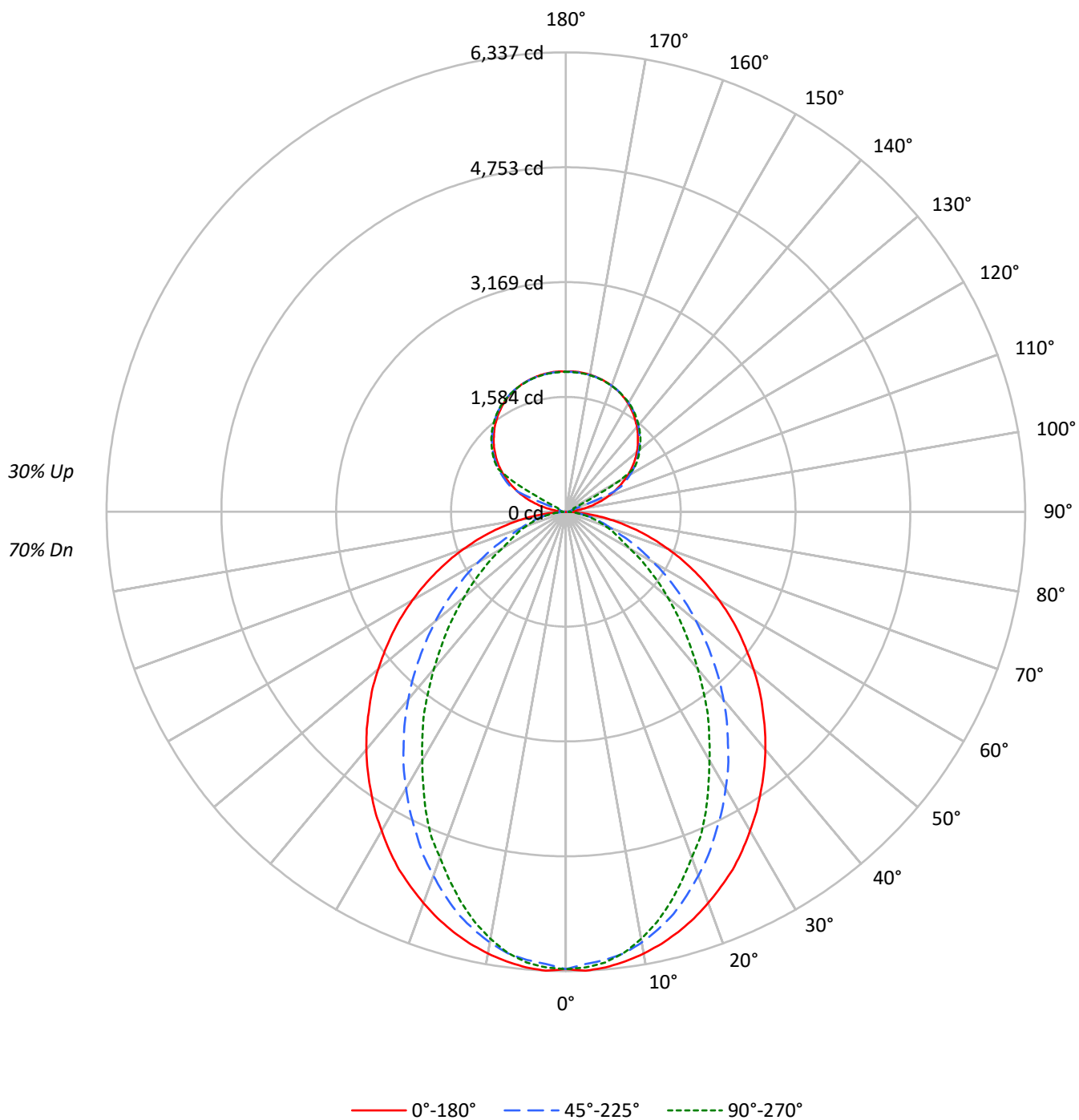
Lumens per Lamp: N/A
Luminaire Lumens: 18641.2 lumens
Efficiency: N/A
Efficacy: 88.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 211.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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	112	112	112	112	106	106	106	106	94	94	94	84	84	84	74	74	74
1	103	99	95	92	97	93	90	87	84	81	79	75	73	71	67	65	64
2	94	87	81	76	89	83	77	73	74	70	67	67	63	61	59	57	55
3	86	77	70	64	82	73	67	62	66	61	57	59	55	52	53	50	48
4	79	69	61	55	75	65	58	53	59	54	49	53	49	45	48	45	42
5	73	62	54	48	69	59	52	46	53	47	43	48	44	40	44	40	37
6	68	56	48	42	64	53	46	41	49	42	38	44	39	35	40	36	33
7	63	51	43	37	60	49	41	36	44	38	34	40	35	32	37	32	29
8	59	46	39	33	56	44	37	32	41	35	30	37	32	28	34	30	27
9	55	43	35	30	52	41	34	29	37	32	27	34	29	26	31	27	24
10	51	39	32	27	49	38	31	26	35	29	25	32	27	24	29	25	22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4427	4427	4427
5°	4434	4357	4385
10°	4390	4273	4244
15°	4329	4132	4024
20°	4249	3938	3755
25°	4167	3721	3494
30°	4057	3498	3164
35°	3949	3258	2873
40°	3840	3010	2539
45°	3712	2734	2237
50°	3581	2456	1942
55°	3443	2158	1658
60°	3284	1847	1366
65°	3101	1531	1231
70°	2879	1236	1116
75°	2600	1091	1018
80°	2196	918	887
85°	1529	618	676

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3712 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	591.2	3.2
10°-20°	1623.1	8.7
20°-30°	2278.8	12.2
30°-40°	2484.0	13.3
40°-50°	2283.1	12.2
50°-60°	1793.0	9.6
60°-70°	1167.1	6.3
70°-80°	600.8	3.2
80°-90°	156.8	0.8
90°-100°	63.7	0.3
100°-110°	237.5	1.3
110°-120°	629.8	3.4
120°-130°	1044.5	5.6
130°-140°	1109.5	6.0
140°-150°	1031.2	5.5
150°-160°	829.1	4.4
160°-170°	534.2	2.9
170°-180°	183.9	1.0
0°-30°	4493.1	24.1
0°-40°	6977.1	37.4
0°-60°	11053.2	59.3
0°-90°	12977.8	69.6
90°-120°	930.9	5.0
90°-150°	4116.2	22.1
90°-180°	5663.0	30.4
0°-180°	18641.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6309	6309	6309	6309	6309	
5°	6309	6280	6206	6257	6240	598
15°	6000	5937	5744	5635	5578	1691
25°	5447	5264	4887	4653	4567	2505
35°	4693	4402	3900	3540	3414	2937
45°	3837	3454	2855	2449	2312	2963
55°	2917	2472	1855	1513	1405	2607
65°	1970	1507	993	800	782	1953
75°	1050	650	457	417	411	1111
85°	245	125	108	108	108	282
90°	1	17	28	35	38	18
95°	91	45	54	62	60	108
105°	425	467	85	101	106	454
115°	804	828	862	215	115	791
125°	1136	1155	1181	1191	1195	1014
135°	1406	1429	1441	1455	1452	1086
145°	1631	1630	1654	1663	1656	1020
155°	1796	1784	1800	1809	1798	828
165°	1893	1884	1888	1898	1888	535
175°	1936	1926	1929	1939	1925	184
180°	1932	1932	1932	1932	1932	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	6308.6	6308.6	6308.6	6308.6	6308.6
2.5°	6337.0	6308.6	6245.6	6303.2	6291.6
5°	6308.6	6280.1	6205.6	6257.1	6240.1
7.5°	6257.1	6223.1	6143.2	6165.6	6137.2
10°	6188.7	6148.7	6034.8	6017.3	5983.3
12.5°	6103.2	6051.8	5897.3	5863.4	5800.4
15°	6000.3	5937.3	5743.5	5635.0	5578.0
17.5°	5880.4	5788.9	5549.0	5423.6	5332.2
20°	5743.5	5629.0	5343.6	5201.3	5075.4
22.5°	5595.0	5463.6	5132.2	4938.5	4853.0
25°	5446.7	5263.7	4887.0	4653.1	4567.2
27.5°	5269.8	5075.4	4658.6	4390.3	4258.8
30°	5081.4	4864.0	4407.2	4116.5	3962.1
32.5°	4898.5	4635.6	4167.9	3825.2	3682.2
35°	4693.1	4401.8	3899.7	3539.8	3413.9
37.5°	4493.2	4178.9	3648.3	3253.9	3111.6
40°	4281.8	3939.6	3385.4	2980.1	2831.8
42.5°	4065.0	3699.7	3123.1	2700.3	2558.0
45°	3836.6	3453.9	2854.7	2448.9	2312.0
47.5°	3619.8	3214.6	2597.9	2192.1	2066.7
50°	3379.9	2974.7	2346.6	1952.3	1832.9
52.5°	3145.5	2717.3	2106.7	1730.0	1621.5
55°	2917.1	2471.9	1855.3	1513.0	1404.7
57.5°	2683.3	2226.6	1633.1	1313.2	1221.7
60°	2443.5	1986.8	1398.6	1107.9	1016.4
62.5°	2209.7	1753.0	1198.7	924.9	879.5
65°	1969.8	1507.0	993.4	799.5	782.0
67.5°	1741.4	1278.6	799.5	702.0	685.1
70°	1501.6	1056.4	662.1	605.1	582.1
72.5°	1273.2	850.4	553.6	508.2	496.7
75°	1050.4	650.5	456.7	416.7	411.3
77.5°	828.0	462.1	359.8	336.8	325.3
80°	622.1	331.3	273.8	251.4	251.4
82.5°	433.7	222.9	188.4	176.9	176.9
85°	245.3	125.4	108.5	108.5	108.5
87.5°	91.5	45.4	45.4	40.0	40.0
90°	1.3	16.8	27.9	35.0	37.7
92.5°	35.0	29.4	33.5	36.3	37.7
95°	90.8	44.6	54.5	61.6	60.1
97.5°	163.5	48.9	71.2	75.6	76.9
100°	247.5	55.9	79.7	90.8	93.6
102.5°	339.6	337.0	82.5	97.8	102.1
105°	424.9	466.9	85.3	100.6	106.3
107.5°	524.2	559.0	88.1	103.4	109.0
110°	619.3	648.5	244.7	104.9	110.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	708.7	733.8	710.1	107.5	111.9
115°	803.7	827.5	862.5	215.3	114.7
117.5°	886.2	914.1	938.0	738.0	371.8
120°	978.5	999.4	1024.7	1041.4	852.7
122.5°	1056.7	1079.1	1107.1	1115.4	1116.9
125°	1136.4	1154.6	1181.1	1191.0	1195.1
127.5°	1209.1	1228.7	1249.7	1263.7	1265.0
130°	1277.6	1300.0	1315.3	1330.7	1329.4
132.5°	1347.5	1365.7	1381.0	1393.6	1392.3
135°	1406.3	1428.7	1441.1	1455.2	1452.4
137.5°	1467.6	1484.4	1498.5	1512.5	1508.4
140°	1527.7	1539.1	1554.4	1566.9	1560.0
142.5°	1578.2	1588.0	1606.2	1617.2	1610.3
145°	1631.3	1629.8	1653.6	1663.4	1656.4
147.5°	1677.3	1673.1	1696.9	1703.8	1698.4
150°	1722.2	1712.3	1734.8	1743.1	1736.1
152.5°	1759.8	1748.7	1769.6	1778.1	1768.2
155°	1796.2	1783.7	1800.5	1808.8	1797.6
157.5°	1825.6	1814.4	1827.0	1836.8	1825.6
160°	1850.8	1842.3	1850.8	1859.1	1849.3
162.5°	1873.0	1864.7	1871.7	1881.5	1868.9
165°	1892.6	1884.3	1888.4	1898.3	1888.4
167.5°	1908.0	1899.6	1903.9	1913.7	1901.0
170°	1920.7	1912.2	1915.1	1924.8	1912.2
172.5°	1929.0	1920.7	1923.5	1933.3	1920.7
175°	1936.0	1926.1	1929.0	1938.7	1924.8
177.5°	1938.7	1929.0	1930.4	1940.2	1927.7
180°	1931.8	1931.8	1931.8	1931.8	1931.8

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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	13.99	15.01	14.77	15.80	16.77	9.95	10.97	10.73	11.77	12.73
	3H	15.69	16.60	16.48	17.40	18.40	11.16	12.07	11.94	12.87	13.86
	4H	16.31	17.17	17.11	17.98	18.98	11.62	12.48	12.42	13.29	14.29
	6H	16.74	17.54	17.56	18.35	19.37	11.95	12.74	12.77	13.56	14.58
	8H	16.88	17.63	17.70	18.47	19.49	12.04	12.80	12.87	13.63	14.65
	12H	16.95	17.67	17.78	18.50	19.54	12.09	12.81	12.93	13.64	14.69
4H	2H	14.03	14.89	14.84	15.70	16.71	10.57	11.43	11.38	12.24	13.25
	3H	15.88	16.60	16.71	17.44	18.46	11.94	12.66	12.76	13.50	14.52
	4H	16.59	17.24	17.42	18.08	19.13	12.50	13.15	13.33	13.99	15.04
	6H	17.12	17.68	17.97	18.54	19.60	12.93	13.49	13.78	14.35	15.41
	8H	17.30	17.82	18.15	18.68	19.75	13.06	13.58	13.92	14.45	15.51
	12H	17.40	17.87	18.28	18.76	19.83	13.14	13.60	14.01	14.49	15.56
8H	4H	16.57	17.09	17.42	17.95	19.02	12.79	13.32	13.65	14.18	15.24
	6H	17.15	17.58	18.03	18.48	19.55	13.32	13.75	14.20	14.66	15.72
	8H	17.37	17.75	18.26	18.65	19.73	13.51	13.90	14.41	14.80	15.88
	12H	17.52	17.85	18.41	18.74	19.88	13.64	13.98	14.54	14.87	16.01
12H	4H	16.53	17.00	17.40	17.88	18.95	12.81	13.28	13.68	14.16	15.23
	6H	17.12	17.51	18.02	18.41	19.49	13.37	13.75	14.26	14.65	15.74
	8H	17.35	17.69	18.25	18.58	19.72	13.59	13.93	14.49	14.82	15.96