

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: P920559

Luminaire Tested: DFN2DIP-SQ4F0-140D060US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920559
REPORT IS A COMBINATION OF REPORTS P901594 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D060US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

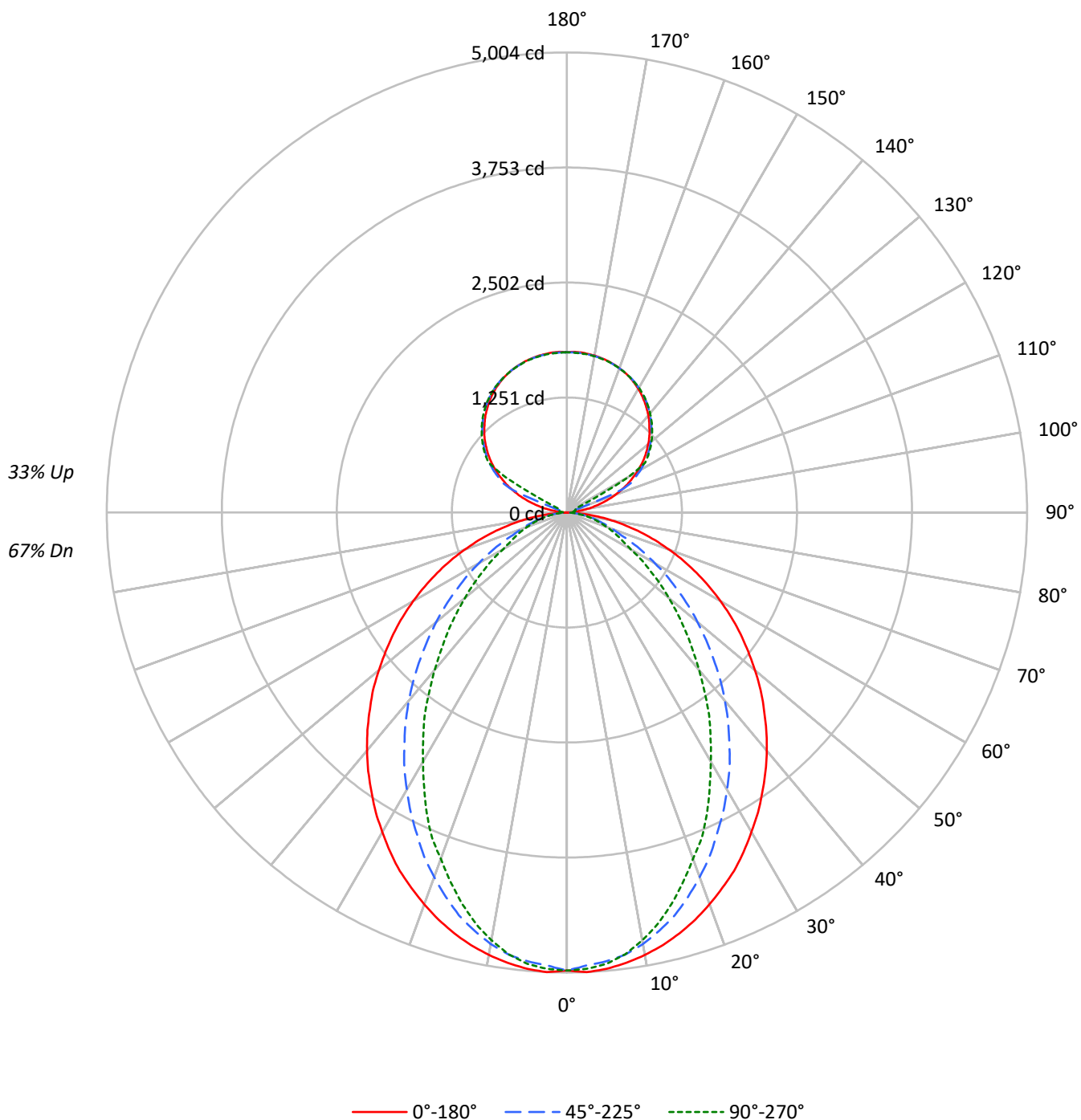
Lumens per Lamp: N/A
Luminaire Lumens: 15360.2 lumens
Efficiency: N/A
Efficacy: 81.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 189
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	98	94	91	96	93	89	86	82	80	78	73	71	69	64	63	62
2	94	86	80	75	88	82	76	72	73	69	65	65	62	59	57	55	53
3	86	77	69	64	81	72	66	61	65	60	56	58	54	51	51	48	46
4	79	68	60	54	74	65	58	52	58	53	48	52	48	44	46	43	40
5	73	61	53	47	68	58	51	45	52	47	42	47	42	39	42	38	35
6	67	55	47	41	63	53	45	40	48	42	37	43	38	34	38	35	31
7	62	50	42	37	59	48	41	36	43	37	33	39	34	31	35	31	28
8	58	46	38	33	55	44	37	32	40	34	30	36	31	28	33	29	26
9	54	42	35	30	51	40	33	29	37	31	27	33	29	25	30	26	23
10	51	39	32	27	48	37	31	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3496	3496	3496
5°	3501	3441	3463
10°	3467	3374	3351
15°	3419	3263	3178
20°	3356	3110	2965
25°	3291	2938	2759
30°	3204	2762	2498
35°	3119	2573	2269
40°	3032	2377	2005
45°	2932	2159	1767
50°	2828	1939	1533
55°	2719	1705	1309
60°	2593	1459	1079
65°	2449	1209	972
70°	2273	976	881
75°	2053	862	804
80°	1734	725	701
85°	1207	488	533

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2932 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	466.9	3.0
10°-20°	1281.8	8.3
20°-30°	1799.5	11.7
30°-40°	1961.6	12.8
40°-50°	1802.9	11.7
50°-60°	1415.9	9.2
60°-70°	921.6	6.0
70°-80°	474.4	3.1
80°-90°	124.2	0.8
90°-100°	57.5	0.4
100°-110°	214.3	1.4
110°-120°	568.4	3.7
120°-130°	942.7	6.1
130°-140°	1001.4	6.5
140°-150°	930.7	6.1
150°-160°	748.2	4.9
160°-170°	482.1	3.1
170°-180°	165.9	1.1
0°-30°	3548.2	23.1
0°-40°	5509.8	35.9
0°-60°	8728.7	56.8
0°-90°	10249.0	66.7
90°-120°	840.2	5.5
90°-150°	3714.9	24.2
90°-180°	5111.0	33.3
0°-180°	15360.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4982	4982	4982	4982	4982	
5°	4982	4959	4900	4941	4928	472
15°	4738	4689	4536	4450	4405	1335
25°	4301	4157	3859	3675	3607	1978
35°	3706	3476	3080	2795	2696	2320
45°	3030	2728	2254	1934	1826	2340
55°	2304	1952	1465	1195	1109	2059
65°	1556	1190	784	631	618	1542
75°	829	514	361	329	325	877
85°	194	99	86	86	86	222
90°	1	15	25	32	34	15
95°	82	40	49	56	54	97
105°	384	421	77	91	96	410
115°	725	747	778	194	104	714
125°	1026	1042	1066	1075	1079	915
135°	1269	1289	1301	1313	1311	980
145°	1472	1471	1492	1501	1495	921
155°	1621	1610	1625	1632	1622	747
165°	1708	1701	1704	1713	1704	483
175°	1747	1738	1741	1750	1737	166
180°	1743	1743	1743	1743	1743	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4981.9	4981.9	4981.9	4981.9	4981.9
2.5°	5004.4	4981.9	4932.1	4977.6	4968.5
5°	4981.9	4959.4	4900.5	4941.3	4927.8
7.5°	4941.3	4914.4	4851.3	4869.0	4846.6
10°	4887.2	4855.6	4765.7	4751.8	4725.0
12.5°	4819.7	4779.1	4657.1	4630.3	4580.6
15°	4738.4	4688.6	4535.6	4450.0	4405.0
17.5°	4643.7	4571.5	4382.0	4283.0	4210.8
20°	4535.6	4445.2	4219.9	4107.5	4008.0
22.5°	4418.4	4314.6	4053.0	3899.9	3832.5
25°	4301.2	4156.7	3859.3	3674.6	3606.6
27.5°	4161.5	4008.0	3678.9	3467.0	3363.2
30°	4012.8	3841.1	3480.4	3250.8	3128.8
32.5°	3868.3	3660.7	3291.4	3020.7	2907.8
35°	3706.2	3476.1	3079.5	2795.4	2695.9
37.5°	3548.3	3300.0	2881.0	2569.6	2457.2
40°	3381.4	3111.1	2673.4	2353.5	2236.3
42.5°	3210.1	2921.7	2466.3	2132.4	2020.0
45°	3029.8	2727.5	2254.4	1933.9	1825.8
47.5°	2858.5	2538.6	2051.6	1731.1	1632.1
50°	2669.1	2349.1	1853.0	1541.7	1447.4
52.5°	2484.0	2145.8	1663.6	1366.1	1280.5
55°	2303.7	1952.1	1465.2	1194.9	1109.2
57.5°	2119.0	1758.3	1289.6	1037.1	964.8
60°	1929.6	1568.9	1104.5	874.9	802.6
62.5°	1745.0	1384.3	946.7	730.4	694.6
65°	1555.6	1190.1	784.5	631.4	617.5
67.5°	1375.2	1009.8	631.4	554.4	541.0
70°	1185.8	834.2	522.8	477.9	459.7
72.5°	1005.5	671.6	437.2	401.3	392.3
75°	829.4	513.8	360.7	329.1	324.8
77.5°	653.9	365.0	284.1	266.0	256.8
80°	491.3	261.7	216.2	198.5	198.5
82.5°	342.5	176.0	148.8	139.7	139.7
85°	193.7	99.0	85.6	85.6	85.6
87.5°	72.2	35.9	35.9	31.6	31.6
90°	1.2	15.2	25.1	31.6	34.0
92.5°	31.6	26.5	30.2	32.8	34.0
95°	82.0	40.3	49.2	55.6	54.2
97.5°	147.6	44.2	64.2	68.2	69.4
100°	223.3	50.5	71.9	82.0	84.5
102.5°	306.5	304.1	74.5	88.3	92.1
105°	383.5	421.4	77.0	90.7	95.9
107.5°	473.1	504.5	79.6	93.3	98.4
110°	559.0	585.3	220.8	94.7	99.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	639.6	662.3	640.8	97.0	101.0
115°	725.4	746.8	778.4	194.3	103.5
117.5°	799.8	825.0	846.5	666.1	335.5
120°	883.1	902.0	924.8	939.9	769.6
122.5°	953.6	973.9	999.2	1006.7	1008.1
125°	1025.6	1042.1	1066.0	1074.9	1078.6
127.5°	1091.2	1108.9	1127.9	1140.5	1141.7
130°	1153.0	1173.3	1187.1	1201.0	1199.8
132.5°	1216.2	1232.6	1246.4	1257.7	1256.5
135°	1269.2	1289.4	1300.6	1313.4	1310.8
137.5°	1324.6	1339.7	1352.5	1365.0	1361.3
140°	1378.8	1389.0	1402.8	1414.2	1407.9
142.5°	1424.3	1433.2	1449.6	1459.6	1453.3
145°	1472.3	1470.9	1492.4	1501.2	1495.0
147.5°	1513.8	1510.0	1531.5	1537.7	1532.8
150°	1554.3	1545.4	1565.6	1573.1	1566.8
152.5°	1588.3	1578.2	1597.1	1604.7	1595.9
155°	1621.1	1609.8	1625.0	1632.5	1622.4
157.5°	1647.6	1637.5	1648.9	1657.8	1647.6
160°	1670.3	1662.7	1670.3	1677.8	1669.0
162.5°	1690.4	1682.9	1689.2	1698.1	1686.7
165°	1708.1	1700.6	1704.3	1713.2	1704.3
167.5°	1722.0	1714.4	1718.3	1727.2	1715.7
170°	1733.4	1725.8	1728.4	1737.1	1725.8
172.5°	1740.9	1733.4	1735.9	1744.8	1733.4
175°	1747.2	1738.4	1740.9	1749.7	1737.1
177.5°	1749.7	1740.9	1742.2	1751.1	1739.7
180°	1743.4	1743.4	1743.4	1743.4	1743.4

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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	12.94	13.93	13.75	14.75	15.77	8.90	9.89	9.71	10.72	11.73
	3H	14.64	15.52	15.46	16.35	17.40	10.10	10.99	10.92	11.82	12.86
	4H	15.26	16.09	16.09	16.93	17.98	10.56	11.40	11.40	12.24	13.29
	6H	15.69	16.46	16.54	17.31	18.37	10.89	11.66	11.74	12.51	13.58
	8H	15.82	16.55	16.68	17.42	18.49	10.99	11.72	11.85	12.58	13.65
	12H	15.89	16.59	16.75	17.45	18.54	11.04	11.73	11.90	12.59	13.68
4H	2H	12.98	13.81	13.82	14.65	15.71	9.52	10.35	10.36	11.20	12.25
	3H	14.83	15.52	15.68	16.39	17.46	10.89	11.58	11.74	12.45	13.52
	4H	15.53	16.16	16.39	17.03	18.13	11.44	12.07	12.31	12.94	14.04
	6H	16.06	16.60	16.94	17.50	18.60	11.87	12.41	12.75	13.31	14.41
	8H	16.24	16.75	17.12	17.64	18.75	12.00	12.51	12.89	13.40	14.51
	12H	16.34	16.80	17.25	17.71	18.83	12.07	12.53	12.98	13.44	14.56
8H	4H	15.51	16.02	16.39	16.91	18.02	11.74	12.24	12.62	13.13	14.24
	6H	16.09	16.50	17.00	17.44	18.55	12.26	12.68	13.17	13.61	14.72
	8H	16.31	16.68	17.23	17.60	18.73	12.45	12.82	13.37	13.75	14.88
	12H	16.46	16.78	17.38	17.70	18.88	12.58	12.91	13.50	13.82	15.00
12H	4H	15.47	15.92	16.37	16.83	17.95	11.75	12.20	12.65	13.11	14.23
	6H	16.06	16.43	16.98	17.36	18.49	12.31	12.68	13.23	13.61	14.74
	8H	16.29	16.62	17.22	17.54	18.72	12.53	12.86	13.45	13.77	14.96