

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: P915143

Luminaire Tested: DFN2DIP-SQ4F0-160D070US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915143
REPORT IS A COMBINATION OF REPORTS P901614 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D070US927-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

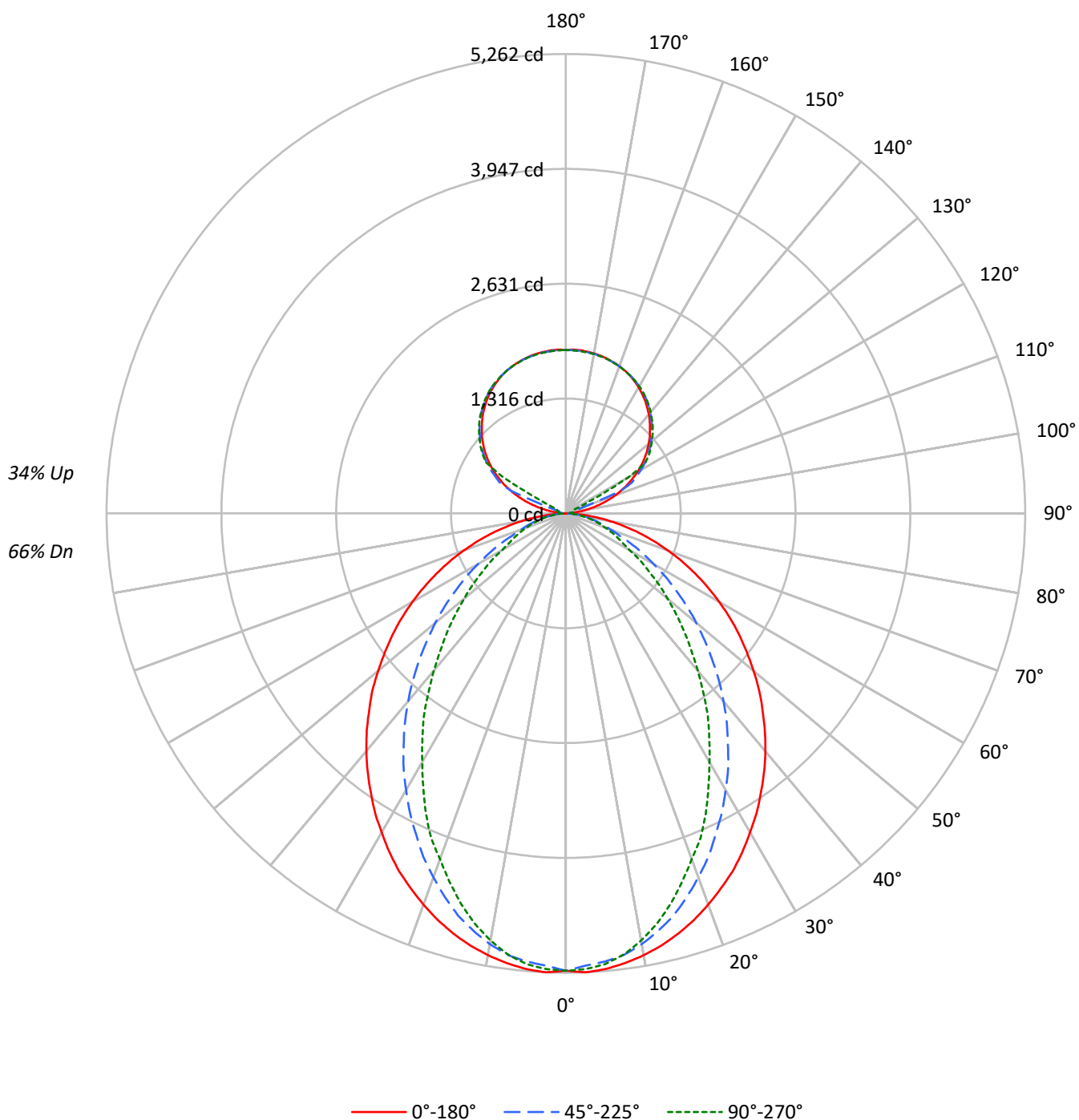
Lumens per Lamp: N/A
Luminaire Lumens: 16263.5 lumens
Efficiency: N/A
Efficacy: 74.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 218.9
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	111	111	111	111	105	105	105	105	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	80	77	73	71	69	64	63	61
2	93	86	80	75	88	82	76	72	73	69	65	65	61	59	57	55	53
3	86	76	69	64	81	72	66	61	65	60	56	58	54	50	51	48	46
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	43	40
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35
6	67	55	47	41	63	53	45	40	47	41	37	43	38	34	38	34	31
7	62	50	42	37	59	48	41	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	30	36	31	27	32	28	25
9	54	42	35	30	51	40	33	29	37	31	27	33	28	25	30	26	23
10	51	39	32	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3676	3676	3676
5°	3682	3618	3642
10°	3645	3548	3524
15°	3595	3431	3342
20°	3528	3270	3118
25°	3460	3090	2902
30°	3369	2905	2627
35°	3280	2705	2386
40°	3188	2499	2109
45°	3083	2270	1858
50°	2973	2039	1612
55°	2859	1792	1377
60°	2727	1534	1134
65°	2575	1271	1022
70°	2390	1026	927
75°	2159	906	845
80°	1823	763	737
85°	1269	513	562

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3083 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	491.0	3.0
10°-20°	1347.8	8.3
20°-30°	1892.2	11.6
30°-40°	2062.7	12.7
40°-50°	1895.8	11.7
50°-60°	1488.9	9.2
60°-70°	969.1	6.0
70°-80°	498.8	3.1
80°-90°	130.7	0.8
90°-100°	61.7	0.4
100°-110°	230.0	1.4
110°-120°	610.1	3.8
120°-130°	1011.9	6.2
130°-140°	1074.9	6.6
140°-150°	999.0	6.1
150°-160°	803.2	4.9
160°-170°	517.5	3.2
170°-180°	178.1	1.1
0°-30°	3731.0	22.9
0°-40°	5793.7	35.6
0°-60°	9178.3	56.4
0°-90°	10777.0	66.3
90°-120°	901.9	5.5
90°-150°	3987.7	24.5
90°-180°	5487.0	33.7
0°-180°	16263.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5238	5238	5238	5238	5238	
5°	5238	5215	5153	5196	5182	497
15°	4982	4930	4769	4679	4632	1404
25°	4523	4371	4058	3864	3792	2080
35°	3897	3655	3238	2939	2835	2439
45°	3186	2868	2370	2034	1920	2460
55°	2422	2053	1541	1256	1166	2165
65°	1636	1251	825	664	649	1622
75°	872	540	379	346	342	922
85°	204	104	90	90	90	234
90°	1	16	27	34	36	15
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	779	802	836	209	111	767
125°	1101	1119	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1612	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1834	1826	1830	1839	1830	518
175°	1876	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5238.5	5238.5	5238.5	5238.5	5238.5
2.5°	5262.1	5238.5	5186.2	5234.0	5224.4
5°	5238.5	5214.8	5153.0	5195.8	5181.7
7.5°	5195.8	5167.6	5101.2	5119.8	5096.2
10°	5139.0	5105.8	5011.2	4996.6	4968.4
12.5°	5068.0	5025.3	4897.0	4868.8	4816.5
15°	4982.5	4930.2	4769.2	4679.2	4631.9
17.5°	4882.9	4807.0	4607.8	4503.6	4427.7
20°	4769.2	4674.2	4437.2	4319.1	4214.5
22.5°	4646.0	4536.8	4261.7	4100.8	4029.8
25°	4522.8	4370.9	4058.0	3863.9	3792.5
27.5°	4375.9	4214.5	3868.4	3645.6	3536.5
30°	4219.5	4038.9	3659.6	3418.3	3290.0
32.5°	4067.6	3849.3	3461.0	3176.3	3057.6
35°	3897.1	3655.1	3238.2	2939.4	2834.8
37.5°	3731.1	3470.1	3029.5	2702.0	2583.8
40°	3555.5	3271.4	2811.1	2474.6	2351.4
42.5°	3375.5	3072.2	2593.4	2242.3	2124.1
45°	3185.8	2868.0	2370.5	2033.5	1919.9
47.5°	3005.8	2669.3	2157.3	1820.3	1716.2
50°	2806.6	2470.1	1948.5	1621.1	1522.0
52.5°	2612.0	2256.4	1749.4	1436.5	1346.5
55°	2422.3	2052.6	1540.6	1256.4	1166.4
57.5°	2228.2	1849.0	1356.1	1090.4	1014.5
60°	2029.0	1649.8	1161.3	920.0	844.0
62.5°	1834.8	1455.6	995.4	768.0	730.3
65°	1635.7	1251.4	824.9	663.9	649.4
67.5°	1446.0	1061.8	663.9	583.0	568.9
70°	1246.9	877.2	549.8	502.5	483.4
72.5°	1057.2	706.2	459.7	422.0	412.4
75°	872.2	540.2	379.2	346.0	341.5
77.5°	687.5	383.7	298.7	279.6	270.1
80°	516.6	275.1	227.4	208.7	208.7
82.5°	360.1	185.1	156.5	146.9	146.9
85°	203.7	104.1	90.1	90.1	90.1
87.5°	76.0	37.7	37.7	33.2	33.2
90°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.5
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.5	79.9	94.7	98.9
105°	411.7	452.3	82.6	97.4	102.9
107.5°	507.8	541.6	85.4	100.2	105.7
110°	600.0	628.3	237.0	101.6	106.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.7	710.9	687.9	104.2	108.4
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.6	885.6	908.7	714.9	360.2
120°	947.9	968.2	992.7	1008.9	826.1
122.5°	1023.7	1045.4	1072.6	1080.6	1082.0
125°	1100.9	1118.6	1144.3	1153.8	1157.8
127.5°	1171.3	1190.3	1210.7	1224.2	1225.5
130°	1237.7	1259.4	1274.2	1289.2	1287.9
132.5°	1305.4	1323.1	1337.9	1350.1	1348.8
135°	1362.3	1384.0	1396.1	1409.8	1407.1
137.5°	1421.8	1438.1	1451.8	1465.3	1461.3
140°	1480.0	1491.0	1505.8	1518.0	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1560.0
145°	1580.4	1579.0	1601.9	1611.5	1604.7
147.5°	1624.9	1621.0	1643.9	1650.7	1645.4
150°	1668.3	1658.9	1680.6	1688.6	1681.9
152.5°	1704.9	1694.1	1714.4	1722.5	1713.1
155°	1740.1	1728.0	1744.2	1752.3	1741.5
157.5°	1768.5	1757.8	1770.0	1779.5	1768.5
160°	1793.0	1784.8	1793.0	1801.0	1791.5
162.5°	1814.6	1806.5	1813.2	1822.7	1810.5
165°	1833.5	1825.5	1829.5	1839.0	1829.5
167.5°	1848.5	1840.2	1844.4	1853.9	1841.7
170°	1860.7	1852.5	1855.2	1864.7	1852.5
172.5°	1868.8	1860.7	1863.4	1872.9	1860.7
175°	1875.5	1866.0	1868.8	1878.2	1864.7
177.5°	1878.2	1868.8	1870.2	1879.7	1867.4
180°	1871.4	1871.4	1871.4	1871.4	1871.4

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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	13.08	14.06	13.89	14.89	15.91	9.04	10.02	9.85	10.85	11.87
	3H	14.77	15.65	15.60	16.49	17.54	10.24	11.12	11.07	11.96	13.01
	4H	15.39	16.22	16.23	17.07	18.13	10.70	11.53	11.54	12.37	13.44
	6H	15.83	16.59	16.68	17.44	18.52	11.03	11.79	11.88	12.65	13.72
	8H	15.96	16.69	16.82	17.56	18.63	11.12	11.85	11.99	12.72	13.80
	12H	16.03	16.72	16.89	17.58	18.68	11.17	11.87	12.04	12.73	13.83
4H	2H	13.12	13.95	13.96	14.79	15.85	9.66	10.49	10.50	11.33	12.39
	3H	14.97	15.65	15.82	16.53	17.61	11.02	11.71	11.88	12.59	13.67
	4H	15.67	16.29	16.54	17.17	18.27	11.58	12.20	12.45	13.08	14.18
	6H	16.19	16.73	17.08	17.63	18.74	12.01	12.55	12.89	13.45	14.55
	8H	16.38	16.88	17.26	17.77	18.89	12.14	12.64	13.03	13.54	14.66
	12H	16.48	16.93	17.39	17.85	18.97	12.21	12.66	13.12	13.58	14.70
8H	4H	15.65	16.15	16.53	17.04	18.16	11.87	12.38	12.76	13.27	14.39
	6H	16.22	16.64	17.14	17.58	18.69	12.40	12.81	13.31	13.75	14.87
	8H	16.44	16.81	17.37	17.74	18.88	12.59	12.96	13.51	13.89	15.02
	12H	16.59	16.92	17.52	17.84	19.03	12.72	13.04	13.64	13.96	15.15
12H	4H	15.61	16.06	16.51	16.97	18.10	11.88	12.34	12.79	13.25	14.38
	6H	16.20	16.57	17.12	17.50	18.63	12.45	12.82	13.37	13.75	14.88
	8H	16.43	16.75	17.36	17.67	18.86	12.67	12.99	13.59	13.91	15.10