

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: P915146

Luminaire Tested: DFN2DIP-SQ4F0-160D080US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915146
REPORT IS A COMBINATION OF REPORTS P900112 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D080US927-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

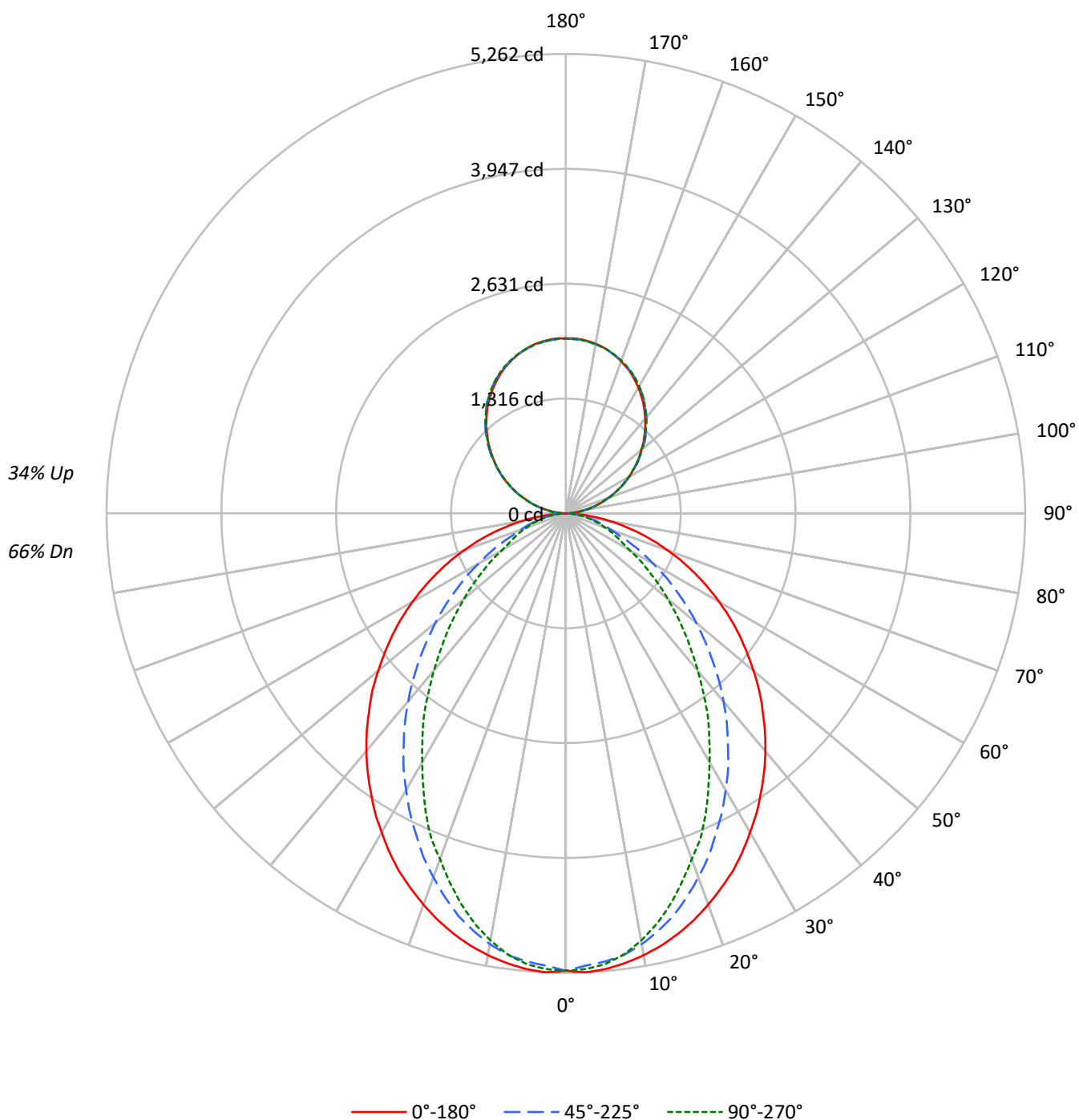
Lumens per Lamp: N/A
Luminaire Lumens: 16382.3 lumens
Efficiency: N/A
Efficacy: 72.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 226.2
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	104	104	104	104	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	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	52	45	40	47	41	37	42	38	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23
10	51	39	31	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	8.2
20°-30°	1892.2	11.6
30°-40°	2062.7	12.6
40°-50°	1895.8	11.6
50°-60°	1488.9	9.1
60°-70°	969.1	5.9
70°-80°	498.8	3.0
80°-90°	133.1	0.8
90°-100°	124.0	0.8
100°-110°	394.1	2.4
110°-120°	674.4	4.1
120°-130°	886.9	5.4
130°-140°	995.5	6.1
140°-150°	976.2	6.0
150°-160°	818.9	5.0
160°-170°	543.1	3.3
170°-180°	189.8	1.2
0°-30°	3731.0	22.8
0°-40°	5793.7	35.4
0°-60°	9178.3	56.0
0°-90°	10779.4	65.8
90°-120°	1192.5	7.3
90°-150°	4051.1	24.7
90°-180°	5603.0	34.2
0°-180°	16382.3	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°	2	22	59	56	57	16
95°	88	105	108	108	105	98
105°	364	369	372	375	375	384
115°	677	686	683	682	677	669
125°	984	999	995	989	987	880
135°	1273	1292	1296	1294	1289	984
145°	1546	1558	1567	1569	1563	966
155°	1767	1772	1778	1786	1781	813
165°	1923	1921	1921	1933	1924	542
175°	2001	1996	1992	2004	1994	190
180°	2004	2004	2004	2004	2004	

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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°	1.8	21.8	59.3	55.6	57.4
92.5°	37.5	50.8	52.6	54.3	54.3
95°	88.2	105.1	108.1	108.1	105.1
97.5°	146.9	162.6	169.2	169.2	169.2
100°	214.5	228.4	233.2	233.2	231.4
102.5°	285.8	296.1	302.7	304.5	302.7
105°	363.8	368.6	372.2	375.3	375.3
107.5°	441.1	448.4	448.4	449.6	441.1
110°	516.0	525.7	525.7	525.7	520.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	597.0	607.3	605.5	600.6	597.0
115°	676.8	686.4	683.4	681.6	676.8
117.5°	755.9	769.2	760.7	755.9	751.1
120°	835.7	849.0	835.7	835.7	830.2
122.5°	908.2	925.1	916.6	911.8	908.2
125°	984.3	999.4	994.6	989.1	987.4
127.5°	1058.7	1077.4	1070.7	1063.5	1058.7
130°	1128.1	1149.9	1146.8	1143.3	1136.6
132.5°	1206.1	1223.0	1224.2	1215.8	1210.9
135°	1273.1	1291.9	1295.5	1293.7	1288.9
137.5°	1348.1	1363.2	1366.2	1365.0	1357.7
140°	1414.0	1429.0	1437.5	1437.5	1430.8
142.5°	1481.6	1496.7	1501.6	1503.4	1496.7
145°	1545.7	1557.7	1567.4	1569.2	1562.6
147.5°	1603.1	1618.2	1625.4	1628.5	1621.8
150°	1662.3	1672.5	1679.2	1684.7	1679.2
152.5°	1714.8	1725.1	1733.6	1740.3	1733.6
155°	1767.4	1772.3	1777.7	1786.1	1780.7
157.5°	1812.7	1816.4	1819.4	1831.4	1823.0
160°	1853.2	1856.9	1858.7	1868.9	1861.7
162.5°	1890.7	1890.7	1892.5	1904.0	1895.5
165°	1922.7	1920.9	1920.9	1933.0	1924.5
167.5°	1951.7	1946.3	1946.3	1958.4	1949.9
170°	1973.5	1968.6	1966.8	1978.9	1968.6
172.5°	1988.6	1983.8	1982.0	1994.0	1983.8
175°	2000.7	1995.8	1992.2	2004.3	1994.0
177.5°	2007.3	2002.5	1998.8	2009.1	1998.8
180°	2004.3	2004.3	2004.3	2004.3	2004.3

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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	13.04	14.02	13.86	14.85	15.88	9.00	9.98	9.82	10.81	11.84
	3H	14.74	15.61	15.56	16.45	17.51	10.20	11.08	11.03	11.92	12.98
	4H	15.35	16.18	16.20	17.03	18.10	10.66	11.49	11.51	12.34	13.41
	6H	15.79	16.55	16.64	17.40	18.49	10.99	11.75	11.85	12.61	13.69
	8H	15.92	16.64	16.79	17.52	18.60	11.09	11.81	11.95	12.68	13.77
	12H	15.99	16.68	16.86	17.55	18.65	11.13	11.82	12.01	12.69	13.80
4H	2H	13.08	13.90	13.93	14.75	15.82	9.62	10.44	10.47	11.29	12.36
	3H	14.93	15.61	15.79	16.49	17.58	10.98	11.67	11.85	12.55	13.64
	4H	15.63	16.25	16.50	17.13	18.24	11.54	12.16	12.41	13.04	14.15
	6H	16.15	16.69	17.04	17.60	18.71	11.97	12.50	12.86	13.41	14.52
	8H	16.34	16.84	17.23	17.74	18.86	12.10	12.60	12.99	13.50	14.63
	12H	16.44	16.89	17.35	17.81	18.94	12.17	12.62	13.08	13.54	14.67
8H	4H	15.61	16.11	16.50	17.01	18.13	11.83	12.33	12.72	13.23	14.36
	6H	16.18	16.60	17.10	17.54	18.66	12.36	12.77	13.28	13.71	14.84
	8H	16.40	16.77	17.33	17.70	18.85	12.55	12.92	13.48	13.85	14.99
	12H	16.55	16.87	17.48	17.80	18.99	12.68	13.00	13.61	13.92	15.12
12H	4H	15.56	16.02	16.48	16.93	18.07	11.84	12.29	12.75	13.21	14.34
	6H	16.16	16.53	17.09	17.46	18.60	12.41	12.77	13.34	13.71	14.85
	8H	16.39	16.71	17.32	17.64	18.83	12.63	12.95	13.56	13.87	15.07