

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: P918559

Luminaire Tested: DFN2DIP-4P3F0-020D060US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918559
REPORT IS A COMBINATION OF REPORTS P900589 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D060US935-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

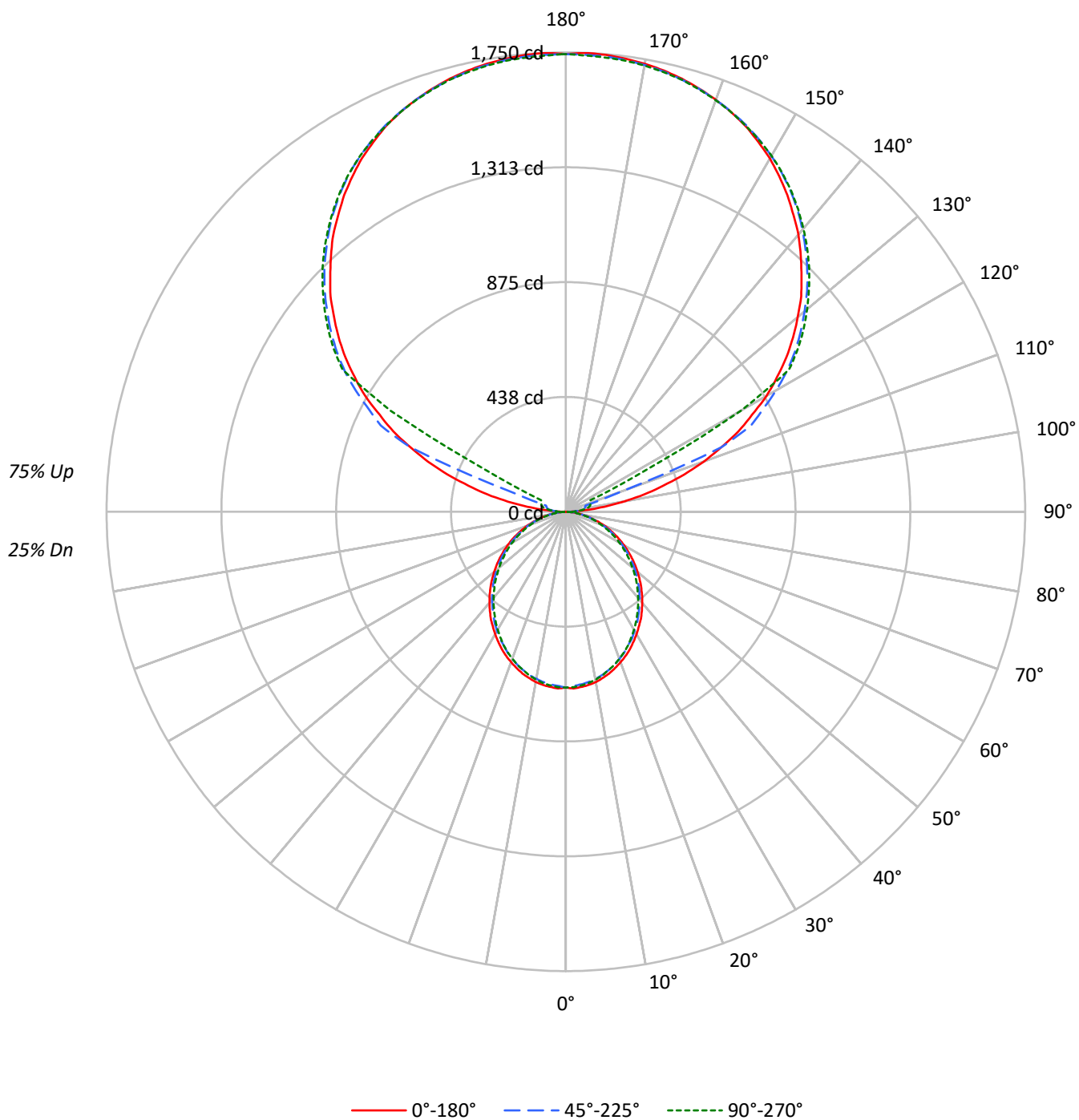
Lumens per Lamp: N/A
Luminaire Lumens: 6819.1 lumens
Efficiency: N/A
Efficacy: 108.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 62.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	101	101	101	101	90	90	90	90	69	69	69	51	51	51	33	33	33
1	92	88	84	81	82	79	75	73	61	59	57	44	43	42	29	29	28
2	84	77	71	66	74	69	64	59	53	50	47	39	37	35	26	25	24
3	76	67	60	55	68	60	54	50	47	43	39	34	32	30	23	21	20
4	70	60	52	46	62	53	47	42	42	37	33	31	28	25	20	19	17
5	64	53	45	39	57	47	41	36	37	32	29	27	24	22	18	16	15
6	59	47	40	34	52	42	36	31	33	28	25	25	21	19	17	15	13
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12
8	50	38	31	26	45	35	28	24	27	23	19	20	17	15	14	12	10
9	47	35	28	23	41	31	25	21	25	20	17	19	15	13	13	11	9
10	43	32	25	20	39	29	23	19	23	18	15	17	14	12	12	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	764	764	764
5°	764	752	758
10°	758	742	747
15°	746	729	731
20°	731	712	714
25°	715	691	695
30°	696	671	671
35°	678	649	645
40°	655	626	620
45°	633	603	595
50°	608	578	566
55°	582	550	539
60°	553	517	509
65°	521	483	473
70°	481	440	434
75°	425	390	397
80°	357	325	328
85°	251	215	215

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1191 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.1	0.9
10°-20°	177.4	2.6
20°-30°	260.8	3.8
30°-40°	302.9	4.4
40°-50°	302.5	4.4
50°-60°	263.8	3.9
60°-70°	195.0	2.9
70°-80°	110.3	1.6
80°-90°	32.2	0.5
90°-100°	57.5	0.8
100°-110°	214.3	3.1
110°-120°	568.4	8.3
120°-130°	942.7	13.8
130°-140°	1001.4	14.7
140°-150°	930.7	13.6
150°-160°	748.2	11.0
160°-170°	482.1	7.1
170°-180°	165.9	2.4
0°-30°	501.3	7.4
0°-40°	804.1	11.8
0°-60°	1370.4	20.1
0°-90°	1707.8	25.0
90°-120°	840.2	12.3
90°-150°	3714.9	54.5
90°-180°	5111.0	75.0
0°-180°	6819.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	670	670	670	670	670	
5°	670	668	660	666	664	64
15°	638	634	626	628	625	180
25°	577	572	561	562	561	266
35°	498	492	481	477	474	311
45°	405	401	391	384	381	313
55°	307	303	295	287	284	274
65°	207	203	197	191	188	205
75°	108	107	104	100	101	116
85°	26	26	25	23	23	29
90°	1	15	25	32	34	6
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°	670.0	670.0	670.0	670.0	670.0
2.5°	673.9	670.7	663.6	670.0	668.8
5°	670.0	667.5	660.4	665.6	664.3
7.5°	665.6	661.7	654.6	659.8	658.5
10°	658.5	654.0	646.3	651.3	649.5
12.5°	648.8	645.0	637.2	640.4	639.1
15°	637.8	634.0	625.6	628.2	625.0
17.5°	624.3	620.5	612.1	615.3	612.1
20°	609.5	605.6	596.6	598.6	596.0
22.5°	594.7	588.9	580.5	580.5	579.2
25°	577.3	572.1	561.2	562.4	561.2
27.5°	557.9	553.4	545.1	543.2	539.9
30°	538.6	533.5	523.8	521.9	519.3
32.5°	518.0	514.2	503.9	500.0	497.4
35°	498.1	491.6	481.3	477.4	474.2
37.5°	475.5	469.7	459.3	454.9	451.6
40°	452.3	447.1	436.8	431.1	428.4
42.5°	429.7	424.6	414.3	407.9	404.0
45°	405.3	400.8	391.1	384.0	381.4
47.5°	381.4	376.9	366.6	359.5	355.7
50°	356.3	353.1	344.1	335.0	331.8
52.5°	331.8	327.3	318.9	311.9	307.4
55°	306.7	302.8	295.1	287.4	284.1
57.5°	281.5	278.4	269.9	262.3	259.6
60°	256.4	253.9	244.9	237.7	235.8
62.5°	232.0	227.4	221.0	214.6	212.0
65°	206.8	202.9	196.6	190.7	187.5
67.5°	181.1	177.8	172.0	167.6	165.0
70°	157.2	154.6	148.8	144.3	141.8
72.5°	132.8	130.2	126.9	122.4	120.5
75°	108.2	107.0	103.7	99.9	101.2
77.5°	86.4	83.8	82.4	80.5	78.6
80°	64.5	63.8	62.5	60.5	59.2
82.5°	43.8	43.8	43.2	40.6	40.6
85°	26.3	25.7	25.1	23.2	22.6
87.5°	11.6	10.3	9.0	7.1	6.5
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	3.36	4.03	4.51	5.17	6.76	2.92	3.59	4.06	4.72	6.31
	3H	5.00	5.60	6.15	6.75	8.35	4.51	5.12	5.67	6.26	7.86
	4H	5.58	6.15	6.74	7.29	8.90	5.08	5.66	6.25	6.80	8.41
	6H	5.96	6.49	7.13	7.64	9.26	5.46	5.99	6.63	7.14	8.76
	8H	6.06	6.56	7.23	7.72	9.34	5.56	6.06	6.73	7.22	8.83
	12H	6.10	6.58	7.28	7.73	9.37	5.59	6.07	6.77	7.22	8.86
4H	2H	3.79	4.37	4.96	5.51	7.12	3.44	4.01	4.61	5.16	6.76
	3H	5.64	6.12	6.81	7.28	8.90	5.23	5.71	6.40	6.88	8.50
	4H	6.34	6.78	7.52	7.94	9.58	5.92	6.36	7.09	7.51	9.15
	6H	6.84	7.22	8.02	8.40	10.03	6.41	6.78	7.59	7.96	9.59
	8H	6.98	7.34	8.16	8.51	10.15	6.55	6.90	7.73	8.07	9.71
	12H	7.04	7.36	8.24	8.55	10.20	6.60	6.92	7.79	8.10	9.75
8H	4H	6.52	6.87	7.70	8.04	9.69	6.14	6.49	7.32	7.66	9.31
	6H	7.13	7.43	8.33	8.64	10.28	6.75	7.04	7.95	8.25	9.90
	8H	7.35	7.60	8.55	8.79	10.46	6.96	7.21	8.16	8.40	10.06
	12H	7.47	7.69	8.68	8.88	10.57	7.06	7.28	8.27	8.47	10.16
12H	4H	6.49	6.81	7.69	7.99	9.64	6.12	6.44	7.32	7.63	9.28
	6H	7.16	7.41	8.37	8.60	10.27	6.79	7.04	7.99	8.23	9.89
	8H	7.39	7.61	8.60	8.80	10.49	7.01	7.23	8.22	8.42	10.11

END OF REPORT