

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: P913103

Luminaire Tested: DFN2DIP-4P3F0-020D060US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913103
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-4P3F0-020D060US927-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

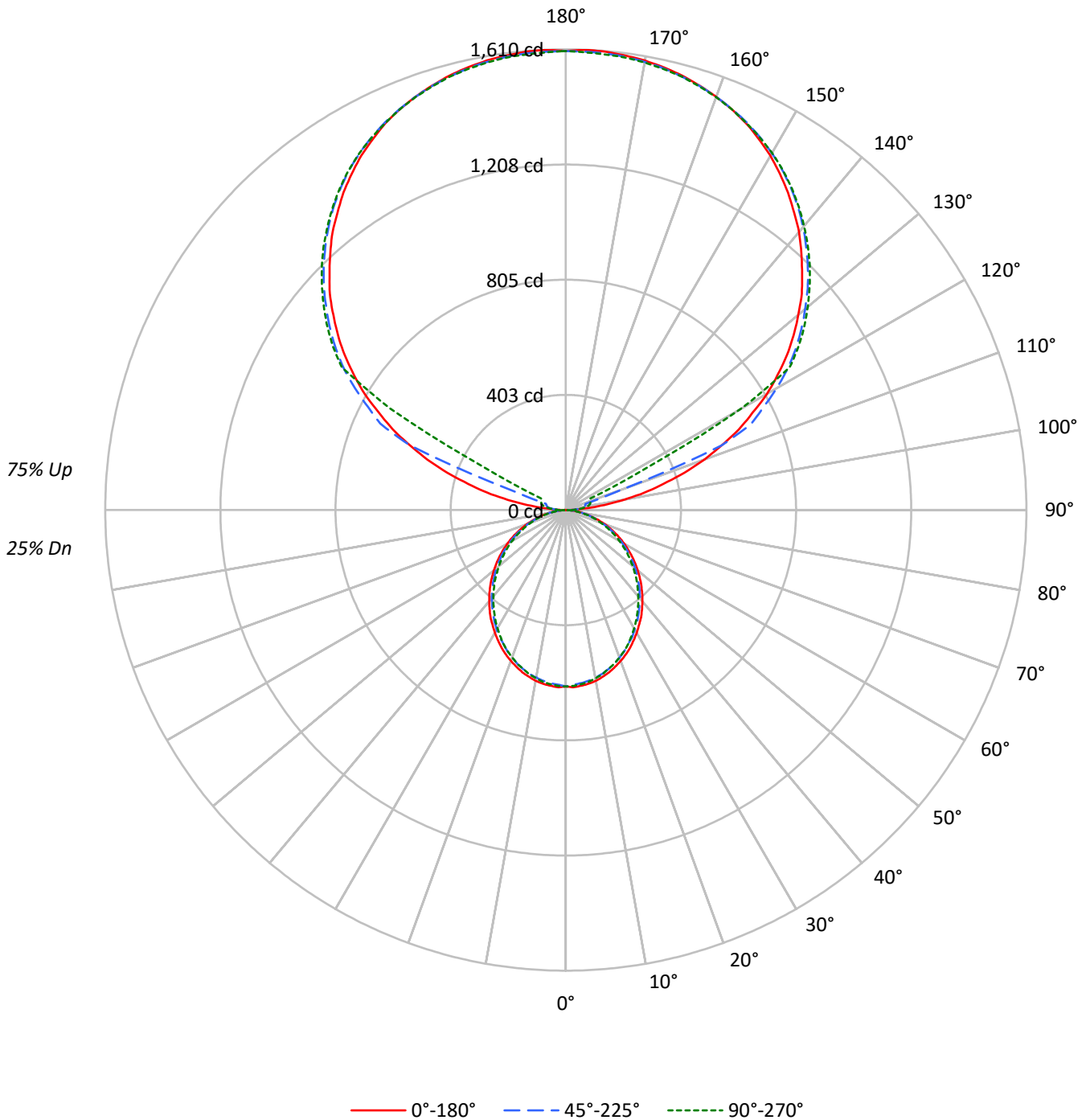
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6274.1 lumens
Efficiency: N/A
Efficacy: 99.9 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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	101	101	101	101	90	90	90	90	69	69	69	51	51	51	33	33	33	33	33	33	25
1	92	88	84	81	82	79	75	73	61	59	57	44	43	42	29	29	28	28	28	28	21
2	84	77	71	66	74	69	64	59	53	50	47	39	37	35	26	25	24	24	24	24	18
3	76	67	60	55	68	60	54	50	47	43	39	34	32	30	23	21	20	20	20	20	15
4	70	60	52	46	62	53	47	42	42	37	33	31	28	25	20	19	17	17	17	17	13
5	64	53	45	39	57	47	41	36	37	32	29	27	24	22	18	16	15	15	15	15	11
6	59	47	40	34	52	42	36	31	33	28	25	25	21	19	17	15	13	13	13	13	10
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12	12	12	12	9
8	50	38	31	26	45	35	28	24	27	23	19	20	17	15	14	12	10	10	10	10	8
9	47	35	28	23	41	31	25	21	25	20	17	19	15	13	13	11	9	9	9	9	7
10	43	32	25	20	39	29	23	19	23	18	15	17	14	12	12	10	8	8	8	8	6

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	703	703	703
5°	703	692	697
10°	697	683	687
15°	686	671	673
20°	672	655	657
25°	658	636	639
30°	640	618	617
35°	623	597	593
40°	603	576	571
45°	582	554	548
50°	559	532	521
55°	536	506	496
60°	509	476	468
65°	480	444	435
70°	443	405	399
75°	391	358	366
80°	329	299	302
85°	231	198	198

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1096 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.0	0.9
10°-20°	163.3	2.6
20°-30°	239.9	3.8
30°-40°	278.7	4.4
40°-50°	278.3	4.4
50°-60°	242.7	3.9
60°-70°	179.4	2.9
70°-80°	101.5	1.6
80°-90°	29.6	0.5
90°-100°	52.9	0.8
100°-110°	197.2	3.1
110°-120°	523.0	8.3
120°-130°	867.4	13.8
130°-140°	921.3	14.7
140°-150°	856.3	13.6
150°-160°	688.4	11.0
160°-170°	443.6	7.1
170°-180°	152.7	2.4
0°-30°	461.2	7.4
0°-40°	739.9	11.8
0°-60°	1260.8	20.1
0°-90°	1571.4	25.0
90°-120°	773.0	12.3
90°-150°	3418.0	54.5
90°-180°	4703.0	75.0
0°-180°	6274.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	616	616	616	616	616	
5°	616	614	608	612	611	59
15°	587	583	576	578	575	165
25°	531	526	516	518	516	244
35°	458	452	443	439	436	286
45°	373	369	360	353	351	288
55°	282	279	272	264	261	252
65°	190	187	181	176	172	188
75°	100	98	95	92	93	106
85°	24	24	23	21	21	27
90°	1	14	23	29	31	6
95°	75	37	45	51	50	89
105°	353	388	71	84	88	377
115°	667	687	716	179	95	657
125°	944	959	981	989	992	842
135°	1168	1186	1197	1208	1206	902
145°	1355	1353	1373	1381	1376	847
155°	1492	1481	1495	1502	1493	687
165°	1572	1565	1568	1576	1568	444
175°	1608	1599	1602	1610	1598	153
180°	1604	1604	1604	1604	1604	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	616.5	616.5	616.5	616.5	616.5
2.5°	620.0	617.1	610.5	616.5	615.4
5°	616.5	614.2	607.6	612.4	611.2
7.5°	612.4	608.8	602.3	607.0	605.9
10°	605.9	601.7	594.6	599.3	597.5
12.5°	596.9	593.4	586.3	589.2	588.0
15°	586.8	583.4	575.6	578.0	575.0
17.5°	574.4	570.9	563.2	566.1	563.2
20°	560.8	557.2	548.9	550.7	548.3
22.5°	547.2	541.9	534.1	534.1	532.9
25°	531.2	526.4	516.3	517.5	516.3
27.5°	513.3	509.2	501.5	499.8	496.8
30°	495.6	490.8	482.0	480.2	477.8
32.5°	476.6	473.1	463.6	460.0	457.6
35°	458.3	452.3	442.8	439.3	436.3
37.5°	437.5	432.1	422.6	418.5	415.5
40°	416.1	411.4	401.9	396.6	394.2
42.5°	395.4	390.6	381.2	375.3	371.7
45°	372.9	368.8	359.8	353.3	350.9
47.5°	350.9	346.8	337.3	330.7	327.3
50°	327.8	324.9	316.6	308.2	305.3
52.5°	305.3	301.1	293.4	286.9	282.8
55°	282.2	278.6	271.5	264.4	261.4
57.5°	259.0	256.1	248.3	241.3	238.8
60°	235.9	233.6	225.3	218.7	217.0
62.5°	213.4	209.2	203.4	197.4	195.0
65°	190.3	186.7	180.9	175.5	172.5
67.5°	166.6	163.6	158.3	154.2	151.8
70°	144.7	142.3	136.9	132.8	130.5
72.5°	122.2	119.8	116.8	112.6	110.9
75°	99.6	98.5	95.4	91.9	93.1
77.5°	79.5	77.1	75.8	74.1	72.3
80°	59.3	58.7	57.5	55.7	54.5
82.5°	40.3	40.3	39.8	37.4	37.4
85°	24.2	23.7	23.1	21.3	20.8
87.5°	10.7	9.5	8.3	6.6	5.9
90°	1.1	13.9	23.1	29.1	31.3
92.5°	29.1	24.4	27.8	30.2	31.3
95°	75.4	37.1	45.2	51.2	49.9
97.5°	135.8	40.6	59.1	62.7	63.8
100°	205.5	46.4	66.1	75.4	77.7
102.5°	282.0	279.8	68.5	81.2	84.8
105°	352.8	387.7	70.8	83.5	88.2
107.5°	435.3	464.2	73.2	85.9	90.5
110°	514.3	538.5	203.2	87.1	91.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.5	609.3	589.6	89.3	92.9
115°	667.4	687.1	716.2	178.8	95.2
117.5°	735.9	759.1	778.9	612.8	308.7
120°	812.5	829.9	850.9	864.7	708.1
122.5°	877.4	896.0	919.3	926.2	927.5
125°	943.6	958.8	980.8	989.0	992.4
127.5°	1004.0	1020.3	1037.8	1049.3	1050.4
130°	1060.9	1079.5	1092.2	1105.0	1103.9
132.5°	1119.0	1134.1	1146.8	1157.2	1156.1
135°	1167.8	1186.4	1196.7	1208.4	1206.0
137.5°	1218.7	1232.6	1244.4	1255.9	1252.5
140°	1268.6	1278.0	1290.7	1301.2	1295.4
142.5°	1310.5	1318.7	1333.7	1342.9	1337.1
145°	1354.6	1353.4	1373.1	1381.2	1375.5
147.5°	1392.8	1389.3	1409.1	1414.8	1410.3
150°	1430.0	1421.9	1440.5	1447.4	1441.6
152.5°	1461.3	1452.1	1469.4	1476.5	1468.3
155°	1491.5	1481.1	1495.1	1502.0	1492.7
157.5°	1515.9	1506.6	1517.1	1525.3	1515.9
160°	1536.8	1529.8	1536.8	1543.7	1535.6
162.5°	1555.3	1548.4	1554.2	1562.3	1551.9
165°	1571.6	1564.7	1568.1	1576.3	1568.1
167.5°	1584.4	1577.4	1581.0	1589.1	1578.6
170°	1594.9	1587.8	1590.2	1598.3	1587.8
172.5°	1601.8	1594.9	1597.2	1605.4	1594.9
175°	1607.6	1599.4	1601.8	1609.9	1598.3
177.5°	1609.9	1601.8	1603.0	1611.1	1600.7
180°	1604.1	1604.1	1604.1	1604.1	1604.1



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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	3.07	3.74	4.21	4.88	6.47	2.63	3.30	3.77	4.43	6.02
	3H	4.71	5.32	5.86	6.46	8.06	4.22	4.83	5.38	5.97	7.57
	4H	5.29	5.86	6.45	7.00	8.61	4.79	5.37	5.96	6.51	8.12
	6H	5.67	6.20	6.84	7.35	8.97	5.17	5.70	6.34	6.85	8.47
	8H	5.77	6.27	6.94	7.43	9.05	5.27	5.77	6.44	6.93	8.54
	12H	5.81	6.29	6.99	7.44	9.08	5.30	5.78	6.48	6.93	8.57
4H	2H	3.50	4.08	4.67	5.22	6.83	3.15	3.72	4.32	4.87	6.47
	3H	5.35	5.83	6.52	6.99	8.61	4.94	5.42	6.11	6.59	8.21
	4H	6.05	6.49	7.23	7.65	9.29	5.63	6.07	6.80	7.22	8.86
	6H	6.55	6.93	7.73	8.11	9.74	6.12	6.50	7.30	7.67	9.30
	8H	6.69	7.05	7.87	8.22	9.86	6.26	6.61	7.44	7.78	9.42
	12H	6.76	7.08	7.95	8.26	9.91	6.31	6.63	7.50	7.81	9.46
8H	4H	6.23	6.58	7.41	7.75	9.40	5.85	6.20	7.03	7.37	9.02
	6H	6.85	7.14	8.05	8.35	9.99	6.46	6.75	7.66	7.96	9.61
	8H	7.06	7.31	8.27	8.50	10.17	6.67	6.92	7.87	8.11	9.77
	12H	7.18	7.40	8.39	8.59	10.28	6.77	6.99	7.98	8.18	9.87
12H	4H	6.20	6.52	7.40	7.70	9.35	5.83	6.15	7.03	7.34	8.99
	6H	6.87	7.13	8.08	8.32	9.98	6.50	6.75	7.70	7.94	9.60
	8H	7.10	7.32	8.31	8.51	10.21	6.72	6.94	7.93	8.13	9.82