

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: P913105

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

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913105
REPORT IS A COMBINATION OF REPORTS P900590 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D060US927-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

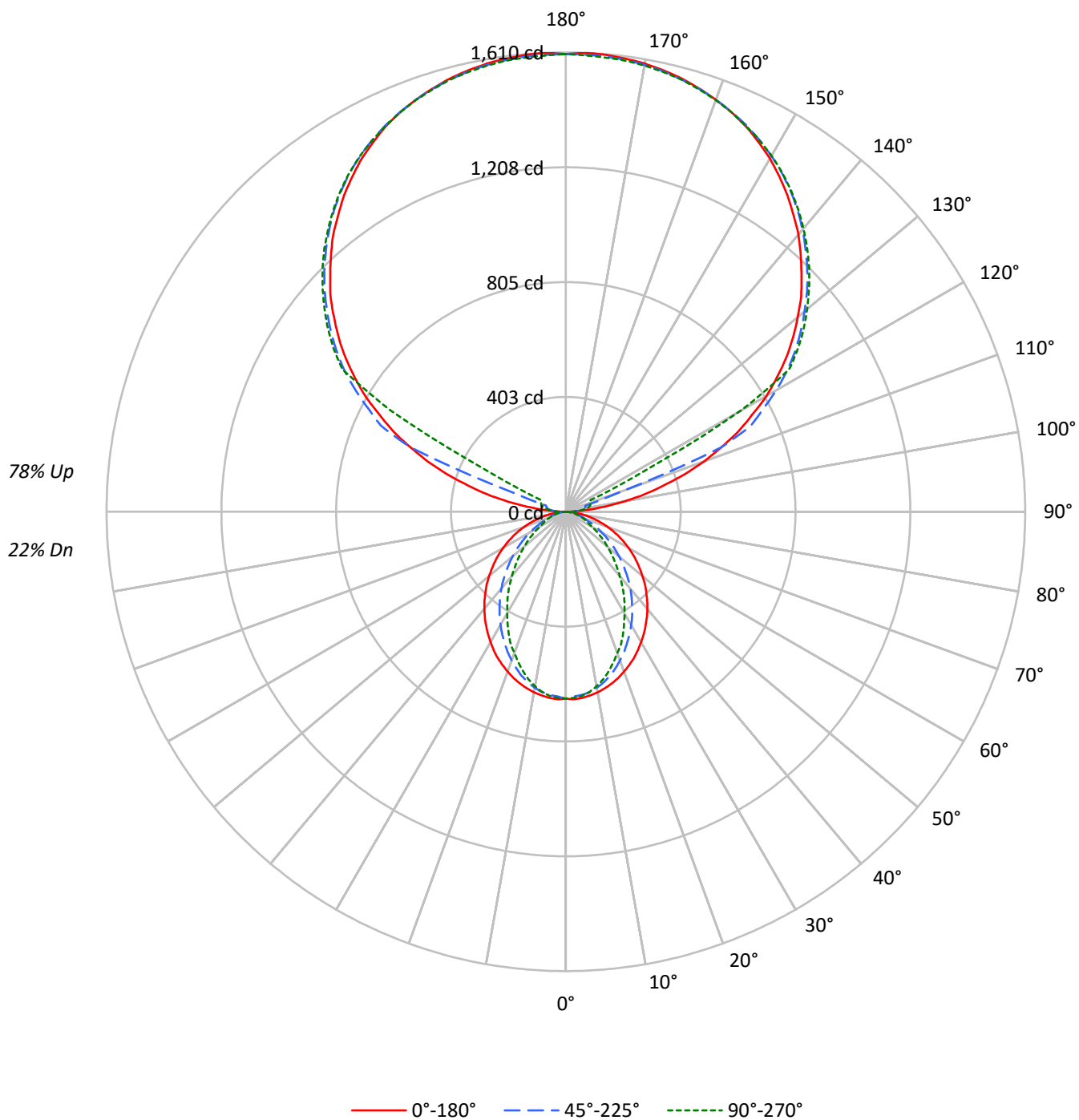
Lumens per Lamp: N/A
Luminaire Lumens: 6052.2 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	101	101	101	101	89	89	89	89	68	68	68	49	49	49	31	31	31	22		
1	92	88	84	81	81	78	75	72	60	58	56	43	42	41	27	27	26	19		
2	84	77	71	66	74	68	64	60	52	49	47	38	36	34	24	23	22	16		
3	76	68	61	55	68	60	55	50	46	43	39	34	31	29	22	20	19	14		
4	70	60	52	47	62	53	47	42	41	37	34	30	27	25	20	18	17	12		
5	64	53	46	40	57	48	41	36	37	32	29	27	24	22	18	16	15	11		
6	59	48	40	35	52	43	36	31	33	29	25	24	21	19	16	14	13	10		
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12	9		
8	50	39	32	27	45	35	29	24	27	23	20	20	17	15	14	12	10	8		
9	47	35	28	23	42	32	26	21	25	20	17	19	16	13	12	11	9	7		
10	44	32	25	21	39	29	23	19	23	19	16	17	14	12	12	10	9	6		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	746	746	746
5°	747	734	739
10°	739	719	715
15°	728	695	677
20°	714	662	631
25°	700	624	587
30°	681	586	531
35°	663	546	482
40°	644	503	426
45°	622	457	375
50°	599	409	325
55°	575	359	277
60°	547	307	228
65°	515	253	205
70°	477	203	185
75°	428	178	168
80°	358	148	145
85°	242	96	107

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°	61.4	1.0
10°-20°	168.5	2.8
20°-30°	236.5	3.9
30°-40°	257.8	4.3
40°-50°	237.0	3.9
50°-60°	186.1	3.1
60°-70°	121.2	2.0
70°-80°	62.3	1.0
80°-90°	18.7	0.3
90°-100°	52.9	0.9
100°-110°	197.2	3.3
110°-120°	523.0	8.6
120°-130°	867.4	14.3
130°-140°	921.3	15.2
140°-150°	856.3	14.1
150°-160°	688.4	11.4
160°-170°	443.6	7.3
170°-180°	152.7	2.5
0°-30°	466.4	7.7
0°-40°	724.2	12.0
0°-60°	1147.3	19.0
0°-90°	1349.5	22.3
90°-120°	773.0	12.8
90°-150°	3418.0	56.5
90°-180°	4703.0	77.7
0°-180°	6052.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	655	655	655	655	655	
5°	655	652	644	650	648	62
15°	623	616	596	585	579	176
25°	565	546	507	483	474	260
35°	487	457	405	367	354	305
45°	398	358	296	254	240	308
55°	303	257	193	157	146	271
65°	204	156	103	83	81	203
75°	109	68	47	43	43	115
85°	25	13	11	11	11	29
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°	654.8	654.8	654.8	654.8	654.8
2.5°	657.7	654.8	648.2	654.3	653.1
5°	654.8	651.9	644.1	649.5	647.7
7.5°	649.5	645.9	637.6	640.0	637.0
10°	642.4	638.2	626.4	624.6	621.1
12.5°	633.5	628.1	612.1	608.6	602.1
15°	622.8	616.2	596.1	584.9	579.0
17.5°	610.4	600.9	576.0	562.9	553.5
20°	596.1	584.2	554.7	539.9	526.8
22.5°	580.7	567.1	532.7	512.6	503.7
25°	565.4	546.4	507.2	483.0	474.0
27.5°	547.0	526.8	483.5	455.7	442.0
30°	527.4	504.9	457.5	427.3	411.2
32.5°	508.4	481.2	432.6	397.0	382.2
35°	487.1	456.9	404.8	367.4	354.3
37.5°	466.4	433.7	378.7	337.8	323.0
40°	444.4	408.9	351.4	309.3	293.9
42.5°	421.9	384.0	324.2	280.3	265.5
45°	398.2	358.5	296.4	254.2	240.0
47.5°	375.7	333.7	269.7	227.5	214.5
50°	350.9	308.8	243.6	202.6	190.3
52.5°	326.5	282.0	218.6	179.6	168.3
55°	302.8	256.6	192.6	157.1	145.8
57.5°	278.5	231.1	169.5	136.3	126.8
60°	253.7	206.2	145.2	115.0	105.5
62.5°	229.3	182.0	124.5	96.0	91.3
65°	204.5	156.5	103.1	83.0	81.2
67.5°	180.8	132.7	83.0	72.9	71.1
70°	155.8	109.6	68.7	62.8	60.4
72.5°	132.1	88.2	57.4	52.8	51.6
75°	109.0	67.5	47.4	43.3	42.7
77.5°	86.0	48.0	37.3	34.9	33.7
80°	64.6	34.4	28.4	26.1	26.1
82.5°	45.0	23.1	19.6	18.4	18.4
85°	25.4	13.0	11.2	11.2	11.2
87.5°	9.5	4.8	4.8	4.1	4.1
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	2.67	3.32	3.84	4.47	6.09	0.00	0.00	0.00	0.43	2.05
	3H	4.33	4.91	5.50	6.06	7.70	0.00	0.38	0.97	1.53	3.17
	4H	4.93	5.47	6.11	6.63	8.27	0.24	0.79	1.42	1.94	3.58
	6H	5.34	5.84	6.52	7.00	8.65	0.54	1.05	1.73	2.21	3.86
	8H	5.45	5.93	6.65	7.11	8.75	0.62	1.10	1.82	2.28	3.92
	12H	5.51	5.96	6.70	7.13	8.79	0.66	1.11	1.85	2.28	3.95
4H	2H	2.66	3.21	3.85	4.37	6.01	0.00	0.00	0.39	0.91	2.55
	3H	4.47	4.93	5.66	6.11	7.76	0.53	0.98	1.72	2.17	3.82
	4H	5.15	5.57	6.35	6.74	8.41	1.06	1.48	2.26	2.66	4.32
	6H	5.65	6.01	6.85	7.21	8.86	1.47	1.82	2.66	3.02	4.68
	8H	5.82	6.16	7.02	7.34	9.02	1.59	1.92	2.78	3.11	4.78
	12H	5.91	6.21	7.12	7.40	9.08	1.64	1.94	2.85	3.14	4.82
8H	4H	5.10	5.44	6.30	6.62	8.30	1.33	1.66	2.52	2.85	4.52
	6H	5.66	5.94	6.88	7.16	8.83	1.83	2.11	3.05	3.33	5.00
	8H	5.87	6.11	7.09	7.31	9.01	2.02	2.26	3.24	3.46	5.15
	12H	6.00	6.21	7.22	7.41	9.13	2.12	2.33	3.35	3.53	5.26
12H	4H	5.05	5.35	6.26	6.55	8.23	1.32	1.63	2.54	2.82	4.50
	6H	5.63	5.87	6.85	7.08	8.77	1.88	2.12	3.10	3.32	5.01
	8H	5.84	6.05	7.07	7.25	8.98	2.07	2.29	3.30	3.49	5.21