

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: P919735

Luminaire Tested: DFN2DIP-PN4F0-100D050US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919735
REPORT IS A COMBINATION OF REPORTS P901160 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D050US935-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

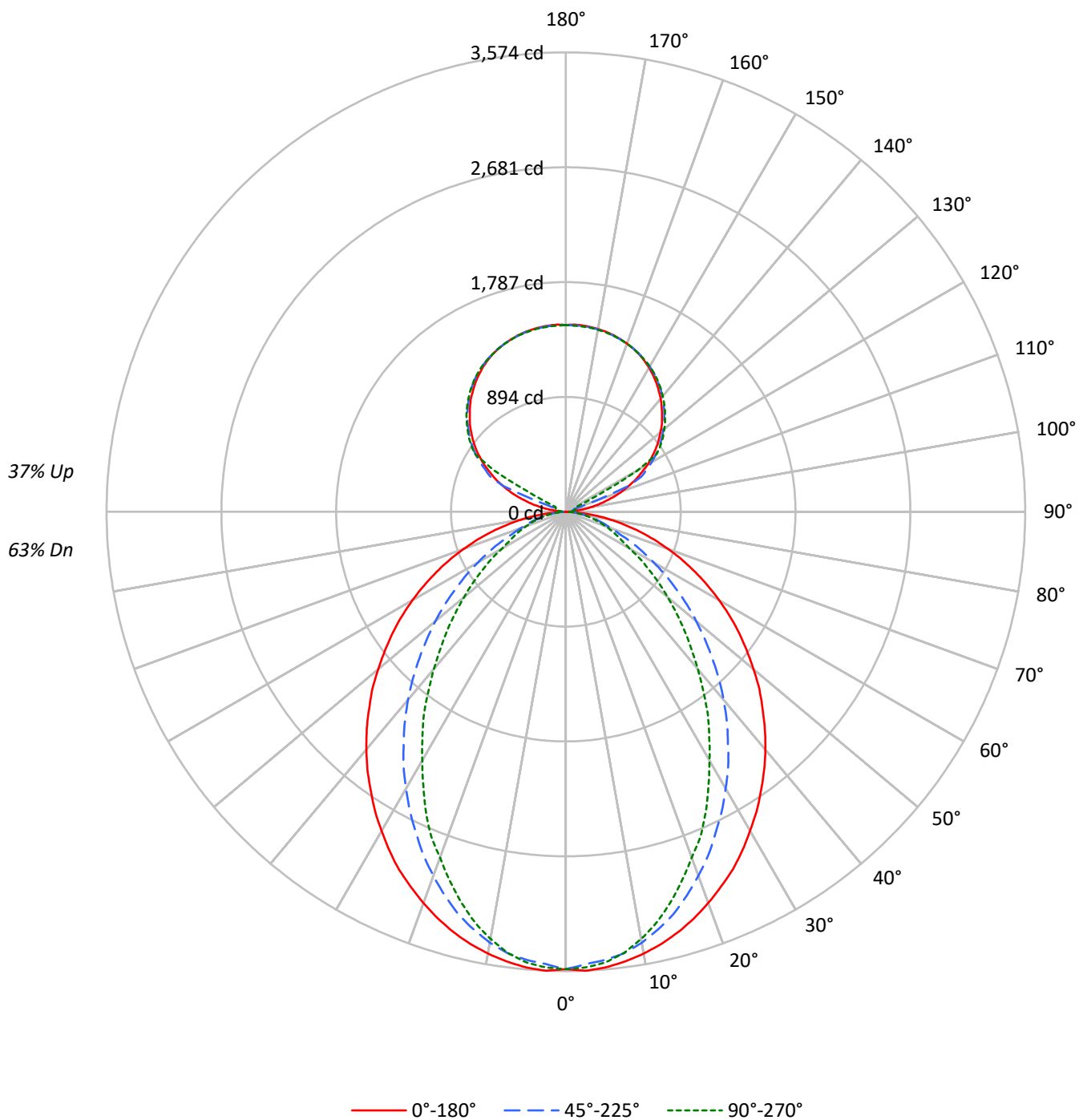
Lumens per Lamp: N/A
Luminaire Lumens: 11580.5 lumens
Efficiency: N/A
Efficacy: 83.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 138.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P919735

CATALOG NUMBER: DFN2DIP-PN4F0-100D050US935-RLLONL

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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2598	2598	2598
5°	2602	2557	2573
10°	2576	2507	2490
15°	2540	2424	2361
20°	2494	2310	2202
25°	2446	2183	2049
30°	2381	2052	1855
35°	2318	1911	1684
40°	2253	1765	1489
45°	2179	1603	1311
50°	2101	1440	1138
55°	2021	1265	971
60°	1927	1083	800
65°	1820	897	721
70°	1690	724	653
75°	1526	639	595
80°	1289	537	518
85°	898	360	392

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2179 cd/sqm

TEST NUMBER: P919735

CATALOG NUMBER: DFN2DIP-PN4F0-100D050US935-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	333.5	2.9
10°-20°	915.5	7.9
20°-30°	1285.4	11.1
30°-40°	1401.2	12.1
40°-50°	1287.8	11.1
50°-60°	1011.4	8.7
60°-70°	658.3	5.7
70°-80°	338.9	2.9
80°-90°	89.1	0.8
90°-100°	47.9	0.4
100°-110°	178.6	1.5
110°-120°	473.7	4.1
120°-130°	785.6	6.8
130°-140°	834.5	7.2
140°-150°	775.6	6.7
150°-160°	623.5	5.4
160°-170°	401.8	3.5
170°-180°	138.3	1.2
0°-30°	2534.4	21.9
0°-40°	3935.6	34.0
0°-60°	6234.8	53.8
0°-90°	7321.0	63.2
90°-120°	700.2	6.0
90°-150°	3095.8	26.7
90°-180°	4259.0	36.8
0°-180°	11580.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3558	3558	3558	3558	3558	
5°	3558	3542	3500	3530	3520	337
15°	3385	3349	3240	3178	3146	954
25°	3072	2969	2757	2625	2576	1413
35°	2647	2483	2200	1997	1926	1657
45°	2164	1948	1610	1381	1304	1671
55°	1646	1394	1046	854	792	1470
65°	1111	850	560	451	441	1102
75°	592	367	258	235	232	627
85°	138	71	61	61	61	159
90°	1	13	21	26	28	11
95°	68	34	41	46	45	81
105°	320	351	64	76	80	342
115°	604	622	649	162	86	595
125°	855	868	888	896	899	762
135°	1058	1074	1084	1094	1092	817
145°	1227	1226	1244	1251	1246	767
155°	1351	1342	1354	1360	1352	622
165°	1423	1417	1420	1428	1420	402
175°	1456	1449	1451	1458	1448	139
180°	1453	1453	1453	1453	1453	

TEST NUMBER: P919735

CATALOG NUMBER: DFN2DIP-PN4F0-100D050US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3558.5	3558.5	3558.5	3558.5	3558.5
2.5°	3574.5	3558.5	3522.9	3555.4	3548.9
5°	3558.5	3542.4	3500.4	3529.5	3519.8
7.5°	3529.5	3510.3	3465.2	3477.8	3461.8
10°	3490.8	3468.3	3404.0	3394.1	3375.0
12.5°	3442.7	3413.6	3326.5	3307.4	3271.8
15°	3384.6	3349.0	3239.7	3178.5	3146.4
17.5°	3316.9	3265.3	3130.1	3059.3	3007.7
20°	3239.7	3175.1	3014.2	2933.9	2862.8
22.5°	3156.0	3081.9	2894.9	2785.7	2737.5
25°	3072.3	2969.2	2756.6	2624.7	2576.2
27.5°	2972.5	2862.8	2627.8	2476.4	2402.3
30°	2866.3	2743.6	2486.0	2322.0	2234.9
32.5°	2763.1	2614.8	2351.0	2157.7	2077.0
35°	2647.2	2482.9	2199.7	1996.7	1925.6
37.5°	2534.5	2357.2	2057.9	1835.5	1755.1
40°	2415.3	2222.2	1909.6	1681.0	1597.3
42.5°	2292.9	2086.9	1761.7	1523.2	1442.9
45°	2164.1	1948.2	1610.3	1381.4	1304.2
47.5°	2041.9	1813.3	1465.4	1236.5	1165.8
50°	1906.5	1677.9	1323.6	1101.2	1033.9
52.5°	1774.3	1532.7	1188.3	975.8	914.6
55°	1645.5	1394.4	1046.5	853.5	792.3
57.5°	1513.6	1255.9	921.2	740.7	689.1
60°	1378.3	1120.7	788.9	624.9	573.3
62.5°	1246.4	988.8	676.1	521.8	496.1
65°	1111.1	850.1	560.3	451.0	441.1
67.5°	982.3	721.3	451.0	396.0	386.4
70°	847.0	595.9	373.4	341.3	328.4
72.5°	718.2	479.7	312.3	286.6	280.2
75°	592.5	367.0	257.6	235.1	232.0
77.5°	467.1	260.7	202.9	189.9	183.5
80°	350.9	186.9	154.5	141.8	141.8
82.5°	244.6	125.7	106.2	99.8	99.8
85°	138.4	70.7	61.1	61.1	61.1
87.5°	51.6	25.7	25.7	22.6	22.6
90°	1.0	12.6	21.0	26.3	28.3
92.5°	26.3	22.1	25.2	27.4	28.3
95°	68.3	33.6	41.0	46.3	45.2
97.5°	123.0	36.9	53.6	56.8	57.8
100°	186.1	42.1	59.9	68.3	70.4
102.5°	255.5	253.4	62.1	73.5	76.8
105°	319.6	351.2	64.1	75.7	79.9
107.5°	394.3	420.4	66.3	77.7	82.1
110°	465.8	487.8	184.0	78.9	83.0



TEST NUMBER: P919735

CATALOG NUMBER: DFN2DIP-PN4F0-100D050US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	533.0	551.9	534.1	80.9	84.1
115°	604.5	622.3	648.7	162.0	86.3
117.5°	666.5	687.5	705.5	555.0	279.7
120°	735.9	751.7	770.6	783.2	641.3
122.5°	794.7	811.6	832.7	839.0	840.1
125°	854.6	868.4	888.4	895.7	898.9
127.5°	909.3	924.0	940.0	950.4	951.4
130°	960.9	977.7	989.2	1000.8	999.9
132.5°	1013.5	1027.2	1038.6	1048.2	1047.1
135°	1057.6	1074.5	1083.8	1094.5	1092.3
137.5°	1103.8	1116.5	1127.0	1137.6	1134.5
140°	1149.0	1157.5	1169.0	1178.4	1173.3
142.5°	1187.0	1194.4	1208.0	1216.3	1211.1
145°	1226.9	1225.8	1243.6	1251.0	1245.8
147.5°	1261.5	1258.3	1276.3	1281.5	1277.4
150°	1295.2	1287.9	1304.7	1311.0	1305.7
152.5°	1323.5	1315.2	1330.9	1337.3	1329.9
155°	1350.9	1341.5	1354.1	1360.4	1352.0
157.5°	1372.9	1364.6	1374.1	1381.5	1372.9
160°	1392.0	1385.6	1392.0	1398.2	1390.9
162.5°	1408.7	1402.5	1407.6	1415.0	1405.6
165°	1423.4	1417.2	1420.3	1427.6	1420.3
167.5°	1435.0	1428.7	1431.9	1439.2	1429.8
170°	1444.5	1438.1	1440.3	1447.6	1438.1
172.5°	1450.8	1444.5	1446.6	1454.0	1444.5
175°	1456.0	1448.6	1450.8	1458.1	1447.6
177.5°	1458.1	1450.8	1451.9	1459.2	1449.7
180°	1452.8	1452.8	1452.8	1452.8	1452.8

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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	11.62	12.57	12.46	13.43	14.50	7.59	8.54	8.43	9.40	10.47
	3H	13.31	14.16	14.17	15.03	16.13	8.79	9.64	9.64	10.51	11.60
	4H	13.93	14.73	14.80	15.61	16.72	9.24	10.05	10.11	10.92	12.03
	6H	14.36	15.10	15.24	15.98	17.10	9.57	10.31	10.45	11.19	12.31
	8H	14.49	15.19	15.38	16.09	17.22	9.67	10.37	10.56	11.27	12.39
	12H	14.56	15.23	15.45	16.12	17.27	9.71	10.38	10.61	11.28	12.42
4H	2H	11.66	12.46	12.53	13.33	14.44	8.20	9.00	9.08	9.88	10.99
	3H	13.50	14.17	14.39	15.07	16.20	9.56	10.23	10.45	11.14	12.26
	4H	14.20	14.80	15.10	15.71	16.86	10.12	10.72	11.01	11.63	12.78
	6H	14.72	15.25	15.64	16.17	17.33	10.54	11.06	11.45	11.99	13.15
	8H	14.90	15.39	15.82	16.31	17.48	10.67	11.16	11.59	12.08	13.25
	12H	15.00	15.44	15.94	16.38	17.56	10.74	11.18	11.68	12.12	13.30
8H	4H	14.18	14.66	15.09	15.58	16.75	10.41	10.89	11.32	11.82	12.98
	6H	14.75	15.15	15.69	16.12	17.28	10.93	11.33	11.87	12.30	13.46
	8H	14.97	15.32	15.92	16.28	17.46	11.12	11.48	12.07	12.43	13.62
	12H	15.11	15.43	16.07	16.38	17.61	11.25	11.56	12.20	12.51	13.74
12H	4H	14.13	14.57	15.07	15.51	16.68	10.42	10.86	11.35	11.80	12.97
	6H	14.72	15.08	15.68	16.04	17.22	10.98	11.34	11.93	12.29	13.48
	8H	14.95	15.27	15.91	16.21	17.45	11.20	11.51	12.15	12.46	13.69