

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: P903000

Luminaire Tested: DFN2DIP-PN3F0-040D090US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903000
REPORT IS A COMBINATION OF REPORTS P899597 AND P896399
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-040D090US830-FLLFLL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

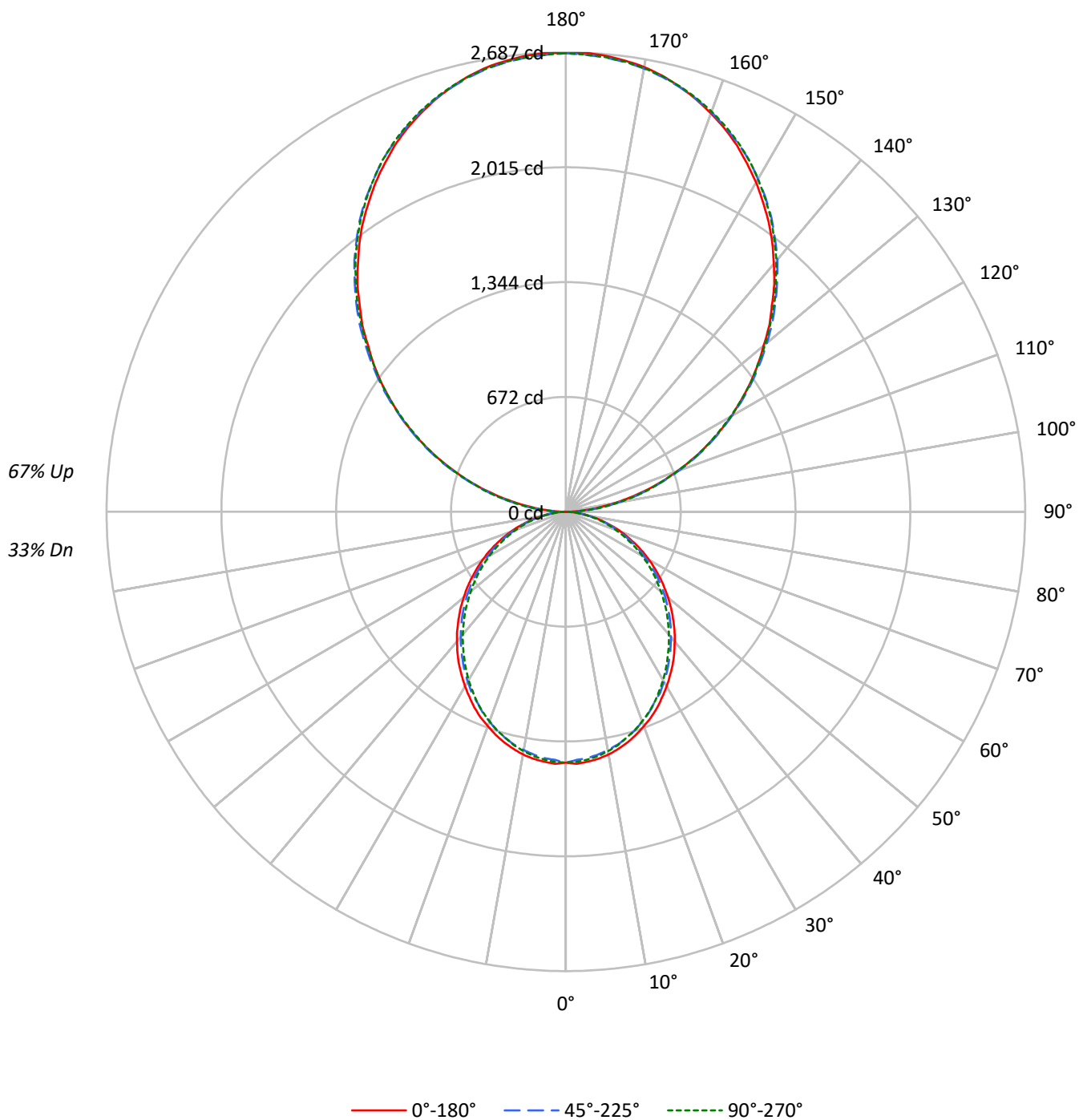
Lumens per Lamp: N/A
Luminaire Lumens: 11239.8 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 105.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P903000

CATALOG NUMBER: DFN2DIP-PN3F0-040D090US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P903000

CATALOG NUMBER: DFN2DIP-PN3F0-040D090US830-FLLFL

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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	18	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1715	1715	1715
5°	1717	1690	1702
10°	1702	1666	1678
15°	1676	1637	1641
20°	1641	1598	1604
25°	1606	1551	1560
30°	1563	1508	1505
35°	1522	1456	1447
40°	1472	1404	1392
45°	1421	1352	1335
50°	1366	1298	1270
55°	1309	1235	1210
60°	1243	1160	1140
65°	1172	1082	1059
70°	1081	987	971
75°	956	874	888
80°	803	728	733
85°	567	481	478

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2657 cd/sqm

TEST NUMBER: P903000

CATALOG NUMBER: DFN2DIP-PN3F0-040D090US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.2
10°-20°	388.5	3.5
20°-30°	570.9	5.1
30°-40°	663.1	5.9
40°-50°	662.3	5.9
50°-60°	577.5	5.1
60°-70°	426.9	3.8
70°-80°	241.5	2.1
80°-90°	71.4	0.6
90°-100°	166.0	1.5
100°-110°	527.5	4.7
110°-120°	902.7	8.0
120°-130°	1187.2	10.6
130°-140°	1332.5	11.9
140°-150°	1306.7	11.6
150°-160°	1096.1	9.8
160°-170°	726.9	6.5
170°-180°	254.1	2.3
0°-30°	1097.5	9.8
0°-40°	1760.6	15.7
0°-60°	3000.3	26.7
0°-90°	3740.1	33.3
90°-120°	1596.2	14.2
90°-150°	5422.6	48.2
90°-180°	7500.0	66.7
0°-180°	11239.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	2	29	79	74	77	11
95°	118	141	145	145	141	131
105°	487	493	498	502	502	514
115°	906	919	915	912	906	896
125°	1318	1338	1331	1324	1322	1177
135°	1704	1729	1734	1732	1725	1317
145°	2069	2085	2098	2100	2092	1293
155°	2366	2372	2380	2391	2384	1089
165°	2574	2571	2571	2587	2576	726
175°	2678	2671	2667	2683	2669	254
180°	2683	2683	2683	2683	2683	

TEST NUMBER: P903000

CATALOG NUMBER: DFN2DIP-PN3F0-040D090US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	2.5	29.1	79.3	74.4	76.8
92.5°	50.1	68.0	70.4	72.8	72.8
95°	118.1	140.7	144.8	144.8	140.7
97.5°	196.5	217.5	226.5	226.5	226.5
100°	287.1	305.8	312.2	312.2	309.8
102.5°	382.6	396.3	405.2	407.6	405.2
105°	486.9	493.3	498.2	502.3	502.3
107.5°	590.4	600.1	600.1	601.7	590.4
110°	690.7	703.7	703.7	703.7	697.2

TEST NUMBER: P903000

CATALOG NUMBER: DFN2DIP-PN3F0-040D090US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	799.1	812.8	810.4	804.0	799.1
115°	905.9	918.8	914.7	912.4	905.9
117.5°	1011.8	1029.6	1018.3	1011.8	1005.3
120°	1118.6	1136.3	1118.6	1118.6	1111.3
122.5°	1215.6	1238.3	1227.0	1220.5	1215.6
125°	1317.6	1337.8	1331.3	1324.0	1321.6
127.5°	1417.0	1442.1	1433.2	1423.5	1417.0
130°	1510.0	1539.2	1535.1	1530.2	1521.4
132.5°	1614.4	1637.0	1638.6	1627.3	1620.9
135°	1704.1	1729.2	1734.1	1731.6	1725.2
137.5°	1804.4	1824.7	1828.7	1827.1	1817.4
140°	1892.6	1912.8	1924.1	1924.1	1915.2
142.5°	1983.2	2003.4	2009.9	2012.3	2003.4
145°	2069.0	2085.1	2098.0	2100.5	2091.6
147.5°	2145.8	2166.0	2175.7	2179.7	2170.9
150°	2225.1	2238.8	2247.7	2254.9	2247.7
152.5°	2295.4	2309.1	2320.4	2329.4	2320.4
155°	2365.8	2372.2	2379.5	2390.9	2383.6
157.5°	2426.4	2431.3	2435.3	2451.5	2440.1
160°	2480.6	2485.5	2487.9	2501.6	2491.9
162.5°	2530.7	2530.7	2533.2	2548.5	2537.2
165°	2573.6	2571.2	2571.2	2587.4	2576.1
167.5°	2612.4	2605.2	2605.2	2621.3	2610.0
170°	2641.6	2635.1	2632.7	2648.8	2635.1
172.5°	2661.7	2655.3	2652.9	2669.1	2655.3
175°	2678.0	2671.4	2666.6	2682.9	2669.1
177.5°	2686.8	2680.4	2675.5	2689.3	2675.5
180°	2682.9	2682.9	2682.9	2682.9	2682.9

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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	7.32	8.05	8.41	9.13	10.63	6.88	7.61	7.97	8.70	10.19
	3H	8.96	9.62	10.06	10.71	12.22	8.48	9.13	9.58	10.23	11.74
	4H	9.54	10.16	10.65	11.26	12.77	9.06	9.67	10.16	10.77	12.29
	6H	9.93	10.50	11.05	11.60	13.13	9.44	10.01	10.56	11.11	12.64
	8H	10.03	10.57	11.15	11.69	13.21	9.54	10.08	10.66	11.20	12.72
	12H	10.07	10.58	11.19	11.69	13.24	9.57	10.09	10.70	11.20	12.74
4H	2H	7.76	8.38	8.87	9.48	10.99	7.41	8.03	8.52	9.13	10.64
	3H	9.61	10.12	10.73	11.25	12.77	9.21	9.72	10.33	10.85	12.37
	4H	10.31	10.79	11.44	11.90	13.45	9.89	10.37	11.02	11.48	13.03
	6H	10.81	11.22	11.94	12.36	13.89	10.39	10.80	11.52	11.93	13.47
	8H	10.96	11.34	12.09	12.46	14.02	10.53	10.91	11.66	12.04	13.59
	12H	11.02	11.36	12.17	12.50	14.07	10.58	10.93	11.73	12.07	13.63
8H	4H	10.49	10.87	11.62	12.00	13.56	10.12	10.50	11.25	11.63	13.19
	6H	11.11	11.42	12.26	12.59	14.15	10.74	11.05	11.89	12.22	13.77
	8H	11.33	11.60	12.48	12.75	14.32	10.94	11.22	12.10	12.37	13.94
	12H	11.45	11.69	12.61	12.84	14.44	11.05	11.29	12.21	12.44	14.04
12H	4H	10.47	10.82	11.62	11.96	13.52	10.11	10.45	11.26	11.59	13.15
	6H	11.14	11.41	12.30	12.56	14.13	10.77	11.05	11.93	12.20	13.77
	8H	11.37	11.61	12.53	12.76	14.36	11.00	11.24	12.16	12.39	13.99