

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: P902186

Luminaire Tested: DFN2DIP-4P3F0-020D050US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902186
REPORT IS A COMBINATION OF REPORTS P899059 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-020D050US830-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

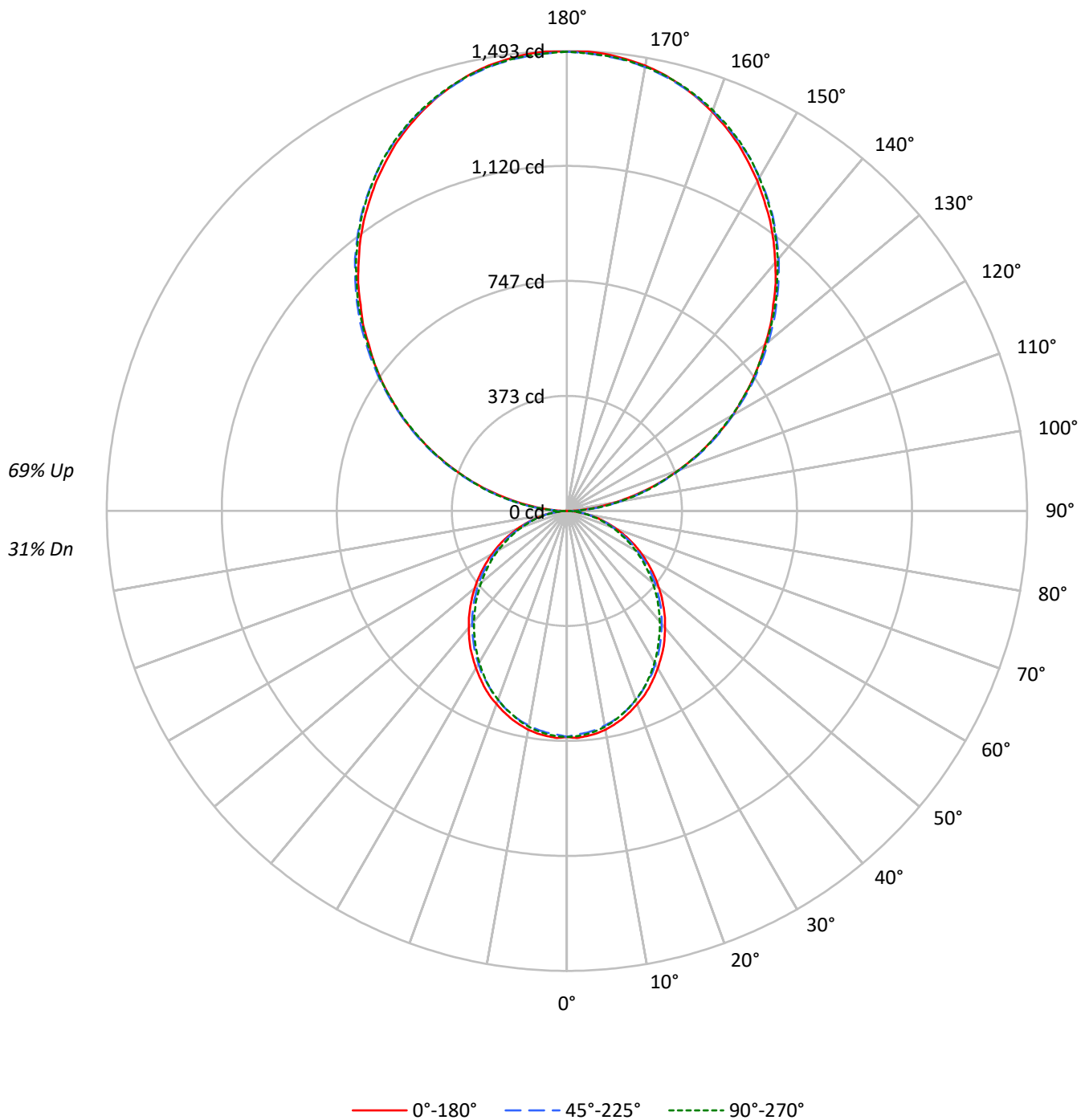
Lumens per Lamp: N/A
Luminaire Lumens: 6037.0 lumens
Efficiency: N/A
Efficacy: 112.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 53.8
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

TEST NUMBER: P902186

CATALOG NUMBER: DFN2DIP-4P3F0-020D050US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P902186

CATALOG NUMBER: DFN2DIP-4P3F0-020D050US830-FLLFLL

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	92	92	92	92	73	73	73	55	55	55	39	39	39
1	94	89	86	82	84	80	77	74	64	61	60	48	47	46	34	33	33
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	27	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	28	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	54	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	15	15	13	11
10	44	33	26	21	40	30	24	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	836	836	836
5°	837	824	830
10°	829	812	818
15°	817	798	800
20°	800	779	782
25°	783	756	761
30°	762	735	734
35°	742	710	706
40°	717	685	679
45°	693	660	652
50°	666	633	620
55°	637	602	590
60°	606	566	557
65°	571	528	517
70°	526	482	475
75°	465	427	435
80°	391	356	359
85°	274	236	235

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1496 cd/sqm

TEST NUMBER: P902186

CATALOG NUMBER: DFN2DIP-4P3F0-020D050US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	69.0	1.1
10°-20°	194.2	3.2
20°-30°	285.5	4.7
30°-40°	331.5	5.5
40°-50°	331.1	5.5
50°-60°	288.7	4.8
60°-70°	213.4	3.5
70°-80°	120.8	2.0
80°-90°	36.1	0.6
90°-100°	92.2	1.5
100°-110°	293.0	4.9
110°-120°	501.5	8.3
120°-130°	659.5	10.9
130°-140°	740.3	12.3
140°-150°	725.9	12.0
150°-160°	609.0	10.1
160°-170°	403.9	6.7
170°-180°	141.2	2.3
0°-30°	548.7	9.1
0°-40°	880.3	14.6
0°-60°	1500.2	24.8
0°-90°	1870.5	31.0
90°-120°	886.7	14.7
90°-150°	3012.5	49.9
90°-180°	4167.0	69.0
0°-180°	6037.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	734	734	734	734	734	
5°	734	731	723	729	727	70
15°	698	694	685	688	684	197
25°	632	626	614	616	614	291
35°	545	538	527	523	519	340
45°	444	439	428	420	418	342
55°	336	332	323	315	311	300
65°	226	222	215	209	205	224
75°	118	117	114	109	111	126
85°	29	28	28	25	25	32
90°	1	16	44	41	43	6
95°	66	78	80	80	78	73
105°	270	274	277	279	279	285
115°	503	510	508	507	503	498
125°	732	743	740	736	734	654
135°	947	961	963	962	958	732
145°	1149	1158	1166	1167	1162	718
155°	1314	1318	1322	1328	1324	605
165°	1430	1428	1428	1438	1431	403
175°	1488	1484	1482	1490	1483	141
180°	1490	1490	1490	1490	1490	

TEST NUMBER: P902186

CATALOG NUMBER: DFN2DIP-4P3F0-020D050US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	733.5	733.5	733.5	733.5	733.5
2.5°	737.7	734.2	726.4	733.5	732.2
5°	733.5	730.8	722.9	728.6	727.2
7.5°	728.6	724.3	716.6	722.3	720.9
10°	720.9	716.0	707.5	713.0	711.0
12.5°	710.2	706.1	697.6	701.1	699.6
15°	698.2	694.1	684.9	687.7	684.2
17.5°	683.4	679.3	670.1	673.5	670.1
20°	667.2	663.0	653.1	655.3	652.4
22.5°	651.0	644.7	635.5	635.5	634.0
25°	632.0	626.3	614.3	615.7	614.3
27.5°	610.8	605.9	596.7	594.6	591.1
30°	589.7	584.0	573.4	571.4	568.4
32.5°	567.0	562.9	551.6	547.3	544.5
35°	545.3	538.2	526.9	522.6	519.1
37.5°	520.6	514.2	502.8	497.9	494.4
40°	495.1	489.5	478.2	471.9	469.0
42.5°	470.4	464.8	453.6	446.5	442.2
45°	443.7	438.8	428.1	420.4	417.5
47.5°	417.5	412.6	401.3	393.5	389.4
50°	390.0	386.5	376.6	366.7	363.3
52.5°	363.3	358.3	349.1	341.4	336.5
55°	335.7	331.5	323.0	314.6	311.0
57.5°	308.2	304.7	295.5	287.1	284.2
60°	280.7	278.0	268.1	260.2	258.2
62.5°	253.9	248.9	242.0	234.9	232.1
65°	226.4	222.2	215.2	208.8	205.3
67.5°	198.2	194.6	188.3	183.4	180.6
70°	172.1	169.3	162.9	158.0	155.2
72.5°	145.3	142.5	138.9	134.0	132.0
75°	118.5	117.2	113.5	109.3	110.7
77.5°	94.5	91.7	90.2	88.1	86.1
80°	70.6	69.8	68.4	66.3	64.8
82.5°	48.0	48.0	47.3	44.5	44.5
85°	28.8	28.2	27.5	25.4	24.7
87.5°	12.7	11.3	9.9	7.8	7.1
90°	1.3	16.2	44.0	41.4	42.7
92.5°	27.9	37.7	39.1	40.4	40.4
95°	65.6	78.2	80.4	80.4	78.2
97.5°	109.1	120.8	125.8	125.8	125.8
100°	159.5	169.8	173.4	173.4	172.1
102.5°	212.5	220.2	225.1	226.5	225.1
105°	270.5	274.1	276.8	279.0	279.0
107.5°	328.0	333.4	333.4	334.3	328.0
110°	383.7	391.0	391.0	391.0	387.3

TEST NUMBER: P902186

CATALOG NUMBER: DFN2DIP-4P3F0-020D050US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	443.9	451.6	450.3	446.7	443.9
115°	503.2	510.5	508.2	506.9	503.2
117.5°	562.1	572.0	565.7	562.1	558.6
120°	621.4	631.3	621.4	621.4	617.4
122.5°	675.3	688.0	681.6	678.1	675.3
125°	732.0	743.2	739.6	735.6	734.2
127.5°	787.2	801.2	796.3	790.8	787.2
130°	839.0	855.1	852.8	850.2	845.2
132.5°	896.9	909.5	910.4	904.1	900.5
135°	946.8	960.6	963.4	962.1	958.5
137.5°	1002.5	1013.7	1016.0	1015.0	1009.7
140°	1051.4	1062.7	1068.9	1068.9	1064.0
142.5°	1101.7	1113.0	1116.6	1117.9	1113.0
145°	1149.4	1158.4	1165.5	1167.0	1162.0
147.5°	1192.1	1203.3	1208.7	1211.0	1206.0
150°	1236.1	1243.8	1248.7	1252.7	1248.7
152.5°	1275.3	1282.9	1289.1	1294.1	1289.1
155°	1314.3	1317.9	1321.9	1328.2	1324.2
157.5°	1348.0	1350.7	1352.9	1362.0	1355.7
160°	1378.1	1380.8	1382.1	1389.8	1384.4
162.5°	1406.0	1406.0	1407.3	1415.9	1409.6
165°	1429.8	1428.4	1428.4	1437.5	1431.2
167.5°	1451.3	1447.3	1447.3	1456.3	1450.0
170°	1467.5	1464.0	1462.6	1471.6	1464.0
172.5°	1478.8	1475.2	1473.9	1482.8	1475.2
175°	1487.8	1484.1	1481.5	1490.4	1482.8
177.5°	1492.7	1489.1	1486.4	1494.0	1486.4
180°	1490.4	1490.4	1490.4	1490.4	1490.4

TEST NUMBER: P902186

CATALOG NUMBER: DFN2DIP-4P3F0-020D050US830-FLFLL

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	4.53	5.24	5.64	6.34	7.86	4.09	4.80	5.19	5.90	7.42
	3H	6.18	6.81	7.29	7.92	9.46	5.69	6.32	6.80	7.43	8.97
	4H	6.75	7.36	7.88	8.47	10.01	6.26	6.87	7.38	7.98	9.52
	6H	7.14	7.70	8.27	8.81	10.37	6.64	7.20	7.77	8.31	9.87
	8H	7.24	7.77	8.38	8.90	10.45	6.74	7.27	7.87	8.40	9.95
	12H	7.28	7.79	8.42	8.91	10.48	6.77	7.28	7.91	8.40	9.97
4H	2H	4.97	5.58	6.10	6.69	8.23	4.62	5.22	5.75	6.33	7.87
	3H	6.82	7.32	7.95	8.46	10.01	6.41	6.92	7.55	8.05	9.61
	4H	7.52	7.99	8.66	9.11	10.69	7.10	7.56	8.24	8.69	10.26
	6H	8.02	8.42	9.17	9.57	11.14	7.59	7.99	8.74	9.14	10.70
	8H	8.17	8.54	9.31	9.68	11.26	7.73	8.10	8.88	9.24	10.82
	12H	8.23	8.57	9.39	9.72	11.31	7.78	8.12	8.94	9.27	10.86
8H	4H	7.70	8.07	8.85	9.21	10.80	7.32	7.70	8.47	8.84	10.42
	6H	8.32	8.63	9.49	9.81	11.39	7.94	8.24	9.10	9.43	11.00
	8H	8.54	8.81	9.71	9.97	11.57	8.14	8.41	9.32	9.57	11.17
	12H	8.66	8.89	9.83	10.05	11.69	8.25	8.48	9.42	9.64	11.27
12H	4H	7.68	8.02	8.84	9.17	10.76	7.31	7.65	8.47	8.80	10.39
	6H	8.35	8.62	9.52	9.78	11.38	7.98	8.24	9.15	9.40	11.00
	8H	8.58	8.82	9.75	9.97	11.61	8.20	8.43	9.37	9.59	11.22

END OF REPORT