

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: P918667

Luminaire Tested: DFN2DIP-4P4F0-040D030US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918667
REPORT IS A COMBINATION OF REPORTS P900601 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D030US935-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

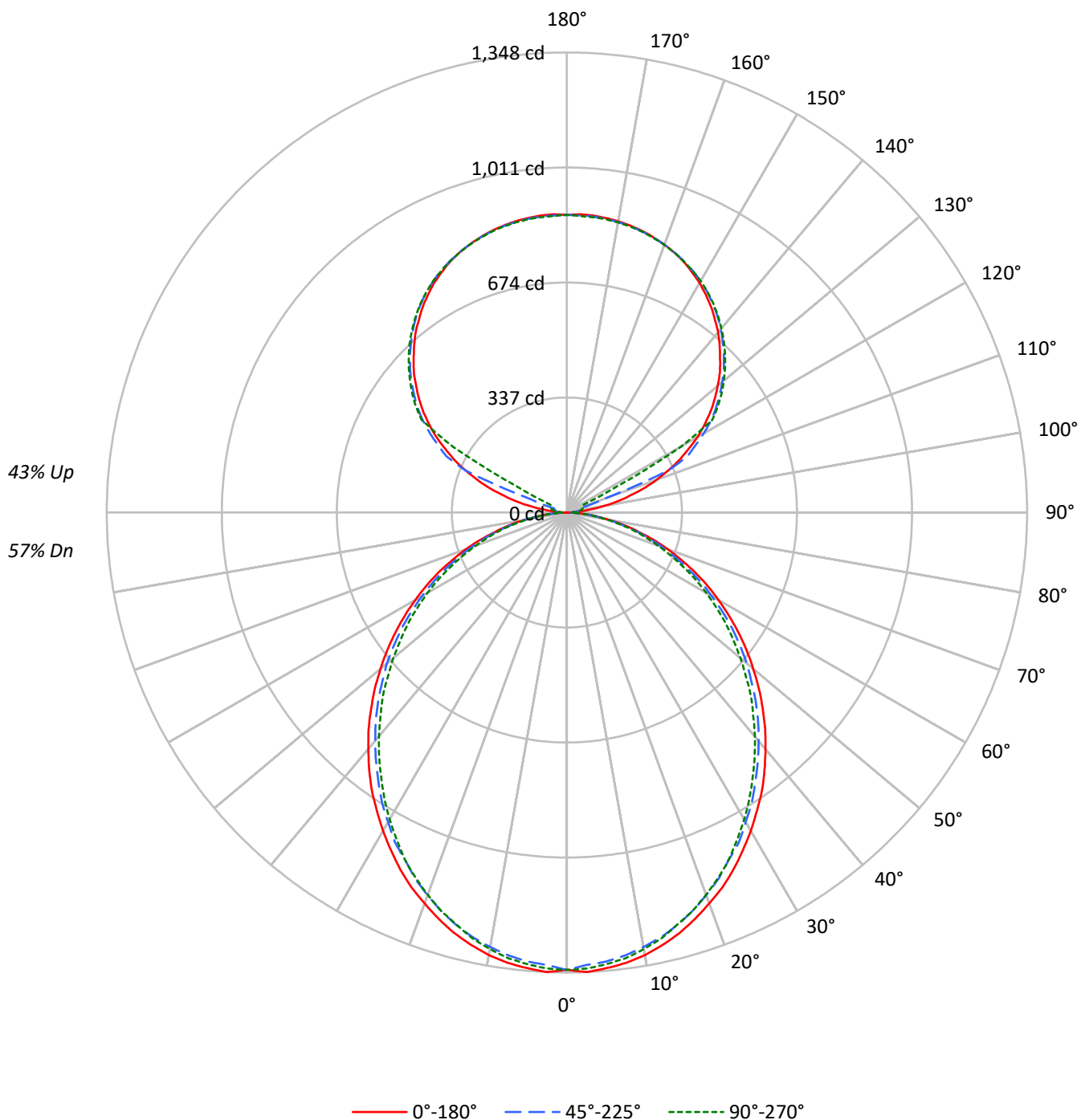
Lumens per Lamp: N/A
Luminaire Lumens: 5966.7 lumens
Efficiency: N/A
Efficacy: 96.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 61.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918667

CATALOG NUMBER: DFN2DIP-4P4F0-040D030US935-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918667

CATALOG NUMBER: DFN2DIP-4P4F0-040D030US935-FLONL

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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	55	54	53
2	91	83	77	72	84	77	72	67	67	63	59	58	55	52	49	47	45
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	40	38
4	76	65	57	50	70	61	53	48	53	47	43	45	41	38	39	35	33
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25
7	59	47	39	33	55	44	37	31	39	33	28	34	29	25	29	25	22
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18
10	48	36	28	24	45	34	27	22	30	24	20	26	22	18	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	869	869	869
5°	871	858	863
10°	864	846	852
15°	851	833	834
20°	834	814	816
25°	817	791	794
30°	796	769	767
35°	776	744	738
40°	751	719	711
45°	726	693	683
50°	699	667	651
55°	670	636	621
60°	638	599	587
65°	603	561	547
70°	559	515	504
75°	497	460	465
80°	423	390	389
85°	307	268	262

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 726 cd/sqm

TEST NUMBER: P918667

CATALOG NUMBER: DFN2DIP-4P4F0-040D030US935-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.1	2.1
10°-20°	354.9	5.9
20°-30°	521.5	8.7
30°-40°	605.7	10.2
40°-50°	605.0	10.1
50°-60°	527.5	8.8
60°-70°	389.9	6.5
70°-80°	220.6	3.7
80°-90°	59.8	1.0
90°-100°	28.7	0.5
100°-110°	107.2	1.8
110°-120°	284.2	4.8
120°-130°	471.3	7.9
130°-140°	500.7	8.4
140°-150°	465.3	7.8
150°-160°	374.1	6.3
160°-170°	241.1	4.0
170°-180°	83.0	1.4
0°-30°	1002.5	16.8
0°-40°	1608.3	27.0
0°-60°	2740.7	45.9
0°-90°	3411.1	57.2
90°-120°	420.1	7.0
90°-150°	1857.5	31.1
90°-180°	2556.0	42.8
0°-180°	5966.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1340	1340	1340	1340	1340	
5°	1340	1335	1321	1331	1329	127
15°	1276	1268	1251	1256	1250	359
25°	1154	1144	1122	1125	1122	531
35°	996	983	963	955	948	622
45°	810	802	782	768	763	626
55°	614	606	590	575	568	548
65°	414	406	393	381	375	409
75°	216	214	207	200	202	231
85°	53	52	50	46	45	59
90°	1	8	13	16	17	6
95°	41	20	24	28	27	49
105°	192	211	38	45	48	205
115°	363	373	389	97	52	357
125°	513	521	533	537	539	457
135°	635	645	650	657	655	490
145°	736	736	746	751	747	460
155°	810	805	812	816	811	373
165°	854	850	852	857	852	241
175°	874	869	870	875	869	83
180°	872	872	872	872	872	

TEST NUMBER: P918667

CATALOG NUMBER: DFN2DIP-4P4F0-040D030US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1340.1	1340.1	1340.1	1340.1	1340.1
2.5°	1347.9	1341.4	1327.2	1340.1	1337.6
5°	1340.1	1335.0	1320.8	1331.0	1328.6
7.5°	1331.0	1323.4	1309.1	1319.6	1317.0
10°	1317.0	1307.9	1292.5	1302.8	1298.9
12.5°	1297.5	1289.9	1274.4	1280.9	1278.2
15°	1275.7	1268.0	1251.2	1256.4	1250.0
17.5°	1248.6	1241.0	1224.2	1230.5	1224.2
20°	1218.9	1211.3	1193.3	1197.0	1192.1
22.5°	1189.4	1177.8	1161.0	1161.0	1158.4
25°	1154.5	1144.3	1122.4	1124.9	1122.4
27.5°	1115.9	1106.8	1090.2	1086.3	1079.9
30°	1077.3	1066.9	1047.7	1043.8	1038.6
32.5°	1036.0	1028.4	1007.7	1000.0	994.7
35°	996.1	983.3	962.6	954.8	948.4
37.5°	951.0	939.3	918.7	909.7	903.3
40°	904.7	894.2	873.6	862.1	857.0
42.5°	859.5	849.1	828.6	815.6	808.0
45°	810.5	801.6	782.1	768.1	762.8
47.5°	762.8	753.8	733.2	719.0	711.4
50°	712.6	706.1	688.1	670.0	663.6
52.5°	663.6	654.6	637.9	623.7	614.7
55°	613.5	605.6	590.2	574.7	568.3
57.5°	563.1	556.7	539.8	524.4	519.3
60°	512.8	507.7	489.7	475.5	471.7
62.5°	463.9	454.9	442.0	429.1	424.0
65°	413.7	405.9	393.0	381.4	375.1
67.5°	362.1	355.6	344.1	335.1	329.9
70°	314.4	309.3	297.6	288.6	283.5
72.5°	265.5	260.3	253.9	244.9	241.0
75°	216.5	214.0	207.4	199.8	202.3
77.5°	172.6	167.5	164.9	161.0	157.2
80°	128.9	127.5	124.9	121.1	118.6
82.5°	87.6	87.6	86.4	81.2	81.2
85°	52.8	51.6	50.3	46.3	45.1
87.5°	23.2	20.7	18.1	14.2	12.8
90°	0.6	7.6	12.6	15.8	17.0
92.5°	15.8	13.3	15.2	16.4	17.0
95°	41.0	20.1	24.5	27.8	27.1
97.5°	73.8	22.1	32.1	34.1	34.7
100°	111.7	25.2	36.0	41.0	42.3
102.5°	153.3	152.1	37.2	44.1	46.1
105°	191.7	210.7	38.5	45.4	48.0
107.5°	236.5	252.3	39.8	46.7	49.2
110°	279.5	292.7	110.4	47.4	49.9



TEST NUMBER: P918667

CATALOG NUMBER: DFN2DIP-4P4F0-040D030US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	319.9	331.1	320.5	48.6	50.5
115°	362.7	373.4	389.2	97.1	51.7
117.5°	399.9	412.5	423.3	333.0	167.8
120°	441.5	451.0	462.4	469.9	384.8
122.5°	476.8	487.0	499.6	503.3	504.0
125°	512.8	521.0	533.0	537.4	539.3
127.5°	545.6	554.4	564.0	570.2	570.8
130°	576.5	586.7	593.6	600.5	599.9
132.5°	608.0	616.3	623.2	628.9	628.3
135°	634.6	644.7	650.3	656.7	655.4
137.5°	662.3	669.9	676.2	682.5	680.6
140°	689.4	694.5	701.4	707.1	704.0
142.5°	712.2	716.6	724.8	729.8	726.7
145°	736.2	735.5	746.2	750.6	747.4
147.5°	756.9	755.0	765.8	768.9	766.4
150°	777.1	772.7	782.8	786.5	783.4
152.5°	794.1	789.1	798.6	802.4	798.0
155°	810.5	804.9	812.4	816.2	811.2
157.5°	823.8	818.8	824.5	828.9	823.8
160°	835.2	831.4	835.2	839.0	834.5
162.5°	845.2	841.5	844.6	849.0	843.3
165°	854.0	850.3	852.2	856.6	852.2
167.5°	861.0	857.2	859.1	863.6	857.9
170°	866.7	862.9	864.2	868.6	862.9
172.5°	870.5	866.7	868.0	872.4	866.7
175°	873.6	869.2	870.5	874.9	868.6
177.5°	874.9	870.5	871.2	875.5	869.9
180°	871.8	871.8	871.8	871.8	871.8

TEST NUMBER: P918667

CATALOG NUMBER: DFN2DIP-4P4F0-040D030US935-FLONL

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	7.44	8.37	8.33	9.28	10.45	7.00	7.93	7.89	8.84	10.00
	3H	9.11	9.95	10.02	10.87	12.06	8.62	9.46	9.53	10.38	11.57
	4H	9.71	10.50	10.63	11.42	12.62	9.21	10.00	10.13	10.93	12.13
	6H	10.11	10.84	11.05	11.78	12.99	9.61	10.34	10.55	11.28	12.49
	8H	10.22	10.92	11.16	11.87	13.08	9.72	10.41	10.66	11.37	12.58
	12H	10.28	10.94	11.22	11.88	13.12	9.77	10.43	10.71	11.37	12.61
4H	2H	7.91	8.70	8.84	9.63	10.83	7.56	8.35	8.48	9.27	10.47
	3H	9.79	10.45	10.73	11.41	12.62	9.38	10.04	10.32	11.00	12.21
	4H	10.51	11.11	11.46	12.07	13.31	10.09	10.69	11.03	11.64	12.88
	6H	11.04	11.55	12.00	12.53	13.77	10.60	11.12	11.56	12.10	13.34
	8H	11.19	11.67	12.15	12.65	13.90	10.75	11.24	11.71	12.21	13.46
	12H	11.27	11.71	12.25	12.69	13.95	10.82	11.26	11.80	12.24	13.50
8H	4H	10.71	11.20	11.68	12.17	13.42	10.34	10.82	11.30	11.79	13.05
	6H	11.36	11.76	12.34	12.77	14.02	10.97	11.37	11.96	12.39	13.64
	8H	11.58	11.93	12.58	12.94	14.20	11.19	11.54	12.18	12.54	13.81
	12H	11.72	12.03	12.72	13.03	14.34	11.31	11.62	12.31	12.61	13.93
12H	4H	10.70	11.14	11.68	12.13	13.39	10.34	10.77	11.32	11.76	13.02
	6H	11.39	11.74	12.38	12.74	14.01	11.01	11.37	12.01	12.37	13.64
	8H	11.64	11.95	12.64	12.94	14.26	11.26	11.57	12.26	12.56	13.88