

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: P918763

Luminaire Tested: DFN2DIP-4P4F0-080D030US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918763
REPORT IS A COMBINATION OF REPORTS P900609 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D030US935-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

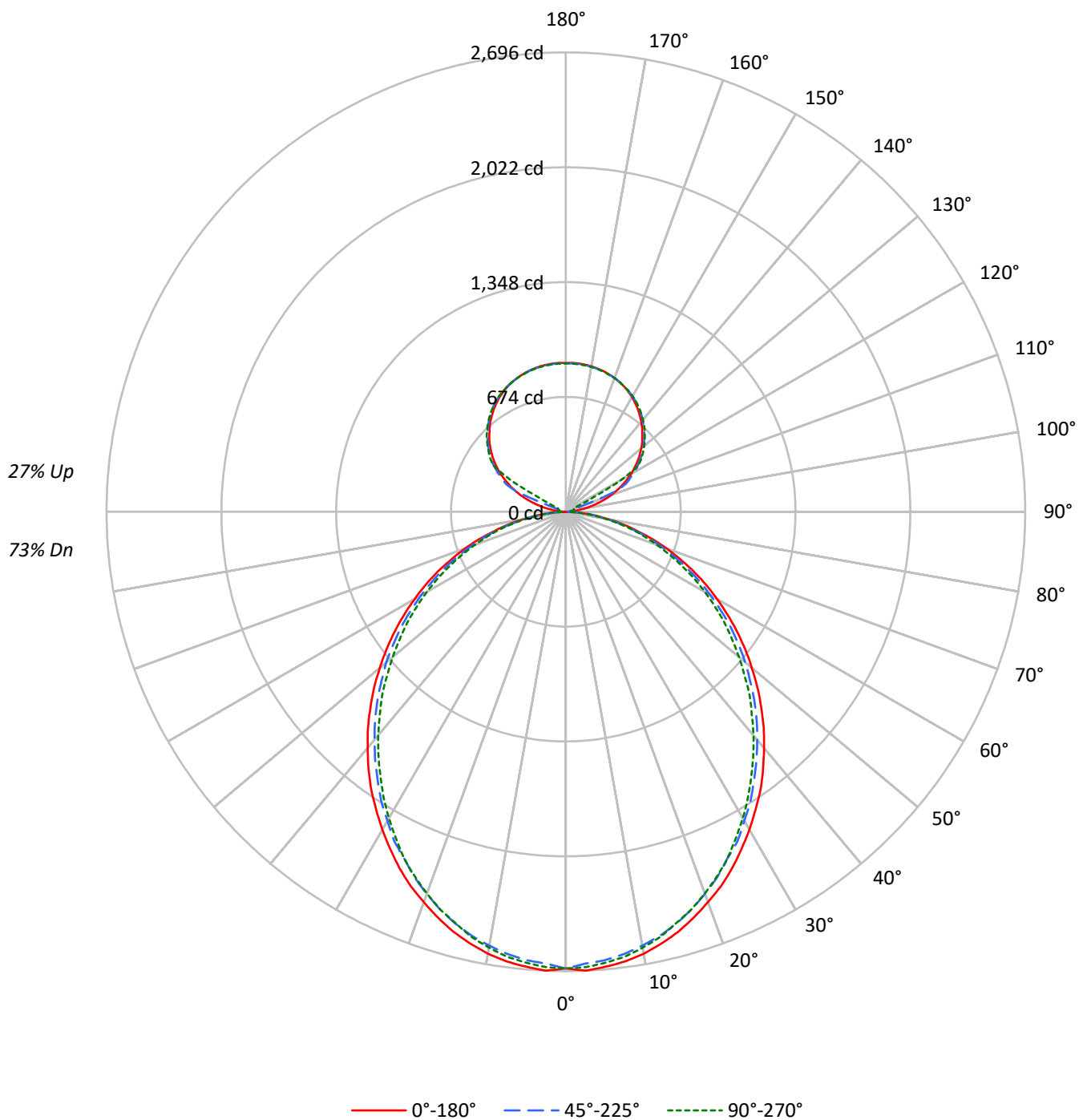
Lumens per Lamp: N/A
Luminaire Lumens: 9376.3 lumens
Efficiency: N/A
Efficacy: 86.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 108.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918763

CATALOG NUMBER: DFN2DIP-4P4F0-080D030US935-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918763

CATALOG NUMBER: DFN2DIP-4P4F0-080D030US935-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	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77
1	103	98	94	91	97	94	90	87	84	82	79	76	74	72	68	67	65
2	94	86	80	74	89	82	76	71	74	69	66	67	63	60	60	57	55
3	86	76	68	62	81	72	65	60	65	60	55	59	55	51	53	50	47
4	78	67	59	53	74	64	57	51	58	52	47	53	48	44	48	44	40
5	72	60	51	45	68	57	50	44	52	46	41	47	42	38	43	39	35
6	67	54	45	39	63	52	44	38	47	41	36	43	37	33	39	35	31
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	36	31	28
8	57	44	36	31	54	43	35	30	39	33	28	36	30	27	33	28	25
9	53	41	33	28	51	39	32	27	36	30	25	33	28	24	30	26	22
10	50	38	30	25	48	36	29	24	33	27	23	31	25	22	28	24	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1739	1739	1739
5°	1742	1715	1727
10°	1728	1693	1704
15°	1702	1665	1668
20°	1668	1627	1631
25°	1634	1581	1589
30°	1591	1539	1534
35°	1551	1489	1477
40°	1501	1438	1422
45°	1452	1387	1366
50°	1397	1334	1301
55°	1341	1272	1242
60°	1276	1199	1174
65°	1207	1123	1094
70°	1118	1031	1008
75°	994	920	929
80°	846	780	777
85°	614	537	524

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1452 cd/sqm

TEST NUMBER: P918763

CATALOG NUMBER: DFN2DIP-4P4F0-080D030US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.3	2.7
10°-20°	709.8	7.6
20°-30°	1043.1	11.1
30°-40°	1211.4	12.9
40°-50°	1209.9	12.9
50°-60°	1055.0	11.3
60°-70°	779.9	8.3
70°-80°	441.2	4.7
80°-90°	118.0	1.3
90°-100°	28.7	0.3
100°-110°	107.2	1.1
110°-120°	284.2	3.0
120°-130°	471.3	5.0
130°-140°	500.7	5.3
140°-150°	465.3	5.0
150°-160°	374.1	4.0
160°-170°	241.1	2.6
170°-180°	83.0	0.9
0°-30°	2005.1	21.4
0°-40°	3216.5	34.3
0°-60°	5481.5	58.5
0°-90°	6820.6	72.7
90°-120°	420.1	4.5
90°-150°	1857.5	19.8
90°-180°	2556.0	27.3
0°-180°	9376.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2680	2680	2680	2680	2680	
5°	2680	2670	2642	2662	2657	254
15°	2551	2536	2502	2513	2500	719
25°	2309	2289	2245	2250	2245	1063
35°	1992	1966	1925	1910	1897	1244
45°	1621	1603	1564	1536	1526	1251
55°	1227	1211	1180	1150	1137	1097
65°	827	812	786	763	750	818
75°	433	428	415	400	405	462
85°	106	103	101	93	90	118
90°	1	8	13	16	17	9
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: P918763

CATALOG NUMBER: DFN2DIP-4P4F0-080D030US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2680.1	2680.1	2680.1	2680.1	2680.1
2.5°	2695.7	2682.9	2654.5	2680.1	2675.2
5°	2680.1	2670.0	2641.6	2662.1	2657.2
7.5°	2662.1	2646.8	2618.4	2639.1	2634.0
10°	2634.0	2615.9	2585.0	2605.5	2597.9
12.5°	2595.1	2579.8	2548.9	2561.7	2556.6
15°	2551.4	2536.1	2502.4	2512.8	2500.0
17.5°	2497.2	2481.9	2448.2	2461.2	2448.2
20°	2437.9	2422.6	2386.5	2394.2	2384.0
22.5°	2378.9	2355.6	2321.9	2321.9	2316.8
25°	2309.1	2288.6	2244.9	2249.8	2244.9
27.5°	2231.7	2213.7	2180.3	2172.6	2159.8
30°	2154.6	2133.8	2095.3	2087.7	2077.2
32.5°	2072.1	2056.8	2015.4	1999.8	1989.5
35°	1992.2	1966.5	1925.2	1909.6	1896.8
37.5°	1901.9	1878.7	1837.5	1819.4	1806.5
40°	1809.3	1788.5	1747.2	1724.2	1713.8
42.5°	1719.1	1698.2	1657.2	1631.2	1616.0
45°	1621.2	1603.1	1564.3	1536.1	1525.8
47.5°	1525.8	1507.7	1466.4	1438.0	1422.6
50°	1425.1	1412.3	1376.1	1340.1	1327.2
52.5°	1327.2	1309.1	1275.8	1247.4	1229.3
55°	1226.8	1211.3	1180.4	1149.5	1136.6
57.5°	1126.3	1113.4	1079.8	1048.9	1038.4
60°	1025.6	1015.5	979.4	951.0	943.3
62.5°	927.7	909.7	884.0	858.3	847.9
65°	827.4	811.8	786.1	762.8	750.0
67.5°	724.3	711.2	688.2	670.2	659.8
70°	628.9	618.5	595.3	577.2	567.1
72.5°	531.0	520.6	507.7	489.7	482.1
75°	432.8	427.9	414.8	399.5	404.7
77.5°	345.3	334.9	329.8	322.1	314.4
80°	257.9	255.1	249.9	242.3	237.0
82.5°	175.3	175.3	172.8	162.4	162.4
85°	105.6	103.1	100.7	92.7	90.2
87.5°	46.5	41.3	36.1	28.4	25.7
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: P918763

CATALOG NUMBER: DFN2DIP-4P4F0-080D030US935-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: P918763

CATALOG NUMBER: DFN2DIP-4P4F0-080D030US935-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	11.09	12.20	11.82	12.96	13.86	10.65	11.76	11.38	12.51	13.42
	3H	12.77	13.77	13.52	14.54	15.47	12.28	13.28	13.03	14.05	14.98
	4H	13.38	14.32	14.14	15.09	16.04	12.88	13.83	13.65	14.60	15.55
	6H	13.79	14.66	14.57	15.45	16.41	13.29	14.16	14.07	14.95	15.91
	8H	13.91	14.74	14.70	15.54	16.50	13.41	14.24	14.19	15.04	16.00
	12H	13.97	14.76	14.76	15.55	16.54	13.46	14.25	14.25	15.04	16.03
4H	2H	11.58	12.52	12.35	13.30	14.25	11.23	12.17	12.00	12.94	13.89
	3H	13.48	14.26	14.26	15.07	16.04	13.07	13.86	13.85	14.66	15.63
	4H	14.20	14.92	15.00	15.73	16.72	13.78	14.50	14.58	15.31	16.30
	6H	14.74	15.36	15.55	16.19	17.19	14.31	14.93	15.12	15.76	16.76
	8H	14.90	15.48	15.72	16.31	17.32	14.46	15.04	15.28	15.87	16.88
	12H	14.99	15.51	15.82	16.36	17.38	14.54	15.06	15.37	15.91	16.93
8H	4H	14.42	15.00	15.24	15.83	16.84	14.05	14.63	14.86	15.45	16.47
	6H	15.07	15.55	15.92	16.42	17.43	14.69	15.17	15.53	16.04	17.05
	8H	15.30	15.72	16.15	16.59	17.62	14.90	15.33	15.76	16.20	17.23
	12H	15.44	15.82	16.30	16.68	17.76	15.03	15.41	15.89	16.27	17.35
12H	4H	14.42	14.94	15.26	15.79	16.81	14.05	14.57	14.89	15.43	16.44
	6H	15.10	15.53	15.96	16.40	17.43	14.73	15.16	15.59	16.03	17.06
	8H	15.36	15.74	16.22	16.60	17.68	14.98	15.36	15.84	16.22	17.30