

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: P926008

Luminaire Tested: DFN2DIP-SQ4F0-120D160US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926008
REPORT IS A COMBINATION OF REPORTS P900215 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D160US950-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

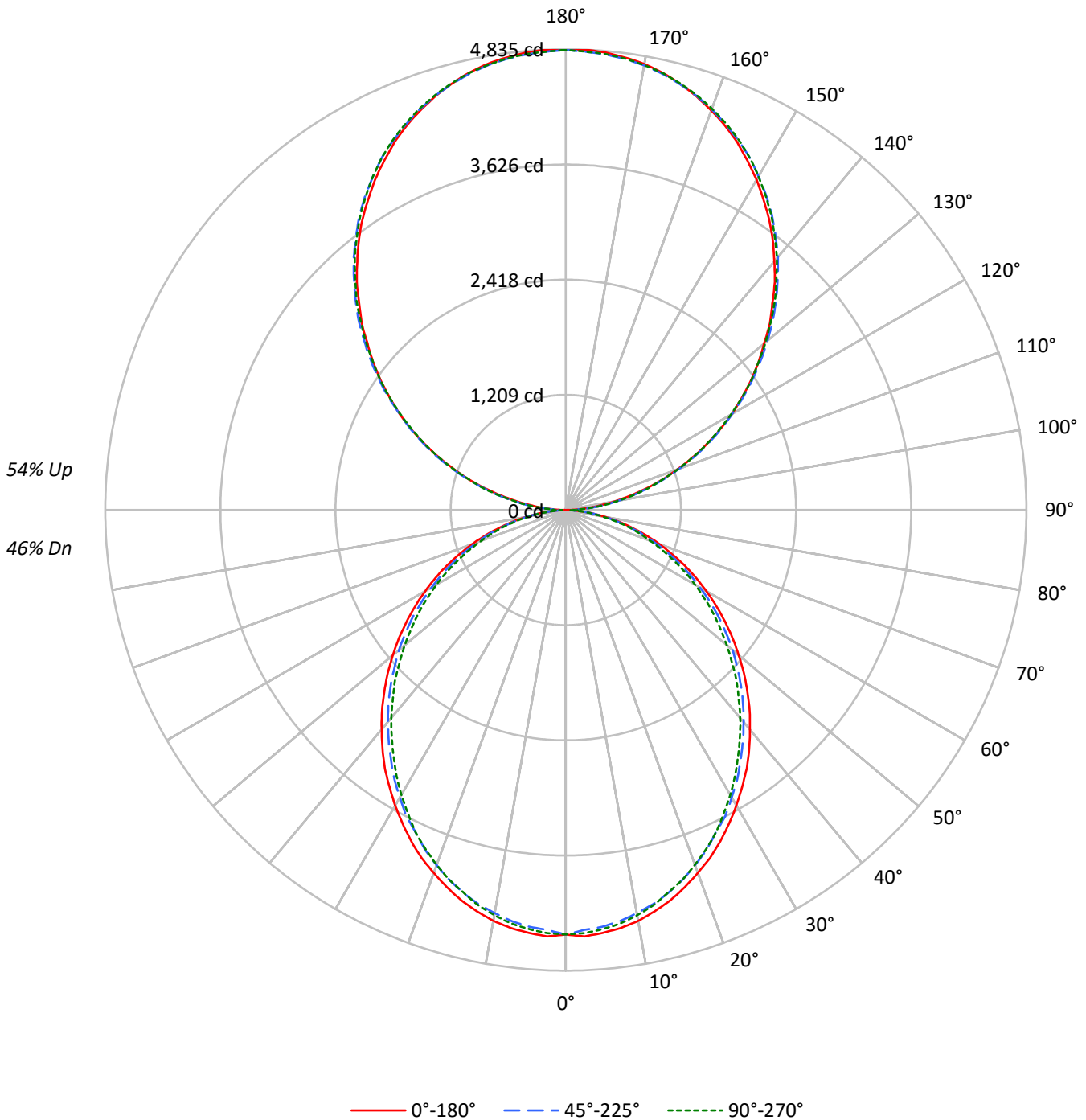
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 24843.1 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 239.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P926008
CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-FLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P926008

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	46	46	46	46
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44	38	38	38	38
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	41	39	37	32	32	32	32
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	34	32	27	27	27	27
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27	23	23	23	23
5	67	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24	20	20	20	20
6	62	50	42	36	57	46	39	34	39	34	30	33	28	25	26	23	21	18	18	18	18
7	57	45	37	32	53	42	35	30	36	30	26	30	25	22	24	21	19	16	16	16	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17	14	14	14	14
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15	13	13	13	13
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14	12	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3126	3126	3126
5°	3131	3083	3104
10°	3105	3042	3063
15°	3059	2992	2998
20°	2998	2923	2931
25°	2936	2841	2855
30°	2859	2764	2757
35°	2786	2673	2653
40°	2697	2582	2554
45°	2607	2490	2454
50°	2509	2394	2337
55°	2407	2282	2230
60°	2291	2150	2107
65°	2165	2013	1962
70°	2004	1846	1807
75°	1781	1647	1665
80°	1512	1393	1391
85°	1093	953	935

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 3798 cd/sqm



TEST NUMBER: P926008

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	419.3	1.7
10°-20°	1179.6	4.7
20°-30°	1733.6	7.0
30°-40°	2013.5	8.1
40°-50°	2011.0	8.1
50°-60°	1753.5	7.1
60°-70°	1296.2	5.2
70°-80°	733.4	3.0
80°-90°	207.3	0.8
90°-100°	298.7	1.2
100°-110°	949.2	3.8
110°-120°	1624.4	6.5
120°-130°	2136.3	8.6
130°-140°	2397.9	9.7
140°-150°	2351.4	9.5
150°-160°	1972.5	7.9
160°-170°	1308.1	5.3
170°-180°	457.2	1.8
0°-30°	3332.5	13.4
0°-40°	5345.9	21.5
0°-60°	9110.4	36.7
0°-90°	11347.2	45.7
90°-120°	2872.3	11.6
90°-150°	9757.9	39.3
90°-180°	13496.0	54.3
0°-180°	24843.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4454	4454	4454	4454	4454	
5°	4454	4438	4390	4424	4416	423
15°	4240	4215	4159	4176	4155	1194
25°	3838	3804	3731	3739	3731	1766
35°	3311	3268	3200	3174	3152	2068
45°	2694	2664	2600	2553	2536	2079
55°	2039	2013	1962	1910	1889	1823
65°	1375	1349	1306	1268	1247	1360
75°	719	711	689	664	673	768
85°	175	171	167	154	150	196
90°	4	52	143	134	138	24
95°	212	253	260	260	253	236
105°	876	888	897	904	904	925
115°	1630	1653	1646	1642	1630	1612
125°	2371	2407	2396	2383	2378	2119
135°	3067	3112	3120	3116	3104	2370
145°	3723	3752	3776	3780	3764	2326
155°	4257	4269	4282	4302	4289	1960
165°	4631	4627	4627	4656	4636	1306
175°	4819	4807	4799	4828	4803	458
180°	4828	4828	4828	4828	4828	



TEST NUMBER: P926008

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-FLLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4454.5	4454.5	4454.5	4454.5	4454.5
2.5°	4480.4	4459.0	4411.8	4454.5	4446.3
5°	4454.5	4437.6	4390.4	4424.5	4416.3
7.5°	4424.5	4399.0	4351.8	4386.3	4377.7
10°	4377.7	4347.7	4296.3	4330.4	4317.7
12.5°	4313.1	4287.7	4236.3	4257.7	4249.0
15°	4240.4	4215.0	4159.1	4176.3	4155.0
17.5°	4150.5	4125.0	4069.1	4090.5	4069.1
20°	4051.8	4026.4	3966.4	3979.1	3962.3
22.5°	3953.7	3915.0	3859.1	3859.1	3850.5
25°	3837.8	3803.7	3731.0	3739.2	3731.0
27.5°	3709.2	3679.2	3623.8	3611.0	3589.7
30°	3581.0	3546.5	3482.4	3469.7	3452.4
32.5°	3443.7	3418.4	3349.7	3323.8	3306.6
35°	3311.0	3268.4	3199.7	3173.9	3152.5
37.5°	3161.1	3122.5	3053.8	3023.9	3002.5
40°	3007.1	2972.6	2903.9	2865.7	2848.5
42.5°	2857.1	2822.6	2754.4	2711.3	2685.8
45°	2694.4	2664.4	2599.8	2553.1	2535.8
47.5°	2535.8	2505.8	2437.2	2390.0	2364.5
50°	2368.6	2347.2	2287.2	2227.2	2205.8
52.5°	2205.8	2175.9	2120.5	2073.1	2043.2
55°	2039.1	2013.2	1961.8	1910.5	1889.1
57.5°	1871.8	1850.5	1794.6	1743.2	1726.0
60°	1704.6	1687.8	1627.8	1580.6	1567.8
62.5°	1542.0	1511.9	1469.3	1426.5	1409.2
65°	1375.2	1349.2	1306.5	1267.9	1246.6
67.5°	1203.9	1182.0	1143.8	1113.9	1096.6
70°	1045.2	1027.9	989.3	959.3	942.6
72.5°	882.5	865.3	843.9	814.0	801.2
75°	719.4	711.2	689.4	664.0	672.6
77.5°	573.9	556.7	548.1	535.3	522.6
80°	428.5	424.0	415.4	402.7	394.0
82.5°	291.3	291.3	287.2	270.0	270.0
85°	175.4	171.3	167.2	154.1	150.0
87.5°	77.3	68.6	60.0	47.2	42.7
90°	4.4	52.4	142.6	133.9	138.2
92.5°	90.2	122.3	126.6	131.0	131.0
95°	212.5	253.3	260.5	260.5	253.3
97.5°	353.6	391.5	407.5	407.5	407.5
100°	516.7	550.2	561.8	561.8	557.4
102.5°	688.4	713.2	729.1	733.5	729.1
105°	876.2	887.8	896.6	903.8	903.8
107.5°	1062.5	1079.9	1079.9	1082.9	1062.5
110°	1243.0	1266.2	1266.2	1266.2	1254.6



TEST NUMBER: P926008

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1438.0	1462.8	1458.4	1446.7	1438.0
115°	1630.1	1653.4	1646.1	1641.7	1630.1
117.5°	1820.8	1852.8	1832.4	1820.8	1809.2
120°	2012.9	2044.9	2012.9	2012.9	1999.8
122.5°	2187.5	2228.4	2207.9	2196.3	2187.5
125°	2371.0	2407.3	2395.7	2382.6	2378.2
127.5°	2549.9	2595.1	2579.0	2561.6	2549.9
130°	2717.4	2769.7	2762.5	2753.7	2737.7
132.5°	2905.1	2945.9	2948.7	2928.4	2916.8
135°	3066.6	3111.8	3120.5	3116.1	3104.5
137.5°	3247.1	3283.5	3290.8	3287.9	3270.4
140°	3405.8	3442.1	3462.5	3462.5	3446.5
142.5°	3568.8	3605.2	3616.8	3621.2	3605.2
145°	3723.1	3752.2	3775.5	3779.8	3763.8
147.5°	3861.3	3897.8	3915.2	3922.5	3906.4
150°	4003.9	4028.7	4044.8	4057.8	4044.8
152.5°	4130.6	4155.3	4175.8	4191.7	4175.8
155°	4257.2	4268.9	4281.9	4302.3	4289.3
157.5°	4366.4	4375.1	4382.4	4411.5	4391.2
160°	4463.9	4472.6	4477.0	4501.7	4484.3
162.5°	4554.1	4554.1	4558.5	4586.2	4565.7
165°	4631.3	4626.9	4626.9	4656.0	4635.7
167.5°	4701.1	4688.1	4688.1	4717.1	4696.7
170°	4753.5	4741.9	4737.6	4766.7	4741.9
172.5°	4789.9	4778.3	4773.9	4803.0	4778.3
175°	4819.0	4807.4	4798.6	4827.8	4803.0
177.5°	4835.1	4823.4	4814.6	4839.5	4814.6
180°	4827.8	4827.8	4827.8	4827.8	4827.8



TEST NUMBER: P926008
 CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-FLLFLL

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	10.83	11.65	11.82	12.66	13.99	10.38	11.21	11.38	12.21	13.54
	3H	12.49	13.23	13.49	14.24	15.60	12.00	12.74	13.00	13.75	15.11
	4H	13.08	13.78	14.10	14.80	16.16	12.58	13.28	13.60	14.30	15.66
	6H	13.48	14.13	14.51	15.15	16.52	12.98	13.62	14.01	14.65	16.02
	8H	13.59	14.20	14.62	15.24	16.61	13.08	13.70	14.12	14.74	16.10
	12H	13.63	14.22	14.67	15.25	16.64	13.13	13.71	14.16	14.74	16.13
4H	2H	11.29	11.99	12.31	13.00	14.36	10.93	11.63	11.95	12.65	14.01
	3H	13.15	13.74	14.18	14.78	16.16	12.75	13.33	13.78	14.37	15.75
	4H	13.87	14.40	14.91	15.44	16.84	13.44	13.98	14.48	15.02	16.41
	6H	14.39	14.85	15.43	15.91	17.30	13.95	14.41	15.00	15.47	16.87
	8H	14.54	14.97	15.59	16.02	17.43	14.10	14.53	15.15	15.58	16.99
	12H	14.61	15.00	15.68	16.07	17.48	14.16	14.55	15.23	15.62	17.03
8H	4H	14.06	14.49	15.11	15.55	16.95	13.69	14.12	14.74	15.17	16.58
	6H	14.70	15.05	15.77	16.15	17.55	14.31	14.67	15.39	15.76	17.17
	8H	14.92	15.23	16.00	16.31	17.74	14.53	14.84	15.61	15.92	17.34
	12H	15.05	15.33	16.14	16.40	17.87	14.64	14.92	15.73	15.99	17.46
12H	4H	14.05	14.44	15.11	15.50	16.92	13.68	14.07	14.75	15.14	16.55
	6H	14.73	15.04	15.81	16.12	17.54	14.36	14.67	15.44	15.75	17.17
	8H	14.97	15.25	16.05	16.32	17.78	14.59	14.87	15.67	15.94	17.40