

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: P926004

Luminaire Tested: DFN2DIP-SQ4F0-120D140US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

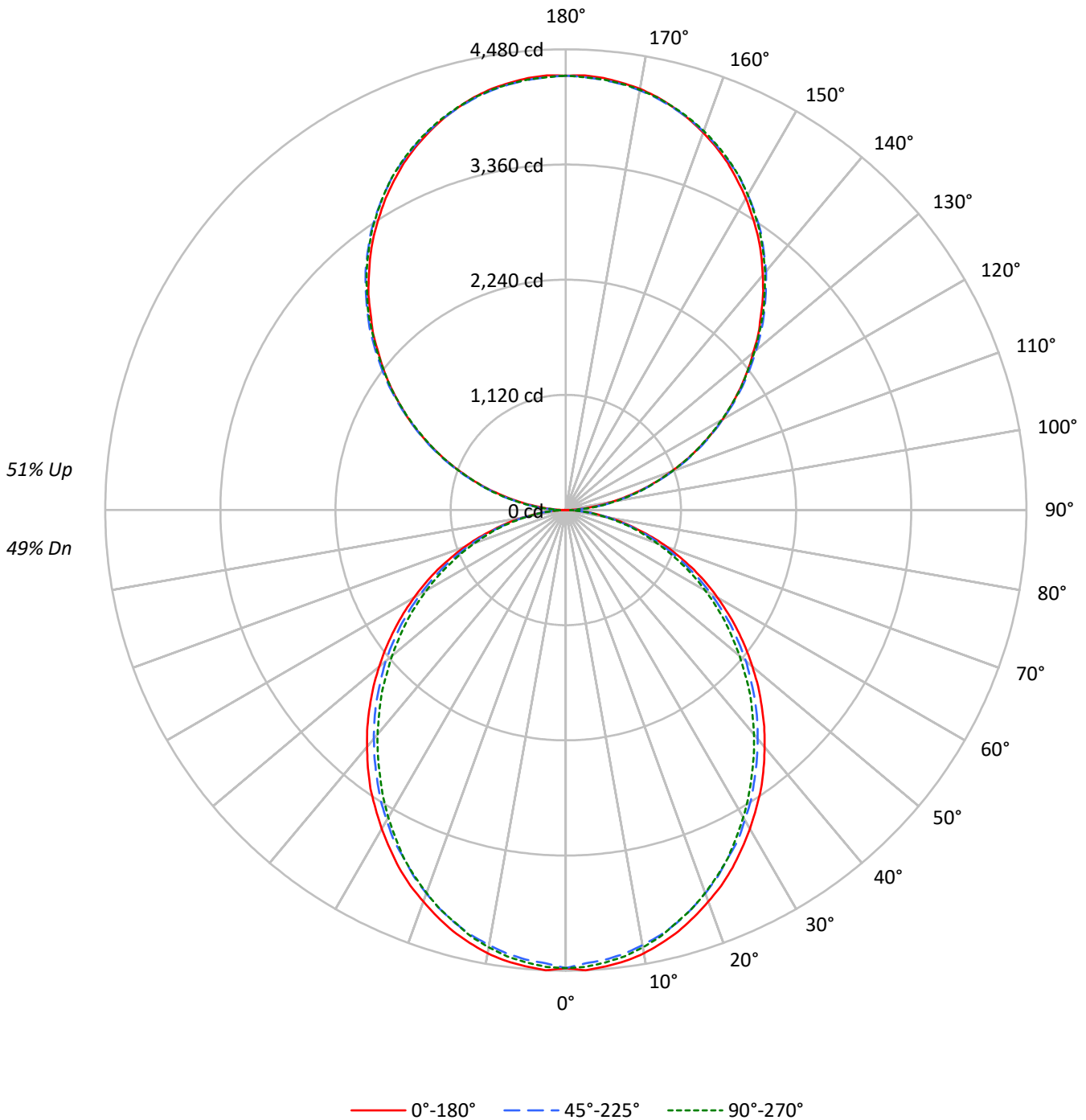
Test Method: LM-79-2019  
Report Number: P926004  
REPORT IS A COMBINATION OF REPORTS P900197 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-120D140US950-FLLFLL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 23153.6 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): 223.4  
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

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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49				49
1	98	93	89	86	90	86	83	80	73	70	68	60	59	57	49	48	47	41				41
2	89	81	75	70	82	75	70	65	64	60	56	53	50	48	43	41	39	35				35
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	33	29				29
4	74	63	55	49	68	59	52	46	50	45	40	42	38	34	34	31	29	25				25
5	68	56	48	42	62	52	45	40	45	39	35	37	33	30	31	28	25	22				22
6	63	51	43	37	58	47	40	35	40	35	30	34	29	26	28	25	22	19				19
7	58	46	38	32	53	42	35	30	36	31	27	31	26	23	25	22	20	17				17
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	18	15				15
9	50	38	30	25	46	35	29	24	30	25	21	26	22	19	22	18	16	14				14
10	47	35	28	23	43	32	26	22	28	23	19	24	20	17	20	17	14	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: 3325 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	419.3	1.8
10°-20°	1179.6	5.1
20°-30°	1733.6	7.5
30°-40°	2013.5	8.7
40°-50°	2011.0	8.7
50°-60°	1753.5	7.6
60°-70°	1296.2	5.6
70°-80°	733.4	3.2
80°-90°	205.6	0.9
90°-100°	261.4	1.1
100°-110°	830.5	3.6
110°-120°	1421.2	6.1
120°-130°	1869.1	8.1
130°-140°	2098.0	9.1
140°-150°	2057.4	8.9
150°-160°	1725.8	7.5
160°-170°	1144.5	4.9
170°-180°	400.0	1.7
0°-30°	3332.5	14.4
0°-40°	5345.9	23.1
0°-60°	9110.4	39.3
0°-90°	11345.5	49.0
90°-120°	2513.1	10.9
90°-150°	8537.6	36.9
90°-180°	11808.0	51.0
0°-180°	23153.6	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	46	125	117	121	22
95°	186	222	228	228	222	207
105°	767	777	784	791	791	809
115°	1426	1447	1440	1436	1426	1411
125°	2074	2106	2096	2085	2081	1854
135°	2683	2723	2730	2726	2716	2074
145°	3257	3283	3303	3307	3293	2035
155°	3725	3735	3746	3764	3753	1714
165°	4052	4048	4048	4074	4056	1143
175°	4216	4206	4199	4224	4202	401
180°	4224	4224	4224	4224	4224	



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**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°	3.8	45.9	124.8	117.2	121.0
92.5°	79.0	106.9	110.8	114.6	114.6
95°	185.9	221.6	227.9	227.9	221.6
97.5°	309.5	342.6	356.6	356.6	356.6
100°	452.1	481.4	491.5	491.5	487.7
102.5°	602.4	624.0	638.0	641.9	638.0
105°	766.6	776.8	784.5	790.8	790.8
107.5°	929.6	944.9	944.9	947.4	929.6
110°	1087.6	1107.9	1107.9	1107.9	1097.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1258.1	1279.8	1276.0	1265.8	1258.1
115°	1426.2	1446.6	1440.3	1436.4	1426.2
117.5°	1593.1	1621.1	1603.3	1593.1	1582.9
120°	1761.2	1789.2	1761.2	1761.2	1749.7
122.5°	1914.0	1949.6	1931.8	1921.6	1914.0
125°	2074.5	2106.2	2096.0	2084.6	2080.8
127.5°	2231.0	2270.5	2256.5	2241.2	2231.0
130°	2377.5	2423.4	2417.0	2409.3	2395.3
132.5°	2541.7	2577.4	2580.0	2562.2	2552.0
135°	2683.1	2722.6	2730.3	2726.4	2716.2
137.5°	2841.0	2872.9	2879.3	2876.7	2861.4
140°	2979.8	3011.7	3029.5	3029.5	3015.5
142.5°	3122.4	3154.3	3164.5	3168.3	3154.3
145°	3257.4	3282.9	3303.3	3307.1	3293.1
147.5°	3378.4	3410.3	3425.5	3431.9	3417.9
150°	3503.2	3524.8	3538.9	3550.3	3538.9
152.5°	3614.0	3635.7	3653.5	3667.5	3653.5
155°	3724.8	3735.0	3746.5	3764.3	3752.8
157.5°	3820.3	3827.9	3834.3	3859.8	3841.9
160°	3905.7	3913.3	3917.1	3938.8	3923.4
162.5°	3984.6	3984.6	3988.4	4012.6	3994.8
165°	4052.1	4048.3	4048.3	4073.8	4055.9
167.5°	4113.2	4101.7	4101.7	4127.2	4109.4
170°	4159.1	4148.9	4145.0	4170.5	4148.9
172.5°	4190.9	4180.7	4176.9	4202.4	4180.7
175°	4216.4	4206.2	4198.6	4224.0	4202.4
177.5°	4230.3	4220.2	4212.6	4234.1	4212.6
180°	4224.0	4224.0	4224.0	4224.0	4224.0



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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	11.15	12.00	12.11	12.98	14.27	10.70	11.56	11.67	12.54	13.82
	3H	12.81	13.58	13.79	14.57	15.87	12.32	13.09	13.30	14.08	15.38
	4H	13.40	14.13	14.39	15.12	16.44	12.91	13.63	13.90	14.63	15.94
	6H	13.81	14.47	14.81	15.47	16.80	13.31	13.97	14.31	14.97	16.30
	8H	13.91	14.55	14.92	15.56	16.89	13.41	14.05	14.42	15.06	16.39
	12H	13.96	14.57	14.97	15.57	16.92	13.45	14.06	14.46	15.07	16.41
4H	2H	11.61	12.33	12.61	13.33	14.64	11.25	11.98	12.25	12.97	14.29
	3H	13.48	14.08	14.48	15.11	16.43	13.07	13.68	14.08	14.70	16.03
	4H	14.20	14.75	15.21	15.76	17.12	13.77	14.33	14.79	15.34	16.69
	6H	14.72	15.19	15.74	16.23	17.58	14.28	14.76	15.31	15.80	17.15
	8H	14.87	15.31	15.89	16.34	17.71	14.43	14.87	15.46	15.91	17.27
	12H	14.94	15.34	15.99	16.39	17.76	14.49	14.89	15.54	15.94	17.31
8H	4H	14.39	14.84	15.42	15.87	17.23	14.02	14.46	15.04	15.49	16.86
	6H	15.03	15.40	16.08	16.47	17.83	14.65	15.01	15.69	16.09	17.45
	8H	15.25	15.58	16.31	16.63	18.01	14.86	15.18	15.92	16.24	17.62
	12H	15.39	15.67	16.45	16.72	18.15	14.98	15.26	16.04	16.31	17.74
12H	4H	14.38	14.78	15.42	15.83	17.20	14.01	14.41	15.05	15.46	16.83
	6H	15.06	15.38	16.12	16.44	17.82	14.69	15.01	15.74	16.07	17.45
	8H	15.30	15.59	16.36	16.64	18.06	14.92	15.21	15.98	16.26	17.68