

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: P912032

Luminaire Tested: DFN2DIP-SQ3F0-100D090US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

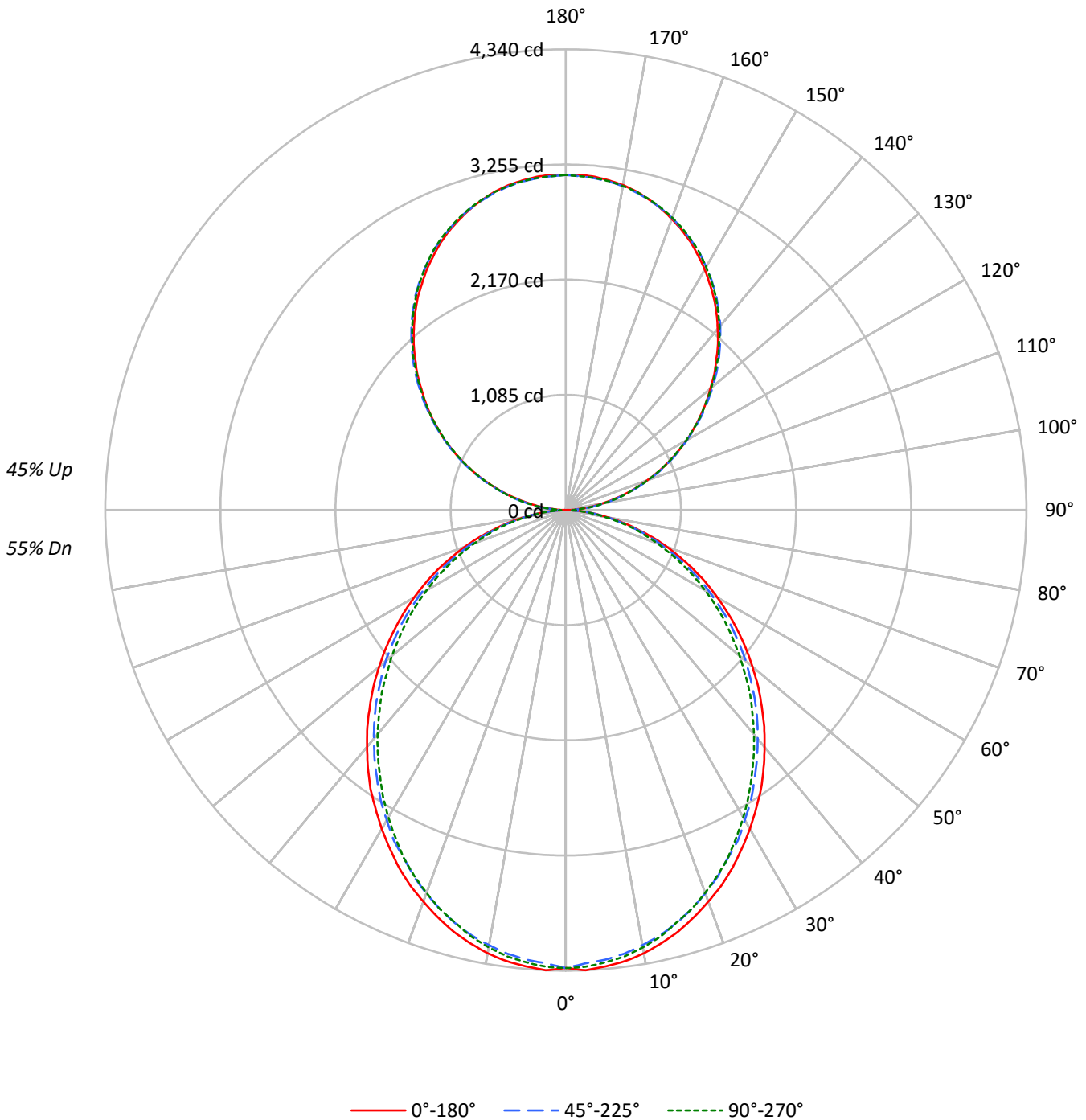
Test Method: LM-79-2019  
Report Number: P912032  
REPORT IS A COMBINATION OF REPORTS P899963 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-100D090US850-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 19812.3 lumens  
Efficiency: N/A  
Efficacy: 118.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 167  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55				55
1	99	95	91	87	92	88	85	82	76	73	71	64	63	61	54	53	52	47				47
2	90	83	76	71	83	77	72	67	66	62	59	57	54	51	48	45	43	39				39
3	82	73	65	59	76	68	61	56	59	54	49	50	46	43	42	39	37	33				33
4	75	64	56	50	70	60	53	48	52	47	42	45	40	37	38	35	32	28				28
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28	25				25
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25	22				22
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22	19				19
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	20	17				17
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18	16				16
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16	14				14

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	4944	4944	4944
5°	4949	4872	4907
10°	4906	4803	4839
15°	4831	4721	4733
20°	4730	4608	4625
25°	4630	4473	4501
30°	4505	4348	4343
35°	4386	4200	4176
40°	4241	4051	4017
45°	4096	3901	3855
50°	3937	3744	3667
55°	3770	3562	3493
60°	3582	3346	3294
65°	3375	3123	3060
70°	3113	2850	2807
75°	2750	2522	2571
80°	2311	2104	2125
85°	1627	1394	1391

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4096 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	406.1	2.0
10°-20°	1142.7	5.8
20°-30°	1679.4	8.5
30°-40°	1950.5	9.8
40°-50°	1948.1	9.8
50°-60°	1698.7	8.6
60°-70°	1255.7	6.3
70°-80°	710.4	3.6
80°-90°	196.5	1.0
90°-100°	195.3	1.0
100°-110°	620.6	3.1
110°-120°	1062.1	5.4
120°-130°	1396.8	7.1
130°-140°	1567.9	7.9
140°-150°	1537.5	7.8
150°-160°	1289.7	6.5
160°-170°	855.3	4.3
170°-180°	299.0	1.5
0°-30°	3228.3	16.3
0°-40°	5178.7	26.1
0°-60°	8825.5	44.5
0°-90°	10988.1	55.5
90°-120°	1878.1	9.5
90°-150°	6380.2	32.2
90°-180°	8824.0	44.5
0°-180°	19812.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4315	4315	4315	4315	4315	
5°	4315	4299	4253	4286	4278	410
15°	4108	4083	4029	4046	4025	1157
25°	3718	3685	3614	3622	3614	1711
35°	3208	3166	3100	3075	3054	2003
45°	2610	2581	2518	2473	2456	2014
55°	1975	1950	1900	1851	1830	1766
65°	1332	1307	1266	1228	1208	1317
75°	697	689	668	643	652	744
85°	170	166	162	149	145	190
90°	3	34	93	88	90	19
95°	139	166	170	170	166	155
105°	573	580	586	591	591	605
115°	1066	1081	1076	1074	1066	1054
125°	1550	1574	1566	1558	1555	1385
135°	2005	2035	2040	2038	2030	1550
145°	2434	2453	2468	2471	2461	1521
155°	2784	2791	2800	2813	2805	1281
165°	3028	3025	3025	3044	3031	854
175°	3151	3143	3138	3157	3140	299
180°	3157	3157	3157	3157	3157	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4315.2	4315.2	4315.2	4315.2	4315.2
2.5°	4340.3	4319.6	4273.8	4315.2	4307.2
5°	4315.2	4298.9	4253.1	4286.2	4278.2
7.5°	4286.2	4261.4	4215.6	4249.1	4240.8
10°	4240.8	4211.8	4162.0	4195.0	4182.7
12.5°	4178.3	4153.6	4103.9	4124.6	4116.2
15°	4107.8	4083.2	4029.0	4045.7	4025.1
17.5°	4020.7	3996.1	3941.8	3962.6	3941.8
20°	3925.1	3900.5	3842.4	3854.7	3838.4
22.5°	3830.0	3792.7	3738.4	3738.4	3730.1
25°	3717.8	3684.8	3614.3	3622.2	3614.3
27.5°	3593.2	3564.1	3510.4	3498.1	3477.4
30°	3469.1	3435.6	3373.5	3361.2	3344.4
32.5°	3336.1	3311.5	3244.9	3219.9	3203.1
35°	3207.6	3166.2	3099.7	3074.6	3053.9
37.5°	3062.3	3024.8	2958.4	2929.3	2908.6
40°	2913.0	2879.5	2813.1	2776.2	2759.4
42.5°	2767.7	2734.2	2668.3	2626.4	2601.8
45°	2610.1	2581.1	2518.5	2473.2	2456.5
47.5°	2456.5	2427.5	2361.0	2315.1	2290.5
50°	2294.5	2273.8	2215.7	2157.6	2136.9
52.5°	2136.9	2107.9	2054.1	2008.4	1979.3
55°	1975.4	1950.3	1900.5	1850.7	1830.1
57.5°	1813.3	1792.6	1738.5	1688.8	1672.0
60°	1651.3	1635.0	1576.9	1531.1	1518.8
62.5°	1493.7	1464.7	1423.3	1381.9	1365.2
65°	1332.1	1307.1	1265.7	1228.2	1207.6
67.5°	1166.2	1145.0	1108.1	1079.1	1062.3
70°	1012.5	995.8	958.4	929.3	913.0
72.5°	854.9	838.2	817.6	788.5	776.1
75°	696.9	689.0	667.8	643.2	651.5
77.5°	556.1	539.3	530.9	518.6	506.3
80°	415.1	410.8	402.3	390.0	381.7
82.5°	282.2	282.2	278.2	261.5	261.5
85°	169.9	166.0	162.0	149.3	145.3
87.5°	74.9	66.4	58.1	45.8	41.4
90°	2.9	34.3	93.3	87.5	90.4
92.5°	59.0	80.0	82.8	85.6	85.6
95°	139.0	165.6	170.3	170.3	165.6
97.5°	231.2	256.0	266.5	266.5	266.5
100°	337.8	359.8	367.3	367.3	364.5
102.5°	450.1	466.3	476.8	479.6	476.8
105°	572.9	580.5	586.2	591.0	591.0
107.5°	694.7	706.1	706.1	708.0	694.7
110°	812.7	828.0	828.0	828.0	820.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	940.2	956.4	953.5	946.0	940.2
115°	1065.9	1081.1	1076.3	1073.5	1065.9
117.5°	1190.5	1211.5	1198.2	1190.5	1182.9
120°	1316.2	1337.0	1316.2	1316.2	1307.5
122.5°	1430.3	1457.0	1443.7	1436.0	1430.3
125°	1550.3	1574.0	1566.5	1557.8	1555.0
127.5°	1667.3	1696.8	1686.3	1674.9	1667.3
130°	1776.7	1811.0	1806.2	1800.5	1790.0
132.5°	1899.5	1926.1	1928.0	1914.7	1907.1
135°	2005.1	2034.6	2040.3	2037.5	2029.9
137.5°	2123.1	2146.9	2151.7	2149.8	2138.4
140°	2226.9	2250.6	2263.9	2263.9	2253.5
142.5°	2333.4	2357.2	2364.8	2367.7	2357.2
145°	2434.4	2453.3	2468.5	2471.4	2461.0
147.5°	2524.7	2548.5	2559.9	2564.7	2554.2
150°	2618.0	2634.2	2644.6	2653.2	2644.6
152.5°	2700.7	2716.9	2730.2	2740.8	2730.2
155°	2783.6	2791.1	2799.8	2813.1	2804.6
157.5°	2854.9	2860.7	2865.4	2884.4	2871.1
160°	2918.7	2924.4	2927.3	2943.4	2932.0
162.5°	2977.7	2977.7	2980.5	2998.6	2985.3
165°	3028.1	3025.2	3025.2	3044.3	3031.0
167.5°	3073.8	3065.3	3065.3	3084.2	3070.9
170°	3108.1	3100.4	3097.7	3116.6	3100.4
172.5°	3131.8	3124.3	3121.4	3140.5	3124.3
175°	3150.9	3143.2	3137.6	3156.7	3140.5
177.5°	3161.3	3153.8	3148.0	3164.2	3148.0
180°	3156.7	3156.7	3156.7	3156.7	3156.7



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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	13.28	14.19	14.19	15.12	16.31	12.84	13.75	13.74	14.68	15.87
	3H	14.94	15.76	15.86	16.70	17.91	14.45	15.27	15.37	16.21	17.42
	4H	15.53	16.30	16.46	17.24	18.47	15.03	15.81	15.97	16.75	17.97
	6H	15.93	16.64	16.87	17.59	18.82	15.42	16.14	16.37	17.09	18.32
	8H	16.03	16.71	16.98	17.68	18.91	15.53	16.21	16.48	17.17	18.41
	12H	16.08	16.73	17.04	17.68	18.95	15.57	16.22	16.53	17.18	18.44
4H	2H	13.74	14.52	14.68	15.46	16.68	13.39	14.16	14.33	15.10	16.33
	3H	15.61	16.25	16.56	17.23	18.47	15.20	15.85	16.15	16.82	18.06
	4H	16.32	16.91	17.28	17.88	19.14	15.90	16.49	16.86	17.45	18.72
	6H	16.83	17.34	17.81	18.33	19.60	16.40	16.91	17.38	17.90	19.16
	8H	16.98	17.46	17.96	18.44	19.72	16.55	17.02	17.52	18.01	19.28
	12H	17.06	17.49	18.05	18.49	19.77	16.61	17.04	17.60	18.04	19.32
8H	4H	16.52	16.99	17.49	17.98	19.25	16.14	16.62	17.12	17.60	18.88
	6H	17.14	17.54	18.15	18.56	19.84	16.76	17.15	17.76	18.18	19.46
	8H	17.36	17.71	18.37	18.72	20.02	16.97	17.32	17.98	18.33	19.62
	12H	17.49	17.80	18.51	18.81	20.15	17.08	17.39	18.10	18.40	19.73
12H	4H	16.50	16.93	17.50	17.93	19.22	16.14	16.57	17.13	17.57	18.85
	6H	17.17	17.52	18.18	18.53	19.83	16.80	17.15	17.81	18.16	19.46
	8H	17.41	17.72	18.43	18.73	20.07	17.03	17.34	18.05	18.35	19.69