

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: P903902

Luminaire Tested: DFN2DIP-SQ3F0-120D040US830-RLLFLL

Issue Date: 11/21/2024

**Test Information**

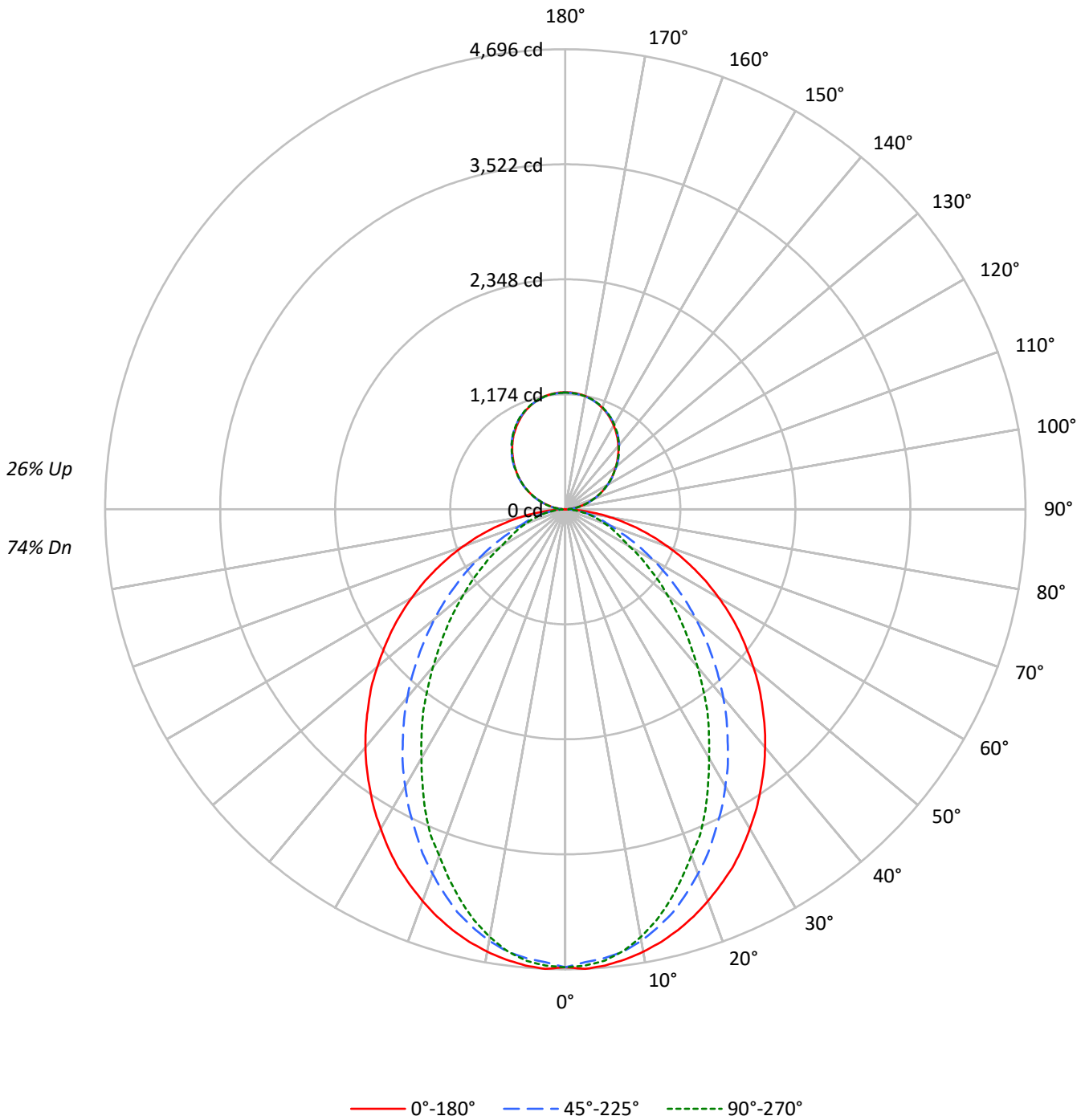
Test Method: LM-79-2019  
Report Number: P903902  
REPORT IS A COMBINATION OF REPORTS P899878 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-120D040US830-RLLFLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12950.5 lumens  
Efficiency: N/A  
Efficacy: 83.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 156.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9957  
Total Harmonic Distortion (THDi): 0.049  
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				
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	113	113	113	113	107	107	107	107	97	97	97	87	87	87	78	78	78	74	74	74	74
1	104	100	96	93	99	95	92	89	86	84	81	78	76	74	70	69	68	64	64	64	64
2	95	88	82	77	90	84	79	74	76	72	68	69	66	63	63	60	58	55	55	55	55
3	87	78	71	65	83	75	68	63	68	63	58	62	58	54	56	53	50	47	47	47	47
4	80	70	62	56	76	67	60	54	61	55	51	56	51	47	51	47	44	41	41	41	41
5	74	63	54	48	70	60	53	47	55	49	44	51	45	42	46	42	39	36	36	36	36
6	69	57	48	43	65	54	47	41	50	44	39	46	41	37	42	38	35	32	32	32	32
7	64	51	43	38	61	49	42	37	46	39	35	42	37	33	39	34	31	29	29	29	29
8	59	47	39	34	57	45	38	33	42	36	31	39	34	30	36	31	28	26	26	26	26
9	56	43	36	31	53	42	35	30	39	33	28	36	31	27	33	29	26	24	24	24	24
10	52	40	33	28	50	39	32	27	36	30	26	33	28	25	31	27	23	22	22	22	22

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

	0°	45°	90°
0°	5356	5356	5356
5°	5361	5268	5303
10°	5305	5161	5129
15°	5228	4987	4861
20°	5128	4748	4532
25°	5026	4482	4214
30°	4890	4209	3812
35°	4756	3915	3459
40°	4619	3612	3055
45°	4461	3276	2688
50°	4297	2938	2330
55°	4126	2577	1987
60°	3927	2199	1634
65°	3698	1816	1468
70°	3421	1459	1326
75°	3072	1278	1202
80°	2567	1061	1037
85°	1741	691	769

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4461 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	438.1	3.4
10°-20°	1202.7	9.3
20°-30°	1688.5	13.0
30°-40°	1840.6	14.2
40°-50°	1691.7	13.1
50°-60°	1328.6	10.3
60°-70°	864.8	6.7
70°-80°	445.2	3.4
80°-90°	117.0	0.9
90°-100°	73.8	0.6
100°-110°	234.4	1.8
110°-120°	401.2	3.1
120°-130°	527.6	4.1
130°-140°	592.2	4.6
140°-150°	580.8	4.5
150°-160°	487.2	3.8
160°-170°	323.1	2.5
170°-180°	112.9	0.9
0°-30°	3329.4	25.7
0°-40°	5170.0	39.9
0°-60°	8190.3	63.2
0°-90°	9617.3	74.3
90°-120°	709.4	5.5
90°-150°	2410.0	18.6
90°-180°	3333.0	25.7
0°-180°	12950.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4675	4675	4675	4675	4675	
5°	4675	4654	4598	4636	4624	443
15°	4446	4400	4256	4176	4133	1253
25°	4036	3900	3621	3448	3384	1856
35°	3478	3262	2890	2623	2530	2177
45°	2843	2559	2115	1815	1713	2195
55°	2162	1832	1375	1121	1041	1932
65°	1460	1117	736	592	580	1447
75°	778	482	338	309	305	823
85°	182	93	80	80	80	209
90°	1	13	35	33	34	13
95°	52	63	64	64	63	58
105°	216	219	221	223	223	228
115°	403	408	406	406	403	398
125°	586	595	592	588	587	523
135°	757	768	771	770	767	585
145°	920	927	932	934	930	575
155°	1051	1054	1058	1063	1059	484
165°	1144	1143	1143	1150	1145	323
175°	1190	1187	1185	1192	1186	113
180°	1192	1192	1192	1192	1192	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4674.6	4674.6	4674.6	4674.6	4674.6
2.5°	4695.7	4674.6	4628.0	4670.6	4662.0
5°	4674.6	4653.5	4598.3	4636.5	4623.9
7.5°	4636.5	4611.3	4552.1	4568.7	4547.6
10°	4585.8	4556.2	4471.7	4458.7	4433.6
12.5°	4522.4	4484.3	4369.8	4344.7	4298.1
15°	4446.2	4399.5	4255.9	4175.5	4133.3
17.5°	4357.3	4289.5	4111.7	4018.9	3951.1
20°	4255.9	4171.0	3959.6	3854.1	3760.7
22.5°	4145.9	4048.5	3803.0	3659.3	3596.1
25°	4036.0	3900.3	3621.2	3447.9	3384.2
27.5°	3904.9	3760.7	3452.0	3253.2	3155.7
30°	3765.3	3604.2	3265.7	3050.3	2935.8
32.5°	3629.7	3434.9	3088.4	2834.4	2728.5
35°	3477.6	3261.7	2889.6	2623.0	2529.6
37.5°	3329.4	3096.5	2703.3	2411.1	2305.6
40°	3172.8	2919.2	2508.6	2208.3	2098.3
42.5°	3012.1	2741.5	2314.2	2000.9	1895.5
45°	2842.9	2559.3	2115.3	1814.7	1713.2
47.5°	2682.2	2382.0	1925.0	1624.4	1531.4
50°	2504.5	2204.2	1738.8	1446.6	1358.2
52.5°	2330.8	2013.5	1561.0	1281.9	1201.6
55°	2161.6	1831.7	1374.8	1121.2	1040.8
57.5°	1988.3	1649.9	1210.0	973.1	905.3
60°	1810.6	1472.2	1036.3	821.0	753.2
62.5°	1637.4	1298.9	888.3	685.4	651.7
65°	1459.6	1116.7	736.1	592.5	579.5
67.5°	1290.4	947.4	592.5	520.2	507.7
70°	1112.7	782.8	490.6	448.4	431.3
72.5°	943.5	630.2	410.2	376.5	368.1
75°	778.3	482.0	338.5	308.8	304.7
77.5°	613.6	342.4	266.6	249.6	241.0
80°	461.0	245.5	202.8	186.2	186.2
82.5°	321.4	165.1	139.6	131.0	131.0
85°	181.8	92.9	80.3	80.3	80.3
87.5°	67.8	33.6	33.6	29.6	29.6
90°	1.0	12.9	35.3	33.1	34.1
92.5°	22.2	30.2	31.3	32.3	32.3
95°	52.5	62.6	64.4	64.4	62.6
97.5°	87.4	96.7	100.7	100.7	100.7
100°	127.6	135.9	138.7	138.7	137.7
102.5°	170.0	176.2	180.1	181.2	180.1
105°	216.4	219.2	221.4	223.2	223.2
107.5°	262.4	266.7	266.7	267.4	262.4
110°	307.0	312.7	312.7	312.7	309.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	355.1	361.3	360.1	357.3	355.1
115°	402.6	408.4	406.5	405.5	402.6
117.5°	449.7	457.6	452.6	449.7	446.9
120°	497.2	505.0	497.2	497.2	493.9
122.5°	540.3	550.4	545.4	542.4	540.3
125°	585.6	594.6	591.7	588.4	587.4
127.5°	629.8	640.9	637.0	632.6	629.8
130°	671.1	684.1	682.3	680.1	676.2
132.5°	717.5	727.5	728.3	723.2	720.4
135°	757.4	768.5	770.7	769.6	766.8
137.5°	802.0	811.0	812.8	812.0	807.8
140°	841.1	850.2	855.2	855.2	851.2
142.5°	881.5	890.4	893.2	894.4	890.4
145°	919.5	926.7	932.5	933.6	929.6
147.5°	953.7	962.6	967.0	968.7	964.8
150°	988.9	995.0	999.0	1002.2	999.0
152.5°	1020.2	1026.2	1031.3	1035.3	1031.3
155°	1051.4	1054.3	1057.5	1062.6	1059.3
157.5°	1078.5	1080.5	1082.3	1089.6	1084.5
160°	1102.5	1104.7	1105.7	1111.8	1107.5
162.5°	1124.7	1124.7	1125.9	1132.7	1127.7
165°	1143.9	1142.7	1142.7	1149.9	1144.9
167.5°	1161.1	1157.8	1157.8	1165.1	1160.0
170°	1174.0	1171.1	1170.1	1177.2	1171.1
172.5°	1183.0	1180.2	1179.0	1186.3	1180.2
175°	1190.2	1187.3	1185.2	1192.3	1186.3
177.5°	1194.2	1191.3	1189.1	1195.2	1189.1
180°	1192.3	1192.3	1192.3	1192.3	1192.3



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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	14.96	16.04	15.69	16.78	17.66	10.92	12.00	11.65	12.74	13.62
	3H	16.66	17.62	17.39	18.37	19.28	12.13	13.09	12.86	13.84	14.75
	4H	17.27	18.18	18.03	18.94	19.86	12.58	13.49	13.34	14.25	15.17
	6H	17.70	18.54	18.47	19.31	20.24	12.91	13.75	13.68	14.51	15.45
	8H	17.83	18.63	18.61	19.42	20.36	13.00	13.80	13.78	14.59	15.53
	12H	17.90	18.66	18.69	19.44	20.41	13.05	13.81	13.84	14.59	15.56
4H	2H	15.01	15.92	15.77	16.68	17.60	11.55	12.46	12.31	13.21	14.14
	3H	16.86	17.61	17.63	18.40	19.34	12.91	13.67	13.68	14.46	15.40
	4H	17.55	18.24	18.34	19.03	20.00	13.46	14.15	14.25	14.94	15.91
	6H	18.08	18.67	18.88	19.49	20.46	13.89	14.48	14.69	15.30	16.28
	8H	18.25	18.81	19.06	19.62	20.61	14.02	14.57	14.83	15.39	16.37
	12H	18.36	18.85	19.19	19.69	20.68	14.09	14.59	14.92	15.42	16.42
8H	4H	17.54	18.09	18.35	18.90	19.89	13.76	14.31	14.57	15.13	16.11
	6H	18.11	18.56	18.94	19.42	20.41	14.28	14.73	15.11	15.59	16.58
	8H	18.32	18.73	19.17	19.58	20.59	14.46	14.87	15.31	15.72	16.73
	12H	18.47	18.82	19.32	19.67	20.73	14.59	14.95	15.44	15.79	16.85
12H	4H	17.50	18.00	18.33	18.83	19.83	13.77	14.27	14.60	15.11	16.10
	6H	18.08	18.49	18.93	19.34	20.35	14.33	14.73	15.17	15.59	16.59
	8H	18.31	18.67	19.16	19.51	20.58	14.54	14.90	15.39	15.74	16.81