

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: P907250

Luminaire Tested: DFN2DIP-TR3F0-090D040US835-RLLFLL

Issue Date: 11/21/2024

**Test Information**

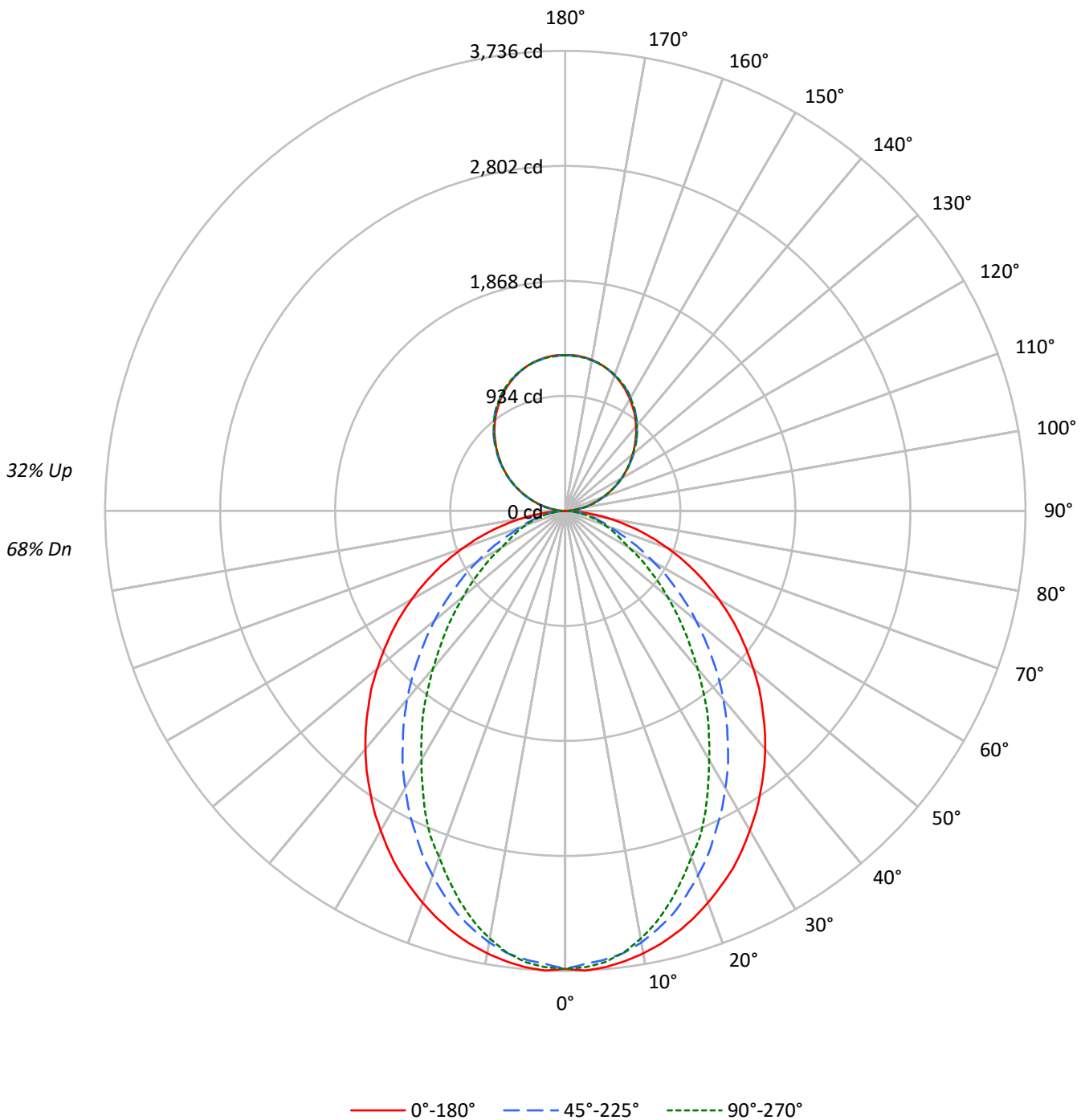
Test Method: LM-79-2019  
Report Number: P907250  
REPORT IS A COMBINATION OF REPORTS P900298 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-090D040US835-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11190.0 lumens  
Efficiency: N/A  
Efficacy: 90.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 124.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
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	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73	68				68
1	103	98	95	91	97	93	90	87	83	81	78	74	72	70	66	64	63	59				59
2	94	87	81	76	89	82	77	72	74	70	66	66	63	60	59	56	54	50				50
3	86	77	70	64	81	73	67	61	66	61	56	59	55	51	52	49	47	44				44
4	79	69	61	55	75	65	58	53	59	53	49	53	48	45	47	44	41	38				38
5	73	62	53	48	69	59	51	46	53	47	43	48	43	39	43	39	36	33				33
6	68	56	48	42	64	53	46	40	48	42	38	44	39	35	39	35	32	30				30
7	63	51	43	37	59	48	41	36	44	38	33	40	35	31	36	32	29	27				27
8	58	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26	24				24
9	55	42	35	30	52	41	34	29	37	31	27	34	29	25	31	27	24	22				22
10	51	39	32	27	48	37	31	26	34	29	25	32	27	23	29	25	22	20				20

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

	0°	45°	90°
0°	4635	4635	4635
5°	4640	4558	4588
10°	4592	4464	4435
15°	4526	4313	4202
20°	4440	4106	3916
25°	4351	3875	3640
30°	4234	3638	3292
35°	4118	3383	2986
40°	4001	3121	2635
45°	3864	2830	2318
50°	3723	2536	2008
55°	3575	2223	1710
60°	3404	1897	1405
65°	3207	1565	1261
70°	2968	1256	1136
75°	2667	1099	1027
80°	2231	909	881
85°	1518	589	644

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3864 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	348.6	3.1
10°-20°	957.0	8.6
20°-30°	1343.6	12.0
30°-40°	1464.6	13.1
40°-50°	1346.2	12.0
50°-60°	1057.2	9.4
60°-70°	688.1	6.1
70°-80°	354.2	3.2
80°-90°	94.0	0.8
90°-100°	78.3	0.7
100°-110°	248.7	2.2
110°-120°	425.6	3.8
120°-130°	559.8	5.0
130°-140°	628.3	5.6
140°-150°	616.2	5.5
150°-160°	516.9	4.6
160°-170°	342.8	3.1
170°-180°	119.8	1.1
<b>0°-30°</b>	<b>2649.2</b>	<b>23.7</b>
<b>0°-40°</b>	<b>4113.9</b>	<b>36.8</b>
<b>0°-60°</b>	<b>6517.2</b>	<b>58.2</b>
<b>0°-90°</b>	<b>7653.6</b>	<b>68.4</b>
<b>90°-120°</b>	<b>752.7</b>	<b>6.7</b>
<b>90°-150°</b>	<b>2556.9</b>	<b>22.9</b>
<b>90°-180°</b>	<b>3536.0</b>	<b>31.6</b>
<b>0°-180°</b>	<b>11190.0</b>	<b>100.0</b>

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3720	3720	3720	3720	3720	
5°	3720	3703	3659	3689	3679	353
15°	3538	3501	3386	3322	3289	997
25°	3212	3104	2882	2744	2693	1477
35°	2767	2595	2299	2087	2013	1732
45°	2262	2036	1683	1444	1363	1747
55°	1720	1458	1094	892	828	1537
65°	1161	889	586	471	461	1151
75°	619	384	269	246	242	655
85°	145	74	64	64	64	166
90°	1	14	37	35	36	11
95°	56	66	68	68	66	62
105°	230	233	235	237	237	242
115°	427	433	431	430	427	422
125°	621	631	628	624	623	555
135°	804	815	818	816	814	621
145°	976	983	989	990	986	610
155°	1116	1119	1122	1127	1124	513
165°	1214	1212	1212	1220	1215	342
175°	1263	1260	1257	1265	1259	120
180°	1265	1265	1265	1265	1265	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3719.7	3719.7	3719.7	3719.7	3719.7
2.5°	3736.5	3719.7	3682.5	3716.5	3709.7
5°	3719.7	3702.9	3659.0	3689.3	3679.3
7.5°	3689.3	3669.3	3622.2	3635.4	3618.6
10°	3649.0	3625.4	3558.3	3547.9	3527.9
12.5°	3598.6	3568.3	3477.2	3457.2	3420.0
15°	3537.9	3500.8	3386.5	3322.5	3289.0
17.5°	3467.2	3413.3	3271.8	3197.9	3144.0
20°	3386.5	3319.0	3150.7	3066.8	2992.5
22.5°	3299.0	3221.5	3026.1	2911.8	2861.5
25°	3211.5	3103.6	2881.5	2743.6	2692.9
27.5°	3107.2	2992.5	2746.8	2588.6	2511.1
30°	2996.1	2867.9	2598.6	2427.2	2336.1
32.5°	2888.2	2733.2	2457.5	2255.4	2171.1
35°	2767.2	2595.4	2299.3	2087.2	2012.9
37.5°	2649.3	2464.0	2151.1	1918.6	1834.7
40°	2524.7	2322.9	1996.1	1757.2	1669.7
42.5°	2396.8	2181.5	1841.4	1592.2	1508.2
45°	2262.2	2036.5	1683.2	1443.9	1363.2
47.5°	2134.3	1895.4	1531.8	1292.5	1218.6
50°	1992.9	1753.9	1383.6	1151.1	1080.7
52.5°	1854.7	1602.2	1242.2	1020.0	956.1
55°	1720.0	1457.5	1093.9	892.2	828.2
57.5°	1582.2	1312.9	962.9	774.3	720.4
60°	1440.7	1171.4	824.7	653.2	599.3
62.5°	1302.9	1033.6	706.8	545.4	518.6
65°	1161.4	888.6	585.7	471.4	461.1
67.5°	1026.8	753.9	471.4	413.9	403.9
70°	885.4	622.9	390.4	356.8	343.2
72.5°	750.7	501.4	326.4	299.6	292.9
75°	619.3	383.6	269.3	245.7	242.5
77.5°	488.2	272.5	212.1	198.6	191.8
80°	366.8	195.4	161.4	148.2	148.2
82.5°	255.7	131.4	111.1	104.3	104.3
85°	144.6	73.9	63.9	63.9	63.9
87.5°	53.9	26.8	26.8	23.6	23.6
90°	1.1	13.7	37.4	35.1	36.2
92.5°	23.6	32.0	33.2	34.3	34.3
95°	55.7	66.4	68.3	68.3	66.4
97.5°	92.7	102.6	106.8	106.8	106.8
100°	135.4	144.2	147.2	147.2	146.1
102.5°	180.4	186.9	191.1	192.2	191.1
105°	229.6	232.6	234.9	236.8	236.8
107.5°	278.4	283.0	283.0	283.7	278.4
110°	325.7	331.8	331.8	331.8	328.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	376.8	383.3	382.1	379.1	376.8
115°	427.1	433.3	431.3	430.2	427.1
117.5°	477.1	485.5	480.2	477.1	474.1
120°	527.5	535.8	527.5	527.5	524.0
122.5°	573.2	583.9	578.6	575.5	573.2
125°	621.3	630.8	627.8	624.3	623.2
127.5°	668.2	680.0	675.8	671.2	668.2
130°	712.0	725.8	723.9	721.6	717.4
132.5°	761.2	771.9	772.7	767.3	764.3
135°	803.6	815.4	817.7	816.5	813.5
137.5°	850.9	860.4	862.3	861.5	857.0
140°	892.4	902.0	907.3	907.3	903.1
142.5°	935.2	944.7	947.7	948.9	944.7
145°	975.6	983.2	989.3	990.5	986.3
147.5°	1011.8	1021.3	1025.9	1027.8	1023.6
150°	1049.2	1055.7	1059.9	1063.3	1059.9
152.5°	1082.4	1088.8	1094.2	1098.4	1094.2
155°	1115.5	1118.6	1122.0	1127.4	1123.9
157.5°	1144.2	1146.4	1148.3	1156.0	1150.6
160°	1169.7	1172.0	1173.1	1179.6	1175.0
162.5°	1193.3	1193.3	1194.5	1201.7	1196.4
165°	1213.6	1212.4	1212.4	1220.0	1214.7
167.5°	1231.9	1228.4	1228.4	1236.1	1230.7
170°	1245.6	1242.5	1241.4	1249.0	1242.5
172.5°	1255.1	1252.1	1250.9	1258.6	1252.1
175°	1262.8	1259.7	1257.4	1265.0	1258.6
177.5°	1267.0	1263.9	1261.6	1268.1	1261.6
180°	1265.0	1265.0	1265.0	1265.0	1265.0



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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	13.99	15.00	14.78	15.80	16.79	9.97	10.97	10.76	11.78	12.76
	3H	15.67	16.57	16.47	17.39	18.40	11.16	12.06	11.97	12.88	13.89
	4H	16.28	17.13	17.10	17.95	18.98	11.62	12.47	12.44	13.29	14.32
	6H	16.71	17.49	17.54	18.32	19.36	11.94	12.73	12.77	13.56	14.60
	8H	16.83	17.58	17.67	18.43	19.47	12.04	12.78	12.88	13.63	14.67
	12H	16.90	17.60	17.74	18.45	19.51	12.08	12.79	12.93	13.63	14.70
4H	2H	14.03	14.88	14.85	15.70	16.73	10.58	11.43	11.40	12.25	13.28
	3H	15.86	16.57	16.70	17.43	18.47	11.94	12.64	12.77	13.50	14.54
	4H	16.56	17.20	17.40	18.05	19.12	12.49	13.13	13.34	13.98	15.05
	6H	17.07	17.62	17.93	18.50	19.58	12.91	13.46	13.78	14.34	15.42
	8H	17.24	17.76	18.11	18.63	19.72	13.04	13.56	13.91	14.43	15.52
	12H	17.34	17.81	18.23	18.70	19.79	13.11	13.57	14.00	14.47	15.56
8H	4H	16.53	17.05	17.40	17.92	19.01	12.78	13.29	13.64	14.17	15.25
	6H	17.10	17.52	17.99	18.44	19.53	13.29	13.72	14.19	14.64	15.72
	8H	17.31	17.69	18.21	18.60	19.70	13.48	13.86	14.38	14.77	15.87
	12H	17.45	17.78	18.35	18.68	19.84	13.60	13.93	14.51	14.84	15.99
12H	4H	16.49	16.96	17.38	17.85	18.94	12.79	13.25	13.67	14.15	15.24
	6H	17.07	17.45	17.98	18.36	19.46	13.34	13.72	14.24	14.63	15.73
	8H	17.29	17.63	18.20	18.53	19.68	13.55	13.89	14.46	14.79	15.94