

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: P912678

Luminaire Tested: DFN2DIP-TR3F0-080D040US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

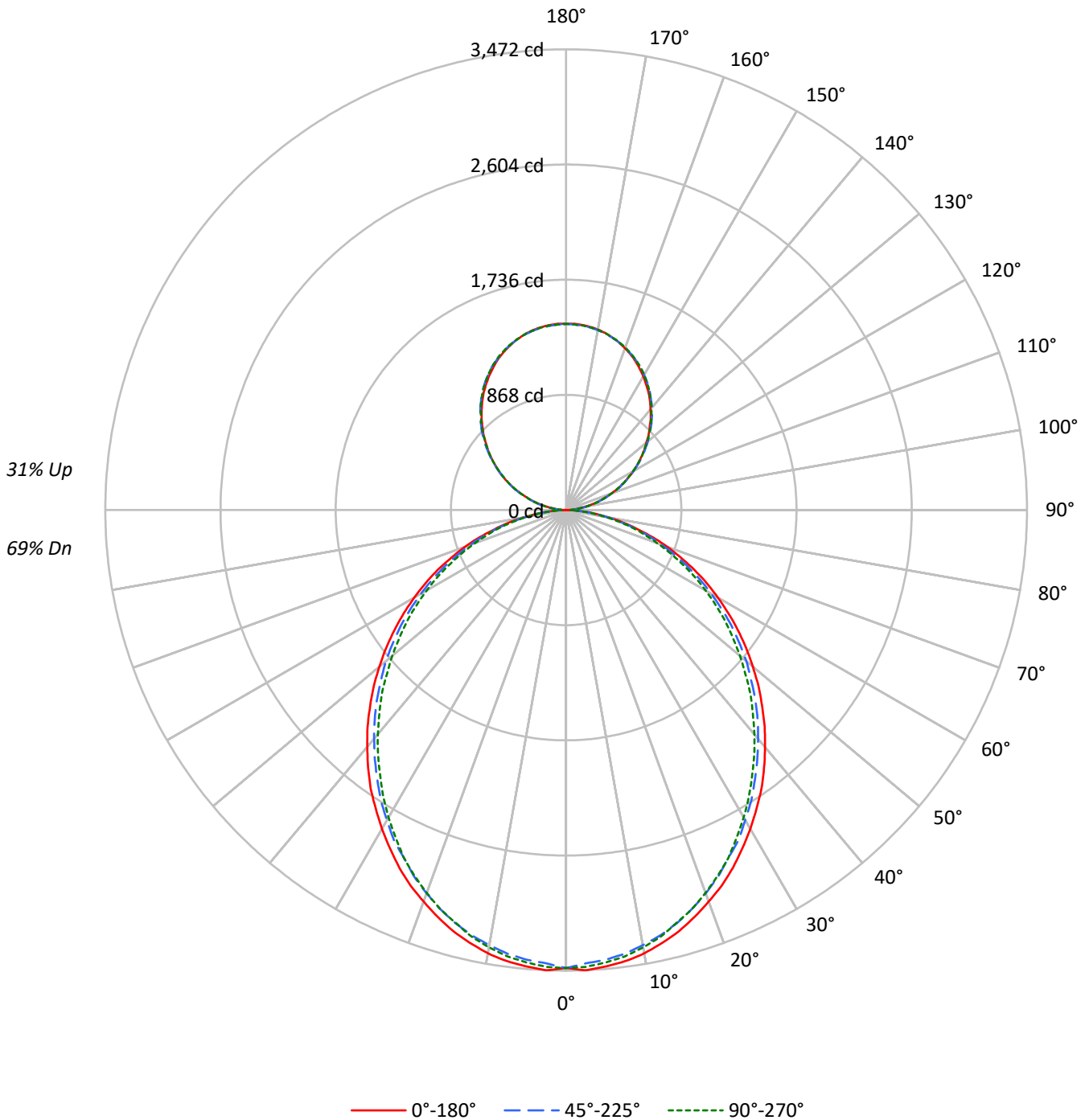
Test Method: LM-79-2019  
Report Number: P912678  
REPORT IS A COMBINATION OF REPORTS P900295 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-080D040US850-FLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12709.1 lumens  
Efficiency: N/A  
Efficacy: 115.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 110.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P912678  
CATALOG NUMBER: DFN2DIP-TR3F0-080D040US850-FLLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P912678  
 CATALOG NUMBER: DFN2DIP-TR3F0-080D040US850-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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58			
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49			
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41			
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35			
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31			
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27			
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26	24			
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22			
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19			
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18			

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

	0°	45°	90°
0°	4302	4302	4302
5°	4306	4238	4268
10°	4269	4178	4207
15°	4204	4105	4114
20°	4117	4006	4019
25°	4030	3888	3909
30°	3922	3778	3770
35°	3819	3649	3624
40°	3693	3518	3484
45°	3567	3387	3341
50°	3429	3249	3176
55°	3284	3090	3023
60°	3121	2901	2848
65°	2942	2705	2641
70°	2715	2467	2418
75°	2400	2180	2208
80°	2020	1814	1815
85°	1428	1194	1172

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3567 cd/sqm



TEST NUMBER: P912678

CATALOG NUMBER: DFN2DIP-TR3F0-080D040US850-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	324.9	2.6
10°-20°	914.2	7.2
20°-30°	1343.5	10.6
30°-40°	1560.4	12.3
40°-50°	1558.4	12.3
50°-60°	1358.9	10.7
60°-70°	1004.5	7.9
70°-80°	568.4	4.5
80°-90°	154.0	1.2
90°-100°	86.8	0.7
100°-110°	275.8	2.2
110°-120°	472.0	3.7
120°-130°	620.8	4.9
130°-140°	696.8	5.5
140°-150°	683.3	5.4
150°-160°	573.2	4.5
160°-170°	380.1	3.0
170°-180°	132.9	1.0
0°-30°	2582.6	20.3
0°-40°	4143.0	32.6
0°-60°	7060.4	55.6
0°-90°	8787.3	69.1
90°-120°	834.7	6.6
90°-150°	2835.6	22.3
90°-180°	3922.0	30.9
0°-180°	12709.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	1	15	42	39	40	12
95°	62	74	76	76	74	69
105°	255	258	260	263	263	269
115°	474	480	478	477	474	469
125°	689	700	696	692	691	616
135°	891	904	907	906	902	689
145°	1082	1090	1097	1098	1094	676
155°	1237	1240	1244	1250	1246	569
165°	1346	1345	1345	1353	1347	380
175°	1400	1397	1394	1403	1396	133
180°	1403	1403	1403	1403	1403	



TEST NUMBER: P912678

CATALOG NUMBER: DFN2DIP-TR3F0-080D040US850-FLLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
90°	1.2	15.2	41.5	38.9	40.1
92.5°	26.2	35.5	36.8	38.0	38.0
95°	61.8	73.6	75.7	75.7	73.6
97.5°	102.8	113.8	118.4	118.4	118.4
100°	150.2	159.9	163.2	163.2	162.0
102.5°	200.1	207.3	211.9	213.1	211.9
105°	254.6	258.0	260.5	262.6	262.6
107.5°	308.7	313.8	313.8	314.6	308.7
110°	361.2	368.0	368.0	368.0	364.6



TEST NUMBER: P912678

CATALOG NUMBER: DFN2DIP-TR3F0-080D040US850-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	417.9	425.1	423.7	420.4	417.9
115°	473.7	480.5	478.3	477.1	473.7
117.5°	529.1	538.4	532.5	529.1	525.8
120°	585.0	594.2	585.0	585.0	581.1
122.5°	635.7	647.5	641.7	638.2	635.7
125°	689.0	699.6	696.2	692.3	691.1
127.5°	741.0	754.1	749.5	744.4	741.0
130°	789.6	804.9	802.8	800.3	795.6
132.5°	844.2	856.0	856.9	850.9	847.6
135°	891.2	904.3	906.8	905.5	902.2
137.5°	943.6	954.2	956.3	955.4	950.4
140°	989.7	1000.3	1006.2	1006.2	1001.5
142.5°	1037.1	1047.7	1051.0	1052.3	1047.7
145°	1081.9	1090.4	1097.1	1098.5	1093.8
147.5°	1122.1	1132.6	1137.7	1139.8	1135.2
150°	1163.6	1170.8	1175.4	1179.2	1175.4
152.5°	1200.4	1207.5	1213.5	1218.1	1213.5
155°	1237.1	1240.5	1244.3	1250.3	1246.4
157.5°	1268.9	1271.4	1273.5	1282.0	1276.0
160°	1297.2	1299.7	1301.0	1308.2	1303.1
162.5°	1323.4	1323.4	1324.7	1332.7	1326.8
165°	1345.9	1344.6	1344.6	1353.0	1347.1
167.5°	1366.2	1362.3	1362.3	1370.8	1364.8
170°	1381.4	1377.9	1376.7	1385.1	1377.9
172.5°	1391.9	1388.6	1387.2	1395.8	1388.6
175°	1400.4	1397.0	1394.5	1402.9	1395.8
177.5°	1405.1	1401.7	1399.1	1406.3	1399.1
180°	1402.9	1402.9	1402.9	1402.9	1402.9



TEST NUMBER: P912678  
 CATALOG NUMBER: DFN2DIP-TR3F0-080D040US850-FLLFL

**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	13.89	14.96	14.67	15.75	16.72	13.46	14.53	14.24	15.32	16.29
	3H	15.56	16.51	16.34	17.32	18.32	15.09	16.05	15.88	16.85	17.85
	4H	16.15	17.05	16.95	17.87	18.88	15.68	16.58	16.48	17.40	18.41
	6H	16.55	17.38	17.37	18.21	19.23	16.08	16.92	16.90	17.74	18.76
	8H	16.66	17.45	17.48	18.29	19.32	16.19	16.98	17.02	17.82	18.85
	12H	16.71	17.47	17.54	18.30	19.35	16.24	16.99	17.07	17.83	18.88
4H	2H	14.37	15.28	15.18	16.09	17.10	14.03	14.93	14.84	15.75	16.76
	3H	16.25	17.00	17.07	17.85	18.88	15.86	16.61	16.68	17.46	18.49
	4H	16.96	17.65	17.80	18.50	19.55	16.56	17.25	17.40	18.09	19.15
	6H	17.48	18.07	18.33	18.95	20.00	17.08	17.67	17.93	18.54	19.60
	8H	17.63	18.19	18.48	19.05	20.12	17.22	17.78	18.08	18.65	19.72
	12H	17.71	18.21	18.58	19.09	20.17	17.29	17.79	18.17	18.68	19.76
8H	4H	17.17	17.73	18.03	18.59	19.66	16.81	17.37	17.67	18.24	19.31
	6H	17.80	18.26	18.68	19.17	20.24	17.44	17.90	18.32	18.81	19.88
	8H	18.02	18.43	18.91	19.33	20.41	17.65	18.06	18.55	18.96	20.05
	12H	18.15	18.51	19.05	19.40	20.55	17.77	18.13	18.67	19.03	20.17
12H	4H	17.17	17.67	18.04	18.55	19.63	16.82	17.32	17.69	18.20	19.28
	6H	17.83	18.24	18.72	19.14	20.23	17.48	17.89	18.37	18.79	19.88
	8H	18.07	18.43	18.97	19.33	20.47	17.72	18.08	18.62	18.98	20.12