

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: P918170

Luminaire Tested: DFN2DIP-TR3F0-090D060US930-RLLFLL

Issue Date: 11/21/2024

**Test Information**

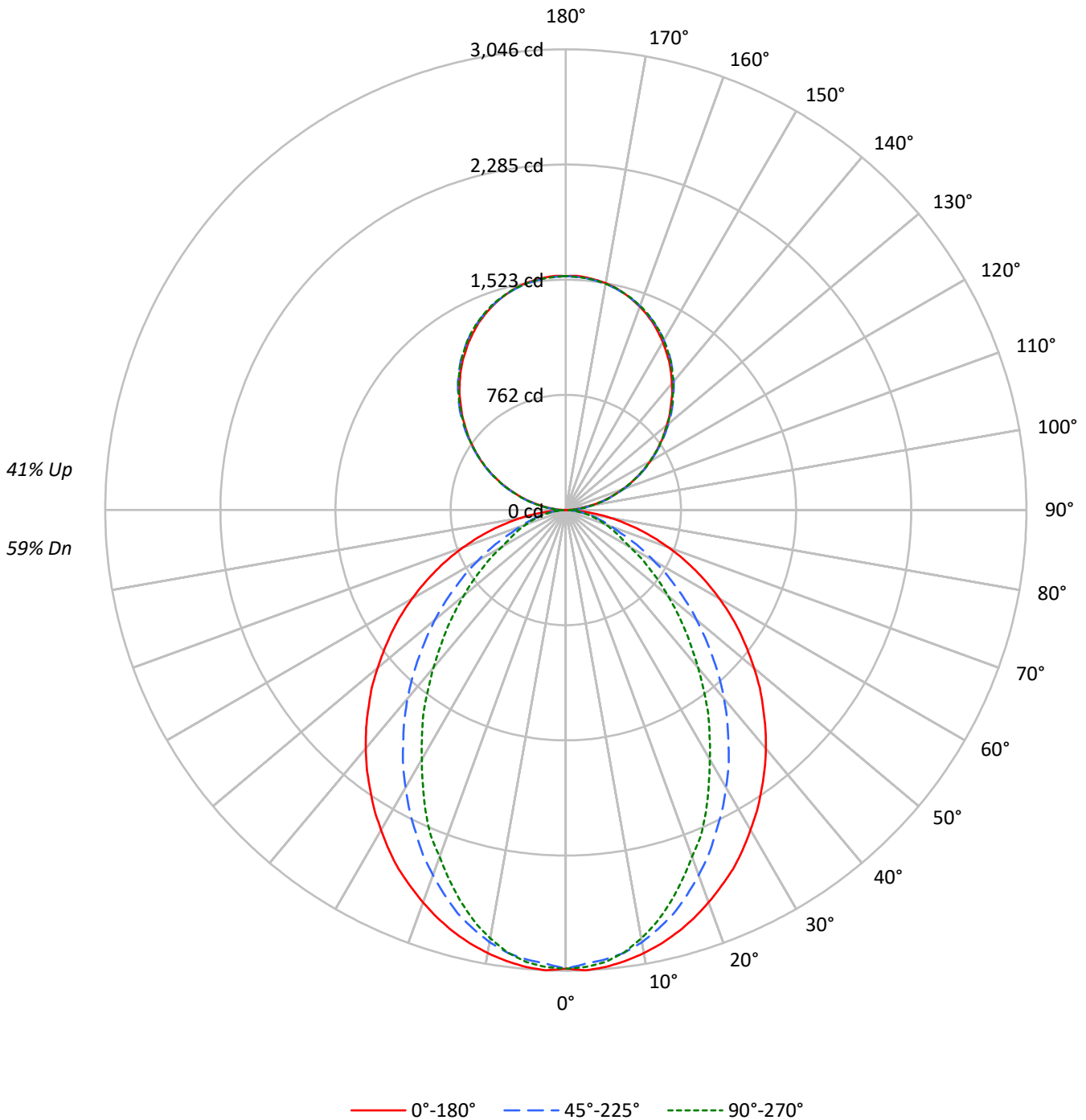
Test Method: LM-79-2019  
Report Number: P918170  
REPORT IS A COMBINATION OF REPORTS P900326 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-090D060US930-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10566.3 lumens  
Efficiency: N/A  
Efficacy: 75.5 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: General Diffuse  
  
Input Watts (W): 140  
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				
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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64	59			
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56	51			
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	52	50	48	44			
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	44	41	38			
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36	33			
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32	29			
6	66	54	46	40	61	51	44	39	45	39	35	40	35	32	35	31	28	26			
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25	23			
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23	21			
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21	19			
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19	17			

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

	0°	45°	90°
0°	3779	3779	3779
5°	3783	3716	3740
10°	3743	3640	3616
15°	3690	3516	3426
20°	3620	3348	3193
25°	3548	3159	2968
30°	3452	2966	2684
35°	3358	2758	2434
40°	3262	2544	2148
45°	3151	2307	1889
50°	3035	2068	1637
55°	2915	1813	1394
60°	2775	1547	1145
65°	2614	1276	1028
70°	2420	1024	926
75°	2174	896	838
80°	1820	741	718
85°	1238	480	525

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3151 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	284.2	2.7
10°-20°	780.3	7.4
20°-30°	1095.5	10.4
30°-40°	1194.1	11.3
40°-50°	1097.5	10.4
50°-60°	861.9	8.2
60°-70°	561.0	5.3
70°-80°	288.8	2.7
80°-90°	78.1	0.7
90°-100°	95.7	0.9
100°-110°	304.2	2.9
110°-120°	520.6	4.9
120°-130°	684.6	6.5
130°-140°	768.4	7.3
140°-150°	753.5	7.1
150°-160°	632.1	6.0
160°-170°	419.2	4.0
170°-180°	146.5	1.4
0°-30°	2159.9	20.4
0°-40°	3354.0	31.7
0°-60°	5313.5	50.3
0°-90°	6241.4	59.1
90°-120°	920.5	8.7
90°-150°	3127.0	29.6
90°-180°	4325.0	40.9
0°-180°	10566.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3033	3033	3033	3033	3033	
5°	3033	3019	2983	3008	3000	288
15°	2884	2854	2761	2709	2682	813
25°	2618	2530	2349	2237	2196	1204
35°	2256	2116	1875	1702	1641	1412
45°	1844	1660	1372	1177	1111	1424
55°	1402	1188	892	727	675	1253
65°	947	724	478	384	376	939
75°	505	313	220	200	198	534
85°	118	60	52	52	52	135
90°	1	17	46	43	44	10
95°	68	81	84	84	81	76
105°	281	284	287	290	290	296
115°	522	530	528	526	522	517
125°	760	771	768	764	762	679
135°	983	997	1000	999	995	760
145°	1193	1202	1210	1211	1206	745
155°	1364	1368	1372	1379	1374	628
165°	1484	1483	1483	1492	1486	419
175°	1544	1541	1538	1547	1539	147
180°	1547	1547	1547	1547	1547	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3032.7	3032.7	3032.7	3032.7	3032.7
2.5°	3046.4	3032.7	3002.3	3030.1	3024.5
5°	3032.7	3019.0	2983.2	3007.9	2999.7
7.5°	3007.9	2991.6	2953.2	2963.9	2950.2
10°	2975.0	2955.8	2901.1	2892.6	2876.3
12.5°	2933.9	2909.2	2835.0	2818.6	2788.3
15°	2884.4	2854.2	2761.0	2708.8	2681.5
17.5°	2826.8	2782.9	2667.5	2607.2	2563.3
20°	2761.0	2706.0	2568.8	2500.4	2439.8
22.5°	2689.7	2626.5	2467.2	2374.0	2333.0
25°	2618.3	2530.4	2349.3	2236.9	2195.5
27.5°	2533.3	2439.8	2239.5	2110.5	2047.3
30°	2442.7	2338.2	2118.6	1978.9	1904.6
32.5°	2354.7	2228.4	2003.6	1838.8	1770.1
35°	2256.1	2116.0	1874.6	1701.7	1641.1
37.5°	2160.0	2008.9	1753.8	1564.2	1495.8
40°	2058.4	1893.9	1627.4	1432.6	1361.3
42.5°	1954.1	1778.6	1501.3	1298.1	1229.6
45°	1844.4	1660.4	1372.3	1177.2	1111.4
47.5°	1740.1	1545.3	1248.9	1053.8	993.5
50°	1624.8	1430.0	1128.0	938.5	881.1
52.5°	1512.1	1306.3	1012.8	831.6	779.5
55°	1402.3	1188.3	891.9	727.4	675.2
57.5°	1290.0	1070.4	785.1	631.3	587.3
60°	1174.6	955.0	672.4	532.6	488.6
62.5°	1062.3	842.7	576.3	444.7	422.8
65°	946.9	724.5	477.5	384.3	375.9
67.5°	837.1	614.7	384.3	337.5	329.3
70°	721.9	507.8	318.3	290.9	279.8
72.5°	612.0	408.8	266.1	244.3	238.8
75°	504.9	312.7	219.6	200.3	197.7
77.5°	398.0	222.2	172.9	161.9	156.4
80°	299.1	159.3	131.6	120.8	120.8
82.5°	208.5	107.1	90.6	85.0	85.0
85°	117.9	60.3	52.1	52.1	52.1
87.5°	43.9	21.8	21.8	19.2	19.2
90°	1.4	16.8	45.7	42.9	44.3
92.5°	28.9	39.2	40.6	42.0	42.0
95°	68.1	81.1	83.5	83.5	81.1
97.5°	113.3	125.5	130.6	130.6	130.6
100°	165.6	176.3	180.0	180.0	178.6
102.5°	220.6	228.5	233.7	235.1	233.7
105°	280.8	284.5	287.3	289.7	289.7
107.5°	340.5	346.1	346.1	347.0	340.5
110°	398.4	405.8	405.8	405.8	402.0



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CATALOG NUMBER: DFN2DIP-TR3F0-090D060US930-RLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	460.8	468.7	467.3	463.6	460.8
115°	522.4	529.9	527.5	526.1	522.4
117.5°	583.5	593.8	587.2	583.5	579.8
120°	645.1	655.3	645.1	645.1	640.8
122.5°	701.0	714.0	707.5	703.8	701.0
125°	759.8	771.4	767.7	763.5	762.1
127.5°	817.2	831.6	826.5	820.9	817.2
130°	870.8	887.6	885.3	882.5	877.3
132.5°	931.0	944.0	944.9	938.4	934.7
135°	982.8	997.2	1000.0	998.6	994.8
137.5°	1040.6	1052.2	1054.6	1053.6	1048.1
140°	1091.4	1103.1	1109.6	1109.6	1104.5
142.5°	1143.6	1155.3	1159.0	1160.4	1155.3
145°	1193.1	1202.4	1209.9	1211.3	1206.2
147.5°	1237.4	1249.0	1254.7	1256.9	1251.8
150°	1283.1	1291.0	1296.2	1300.3	1296.2
152.5°	1323.6	1331.6	1338.1	1343.3	1338.1
155°	1364.2	1368.0	1372.1	1378.8	1374.5
157.5°	1399.2	1402.1	1404.4	1413.7	1407.2
160°	1430.5	1433.3	1434.7	1442.6	1437.0
162.5°	1459.4	1459.4	1460.8	1469.7	1463.1
165°	1484.1	1482.7	1482.7	1492.1	1485.6
167.5°	1506.5	1502.4	1502.4	1511.6	1505.1
170°	1523.3	1519.6	1518.2	1527.5	1519.6
172.5°	1535.0	1531.2	1529.8	1539.1	1531.2
175°	1544.3	1540.6	1537.7	1547.1	1539.1
177.5°	1549.4	1545.7	1542.9	1550.8	1542.9
180°	1547.1	1547.1	1547.1	1547.1	1547.1



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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	12.52	13.43	13.40	14.33	15.47	8.50	9.41	9.38	10.31	11.44
	3H	14.19	15.01	15.09	15.92	17.08	9.69	10.50	10.58	11.41	12.57
	4H	14.80	15.57	15.71	16.48	17.66	10.14	10.90	11.05	11.82	12.99
	6H	15.22	15.93	16.14	16.85	18.03	10.46	11.16	11.38	12.08	13.27
	8H	15.34	16.02	16.27	16.95	18.14	10.55	11.22	11.48	12.16	13.34
	12H	15.40	16.04	16.34	16.97	18.18	10.59	11.23	11.52	12.16	13.37
4H	2H	12.55	13.32	13.46	14.23	15.40	9.10	9.87	10.01	10.78	11.95
	3H	14.37	15.01	15.30	15.96	17.14	10.45	11.09	11.37	12.03	13.22
	4H	15.06	15.64	16.00	16.58	17.80	10.99	11.58	11.93	12.51	13.73
	6H	15.57	16.07	16.52	17.04	18.25	11.41	11.91	12.36	12.88	14.09
	8H	15.74	16.21	16.69	17.17	18.39	11.54	12.01	12.49	12.96	14.19
	12H	15.84	16.26	16.81	17.23	18.46	11.60	12.02	12.57	13.00	14.23
8H	4H	15.03	15.50	15.98	16.46	17.69	11.27	11.74	12.23	12.70	13.93
	6H	15.59	15.98	16.57	16.98	18.20	11.79	12.17	12.76	13.17	14.40
	8H	15.80	16.14	16.79	17.13	18.38	11.97	12.32	12.96	13.30	14.55
	12H	15.94	16.24	16.93	17.22	18.51	12.09	12.39	13.08	13.37	14.67
12H	4H	14.99	15.41	15.96	16.38	17.62	11.28	11.70	12.25	12.68	13.91
	6H	15.57	15.91	16.55	16.90	18.14	11.83	12.18	12.82	13.16	14.41
	8H	15.78	16.08	16.77	17.07	18.36	12.04	12.34	13.03	13.32	14.62