

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: P915681

Luminaire Tested: DFN2DIP-TR4F0-100D060US927-RLONL

Issue Date: 11/21/2024

**Test Information**

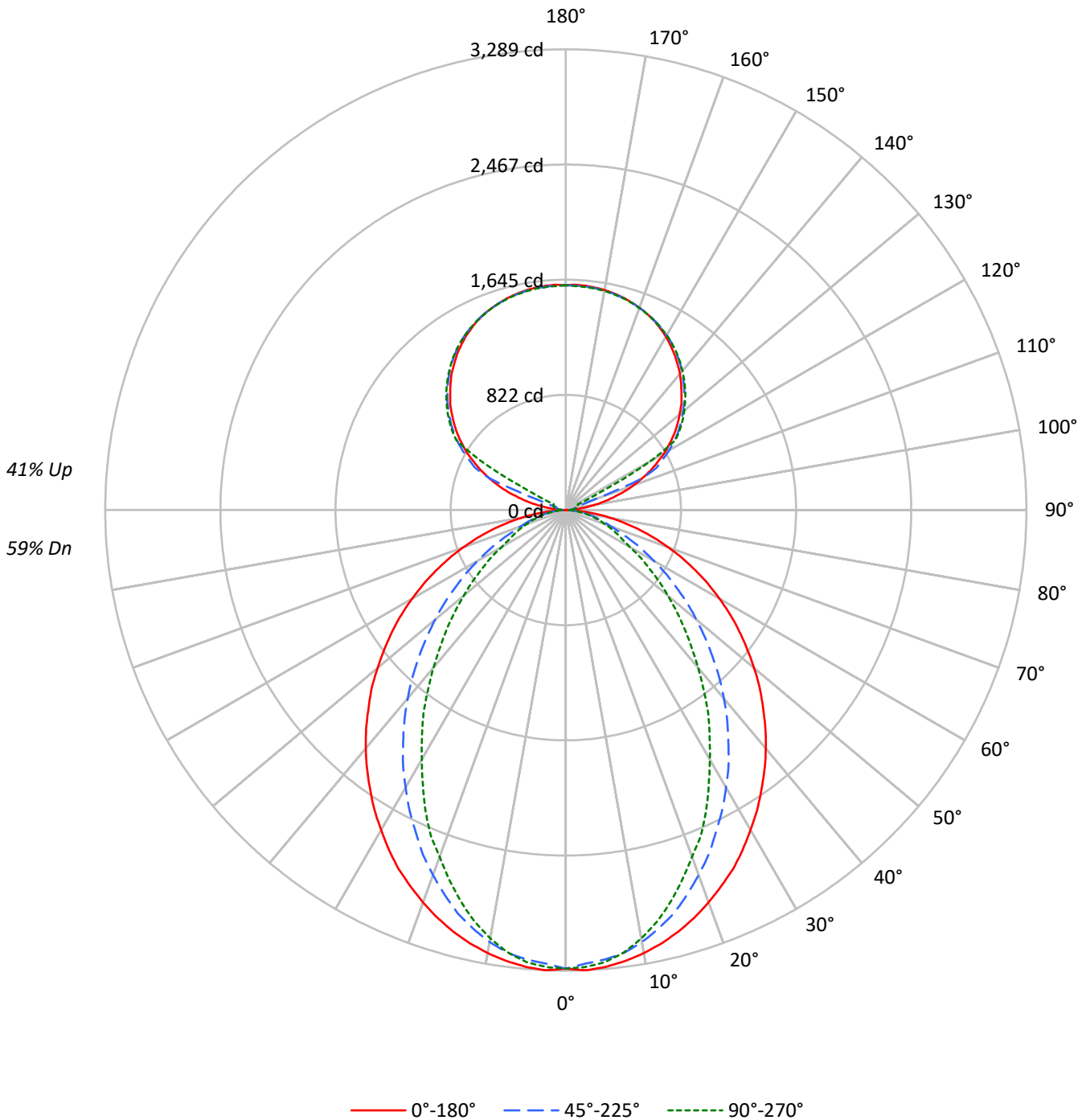
Test Method: LM-79-2019  
Report Number: P915681  
REPORT IS A COMBINATION OF REPORTS P901938 AND P898849  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-100D060US927-RLLONL  
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11439.1 lumens  
Efficiency: N/A  
Efficacy: 78.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 145.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9972  
Total Harmonic Distortion (THDi): 0.128  
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			59
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	55	51			51
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	51	49	48	43			43
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	43	41	37			37
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36	33			33
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32	29			29
6	66	54	46	40	61	51	44	38	45	39	35	40	35	32	35	31	28	26			26
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25	23			23
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23	21			21
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	23	21	19			19
10	50	38	31	26	46	36	29	25	32	27	23	29	24	21	25	22	19	17			17

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

	0°	45°	90°
0°	2601	2601	2601
5°	2605	2560	2576
10°	2579	2510	2492
15°	2544	2426	2362
20°	2497	2312	2203
25°	2449	2184	2050
30°	2384	2053	1855
35°	2321	1911	1684
40°	2257	1765	1488
45°	2182	1603	1310
50°	2105	1439	1136
55°	2024	1264	969
60°	1930	1081	798
65°	1823	895	718
70°	1693	722	650
75°	1529	636	591
80°	1292	534	512
85°	900	356	384

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2182 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	306.9	2.7
10°-20°	842.4	7.4
20°-30°	1182.6	10.3
30°-40°	1289.2	11.3
40°-50°	1184.9	10.4
50°-60°	930.5	8.1
60°-70°	605.7	5.3
70°-80°	311.8	2.7
80°-90°	82.4	0.7
90°-100°	52.9	0.5
100°-110°	197.2	1.7
110°-120°	523.0	4.6
120°-130°	867.4	7.6
130°-140°	921.3	8.1
140°-150°	856.3	7.5
150°-160°	688.4	6.0
160°-170°	443.6	3.9
170°-180°	152.7	1.3
0°-30°	2331.9	20.4
0°-40°	3621.0	31.7
0°-60°	5736.5	50.1
0°-90°	6736.4	58.9
90°-120°	773.0	6.8
90°-150°	3418.0	29.9
90°-180°	4703.0	41.1
0°-180°	11439.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3274	3274	3274	3274	3274	
5°	3274	3259	3221	3247	3238	310
15°	3114	3081	2981	2924	2895	878
25°	2827	2732	2536	2415	2370	1300
35°	2436	2284	2024	1837	1772	1524
45°	1991	1792	1482	1271	1200	1538
55°	1514	1283	963	785	729	1353
65°	1022	782	516	415	406	1014
75°	545	338	237	216	213	577
85°	127	65	56	56	56	146
90°	1	14	23	29	31	11
95°	75	37	45	51	50	89
105°	353	388	71	84	88	377
115°	667	687	716	179	95	657
125°	944	959	981	989	992	842
135°	1168	1186	1197	1208	1206	902
145°	1355	1353	1373	1381	1376	847
155°	1492	1481	1495	1502	1493	687
165°	1572	1565	1568	1576	1568	444
175°	1608	1599	1602	1610	1598	153
180°	1604	1604	1604	1604	1604	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3274.1	3274.1	3274.1	3274.1	3274.1
2.5°	3288.8	3274.1	3241.4	3271.2	3265.3
5°	3274.1	3259.3	3220.6	3247.4	3238.5
7.5°	3247.4	3229.7	3188.2	3199.9	3185.1
10°	3211.8	3191.1	3132.0	3122.9	3105.3
12.5°	3167.5	3140.8	3060.6	3043.0	3010.3
15°	3114.1	3081.3	2980.7	2924.5	2894.9
17.5°	3051.8	3004.3	2879.9	2814.8	2767.3
20°	2980.7	2921.3	2773.3	2699.4	2634.0
22.5°	2903.7	2835.5	2663.6	2563.0	2518.7
25°	2826.7	2731.8	2536.2	2414.9	2370.3
27.5°	2734.9	2634.0	2417.7	2278.5	2210.3
30°	2637.2	2524.3	2287.3	2136.4	2056.3
32.5°	2542.3	2405.8	2163.1	1985.2	1911.0
35°	2435.6	2284.5	2023.9	1837.1	1771.7
37.5°	2331.9	2168.8	1893.4	1688.8	1614.9
40°	2222.2	2044.6	1757.0	1546.7	1469.7
42.5°	2109.7	1920.1	1620.9	1401.4	1327.5
45°	1991.1	1792.5	1481.6	1271.0	1199.9
47.5°	1878.7	1668.3	1348.3	1137.7	1072.6
50°	1754.1	1543.8	1217.8	1013.2	951.3
52.5°	1632.4	1410.2	1093.4	897.8	841.5
55°	1513.9	1282.9	962.9	785.3	729.0
57.5°	1392.7	1155.6	847.6	681.5	634.1
60°	1268.1	1031.1	725.9	575.0	527.5
62.5°	1146.8	909.7	622.1	480.1	456.5
65°	1022.3	782.1	515.6	414.9	405.8
67.5°	903.8	663.6	414.9	364.3	355.5
70°	779.3	548.3	343.6	314.0	302.1
72.5°	660.8	441.3	287.3	263.7	257.8
75°	545.1	337.6	237.0	216.3	213.4
77.5°	429.8	239.9	186.7	174.8	168.8
80°	322.8	172.0	142.1	130.5	130.5
82.5°	225.1	115.7	97.8	91.8	91.8
85°	127.3	65.0	56.2	56.2	56.2
87.5°	47.5	23.6	23.6	20.8	20.8
90°	1.1	13.9	23.1	29.1	31.3
92.5°	29.1	24.4	27.8	30.2	31.3
95°	75.4	37.1	45.2	51.2	49.9
97.5°	135.8	40.6	59.1	62.7	63.8
100°	205.5	46.4	66.1	75.4	77.7
102.5°	282.0	279.8	68.5	81.2	84.8
105°	352.8	387.7	70.8	83.5	88.2
107.5°	435.3	464.2	73.2	85.9	90.5
110°	514.3	538.5	203.2	87.1	91.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	588.5	609.3	589.6	89.3	92.9
115°	667.4	687.1	716.2	178.8	95.2
117.5°	735.9	759.1	778.9	612.8	308.7
120°	812.5	829.9	850.9	864.7	708.1
122.5°	877.4	896.0	919.3	926.2	927.5
125°	943.6	958.8	980.8	989.0	992.4
127.5°	1004.0	1020.3	1037.8	1049.3	1050.4
130°	1060.9	1079.5	1092.2	1105.0	1103.9
132.5°	1119.0	1134.1	1146.8	1157.2	1156.1
135°	1167.8	1186.4	1196.7	1208.4	1206.0
137.5°	1218.7	1232.6	1244.4	1255.9	1252.5
140°	1268.6	1278.0	1290.7	1301.2	1295.4
142.5°	1310.5	1318.7	1333.7	1342.9	1337.1
145°	1354.6	1353.4	1373.1	1381.2	1375.5
147.5°	1392.8	1389.3	1409.1	1414.8	1410.3
150°	1430.0	1421.9	1440.5	1447.4	1441.6
152.5°	1461.3	1452.1	1469.4	1476.5	1468.3
155°	1491.5	1481.1	1495.1	1502.0	1492.7
157.5°	1515.9	1506.6	1517.1	1525.3	1515.9
160°	1536.8	1529.8	1536.8	1543.7	1535.6
162.5°	1555.3	1548.4	1554.2	1562.3	1551.9
165°	1571.6	1564.7	1568.1	1576.3	1568.1
167.5°	1584.4	1577.4	1581.0	1589.1	1578.6
170°	1594.9	1587.8	1590.2	1598.3	1587.8
172.5°	1601.8	1594.9	1597.2	1605.4	1594.9
175°	1607.6	1599.4	1601.8	1609.9	1598.3
177.5°	1609.9	1601.8	1603.0	1611.1	1600.7
180°	1604.1	1604.1	1604.1	1604.1	1604.1



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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	11.25	12.16	12.14	13.06	14.20	7.23	8.14	8.11	9.04	10.18
	3H	12.94	13.75	13.83	14.66	15.83	8.42	9.24	9.32	10.14	11.31
	4H	13.55	14.32	14.46	15.23	16.41	8.88	9.65	9.79	10.56	11.74
	6H	13.98	14.68	14.90	15.60	16.79	9.20	9.91	10.13	10.83	12.02
	8H	14.10	14.78	15.04	15.71	16.90	9.30	9.97	10.23	10.91	12.10
	12H	14.17	14.81	15.10	15.74	16.95	9.34	9.98	10.28	10.91	12.13
4H	2H	11.28	12.05	12.20	12.96	14.14	7.83	8.60	8.75	9.51	10.69
	3H	13.12	13.76	14.05	14.70	15.89	9.19	9.83	10.12	10.77	11.97
	4H	13.81	14.39	14.75	15.34	16.55	9.74	10.32	10.68	11.26	12.48
	6H	14.33	14.83	15.28	15.80	17.01	10.17	10.67	11.12	11.63	12.85
	8H	14.51	14.98	15.46	15.93	17.17	10.30	10.77	11.25	11.72	12.95
	12H	14.61	15.03	15.58	16.00	17.24	10.37	10.79	11.34	11.76	13.00
8H	4H	13.79	14.25	14.74	15.21	16.44	10.03	10.50	10.98	11.45	12.68
	6H	14.36	14.74	15.34	15.74	16.97	10.55	10.94	11.53	11.94	13.17
	8H	14.57	14.91	15.56	15.90	17.15	10.74	11.08	11.73	12.07	13.32
	12H	14.72	15.02	15.71	16.00	17.29	10.87	11.17	11.86	12.15	13.44
12H	4H	13.74	14.16	14.72	15.14	16.37	10.04	10.46	11.01	11.43	12.67
	6H	14.33	14.67	15.32	15.66	16.91	10.60	10.94	11.59	11.93	13.18
	8H	14.56	14.86	15.55	15.84	17.13	10.82	11.12	11.81	12.10	13.39