

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: P921157

Luminaire Tested: DFN2DIP-TR4F0-100D110US935-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921157
REPORT IS A COMBINATION OF REPORTS P902028 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D110US935-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

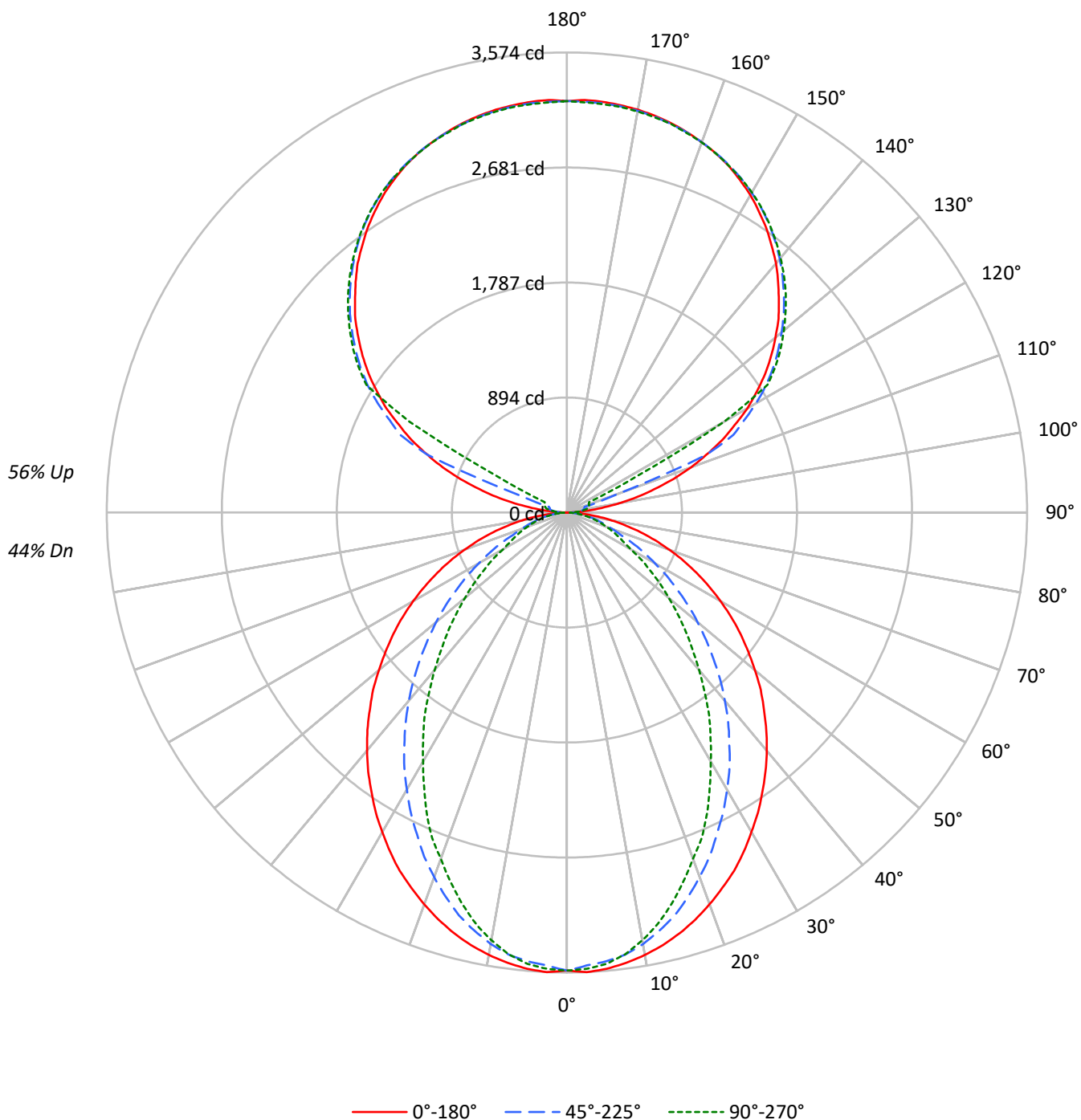
Lumens per Lamp: N/A
Luminaire Lumens: 16694.7 lumens
Efficiency: N/A
Efficacy: 89.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 185.8
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

TEST NUMBER: P921157

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US935-RLLONL

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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	50	50	50			44
1	97	93	89	86	89	85	82	79	71	68	66	57	56	55	45	44	43			38
2	89	81	76	71	81	75	70	66	62	59	56	51	48	46	40	39	37			32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32			28
4	74	64	56	51	68	59	52	47	49	45	41	41	37	34	33	30	28			24
5	68	57	49	44	62	53	46	41	44	39	35	37	33	30	30	27	25			21
6	63	51	44	38	58	47	41	36	40	35	31	33	29	26	27	24	22			19
7	58	46	39	33	53	43	36	31	37	31	27	30	26	24	25	22	20			17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18			15
9	50	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16			14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2827	2827	2827
5°	2832	2782	2800
10°	2803	2727	2709
15°	2765	2637	2568
20°	2714	2513	2395
25°	2662	2374	2228
30°	2592	2231	2016
35°	2523	2077	1830
40°	2453	1918	1617
45°	2371	1742	1424
50°	2287	1564	1235
55°	2200	1374	1053
60°	2098	1175	867
65°	1981	973	780
70°	1840	784	706
75°	1662	691	642
80°	1404	580	557
85°	979	387	418

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2371 cd/sqm

TEST NUMBER: P921157

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	333.5	2.0
10°-20°	915.5	5.5
20°-30°	1285.4	7.7
30°-40°	1401.2	8.4
40°-50°	1287.8	7.7
50°-60°	1011.4	6.1
60°-70°	658.3	3.9
70°-80°	338.9	2.0
80°-90°	92.1	0.6
90°-100°	105.4	0.6
100°-110°	392.9	2.4
110°-120°	1042.0	6.2
120°-130°	1728.3	10.4
130°-140°	1835.9	11.0
140°-150°	1706.2	10.2
150°-160°	1371.8	8.2
160°-170°	883.9	5.3
170°-180°	304.2	1.8
0°-30°	2534.4	15.2
0°-40°	3935.6	23.6
0°-60°	6234.8	37.3
0°-90°	7324.1	43.9
90°-120°	1540.3	9.2
90°-150°	6810.7	40.8
90°-180°	9371.0	56.1
0°-180°	16694.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3558	3558	3558	3558	3558	
5°	3558	3542	3500	3530	3520	337
15°	3385	3349	3240	3178	3146	954
25°	3072	2969	2757	2625	2576	1413
35°	2647	2483	2200	1997	1926	1657
45°	2164	1948	1610	1381	1304	1671
55°	1646	1394	1046	854	792	1470
65°	1111	850	560	451	441	1102
75°	592	367	258	235	232	627
85°	138	71	61	61	61	159
90°	2	28	46	58	62	16
95°	150	74	90	102	99	178
105°	703	773	141	166	176	751
115°	1330	1369	1427	356	190	1309
125°	1880	1910	1954	1971	1978	1677
135°	2327	2364	2384	2408	2403	1797
145°	2699	2697	2736	2752	2741	1688
155°	2972	2951	2979	2993	2974	1370
165°	3132	3118	3125	3141	3125	885
175°	3203	3187	3192	3208	3185	305
180°	3196	3196	3196	3196	3196	

TEST NUMBER: P921157

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3558.5	3558.5	3558.5	3558.5	3558.5
2.5°	3574.5	3558.5	3522.9	3555.4	3548.9
5°	3558.5	3542.4	3500.4	3529.5	3519.8
7.5°	3529.5	3510.3	3465.2	3477.8	3461.8
10°	3490.8	3468.3	3404.0	3394.1	3375.0
12.5°	3442.7	3413.6	3326.5	3307.4	3271.8
15°	3384.6	3349.0	3239.7	3178.5	3146.4
17.5°	3316.9	3265.3	3130.1	3059.3	3007.7
20°	3239.7	3175.1	3014.2	2933.9	2862.8
22.5°	3156.0	3081.9	2894.9	2785.7	2737.5
25°	3072.3	2969.2	2756.6	2624.7	2576.2
27.5°	2972.5	2862.8	2627.8	2476.4	2402.3
30°	2866.3	2743.6	2486.0	2322.0	2234.9
32.5°	2763.1	2614.8	2351.0	2157.7	2077.0
35°	2647.2	2482.9	2199.7	1996.7	1925.6
37.5°	2534.5	2357.2	2057.9	1835.5	1755.1
40°	2415.3	2222.2	1909.6	1681.0	1597.3
42.5°	2292.9	2086.9	1761.7	1523.2	1442.9
45°	2164.1	1948.2	1610.3	1381.4	1304.2
47.5°	2041.9	1813.3	1465.4	1236.5	1165.8
50°	1906.5	1677.9	1323.6	1101.2	1033.9
52.5°	1774.3	1532.7	1188.3	975.8	914.6
55°	1645.5	1394.4	1046.5	853.5	792.3
57.5°	1513.6	1255.9	921.2	740.7	689.1
60°	1378.3	1120.7	788.9	624.9	573.3
62.5°	1246.4	988.8	676.1	521.8	496.1
65°	1111.1	850.1	560.3	451.0	441.1
67.5°	982.3	721.3	451.0	396.0	386.4
70°	847.0	595.9	373.4	341.3	328.4
72.5°	718.2	479.7	312.3	286.6	280.2
75°	592.5	367.0	257.6	235.1	232.0
77.5°	467.1	260.7	202.9	189.9	183.5
80°	350.9	186.9	154.5	141.8	141.8
82.5°	244.6	125.7	106.2	99.8	99.8
85°	138.4	70.7	61.1	61.1	61.1
87.5°	51.6	25.7	25.7	22.6	22.6
90°	2.2	27.7	46.1	57.9	62.3
92.5°	57.9	48.6	55.4	60.2	62.3
95°	150.2	73.9	90.1	101.9	99.4
97.5°	270.5	81.0	117.8	124.9	127.2
100°	409.5	92.6	131.8	150.2	154.9
102.5°	561.9	557.5	136.5	161.8	168.9
105°	703.1	772.6	141.2	166.4	175.8
107.5°	867.4	925.0	145.9	171.1	180.5
110°	1024.7	1073.1	404.8	173.6	182.6

TEST NUMBER: P921157

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1172.8	1214.2	1174.9	178.0	185.1
115°	1329.8	1369.1	1427.1	356.2	189.8
117.5°	1466.4	1512.5	1552.0	1221.1	615.2
120°	1619.0	1653.6	1695.4	1723.1	1410.8
122.5°	1748.4	1785.5	1831.9	1845.6	1848.1
125°	1880.2	1910.5	1954.4	1970.6	1977.5
127.5°	2000.5	2032.9	2067.8	2090.8	2093.1
130°	2113.9	2151.0	2176.3	2201.8	2199.7
132.5°	2229.6	2259.8	2285.1	2305.9	2303.8
135°	2326.8	2363.9	2384.4	2407.9	2403.1
137.5°	2428.4	2456.2	2479.5	2502.6	2495.7
140°	2527.9	2546.5	2571.8	2592.6	2581.1
142.5°	2611.3	2627.5	2657.5	2675.9	2664.4
145°	2699.2	2696.7	2736.0	2752.3	2740.7
147.5°	2775.3	2768.5	2807.7	2819.3	2810.2
150°	2849.5	2833.3	2870.3	2884.1	2872.5
152.5°	2911.8	2893.4	2928.0	2942.0	2925.8
155°	2972.0	2951.3	2979.1	2992.8	2974.4
157.5°	3020.6	3002.1	3023.0	3039.2	3020.6
160°	3062.3	3048.3	3062.3	3076.0	3059.8
162.5°	3099.1	3085.4	3096.9	3113.1	3092.3
165°	3131.5	3117.8	3124.6	3140.8	3124.6
167.5°	3157.0	3143.1	3150.2	3166.4	3145.6
170°	3177.9	3163.9	3168.6	3184.8	3163.9
172.5°	3191.6	3177.9	3182.6	3198.8	3177.9
175°	3203.2	3187.0	3191.6	3207.9	3184.8
177.5°	3207.9	3191.6	3194.1	3210.3	3189.5
180°	3196.4	3196.4	3196.4	3196.4	3196.4

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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	10.15	10.93	11.17	11.95	13.31	6.13	6.91	7.14	7.93	9.29
	3H	11.83	12.53	12.85	13.55	14.93	7.31	8.01	8.34	9.04	10.42
	4H	12.43	13.09	13.47	14.12	15.51	7.76	8.42	8.80	9.45	10.84
	6H	12.85	13.46	13.90	14.50	15.89	8.08	8.69	9.13	9.72	11.12
	8H	12.98	13.56	14.03	14.61	16.00	8.17	8.75	9.22	9.80	11.19
	12H	13.04	13.59	14.09	14.63	16.05	8.21	8.76	9.27	9.81	11.22
4H	2H	10.16	10.83	11.21	11.86	13.24	6.71	7.38	7.76	8.41	9.79
	3H	11.99	12.54	13.04	13.60	15.00	8.06	8.61	9.11	9.67	11.07
	4H	12.68	13.18	13.74	14.23	15.66	8.61	9.11	9.67	10.16	11.58
	6H	13.19	13.62	14.26	14.70	16.11	9.03	9.46	10.09	10.53	11.95
	8H	13.37	13.77	14.43	14.84	16.27	9.15	9.56	10.22	10.62	12.06
	12H	13.46	13.82	14.54	14.90	16.34	9.22	9.58	10.30	10.66	12.10
8H	4H	12.64	13.05	13.71	14.11	15.55	8.88	9.29	9.95	10.35	11.79
	6H	13.21	13.54	14.30	14.65	16.08	9.40	9.74	10.49	10.84	12.27
	8H	13.42	13.72	14.52	14.81	16.26	9.59	9.89	10.69	10.98	12.43
	12H	13.56	13.82	14.66	14.90	16.39	9.71	9.97	10.81	11.06	12.54
12H	4H	12.59	12.96	13.68	14.04	15.48	8.89	9.25	9.97	10.33	11.77
	6H	13.18	13.48	14.28	14.57	16.02	9.45	9.74	10.55	10.84	12.28
	8H	13.40	13.66	14.50	14.75	16.23	9.66	9.92	10.76	11.00	12.49

END OF REPORT