

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: P921193

Luminaire Tested: DFN2DIP-TR4F0-110D110US935-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921193
REPORT IS A COMBINATION OF REPORTS P902030 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D110US935-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

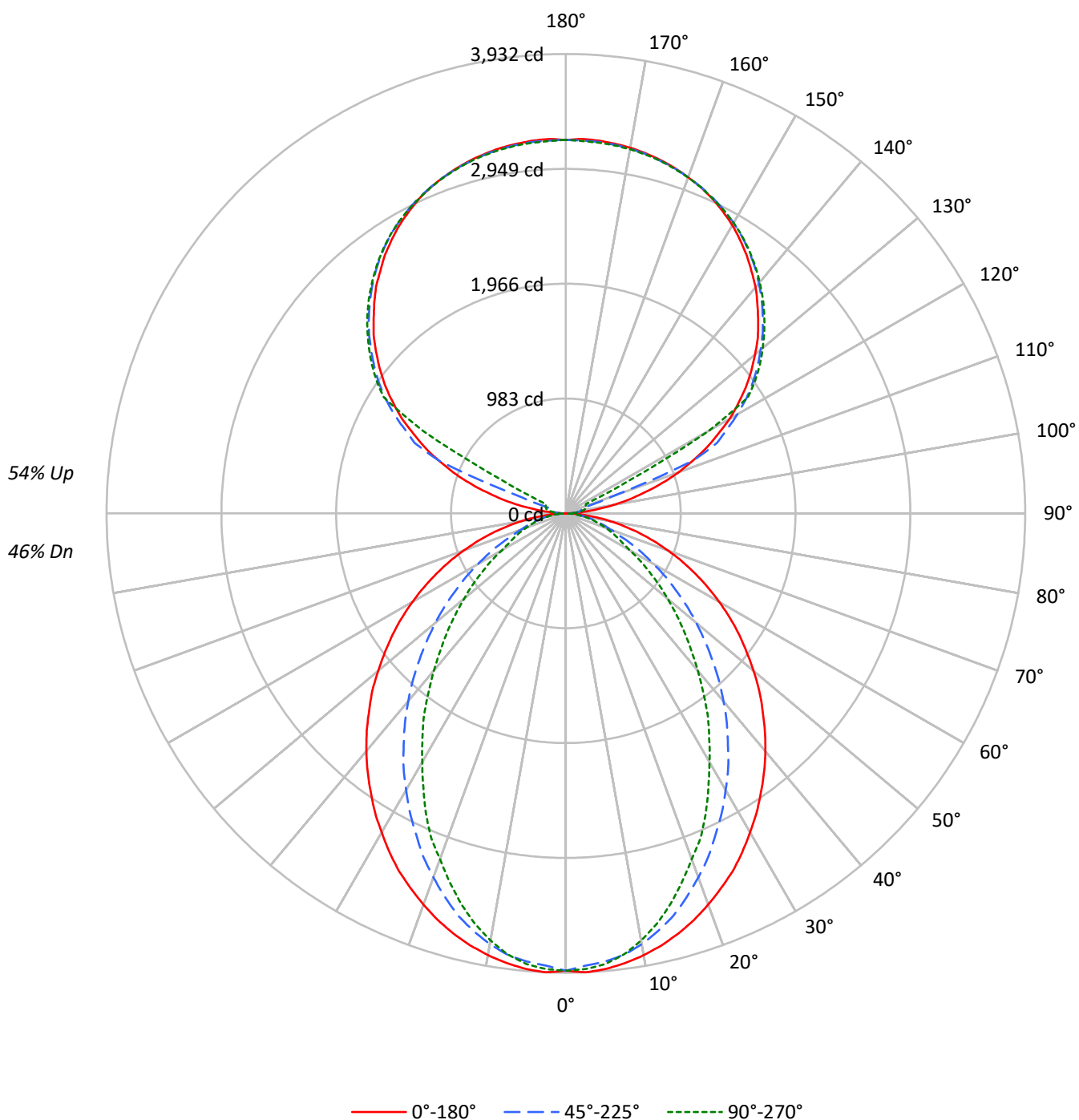
Lumens per Lamp: N/A
Luminaire Lumens: 17426.6 lumens
Efficiency: N/A
Efficacy: 88.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 197.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	106	106	106	106	98	98	98	98	81	81	81		66	66	66		53
1	97	93	90	86	89	86	83	80	72	70	68		59	58	56		47
2	89	82	76	71	82	76	70	66	63	60	57		52	50	48		42
3	81	72	65	60	75	67	61	56	56	52	48		47	43	41		38
4	75	64	57	51	68	60	53	48	50	45	41		42	38	35		34
5	69	58	50	44	63	53	46	41	45	40	36		38	34	31		31
6	63	52	44	38	58	48	41	36	41	36	32		34	30	27		28
7	59	47	39	34	54	44	37	32	37	32	28		31	27	24		26
8	55	43	35	30	50	40	33	28	34	29	25		29	25	22		24
9	51	39	32	27	47	36	30	25	31	26	22		27	23	20		22
10	48	36	29	24	44	33	27	23	29	24	20		25	21	18		20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3110	3110	3110
5°	3115	3060	3080
10°	3084	3000	2979
15°	3041	2901	2824
20°	2985	2764	2634
25°	2928	2611	2451
30°	2851	2454	2218
35°	2775	2285	2013
40°	2698	2110	1779
45°	2609	1916	1566
50°	2516	1721	1358
55°	2420	1511	1159
60°	2308	1293	954
65°	2179	1070	858
70°	2024	863	777
75°	1828	761	706
80°	1544	638	612
85°	1076	425	459

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2609 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	2.1
10°-20°	1007.1	5.8
20°-30°	1413.9	8.1
30°-40°	1541.3	8.8
40°-50°	1416.6	8.1
50°-60°	1112.5	6.4
60°-70°	724.2	4.2
70°-80°	372.8	2.1
80°-90°	100.8	0.6
90°-100°	105.4	0.6
100°-110°	392.9	2.3
110°-120°	1042.0	6.0
120°-130°	1728.3	9.9
130°-140°	1835.9	10.5
140°-150°	1706.2	9.8
150°-160°	1371.8	7.9
160°-170°	883.9	5.1
170°-180°	304.2	1.7
0°-30°	2787.9	16.0
0°-40°	4329.1	24.8
0°-60°	6858.3	39.4
0°-90°	8056.0	46.2
90°-120°	1540.3	8.8
90°-150°	6810.7	39.1
90°-180°	9371.0	53.8
0°-180°	17426.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3914	3914	3914	3914	3914	
5°	3914	3897	3850	3882	3872	371
15°	3723	3684	3564	3496	3461	1049
25°	3380	3266	3032	2887	2834	1554
35°	2912	2731	2420	2196	2118	1823
45°	2381	2143	1771	1520	1435	1838
55°	1810	1534	1151	939	872	1617
65°	1222	935	616	496	485	1212
75°	652	404	283	259	255	689
85°	152	78	67	67	67	175
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3914.4	3914.4	3914.4	3914.4	3914.4
2.5°	3932.0	3914.4	3875.3	3911.0	3903.9
5°	3914.4	3896.7	3850.5	3882.4	3871.9
7.5°	3882.4	3861.3	3811.7	3825.7	3807.9
10°	3840.0	3815.1	3744.5	3733.5	3712.5
12.5°	3786.9	3755.0	3659.2	3638.1	3599.0
15°	3723.0	3684.0	3563.7	3496.4	3461.0
17.5°	3648.7	3591.9	3443.0	3365.2	3308.5
20°	3563.7	3492.6	3315.6	3227.3	3149.1
22.5°	3471.6	3390.0	3184.5	3064.2	3011.2
25°	3379.5	3266.0	3032.3	2887.2	2833.8
27.5°	3269.8	3149.1	2890.5	2724.0	2642.5
30°	3152.9	3018.0	2734.6	2554.2	2458.3
32.5°	3039.4	2876.2	2586.1	2373.4	2284.7
35°	2912.0	2731.2	2419.7	2196.4	2118.2
37.5°	2788.0	2592.9	2263.6	2019.0	1930.7
40°	2656.8	2444.5	2100.6	1849.1	1757.0
42.5°	2522.2	2295.6	1937.8	1675.5	1587.2
45°	2380.6	2143.0	1771.3	1519.5	1434.6
47.5°	2246.0	1994.6	1612.0	1360.1	1282.4
50°	2097.1	1845.7	1456.0	1211.3	1137.3
52.5°	1951.7	1686.0	1307.2	1073.4	1006.1
55°	1810.0	1533.8	1151.2	938.8	871.6
57.5°	1665.0	1381.6	1013.2	814.8	758.0
60°	1516.1	1232.8	867.8	687.4	630.7
62.5°	1371.1	1087.7	743.8	573.9	545.7
65°	1222.2	935.0	616.4	496.1	485.2
67.5°	1080.6	793.4	496.1	435.6	425.1
70°	931.7	655.5	410.8	375.5	361.2
72.5°	790.0	527.7	343.5	315.3	308.2
75°	651.7	403.6	283.4	258.6	255.2
77.5°	513.8	286.8	223.3	209.0	201.8
80°	386.0	205.6	169.9	156.0	156.0
82.5°	269.1	138.3	116.9	109.8	109.8
85°	152.2	77.8	67.2	67.2	67.2
87.5°	56.7	28.2	28.2	24.8	24.8
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



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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	10.72	11.52	11.72	12.52	13.85	6.69	7.49	7.69	8.50	9.82
	3H	12.40	13.11	13.40	14.12	15.47	7.88	8.60	8.89	9.61	10.96
	4H	13.00	13.68	14.02	14.69	16.05	8.33	9.01	9.35	10.02	11.38
	6H	13.42	14.05	14.45	15.06	16.43	8.65	9.27	9.68	10.29	11.66
	8H	13.55	14.14	14.58	15.18	16.54	8.74	9.33	9.78	10.37	11.73
	12H	13.61	14.17	14.65	15.20	16.59	8.78	9.35	9.82	10.38	11.76
4H	2H	10.74	11.41	11.76	12.43	13.78	7.29	7.96	8.31	8.98	10.33
	3H	12.56	13.12	13.60	14.17	15.54	8.63	9.20	9.67	10.24	11.61
	4H	13.25	13.77	14.29	14.80	16.19	9.18	9.70	10.22	10.73	12.12
	6H	13.77	14.21	14.82	15.27	16.65	9.60	10.04	10.65	11.10	12.49
	8H	13.94	14.35	14.99	15.40	16.81	9.73	10.14	10.78	11.19	12.60
	12H	14.03	14.41	15.10	15.47	16.88	9.79	10.17	10.86	11.23	12.64
8H	4H	13.22	13.63	14.27	14.68	16.08	9.46	9.87	10.51	10.92	12.33
	6H	13.78	14.12	14.86	15.22	16.62	9.98	10.32	11.05	11.41	12.81
	8H	14.00	14.30	15.08	15.38	16.79	10.17	10.47	11.25	11.55	12.96
	12H	14.14	14.40	15.22	15.47	16.93	10.29	10.55	11.37	11.62	13.08
12H	4H	13.17	13.54	14.24	14.61	16.01	9.46	9.84	10.53	10.90	12.31
	6H	13.76	14.06	14.84	15.13	16.55	10.03	10.33	11.11	11.40	12.82
	8H	13.98	14.24	15.06	15.31	16.77	10.24	10.50	11.32	11.57	13.03