

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: P918435

Luminaire Tested: DFN2DIP-TR4F0-110D040US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918435
REPORT IS A COMBINATION OF REPORTS P901903 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D040US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

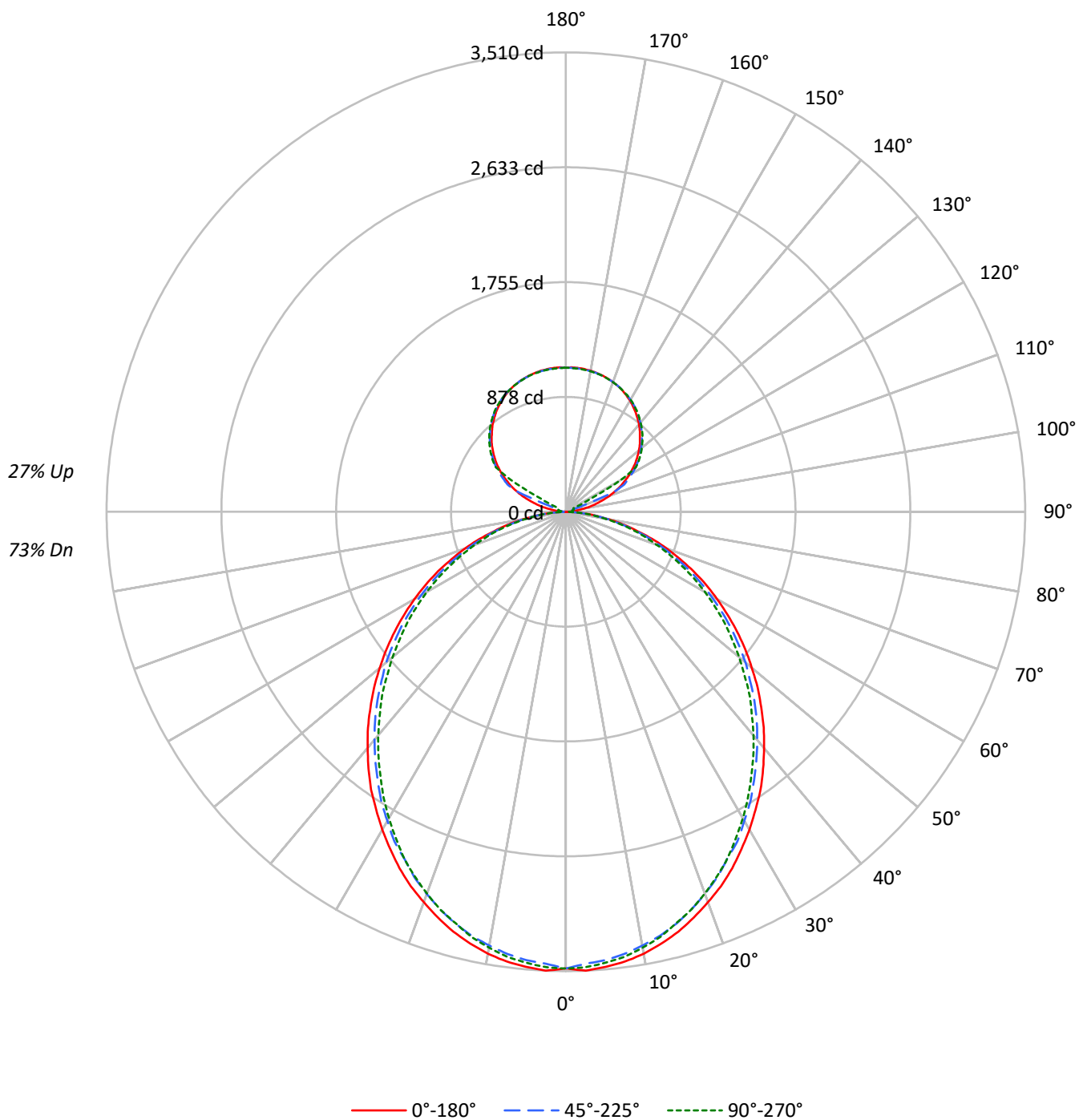
Lumens per Lamp: N/A
Luminaire Lumens: 12107.1 lumens
Efficiency: N/A
Efficacy: 84.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 143
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

TEST NUMBER: P918435

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918435

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US930-FLONL

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	113	113	113	113	107	107	107	107	96	96	96		87	87	87		78
1	103	99	95	91	98	94	90	87	85	82	79		76	74	72		69
2	94	86	80	74	89	82	76	71	74	70	66		67	64	60		60
3	86	76	68	62	81	72	65	60	66	60	55		59	55	51		54
4	78	67	59	53	74	64	57	51	58	52	47		53	48	44		48
5	72	60	52	45	68	57	50	44	52	46	41		48	42	38		43
6	67	54	46	39	63	52	44	38	47	41	36		43	38	34		39
7	62	49	41	35	58	47	39	34	43	36	32		39	34	30		36
8	57	45	37	31	54	43	35	30	39	33	28		36	31	27		33
9	54	41	33	28	51	39	32	27	36	30	26		33	28	24		30
10	50	38	30	25	48	36	29	24	33	27	23		31	26	22		28

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2772	2772	2772
5°	2777	2734	2752
10°	2754	2697	2715
15°	2714	2652	2656
20°	2659	2591	2597
25°	2605	2517	2528
30°	2536	2448	2440
35°	2472	2367	2347
40°	2392	2285	2259
45°	2313	2203	2169
50°	2226	2117	2064
55°	2135	2018	1968
60°	2033	1899	1858
65°	1921	1777	1728
70°	1778	1628	1588
75°	1580	1449	1458
80°	1343	1222	1212
85°	972	829	803

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2313 cd/sqm

TEST NUMBER: P918435

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US930-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.4	2.7
10°-20°	924.1	7.6
20°-30°	1358.1	11.2
30°-40°	1577.3	13.0
40°-50°	1575.4	13.0
50°-60°	1373.7	11.3
60°-70°	1015.5	8.4
70°-80°	574.5	4.7
80°-90°	153.6	1.3
90°-100°	36.3	0.3
100°-110°	135.3	1.1
110°-120°	358.8	3.0
120°-130°	595.1	4.9
130°-140°	632.1	5.2
140°-150°	587.5	4.9
150°-160°	472.3	3.9
160°-170°	304.4	2.5
170°-180°	104.8	0.9
0°-30°	2610.6	21.6
0°-40°	4187.9	34.6
0°-60°	7137.0	58.9
0°-90°	8880.5	73.3
90°-120°	530.4	4.4
90°-150°	2345.2	19.4
90°-180°	3227.0	26.7
0°-180°	12107.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3490	3490	3490	3490	3490	
5°	3490	3476	3439	3466	3460	331
15°	3322	3302	3258	3272	3255	936
25°	3006	2980	2923	2929	2923	1383
35°	2594	2560	2507	2486	2470	1620
45°	2111	2087	2037	2000	1987	1629
55°	1597	1577	1537	1497	1480	1428
65°	1077	1057	1024	993	977	1065
75°	564	557	540	520	527	602
85°	138	134	131	121	118	153
90°	1	10	16	20	21	11
95°	52	25	31	35	34	61
105°	242	266	49	57	60	259
115°	458	471	491	123	65	451
125°	647	658	673	679	681	577
135°	801	814	821	829	828	619
145°	929	929	942	948	944	581
155°	1023	1016	1026	1030	1024	472
165°	1078	1074	1076	1082	1076	305
175°	1103	1097	1099	1105	1097	105
180°	1101	1101	1101	1101	1101	

TEST NUMBER: P918435

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US930-FLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3489.6	3489.6	3489.6	3489.6	3489.6
2.5°	3509.9	3493.1	3456.1	3489.6	3483.2
5°	3489.6	3476.4	3439.4	3466.1	3459.7
7.5°	3466.1	3446.2	3409.2	3436.2	3429.5
10°	3429.5	3405.9	3365.7	3392.4	3382.4
12.5°	3378.9	3358.9	3318.8	3335.5	3328.7
15°	3321.9	3302.0	3258.2	3271.7	3255.0
17.5°	3251.4	3231.5	3187.7	3204.4	3187.7
20°	3174.2	3154.2	3107.3	3117.2	3104.1
22.5°	3097.3	3067.0	3023.2	3023.2	3016.4
25°	3006.5	2979.8	2922.8	2929.3	2922.8
27.5°	2905.7	2882.2	2838.8	2828.8	2812.1
30°	2805.4	2778.3	2728.1	2718.1	2704.6
32.5°	2697.8	2677.9	2624.1	2603.8	2590.3
35°	2593.9	2560.4	2506.6	2486.3	2469.6
37.5°	2476.4	2446.1	2392.4	2368.8	2352.1
40°	2355.7	2328.7	2274.9	2245.0	2231.5
42.5°	2238.2	2211.2	2157.8	2123.9	2104.0
45°	2110.8	2087.2	2036.7	2000.1	1986.6
47.5°	1986.6	1963.1	1909.3	1872.3	1852.3
50°	1855.5	1838.8	1791.8	1744.8	1728.1
52.5°	1728.1	1704.5	1661.2	1624.1	1600.6
55°	1597.4	1577.1	1536.9	1496.6	1479.9
57.5°	1466.4	1449.7	1405.9	1365.6	1352.1
60°	1335.4	1322.3	1275.2	1238.2	1228.2
62.5°	1207.9	1184.5	1151.0	1117.5	1104.0
65°	1077.3	1057.0	1023.5	993.3	976.6
67.5°	943.1	926.0	896.1	872.6	859.1
70°	818.8	805.3	775.0	751.5	738.3
72.5°	691.4	677.8	661.1	637.6	627.6
75°	563.5	557.2	540.1	520.2	526.9
77.5°	449.6	436.1	429.3	419.4	409.4
80°	335.7	332.2	325.4	315.4	308.7
82.5°	228.2	228.2	225.0	211.5	211.5
85°	137.5	134.2	131.0	120.7	117.5
87.5°	60.5	53.7	47.0	37.0	33.4
90°	0.7	9.5	15.9	20.0	21.4
92.5°	20.0	16.7	19.1	20.7	21.4
95°	51.7	25.4	31.0	35.1	34.2
97.5°	93.2	27.9	40.6	43.0	43.8
100°	141.0	31.9	45.4	51.7	53.3
102.5°	193.5	192.0	47.0	55.7	58.1
105°	242.1	266.0	48.6	57.3	60.5
107.5°	298.6	318.5	50.2	58.9	62.1
110°	352.9	369.5	139.4	59.8	62.9



TEST NUMBER: P918435

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	403.8	418.1	404.6	61.3	63.8
115°	457.9	471.4	491.4	122.6	65.4
117.5°	504.9	520.8	534.4	420.4	211.8
120°	557.5	569.4	583.8	593.4	485.8
122.5°	602.0	614.8	630.8	635.5	636.3
125°	647.4	657.9	672.9	678.6	680.9
127.5°	688.8	700.0	712.0	720.0	720.7
130°	727.9	740.7	749.3	758.1	757.4
132.5°	767.7	778.1	786.8	794.0	793.3
135°	801.2	814.0	821.1	829.1	827.5
137.5°	836.2	845.7	853.8	861.7	859.3
140°	870.4	876.9	885.6	892.8	888.8
142.5°	899.2	904.7	915.1	921.4	917.5
145°	929.4	928.6	942.1	947.7	943.7
147.5°	955.6	953.2	966.8	970.8	967.7
150°	981.1	975.6	988.4	993.1	989.1
152.5°	1002.7	996.3	1008.2	1013.0	1007.5
155°	1023.4	1016.3	1025.8	1030.5	1024.2
157.5°	1040.1	1033.7	1041.0	1046.5	1040.1
160°	1054.4	1049.6	1054.4	1059.2	1053.6
162.5°	1067.1	1062.4	1066.4	1072.0	1064.8
165°	1078.3	1073.6	1075.9	1081.5	1075.9
167.5°	1087.1	1082.2	1084.8	1090.3	1083.1
170°	1094.3	1089.5	1091.0	1096.7	1089.5
172.5°	1099.0	1094.3	1095.9	1101.5	1094.3
175°	1102.9	1097.4	1099.0	1104.6	1096.7
177.5°	1104.6	1099.0	1099.8	1105.5	1098.3
180°	1100.7	1100.7	1100.7	1100.7	1100.7

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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	12.73	13.85	13.46	14.60	15.49	12.30	13.42	13.03	14.17	15.06
	3H	14.41	15.42	15.15	16.18	17.10	13.94	14.94	14.68	15.70	16.63
	4H	15.01	15.96	15.77	16.73	17.66	14.54	15.49	15.30	16.25	17.19
	6H	15.42	16.30	16.19	17.08	18.03	14.95	15.82	15.72	16.60	17.55
	8H	15.53	16.37	16.32	17.17	18.12	15.06	15.90	15.84	16.69	17.64
	12H	15.59	16.39	16.38	17.18	18.16	15.11	15.91	15.90	16.70	17.68
4H	2H	13.22	14.17	13.99	14.94	15.88	12.88	13.83	13.64	14.60	15.53
	3H	15.11	15.91	15.89	16.71	17.66	14.72	15.51	15.50	16.32	17.27
	4H	15.84	16.56	16.63	17.36	18.34	15.43	16.15	16.22	16.96	17.94
	6H	16.37	16.99	17.17	17.82	18.81	15.96	16.58	16.77	17.41	18.40
	8H	16.52	17.11	17.33	17.93	18.93	16.11	16.70	16.92	17.52	18.52
	12H	16.61	17.13	17.44	17.98	18.99	16.19	16.71	17.02	17.56	18.56
8H	4H	16.05	16.64	16.87	17.46	18.46	15.69	16.28	16.51	17.10	18.10
	6H	16.70	17.18	17.54	18.05	19.05	16.33	16.82	17.17	17.68	18.69
	8H	16.92	17.35	17.77	18.21	19.23	16.55	16.98	17.40	17.84	18.86
	12H	17.06	17.44	17.92	18.30	19.37	16.68	17.06	17.53	17.91	18.99
12H	4H	16.05	16.58	16.88	17.42	18.43	15.70	16.23	16.53	17.07	18.08
	6H	16.73	17.16	17.58	18.02	19.04	16.38	16.81	17.23	17.67	18.69
	8H	16.98	17.36	17.84	18.22	19.29	16.63	17.01	17.48	17.86	18.93