

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: P921016

Luminaire Tested: DFN2DIP-TR4F0-060D120US935-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921016
REPORT IS A COMBINATION OF REPORTS P900518 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D120US935-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

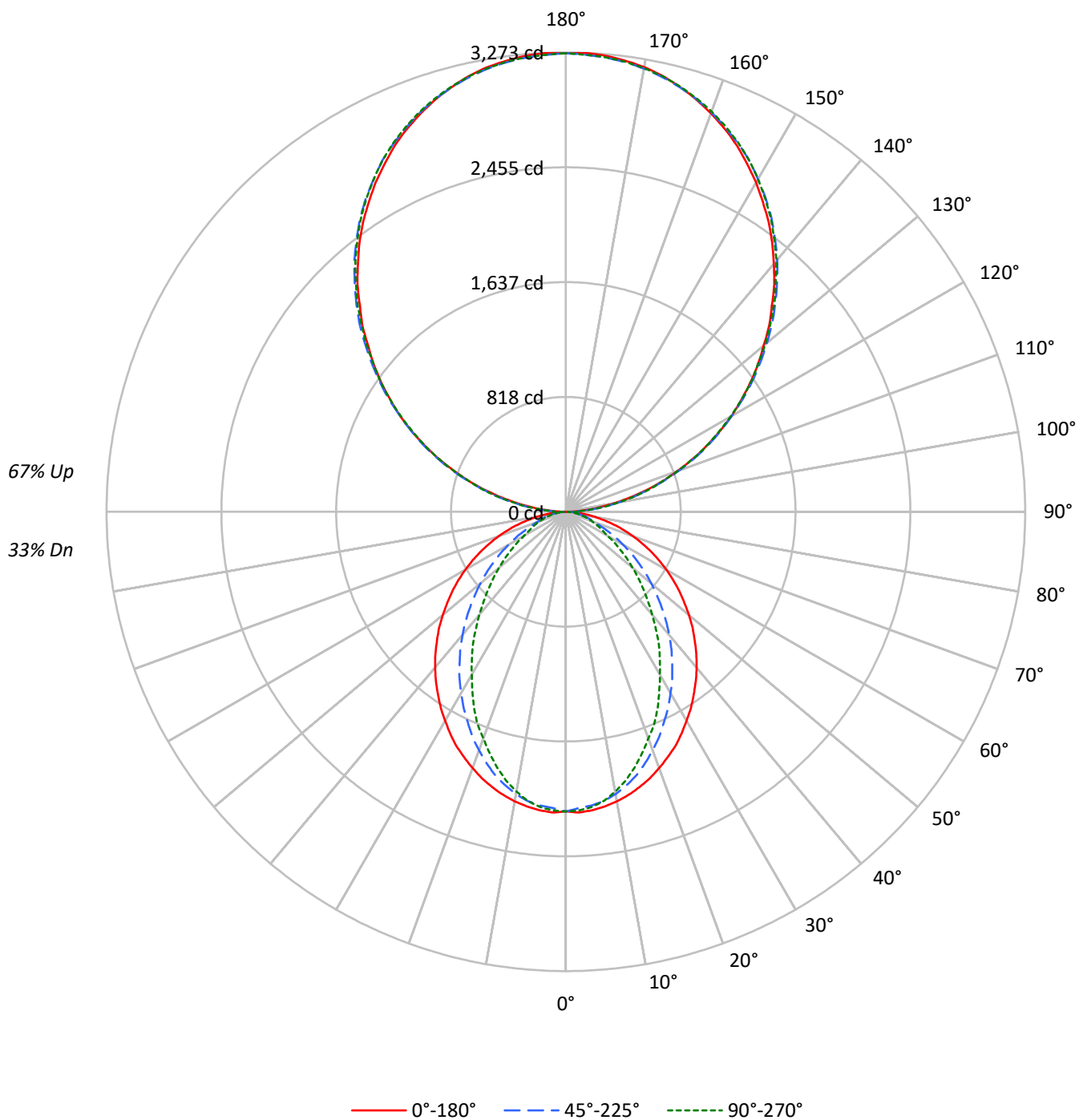
Lumens per Lamp: N/A
Luminaire Lumens: 13534.9 lumens
Efficiency: N/A
Efficacy: 93.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 144.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921016

CATALOG NUMBER: DFN2DIP-TR4F0-060D120US935-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P921016

CATALOG NUMBER: DFN2DIP-TR4F0-060D120US935-RLLFLL

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
RCR																	
0	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	79	73	68	77	71	67	62	57	54	51	44	42	40	32	31	29
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	29	27	25
4	72	62	54	49	65	56	50	45	45	41	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	36	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	15	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1696	1696	1696
5°	1699	1669	1680
10°	1682	1637	1625
15°	1659	1582	1541
20°	1628	1508	1437
25°	1597	1424	1337
30°	1555	1339	1210
35°	1514	1246	1098
40°	1472	1151	970
45°	1423	1045	854
50°	1372	938	741
55°	1320	824	632
60°	1259	705	520
65°	1189	584	468
70°	1104	471	424
75°	997	415	385
80°	842	348	334
85°	587	232	251

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2547 cd/sqm

TEST NUMBER: P921016

CATALOG NUMBER: DFN2DIP-TR4F0-060D120US935-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	200.1	1.5
10°-20°	549.3	4.1
20°-30°	771.2	5.7
30°-40°	840.7	6.2
40°-50°	772.7	5.7
50°-60°	606.8	4.5
60°-70°	395.0	2.9
70°-80°	203.3	1.5
80°-90°	61.2	0.5
90°-100°	202.2	1.5
100°-110°	642.4	4.7
110°-120°	1099.4	8.1
120°-130°	1445.9	10.7
130°-140°	1623.0	12.0
140°-150°	1591.6	11.8
150°-160°	1335.1	9.9
160°-170°	885.4	6.5
170°-180°	309.5	2.3
0°-30°	1520.7	11.2
0°-40°	2361.4	17.4
0°-60°	3740.9	27.6
0°-90°	4400.4	32.5
90°-120°	1944.1	14.4
90°-150°	6604.6	48.8
90°-180°	9134.0	67.5
0°-180°	13534.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2135	2135	2135	2135	2135	
5°	2135	2126	2100	2118	2112	202
15°	2031	2009	1944	1907	1888	572
25°	1843	1782	1654	1575	1546	848
35°	1588	1490	1320	1198	1155	994
45°	1298	1169	966	829	782	1003
55°	987	837	628	512	475	882
65°	667	510	336	271	265	661
75°	356	220	154	141	139	376
85°	83	42	37	37	37	95
90°	3	36	96	91	94	13
95°	144	171	176	176	171	160
105°	593	601	607	612	612	626
115°	1103	1119	1114	1111	1103	1091
125°	1605	1629	1622	1613	1610	1434
135°	2076	2106	2112	2109	2101	1604
145°	2520	2540	2555	2558	2548	1574
155°	2881	2889	2898	2912	2903	1326
165°	3135	3132	3132	3151	3138	884
175°	3262	3254	3248	3268	3251	310
180°	3268	3268	3268	3268	3268	

TEST NUMBER: P921016

CATALOG NUMBER: DFN2DIP-TR4F0-060D120US935-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2135.1	2135.1	2135.1	2135.1	2135.1
2.5°	2144.7	2135.1	2113.7	2133.2	2129.3
5°	2135.1	2125.5	2100.2	2117.7	2111.9
7.5°	2117.7	2106.2	2079.1	2086.7	2077.1
10°	2094.5	2080.9	2042.5	2036.5	2025.0
12.5°	2065.6	2048.1	1995.9	1984.4	1963.1
15°	2030.7	2009.4	1943.8	1907.1	1887.8
17.5°	1990.2	1959.2	1878.0	1835.6	1804.7
20°	1943.8	1905.0	1808.5	1760.3	1717.7
22.5°	1893.6	1849.1	1737.0	1671.4	1642.4
25°	1843.4	1781.5	1654.0	1574.9	1545.7
27.5°	1783.6	1717.7	1576.7	1485.8	1441.4
30°	1719.8	1646.1	1491.6	1393.2	1340.9
32.5°	1657.9	1568.9	1410.7	1294.6	1246.2
35°	1588.4	1489.8	1319.8	1198.0	1155.4
37.5°	1520.7	1414.3	1234.8	1101.3	1053.1
40°	1449.1	1333.3	1145.7	1008.6	958.4
42.5°	1375.8	1252.1	1057.0	913.9	865.7
45°	1298.5	1168.9	966.2	828.8	782.5
47.5°	1225.1	1088.0	879.3	741.9	699.5
50°	1143.9	1006.8	794.2	660.7	620.3
52.5°	1064.5	919.6	713.0	585.5	548.8
55°	987.3	836.6	627.9	512.1	475.4
57.5°	908.2	753.5	552.7	444.4	413.5
60°	827.0	672.4	473.4	375.0	344.0
62.5°	747.9	593.3	405.7	313.1	297.6
65°	666.7	510.1	336.2	270.6	264.7
67.5°	589.4	432.7	270.6	237.6	231.9
70°	508.2	357.5	224.0	204.8	197.0
72.5°	430.9	287.8	187.4	172.0	168.1
75°	355.5	220.2	154.5	141.0	139.2
77.5°	280.3	156.4	121.7	114.0	110.1
80°	210.5	112.1	92.6	85.1	85.1
82.5°	146.8	75.4	63.7	59.8	59.8
85°	83.0	42.4	36.7	36.7	36.7
87.5°	31.0	15.4	15.4	13.5	13.5
90°	2.9	35.5	96.5	90.7	93.6
92.5°	61.0	82.7	85.7	88.7	88.7
95°	143.8	171.4	176.3	176.3	171.4
97.5°	239.4	265.0	275.9	275.9	275.9
100°	349.7	372.4	380.2	380.2	377.3
102.5°	466.0	482.7	493.5	496.5	493.5
105°	593.1	600.9	606.8	611.7	611.7
107.5°	719.1	731.0	731.0	732.9	719.1
110°	841.3	857.0	857.0	857.0	849.2

TEST NUMBER: P921016

CATALOG NUMBER: DFN2DIP-TR4F0-060D120US935-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	973.3	990.1	987.0	979.2	973.3
115°	1103.3	1119.1	1114.1	1111.2	1103.3
117.5°	1232.3	1254.0	1240.3	1232.3	1224.5
120°	1362.4	1384.1	1362.4	1362.4	1353.6
122.5°	1480.7	1508.2	1494.4	1486.5	1480.7
125°	1604.7	1629.4	1621.5	1612.6	1609.6
127.5°	1726.0	1756.4	1745.6	1733.8	1726.0
130°	1839.2	1874.7	1869.7	1863.8	1853.0
132.5°	1966.3	1993.9	1995.8	1982.0	1974.2
135°	2075.6	2106.2	2112.1	2109.1	2101.3
137.5°	2197.8	2222.4	2227.3	2225.3	2213.5
140°	2305.1	2329.8	2343.6	2343.6	2332.7
142.5°	2415.5	2440.2	2448.0	2450.9	2440.2
145°	2519.9	2539.6	2555.4	2558.4	2547.5
147.5°	2613.5	2638.1	2650.0	2654.9	2644.0
150°	2710.1	2726.8	2737.6	2746.5	2737.6
152.5°	2795.7	2812.4	2826.3	2837.2	2826.3
155°	2881.4	2889.3	2898.2	2912.0	2903.1
157.5°	2955.4	2961.2	2966.1	2985.9	2972.1
160°	3021.3	3027.3	3030.2	3047.0	3035.1
162.5°	3082.4	3082.4	3085.4	3104.1	3090.3
165°	3134.6	3131.7	3131.7	3151.3	3137.6
167.5°	3181.9	3173.0	3173.0	3192.8	3179.0
170°	3217.4	3209.5	3206.5	3226.2	3209.5
172.5°	3242.0	3234.1	3231.2	3250.9	3234.1
175°	3261.7	3253.8	3247.9	3267.6	3250.9
177.5°	3272.6	3264.6	3258.7	3275.5	3258.7
180°	3267.6	3267.6	3267.6	3267.6	3267.6

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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	7.08	7.78	8.18	8.87	10.38	3.05	3.76	4.15	4.85	6.35
	3H	8.74	9.37	9.85	10.48	12.00	4.23	4.86	5.34	5.96	7.48
	4H	9.35	9.94	10.46	11.05	12.57	4.67	5.27	5.79	6.38	7.90
	6H	9.76	10.31	10.89	11.42	12.95	4.99	5.54	6.12	6.65	8.18
	8H	9.88	10.41	11.01	11.53	13.06	5.08	5.60	6.21	6.72	8.25
	12H	9.94	10.44	11.08	11.55	13.11	5.12	5.61	6.25	6.73	8.28
4H	2H	7.08	7.68	8.20	8.78	10.31	3.63	4.23	4.75	5.33	6.86
	3H	8.90	9.39	10.03	10.52	12.06	4.97	5.47	6.10	6.60	8.13
	4H	9.58	10.04	10.72	11.16	12.72	5.51	5.97	6.65	7.09	8.65
	6H	10.09	10.48	11.23	11.62	13.17	5.93	6.32	7.07	7.46	9.01
	8H	10.26	10.63	11.40	11.76	13.33	6.05	6.42	7.19	7.55	9.12
	12H	10.35	10.68	11.51	11.83	13.40	6.11	6.44	7.27	7.59	9.16
8H	4H	9.54	9.91	10.68	11.04	12.61	5.78	6.15	6.92	7.28	8.85
	6H	10.10	10.40	11.26	11.58	13.14	6.30	6.60	7.46	7.77	9.34
	8H	10.32	10.58	11.49	11.74	13.32	6.49	6.75	7.66	7.91	9.49
	12H	10.45	10.68	11.62	11.83	13.45	6.60	6.83	7.77	7.99	9.60
12H	4H	9.49	9.82	10.64	10.96	12.53	5.78	6.11	6.94	7.26	8.83
	6H	10.08	10.34	11.25	11.50	13.08	6.35	6.61	7.51	7.76	9.35
	8H	10.29	10.52	11.46	11.68	13.29	6.55	6.78	7.72	7.94	9.55