

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: P907300

Luminaire Tested: DFN2DIP-TR4F0-040D110US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907300
REPORT IS A COMBINATION OF REPORTS P900496 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D110US835-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

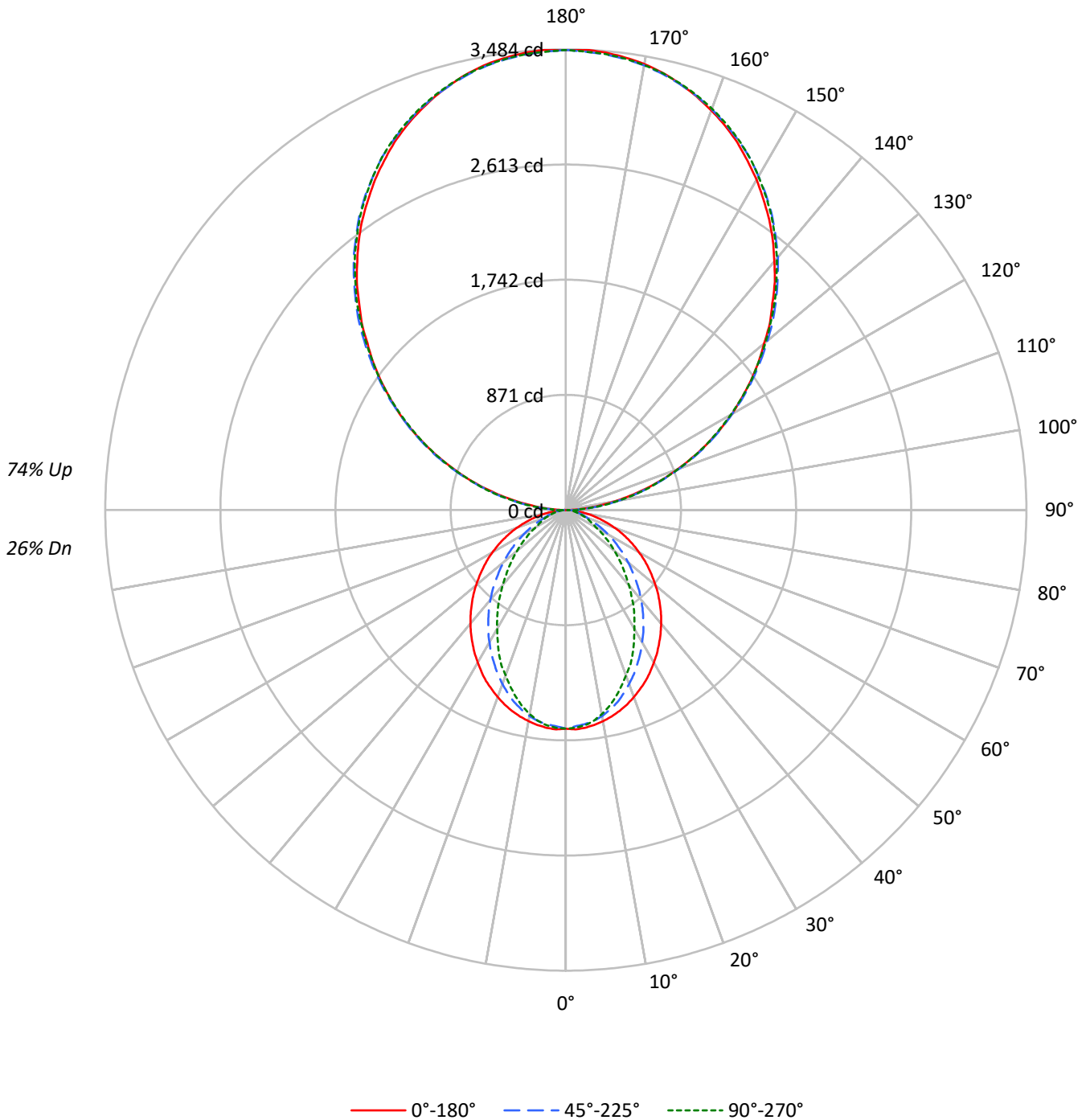
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13135.0 lumens
Efficiency: N/A
Efficacy: 112.6 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): 116.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34	26			26
1	93	89	85	82	82	79	76	73	62	60	58	45	44	43	30	30	29	22			22
2	85	78	72	67	75	69	65	61	54	51	48	40	38	36	27	26	25	19			19
3	77	68	61	56	69	61	55	51	48	44	41	36	33	31	24	23	21	16			16
4	71	61	53	47	63	54	48	43	43	38	35	32	29	27	22	20	19	14			14
5	65	54	46	41	58	48	42	37	38	34	30	29	26	23	20	18	16	13			13
6	60	48	41	35	53	43	37	32	34	30	26	26	23	20	18	16	15	11			11
7	55	43	36	31	49	39	33	28	31	26	23	24	20	18	16	14	13	10			10
8	51	39	32	27	46	36	29	25	28	24	20	21	18	16	15	13	12	9			9
9	47	36	29	24	42	32	26	22	26	21	18	20	17	14	14	12	11	8			8
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10	8			8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1313	1313	1313
5°	1315	1292	1301
10°	1302	1267	1258
15°	1285	1225	1193
20°	1261	1167	1113
25°	1237	1103	1035
30°	1204	1036	937
35°	1172	965	850
40°	1140	891	751
45°	1102	809	661
50°	1063	727	574
55°	1022	638	489
60°	975	546	403
65°	920	452	362
70°	855	364	328
75°	772	321	298
80°	652	269	259
85°	455	180	194

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2711 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	154.9	1.2
10°-20°	425.3	3.2
20°-30°	597.2	4.5
30°-40°	650.9	5.0
40°-50°	598.3	4.6
50°-60°	469.9	3.6
60°-70°	305.8	2.3
70°-80°	157.4	1.2
80°-90°	50.1	0.4
90°-100°	215.3	1.6
100°-110°	684.0	5.2
110°-120°	1170.5	8.9
120°-130°	1539.4	11.7
130°-140°	1727.9	13.2
140°-150°	1694.4	12.9
150°-160°	1421.4	10.8
160°-170°	942.6	7.2
170°-180°	329.5	2.5
0°-30°	1177.4	9.0
0°-40°	1828.4	13.9
0°-60°	2896.5	22.1
0°-90°	3409.9	26.0
90°-120°	2069.8	15.8
90°-150°	7031.6	53.5
90°-180°	9725.0	74.0
0°-180°	13135.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1653	1653	1653	1653	1653	
5°	1653	1646	1626	1640	1635	157
15°	1572	1556	1505	1477	1462	443
25°	1427	1379	1281	1219	1197	656
35°	1230	1154	1022	928	895	770
45°	1005	905	748	642	606	776
55°	764	648	486	396	368	683
65°	516	395	260	210	205	512
75°	275	170	120	109	108	291
85°	64	33	28	28	28	74
90°	3	38	103	96	100	13
95°	153	182	188	188	182	170
105°	631	640	646	651	651	666
115°	1175	1191	1186	1183	1175	1162
125°	1708	1735	1726	1717	1714	1527
135°	2210	2242	2249	2246	2237	1708
145°	2683	2704	2721	2724	2712	1676
155°	3068	3076	3086	3100	3091	1412
165°	3337	3334	3334	3355	3340	941
175°	3473	3464	3458	3479	3461	330
180°	3479	3479	3479	3479	3479	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1653.2	1653.2	1653.2	1653.2	1653.2
2.5°	1660.7	1653.2	1636.7	1651.8	1648.7
5°	1653.2	1645.7	1626.2	1639.7	1635.3
7.5°	1639.7	1630.8	1609.9	1615.7	1608.3
10°	1621.8	1611.3	1581.4	1576.8	1568.0
12.5°	1599.4	1585.9	1545.4	1536.5	1520.0
15°	1572.4	1555.9	1505.1	1476.7	1461.8
17.5°	1541.0	1517.0	1454.1	1421.3	1397.3
20°	1505.1	1475.1	1400.3	1363.0	1330.0
22.5°	1466.2	1431.8	1344.9	1294.1	1271.8
25°	1427.3	1379.4	1280.6	1219.4	1196.8
27.5°	1381.0	1330.0	1220.8	1150.5	1116.0
30°	1331.6	1274.6	1154.9	1078.7	1038.3
32.5°	1283.7	1214.8	1092.2	1002.4	964.9
35°	1229.9	1153.5	1021.9	927.6	894.6
37.5°	1177.5	1095.1	956.0	852.7	815.4
40°	1122.1	1032.4	887.2	781.0	742.1
42.5°	1065.2	969.5	818.4	707.6	670.3
45°	1005.4	905.1	748.1	641.8	605.9
47.5°	948.6	842.4	680.8	574.5	541.6
50°	885.7	779.5	614.9	511.6	480.3
52.5°	824.3	712.1	552.1	453.3	424.9
55°	764.5	647.8	486.2	396.5	368.1
57.5°	703.2	583.5	427.9	344.1	320.2
60°	640.3	520.6	366.5	290.3	266.4
62.5°	579.1	459.4	314.1	242.4	230.5
65°	516.2	394.9	260.3	209.5	204.9
67.5°	456.4	335.1	209.5	184.0	179.5
70°	393.5	276.8	173.5	158.6	152.5
72.5°	333.7	222.9	145.1	133.2	130.2
75°	275.2	170.5	119.7	109.2	107.8
77.5°	217.0	121.1	94.3	88.3	85.2
80°	163.0	86.8	71.7	65.9	65.9
82.5°	113.7	58.4	49.4	46.3	46.3
85°	64.3	32.9	28.4	28.4	28.4
87.5°	24.0	11.9	11.9	10.5	10.5
90°	3.1	37.8	102.8	96.5	99.6
92.5°	65.0	88.1	91.2	94.4	94.4
95°	153.1	182.5	187.7	187.7	182.5
97.5°	254.9	282.1	293.7	293.7	293.7
100°	372.3	396.4	404.8	404.8	401.7
102.5°	496.1	513.9	525.5	528.6	525.5
105°	631.4	639.8	646.1	651.3	651.3
107.5°	765.6	778.2	778.2	780.3	765.6
110°	895.7	912.5	912.5	912.5	904.1



TEST NUMBER: P907300

CATALOG NUMBER: DFN2DIP-TR4F0-040D110US835-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1036.2	1054.0	1050.9	1042.5	1036.2
115°	1174.7	1191.4	1186.2	1183.1	1174.7
117.5°	1312.1	1335.1	1320.4	1312.1	1303.7
120°	1450.5	1473.6	1450.5	1450.5	1441.1
122.5°	1576.4	1605.7	1591.0	1582.6	1576.4
125°	1708.5	1734.7	1726.3	1716.9	1713.7
127.5°	1837.5	1870.0	1858.5	1845.9	1837.5
130°	1958.1	1995.9	1990.6	1984.3	1972.8
132.5°	2093.4	2122.8	2124.9	2110.2	2101.8
135°	2209.8	2242.3	2248.6	2245.5	2237.1
137.5°	2339.9	2366.1	2371.3	2369.2	2356.7
140°	2454.2	2480.4	2495.1	2495.1	2483.6
142.5°	2571.7	2597.9	2606.3	2609.4	2597.9
145°	2682.8	2703.8	2720.6	2723.7	2712.2
147.5°	2782.5	2808.7	2821.3	2826.5	2815.0
150°	2885.3	2903.1	2914.6	2924.1	2914.6
152.5°	2976.5	2994.3	3009.0	3020.6	3009.0
155°	3067.8	3076.1	3085.6	3100.3	3090.8
157.5°	3146.4	3152.7	3157.9	3178.9	3164.2
160°	3216.7	3223.0	3226.1	3244.0	3231.4
162.5°	3281.7	3281.7	3284.9	3304.8	3290.1
165°	3337.3	3334.1	3334.1	3355.1	3340.4
167.5°	3387.6	3378.2	3378.2	3399.2	3384.5
170°	3425.4	3417.0	3413.9	3434.8	3417.0
172.5°	3451.6	3443.2	3440.1	3461.1	3443.2
175°	3472.6	3464.2	3457.9	3478.9	3461.1
177.5°	3484.1	3475.7	3469.4	3487.3	3469.4
180°	3478.9	3478.9	3478.9	3478.9	3478.9



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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	5.26	5.93	6.41	7.06	8.64	1.24	1.90	2.38	3.03	4.61
	3H	6.93	7.52	8.08	8.66	10.26	2.41	3.01	3.57	4.15	5.74
	4H	7.53	8.10	8.69	9.23	10.83	2.86	3.42	4.02	4.56	6.16
	6H	7.94	8.46	9.11	9.60	11.21	3.17	3.69	4.34	4.83	6.44
	8H	8.06	8.56	9.23	9.71	11.32	3.26	3.75	4.43	4.91	6.51
	12H	8.12	8.59	9.29	9.74	11.36	3.30	3.77	4.47	4.91	6.54
4H	2H	5.26	5.83	6.43	6.97	8.57	1.81	2.38	2.98	3.52	5.12
	3H	7.08	7.55	8.25	8.71	10.32	3.15	3.62	4.32	4.78	6.39
	4H	7.76	8.20	8.94	9.35	10.98	3.69	4.12	4.86	5.28	6.91
	6H	8.27	8.64	9.45	9.81	11.43	4.10	4.47	5.28	5.65	7.27
	8H	8.44	8.79	9.62	9.95	11.59	4.23	4.57	5.41	5.74	7.38
	12H	8.53	8.84	9.72	10.02	11.66	4.29	4.60	5.48	5.78	7.42
8H	4H	7.72	8.06	8.90	9.23	10.87	3.96	4.30	5.14	5.47	7.11
	6H	8.28	8.56	9.47	9.77	11.40	4.47	4.76	5.67	5.97	7.60
	8H	8.49	8.74	9.70	9.93	11.58	4.66	4.91	5.87	6.10	7.75
	12H	8.62	8.84	9.83	10.03	11.71	4.78	4.99	5.98	6.18	7.86
12H	4H	7.66	7.98	8.86	9.15	10.79	3.96	4.27	5.15	5.45	7.09
	6H	8.25	8.50	9.45	9.69	11.34	4.52	4.77	5.72	5.96	7.61
	8H	8.47	8.68	9.67	9.87	11.55	4.72	4.94	5.93	6.13	7.81