

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: P926624

Luminaire Tested: DFN2DIP-TR4F0-110D050US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926624
REPORT IS A COMBINATION OF REPORTS P900402 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D050US950-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

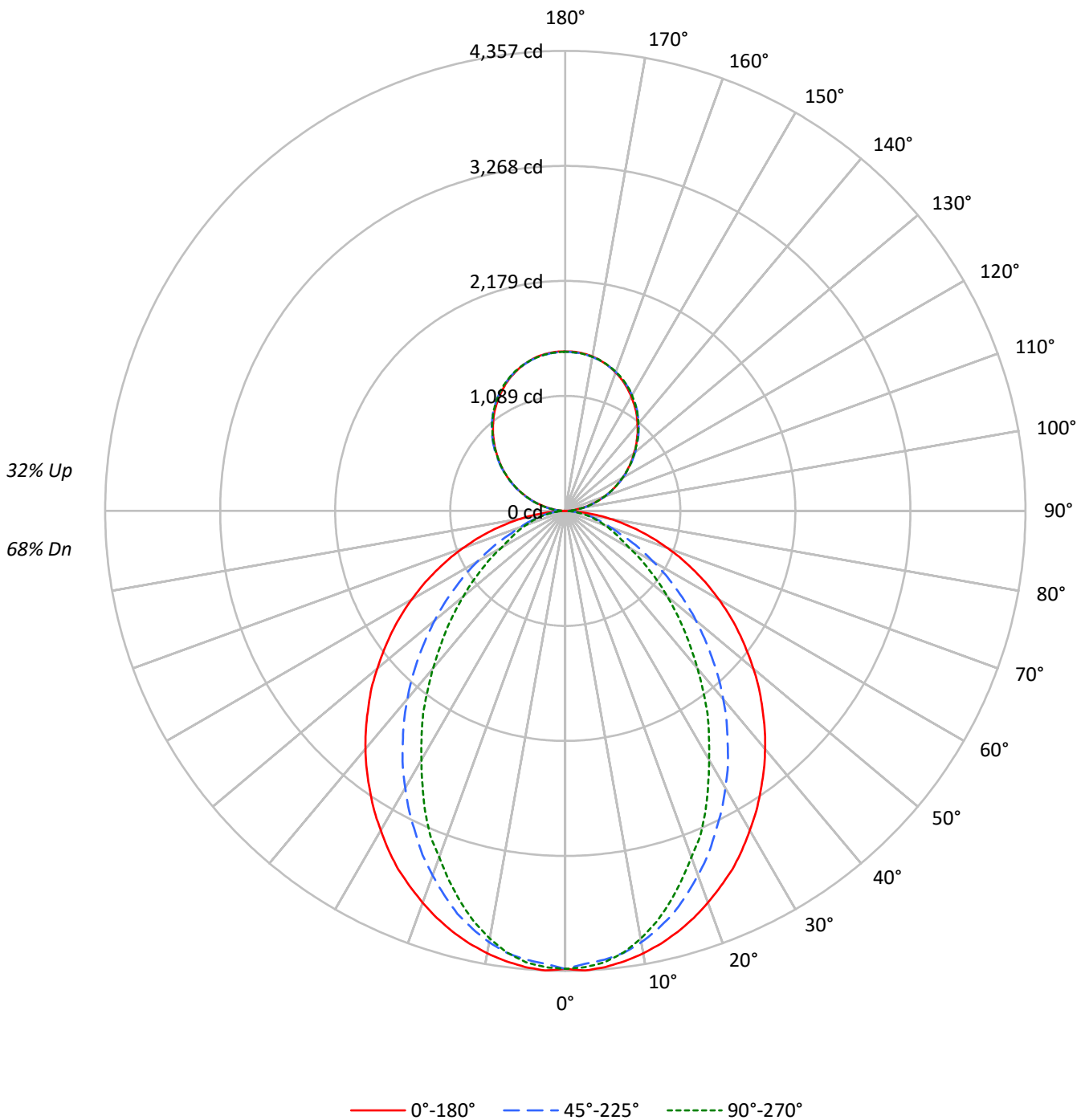
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13141.4 lumens
Efficiency: N/A
Efficacy: 87.3 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: Semi-Direct

Input Watts (W): 150.5
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				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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	73	73	73	68				68
1	102	98	94	91	97	93	90	87	83	80	78	74	72	70	65	64	63	59				59
2	94	87	81	76	88	82	77	72	73	69	66	66	62	60	58	56	54	50				50
3	86	77	70	64	81	73	66	61	65	60	56	59	55	51	52	49	47	43				43
4	79	68	61	55	74	65	58	53	59	53	49	53	48	45	47	44	41	38				38
5	73	61	53	47	69	58	51	46	53	47	42	48	43	39	43	39	36	33				33
6	68	56	47	42	64	53	46	40	48	42	37	43	38	35	39	35	32	29				29
7	63	50	42	37	59	48	41	36	44	38	33	40	35	31	36	32	29	26				26
8	58	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26	24				24
9	55	42	35	30	52	40	34	29	37	31	27	34	29	25	31	27	24	22				22
10	51	39	32	27	48	37	31	26	34	29	25	31	27	23	29	25	22	20				20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3446	3446	3446
5°	3451	3391	3413
10°	3417	3324	3301
15°	3370	3214	3130
20°	3308	3063	2919
25°	3244	2893	2715
30°	3159	2719	2457
35°	3075	2532	2231
40°	2989	2338	1971
45°	2890	2123	1735
50°	2788	1906	1505
55°	2681	1675	1284
60°	2557	1432	1057
65°	2415	1186	951
70°	2242	956	861
75°	2025	843	783
80°	1711	707	679
85°	1193	471	509

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2890 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.5	3.1
10°-20°	1115.9	8.5
20°-30°	1566.7	11.9
30°-40°	1707.7	13.0
40°-50°	1569.6	11.9
50°-60°	1232.7	9.4
60°-70°	802.4	6.1
70°-80°	413.0	3.1
80°-90°	109.7	0.8
90°-100°	93.4	0.7
100°-110°	296.6	2.3
110°-120°	507.6	3.9
120°-130°	667.5	5.1
130°-140°	749.3	5.7
140°-150°	734.8	5.6
150°-160°	616.4	4.7
160°-170°	408.8	3.1
170°-180°	142.9	1.1
0°-30°	3089.0	23.5
0°-40°	4796.8	36.5
0°-60°	7599.1	57.8
0°-90°	8924.2	67.9
90°-120°	897.5	6.8
90°-150°	3049.2	23.2
90°-180°	4217.0	32.1
0°-180°	13141.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4337	4337	4337	4337	4337	
5°	4337	4318	4266	4302	4290	411
15°	4125	4082	3949	3874	3835	1162
25°	3744	3619	3360	3199	3140	1722
35°	3226	3026	2681	2434	2347	2019
45°	2638	2374	1963	1684	1590	2037
55°	2006	1700	1276	1040	966	1792
65°	1354	1036	683	550	538	1343
75°	722	447	314	286	283	764
85°	169	86	74	74	74	194
90°	1	16	45	42	43	13
95°	66	79	81	81	79	74
105°	274	277	280	282	282	289
115°	509	517	514	513	509	504
125°	741	752	749	744	743	662
135°	958	972	975	974	970	741
145°	1163	1172	1180	1181	1176	727
155°	1330	1334	1338	1344	1340	612
165°	1447	1446	1446	1455	1449	408
175°	1506	1502	1500	1509	1501	143
180°	1509	1509	1509	1509	1509	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4337.2	4337.2	4337.2	4337.2	4337.2
2.5°	4356.7	4337.2	4293.9	4333.4	4325.5
5°	4337.2	4317.6	4266.4	4301.8	4290.1
7.5°	4301.8	4278.4	4223.5	4238.9	4219.3
10°	4254.7	4227.2	4148.9	4136.8	4113.6
12.5°	4196.0	4160.6	4054.4	4031.0	3987.7
15°	4125.2	4081.9	3948.6	3874.1	3834.9
17.5°	4042.8	3979.9	3815.0	3728.7	3665.8
20°	3948.6	3869.9	3673.8	3575.9	3489.3
22.5°	3846.6	3756.2	3528.5	3395.2	3336.4
25°	3744.5	3618.8	3359.8	3199.0	3139.9
27.5°	3623.0	3489.3	3202.8	3018.3	2927.9
30°	3493.5	3344.0	3030.0	2830.0	2723.9
32.5°	3367.7	3186.9	2865.4	2629.8	2531.5
35°	3226.5	3026.2	2681.0	2433.7	2347.0
37.5°	3089.1	2873.0	2508.2	2237.0	2139.2
40°	2943.8	2708.5	2327.5	2048.8	1946.8
42.5°	2794.6	2543.6	2147.2	1856.5	1758.6
45°	2637.7	2374.5	1962.7	1683.6	1589.6
47.5°	2488.6	2210.0	1786.1	1507.0	1420.9
50°	2323.7	2045.1	1613.3	1342.2	1260.1
52.5°	2162.5	1868.1	1448.4	1189.4	1114.7
55°	2005.5	1699.5	1275.5	1040.2	965.7
57.5°	1844.8	1530.8	1122.7	902.9	839.9
60°	1679.9	1365.9	961.5	761.7	698.8
62.5°	1519.1	1205.2	824.2	635.9	604.6
65°	1354.2	1036.0	683.0	549.7	537.6
67.5°	1197.3	879.1	549.7	482.6	471.0
70°	1032.3	726.3	455.2	416.0	400.2
72.5°	875.3	584.7	380.6	349.4	341.4
75°	722.1	447.2	314.0	286.5	282.8
77.5°	569.3	317.8	247.4	231.5	223.6
80°	427.7	227.8	188.2	172.9	172.9
82.5°	298.1	153.2	129.6	121.6	121.6
85°	168.7	86.2	74.5	74.5	74.5
87.5°	62.9	31.2	31.2	27.5	27.5
90°	1.3	16.4	44.6	41.9	43.2
92.5°	28.2	38.2	39.6	40.9	40.9
95°	66.4	79.2	81.4	81.4	79.2
97.5°	110.5	122.3	127.4	127.4	127.4
100°	161.4	171.9	175.5	175.5	174.2
102.5°	215.1	222.9	227.8	229.2	227.8
105°	273.8	277.4	280.2	282.4	282.4
107.5°	332.0	337.4	337.4	338.4	332.0
110°	388.4	395.7	395.7	395.7	392.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	449.3	457.1	455.7	452.1	449.3
115°	509.3	516.7	514.4	513.1	509.3
117.5°	569.0	579.0	572.6	569.0	565.3
120°	629.0	639.0	629.0	629.0	624.9
122.5°	683.5	696.3	689.9	686.3	683.5
125°	740.9	752.2	748.6	744.5	743.2
127.5°	796.8	810.9	805.9	800.4	796.8
130°	849.2	865.5	863.2	860.5	855.5
132.5°	907.8	920.5	921.5	915.1	911.5
135°	958.3	972.3	975.1	973.7	970.1
137.5°	1014.7	1026.0	1028.3	1027.4	1021.9
140°	1064.2	1075.6	1081.9	1081.9	1077.0
142.5°	1115.1	1126.6	1130.2	1131.5	1126.6
145°	1163.4	1172.5	1179.7	1181.1	1176.1
147.5°	1206.6	1218.0	1223.4	1225.7	1220.6
150°	1251.2	1258.9	1263.9	1268.0	1263.9
152.5°	1290.8	1298.5	1304.8	1309.8	1304.8
155°	1330.3	1333.9	1338.0	1344.4	1340.3
157.5°	1364.4	1367.1	1369.4	1378.5	1372.1
160°	1394.8	1397.6	1398.9	1406.7	1401.2
162.5°	1423.1	1423.1	1424.4	1433.1	1426.7
165°	1447.2	1445.8	1445.8	1454.9	1448.6
167.5°	1469.0	1464.9	1464.9	1474.0	1467.6
170°	1485.4	1481.8	1480.4	1489.5	1481.8
172.5°	1496.7	1493.1	1491.8	1500.8	1493.1
175°	1505.9	1502.2	1499.5	1508.6	1500.8
177.5°	1510.8	1507.2	1504.5	1512.2	1504.5
180°	1508.6	1508.6	1508.6	1508.6	1508.6



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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	12.97	13.97	13.76	14.78	15.77	8.94	9.94	9.74	10.75	11.75
	3H	14.66	15.55	15.47	16.38	17.40	10.14	11.04	10.95	11.86	12.88
	4H	15.27	16.12	16.10	16.95	17.98	10.60	11.45	11.43	12.28	13.31
	6H	15.70	16.48	16.54	17.32	18.37	10.93	11.71	11.77	12.55	13.60
	8H	15.84	16.58	16.68	17.43	18.48	11.03	11.77	11.88	12.62	13.67
	12H	15.90	16.61	16.75	17.46	18.53	11.08	11.78	11.93	12.63	13.71
4H	2H	13.01	13.85	13.84	14.68	15.71	9.56	10.40	10.39	11.23	12.27
	3H	14.85	15.55	15.69	16.42	17.46	10.92	11.63	11.76	12.49	13.54
	4H	15.55	16.19	16.40	17.05	18.12	11.48	12.12	12.33	12.98	14.05
	6H	16.07	16.62	16.94	17.51	18.59	11.91	12.46	12.78	13.34	14.42
	8H	16.25	16.77	17.12	17.65	18.74	12.04	12.56	12.91	13.43	14.53
	12H	16.36	16.82	17.25	17.72	18.81	12.12	12.58	13.01	13.48	14.57
8H	4H	15.53	16.04	16.40	16.92	18.02	11.77	12.29	12.64	13.16	14.26
	6H	16.10	16.53	17.00	17.45	18.54	12.30	12.72	13.20	13.64	14.74
	8H	16.32	16.70	17.23	17.61	18.72	12.49	12.87	13.40	13.78	14.89
	12H	16.47	16.80	17.38	17.70	18.87	12.62	12.95	13.53	13.85	15.02
12H	4H	15.49	15.95	16.38	16.85	17.95	11.78	12.25	12.68	13.15	14.24
	6H	16.08	16.46	16.99	17.37	18.48	12.35	12.72	13.26	13.64	14.75
	8H	16.31	16.64	17.22	17.54	18.71	12.57	12.90	13.48	13.80	14.97